



# **City of Watsonville**

## **Stormwater Management Plan**

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## **Introduction**

The City of Watsonville is located at the southern end of Santa Cruz County. The City covers 6.6 square miles with a population of 51,700 (2007). The climate is defined by cool, relatively wet winters and mild, dry summers. The average annual rainfall is 22.41". Most of the rain occurs from October to April, with January typically being the wettest month. The City is comprised of three sub-watersheds, Watsonville Wetlands, Corralitos/Salsipuedes Creek and Pajaro River. Appendix A contains a map showing the sub-watersheds and the city's storm drain system.

### ***Watsonville Wetlands Sub-Watershed***

This is the largest sub-watershed in the city, covering a total of 2,921 acres. Land use acreage by zoning areas is as follows:

Residential - 843 acres  
Commercial -256 acres  
Light Industrial -474 acres  
Environmental Management/Parks -389 acres  
Public Facilities/Schools -514 acres

### **Drainage**

Runoff from the City drains to the wetlands through 48 outfalls. Newer developments adjacent to the wetlands incorporate various treatment best management practices (BMPs) such as extended detention basins, bioswales and created wetlands designed to manage storm flows and water quality.

### **Water Quality**

The wetlands are currently under a Total Maximum Daily Load program for fecal coliforms. Toxicity has been identified as a problem, though the cause of this is not known.

[http://www.ccamp.net/ccamp/ccamp\\_maps/ccamp\\_tox\\_1.html](http://www.ccamp.net/ccamp/ccamp_maps/ccamp_tox_1.html)

### **Pollutants Of Concern**

- Fecal Coliforms
- Sediment
- Litter

### **Soils**

Lands adjacent to the wetlands are principally Diablo clay and Cropley silty clay. Further away from the wetlands the soils are a mix of Pinto and Watsonville loams, Clear Lake clay and Tierra Watsonville complex. A soil map is provided in Appendix B.

### **Future Development**

The majority of vacant land in this sub watershed is zoned environmental management/open space, leaving 168 acres (5.8%) of land available for future development. Appendix C shows the location of undeveloped lands in this sub-watershed.

## ***Pajaro River Sub-Watershed***

The Pajaro River sub-watershed is the smallest sub-watershed in the City at 450 acres. This land is where the city was originally developed in the mid- 1800's. Land use acreage by zoning areas is as follows:

Residential - 103 acres  
Commercial -81 acres  
Light Industrial -105 acres  
Environmental Management/Parks -37 acres  
Public Facilities/Schools -34 acres

## **Drainage**

This sub-watershed drains to the Pajaro River through 9 outfalls. Several storm drains and pump stations have been upgraded over the past few years, to address problems with local area flooding.

## **Water Quality**

The Pajaro River is currently covered by TMDL programs for sediments and nitrates. According to the SWRCB, a TMDL for fecal coliforms is in progress. The 303 D list also includes nutrients and boron as pollutants/stressors. Toxicity has been identified as a pollutant of concern, though the cause of the toxicity is not known at this time.

[http://www.ccamp.net/ccamp/ccamp\\_maps/ccamp\\_tox\\_1.html](http://www.ccamp.net/ccamp/ccamp_maps/ccamp_tox_1.html)

The river levee is used by homeless and transient populations. Encampments and nearby outfalls are typically associated with litter and fecal matter. Each year, the City evicts camp residents and removes all materials. Within days the camps re-establish or simply relocate to another section of the river. National and international policies as well as the large seasonal workforce required by agricultural operations in Monterey and Santa Cruz Counties make the city's efforts to manage this problem of very limited value.

## **Pollutants Of Concern**

- Sediments
- Nitrates
- Fecal Coliforms
- Litter

## **Future Development**

The Pajaro sub-watershed is almost completely built out, with only 16.8 acres (3.7%) of available land for future development. Appendix C shows the location of undeveloped lands in this sub-watershed.

## **Soils**

The Pajaro sub watershed is principally underlain by conejo loam, with a small section of conejo clay loam soils at the western boundary. A soil map is provided in Appendix B.

## ***Corralitos Sub-Watershed***

This watershed covers 1,329 acres of the city's north and northeast quadrants. Land use is as follows:

Residential – 843 acres  
Commercial -256 acres  
Light Industrial -474 acres  
Environmental Management/Parks -389 acres  
Public Facilities/Schools -514 acres

## **Drainage**

Runoff is discharged to Corallitos/Salsipuedes creek through 10 outfalls. Two large detention basins are located in this sub-watershed to manage runoff from upstream farm properties. These basins were necessary to offset significant increases in runoff volume and rates as well as increased sediment loads following conversion of farmlands from orchards to row crops.

## **Water Quality**

Corralitos creek is currently under consideration for a pathogen TMDL.

## **Pollutants Of Concern**

- Fecal Coliforms
- Litter

## **Future Development**

This sub-watershed has 12.49 acres of vacant land available for development. Appendix C shows the location of undeveloped lands in this sub-watershed.

## **Soils**

The underlying soils in this sub-watershed are a mix of elder sandy loam, conejo loam, baywood sandy loam and pinto loam. A soil map is provided in Appendix B.

## ***The Challenge of Growth***

Perhaps the most significant challenge for the City is the issue of managing growth. In November 2002, Watsonville residents passed Measure U, which established an "Urban Limit Line" for the City for the next 20-25 years. Based on this limit line, the city has 427 net acres of new land available for development over the next 20 years. Appendix C shows currently vacant lands within the city.

Based on projected population growth, State housing element law and limited land availability, the City is requiring new residential development with 20-80 units per acre. This very high density housing requirement will present significant challenges for the City when balancing the needs of smart growth and low impact development.

### ***Evaluation of Program Effectiveness and Progress Towards Water Quality Goals***

Effectiveness assessment is a process used to evaluate whether a stormwater program is meeting the performance standards and if the performance standards are being achieved efficiently and cost-effectively. The Phase II NPDES General Permit contains requirements for annual review of the SWMP's effectiveness, BMPs effectiveness and improvement opportunities to achieve the Maximum Extent Practicable (MEP).

While it is known that effectiveness assessment is a fundamental and necessary component for developing and implementing a successful stormwater program, methods for conducting such assessments are less known. For over 10 years Phase I Stormwater communities have been faced with increasing pressures to demonstrate effectiveness of programs without specific guidance in conducting these assessments. Therefore, these programs have historically relied on regular evaluation of program elements and control measures to ensure progress is being made towards achieving broader program goals.

In May 2007 the California Stormwater Quality Association (CASQA) developed the *Municipal Stormwater Program Effectiveness Assessment Guidance* to assist stormwater program managers in designing and conducting program effectiveness assessment using a range of assessment methods. As described in the CASQA Guidance Document, BMPs, program elements or the overall stormwater program can be categorized as having one or more of six levels of outcomes. Outcomes being defined as the result of implementing a stormwater BMP, program element or overall program implementation.

The City will use the CASQA Guidance Document *Level One Outcomes* (documenting activities) for all applicable BMPs during the first two years of program implementation. This will allow City staff to become familiar with the basics of the stormwater program, and allow program staff to become fluent in the various BMPs and measurable goals of the stormwater program. Level one outcomes will be used to assess the effectiveness of all applicable BMPs.

In Years 3 and 4, the City will continue to use Level One outcomes and develop an effectiveness assessment strategy based on the principles outlined in the CASQA Guidance Document. The strategy will be submitted as an update to the SWMP with the Year 4 annual report. The strategy will describe actions that will be taken to assess the effectiveness of the SWMP in meeting regulatory requirements and improving water quality and beneficial use conditions. The strategy will seek to identify links between BMP/Program implementation and improvement in water quality. The strategy will specifically address the following:

- Identifying a process to be used to conduct effectiveness assessments and improve BMP implementation.
- Identifying quantifiable BMP and program effectiveness measurements.
- Assessment of BMP implementation in terms of regulatory compliance, changing awareness, changing behavior, pollutant load reductions, and runoff and receiving water quality

***Program Effectiveness/ Management BMP Matrix***

<b>Best Management Practice</b>	<b>Implementation Plan</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Measurable Goals</b>	<b>Who?</b>
Determine Program Effectiveness	Develop an Effectiveness Assessment Strategy			<b>X</b>	X	X	1. Identify a process to be used to conduct effectiveness assessments and improve BMP implementation. 2. Identifying quantifiable BMP and program effectiveness measurements. 3. Assessment of BMP implementation.	PW





## **Public Education and Outreach Program**

“People will protect what they love.

They will only love what they understand.

They will only understand our local issues if we teach in a way that they can relate to.

Our job is to build stewardship by inspiring a relationship between an individual and their healthy watershed.”

The City of Watsonville Resource Conservation Program was established in 1990 to inspire our diverse community members to actively contribute towards environmental protection. The program does this by providing residents with the knowledge and tools necessary to take action in the areas of resource conservation and pollution prevention and empowering individual change through community based, audience driven programs. Building community ownership in healthy waters is a key element of our strategies described below

Each education or outreach program takes into consideration the specific messages required to effectively convey conservation information on a specific topic to a targeted audience. In addition, each program highlighted in this education and outreach plan uses a community based approach to ensure that the tools for change in behavior provided are compatible with the barriers and limitations of that particular audience. Once the appropriate messages and tools are developed for an audience we develop a method of delivery that engages and inspires the audience to use these tools toward action. Age, gender, socioeconomics, education, ethnicity etc. all affect how we develop an education and outreach program. With community and environment in constant change it is imperative that programs be modified regularly to address the changing needs of our environmental priorities as well as the changing faces of and barriers to our community.

The general model that the City uses for developing new and modifying existing programs includes the following steps:

- Identify BMP issues related to top environmental issues and pollutants of concern and identify baseline behavior/attitudes toward these messages.

- Identify and understand the target audience or audiences.
- Create BMP issue based messages tailored to each audience.
  - a. Use social norms, or “universals”, to develop message that the audience can connect and relate to.
- Develop the tools for change that will be provided to participants (tools vary by audience).
- Develop the delivery approach/approaches to convey both knowledge and tools (approaches varies by audience).
  - a. Develop delivery strategy that uses personal connection with community members with presentation techniques that connect them to the issue (similar to the “universals” used in developing the message).
- Implement the program or project.
- Evaluate effectiveness.
- Modify program to reflect the results of evaluation and to reflect the changing variables in your watershed and the community.
- Provide ongoing programming or sufficient support to ensure long-term and sustainable changes in community behavior.

## ***Community Research***

### **1.1 Baseline Studies and Evaluation**

#### **Implementation Details**

The City will conduct baseline evaluation to gauge the level of awareness and knowledge of pollutants of concern and actions that can be taken at the individual level towards pollution prevention. The survey will be conducted by a professional research firm using survey methods appropriate to the Watsonville audiences and current pollutants of concern. The goal is to gain information on public actions and perceptions. This survey tool would takes into account information gained in past surveys and be able to compare historical data to current trends. It should also try to predict concerns that are not yet priority problems but may be coming up in future years. The professional survey will be repeated at five year intervals to evaluate effectiveness of educational programs. Staff will conduct program and project specific evaluation on an annual basis.

#### **Measurable Goals**

- Identify a research firm to conduct community based surveys.
- Create a new survey tool specific to environmental issues and local audience.
- Conduct survey.

## ***Community Based Education and Outreach Programs***

### **1.2 Door-to-Door Program**

#### **Implementation Details**

Door-to-door outreach is one of the City's most effective public education tools. Three door-to-door campaigns have been done. The focus of the campaigns has been recycling in 1994 to the entire City, used motor oil recycling in 2000 to neighborhoods in the Pajaro River drainage area, and watershed/wetlands protection in 2003 to 2,000 households in the wetlands drainage areas. Local, bilingual college students were hired and trained to provide a short presentation at each home. Each family was given a "tool kit" of brochures, a low flow showerhead, motor oil recycling jug, wetland species cards and a coloring book. The general response from residents was extremely favorable based on the many questions, remarks and the dialogue between the residents and the staff.

The next phase of the door-to-door will include all the same techniques used in previous campaigns. However, this program will be a targeted pollution prevention campaign in 3 sub-watersheds. Specific targeted change in behavior will be removal of pet waste and landscape practices that prevent run-off of sediment and chemicals.

#### **Measurable Goals**

- Identify target audiences within sub-watershed area.
- Develop outreach program, tools and techniques specific to pollutants and audience.
- Provide face to face outreach and resources related to pollutants of concern (as described above) to 200 business/home owners in each of the 3 sub-watersheds.

### **1.3 Environmental Education School Program**

#### **Implementation Details**

Each year over 3000 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grade students participate in the City's Environmental Education School Program. Almost every class located inside Watsonville City limits at these grade levels participates in the program.

Standards-based Conservation Education: The program coordinator is a bilingual teacher who possesses a CA K-12 CLAD credential. The curriculum developed for each presentation and field trip topic is aligned with the CA Educational Standards. The core of the program is a

classroom presentation followed by a field trip. Topics and field trip locations are the waste water treatment plant, the City recycling center and landfill, Wetlands Nature Center, and the wastewater treatment plant. The 6<sup>th</sup> grade topic is Watershed Protection. Students learn about the Pajaro Watershed, tour the wastewater plant and end their trip at the beach for lunch and a litter clean-up project.

School Curriculum Kits: The School Program has also placed curriculum kits at each school. The kits contain DVD's, books, and curriculum guides for teacher who are interested in providing additional lessons about pollution prevention and conservation. The City funds the entire educational program and also pays for the bus transportation for the field trips.

O'Neill Sea Odyssey: In addition to our staff lead School Program, each year, the City provides a grant so that Watsonville 5<sup>th</sup> grade classes can participant in the O'Neill watershed education program. This program takes the students on a half-day trip onto the Monterey Bay and gives hands-on science lessons on watershed protection and connects the health of the bay to individual actions in their watershed.

### **Measurable Goals**

- Provide classroom pre- presentations for all field trips.
- Conduct 20, 4<sup>th</sup> grade wetland field trips annually.
- Conduct 20, 6<sup>th</sup> grade watershed protection/wastewater treatment plant field trips annually.
- Provide 10 classes with O'Neil Sea Odyssey on the water experience annually.

## **1.4 Wetlands Trails and Nature Center**

### **Implementation Details**

#### **Wetland Trail System**

In 2001, the City of Watsonville began building a system of walking trails adjacent to the Wetlands of Watsonville. At present, there are over five miles of trails and 29 trail entrances. Prior to the construction of the trail system, the wetlands were fenced or blocked from public access. Now the wetland trails offer an extraordinary opportunity for enjoyment, exercise, public participation in restoration and clean-up events and environmental education. An interpretive signage project focused on natural and cultural history and conservation messages will be established along all 6 miles of trails. Garbage cans and pet waste bag dispensers will also be located along all trail segments.

#### **Nature Center**

The Wetlands Nature Center is a City-owned and operated facility located in the busy urban setting at Ramsay Park. Approximately 65% of program participants are bilingual or Spanish language-only community members.

General Open Hours: Many find the Nature Center while on family picnics in the park or attending sports games. For many visitors, it provides their first nature interpretive center experience. The Nature Center exhibits include the natural and cultural history of the Watsonville wetlands. Special exhibits highlight the watershed protection, storm water pollution

prevention and dangers of litter. The Nature Center has evolved into a family-friendly clearinghouse for obtaining information about the multitude of City environmental services and programs. Conservation tools and devices including brochures, motor oil jugs, litter bags and hose shut-off nozzles are available at the Nature Center. The three staff members at the Nature Center are bilingual and have extensive expertise in multi-cultural environmental education. School Field Trips: The Nature Center staff hosts 4<sup>th</sup> grade class field trips every Monday during the school year in collaboration with the City Environmental School Program (see above section). Students learn about how the wetlands fit into the Wetlands Watershed using 2- and 3-dimensional maps and participate in water quality testing, a trail hike, birdwatching, plant identification and litter clean-ups. The goal of the field trip is to help students develop ownership of the wetlands sub-watershed.

Teacher Training and Trail Kits: The Nature Center staff also offers twice a year teacher curriculum workshops. The goal of the workshop is to provide teachers with the resources, knowledge and confidence to lead their own field trip in the wetlands, expanding the reach of the wetlands message without extended staff resources. Teachers learn how to use the resources in the Wetlands Kit including binoculars, scavenger hunt cards, magnifying glasses and more. Upon completion of the workshop, teachers may borrow the kits for use in the classroom and on the trails. In Watsonville, many schools are adjacent to or within walking distance of the wetland trail system providing an opportunity for on-going outdoor science education.

Adult Outreach Campaigns: Bilingual Nature Center staff provide Power Point presentations to Pajaro Valley Unified School District and Cabrillo Adult School students, YWCA teen groups and local business organizations such as the Rotary Clubs. Presentation topics include “Wetlands of Watsonville 101” focused on general watershed and wetland protection and “Recycling, Littering and Landfills” geared towards reducing waste and preventing litter. A third presentation will be developed to address “Pet Waste and our Water Quality.” All groups are encouraged to schedule a follow up field trip in the watershed with Nature Center staff.

### **Measurable Goals**

- Provide watershed protection messages to 2,000 community members and area visitors annually through weekend open hours.
- Lead 150 community members on guided wetland walks focused on pollution prevention and wetland conservation.
- Conduct 20, 4<sup>th</sup> grade field trips in coordination with the Environmental School Field trip program (see above section) through the Wetlands Nature Center and Trails per school year.
- Conduct a Wetland Trail Kit teacher training annually.
- Check out Wetlands Trail Kit to 15 school classes for successful implementation of wetlands field trip.
- Provide wetlands and/or litter presentations to 15 adult community groups annually.

- Develop pet waste and water quality presentations.
- Provide pet waste and water quality presentations to 5 adult community groups annually.

## **1.4 Science Workshop**

### **Implementation Details**

The Environmental Science Workshop is a free afterschool program with three permanent sites in Watsonville: Marinovich Park, Davis Street Park and on the campus of the Academic Vocational Charter Institute. The Workshop also provides afterschool programs on campus at 18 elementary and middle schools. The Workshop teaches environmental science through use of scrap materials for building science projects.

Watershed Field Trips: The Workshop takes low income youth on trips throughout the watershed and the state. Workshop students have an annual summer camping experience on a nearby beach. For many participants, the workshop trips are their first ever experience at the beach or in the mountains, helping them establish a sense of place in the larger watershed.

### **Measurable Goals**

- Provide watershed protection messages and inspire a connection to local watershed to 100 local youth and at-risk school programs.

## **1.5 Environmental Education Recreation Program**

### **Implementation Details**

Each summer, the Resource Conservation Program coordinates a summer day camp for youth living in very low income neighborhoods. The program is called “Creeks to the Sea” and is a watershed education outdoor program. Each weeks, students visit key elements of the local watershed, starting at Mt. Madonna County Park, visiting Pinto Lake, Watsonville’s wetlands, Elkhorn Slough, and the tidepools at New Brighton State Beach and ending with a family dinner at Palm Beach. In the summer of 2008, the program expanded to include a camping trip to Grizzly Flats in the Santa Cruz Mountains above Watsonville, near the headwaters of Corralitos Creek.

### **Measurable Goals**

- Conduct 6 field trips each summer on watershed issues.
- Serve 15 students per week for 6 weeks annually.

### **Workshops and Certifications**

## **1.6 Green Business Certification**

### **Implementation Details**

The City participates in the Monterey Bay Area Green Business Program. To date, 12 Watsonville businesses have voluntarily completed this rigorous certification process. In order to become a Green Business, the business owner must implement a variety of recycling, energy conservation, storm water pollution prevent, and green purchasing measures. Examples include switching to Green Seal-certified janitorial products, labeling all drains on-site, installing water-saving devices and retrofitting lighting fixtures. The Green Business program staff also verifies that applicants are fully in compliance with all local regulations by contacting the City's Source Control Manager, Recycling Coordinator, and the Air Resources Board. Once certified, Green Businesses can use the program logo in their advertising and the program also provides free advertising. The certified businesses set an excellent example to other businesses and in Watsonville, the program has developed strong interested as seen by the growing number of applicants.

### **Measurable Goals**

- Identify 5 key businesses to promote certification program to each year.
- Have 3 businesses complete the Green Business Certification program per year.
- City staff to provide one follow-up consultation to each new Green Business annually.

## ***Outreach Events***

### **1.7 Community Outreach Events**

#### **Implementation Details**

The City sponsors and participates in various free watershed conservation oriented events attended by thousands of community members.

Earth Day/Day of the Child draws in over 4000 local community members to participate in family oriented conservation activities and games. The event includes free food and entertainment, along with educational booths by 40 non-profit agencies.

Monterey Bay Birding Festival's Family Days provides an opportunity for tourists and local families to explore and gain a greater appreciation of the wetlands through birdwatching and conservation activities. Focus on the importance of pollution prevention in the wetlands sub-watershed as a key to species health.

The City participates in the annual Coastal Clean-up Day with pollution prevention activities in the school and by sponsoring two clean-up sites at the Pajaro River and the Watsonville Wetlands.

### **Measurable Goals**

- Develop storm water pollution prevention displays and materials specific to the audiences targeted at each of the four identified events.
- Plan, develop media and implement four events annually.

- Document the number of participants/attendees at each event.
- Evaluate event success, audience reached and modify accordingly for future years.

## ***Education and Outreach Tools***

### **1.8 Information Services**

#### **Implementation Details**

Website: The City website provides extensive information about all of the pollution prevention and conservation programs and how the public can use the programs and services. The website is [www.watsonvilleutilities.org](http://www.watsonvilleutilities.org).

Customer Service Hotline: The Public Works and Utilities Customer Service Division staffs the phones five days per week. On weekends, a recorded message refers callers to the police dispatch for illicit discharges, water leaks or other emergencies.

#### **Measurable Goals**

- Track website use and provide forum for resident feedback.
- Update website to include changing programs in sub-watershed areas and services related to pollutants of concern.
- Train Customer Service Hotline staff on current storm water related issues that may pertain to resident questions or concerns.

### **1.9 City Newsletter**

#### **Implementation Details**

The City's "Our Town" newsletter is mailed to every household and business on a quarterly basis. Each issue of the newsletter contains the "Green Page" that includes important pollution prevention information that is highly relevant to Watsonville.

#### **Measurable Goals**

- Create and annually update a list of storm water issue and develop appropriate articles to address these issues in the City newsletter's "Green Page". Initial topics include pet waste, fertilizers and pesticides, and erosion control.
- Mail out 12,000 newsletter copies to local residents annually.
- Track public participation in programs and events as a result of newsletter outreach through surveys.



## **1.10 Our Water Our World**

### **Implementation Details**

The City has a contract with Ecology Action to set up and maintain the Our Water Our World educational displays in the pesticide aisle at Home Depot, Orchard Supply and Ace Hardware. The program includes an annual free “Less-Toxic Pest Control” workshop at Orchard Supply. The Our Water Our World materials cover less- or non-toxic ways to control ants, aphids, weeds, yellow jackets, etc. All materials are provided in English and Spanish.

### **Measurable Goals**

- Conduct one “Less-Toxic Pest Control” workshop annually.
- Update workshop and materials based on new practices as available.

## **1.11 Our Water Works Book**

### **Implementation Details**

In partnership with 9 different water agencies in Santa Cruz county, the City developed an activity book about our fresh water resources and watershed protection. The book is geared towards middle school students and is aligned with California state standards. The activities include worksheets and literacy units on storm water pollution prevention and healthy watersheds.

### **Measurable Goals**

- Distribute 1,000 copies of the Our Water Works booklet to all 5<sup>th</sup> and 6<sup>th</sup> grade students in the Pajaro Valley Unified School District.

