CITY OF BENICIA
STORM WATER MANAGEMENT PLAN

EXECUTIVE SUMMARY

The City of Benicia is required by the Environmental Protection Agency, under the provisions of the National Pollution Discharge Elimination System (NPDES) Phase II regulations and the State Water Resources Control Board Phase II General Permit requirements, to develop and implement a Storm Water Management Plan (SWMP). The SWMP is intended to reduce pollutants that may be present in storm water runoff from streets and property within the city limits.

The City intends to control and manage its storm water in compliance with the provisions of the State General Storm Water Permit by applying for coverage under the Phase II General Permit as regulated by the State Water Resources Control Board San Francisco Bay Region 2.

The SWMP is a five-year program that implements the General Permit through a series of measures and practices that are designed to address storm water pollution before it is discharged into the receiving water. The receiving water for the City of Benicia is the Carquinez Strait. The plan includes six elements called Minimum Control Measures (MCMs) that identify a responsible department within the city designated to carry-out the measure, what Best Management Practices (BMPs) are to be implemented that are expected to achieve pollution reduction, what methods would be used to measure BMP effectiveness, and an implementation timetable.

The six MCMs required by the General Permit are:

- Public Education and Outreach
- Public Participation/Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Storm water Runoff Control
- Post-Construction Storm water Management
- Pollution Prevention for Municipal Operations

The City has already implemented some of the elements of the MCMs described above, such as recycling programs, storm drain mapping, street sweeping, drainage inlet cleaning, and storm drain stenciling. At the present time, the City expends approximately $118,100 per year to perform storm water management activities. As the storm water management plan develops during its first five-years, an annual assessment of the budgetary needs will be performed and modifications or revisions to the city budget may be needed.

Failure by the City to implement the SWMP and its MCMs could result in third party lawsuits and/or regulatory agency enforcement actions, including Notices of Violation and severe fines issued by the State Water Resources Control Board. Failure to successfully implement the SWMP will also result in the issuance of an Individual Permit that typically results in more detailed and expanded requirements rather than the General Permit.

In order to achieve this, a Council Workshop was held on July 23, 2003, and the SWMP was adopted by the City Council on August 5, 2003. The City Manager of the City of Benicia was authorized by the Benicia City Council to ensure compliance with the General Permit and this plan.

The City Engineer was designated by the City Manager as the Program Leader charged with implementing the SWMP and will be actively assisted by the City's Engineering, Water Quality, and Maintenance Divisions of the Public Works Department, the Planning and Building Inspection Divisions of the Community Development Department, and the Parks and Community Services Department. The Police and the Fire Departments will also provide support in implementing the SWMP.

Changes to the City's legal authority to require storm water controls and maintenance will also be implemented. An ordinance prohibiting non-storm water discharges and revisions to the grading and erosion control ordinance is anticipated in the first two years of the SWMP to clarify and enforce what can and cannot be discharged to the City's storm drain system.

Each year, beginning in September 2005, the City will submit to the SWRCB a detailed report on the progress and effectiveness of each of the MCMs and identify those changes needed to the plan based on each MCM performance.

BACKGROUND/HISTORY

City of Benicia

The City of Benicia has a population of approximately 28,000 and is located approximately 35 miles northeast of San Francisco and 57 miles southwest of Sacramento. It was founded in 1847 along the north shore of the Carquinez Strait, where the combined flows of the Sacramento and San Joaquin rivers have cut a deep gorge through the Coast Range. The Strait is a crucial link in northern California's inland waterway, connecting San Pablo Bay and San Francisco Bay to the west with the Sacramento and San Joaquin River deltas to the east. Through the Strait, ocean-going ships can reach the Port of Benicia or continue on to the Central Valley ports of Sacramento and Stockton. All the City's storm water is conveyed both by natural and man-made channels and drainage culverts to the Carquinez Strait.

The City presently has programs that fulfill some of the required elements of the Phase II program, i.e., street sweeping, curbside stenciling, elementary school education, pre-and post-construction requirements, and recycling of oil and household hazardous waste. The programs and the departments that are responsible for implementing them are outlined below.

ADMINISTRATION, PLANNING AND FUNDING

Storm Water Management Organization

The City Engineer, as Program Leader, will take the lead in the administration and oversight for the implementation of the various projects and minimum control measures described in the SWMP. The Engineering and Water Quality Divisions of the Public Works Department, the Planning and Building Inspection Divisions of the Community Development Department, the Parks and Community Services Department and the Police and Fire Departments will provide support to the Program Leader. The following sections outline the current responsibilities of each department.

The City will work cooperatively with other Solano cities and agencies to assure that resources are utilized efficiently and the activities of one agency or non-profit group are not redundant or conflicting with that of another. New administrative elements will need to be incorporated into existing City documents such as the City's Municipal Code, the Planning Division's Project Submittal form regarding CEQA, the Building Divisions plan check, permit issuance and inspection procedures and the Public Works Departments plan check, permit issuance, project inspection and procedures and industrial pre-treatment procedures. The planning and preparation to comply with the NPDES Phase II program, including the development of the SWMP and Notice of Intent (NOI) for the permit application package, is included in the current city budget.