## **1.12 Brochures**

### **Implementation Details**

The City recognizes that brochures are not an outreach method, but rather one of many tools to provide further information to residents that are reached through community campaigns. Because of this, the City will use documentation of the number of brochures distributed for re-production tracking information only rather than as a measurable of effectiveness. Instead the measurable will be based on number of community members reached (tracked by participation) in the education and outreach programs mentioned in above program. Revisions to brochures will be made as necessary to evolve with the storm water issues, new technologies and changes in community needs and perceptions.

The following bilingual brochures are used as supplemental information for program participants or provided to residents asking for specific information on various resource conservation services:

- Monterey Bay Begins on Your Street

- Safer Alternatives to HHW
- How to Recycle Used Motor Oil
- Preventing Problems With Drains
- Waste and Recycling Drop-off (HHW)
- Wetlands of Watsonville Trail Map
- Watsonville Nature Center
- Taking Care of Your Vehicle and the Environment
- Tending to Your Garden, Pool, and Spa
- Caring for Your Home and the Environment (Painting and Construction)

**Table 1 Public Education BMP Matrix**

Best Management Practice	Implementation Plan	Year 1	Year 2	Year 3	Year 4	Year 5	Measurable Goals	Who?
1-1. Baseline Evaluation	Determine Level of awareness of storm water issues and success of public outreach program elements.		X	X		X	Identify a research firm  Create a new survey tool specific to environmental issues and local audience  Conduct survey	PW
1-2. Door-to-Door Campaign	Conduct storm water education campaign to business and residential.		X	X		X	Identify target audiences within sub-watershed area  Develop outreach program, tools and techniques specific to pollutants and audience  Provide outreach and resources related to pollutants of concern to 200 businesses/home owners in each of the 3 sub-watersheds	PW
1-3. Environmental Education School Program	Continue storm water school presentation and field trip program.	X	X	X	X	X	Provide classroom pre-presentations for all field trips  Conduct 20, 4 <sup>th</sup> grade wetland field trips  Conduct 20, 6 <sup>th</sup> grade watershed protection/ wastewater treatment plant field trips  Provide 250 students with an O'Neil Sea Odyssey on the water experience annually	PW
1-4 Wetland Trails and Nature Center	Develop and implement community wetlands programs and targeted outreach campaigns.	X	X	X	X	X	Provide watershed protection messages to 2,000 community members and area visitors annually through weekend open hours  Lead 150 community members on guided wetland walks focused on pollution prevention and wetland conservation.  Conduct 20, 4 <sup>th</sup> grade field trips through the Wetlands Nature Center and Trails per school year  Conduct a Wetland Trail Kit	

		X	X	X	X	X	teacher training annually	
		X	X	X	X	X	Check out Wetlands Trail Kit to 15 school classes for wetlands field trip	
		X	X	X	X	X	Provide wetlands and/or litter presentations to 15 adult community groups annually	
		X	X	X	X	X	Develop pet waste and water quality presentations	
			X				Provide pet waste and water quality presentations to 5 adult community groups annually	
				X	X	X		
1-5 Environmental Science Workshop	Conduct watershed protection field trips for local low-income teens.	X	X	X	X	X	Provide watershed protection messages 100 local youth and at-risk school programs.	PW
1-6 Environmental Recreation Summer Program	Conduct a 6 week bilingual youth summer program focused on the local watershed, water quality and conservation action for local children.	X	X	X	X	X	Conduct 6 field trips each summer on watershed issues.  Serve 20 students per week for 6 weeks annually	PW
1-7 Green Business Program	Participate in the Monterey Bay Area Green Business Program.	X	X	X	X	X	Identify 5 key businesses to promote certification program.  Have 3 businesses complete the Green Business Certification program.  City staff to provide one follow-up consultation to each new Green Business.	PW
		X	X	X	X	X		
		X	X	X	X	X		
1-8 Community Outreach Events	Sponsor community storm water pollution prevention outreach events.	X	X	X	X	X	Develop storm water pollution prevention displays and materials each of the four identified events  Develop media for and implement four events annually.  Document the number of participants at each event.  Evaluate event success, audience reached and modify accordingly for future years.	PW
		X	X	X	X	X		
		X	X	X	X	X		
1-9 Information Services	Provide services for residents to get information	X	X	X	X	X	Track website use and	PW

	about storm water programs and services available.			X	X	X	provide forum for resident feedback.  Update website to include changing programs in sub-watershed areas and services related to pollutants of concern.  Train Customer Service Hotline staff on current storm water related issues that may pertain to resident questions or concerns.	
1-10 City Newsletter	Provide storm water information to residents through City Newsletter Green Page.	X	X	X	X	X	Create and annually update a list of storm water issues and develop appropriate articles to address these issues in the City newsletter's "Green Page". Initial topics include pet waste, fertilizers and pesticides, and erosion control.  Mail out 12,000 newsletter copies to local residents annually  Track public participation in programs and events as a result of newsletter outreach through surveys.	PW
1-11 Our Water Our World	Conduct less-toxic pest control campaign at local hardware stores.	X	X	X	X	X	Conduct a "Less-Toxic Pest Control" workshop annually.  Update workshop and materials based on new practices as available.	PW
1-12 Our Water Works Educational Booklet	Educational booklet aligned with water quality and pollution standards for use in public school setting.	X	X	X	X	X	Distribute 1,000 copies of the Our Water Works booklet to all 5 <sup>th</sup> and 6 <sup>th</sup> grade students in the Pajaro Valley Unified School District.	PW
1-13 Brochures	Informational brochures on storm water services and issues.	X	X	X	X	X	Develop, distribute and update all storm water related brochures.	PW



## **Public Involvement and Participation Program**

The goal of the Public Involvement and Participation Program is to raise public awareness about storm water pollution prevention through community action in City storm water protection events and activities. The community based service projects and conservation events are developed as part of the larger community campaigns in the specific topic areas discussed in the Education and Outreach section. These projects are an opportunity to reinforce through action the messages presented in the programs, presentations and interactions with City staff. This action based component increases community ownership of the watershed areas and promotes long-term support citywide storm water pollution prevention efforts. All Public Involvement and Participation Programs will target specific community audiences and internal staff and partners.

### **2.1 Internal City Stormwater Working Group**

#### **Implementation Details**

The Source Control Manager will identify representatives from the Public Works and Utilities and Community Development Departments to form an internal City Storm Water Working Group. This group will serve as a forum for information sharing, program coordination, and project and programming planning, implementation, and evaluation of BMP's. Such an opportunity for collaboration will facilitate a more streamlined and effective approach to implementation of City projects and their alignment with BMPs.

#### **Measurable Goals**

- Identify key members of City Storm Water Working Group.
- Hold quarterly meetings and develop action items.
- Modify the meeting format/frequency as necessary to create effective BMP information exchange and implementation.

## **2.2 Watershed Working Groups**

### **Implementation Details**

Appropriate representatives of the City from the Public Works and Utilities and Community Development Departments will participate in Watershed Working Groups to present the City's SWMP, progress of the program, and to collect partner and stakeholder feedback. These meetings will also provide an opportunity for information sharing between the City and other watershed stakeholders to find areas for collaboration on water quality programs.

### **Measurable Goals**

- Identify appropriate watershed working groups for relevant information sharing and collaboration.
- Participate in three watershed-based working groups, meetings or workshops annually and document City's attendance.

## **2.3 Litter Clean-up Events**

### **Implementation Details**

In addition to the Litter Removal Services, the City hosts opportunities for the community to participate in litter clean-up events throughout the year. The Nature Center offers informal community clean-ups on weekends for interested volunteers. There are also 3 litter clean-up events run by the City each year. The goal of each event is to bring community together to work side by side and build pride in our watershed by cleaning up litter. The events include education about litter issues and prevention as well as community building activities, participant recognition and lunch. National Trails Day in July is an opportunity for community members to walk the trails with experienced naturalists and learn about the importance of watersheds and wetlands while removing trash from the trails. The City also has 2 International Coastal Clean-up Day sites. One is along the Pajaro River and the other is in and around the Watsonville Wetlands.

### **Measurable Goals**

- Identify applicable sub-watershed areas for clean-up efforts.
- Conduct 3 community litter clean-up events annually in the Wetland and Pajaro River watersheds with participation from local public; document participation, volunteer feedback and revise implementation details accordingly; quantify, track and evaluate the amount of waste removed; establish media coverage.
- Conduct 5 informal weekend litter clean-up events in the wetlands sub-watershed with Nature Center weekend visitors.

## **2.4 Storm Drain Labeling**

### **Implementation Details**

The City collaborates with the local youth groups such as Boy Scouts and afterschool programs to install bilingual storm drain buttons on the curb at every storm drain in the City. Student groups use City supplies to mark drains on school campuses. All storm drains were marked in 2005. Locations where replacement buttons or stencils are needed will be identified in three watersheds. Once locations are identified the City will coordinate with youth, adult or school groups to re-mark these storm drains. Each storm drain button indicates which sub-watershed it drains to.

### **Measurable Goals**

- Conduct annual storm drain button inspection to identify drains that require re-marking in the:
  - Pajaro watershed
  - Wetlands watershed
  - Corralito's watershed
- Identify community groups or internal City staff to re-mark needed storm drains on a watershed campaign basis .
- Re-mark above mentioned drains.

## **2.5 Environmentally Friendly Car Wash**

### **Implementation Details**

Located in the front parking lot of Ramsay Park, the Environmentally-Friendly Car Wash allows community groups to hold their fund-raising car washes at a location where the wash water flows to the sanitary sewer system, not into the storm drains. The special drain system was installed in 2004 and is heavily used by local non-profit agencies. A bilingual brochure will be developed and provided to the non-profit agency sponsoring the carwash , informing the volunteers about how to effectively use this unique facility and how washing cars in driveways and on the street causes pollution. There will also be a bilingual interpretive sign developed about the benefits of the facility. The sign will be installed next to the drain at the carwash.

### **Measurable Goals**

- Conduct outreach about availability of environmentally friendly carwash facility.
- Develop "How To" brochure to be given to each community group upon reservation and equipment rental.
- Develop informational interpretive signage.



- Document the number of community groups that utilize the carwash annually.

## 2.6 Interested Party List

### Implementation Details

The City will develop an interested party list to inform residents and stakeholders about storm water program events and projects. The goal of the list will be to encourage public participation in storm water protection programs and events through email invitation. The list will include interested community members identified through events, Nature Center visitation, and docent training programs.

### Measurable Goals

- Develop interested party list.
- Provide information about opportunities for storm water protection action to list members quarterly.

**Table 2 Public Participation BMP Matrix**

Best Management Practice	Implementation Plan	Year 1	Year 2	Year 3	Year 4	Year 5	Measurable Goals	Who?
2-1 Internal City Storm Water Working Group	Establishment of an internal Storm Water Working group for program coordination and effective implementation	X					Identify key members of City Storm Water Working Group  Hold quarterly meetings and develop action items.  Modify the meeting format/frequency as necessary to create effective BMP information exchange and implementation.	PW
2-2 Watershed Working Groups	Representatives from the City's Storm Water Program will participate in local watershed working groups for information exchange and collaboration opportunities.	X	X	X	X	X	Create and update an appropriate watershed working group list for relevant information sharing and collaboration.  Participate in three watershed-based working groups, meetings or workshops annually and document City's attendance.	PW
2-3 Litter Clean-Up Events	The City will implement community litter clean-up events throughout the sub-watershed areas to increase public ownership of healthy waters.	X					Identify applicable sub-watershed areas for clean-up efforts.  Conduct 3 community litter clean-up events annually in the Wetland and Pajaro River watersheds with	PW

			X	X	X	X	<p>participation from local public; document participation, volunteer feedback and revise implementation details accordingly; quantify, track and evaluate the amount of waste removed; establish media coverage.</p> <p>Conduct 5 informal weekend litter clean-up events in the wetlands sub-watershed with Nature Center weekend visitors.</p>	
2-4 Storm Drain Labeling	Coordinate with community groups to label all storm drains in the City and maintain over time.	X	X	X	X	X	<p>Conduct annual storm drain button inspection to identify drains that require re-marking in the:</p> <p>Pajaro watershed - year one.</p> <p>Wetlands watershed – year two</p> <p>Corralito’s watershed – year three</p> <p>Identify community groups or internal City staff to re-mark needed storm drains on a watershed campaign basis years 1-3.</p> <p>Re-mark above mentioned drains.</p>	PW
2-5 Environmentally Friendly Car Wash	Community use of environmentally friendly carwash for group fundraisers.	X  X   X	X   X	X  X  X	X  X  X	X   X	<p>Conduct outreach about availability of environmentally friendly carwash facility.</p> <p>Develop “How To” brochures to be given to any group upon car wash reservation.</p> <p>Develop informational interpretive signage.</p> <p>Document the number of community groups that utilize the carwash annually.</p>	PW
2-6 Interested Party List	Develop email list to inform public and stakeholders about opportunity for public participation events.	X	X	X	X	X	<p>Develop interested party list.</p> <p>Provide information about opportunities for storm water protection action to</p>	PW

							list members quarterly.	
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## **Illicit Discharge Detection and Elimination**

Illicit discharges have been identified as significant sources of pollutants impacting our watersheds. Illicit discharges may originate from either direct connections (e.g. sanitary sewer or industrial waste lateral connected to a storm drain) or indirect connections (accidental spills, sewer overflows, or wash water discharges into storm drain inlets). These illicit discharges can be responsible for contributing heavy metals, sediments, nutrients, toxins, oil and grease, pesticides, and viruses and bacteria into the wetlands, creeks, and rivers to which the City storm drain system discharges.

The objectives of the Illicit Discharge Detection and Elimination Program are to eliminate or reduce to the maximum extent practicable the flows and pollutant loadings resulting from illicit discharges to the City's storm sewer system.

The City of Watsonville storm water sewer system discharges to Watsonville Slough, Struve Slough, Pajaro River, Corralitos Creek, and Salsipuedes Creek. The California Regional Water Quality Control Board – Central Coast Region (WATER BOARD) has identified each of these

water bodies as impaired. This implies that these components of the local watershed do not meet the State of California Basin Plan water quality objectives for the designated beneficial uses of these water bodies. The pollutants reportedly causing the impairments in these waterbodies include pathogens, sediments and nitrates.

### **3.1 Storm Drain System Map**

#### **Implementation Details**

The City of Watsonville Public Works and Utilities Department (PW) in coordination with the City of Watsonville Information Services (IS) has developed a functional storm drain system map detailing the storm drain network using geographic information systems (GIS) software. This map displays the location of all of the stormwater outfalls (headwalls), cleanouts, inlets, manholes, pumps, vaults, caps, and pipes. During routine maintenance, inspections, and upgrades to the storm drain system the accuracy of this map will be documented. The City will use techniques such as visual observation, channel walks, closed-circuit cameras, and dye tracing to improve the accuracy of its storm sewer system map. Any field observations that require changes or modifications to the map will be reported to IS. Revisions to the maps will be formally incorporated by the City's IS staff. A record of all map revisions will be maintained by IS. As map pages are revised, updated hard copy map pages will be distributed to the relevant staff. Electronic and hard copy versions of the current maps are available in the offices of the City Public Works and Utilities Department. The City shall provide access to this map to the public on the City's Public Works website (<http://www.watsonvilleutilities.org/>).

#### **Measurable Goals**

- Develop a list of known storm sewer system data gaps. This list will serve as the basis for future storm sewer system drainage feature investigations (Year 1).
- Provide portable document format (PDF) files of the City's storm sewer system map on the City's website (Year 2).
- Provide ongoing map and GIS database maintenance and revise as new information becomes available or mistakes are identified; document map revisions (Years 3–5).

### **3.2 Storm Water Runoff Pollution Prevention Ordinance**

#### **Implementation Details**

The City of Watsonville Public Works Utilities Department has established ordinances that prohibit non-storm water discharges into the City's storm drain system, with the exception of those authorized in the General Permit. These ordinances will be used as tools for the City to

meet the storm water management requirements of the NPDES regulations and safeguard persons, protect property, and prevent damage to the environment in the City. They were written with the intent to: promote the health, safety, and public welfare of Watsonville's citizens by guiding, regulating, and controlling the quality of storm water runoff; protect the City's publicly owned storm water collection facilities from degradation or disrepair caused by illegal and harmful discharges to the storm drain system; protect the City's parks and recreational fields from contamination caused by polluted storm water discharges; protect the publicly owned wastewater collection and treatment facilities from reduced water quality and siltation caused by erosion by wind and water, necessitating repair to sewers and the City's wastewater treatment plant; protect and enhance the water quality of the Pajaro River, Watsonville Wetlands, Corralitos Creek, Salsipuedes Creek, and groundwater in a manner pursuant to and consistent with the Federal CWA by reducing pollutants in urban storm water discharges to the MEP.

The ordinances presented in Table 3A currently apply to the protection of storm water quality and/or are intended to circumvent illicit discharges.

### City of Watsonville Municipal Code Sections Applicable to Storm Water

<b>Municipal Code Chapter/Section</b>	<b>Code Description</b>	<b>Application to Storm Water Quality Protection</b>
Section 5-15.02 to 5-15.14	Littering	Prohibits littering.
Section 5-36.01	Camping Prohibited	Prohibits camping within City limits except as permitted by 5-36.02.
Section 6-1.416	Disposal of Dog Waste	Requires owner to remove any excreta deposited by their dog.
Section 6-1.512	Disposal of Animal Waste	Requires owner to remove any excreta deposited by their animals.
Section 6-3.202	Intent	Establishes the City's intent to protect water quality through stormwater management.
Section 6-3.432	Wasting of Water	Establishes conditions to control the wasting of water.
Section 6-3.501	Sewer Required	Requires discharge of sewage and pollutants to the POTW.
Section 6-3.506	Old Laterals	Requires videoing of existing sewer laterals prior to connecting to any new or remodel building projects.
Section 6-3.508	Maintenance of sewer laterals	Sewer laterals are property owners responsibility including any fines associated with overflows. Lateral video inspections required upon change of ownership, if >25 years since last inspection.
Section 6-3.513	Prohibited Discharges	Prohibits wastewater discharges detrimental to the wastewater treatment system, persons, or public/private property. Prohibits

		discharges of unpolluted water to sewer.
Section 6-3.514	Treatment of Wastewater Required	Establishes conditions where pretreatment of certain wastewater discharges may be required (e.g. grease interceptors)
Section 6-3.515	Protection from Accidental Discharges	Requires each discharger to provide protection from accidental discharge of prohibited materials.
Section 6-3.524	Storm Water Connection Fee	Establishes requirement to pay storm water connection fee for any new construction.
Section 6-3.525	Non-storm water Discharges	Controls non-stormwater discharges to the City storm sewer system
Section 6-3.526	Illicit Discharge/ Illicit Connection	Prohibits illicit connections and discharges to the City storm sewer system.
Section 6-3.527	Reduction of Pollutants	Requires implementation of BMPs wherever activity may result in pollutants entering the storm sewer system
Section 6-3.528	Construction BMPs	Requires implementing stormwater BMPs during construction.
Section 6-3.529	Watercourse Protection	Requires maintenance of waterways which pass through private property to be free of trash and debris. Prohibits alteration of watercourse without a permit, including removal of vegetation.
Section 6-3.530	Control Flow Rates	Requires that all developments not cause higher rates of storm water runoff than those that existed prior to the project.
Section 6-3.531	Accidental Spills	Requires reporting of any accidental discharges.
Section 6-3.603	Maintain Containers	Requires keeping trash lid closed.
Section 6-3.604	Unacceptable Materials	Prohibits disposal of free-flowing liquids into trash containers.
Section 6-3.608	Burying and Burning	Prohibits burying or burning of solid waste or recyclables in City limits.
Section 6-3.706	Clean or Abate	Prohibits any contribution to storm water pollution from materials found on a site.
Section 6-3.708	Enforce Stormwater Permits	Authorizes City to enforce stormwater permit requirements.

The City is working to reduce the need for enforcement in this area through education and outreach programs mentioned in sections 1 and 2. Where enforcement actions are needed existing stormwater ordinances are performed by Public Works and Utilities Department staff following the established Source Control enforcement response plan (ERP). An enforcement action of a stormwater pollution prevention ordinance can be a result of the observation of an illicit discharge, verification of a residential or municipal incident report, or if evidenced through inspection. Enforcement actions range from a verbal warning, notice of violation (NOV), administrative order, administrative fines, citations, civil litigation, criminal investigation, or termination of service. A record of all storm water pollution prevention ordinance enforcements will be maintained by Public Works. Staff will re-inspect all sites receiving a notice of violation for non-compliance within 30 days following the notification.

### **Measurable Goals**

- Continue to enforce existing ordinances that protect against storm water runoff pollution; track all storm water runoff pollution prevention enforcement actions taken (Years 1–5).
- A 50% reduction in annual enforcement actions by Year 5.

## **3.3 Storm Drain Outfall Inspections**

### **Implementation Details**

The City of Watsonville Public Works and Utilities staff shall inspect and document the findings at 30% of the stormwater outfalls over the five year plan of this permit. The outfalls discharging into each of these sub-basins shall be inspected during the dry season (from May to September) to assess for indications of illicit discharge. Verification of the type and location of the outfall as well as condition and presence/absence of dry weather discharge shall be recorded. If undocumented outfalls are observed during the investigation, their location and description shall be recorded for inclusion on the storm drain system map.

All dry weather discharges from the City storm drain outfalls will be assumed to be an illicit discharge unless determined otherwise. All illicit discharges observed at City outfalls will be documented on an Illicit Discharge Detection Form. The source of the discharge will be investigated by back-tracking the flow upstream through the storm drain system using the storm drain system map. This upstream investigation typically involves lifting manhole covers, inspecting drain inlets, and inspecting drainages for indications of wastewater flows. If the source of the discharge can be identified, then the inspector will meet with the property representative, require termination of the discharge, explain the relevant storm water discharge regulations, and conduct enforcement activities as necessary to achieve the required corrective action. If the source of the discharge cannot be readily discerned, then the illicit discharge tracking may require utilizing smoke testing, dye testing, or video survey to elucidate the potential sources of the discharge. If necessary, water samples of the discharge will be collected and analyzed for selected indicator parameters (e.g. ammonia, surfactants, conductivity, boron, chlorine, color, florescence, E. coli, pH, hardness, enterococcus, potassium, turbidity) to provide evidence as to the source of the discharge.

### *NPDES Permitted Facilities:*

There are 3 contaminated groundwater remediation projects which are permitted to discharge to the storm drain system through the NPDES General Permit issued by the Central Coast Regional Water Quality Control Board.

- 1488 Freedom Blvd.
- 1902 Freedom Blvd.
- 1180 Main St.

### **Measurable Goals**

- Conduct an assessment of illicit discharge potentials for each of the City's three sub-watersheds to assist with prioritization and allocation of City resources (Year 1).
- The City shall survey 30% of the storm drain outfalls for non-storm-water flows during dry weather (Years 2-5).
- Track the number of illicit discharges and connections detected and their associated corrective actions (Years 1-5).
- 80% of the illicit non-stormwater discharges identified from these outfalls will be eliminated (Years 2-5).

## **3.4 Commercial and Industrial Site Inspections**

### **Implementation Details**

The City of Watsonville currently performs commercial and industrial site inspections for compliance with sewer and stormwater ordinances. Many of these inspections are performed in conjunction with City's Industrial Pretreatment Program, or the City's Fats, Oil, and Grease (FOG) Inspection Program of commercial food preparation establishments, and inspections of facilities by Public Works staff prior to approving new business licenses. At these inspections, the appropriate educational brochures are distributed, the BMP requirements explained, and the current level of compliance assessed. If corrective actions are required, documentation of the requirements would be presented. Enforcement actions would be implemented if a facility fails to make the necessary corrective actions in the specified time frame. These timeframes are dependent upon the nature and extent of the needed corrective actions.

### *Regulated Facilities*

There are currently 17 facilities within City limits that are permitted by the Central Coast Water Board under the Phase I Industrial Storm Water Permit program. Additionally, three City-owned facilities are regulated by the Regional Board under the Industrial Storm Water Permit: the Public Works Municipal Service Center, the Watsonville Airport, and the Watsonville Landfill.



The City of Watsonville has also contracted with Ecology Action of Santa Cruz County to assist the City of Watsonville businesses to acquire Monterey Bay Area Green Business Program certifications (<http://www.montereybaygreenbusiness.org/>). To obtain Green Business certification, the business must undergo an inspection which involves verification of compliance with stormwater pollution prevention BMP's. The City of Watsonville strongly urges businesses to obtain the certification checklist for their business category.

### **Measurable Goals**

- Develop a list of businesses and prioritize their potential to contribute illicit discharges to the storm drain system, establish a schedule for routine inspections, create an inspection and enforcement protocol, and establish a record-keeping system (Year 1).
- Evaluate and choose specific educational materials for distribution throughout the City and during business inspections (Year 2).
- Inspect 25% of businesses identified in Year 1 annually, paying particular attention to the potential for discharges of POCs (Years 2–5).
- Revise all aspects of the program as necessary and document the amendments (Years 2–5).

## ***3.5 Respond to Reported Spills, Sewer Overflows, and Illegal Discharges***

### **Implementation Details**

The City of Watsonville will incorporate the public's assistance in reporting illicit discharges by publicizing the water quality challenges in our receiving waters and informing them of how to report an illicit discharge, illegal dumping, or spill/overflow if it is observed. The primary means is through contacting City of Watsonville Public Works Hotline (831) 768-3133 during business hours or through Santa Cruz Consolidated Emergency Communications Center (SCCECC) Dispatch (831) 471-1511. This community outreach is also being developed on the City of Watsonville's public works website (<http://www.watsonvilleutilities.org/>).

The City of Watsonville Public Works Department has developed an emergency response system to quickly correct problems with the storm water or sewer collections system. City staff is on call 24 hours a day, and also responds to an automated alarm system that monitors all of the City's storm water pump stations and most of the sewer lift stations.

The City responds to all reports of sewer overflows and illegal discharges to the storm drain system as soon as possible. For sewer overflows, the spill is contained upon arrival. The subject property owner or manager is required to discontinue use of water until the cause of the blockage is determined and remedied. If necessary the water contributing to the overflow is temporarily shut off. The downstream is evaluated to determine if any, or how much, entered the receiving water. All opportunities to intercept the waste before it discharges to receiving water are evaluated.

Field inspections and investigations are conducted as a result of the following:

- Reports received from the general public
- Staff observations of suspicious activities
- Line blockages, leaks, or breaks
- Physical indications that a spill or illegal discharge has occurred

Watsonville Fire Department and/or Santa Cruz County Environmental Health Services (SCCEHS) are the primary responders on spills of hazardous materials. The Santa Cruz Hazardous Materials Incident Team (SCHMIT) can be called in the event of an unknown material spill to assist in the identification of the substance. Hazardous waste disposal companies are notified as needed to assist in the recovery of the spilled material.

### **Measurable Goals**

- City staff shall respond to 100% of sewer overflows reported to customer service (Years 1-5).
- Less than 10% of sewer overflows reported to City of Watsonville Public Works Hotline reach a receiving water (Years 1-5).
- Report the number and volume of spills and sewer overflows and if they reached a receiving water or not (Years 1-5).

## **3.6 Sanitary Sewer Maintenance**

### **Implementation Details**

The City has a sanitary sewer and storm sewer rehabilitation program to repair and replace undersized, broken, or aging pipes. In general, the City fixes deteriorating or leaking sanitary sewer pipes by either replacing the pipe or lining the inside to seal off leaks. The City cleans 100% of the sewage system on an annual basis. Trouble spots (identified by video inspection or past history) are cleaned at appropriate intervals, typically 6 – 8 weeks, to prevent overflows at those locations.

- Clean 100% of the sanitary sewer system annually.
- Clean “trouble spots” every 6-8 weeks to prevent overflows.

## **3.7 Household Hazardous Waste**

### **Implementation Details**

The City currently has a program in place for the monthly collection of household hazardous waste. The community is encouraged to bring their used motor oil, paints, solvents, pesticides, expired prescription medicines, e-waste, fluorescent light tubes, poisons, flammables, and corrosives to the Municipal Service Center for proper disposal. The City also provides bi-weekly free curbside pick-up of motor oil and oil filters for residents.

## **Measurable Goals**

- Collect and properly dispose of all hazardous liquids and solids delivered to HHW facility

2007 Totals

Hazardous Liquids 4,647 gallons

Hazardous Solids 1,800 lbs

## **3.8 *Non-Stormwater Discharges***

### **Implementation Details**

The General permit requires that the City address non-stormwater discharges only where they are significant contributors of pollutants to the MS4. The City's stormwater pollution prevention ordinance (WMC 6-3.525) currently allows the following non-stormwater discharges to the storm drain:

Discharges Not Polluting the Waters of the State:

NPDES permitted non-storm water discharges and discharges which are not sources of pollutants to waters of the state provided that the discharger is in full compliance with applicable laws or regulations.

Properly Managed Discharges:

Discharges from the following activities will not be considered a source of pollutants to waters of the United States when properly managed in a manner satisfactory to the Director:

- water line flushing and other discharges from potable water sources,
- landscape irrigation and lawn watering,
- irrigation water,
- diverted stream flows,
- rising ground water,
- uncontaminated pumped ground water,
- foundation and footing drains,
- water from crawl space pumps,
- air conditioning condensation,
- springs,
- individual residential car washing,
- flows from riparian habitats, and wetlands,
- flows from fire fighting activities.

The City will assess the contribution of each of these discharges to ensure that they are not resulting in significant loadings of any of the pollutants of concern. Public Works staff will collect water samples from each of these sources and analyze them for suspended solids (sediment), nitrate, ammonia, E. coli (fecal indicator bacteria), and photograph the point of

discharge (trash). Non stormwater discharges that are determined to be a significant source of pollutants will be prohibited or required to implement BMPs to reduce the pollutants to meet MEP. The City will identify required BMPs and incorporate them into the Public Works Standards. The results of these analyses and discharges will be evaluated and discussed in each annual SWMP annual report.

### **Measurable Goals**

- Develop criteria for assessing the water quality data to determine if it is a significant source of pollutants or not (Year 1).
- Annually assess one of the allowable non-stormwater discharges through analyses to determine if it is a significant source of pollutants (Years 1-5).
- Verify that all permitted non-stormwater discharges to the storm drain system are not significant sources of pollutants (Years 1-5).

## **3.9 *Municipal Inspectors Training***

### **Implementation Details**

The City will develop an illicit discharge detection and elimination pocket guide for City staff. The purpose of the pocket guide is to provide additional information and guidance for staff to identify and report illicit discharges, connections, or activity encountered during their regular duties. Staff participation and recognition of illicit discharges will greatly reduce the economic, health, and environmental consequences associated with illicit connections and discharges into the storm drain system. This pocket guide will be distributed to City staff during Storm Water Pollution Prevention training sessions.

### **Measurable Goals**

- Design City staff IDDE Pocket Guide and (Year 1).
- Distribute the IDDE Pocket Guide to all municipal staff during annual Storm Water Pollution Prevention training sessions (Years 2–5).
- Develop or acquire storm water pollution prevention outreach materials and distribute at City offices and all local events attended by City staff (Years 1–5).

**Table 3 Illicit Discharge Detection and Elimination BMP Matrix**

Best Management Practice	Implementation Plan	Year 1	Year 2	Year 3	Year 4	Year 5	Measurable Goals	Who?
3-1. Storm Drain System Map	Maintain storm drain system map.	X	X	X	X	X	Determine data gaps in storm drain sewer system map  Provide map of City storm drain system on City website for public.  Maintain and revise storm drain map as necessary	PW/GIS
3-2. Stormwater Runoff Pollution Prevention Ordinance	Establish and enforce municipal ordinances which apply to protecting storm water quality.	X	X	X	X	X  X	Track all stormwater pollution prevention enforcement.  Reduce stormwater enforcement actions by 50%.	PW/CDD
3-3. Storm Drain Outfall Inspections	Inspect City stormdrain outfalls during dry season. Assess and eliminate illicit discharges.	X					Assess sub-watersheds for potential for illicit discharge and allocate resources.	PW

			X	X	X	X	Survey 30% of outfalls during dry weather for non-storm discharges.	
		X	X	X	X	X	Track number of illicit connections detected and associated corrective actions.	
			X	X	X	X	Eliminate 80% of the non-storm water discharges detected.	
3-4. Commercial and Industrial Site Inspections	Perform commercial and industrial site inspections for compliance with sewer and storm water ordinances.	X	X				Develop list of businesses, schedule for inspections, inspection and enforcement protocol, and record keeping system.  Evaluate and select educational handouts.  Inspect 25% of businesses identified on list from year 1.  Revise and amend program as necessary.	PW
3-5. Respond to Reported Spills, Sewer Overflows, and Illegal Discharges.	Respond to reports of spills, sewer overflows, and illegal discharges.	X X	X X	X X	X X	X X	City will respond to 100% of sewer overflows reported.  Less than 10% of reported sewer overflows reach receiving water.	PW/WFD
	Report the number and volume of spills and sewer overflows	X	X	X	X	X	City will report number and volume of spills in annual report	PW
3-6. Sanitary Sewer Maintenance	Clean and maintain sewer system.	X X	X X	X X	X X	X X	Clean 100% of the sanitary sewer annually.  Clean "hotspots" every 6 -8 weeks	PW

3-7. Household Hazardous Waste Collection	Provide residents with hazardous waste drop-off location.	X	X	X	X	X	Maintain and publicize HHW Drop Off and report tonnage of HW received in annual report	PW
3-8. Non-Stormwater Discharges	Assess the contribution of each of the discharges to ensure they are not resulting in significant loadings of pollutants of concern.	X	X	X	X	X	Evaluate non-stormwater discharge enforcement to determine effectiveness of City's authority to control discharges to MS4.  Develop assessment criteria for significant source of pollutants  Annually assess one of the allowable non-stormwater discharges against the significant source of pollutants criteria	PW
3-9. Municipal Inspectors Training	Educate staff regarding illicit discharges.	X	X	X	X	X	Design IDDE Pocket Guide for municipal employees.  Distribute IDDE Pocket Guide to municipal employees.  Obtain and distribute stormwater pollution prevention outreach materials to City staff.	PW



## **Construction Site Stormwater Runoff Control**

Storm water runoff from construction activities can result in the transport of detrimental quantities of sediment and other pollutants into our local watersheds. Construction activities can range from new large-scale commercial developments (e.g. shopping centers, housing developments) to small residential redesign projects. Construction, demolition, clearing, grading, grubbing, or excavating are all actions required to satisfy the City's storm water best management practices (BMPs) as well as the California State General NPDES Permit for Construction Sites.

The General Permit requires that the City develop and implement at a minimum:

- An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions, or other effective mechanisms, to ensure compliance, to the extent allowable under State, or local law;



- Requirements for construction site operators to implement appropriate erosion and sediment control BMPs;
- Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;
- Procedures for site plan review which incorporate consideration of potential water quality impacts;
- Procedures for receipt and consideration of information submitted by the public; and
- Procedures for site inspection and enforcement of control measures.

The following BMPs will be implemented by the City within 5 years.

## **4.1 Erosion and Sediment Control**

### **Implementation Details**

#### *Authority to regulate*

The City regulates erosion and sediment control at construction sites by applicable provisions of the City of Watsonville Municipal Code. Chapter 7- 6, “*Excavations, Grading, Filling, and Erosion Control*” details permit requirements, performance and design standards for activities (construction projects) which have the potential for accelerated erosion.

Chapter 1.2 “Penalty Provisions” provides for enforcement of the municipal code. Fines beginning at \$500.00 for the first violation and escalating to \$1,000.00 for subsequent violations are levied against operators out of compliance with the provisions of 7-6 of the Municipal Code.

#### *Erosion Control Standards*

The City of Watsonville has developed Erosion Control Standards which are disseminated through the City’s web site. The site also includes a link to the guidance document “Erosion and Sediment Control: Field Manual, 2002. 4<sup>th</sup> edition CRWQCB – San Francisco Bay Region and San Francisco Estuary Institute to assist contractors with the implementation of the erosion and sediment control BMPs. The City will review its Erosion Control Standards and revise them as appropriate.

### **Measurable Goals**

- Review the City of Watsonville Erosion Control Standards. Revise the standards as appropriate (year 2).

## **4.2 Plan Review Process**

### **Implementation Details**

The Community Development Department's engineering staff review plans in support of development and redevelopment permit applications. Projects which require excavating, grading and filling are required to include plans for temporary measure erosion control (construction site BMPs). If the development or redevelopment project is sited on a property 1-acre or greater in size, the project must apply for a Notice of Intent to be permitted by the State Water Board general permit for construction activities.

### **Measurable Goals**

- Require appropriate BMPs for all development and redevelopment projects which include excavating, grading and filling. 100% of all development and redevelopment projects which exceed an acre shall include erosion control plans and apply for a Notice of Intent to be permitted by the State Water Board general permit for construction activities (year 1).
- Train Community Development Department engineering staff on plan review procedures, applicability criteria and erosion control technology/construction site housekeeping procedures. Training will consist of in-house training as well as training offered by entities such as State Water Board and Caltrans. Training will be biennial (year 3 and 5).

## ***4.3 Construction Site Inspections and Enforcement***

### **Implementation Details**

On September 15 of each year the Community Development engineering staff sends "Pre-Citation Notices" to High Priority projects. High priority projects are sites with an active construction permit for which erosion control plans have been submitted and the project is still at the stage where there is potential for discharge of sediment and other pollutants. The notices cite applicable Municipal Code sections which regulate construction site erosion control issues and the date at which they are required to be in place (October 15 of each year). In addition, the notices inform the permittee of the consequence for noncompliance and the fines levied for violations. The notice provide permittees a resource for erosion control information by directing them to knowledgeable engineering staff for additional information.

The projects are tracked by two methods. The first method is the PTwin permitting and tracking software system which allows staff to generate reports of all active engineering, grading permits and large building permits where erosion control plans have been prepared. The second method is meeting with inspectors at monthly staff meetings where all active projects are discussed. A list is of projects is generated for Pre Citation Noticing and rainy season erosion control and construction site BMP inspections.

Inspections of construction site erosion control installations and their effectiveness are performed primarily by Community Development Department engineering staff. Building Inspectors and Public Works Inspectors also perform inspections of these installations. Dedicated erosion control inspections are performed shortly after October 15 deadline for installation, and before well forecasted rainfall events at high priority sites. Community Development Department engineering staff will develop an erosion control inspection checklist to assist the inspectors in performing comprehensive inspections.

The City will collaborate with Santa Cruz County and other local municipalities on an annual workshop to educate the development community.

#### **Measurable Goals**

- Issue pre-citation notices to 100% of applicable projects (year 1).
- Provide initial October 15 annual inspections and perform inspections prior to well forecast rain events at all high priority projects (year 1).
- Develop and utilize an erosion control inspection checklist (year 2).
- Train all Community Development Department engineering staff and building inspectors and Public Works inspectors on erosion control technology/construction site housekeeping procedures. Training will consist of in house training as well as training offered by entities such as State Water Board and Caltrans. Training will be biennial (year 3 and 5).
- Collaborate with Santa Cruz County on an annual development community workshop

### ***4.4 Housekeeping Requirements at Construction Sites***

#### **Implementation Details**

In accordance with Municipal Code, the City requires construction sites to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste that may cause adverse impacts on water quality. Certain construction materials such as chemicals used for admixtures, soil amendments, pesticides, etc require special material storage enclosures.

#### **Measurable Goals**

- Inspect 100% of applicable projects on October 15 and prior to well forecast rain events to verify that proper material storage practices and other appropriate construction site housekeeping practices are implemented (year 1).

#### **4.5 Procedures for Receipt and Consideration of Information Submitted by the Public**

The City of Watsonville will develop a procedure for the public to report construction site erosion or other pollutant discharges to the City through the customer service hotline (831 768 3133). Customer services will relay reports to CDD/PW inspectors for prompt attention.

##### **Measurable Goals**

- Develop and publicize a procedure for the public to report construction site erosion or other pollutant discharge to the City (year 3).

#### **4.6 Buffer Zone Setbacks for Wetlands, Riparian Areas, and Environmentally Sensitive Habitat**

##### **Implementation Details**

The City's Watsonville Vista 2030 general plan requires a minimum setback of 100 feet for construction activities adjacent to wetlands, riparian areas, or sensitive habitats. It is the intention of the Community Development Department to amend the Zoning Ordinance to codify this general plan goal. Until the ordinance is amended the City will use its discretionary permit approval authority to achieve this performance standard.

##### **Measurable Goals**

1. Revise the zoning ordinance to include the 100-foot riparian buffer from any development or construction activity (year 3).

**Table 4 Construction Site BMP Matrix**

<b>Best Management Practice</b>	<b>Implementation Plan</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Measurable Goals</b>	<b>Who?</b>
4.1. Sedimentation Control	Current ordinance prohibits discharges of sediment and other pollutants from construction sites. The ordinance includes provisions for citations and fines for violations.  The City has adopted Erosion Control Standards which warrant review and updating.	X	X				Apply ordinances prohibiting sediment discharge to 100% of applicable projects.  Review the City of Watsonville Erosion Control Standards. Revise the standards as appropriate	PW&U and CDD
4.2. Plan Review	CDD engineering staff	X						







## **Post-Construction Stormwater**

### **Management In New Development and Redevelopment**

Runoff from new developments and redeveloped property can significantly affect receiving water bodies if left unmanaged. The objective of the Post-Construction Storm Water Management program is to reduce post-construction pollution by developing storm water development standards which will be required of new development and redevelopment projects. This will be achieved by developing and implementing Best Management Practices (BMPs) that target pollutants of concern for each activity.

The Post Construction Management Program has been designed to achieve the four following conditions:

- 1. Maximize infiltration of clean storm water, and minimize runoff volume and rate** – BMPs have incorporated low impact development measures which reduce volume and rate by maximizing infiltration. Alternative hydromodification criteria will be developed which establish numeric criteria for controlling runoff volumes and rates.
- 2. Protect riparian areas, wetlands and their buffer zones** – The City of Watsonville’s “Watsonville Vista 2030” general plan specifies a riparian buffer of 100-feet where no development may occur.

**3. Minimize pollutant loading** – Low impact development BMPs will be selected to minimize pollutant loading and hydromodification. Pollutants of concern will be identified and impairments of receiving waters will be considered in design of the Post Construction management program.

**4. Provide long term watershed protection** – The City will develop quantifiable measures that indicate how the City’s stormwater program helps achieve desired watershed conditions.

### ***5.1 Permit Review, Issuance and Inspection Process***

#### **Implementation Details**

Community Development Department engineering and planning staff review land use applications and write permits for development and redevelopment projects. Project review and permitting procedures is a valuable tool for ensuring that post construction water quality control measures are implemented in the course of constructing development and redevelopment projects.

#### *Early Public Contact*

Implementing low impact development measures in the design of new and redevelopment projects are best achieved with early notification to applicants. The City will utilize its pre-application process and public counter contact resource to this end.

#### *Applicability*

The City has developed Storm Water Land Development Standards for new and redevelopment projects. All standards are in conformance with Attachment 4 of the General Permit. City staff recommends that developers use the California Stormwater BMP Handbook (New Development and Redevelopment) when selecting BMPs. The current standards meet the following minimum criteria:

- Developments on parcels of an acre or more
- Commercial Developments
- Restaurants
- Gas Stations and auto repair shops
- Parking lots of 10,000 sf or more
- Project located adjacent to or which discharge runoff directly to an environmentally sensitive area

The current standards require that these projects employ pollution prevention BMPs for a variety of specific activities and mitigate hydromodification by limiting the rate of runoff to predevelopment conditions.

The Storm Water Land Development Standards will be revised based on methodologies derived from the City’s participation with the Water Board and other Central Coast municipalities in a cooperative “Joint Effort” (see below). These revised Standards will emphasize methodologies

focusing on hydromodification control criteria, specific applicability thresholds, and low impact development implementation.

#### *Project Review Process*

As stated above, the City attempts to notify applicants as early as possible in the plan review process of all stormwater BMP requirements. Typically, this occurs at the pre-application review. Projects are reviewed by CDD engineering staff for compliance with the City's Stormwater Land Development Standards. Applicants are notified of stormwater BMP and other requirements through Conditions of Approval.

#### *General Plan*

The City revised its General Plan entitled "Watsonville Vista 2030" in 2005. Chapter 11, Environmental Resource Management" details broad goals regarding storm water quality, development and preservation of environmental resources. "Watsonville Vista 2030" increases the riparian buffer where no development is allowed from 50-feet to 100-feet measured from either side of the streams bank full line. "Watsonville Vista 2030" includes goals for BMPs for development projects, hydromodification controls, and storm water infiltration. The City prepares a complete rewrite of its general plan at approximately 15-year intervals.

#### *CEQA*

The City's development review and permitting procedures are subject to environmental review in accordance with CEQA. For development and redevelopment projects with potential to generate runoff, development review staff will ensure that sufficient information is provided by applicants to evaluate these impacts and develop appropriate mitigation. The CEQA initial study checklist which often determines this potential will be reviewed and revised as necessary to ensure that consideration of runoff quality and quantity is included.

#### *Conditions of Approval*

Permits issued to projects contain conditions of approval. In order to apply consistent conditions of approval the City of Watsonville is currently finishing the development of "Standard Conditions of Approval." Standard Conditions of Approval applied to projects which meet the minimum criteria for which the post construction standards are applied to require integration of landscape areas with drainage BMP's to implement low impact development goals. Standard Conditions of Approval also impose the City's current hydromodification mitigations on permits. The current criteria regulates rate of discharge. The Standard Conditions of Approval will be revised as new hydromodification requirements are developed.

#### *Post Construction Storm Water Ordinance*

The city currently imposes its authority on development through its discretionary development review process. The City will adopt an ordinance to include enforcement mechanisms and penalties for failure to perform long term maintenance of constructed and implemented BMPs.

#### *Construction Inspection*

The City Public Works and Utilities Department construction inspection staff performs regular inspections of new development projects. The inspectors ensure that storm drain facilities, systems and related works are constructed in conformance with the approved construction plans.



Community Development Department (CDD) engineering staff monitor the progress of construction projects and assist inspection staff. This helps ensure that development projects are constructed in conformance with approved construction plans.

#### *Long Term Maintenance of BMPs*

Currently the City requires development projects which are subject to Storm Water Land Development Standards to execute agreements, and write Conditions, Covenants and Restrictions in the case of subdivisions, providing for the perpetual maintenance and execution of the various BMPs required by the conditions of approval or the approved construction plans. The maintenance agreements require annual reporting by the BMP operator. The agreements provide a means of tracking projects subject to the storm water standards and performing periodic compliance inspections.