Legal Authority

A storm water management and discharge control ordinance will be prepared and adopted by the City. The ordinance will specify what is allowed to be discharged into the City's storm drain system and include procedures to identify and halt illicit discharges and measures used to enforce the ordinance. The City also will review its existing Grading and Erosion Control Ordinance (Chapter 15.28) for conformity and consistency with the proposed storm water ordinance for all development projects over one acre in disturbed area. The City will also update the construction inspection process to ensure that erosion/storm water controls are being effectively utilized. These institutional changes are detailed in the MCMs section.

Funding

The City has established a new two-year budget for the fiscal years of 2003/2004 and 2004/2005. Funding for the SWMP during the first full fiscal year of implementation will be achieved from existing activities in the budget related to storm water. Currently, the City's annual costs to perform storm water related activities are approximately $118,100, which is funded by appropriations from the City's Gas Tax, Wastewater Utilities Fund and General Fund. Additional funding over the next five years may be required in order to continue to meet the general permit requirements. Existing staff will achieve the tasks described in the SWMP during the initial first two years.

Public Works Department

The Public Works Department's maintenance crews currently conduct:

- Annual storm drain drop inlet cleaning and maintenance,
- Implementation of Flood Control improvements on an as-needed basis,
- Maintenance and repair on all storm drain conveyance systems,
- Oversight of street-sweeping operations.

The Public Works Department owns, operates, and/or maintains city streets, the public water and sewer system (including water and wastewater treatment plants and storage reservoirs), the City's corporation yard, and the public storm drainage system (including underground pipes, culverts, creeks, and ditches).

As it relates to the SWMP, the Engineering Division reviews and prepares conditions of approval for all public and private development projects that impact public rights-of-way and water/sewer/storm drain systems. The Water Quality Division performs all water quality sampling, testing, and monitoring of potable water, wastewater, storm water and inspections regarding storm water impacts. The Maintenance Division conducts maintenance and repair on the water distribution, sewage collection, and the storm drain conveyance systems, in addition to maintaining surface streets with related appurtenances (lights, curbs, etc.). The Maintenance Division also manages the fleet management program, and fuel dispensing facility at the Corporation yard. The City's street sweeping program is through a private contract administered by the Maintenance Division.

The Public Works Department inspects and maintains the City's creeks and responds to storm drain pollution complaints from citizens. The City subcontracts its street sweeping activities to Pleasant Hill Bayshore Disposal, a subsidiary of Waste Management, Inc.; street sweeping is currently performed on a regular and systematic basis. (Street Sweeping Schedule–Attachment A) The City also recently purchased a vactor truck, which is used to conduct more frequent and efficient storm drain drop inlet cleaning operations. The water distribution system flushing crew is documenting/verifying inlets and pipe size in the storm drain system during routine water line flushing operations. The Maintenance crews have a TV inspection program that allows systematic view of the City's storm drain lines. In addition, the Maintenance crews coordinate with the Fire Department on the clean up of non-toxic spills.

Community Development Department

The Community Development Department conducts:

- Coordination of land development,
- Enforcement of the creek setback requirements,
- Enforcement of planning and building codes,
- Development, Preparation and Administration of development design standards.

The Community Development Department is organized into two divisions: Planning and Building Inspection.

The Planning Division will oversee development within the requirements of the City's General Plan. They will also determine, establish, and enforce the setback requirements from drainage facilities. Other responsibilities include determining, establishing, and enforcing zoning codes and reviewing and approving project compliance with the California Environmental Quality Act, storm water ordinance and landscape design plans.

The Building Inspection Division develops, establishes, inspects, and enforces commercial, industrial, and residential building design standards, codes, and regulations.

All proposed city projects must submit a completed Project Submittal Form, which evaluates the potential impacts of the project on various environmental factors. The checklist will be reviewed to assess storm water impacts, adverse effects on riparian habitat and contributions of runoff that would affect the existing storm drain system or contribute additional polluted runoff as factors to be considered when evaluating projects.

Fire Department

The Fire Department is responsible for:

- Spill prevention and response within the City limits, and inspections of sites storing or generating hazardous materials.
- Assisting the Water Quality Division in distributing recycling information and aiding citizens and businesses with the proper disposal of hazardous wastes and toxics.
- Provision of information and education regarding the conservation of resources including recycling, reuse, and reduction.

The Fire Department's role is to inspect business for the nature and volume of hazardous materials in order to document potential fire issues and to respond to reports of hazardous materials, such as oil and gasoline, which may have been spilled into the storm drain system. Fire Department staff notifies Water Quality staff of any incident that may affect the storm drain system. The Fire Department manages the contract for the City's recycling and solid waste program. This program provides information and education regarding the conservation of resources including recycling, reuse, and reduction.