#### *Mitigation Banking for Density Housing Projects*

State housing regulations require the City to develop a specified number of affordable housing units in a specified time period. Affordable housing is achieved by increasing the density in comparison to more traditional, market-based housing development. With higher densities, there is often insufficient room to implement some of the low impact development storm water BMP measures which rely on large areas of landscaping. The City will require density housing projects to implement LID measures compatible with site designs. The City will develop alternative means for density housing projects to achieve hydromodification balance by designing and funding the retrofit offsite existing public facilities with new LID storm water measures.

#### **Measurable Goals**

- Revise Drainage Inlet Standard Construction details to require public education stenciling (year 1).
- Revise the City's CEQA initial study checklist to include appropriate questions regarding storm water quality and hydromodification potentially created by new and redevelopment projects (year 2).
- Adopt a post construction storm water ordinance (year 3). Ordinance provisions will include methodologies developed from the "Joint Effort" (see below) and applicability thresholds approved by City staff and Water Board.
- Revise the zoning ordinance to include the Watsonville Vista 2030 general plan goal of a 100-foot riparian buffer from any development or construction activity (year 3).
- Establish biennial training for Planners, Engineers and Building inspectors in the Community Development Department and Public Works Inspectors in the Public Works and Utilities Department (years 1, 3 and 5). There are 3 Planners, 2 Engineers, 3 Building Inspectors and 2 Public Works Inspectors to be trained and 100% will be trained on years 1, 3 and 5. This training will use Powerpoint with real-world examples from actual construction site inspections conducted over the past 10 years. It will cover the City's Stormwater Development Standards, erosion control, and related water quality issues.
- Apply methodologies developed based on the City's participation in the Joint Effort. The revised post-construction control measures will include applicability thresholds, Storm Water Development Standards (hydromodification control criteria and Low Impact

Development technologies), Standard Conditions of Approval and the other elements of the City's development review process to 100% of applicable projects (years 2-5).

## ***5.2 Best Management Practices for New Development and Redevelopment***

Currently, all new development and redevelopment projects are required to implement BMPs to reduce pollutant discharges. Detention BMPs are required to meet the numeric volume sizing criteria in the City's Stormwater Land Development Standards (Appendix E). These criteria were developed from the California Stormwater Handbook (New Development and Redevelopment) guidance. This approach uses the 85<sup>th</sup> percentile storm event for San Jose and was chosen because it is a readily available system based on a continuous simulation model (STORM) developed by the Hydrologic Engineering Center of the U.S. Army Corp of Engineers. Detention system drawdown times are limited to 40 hours to reduce the potential for vector breeding. The sizing criteria are shown below:

For flow-based treatment BMPs the City currently requires developers to design these features for a 0.2-in/hr storm event. This criterion is based on the 85<sup>th</sup> percentile storm for San Jose, California as identified in the California Stormwater BMP Handbook.

In 2010 and 2011, the City will be participating with the Water Board and several Central Coast municipalities in a Joint Effort program to develop methodologies that the City will use to investigate and incorporate local, long-term precipitation data sources to provide sizing volumes and design criteria more representative of the Watsonville area.

This process began on February 15, 2008, when the Central Coast Regional Water Quality Control Board notified MS4s that BMPs must be adopted for the development of hydromodification criteria to protect beneficial uses and promote the desired conditions of healthy watersheds to meet the MEP standard, including:

- I. Maximize infiltration of clean storm water, and minimize runoff volume and rate
- II. Protect riparian areas, wetlands, and their buffer zones
- III. Minimize pollutant loading; and
- IV. Provide long-term watershed protection.

On October 20, 2009, the Water Board notified MS4s in the Central Coast region of the opportunity to participate in a Joint Effort to cooperatively develop hydromodification control criteria with other MS4s. The Joint Effort provides an alternative to the requirements for developing interim and long-term hydromodification criteria independently as outlined in the February 15, 2008 letter from the Water Board. The Joint Effort is a two phase approach that is expected to span a period of two years. Phase I goals are to:

- Develop a methodology for the development of numeric hydromodification control criteria for new and redevelopment.
- Implement the initial steps of the methodology with the Central Coast Region, which will provide the foundation for watershed characterization and pre-process analysis that will be necessary to develop meaningful and effective hydromodification criteria.

In Phase II of the Joint Effort the City will apply the methodology to determine its landscape-specific hydromodification control criteria based on compilation of data and information to

implement the methodology. This will result in the development of criteria that can be used in site planning, design, and development process.

Participation in the Joint Effort will allow Water Board staff to replace the current requirements for developing interim and long-term hydromodification control criteria with new requirements for municipalities participating in the Joint Effort.

On January 12, 2010, the City chose to participate in the Joint Effort and has amended the Post-Construction MCM to include the BMPs and Measurable Goals required for all Joint Effort participants for Phase I of the Joint Effort. The BMPs will meet the February 2008 criteria except for protecting riparian areas, wetlands, and their buffer zones. BMP 5.6 is included for this requirement. The Water Board has determined a two year schedule which is broken into eight quarters for completion of the BMPs.

BMPs and MGs for this cooperative process are detailed in Section 5.4 and Table 5.

### ***5.3 Assessment of New Development and Redevelopment Treatment BMP Effectiveness***

The City assesses BMP effectiveness for pollutants of concern through annual observations of BMPs during rain events. Since most of the treatment BMPs in the City are above ground systems (ponds and swales) these observations provide a simple and effective system for evaluating performance. Pass through of litter, sediments and/or turbidity is readily observed.



Treatment BMPs Showing Clear Discharges



Treatment BMP Showing Turbid Discharge



Treatment BMP Showing Sediment Pass Through

## ***5.4 Hydromodification and Low Impact Development Strategy***

The City is working with the Central Coast Regional Water Quality Control Board and Central Coast Low Impact Development Center (along with other municipalities) to develop a “joint effort” hydromodification and Low Impact Development (LID) management plan. The joint effort is expected to take two years, with a start date in early 2010 (the Water Board staff will officially notify by electronic mail the official start date for the joint effort). If the methodology developed at the end of the first year of the joint effort does not adequately address the unique conditions of our region, the County and City will develop hydromodification criteria by the end of the second year of the joint effort that are as effective as those developed by the joint effort methodology and that will be reviewed and approved by the Central Coast Regional Water Quality Control Board.

### **Hydromodification Control Criteria**

Develop and implement City landscape-specific criteria for controlling hydromodification in new and redevelopment projects using Water Board-approved methodology through the Joint Effort (or equivalent).

### **Measurable Goal**

Hydromodification Control Criteria by Quarter 8 of the Joint Effort.

### **Stormwater Land Development Standards**

The City will develop and/or modify its enforcement mechanisms or Stormwater Land Development Standards (Standards) that will effectively implement hydromodification controls and LID in new development and redevelopment projects.

### **Measurable Goals**

1. Analysis of Standards that identify modifications and/or additions necessary to effectively implement hydromodification controls and LID by Quarter 2 of the Joint Effort.

2. Approve new and/or modified Standards that effectively resolve regulatory conflicts and implement hydromodification controls and LID in new and redevelopment projects by Quarter 8 of the Joint Effort.
3. Apply new and/or modified Standards to all new and redevelopment projects by Quarter 9 of the Joint Effort.

### **Applicability Thresholds**

The City will select Applicability Thresholds for applying Hydromodification Control Criteria to new and redevelopment projects using Water Board-approved methodology developed through the Joint Effort. Applicability thresholds will be consistent with long-term watershed protection.

### **Measurable Goals**

Applicability Thresholds by Quarter 8 of the Joint Effort.

### **Implementation Strategy for LID and Hydromodification Control**

Over the two years of the Joint Effort, the City will develop and enact a strategy for implementing LID and hydromodification controls for new and redevelopment projects. This strategy will provide education and outreach for all applicable target audiences, including specific guidance on LID BMP design and for complying with hydromodification control criteria. The City's strategy will also apply LID principles and features to new and redevelopment projects during the two-year period preceding adoption of hydromodification control criteria.

### **Measurable Goals**

#### *Guidance*

1. Develop, advertise and make available LID BMP Design Guidance suitable for all stakeholders (by Quarter 4 of the Joint Effort).
2. Provide specific guidance on how to achieve and demonstrate compliance with the hydromodification control criteria and LID requirements. Guidance will be made available for new and redevelopment project applicants by Quarter 8 of the Joint Effort.

#### *Education and Outreach*

1. Document goals, schedules, and target audiences for education and outreach conducted in support of the following strategic objectives: enforceable Stormwater Land Development Standards and updates, hydromodification control criteria, applicability thresholds, LID BMP design, and compliance with LID and hydromodification control criteria for new and redevelopment projects by Quarter 2 of the Joint Effort.
2. Tracking Report indicating municipality's accomplishments in education and outreach supporting implementation of LID and hydromodification control for new and redevelopment projects by Quarter 8 of the Joint Effort.

#### *Interim LID Implementation*

1. Apply LID principles and features to all applicable new and redevelopment projects during Quarters 2 through 8 of the Joint Effort.
2. Document LID principles and features incorporated into each applicable project .
3. Tracking Report, for the period Quarter 2 to Quarter 8, identifying LID design principles and features incorporated into each applicable new and redevelopment project by Quarter 9 of the Joint Effort.

## ***5.5 Long Term Maintenance and Monitoring of Implemented Post Construction BMPs***

### **Implementation Details**

The City requires projects which implement post construction BMPs to execute maintenance and monitoring agreements. The agreements require the owner to perform annual maintenance of the BMPs and to submit a report of maintenance to the City of Watsonville Source Control Division. The annual maintenance reports require property owners disclose the type of maintenance performed upon the specific BMP and allows the Source Control Section to evaluate the appropriateness and effectiveness of the maintenance activity. The Source Control Section maintains a database of properties which have executed maintenance and monitoring agreements. Such properties will be sorted on watershed basis. Periodic inspections are performed for the BMPs to verify that the annual reports are accurate and that the BMPs are adequately maintained and are removing new development and redevelopment pollutants of concern as intended.

New residential subdivisions construct both publicly and privately maintained infrastructure. The City requires that storm water BMP facilities are privately maintained and any residential or commercial subdivisions which contain privately maintained infrastructure are required to record Conditions, Covenants and Restrictions which provide comprehensive descriptions of the infrastructure to maintained including storm water quality BMPs and hydromodification BMPs.

### **Measurable Goals**

- The Source Control Manager shall perform an annual inspection of each property within one of the City's three watersheds which has an executed Maintenance and Monitoring Agreement for post construction BMPs. Additional properties outside the watershed to be examined for that year will be inspected as time allows.

## ***5.6 Long Term Watershed Protection***

The City will evaluate the stormwater program in relation to long term watershed protection. The program will be adapted or changed to address long term watershed protection if warranted. Over the course of the first permit cycle the City will:

- Develop, where feasible, quantifiable measures that indicate how the City's stormwater program achieves desired watershed conditions.
- Evaluate existing watershed protection efforts, including: land use policies, plans, ordinances, guidance manuals, development project review procedures and BMPs.
- Adapt or change existing watershed protection efforts when warranted

## ***5.7 Treatment BMPs***

New Development and Redevelopment projects are required to install treatment BMPs in accordance with the City's Stormwater Land Development Standards. The City's current

Standards are provided in Appendix E. In 2010-2011, the City will develop permanent Hydromodification Control Criteria as part of the Water Board's Joint Effort (see BMP 5.4 in Table 5). The methodologies developed during the City's participation may require the City to modify/enhance the BMPs listed in the Standards. The Standards will be updated as new requirements and BMPs are developed/approved for use.

**Table 5 Post Construction BMP Matrix**

Best Management Practice	Implementation Plan	Year 1	Year 2	Year 3	Year 4	Year 5	Measurable Goals	Who?
<b>5.1. Permit Review, Issuance and Inspection Process</b>	<p>Community Development Department (CDD) engineering and planning staff to perform plan review for development and redevelopment projects utilizing the following procedures and documents to affect reasonable and effective post construction BMPs:</p> <ul style="list-style-type: none"> <li>• Early Public Contact</li> <li>• Applicability Criteria</li> <li>• General Plan</li> <li>• CEQA</li> <li>• Conditions of Approval</li> <li>• Post Construction Stormwater Ordinance</li> <li>• Construction Inspection</li> <li>• Long Term BMP Maintenance</li> </ul>	X	X	X			<p>Revise drain inlet standard detail to require stenciling</p> <p>Revise CEQA Initial Study Checklist</p> <p>Adopt a post construction storm water ordinance</p> <p>Revise zoning ordinance to conform to the general plan's 100-foot riparian buffer</p> <p>Establish biennial training for appropriate staff in CDD and PW&amp;U</p> <p>Apply methodologies developed based on the City's participation in the "Joint Effort." The revised post-construction control measures will include applicability thresholds, Storm Water Development Standards (hydromodification control criteria and Low Impact Development technologies), Standard Conditions of Approval and the other elements of the City's development review process to 100% of applicable projects.</p>	CDD and PW&U
<b>5.3 Treatment BMP Effectiveness Assessments</b>	Monitoring program to ensure new development/redevelopment treatment BMPs are functioning as designed	X	X	X	X	X	Annual inspection of BMPs during rain events	

<b>5.4. Hydromodification and Low Impact Development<sup>1</sup></b>	<b>Hydromodification Control Criteria:</b> Derive municipality-specific criteria for controlling hydromodification in new and redevelopment projects using Water Board-approved methodology developed through the Joint Effort or equivalent			Q8		Hydromodification Control Criteria (by Quarter 8)	PW&U and CDD
	<b>Stormwater land Development Standards:</b> The City will modify its enforcement mechanisms or Stormwater Land Development Standards (Standards) to effectively implement hydromodification controls and LID in new development and redevelopment projects.		Q2			Analysis of Standards that identify modifications and/or additions necessary to effectively implement hydromodification controls and LID (by Quarter 2).	
				Q8		Approve new and/or modified Standards that effectively resolve regulatory conflicts and implement hydromodification controls and LID in new and redevelopment projects (by Quarter 8).	
					Q9	Apply new and/or modified Standards to all new and redevelopment projects (by Quarter 9).	
	<b>Applicability Thresholds</b> Selection of applicability thresholds for applying Hydromodification Control Criteria to new and redevelopment projects			Q8		Applicability Thresholds (Q8)	
	<b>Implementation Strategy for LID and Hydromodification Control:</b> The City will develop and enact a strategy for implementing LID and hydromodification controls. This strategy will provide education and outreach for all applicable target audiences, including specific guidance on LID BMP design and hydromodification control criteria. The City will also apply general LID principles		Q4		Q8	<i>Guidance:</i> Develop, advertise and make available LID BMP Design Guidance suitable for all stakeholders (Q4)  Provide specific guidance on how to achieve and demonstrate compliance with the hydromodification control criteria and LID requirements. Guidance will be made available for new and redevelopment project applicants. (Q8)	

<sup>1</sup> **Start Date**

The schedule for BMP implementation refers to the eight three month quarters (e.g., Q2, Q4, etc.) of the two-year Joint Effort and the first quarter following (Q9). For purposes of implementing and tracking Joint Effort BMPs, Quarter 1 will begin upon notification from the Central Coast Water Board. Water Board staff will notify City of Watsonville by electronic mail of the date that will serve as the start date for Quarter 1.

**Reporting Requirements**

The City of Watsonville will achieve Joint Effort Measurable Goals by the end of Q2, Q4, Q8, and Q9. City of Watsonville will report to the Water Board on completion of Measurable Goals within 30 days of the end of the quarter in which the Measurable Goal is scheduled for completion. Reporting will include evidence of adequate detail and substance for Water Board staff to determine whether the Measurable Goal is complete.



	and features to new and redevelopment projects during the period preceding adoption of hydromodification control criteria.		Q2				<p><i>Education and Outreach:</i></p> <p>1. Document goals, schedules, and target audiences for education and outreach conducted in support of the following strategic objectives: enforceable Stormwater Land Development Standards and updates, hydromodification control criteria, applicability thresholds, LID BMP design, and compliance with LID and hydromodification control criteria for new and redevelopment projects by Quarter 2 of the Joint Effort.</p> <p>2. Tracking Report indicating municipality's accomplishments in education and outreach supporting implementation of LID and hydromodification control for new and redevelopment projects by Quarter 8 of the Joint Effort.</p> <p><i>Interim LID Implementation</i></p> <p>1. Apply LID principles and features to all applicable new and redevelopment projects during Quarters 2 through 8 of the Joint Effort.</p> <p>2. Document LID principles and features incorporated into each applicable project</p> <p>3. Tracking Report, for the period Quarter 2 to Quarter 8, identifying LID design principles and features incorporated into each applicable new and redevelopment project by Quarter 9 of the Joint Effort.</p>	
			Q2--	--Q8				
			Q4	Q8		Q9		
<b>5.5 Long Term Maintenance and Monitoring of implemented Post Construction BMPs.</b>	Operators of post construction BMPs are required to execute maintenance and monitoring agreements.	X	X	X	X	X	Annual inspections of post construction BMPs will be performed on every property within one of the three watersheds which have executed maintenance and monitoring agreement.	CDD and PW&U

<b>5.6 Long Term Watershed Protection</b>	Evaluate the stormwater program in relation to long term watershed protection.			X	X	X	<p>Evaluate existing watershed protection planning efforts,</p> <p>Develop (where feasible) quantifiable measures that indicate how the stormwater program helps achieve desired watershed conditions</p>	CDD and PW&U
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## **Municipal Operations Pollution Prevention Program**

Municipal operations include a wide variety of activities to maintain City-owned property and facilities, such as vehicles, public streets and the storm drain system. These activities have the potential to generate a variety of pollutants. The objective of the Municipal Operations Program is to reduce or eliminate adverse water quality impacts from construction, operations, and maintenance activities operations to the maximum extent practicable.

The municipal operations measurable goal defines the level of implementation that the City must attain to demonstrate that operations and maintenance activities will reduce pollutants in storm water to the MEP. This measurable goal will be used as the basis for assessing the effectiveness of operation and maintenance activities.

The General Permit states that the Permittee must develop and implement an operations and maintenance plan that will prevent or reduce pollutants in runoff from municipal operations. The minimum requirements for the Pollution Prevention and Good Housekeeping MCM are:

- Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.
- Using training materials that are available from the U.S. EPA, the State, or other organizations. The program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

The following BMPs are either existing or will be implemented by the City within the next 5 years, upon approval of this SWMP, to satisfy the minimum requirements of the Pollution Prevention/Good Housekeeping control measure and will either have a direct or indirect effect on water quality.

## **6. 1 Street Sweeping.**



The City has developed a sophisticated street sweeping program. To enhance and simplify public awareness, sweeper routing has been combined with residential recycle collections. Signs placed on recycle carts inform customers that vehicles must be off the street on that day. The solid waste trucks service the carts then place them on the sidewalk, creating an obstacle-free path for the street sweeper. For residents who forget or ignore the signs, sweeper operators have (PC832) citation authority and are able to issue parking tickets. These two elements allow the sweeper to directly access more miles of gutter per day and thereby significantly improve the effectiveness of the program. Sweeping frequency is based on the litter/sediment loadings for each area. The core downtown area (bounded by East Lake, West Front, Rodriguez and Union) is swept on a daily basis (Mon-Fri). The area around Watsonville High School (including sections of East Lake and Sudden) is swept every week. All downtown parking lots are swept on a monthly basis. The sweeper covers 7,800 curb miles per year, removing an average of 361,200 Kg of material. In 2005 the city analyzed sweeper debris from commercial/industrial and residential areas of the City. Based on this analysis, the City has been able to estimate the mass of pollutants the street sweeping BMP removes from each year from city streets and parking areas. This data is included in the following table.

Total Removal	KG/Year
Cd	1.06
Cu	50.37
Pb	20.06
Cr	9.99
Ni	11.55
Zn	58.30
Oil and Grease	3391.17

All material collected by the sweeper is delivered to the City landfill.

The City will conduct a street sweeping program assessment to study whether improvements are needed to sweeping routes and frequency, technology, and disposal methods. Field observations and current water quality challenges will be the basis for program update and improvement. Ultimately, the assessment will help refine frequency, routes and technologies necessary to reduce the discharge of pollutants from roads, highways, and parking lots to the MEP.

#### **Measurable Goal**

1. The City will sweep the downtown core area daily, roads around Watsonville High School will be swept weekly, all residential streets every other week and parking lots monthly; the City currently sweeps over 7,800 curb miles every year (Year 1–5).
2. Report number of curb miles swept, the weight and volume of collected materials (Years 1–5).
3. Conduct an internal assessment of the Street Sweeping Program for potential improvements and revise the City's current program as necessary (Years 2–5).

### ***6. 2 Storm Drain Maintenance Program***



#### **Implementation Details**

All storm sewer facilities are maintained by the City Sewer Collections Section. Normal maintenance includes cleaning, repair, and inspection of City owned drainage conveyances, storm drain inlets and culverts. The City will continue to perform regular inspection, cleaning, and repair of the storm drain system (MS4), and will establish a maintenance schedule/plan to ensure that high priority drainage facilities are cleaned before the rainy season and all drainage facilities are inspected and cleaned at other appropriate times of the year. Inspections will be documented and completed according to the maintenance schedule/plan developed. If illicit discharges or connections are found during MS4 maintenance activities, the inspection form will be used to refer the findings to the Source Control Section for further investigation. Cleaning operations will remove as much debris and sediment as possible from the MS4. Waste collected from drainage facilities will be delivered to the wastewater treatment facility for dewatering and then delivered to the city landfill for disposal.

#### **Measurable Goals**

- Establish a maintenance schedule/plan which identifies all City-owned MS4 drainage facilities and categorizes them as high, medium, or low priority based on the City's existing understanding of water quality and flood control needs. The City will continue to utilize its

existing MS4 maintenance strategy until a new maintenance schedule/plan is completed (Year 2).

### **6.3 *Municipal Facility Inspections***

#### **Implementation Details**

Since 1992, the City has conducted stormwater inspections at three facilities (Municipal Service Center, Watsonville Airport and City Landfill), in accordance with the NPDES Phase 1 Industrial Permit. The City will conduct an evaluation of all City facilities and expand its inspection program to include those facilities which are likely to pose threats to stormwater. A list of all City facilities is included in Appendix D. Opportunities for immediate resolution of stormwater impacts will be undertaken. Site improvements requiring more extensive engineering and planning will receive immediate remediation, and then a work plan will be developed that will include the proposed solution, budget necessary to implement the solution, and a date for accomplishing any long-term improvements.

#### **Measurable Goal**

- Prioritize current list of City facilities for potential stormwater impacts; add or delete facilities as needed, and re-prioritize list each year (Years 1–5).
- Conduct inspections of one City facility per month; document and track the inspection findings, and assure all deficiencies are rectified; dates for accomplishing long-term improvements shall be, in most cases, no greater than two years from the initial finding for implementation of pollution prevention measures requiring a work plan (Years 1–5).

### **6.4 *Landscaping***

#### **Implementation Details**

City staff will implement landscaping pollution prevention procedures for City facilities, such as parks, recreational facilities, government and operational facility landscaping, parking lot landscaping, rights-of-way, and City-owned vacant lots. Watsonville Municipal Code 6-3.432 – 6-3.437 discusses landscape and irrigation design standards and requires that irrigation must be designed to prevent runoff.

During the first year of the permit the City will develop or acquire a set of landscape maintenance Fact Sheets that detail specific BMP to address potential pollutants from landscape installation and maintenance (pesticides, fertilizers, greenwaste, trash, and equipment fluids). Topics will include erosion, sediment control, equipment washing and maintenance, waste management, hazardous materials handling and storage, planting and irrigation techniques, and pollution prevention. Integrated pest management and nutrient management will be priority subjects for landscaping pollution prevention training. The Fact Sheets will be distributed to City Parks Dept staff at the annual Municipal Operations Training. Employees will implement these BMPs as appropriate.

### **Measurable Goal**

- Develop or acquire a set of Landscaping Fact Sheets (Year 2) and distribute at the City's annual training (Years 2–5).

## ***6.5 City Vehicle and Equipment Fueling, Maintenance, and Cleaning***



### **Implementation Details**

The City has a centralized vehicle and equipment fueling, maintenance, and cleaning location at the Municipal Service Center (MSC). The City implements a number of source control and pollution prevention BMPs at MSC.

#### **Equipment Fueling**

Equipment is fueled at a dedicated fuel island which is protected by a full canopy. Employees are required to stay with the vehicle during fueling. Absorbent materials are available in the event of minor spills. An emergency fuel shut off is located next to the pumps in the event of major equipment failure.

#### **Equipment Maintenance**

All equipment maintenance is conducted inside the vehicle service facility. All fluids are collected for proper disposal. The vehicle service facility is swept at the end of each business day to eliminate tracking of spilled liquids or particulates outside of the facility.

#### **Equipment Cleaning**

All vehicles are washed at the dedicated truck/car wash facility. Heavy equipment is washed at the equipment/solid waste container wash area adjacent to the truck/car wash. Both of these facilities drain to the sanitary sewer.

The MSC facility is inspected monthly to ensure all BMPs are being implemented.

### **Measurable Goal**

- Inspect Municipal Service Center on a monthly basis for adequate storm water pollution prevention control; dates for accomplishing any required improvements shall be, in most

cases, no greater than two years from the initial finding for implementation of pollution prevention measures requiring a work plan (Years 1–5).

## **6.6 Hazardous Material Storage**



### **Implementation Details**

The City's main location for hazardous materials is the household hazardous waste facility at the Public Drop Off on Harvest Drive. This facility is open to the public on the second Saturday of every month from 9am-3pm. The facility is inspected monthly. Other hazardous material storage locations and practices will be evaluated. An initial inventory of existing hazardous storage facilities will be developed during the first year of the permit and subsequently inspected for necessary improvements. Opportunities for immediate resolution will be undertaken. Site improvements requiring additional planning will have a work plan developed that will include the proposed solution, budget necessary to implement the solution, and a date for accomplishing the improvements. A BMP fact sheet related to the appropriate use of such storage facilities will be developed or acquired and shall be kept immediately adjacent to each unit. Employees will implement these BMPs as appropriate.

### **Measurable Goals**

- Inventory all hazardous material storage areas and inspect annually (inspect HHW facility monthly); document and track the number and type of inspection findings; and assure all deficiencies are rectified; for implementation of pollution prevention measures requiring a work plan, the dates for accomplishing improvements shall be no greater than one year from the initial finding (Years 1–5).
- Develop or acquire a BMP fact sheet for the appropriate use of hazardous materials storage areas (Year 2); distribute at 100% the City's annual training event. (Years 2–5).
- Document the amount of household hazardous waste collected at the Household Hazardous Waste Facility and report the amount in the annual report (Years 1–5).



## **6.7     *Used Motor Oil***



### **Implementation Details**

Watsonville was one of the first jurisdictions in the United States to offer curbside collection of used motor oil and filters. The program started in 1991. In addition to curbside pickup for all homes and most apartments, the program includes free drop off collection at the City's Public Drop-off, and promotion of additional drop-off opportunities at local auto parts stores. The City provides free 2.5 gallon jugs with tight-fitting caps and a heavy duty zip lock bag for used motor oil filters. The City also reimburses two local auto parts stores for the cost of used filter recycling. This aggressive motor oil recycling program prevents thousands of gallons of motor oil from being improperly disposed in the trash, gutter or on the ground.

### **Measurable Goals**

- Collect 15,000 gallons of motor oil and 2,500 filters through Krugen and Auto Zone drop-off services
- Provide 6,000 free oil jugs and provide curbside collection of 12,000 gallons of used motor oil each year.

## **6.8     *Street, City Utility and Bridge Maintenance***

### **Implementation Details**

The City Public Works Department conducts repair and maintenance activities for streets (including bridges), sewers and water lines. These activities are likely to generate significant quantities of sediments as well as hydrocarbons and heavy metals. Successful implementation of this measure requires training of staff on the use of appropriate BMPs. The following BMPs are implemented for street, city utility and bridge maintenance:

- Protect nearby drain inlets when cutting asphalt or concrete
- All saw cutting of surfaces is conducted with a vacuum system to capture sediments
- Stockpiles of materials are securely tarped
- Patching, sealing and surface work on city streets is not conducted in wet weather
- Concrete washout is discharged to a dedicated temporary washout facility. Precautions are taken to ensure that during bridge work no materials are blown or washed into receiving waters
- All crews are equipped with spill control kits that allow prompt response to any equipment spills

The PW Department will develop an annual training program during the first permit year designed for employees with responsibilities for street, city utility and bridge maintenance.

### **Measurable Goals**

- Develop training program for PW employees (Year 1)
- Present training program (Year 2-5) to:

Field Services, Wastewater Collections, Solid Waste Collections, and Customer Services (42 employees)

Public Works (8 employees)

## **6.9 Hydrant Flushing**

### **Implementation Details**

The City Public Works Department conducts routine hydrant flushing to ensure the reliability and quality of the potable water system. Flushing has the potential to release chlorinated water to receiving waters that can be harmful to aquatic life. The following BMPs are implemented for hydrant flushing:

All hydrant flushing activities are conducted using dechlorination diffuser equipment. Water is tested to ensure no chlorine residual. All water from superchlorinated line flushing will be discharged to a sanitary sewer or a tanker truck. Superchlorinated water collected in tanker truck will be discharged to sanitary sewer.

### **Measurable Goals**

- All hydrant flushing will use dechlorinating diffuser equipment. Discharge will be checked using test strips to ensure no chlorine residual.
- All superchlorinated water will be discharged to sanitary sewer.

**Table 6 Municipal Operations BMP Matrix**

Best Management Practice	Implementation Plan	Year 1	Year 2	Year 3	Year 4	Year 5	Measurable Goals	Who?
<b>6. 1 Street Sweeping.</b>	Sweep the downtown core area daily, roads around Watsonville High School will be swept weekly, all residential streets every other week and parking lots monthly	X	X	X	X	X	Report number of curb miles swept, the weight and volume of collected materials	PW
	Conduct an internal assessment of the Street Sweeping Program for potential improvements and revise the City's current program as necessary		X	X	X	X	Report all improvements in sweeping program in annual report.	PW
<b>6. 2 MS4 Maintenance Program</b>	Develop a new maintenance schedule/plan		X				Identify locations as high, medium, or low priority based on the City's existing understanding of water quality and flood control needs	PW
	Implement new MS4 maintenance plan			X	X	X	High priority sections of MS4 serviced annually  Medium priority sections of MS4 serviced every 3 years  Low Priority sections of MS4 serviced every 5 years	PW
<b>6. 3 Municipal Facility Inspections</b>	Prioritize current list of City facilities for potential stormwater impacts	X					Prioritize list based on materials and practices at each site.	PW
	Conduct inspections of one City facility per month		X	X	X	X	100% of facilities in compliance	PW
<b>6.4 Landscaping</b>	Develop or acquire a set of Landscaping Fact Sheets		X	X	X	X	Distribute and discuss Fact sheets to Parks Dept staff each year	PW/ Parks
<b>6.5 City Vehicle and Equipment Fueling, Maintenance, and Cleaning</b>	Inspect Municipal Service Center	X	X	X	X	X	Monthly inspections of MSC facility	PW
<b>6.6 Hazardous Materials Storage</b>	Develop inventory of existing hazardous storage facilities	X					Provide copy of inventory in annual report	PW

	Develop/acquire Haz Mat BMP fact sheets and place at each facility		X				Provide copies of BMP fact sheets in annual report	PW
<b>6.7 Used Motor Oil</b>	Distribute free waste oil jugs to residents and provide curbside collection	X	X	X	X	X	Provide 6,000 Jugs/yr Collect 12,000 gallons/yr	PW
<b>6.8 Street, city utility and bridge maintenance</b>	Develop training program for PW employees	X					Produce training presentation	PW
	Train staff on the use of listed BMPs.		X	X	X	X	Train 50 employees in Public Works Dept	PW
<b>6.8 Hydrant Flushing</b>	Hydrant flushing to use dechlorinator diffuser	X	X	X	X	X	100% of all hydrant and water line flushing in compliance.	PW
	Discharge of superchlorinated water to sanitary sewer	X	X	X	X	X		



### **Total Maximum Daily Load (TMDL) Programs**

The Federal Clean Water Act requires the development of TMDL's and implementation plans to bring impaired water bodies back into compliance with water quality objectives. A pathogen (FIB) TMDL has been developed for Watsonville Slough System. Sediment and nutrient TMDLs have been developed for the Pajaro River. As such, the primary pollutants of concern specific to the City are fecal indicator bacteria, sediment, and nutrients.

#### ***Watsonville Wetlands TMDL***

On July 19, 2007 the EPA approved a TMDL for pathogens in Watsonville Wetlands. This TMDL requires the City to:

1. Educate the public, including the homeless, regarding sources of fecal coliform and associated health risks of fecal coliform in surface waters of the Watsonville Slough Watershed. Educate the public regarding actions that individuals can take to reduce pathogen loading in the Watershed.
2. Conduct public participation and outreach regarding specific actions that individuals can take to reduce pathogen loading.
3. Revise their Stormwater Management Plans to indicate how and when they will develop and implement an enforceable means of reducing fecal coliform loading from pet waste (e.g., an ordinance).
4. Improve maintenance of their sewage collection systems, including identification, correction, and prevention of sewage leaks, in portions of the collection systems that run through, or adjacent to, tributaries to Watsonville Slough.

#### **Pollutants of Concern**

- Fecal Coliforms

#### **BMPs**

### **Public Education BMP 1.2**

#### **Door-To- Door Campaign**

The City will conduct a door to door education campaign in each sub watershed. In the Watsonville Wetland sub watershed, the campaign will focus on management of pet wastes.

### **Public Education BMP 1.4**

#### **Wetland Trails**

Signs, garbage cans and pet waste bag dispensers are located along all wetlands trail segments.

#### **Adult Outreach**

Bilingual staff from the Nature Center provide Power Point presentations to Pajaro Valley Unified School District and Cabrillo Adult School students, YWCA teen groups and local business organizations such as the Rotary Clubs. Presentation topics include “Wetlands of Watsonville 101” focused on general watershed and wetland protection. A presentation will be developed to address “Pet Waste and our Water Quality.” All groups are encouraged to schedule a follow up field trip in the watershed with Nature Center staff.

### **Public Education BMP 1.8**

#### **Community Outreach Events**

The City participates in the annual Coastal Clean-up Day with pollution prevention activities in the school and by sponsoring two clean-up sites at the Pajaro River and the Watsonville Wetlands.

### **Pet Waste Ordinance BMP**

Watsonville Municipal Code 6-1.512 Wastes states:

It shall be unlawful for any owner or person having the charge, care, control, or possession to permit any animal to defecate upon any public property, street, walk, or park, or to permit any animal to defecate upon the unenclosed private property of another person. The owner or person having the charge, care, control, or possession of any animal shall be responsible for the removal of any excreta deposited by their animal.

(§ 1, Ord. 886-92 C-M, eff. April 9, 1992)

The ordinance will be implemented through education programs, complaint response, and existing enforcement procedures.

### **BMP 3.6 Sewer Collection System Maintenance**

The City cleans over 100% of the sewage system on an annual basis. Trouble spots (identified by video inspection or where backups or overflows have historically been a problem) are cleaned at appropriate intervals, typically 6 – 8 weeks, to prevent overflows at those locations. The following is a list of those sections of sewer that are identified as trouble spots in the Wetland sub-watershed.

- *Ford Street*
- *Atkinson Lane @ Arista*
- *Blanca Lane Trailer Park*
- *Clifford @ Pennsylvania*
- *Casillas lane*
- *Herman Extension*
- *Holly and Sunny Hills*
- *Shady Oaks @ Sunnyhills*
- *Anna @ Shady Oaks*
- *Clifford (parking lot)*
- *Main Street @Freedom*
- *Eastern @ Southern*
- *Hyde @ Eighth*
- *Ninth St*
- *Alley @90 to Eighth*
- *Freedom @ Airport*
- *Freedom @Roach*
- *Loma Prieta*
- *Carey @ Davis*
- *Davis @ Freedom*
- *Shasta @ Sonoma*
- *Manana Lane*
- *Alta Vista ( DMV)*

**For more details on this TMDL**

[http://www.swrcb.ca.gov/centralcoast/board\\_decisions/adopted\\_orders/2006/2006\\_0025\\_res\\_wat\\_path\\_tmdl\\_april20.pdf](http://www.swrcb.ca.gov/centralcoast/board_decisions/adopted_orders/2006/2006_0025_res_wat_path_tmdl_april20.pdf)

## ***Pajaro River Sediment TMDL***

On November 27, 2006 the California Office of Administrative Law approved a TMDL for sediments in the Pajaro River. This TMDL requires the City to: “include specific actions to reduce sediment discharges pursuant to NPDES General Permit for Storm Sewer Systems. The cities will then describe the actions taken in their annual report.”

### **Pollutants of Concern**

- Sediments

### **BMPs**

#### **Public Education BMP 1.2**

##### **Door-To- Door Campaign**

This program will be a targeted pollution prevention campaign in the Pajaro River sub watershed. Specific targeted change in behavior will be landscape practices that prevent run-off of sediment and chemicals.

#### **Public Education BMP 1.8**

##### **Community Outreach Events**

The City participates in the annual Coastal Clean-up Day with pollution prevention activities in the school and by sponsoring two clean-up sites at the Pajaro River and the Watsonville Wetlands.

### **Municipal Operations BMP 6. 1**

#### **Street Sweeping**

The Pajaro River Sub -watershed incorporates the core downtown area (bounded by East Lake, West Front, Rodriguez and Union). This area is currently swept on a daily basis (Mon-Fri). The area around Watsonville High School (including sections of East Lake and Sudden) is swept every week. All downtown parking lots are swept on a monthly basis. All other streets in the sub-watershed are swept every two weeks.

### **Municipal Operation BMP 6. 2**

#### **MS4 Maintenance Program**

The City will continue to perform regular inspection, cleaning, and repair of the MS4, and will establish a maintenance schedule/plan to ensure that high priority drainage facilities in the Pajaro sub-watershed are cleaned before the rainy season and all drainage facilities are inspected and cleaned at other appropriate times of the year.

**For more details on this TMDL**

**[http://www.epa.gov/waters/tmdl/docs/32675\\_32675sbrbtmdl.pdf](http://www.epa.gov/waters/tmdl/docs/32675_32675sbrbtmdl.pdf)**

### ***Pajaro River Nitrate TMDL***

On December 2, 2005 the WATER BOARD approved TMDL for nitrates in the Pajaro River. This TMDL sets a load allocation of 10 mg/L. While the primary source of nitrates is from croplands, the City is required to include in the SWMP specific actions to reduce nitrate discharges. The City manages nitrates through public education campaigns and nutrient management at city parks.

### **Pollutants of Concern**

- Nitrate

### **BMPs**

#### **Public Education BMP 1.2**

##### **Door-to-Door Program**

The City will develop and implement a targeted pollution prevention campaign in the Pajaro sub-watershed. Targeted change in behavior will be landscape practices that prevent run-off of sediment and chemicals.



## **Municipal Operations BMP 6.4**

### **Landscaping**

City staff will implement landscaping pollution prevention procedures for City facilities, such as parks, recreational facilities, government and operational facility landscaping, parking lot landscaping, rights-of-way, and City-owned vacant lots. City of Watsonville Municipal Code 6-3.432 – 6-3.437 discusses landscape and irrigation design standards and requires that irrigation must be designed to prevent runoff. During the first year of the permit the City will develop or acquire a set of landscape maintenance Fact Sheets that detail specific BMP to address potential pollutants from landscape installation and maintenance (pesticides, fertilizers, green waste, trash, and equipment fluids). Employees will implement these BMPs as appropriate.

### **For more details on this TMDL**

[http://www.swrcb.ca.gov/centralcoast/board\\_decisions/adopted\\_orders/2005/2005\\_0131\\_pajaro\\_river\\_nitrate\\_tmdl.pdf](http://www.swrcb.ca.gov/centralcoast/board_decisions/adopted_orders/2005/2005_0131_pajaro_river_nitrate_tmdl.pdf)

## ***Corralitos Creek Pathogen TMDL***

Corralitos creek is currently approved by the WATER BOARD for a pathogen TMDL.

### **Pollutants of Concern**

- Fecal Coliforms

### **BMPs**

## **Public Education BMP 1.2**

### **Door-To- Door Campaign**

The City will conduct a door to door education campaign in each sub watershed. In the Corralitos Creek sub -watershed, the campaign will focus on management of pet wastes.

## **Public Education BMP 1.4**

### **Adult Outreach**

Bilingual staff from the Nature Center provide Power Point presentations to Pajaro Valley Unified School District and Cabrillo Adult School students, YWCA teen groups and local business organizations such as the Rotary Clubs. Presentation topics include “Wetlands of Watsonville 101” focused on general watershed and wetland protection. A presentation will be developed to address “Pet Waste and our Water Quality.” All groups are encouraged to schedule a follow up field trip in the watershed with Nature Center

## **Pet Waste Ordinance BMP**

Watsonville Municipal Code 6-1.512 Wastes states:

It shall be unlawful for any owner or person having the charge, care, control, or possession to permit any animal to defecate upon any public property, street, walk, or park, or to permit any animal to defecate upon the unenclosed private property of another person. The owner or person

having the charge, care, control, or possession of any animal shall be responsible for the removal of any excreta deposited by their animal.

(§ 1, Ord. 886-92 C-M, eff. April 9, 1992)

The ordinance will be implemented through education programs, complaint response, and existing enforcement procedures.

### **BMP 3.6 Sewer Collection System Maintenance**

The City cleans over 100% of the sewage system on an annual basis. Trouble spots (identified by video inspection or where backups or overflows have historically been a problem) are cleaned at appropriate intervals, typically 6 – 8 weeks, to prevent overflows at those locations. The following is a list of those sections of sewer that are identified as trouble spots in the Corralitos sub-watershed.

- Mc Kenzie and Hushbeck
- Blackburn and Beach
- Palm Street
- Tuttle @East Lake

**For more details on this TMDL**

[http://www.swrcb.ca.gov/centralcoast/water\\_issues/programs/tmdl/docs/corralitos/cor\\_fec\\_tmdlat1\\_res\\_pubrevfnl.pdf](http://www.swrcb.ca.gov/centralcoast/water_issues/programs/tmdl/docs/corralitos/cor_fec_tmdlat1_res_pubrevfnl.pdf)

### **BMP 7.1 Wasteload Allocation Attainment Program**

#### **Implementation Details**

The long term goal of the City is to achieve TMDL wasteload allocations, as feasible. The short term goal is to eliminate, to the maximum extent practicable, controllable sources of pollutants for the adopted TMDLs where those pollutants are associated with the storm drain system. The City will develop and implement a Wasteload Allocation Attainment Program to address these TMDLs. The program may be watershed-specific or jurisdiction-wide, depending on the pollutant and its sources. The program will address the following:

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

## **Measurable Goals**

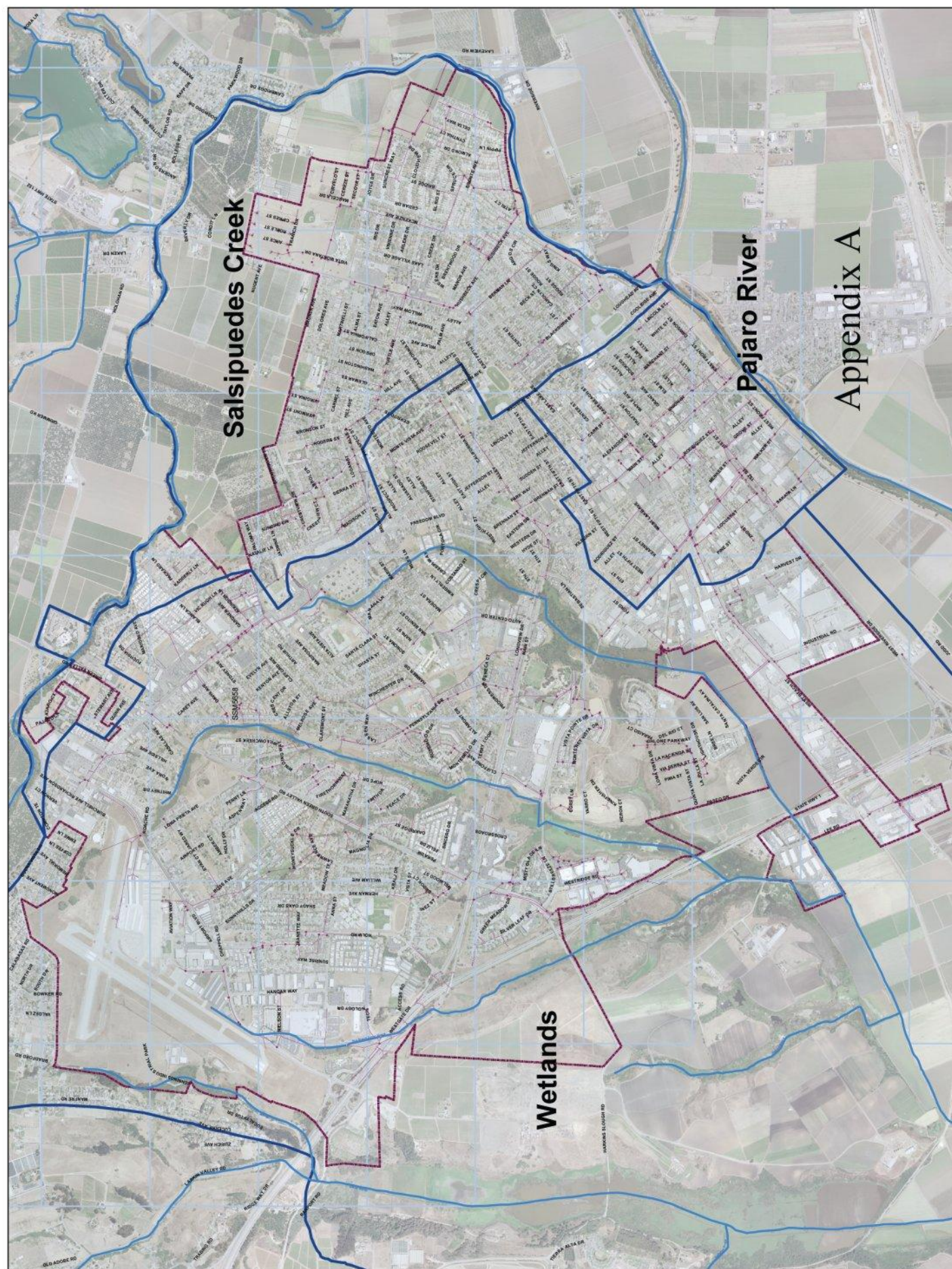
- Implement BMP's 1.2- 6.4 in accordance with the schedules detailed on BMP matrix Tables 1, 3 and 6.
- Develop a Wasteload Allocation Attainment Program in Year 4.
- Begin implementation of the Wasteload Allocation Attainment Program in Year 5

***Table 7 TMDL BMP Matrix***

<b>Best Management Practice</b>	<b>Implementation Plan</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Measurable Goals</b>	<b>Who?</b>
Public Education BMP 1.2 Door-To- Door Campaign	See Table 1 Public Education BMP Matrix						See Table 1 Public Education BMP Matrix	PW
Public Education BMP 1.4 Wetland Trails Adult Outreach	See Table 1 Public Education BMP Matrix						See Table 1 Public Education BMP Matrix	PW
Public Education BMP 1.8 Community Outreach Events	See Table 1 Public Education BMP Matrix						See Table 1 Public Education BMP Matrix	PW
BMP 3.6 Sewer Collection System Maintenance	See Table 3 IDDE BMP Matrix						See Table 3 IDDE BMP Matrix	PW
Municipal Operations BMP 6. 1 Street Sweeping	See Table 6 Municipal Operations BMP Matrix						See Table 6 Municipal Operations BMP Matrix	PW
Municipal Operations BMP 6. 2 MS4 Maintenance Program	See Table 6 Municipal Operations BMP Matrix						See Table 6 Municipal Operations BMP Matrix	PW
Municipal Operations BMP 6.4 Landscaping	See Table 6 Municipal Operations BMP Matrix						See Table 6 Municipal Operations BMP Matrix	PW/ Parks
Wasteload Allocation Attainment Program (WAAP)	Develop WAAP    Implement WAAP				X    X	    X	Source identification and prioritization  BMP identification and prioritization,  Develop Monitoring Program  Implementation and initial assessment of WAAP	PW









# Soils Map



City of Watsonville

Map: "Coastal Range Watershed Soil Group Distribution"  
 Prepared by: Watsonville, CA (June 2012) (Map 000001)  
 The City of Watsonville is not responsible for any errors or omissions in this map. The City of Watsonville is not responsible for any damages or losses resulting from the use of this map.

## Legend

Streams

Streets

Levees

SDSubBasins

Watsonville City Limit

WatsonvilleSoils

MUSYM

103

104

119

120

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123

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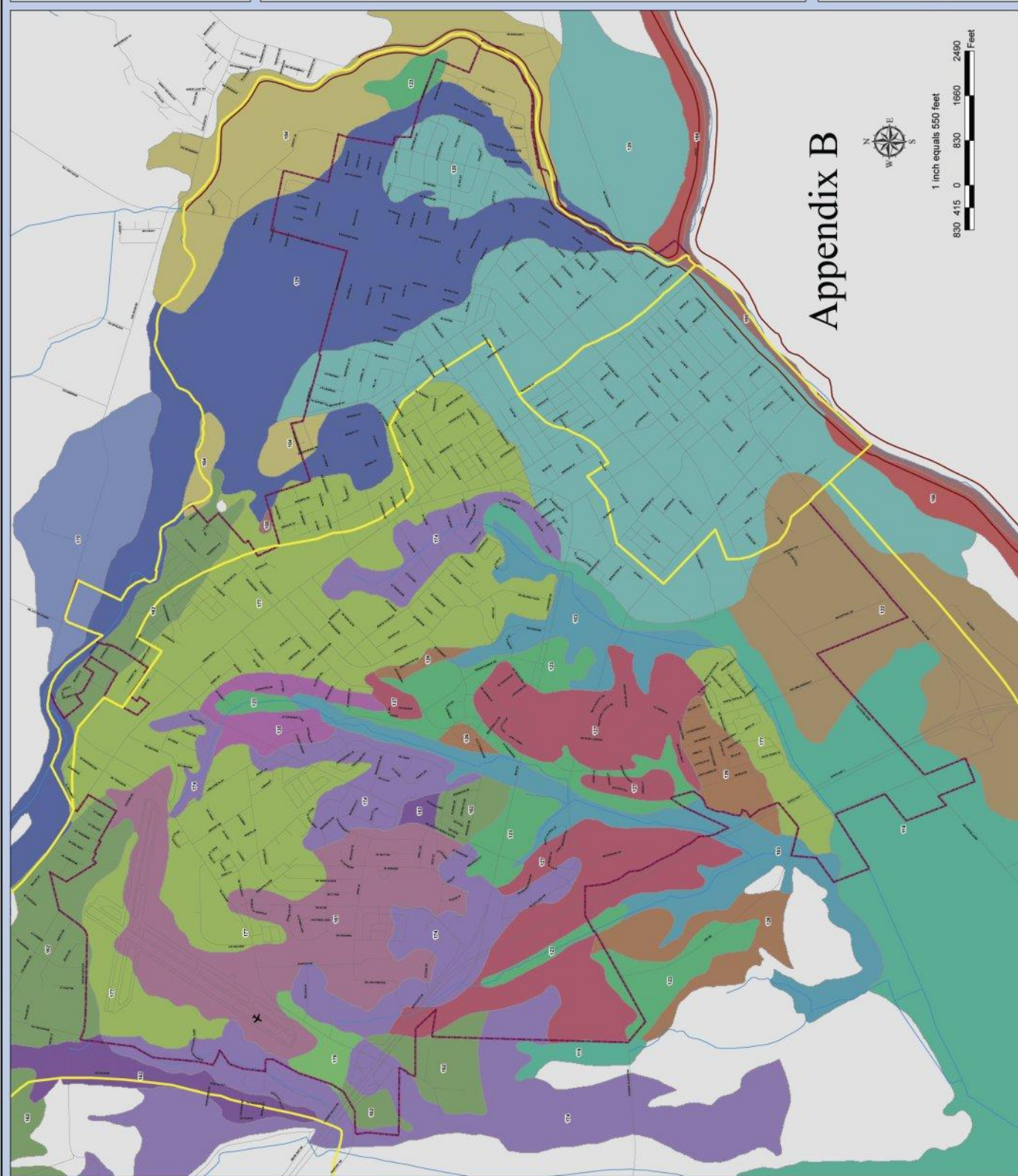
185



## Appendix B



1 inch equals 550 feet





# Vacant and Underutilized Land



City of Watsonville

Motto: "Opportunity Through Learning, Unity Through Cooperation"

## Legend

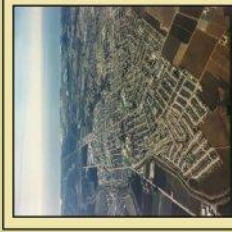
- Vacant Land
- Underutilized Land
- Business Enhancement Opportunity Sites
- Needs Policy Change
- Storm Drain Sub Basin
- PALMERO RIVER
- SALINAS RIVER
- WETLANDS
- Environmental Mgmt - Open Space
- Parcel
- Watsonville City Limit



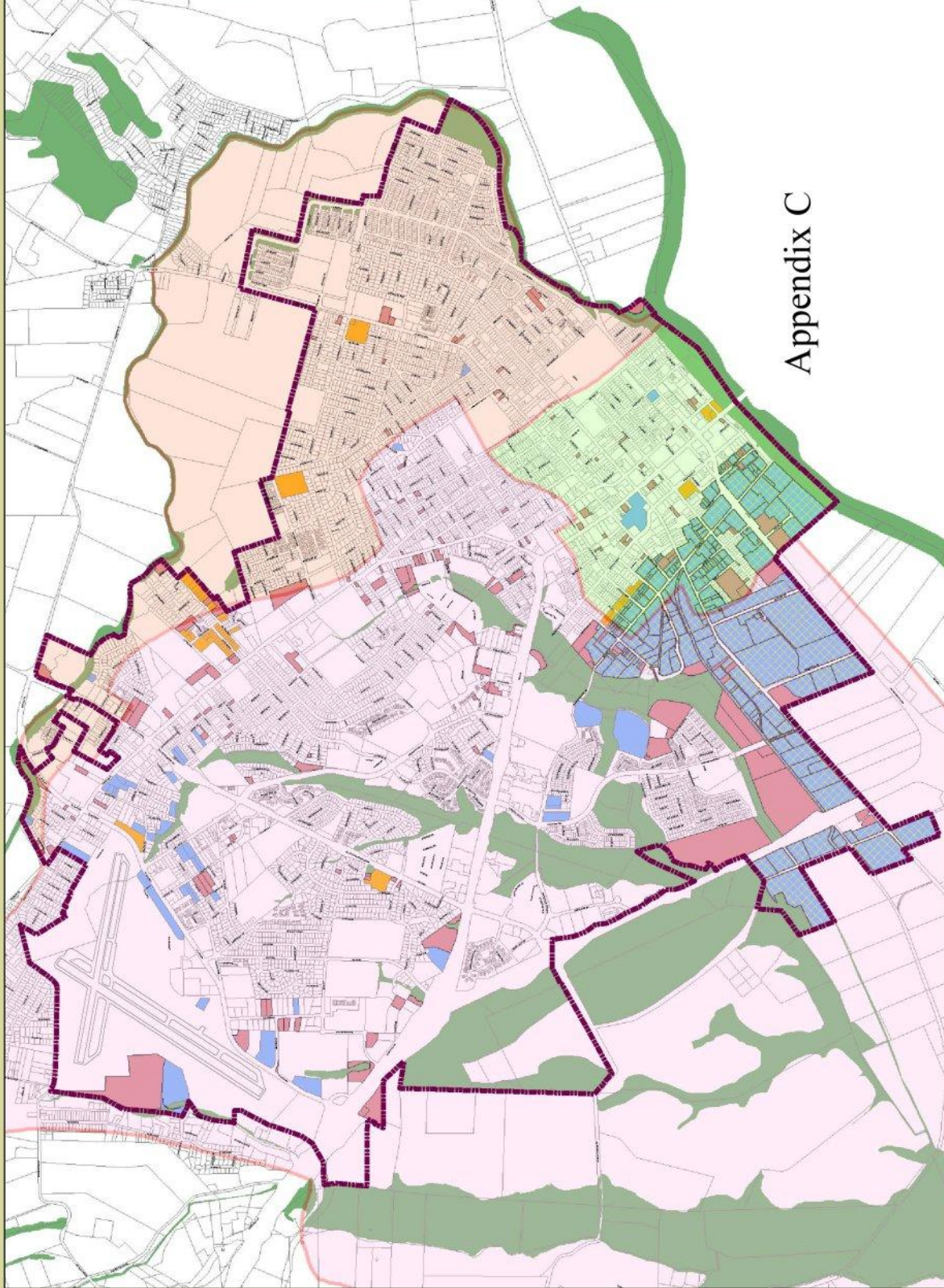
1 inch equals 1,700 feet



Prepared by Watsonville GIS Group 7/15/2005  
This document is for informational purposes only. It is not intended to be used for legal or financial purposes.



## Appendix C



## **Appendix D**

### **City Buildings List**

- Civic Plaza. Main Street
- City Hall. Main Street
- Police Department. Main Street
- Fire Station 1. Second Street
- Fire Station 2. Airport Blvd
- Wastewater Treatment Facility. Panabaker lane
- Airport Terminal Building. Aviation Way
- Animal Shelter. Airport Boulevard
- Materials Recovery. Facility. Harvest Drive
- Municipal Services Center. Harvest Drive
- Water Operations Building. Freedom Blvd
- Filter Plant Eureka Canyon Road
- Nature Center. Harkins Slough Road
- Freedom Library. Freedom Blvd
- Youth Center. Maple Ave
- Calaghan Center. Sudden Street
- Ramsay Park Concession. Main Street
- Pinto Lake Concession. Green Valley Road
- Day Care Building. Second Street
- Marinovich Community Center. Second Street
- Pajaro Valley Arts. Sudden Street
- Mello Center. Union Street
- Senior Center. East Fifth Street
- Police Barracks. Browns Valley



## **Appendix E**

# **City of Watsonville Storm Water Land Development Standards**

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## CITY OF WATSONVILLE STORM WATER LAND DEVELOPMENT STANDARDS

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### BACKGROUND

The requirement to implement a program for development planning is based on Federal Phase II storm water regulations, Section 402 (p) of the Clean Water Act, and the California Water Code. The Clean Water Act amendments of 1987 established a framework for regulating storm water discharges from municipal, industrial, and construction activities under the NPDES program. The primary objectives of the municipal storm water program requirements are to:

- Effectively prohibit non-storm water discharges, and
- Reduce the discharge of pollutants from storm water conveyance systems to the Maximum Extent Practicable (MEP statutory standard).

The City developed the Storm Water Land Development Standards reduce storm water pollution from new development and redevelopment. The Standards include a list of required Best Management Practices (BMPs) that developers shall incorporate into their project plans.

**All projects that fall into one of the following seven categories require compliance with the City's Storm Water Land Development Standards:**

- **All Developments greater than 1 acre in size**
- **Commercial Developments**
- **Restaurants**
- **Retail Gasoline Outlets and Vehicle Repair Shops**
- **Parking lots with 10,000 square feet or more impervious surfaces**
- **Locations adjacent to or discharging directly to an environmentally sensitive area**
- **Any development where downstream storm drain capacity is inadequate**

## DEFINITIONS

“Automotive Repair Shop” means a facility that is categorized in the City Land Use Classification Manual as DLU 63.

“Best Management Practice (BMP)” means any program, technology, process, siting criteria, operational methods or measures, or engineered systems, which when implemented prevent, control, remove, or reduce pollution.

“Commercial Development” means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, warehouses and other light industrial complexes.

“Directly Connected Impervious Area (DCIA)” means the area covered by a building, impermeable pavement, and/ or other impervious surfaces, which drains directly into the storm drain without first flowing across permeable land area (e.g. lawns).

“Directly Discharging” means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

“Environmentally Sensitive Area” means an area “in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments” (California Public Resources Code § 30107.5). Areas subject to storm water mitigation requirements include those identified as environmentally sensitive for water quality purposes, based on the Regional Board Basin Plan and Clean Water Act Section 303(d) Impaired Waterbodies List for the County of Santa Cruz.

“New Development” means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

“Source Control BMP” means any schedule of activities, structural devices, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution.

“Structural BMP” means any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g. canopy, structural enclosure). The category may include both Treatment Control BMPs and Source Control BMPs.

“Treatment Control BMP” means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process.

## 1. PEAK STORM WATER RUNOFF DISCHARGE RATES

No development of 1 acre or larger shall cause higher rates of storm water runoff than those that existed prior to the project (Watsonville Municipal Code 6-3.530). This provision will also apply to all developments where downstream storm drain capacity is inadequate, or where stormwater is discharged directly to an environmentally sensitive area.

## 2. DESIGN STANDARDS FOR STRUCTURAL OR TREATMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs)

Storm water runoff from a site has the potential to contribute various pollutants to the storm water conveyance system. The development shall be designed to minimize the introduction of pollutants generated from site runoff of directly connected impervious areas (DCIA) to the storm water conveyance system.

**All developments are required to incorporate a Structural or Treatment Control BMP or combination of BMPs best suited to reducing the pollutant loadings in storm water runoff to the Maximum Extent Practicable.** BMPs used to protect water quality may be combined with facilities to mitigate peak storm water runoff discharges as required in Section 1 (above).

**Structural or Treatment Control BMPs shall be designed according to the City's *Land Development BMPs* (Appendix C of this document).** The City will also accept BMPs from the guidance documents listed in Table 1, subject to the criteria set in this guidance document. Examples of BMPs are identified in Table 2.

## 3. CONSERVE NATURAL AREAS

The following items are required and shall be implemented in the site layout during the design and entitlement process, consistent with applicable General Plan and Local Area Plan policies:

- Concentrate or cluster development on portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands when present on site (a 100-foot setback from the edge of wetland and riparian areas is required).

#### **4. PROTECT SLOPES AND CHANNELS**

Projects shall include BMPs to decrease the potential of slopes and/or channels from eroding and impacting storm water runoff:

- Convey runoff safely from the tops of slopes and stabilize disturbed slopes (see City Erosion Control Standards for more information)
- Utilize natural drainage systems to the Maximum Extent Practicable
- Stabilize permanent channel crossings
- Vegetate slopes with native species appropriate for the surrounding habitat.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion, with the approval of all agencies with jurisdiction, e.g., the U.S. Army Corps of Engineers and the California Department of Fish and Game

#### **5. PROVIDE STORM DRAIN SYSTEM STENCILING AND SIGNAGE**

Storm drain stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets. The stencil contains a brief statement that prohibits the dumping of improper materials into the storm water conveyance system.

- All storm drain inlets and catch basins within the project area shall be stenciled according to one of the following City Public Improvement Standards: S450, S451, S452, S453A, S453B.
- Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, shall be posted at designated public access points along channels and creeks within the project area, and shall be in both Spanish and English.
- Legibility of stencils and signs shall be maintained.

#### **6. PROPERLY DESIGN OUTDOOR MATERIAL STORAGE AREAS**

Outdoor material storage areas refer to storage areas or facilities solely for the storage of materials. Where proposed project plans include outdoor areas for permanent storage of materials, the following Structural or Treatment BMPs are required:

- Materials with the potential to contaminate storm water shall be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.
- The storage area shall be paved and sufficiently impervious to contain leaks and spills.

- The storage area shall have a roof or awning to minimize collection of storm water within the secondary containment area.

## **7. PROPERLY DESIGN TRASH STORAGE AREAS**

All trash container areas shall comply with the City of Watsonville Public Works Improvement Standards 809 through 811. In addition, drainage from adjoining roofs and pavement shall be diverted around trash container areas.

## **8. PROVIDE PROOF OF ONGOING BMP MAINTENANCE**

Improper maintenance is one of the most common reasons why water quality controls will not function as designed. It is important to consider who will be responsible for maintenance of a permanent BMP and what equipment is required to perform the maintenance properly. As part of project review, if a project applicant is required to include Structural or Treatment Control BMPs in project plans, the City will require that the applicant provide verification of maintenance provisions through such means as may be appropriate, including, but not limited to legal agreements, covenants, CEQA mitigation requirements and/or Conditional Use Permits.

For all properties, the verification will include the developer's signed statement, as part of the project application, accepting responsibility for all structural and treatment control BMP maintenance until the time the property is transferred and, where applicable, a signed agreement from the public or private entity assuming responsibility for Structural or Treatment Control BMP maintenance. A sample agreement is included in Appendix A.

The transfer of property to a private or public owner shall have conditions requiring the recipient to assume responsibility for maintenance of any Structural or Treatment Control BMP included in the sales or lease agreement for that property. The condition of transfer shall include a provision that the property owners conduct maintenance inspection of all Structural or Treatment Control BMPs at least once a year and retain proof of inspection. For residential properties where the Structural or Treatment Control BMPs are located within a common area which will be maintained by a homeowner's association, language regarding the responsibility for maintenance shall be included in the projects conditions, covenants and restrictions (CC&Rs).

Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

## **9. PROVISIONS APPLICABLE TO INDIVIDUAL PROJECT CATEGORIES**

### **A. COMMERCIAL DEVELOPMENTS**

#### **1). *PROPERLY DESIGN LOADING/UNLOADING DOCK AREAS***

Loading/unloading dock areas have the potential for material spills to be quickly transported to the storm water conveyance system. If the project includes a loading dock, the following design criteria are required:

- Cover loading dock areas or design drainage to minimize run-on and runoff of storm water.
- Direct connections to storm drains from depressed loading docks (truck wells) are prohibited. Design loading dock drainage systems to capture all washwater, leaks and spills. Connect drains to a sump for collection and off-site disposal as hazardous waste.

#### **2). *PROPERLY DESIGN REPAIR/MAINTENANCE BAYS***

If the project includes repair bays, the following design criteria are required:

- Repair/maintenance bays shall be indoors or designed in such a way that does not allow storm water run-on or contact with storm water runoff.
- Design a repair/maintenance bay drainage system to capture all washwater, leaks and spills. Connect drains to a sump for collection and off-site disposal as hazardous waste. Direct connection of the repair/maintenance bays to the storm drain system is prohibited.

#### **3). *PROPERLY DESIGN VEHICLE/EQUIPMENT WASH AREAS***

If the project includes an area for washing/steam cleaning of vehicles and equipment, the following design criteria are required:

- Self-contained and/or covered, equipped with a clarifier or other pretreatment facility, and properly connected to a sanitary sewer.

### **B. RESTAURANTS**

### **1). *PROPERLY DESIGN EQUIPMENT/ACCESSORY WASH AREAS***

The activity of equipment/accessory washing/steam cleaning has the potential to contribute pollutants to the storm water conveyance system. Include in the project plans an area for the washing/steam cleaning of equipment, floormats, tallow storage areas, and accessories. This area shall be:

- Self-contained, covered, paved, designed to minimize run-on and runoff of storm water, connected to a grease interceptor, and properly connected to a sanitary sewer.

## **C. RETAIL GASOLINE OUTLETS and VEHICLE REPAIR SHOPS**

### **1). *PROPERLY DESIGN FUELING AREA***

Fueling areas have the potential to contribute oil and grease, solvents, car battery acid, coolant and gasoline to the storm water conveyance system. Therefore, design plans, which include fueling areas, shall contain the following:

- The fuel dispensing area shall be covered with an overhanging roof structure or canopy. The cover's minimum dimensions shall be equal to or greater than the area within the grade break. The cover shall not drain onto the fuel dispensing area and the downspouts shall be routed to prevent drainage across the fueling area.
- The fuel dispensing areas shall be paved with Portland cement concrete (or equivalent smooth impervious surface), and the use of asphalt concrete shall be prohibited.
- The fuel dispensing area shall have a 2% to 4% slope to prevent ponding, and shall be separated from the rest of the site by a grade break that prevents run-on of storm water.
- At a minimum, the concrete fuel dispensing area shall extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.

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### **2). *PROPERLY DESIGN REPAIR/MAINTENANCE BAYS***

Design plans for repair bays shall include the following:

- Repair/maintenance bays shall be indoors or designed in such a way that does not allow storm water run-on or contact with storm water runoff.
- Design a repair/maintenance bay drainage system to capture all washwater, leaks and spills. Connect drains to a sump for collection and off-site disposal as hazardous waste. Direct connection of the repair/maintenance bays to the storm drain system is prohibited.



### **3). *PROPERLY DESIGN VEHICLE/EQUIPMENT WASH AREAS***

Include in the project plans an area for washing/steam cleaning of vehicles and equipment. This area shall be:

- Self-contained and/or covered, equipped with a clarifier, or other pretreatment facility, and properly connected to a sanitary sewer or to a permitted disposal facility.

## **D. PARKING LOTS**

**This standard applies to parking lots with 10,000 square feet or more impervious parking or access surfaces, and to parking lot expansions that, when combined with an existing parking lot, have a total size of 10,000 square feet or larger.**

### **1). *PROPERLY DESIGN PARKING AREAS***

Parking lots contain pollutants such as heavy metals and oil & grease that are deposited on parking lot surfaces by motor vehicles. These pollutants are directly transported to surface waters. To minimize the offsite transport of pollutants, the following design criteria are required:

- Minimize impervious land coverage of parking areas
- Infiltrate runoff before it reaches the storm drain system
- Treat runoff before it reaches the storm drain system. Parking lot runoff should drain into properly sized grass swales before being discharged into the storm drain system. Alternatively, parking lot runoff may be treated in an underground system if a commitment to long-term BMP maintenance has been made in writing (see Appendix C for BMP design guidance).

### **2). *REGULAR MAINTENANCE***

- Parking lots shall be swept at least monthly using a regenerative air sweeper or its equivalent.

## **E. PRIVATE STREETS**

### **1). *REGULAR MAINTENANCE***

- Privately owned streets shall be swept at least monthly using a regenerative air sweeper or its equivalent.

## 10. WAIVER

The City may provide for a waiver from the requirement if impracticability for a specific property can be established. A waiver for impracticability shall be granted only when all other Structural or Treatment Control BMPs have been considered and rejected as infeasible.

## 11. RESOURCES AND REFERENCE

**TABLE 1**

SUGGESTED RESOURCES	HOW TO GET A COPY
<p><b><i>Start at the Source</i></b> (1999) by Bay Area Stormwater Management Agencies Association</p> <p>Detailed discussion of permeable pavements and alternative driveway designs presented.</p>	<p>Bay Area Stormwater Management Agencies Association 2101 Webster Street Suite 500 Oakland, CA (510) 286-1255</p>
<p><b><i>California Storm Water Best Management Practices Handbooks</i></b> (2003) for Construction Activity, New Development Municipal, and Industrial/Commercial</p> <p>Presents a description of a large variety of Structural BMPs, Treatment Control, BMPs and Source Control BMPs</p>	<p><a href="http://WWW.cabmphandbooks.com">WWW.cabmphandbooks.com</a></p>
<p><b>Caltrans Storm Water Quality Handbook: Planning and Design Staff Guide</b> (<i>Best Management Practices Handbooks</i> (1998)</p> <p>Presents guidance for design of storm water BMPs</p>	<p>California Department of Transportation P.O. Box 942874 Sacramento, CA 94274-0001 (916) 653-2975</p>

TABLE 2

EXAMPLE BEST MANAGEMENT PRACTICES (BMPs)

The following are examples of BMPs that can be used for minimizing the introduction of pollutants of concern that may result in significant impacts, generated from site runoff to the storm water conveyance system:

- Use permeable materials for private sidewalks, driveways, parking lots, or interior roadway surfaces (examples: hybrid lots, parking groves, permeable overflow parking, etc.).
- Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more homes together.
- Reduce the overall imperviousness associated with parking lots by using pervious materials in spillover parking areas.
- Direct rooftop runoff to pervious areas such as yards, open channels, or vegetated areas, and avoid routing rooftop runoff to the roadway or the storm water conveyance system.
- Biofilters including vegetated swales and strips
- Extended/dry detention basins
- Infiltration basin
- Infiltration trenches or vaults
- Wet detention basins/wet ponds
- Constructed wetlands
- Media filtration



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# Appendix A

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## **Agreement Regarding Maintenance of Structural or Treatment Control BMPs (Best Management Practices)**

for APN No. \_\_\_\_\_

\_\_\_\_\_, being the owner of the real property located at \_\_\_\_\_, California, consents and agrees to inspect and maintain annually, prior to October 15 of each year, the Structural or Treatment Control BMPs (such as silt and/or grease traps or detention systems) on the subject property as shown on the improvement plans dated \_\_\_\_\_, on file with the City of Watsonville. I agree to forward a letter providing proof of inspection and maintenance to the City of Watsonville Source Control Department prior to October 15 of each year.

In order to transfer the property to a private or public owner, I shall require the recipient to assume responsibility for maintenance of any Structural or Treatment Control BMPs in the sales or lease agreement for that property. The condition of transfer shall include a provision that the new property owner agrees to forward a letter providing proof of BMP inspection and maintenance to the City of Watsonville Source Control Department prior to October 15 of each year.

Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

I have read the above agreement and understand it.

\_\_\_\_\_  
Owner

\_\_\_\_\_  
Date

## Appendix B

# Unit Basin Storage Volume Sizing Curves

---

### Design Storm Volume Calculation

Hydrologic calculations for design of volumetric-based storm water quality BMPs in Watsonville shall be in accordance with the procedures set forth herein.

#### *Calculation Procedure*

1. Review the area draining to the proposed BMP. Determine the percentage of Directly Connected Impervious Area (DCIA), the drainage area that is considered impervious. Impervious area includes paved areas, roofs, and other developed, non-vegetated areas. Non-vegetated, compacted soil areas shall be considered an impervious area.
2. Figure B-1 provides a direct reading of Unit Detention Basin Storage Volumes required for 80% annual capture of runoff based on the percentage of Directly Connected Impervious Area (DCIA) on the site. Enter the vertical axis of Figure B-1 with the percentage DCIA. Move horizontally across Figure B-1 until the line is intercepted. Move vertically down Figure B-1 from this point until the horizontal axis is intercepted. Read the Unit Basin Storage Volume along the horizontal axis.
3. The basin volume or basic volume of the BMP is then calculated by multiplying the Unit Basin Storage Volume by the BMP's drainage area. Due to the mixed units that result (e.g., acre-inches, acre-feet) it is recommended that the resulting volume be converted to cubic feet for use during design.

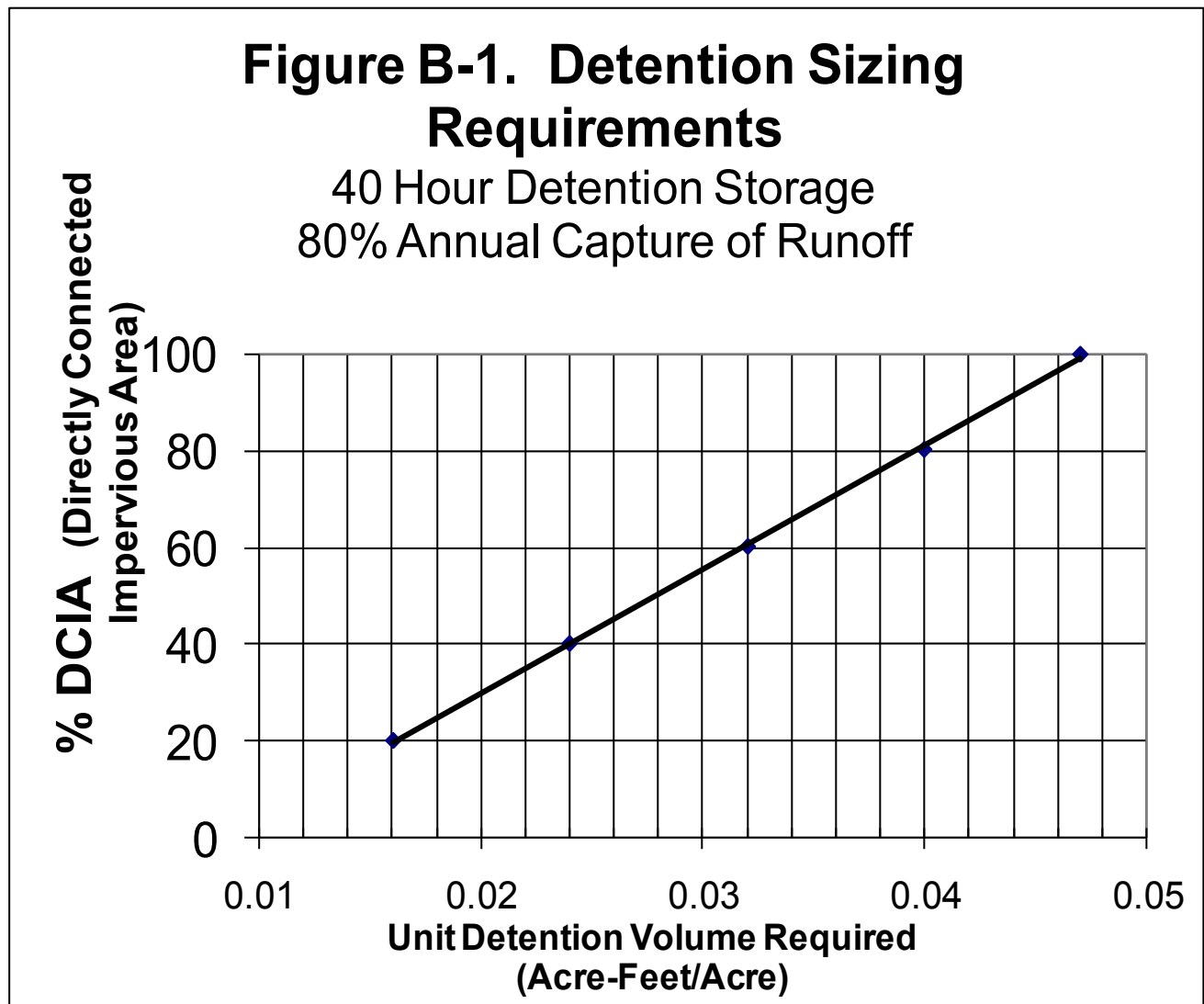
#### *Example Use of Unit Basin Storage Volume Curves Sizing a Dry Detention Basin*

- . Determine the drainage area for the BMP,  $A_t$ . Example: 10 acres.
- . Determine the area of impervious surfaces in the drainage area,  $A_i$ . Example: 6 acres.
- . Calculate the percentage of impervious, Percent Impervious =  $(A_i / A_t) * 100$   
Example: Percent Impervious =  $(A_i / A_t) * 100 = (6 \text{ acres} / 10 \text{ acres}) * 100 = 60\%$
- . Determine the Unit Basin Storage Volume for 80% Annual Capture,  $V_u$  using Figure B-1. Interpolate between curves, if necessary. Example: For DCIA = 0.60, the Detention Basin Storage Volume,  $V_u = 0.032 \text{ acre-feet/acre}$ .
- . Calculate the volume of the basin,  $V_b$ , where  $V_b = V_u * A_t$ .  
Example:  $V_b = (.032 \text{ acre-feet/acre})(10 \text{ ac}) = .32 \text{ acre-feet}$

To convert to cubic feet, multiply by  $(43,560 \text{ ft}^2 / \text{ac})$ :

$$(.32 \text{ acre-feet}) (43,560 \text{ ft}^2 / \text{acre}) = 13,939 \text{ ft}^3.$$

- . Solution: Size the dry detention basin for 13,939  $\text{ft}^3$  (.32 acre-feet) and 40-hour drawdown.



## **Appendix C**

### **Land Development Best Management Practices (BMPs)**

The following Best Management Practices (BMPs) are approved for use in Watsonville:

- Biofilters, including swales and filter strips
- Bioretention
- Extended Detention Basins
- Wet Ponds
- Constructed Wetlands
- Media Filters (Austin Sand Filter, Delaware Sand Filter & Multi Chambered Treatment Train)
- Infiltration trenches and basins (in areas where soils are suitable)
- Water Quality Inlets (approved list of manufacturers on Appendix D)



## Appendix D

### Watsonville Approved Water Quality Inlet Devices

Please note that the City of Watsonville does not endorse any products or companies, but is providing this list to assist designers in complying with the City's Storm Water Land Development Standards.

**Stormwater Management, Inc. (EPA/600/R-05/138)**  
***CatchBasin StormFilter™***

**BaySaver Technologies, Inc. (EPA/600/R-05/113 )**  
***BaySaver Separation System, Model 10***

**Practical Best Management of Georgia, Inc.**  
***CrystalSteam™ Water Quality Vault Model 1056***

**Stormwater Management, Inc.**  
***Stormscreen® Treatment System***

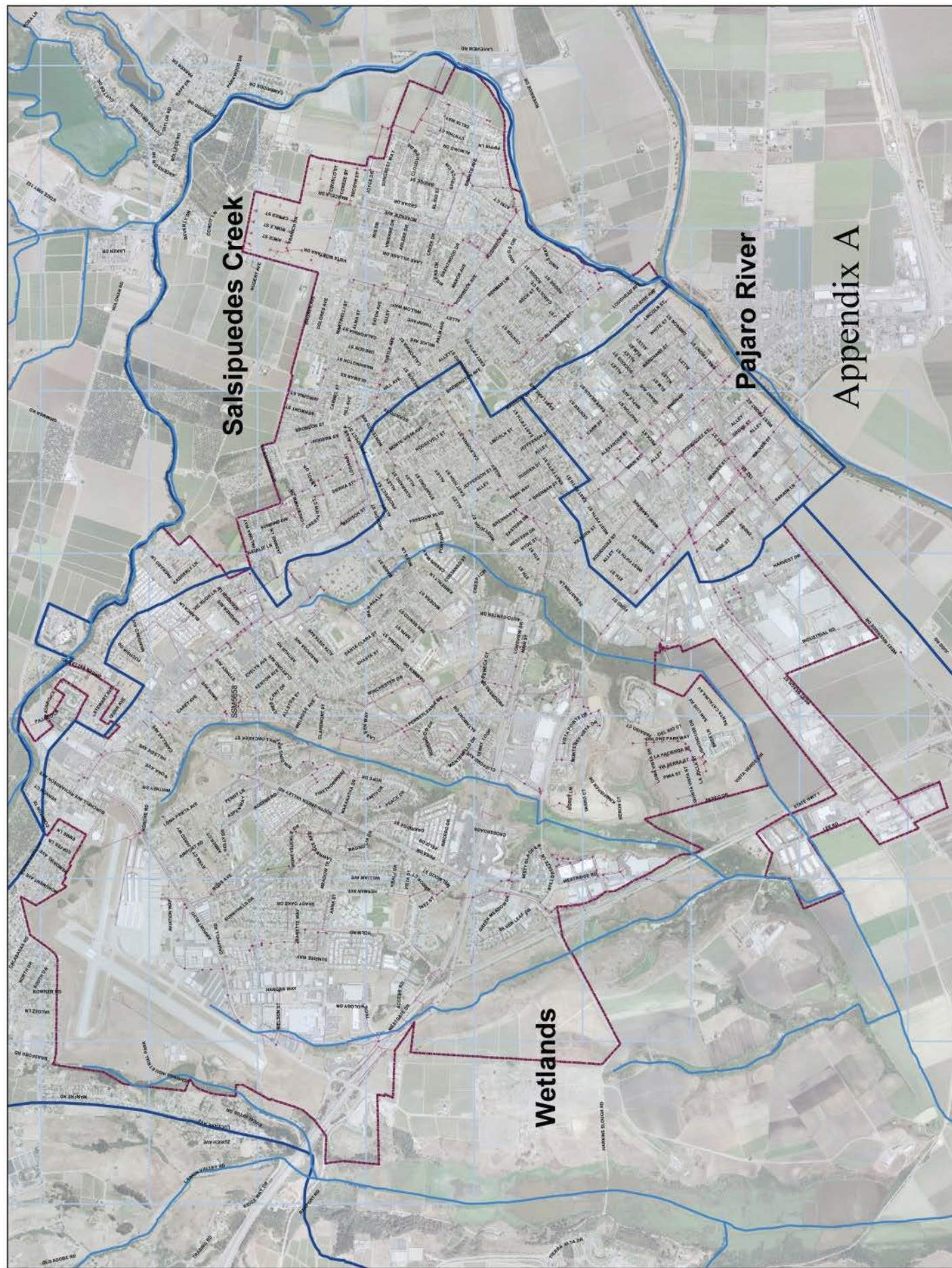
**Stormwater Management, Inc.**  
***The Stormwater Management StormFilter® using Perlite Filter Media***

**Stormwater Management, Inc.**  
***The Stormwater Management StormFilter® Using ZPG Filter Media)***

**Vortech, Inc.**  
***Vortechs® System, Model 1000***

**Zeta Technology, Inc.**  
***Arkal Pressurized Stormwater Filtration System***







# Soils Map



City of Watsonville

Map prepared by the City of Watsonville, 2010. All rights reserved.  
This map is for informational purposes only and should not be used for legal or financial decisions.  
For more information, please contact the City of Watsonville, 2010.

## Legend

Streams

Streets

Levees

SDSubBasins

Watsonville City Limit

Watsonville Soils

MUSYM

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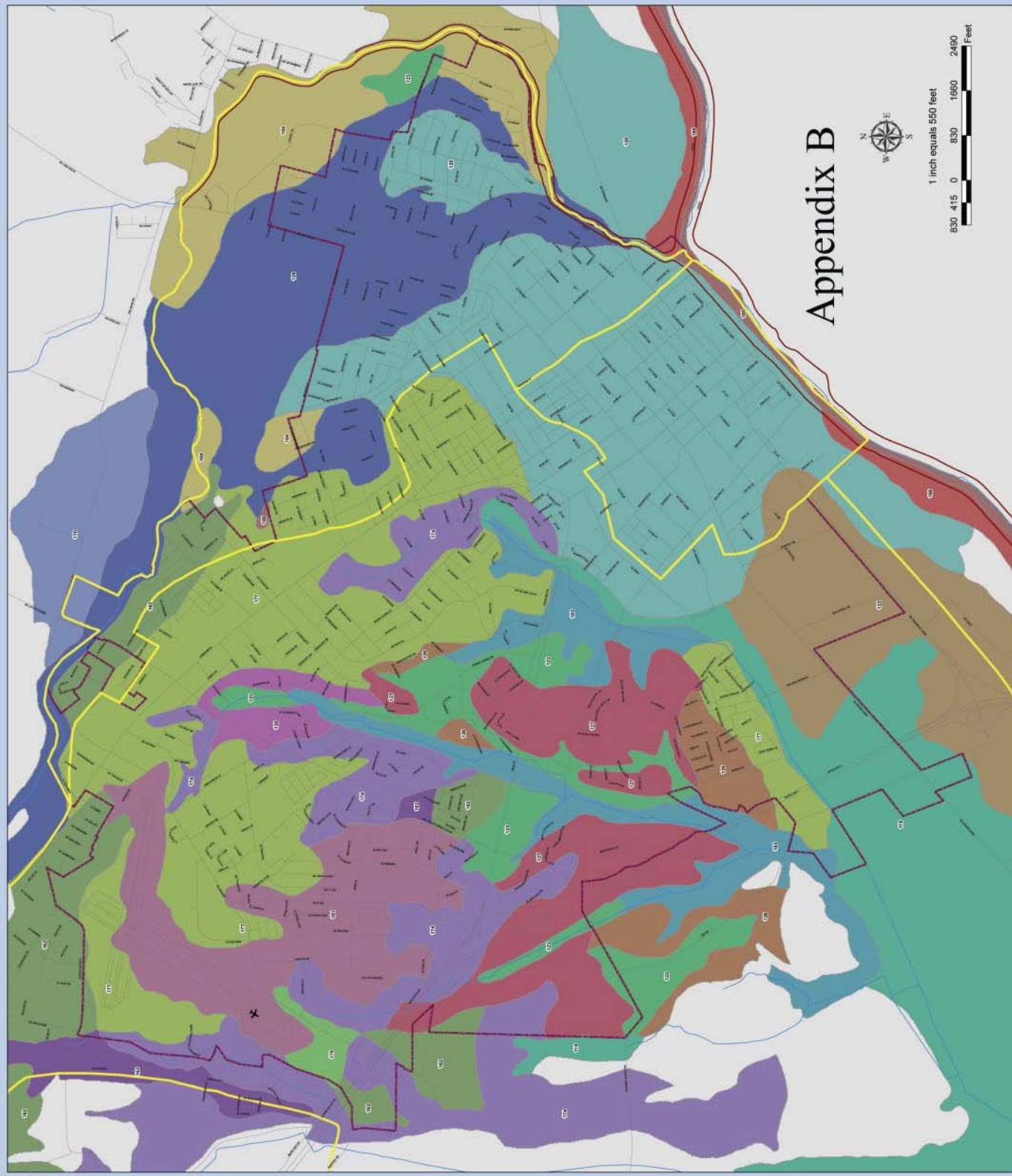


## Appendix B



1 inch equals 550 feet

830 415 0 830 1660 2490 Feet





# Vacant and Underutilized Land



City of Watsonville

Motto: "Opportunity Through Planning Using Through Cooperation"

## Legend

- Vacant Land
- Underutilized Land
- Business Enhancement Opportunity Sites
- Needs Policy Change
- Storm Drain Sub Basin
- PALMARO RIVER
- SALSIPIEDRES CREEK
- WETLANDS
- Environmental Aesthet. Open Space
- City
- Watsonville City Limit



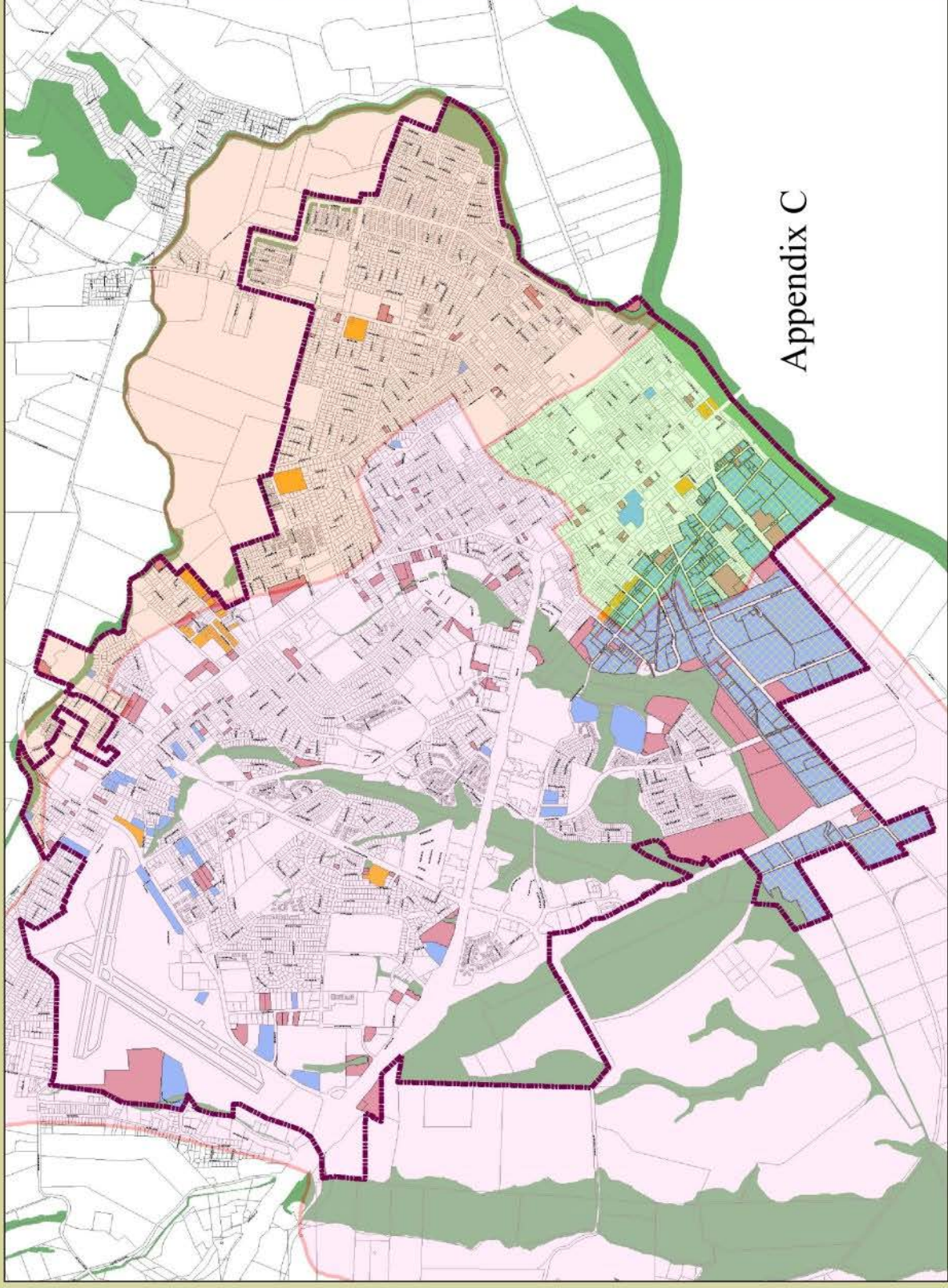
1 inch equals 1,700 feet



Prepared by Watsonville and County of Santa Cruz  
Map of Watsonville and County of Santa Cruz  
The City of Watsonville and County of Santa Cruz  
Map of Watsonville and County of Santa Cruz



## Appendix C



## **Appendix D**

### **City Buildings List**

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## **Appendix E**

**City of Watsonville**

# **Storm Water Land Development Standards**

## CITY OF WATSONVILLE STORM WATER LAND DEVELOPMENT STANDARDS

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### BACKGROUND

The requirement to implement a program for development planning is based on Federal Phase II storm water regulations, Section 402 (p) of the Clean Water Act, and the California Water Code. The Clean Water Act amendments of 1987 established a framework for regulating storm water discharges from municipal, industrial, and construction activities under the NPDES program. The primary objectives of the municipal storm water program requirements are to:

- Effectively prohibit non-storm water discharges, and
- Reduce the discharge of pollutants from storm water conveyance systems to the Maximum Extent Practicable (MEP statutory standard).

The City developed the Storm Water Land Development Standards reduce storm water pollution from new development and redevelopment. The Standards include a list of required Best Management Practices (BMPs) that developers shall incorporate into their project plans.

**All projects that fall into one of the following seven categories require compliance with the City's Storm Water Land Development Standards:**

- **All Developments greater than 1 acre in size**
- **Commercial Developments**
- **Restaurants**
- **Retail Gasoline Outlets and Vehicle Repair Shops**
- **Parking lots with 10,000 square feet or more impervious surfaces**
- **Locations adjacent to or discharging directly to an environmentally sensitive area**
- **Any development where downstream storm drain capacity is inadequate**



## DEFINITIONS

“Automotive Repair Shop” means a facility that is categorized in the City Land Use Classification Manual as DLU 63.

“Best Management Practice (BMP)” means any program, technology, process, siting criteria, operational methods or measures, or engineered systems, which when implemented prevent, control, remove, or reduce pollution.

“Commercial Development” means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, warehouses and other light industrial complexes.

“Directly Connected Impervious Area (DCIA)” means the area covered by a building, impermeable pavement, and/ or other impervious surfaces, which drains directly into the storm drain without first flowing across permeable land area (e.g. lawns).

“Directly Discharging” means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

“Environmentally Sensitive Area” means an area “in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments” (California Public Resources Code § 30107.5). Areas subject to storm water mitigation requirements include those identified as environmentally sensitive for water quality purposes, based on the Regional Board Basin Plan and Clean Water Act Section 303(d) Impaired Waterbodies List for the County of Santa Cruz.

“New Development” means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

“Source Control BMP” means any schedule of activities, structural devices, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution.

“Structural BMP” means any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g. canopy, structural enclosure). The category may include both Treatment Control BMPs and Source Control BMPs.

“Treatment Control BMP” means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process.

## 1. PEAK STORM WATER RUNOFF DISCHARGE RATES

No development of 1 acre or larger shall cause higher rates of storm water runoff than those that existed prior to the project (Watsonville Municipal Code 6-3.530). This provision will also apply to all developments where downstream storm drain capacity is inadequate, or where stormwater is discharged directly to an environmentally sensitive area.

## 2. DESIGN STANDARDS FOR STRUCTURAL OR TREATMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs)

Storm water runoff from a site has the potential to contribute various pollutants to the storm water conveyance system. The development shall be designed to minimize the introduction of pollutants generated from site runoff of directly connected impervious areas (DCIA) to the storm water conveyance system.

**All developments are required to incorporate a Structural or Treatment Control BMP or combination of BMPs best suited to reducing the pollutant loadings in storm water runoff to the Maximum Extent Practicable.** BMPs used to protect water quality may be combined with facilities to mitigate peak storm water runoff discharges as required in Section 1 (above).

**Structural or Treatment Control BMPs shall be designed according to the City's *Land Development BMPs* (Appendix C of this document).** The City will also accept BMPs from the guidance documents listed in Table 1, subject to the criteria set in this guidance document. Examples of BMPs are identified in Table 2.

## 3. CONSERVE NATURAL AREAS

The following items are required and shall be implemented in the site layout during the design and entitlement process, consistent with applicable General Plan and Local Area Plan policies:

- Concentrate or cluster development on portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands when present on site (a 100-foot setback from the edge of wetland and riparian areas is required).

#### **4. PROTECT SLOPES AND CHANNELS**

Projects shall include BMPs to decrease the potential of slopes and/or channels from eroding and impacting storm water runoff:

- Convey runoff safely from the tops of slopes and stabilize disturbed slopes (see City Erosion Control Standards for more information)
- Utilize natural drainage systems to the Maximum Extent Practicable
- Stabilize permanent channel crossings
- Vegetate slopes with native species appropriate for the surrounding habitat.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion, with the approval of all agencies with jurisdiction, e.g., the U.S. Army Corps of Engineers and the California Department of Fish and Game

#### **5. PROVIDE STORM DRAIN SYSTEM STENCILING AND SIGNAGE**

Storm drain stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets. The stencil contains a brief statement that prohibits the dumping of improper materials into the storm water conveyance system.

- All storm drain inlets and catch basins within the project area shall be stenciled according to one of the following City Public Improvement Standards: S450, S451, S452, S453A, S453B.
- Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, shall be posted at designated public access points along channels and creeks within the project area, and shall be in both Spanish and English.
- Legibility of stencils and signs shall be maintained.

#### **6. PROPERLY DESIGN OUTDOOR MATERIAL STORAGE AREAS**

Outdoor material storage areas refer to storage areas or facilities solely for the storage of materials. Where proposed project plans include outdoor areas for permanent storage of materials, the following Structural or Treatment BMPs are required:

- Materials with the potential to contaminate storm water shall be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.
- The storage area shall be paved and sufficiently impervious to contain leaks and spills.

- The storage area shall have a roof or awning to minimize collection of storm water within the secondary containment area.

## **7. PROPERLY DESIGN TRASH STORAGE AREAS**

All trash container areas shall comply with the City of Watsonville Public Works Improvement Standards 809 through 811. In addition, drainage from adjoining roofs and pavement shall be diverted around trash container areas.

## **8. PROVIDE PROOF OF ONGOING BMP MAINTENANCE**

Improper maintenance is one of the most common reasons why water quality controls will not function as designed. It is important to consider who will be responsible for maintenance of a permanent BMP and what equipment is required to perform the maintenance properly. As part of project review, if a project applicant is required to include Structural or Treatment Control BMPs in project plans, the City will require that the applicant provide verification of maintenance provisions through such means as may be appropriate, including, but not limited to legal agreements, covenants, CEQA mitigation requirements and/or Conditional Use Permits.

For all properties, the verification will include the developer's signed statement, as part of the project application, accepting responsibility for all structural and treatment control BMP maintenance until the time the property is transferred and, where applicable, a signed agreement from the public or private entity assuming responsibility for Structural or Treatment Control BMP maintenance. A sample agreement is included in Appendix A.

The transfer of property to a private or public owner shall have conditions requiring the recipient to assume responsibility for maintenance of any Structural or Treatment Control BMP included in the sales or lease agreement for that property. The condition of transfer shall include a provision that the property owners conduct maintenance inspection of all Structural or Treatment Control BMPs at least once a year and retain proof of inspection. For residential properties where the Structural or Treatment Control BMPs are located within a common area which will be maintained by a homeowner's association, language regarding the responsibility for maintenance shall be included in the projects conditions, covenants and restrictions (CC&Rs).

Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

## **9. PROVISIONS APPLICABLE TO INDIVIDUAL PROJECT CATEGORIES**

### **A. COMMERCIAL DEVELOPMENTS**

#### **1). *PROPERLY DESIGN LOADING/UNLOADING DOCK AREAS***

Loading/unloading dock areas have the potential for material spills to be quickly transported to the storm water conveyance system. If the project includes a loading dock, the following design criteria are required:

- Cover loading dock areas or design drainage to minimize run-on and runoff of storm water.
- Direct connections to storm drains from depressed loading docks (truck wells) are prohibited. Design loading dock drainage systems to capture all washwater, leaks and spills. Connect drains to a sump for collection and off-site disposal as hazardous waste.

#### **2). *PROPERLY DESIGN REPAIR/MAINTENANCE BAYS***

If the project includes repair bays, the following design criteria are required:

- Repair/maintenance bays shall be indoors or designed in such a way that does not allow storm water run-on or contact with storm water runoff.
- Design a repair/maintenance bay drainage system to capture all washwater, leaks and spills. Connect drains to a sump for collection and off-site disposal as hazardous waste. Direct connection of the repair/maintenance bays to the storm drain system is prohibited.

#### **3). *PROPERLY DESIGN VEHICLE/EQUIPMENT WASH AREAS***

If the project includes an area for washing/steam cleaning of vehicles and equipment, the following design criteria are required:

- Self-contained and/or covered, equipped with a clarifier or other pretreatment facility, and properly connected to a sanitary sewer.

### **B. RESTAURANTS**

### **1). *PROPERLY DESIGN EQUIPMENT/ACCESSORY WASH AREAS***

The activity of equipment/accessory washing/steam cleaning has the potential to contribute pollutants to the storm water conveyance system. Include in the project plans an area for the washing/steam cleaning of equipment, floormats, tallow storage areas, and accessories. This area shall be:

- Self-contained, covered, paved, designed to minimize run-on and runoff of storm water, connected to a grease interceptor, and properly connected to a sanitary sewer.

## **C. RETAIL GASOLINE OUTLETS and VEHICLE REPAIR SHOPS**

### **1). *PROPERLY DESIGN FUELING AREA***

Fueling areas have the potential to contribute oil and grease, solvents, car battery acid, coolant and gasoline to the storm water conveyance system. Therefore, design plans, which include fueling areas, shall contain the following:

- The fuel dispensing area shall be covered with an overhanging roof structure or canopy. The cover's minimum dimensions shall be equal to or greater than the area within the grade break. The cover shall not drain onto the fuel dispensing area and the downspouts shall be routed to prevent drainage across the fueling area.
- The fuel dispensing areas shall be paved with Portland cement concrete (or equivalent smooth impervious surface), and the use of asphalt concrete shall be prohibited.
- The fuel dispensing area shall have a 2% to 4% slope to prevent ponding, and shall be separated from the rest of the site by a grade break that prevents run-on of storm water.
- At a minimum, the concrete fuel dispensing area shall extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.

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### **2). *PROPERLY DESIGN REPAIR/MAINTENANCE BAYS***

Design plans for repair bays shall include the following:

- Repair/maintenance bays shall be indoors or designed in such a way that does not allow storm water run-on or contact with storm water runoff.
- Design a repair/maintenance bay drainage system to capture all washwater, leaks and spills. Connect drains to a sump for collection and off-site disposal as hazardous waste. Direct connection of the repair/maintenance bays to the storm drain system is prohibited.

### **3). *PROPERLY DESIGN VEHICLE/EQUIPMENT WASH AREAS***

Include in the project plans an area for washing/steam cleaning of vehicles and equipment. This area shall be:

- Self-contained and/or covered, equipped with a clarifier, or other pretreatment facility, and properly connected to a sanitary sewer or to a permitted disposal facility.

## **D. PARKING LOTS**

**This standard applies to parking lots with 10,000 square feet or more impervious parking or access surfaces, and to parking lot expansions that, when combined with an existing parking lot, have a total size of 10,000 square feet or larger.**

### **1). *PROPERLY DESIGN PARKING AREAS***

Parking lots contain pollutants such as heavy metals and oil & grease that are deposited on parking lot surfaces by motor vehicles. These pollutants are directly transported to surface waters. To minimize the offsite transport of pollutants, the following design criteria are required:

- Minimize impervious land coverage of parking areas
- Infiltrate runoff before it reaches the storm drain system
- Treat runoff before it reaches the storm drain system. Parking lot runoff should drain into properly sized grass swales before being discharged into the storm drain system. Alternatively, parking lot runoff may be treated in an underground system if a commitment to long-term BMP maintenance has been made in writing (see Appendix C for BMP design guidance).

### **2). *REGULAR MAINTENANCE***

- Parking lots shall be swept at least monthly using a regenerative air sweeper or its equivalent.

## **E. PRIVATE STREETS**

### **1). *REGULAR MAINTENANCE***

- Privately owned streets shall be swept at least monthly using a regenerative air sweeper or its equivalent.

## 10. WAIVER

The City may provide for a waiver from the requirement if impracticability for a specific property can be established. A waiver for impracticability shall be granted only when all other Structural or Treatment Control BMPs have been considered and rejected as infeasible.

## 11. RESOURCES AND REFERENCE

TABLE 1

SUGGESTED RESOURCES	HOW TO GET A COPY
<p><b><i>Start at the Source</i></b> (1999) by Bay Area Stormwater Management Agencies Association</p> <p>Detailed discussion of permeable pavements and alternative driveway designs presented.</p>	<p>Bay Area Stormwater Management Agencies Association 2101 Webster Street Suite 500 Oakland, CA (510) 286-1255</p>
<p><b><i>California Storm Water Best Management Practices Handbooks</i></b> (2003) for Construction Activity, New Development Municipal, and Industrial/Commercial</p> <p>Presents a description of a large variety of Structural BMPs, Treatment Control, BMPs and Source Control BMPs</p>	<p>WWW.cabmphandbooks.com</p>
<p><b>Caltrans Storm Water Quality Handbook: Planning and Design Staff Guide</b> (<i>Best Management Practices Handbooks</i> (1998)</p> <p>Presents guidance for design of storm water BMPs</p>	<p>California Department of Transportation P.O. Box 942874 Sacramento, CA 94274-0001 (916) 653-2975</p>



TABLE 2

EXAMPLE BEST MANAGEMENT PRACTICES (BMPs)

The following are examples of BMPs that can be used for minimizing the introduction of pollutants of concern that may result in significant impacts, generated from site runoff to the storm water conveyance system:

- Use permeable materials for private sidewalks, driveways, parking lots, or interior roadway surfaces (examples: hybrid lots, parking groves, permeable overflow parking, etc.).
- Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more homes together.
- Reduce the overall imperviousness associated with parking lots by using pervious materials in spillover parking areas.
- Direct rooftop runoff to pervious areas such as yards, open channels, or vegetated areas, and avoid routing rooftop runoff to the roadway or the storm water conveyance system.
- Biofilters including vegetated swales and strips
- Extended/dry detention basins
- Infiltration basin
- Infiltration trenches or vaults
- Wet detention basins/wet ponds
- Constructed wetlands
- Media filtration

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# Appendix A

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## **Agreement Regarding Maintenance of Structural or Treatment Control BMPs (Best Management Practices)**

for APN No. \_\_\_\_\_

\_\_\_\_\_, being the owner of the real property located at \_\_\_\_\_, California, consents and agrees to inspect and maintain annually, prior to October 15 of each year, the Structural or Treatment Control BMPs (such as silt and/or grease traps or detention systems) on the subject property as shown on the improvement plans dated \_\_\_\_\_, on file with the City of Watsonville. I agree to forward a letter providing proof of inspection and maintenance to the City of Watsonville Source Control Department prior to October 15 of each year.

In order to transfer the property to a private or public owner, I shall require the recipient to assume responsibility for maintenance of any Structural or Treatment Control BMPs in the sales or lease agreement for that property. The condition of transfer shall include a provision that the new property owner agrees to forward a letter providing proof of BMP inspection and maintenance to the City of Watsonville Source Control Department prior to October 15 of each year.

Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, and how the necessary maintenance can be performed. The transfer of this information shall also be required with any subsequent sale of the property.

I have read the above agreement and understand it.

\_\_\_\_\_  
Owner

\_\_\_\_\_  
Date

## Appendix B

# Unit Basin Storage Volume Sizing Curves

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### Design Storm Volume Calculation

Hydrologic calculations for design of volumetric-based storm water quality BMPs in Watsonville shall be in accordance with the procedures set forth herein.

#### *Calculation Procedure*

1. Review the area draining to the proposed BMP. Determine the percentage of Directly Connected Impervious Area (DCIA), the drainage area that is considered impervious. Impervious area includes paved areas, roofs, and other developed, non-vegetated areas. Non-vegetated, compacted soil areas shall be considered an impervious area.
2. Figure B-1 provides a direct reading of Unit Detention Basin Storage Volumes required for 80% annual capture of runoff based on the percentage of Directly Connected Impervious Area (DCIA) on the site. Enter the vertical axis of Figure B-1 with the percentage DCIA. Move horizontally across Figure B-1 until the line is intercepted. Move vertically down Figure B-1 from this point until the horizontal axis is intercepted. Read the Unit Basin Storage Volume along the horizontal axis.
3. The basin volume or basic volume of the BMP is then calculated by multiplying the Unit Basin Storage Volume by the BMP's drainage area. Due to the mixed units that result (e.g., acre-inches, acre-feet) it is recommended that the resulting volume be converted to cubic feet for use during design.

#### *Example Use of Unit Basin Storage Volume Curves Sizing a Dry Detention Basin*

- Determine the drainage area for the BMP,  $A_t$ . Example: 10 acres.
- Determine the area of impervious surfaces in the drainage area,  $A_i$ . Example: 6 acres.
- Calculate the percentage of impervious, Percent Impervious =  $(A_i / A_t) * 100$   
Example: Percent Impervious =  $(A_i / A_t) * 100 = (6 \text{ acres} / 10 \text{ acres}) * 100 = 60\%$
- Determine the Unit Basin Storage Volume for 80% Annual Capture,  $V_u$  using Figure B-1. Interpolate between curves, if necessary. Example: For DCIA = 0.60, the Detention Basin Storage Volume,  $V_u = 0.032 \text{ acre-feet/acre}$ .
- Calculate the volume of the basin,  $V_b$ , where  $V_b = V_u * A_t$ .  
Example:  $V_b = (.032 \text{ acre-feet/acre})(10 \text{ ac}) = .32 \text{ acre-feet}$

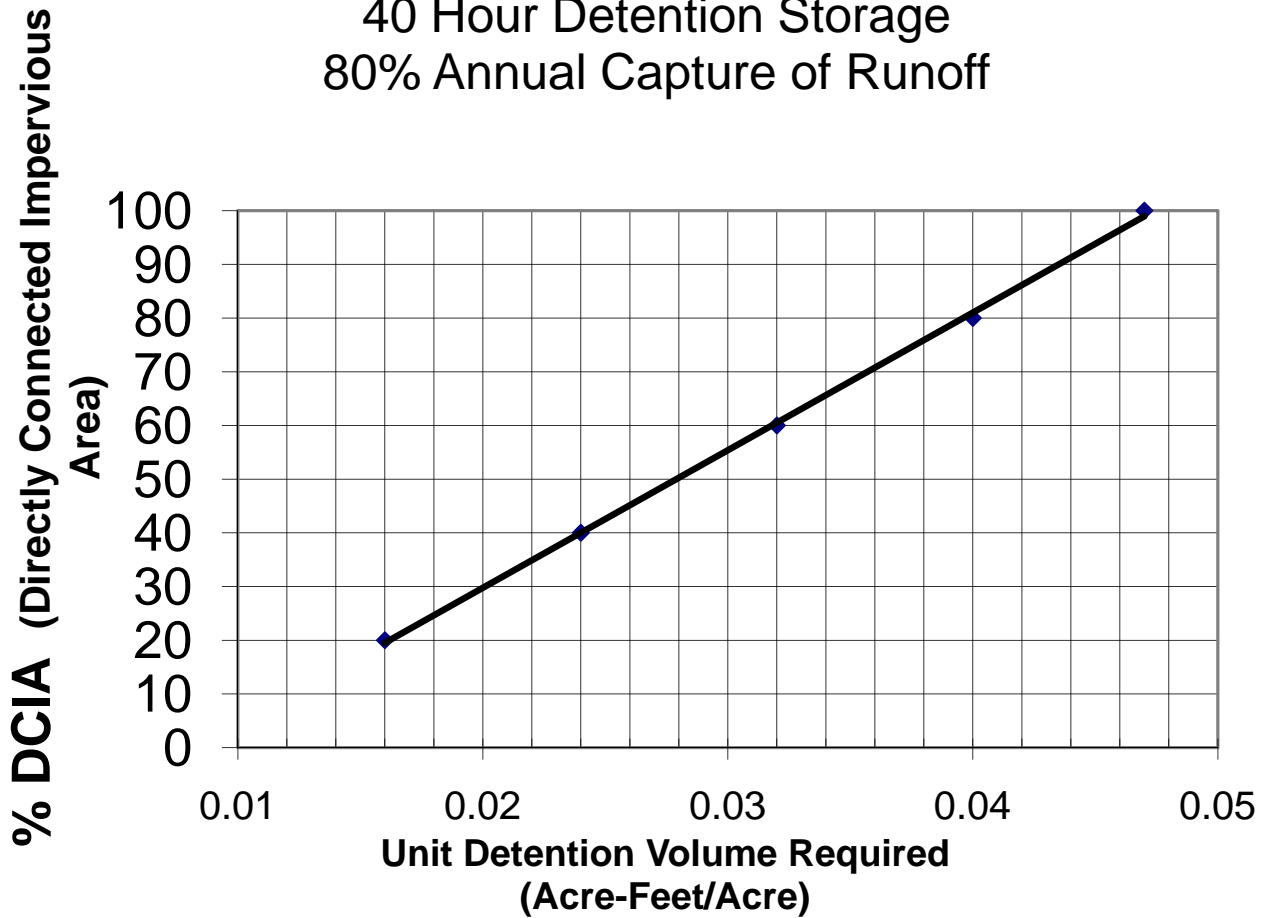
To convert to cubic feet, multiply by  $(43,560 \text{ ft}^2 / \text{ac})$ :

$$(.32 \text{ acre-feet}) (43,560 \text{ ft}^2 / \text{acre}) = 13,939 \text{ ft}^3.$$

- Solution: Size the dry detention basin for 13,939  $\text{ft}^3$  (.32 acre-feet) and 40-hour drawdown.

## Figure B-1. Detention Sizing Requirements

40 Hour Detention Storage  
80% Annual Capture of Runoff



## **Appendix C**

### **Land Development Best Management Practices (BMPs)**

The following Best Management Practices (BMPs) are approved for use in Watsonville:

- Biofilters, including swales and filter strips
- Bioretention
- Extended Detention Basins
- Wet Ponds
- Constructed Wetlands
- Media Filters (Austin Sand Filter, Delaware Sand Filter & Multi Chambered Treatment Train)
- Infiltration trenches and basins (in areas where soils are suitable)
- Water Quality Inlets (approved list of manufacturers on Appendix D)

## **Appendix D**

### **Watsonville Approved Water Quality Inlet Devices**

Please note that the City of Watsonville does not endorse any products or companies, but is providing this list to assist designers in complying with the City's Storm Water Land Development Standards.

**Stormwater Management, Inc. (EPA/600/R-05/138)**  
***CatchBasin StormFilter™***

**BaySaver Technologies, Inc. (EPA/600/R-05/113 )**  
***BaySaver Separation System, Model 10***

**Practical Best Management of Georgia, Inc.**  
***CrystalSteam™ Water Quality Vault Model 1056***

**Stormwater Management, Inc.**  
***Stormscreen® Treatment System***

**Stormwater Management, Inc.**  
***The Stormwater Management StormFilter® using Perlite Filter Media***

**Stormwater Management, Inc.**  
***The Stormwater Management StormFilter® Using ZPG Filter Media)***

**Vortechnics, Inc.**  
***Vortechns® System, Model 1000***

**Zeta Technology, Inc.**  
***Arkal Pressurized Stormwater Filtration System***