Pleasant Hill Bayshore Disposal, the City's waste management contractor distributes recycling information and aids citizens and businesses with the proper disposal of hazardous wastes and toxics. The city conducts an annual spring clean–up weekend where citizens can dispose of large volumes of yard waste at the corporation yard (for two days) free of charge. The city also contracts with PHBD to have weekly drop-off center for batteries, used oil, latex paint, and antifreeze and offer curbside used oil pickup. In addition, citizens can drop off household hazardous waste at the Devlin Road Transfer Station in American Canyon free of charge.

Parks and Community Services Department

The Parks and Community Services Department participates in and is responsible for:

- Maintenance and repair of City owned buildings and related site improvements.
- Maintenance and repair of City's park system.
- Maintenance and repair of City's Cemetery.

The Parks and Community Services Department is responsible for the maintenance and repair of the City's neighborhood park system, which consists of 35, parks totaling 125 acres and the 50-acre Community Park. This includes spraying for weeds, watering, mowing and fertilizing the landscaped areas. The department also maintains the City's publicly owned buildings, open space areas and City cemetery. The buildings and site improvements include the Clocktower complex, Civic Center complex, Youth Center, Library and the Senior Center. The department has also implemented a trial a pet waste management program that includes signs, bags and stations for pet waste disposal located at two City pedestrian paths.

Local agencies and non-profit groups also contribute to many activities that ultimately reduce storm water pollution to the Carquinez Strait. Citizens have participated in the Coastal Cleanup Day for the past three consecutive years. Coastal Cleanup Day is a Benicia Unified School District event supported by the Parks and Community Services staff with the goals of removing trash from the coastline, and restoring wildlife habitat to local wetland areas. Benicia has the largest per capita participation rate in the state. Over 750 students participate in the event annually. Citizens recently began a Spring Cleanup Day with the goal of removing trash, creek/habitat restoration, tree planting and erosion prevention.

GEOGRAPHIC AND LAND USE DESCRIPTION

The boundaries of the watersheds located within the City of Benicia are the Carquinez Strait (southerly), the Lake Herman/Sky Valley/Paddy Creek areas (northerly) the City of Vallejo (westerly), and Suisun Bay (easterly). The watershed includes the following sub-basins:

- Sulfur Springs Creek/Lake Herman
- Goodyear Slough/Industrial Park (northeasterly section)
- Benicia Urban Areas

All the sub-basins are served by natural or constructed drainage systems, such as creeks, ditches, underground piping, and storm drain culverts. The climate in Solano County is typically dry in the summer with mostly seasonal rainfall between October and April. The ten-year average annual precipitation over the basin is 19.01 inches. General area-wide storms of two or three days in duration produce most of the rainfall.

The terrain within the sub basin is quite diverse. There are steep hills north of Military and Highway 780. Flat and rolling terrain extends to the south and east including most of the

industrial park. Benicia consists of four distinct areas: Southampton, Benicia Industrial Park, Downtown area, and the undeveloped area surrounding Lake Herman. The most intensively developed areas within the Benicia city limits include the downtown area with a central commercial district and the area along Southampton Road, with medium to high density residential land uses and a commercial shopping center. The total land area is approximately 13 square miles**.** See Attachment B (map).

The Lake Herman watershed is located in Solano County between the cities of Vallejo and Benicia. The northern portion of the watershed lies within the city limits of Vallejo and the southern portion lies within the sphere of influence of Benicia. Lake Herman is the major body of water in the drainage basin, and is located on Sulfur Springs Creek about two miles north of downtown Benicia. Sulfur Springs Creek is the main channel traversing the basin, with the area north of Lake Herman called Sky Valley. The watershed includes Sulfur Springs Mountain range to the west as well as lesser ridges to the north, east, and south. Sulfur Springs Mountain has a peak elevation of 1000 feet. The Lake Herman drainage basin covers an area approximately ten square miles. Refer to Figure 3-1 of the 1992 survey for a graphical presentation of the watershed.

The primary land use in the watershed is agricultural; there are several beef cattle ranches, a small dairy and an abandoned walnut orchard. Syar Industries, an aggregate mining firm, has facilities near the western end of the watershed. The majority of their operations lie outside the watershed; however, the company is proposing to expand their operation to the top of the ridge of Sulfur Springs Mountain of which the eastern slope lies within the watershed.

In addition to several ranch homes, there are several residences within the watershed located on Lake Herman Road west of the lake. The grading and infrastructure of a residential subdivision, Hiddenbrooke, was put in place in the early 90s in Upper Sky Valley. Home construction is underway and scheduled for completion during the next several years. A golf course has been operating in the Hiddenbrooke area since 1991. This entire area drains into a retention basis and ultimately into Lake Herman.

Storm Water Characteristics

The storm water collected and discharged into the Carquinez Strait can be characterized as being composed of non-point source runoff from streets and parking lots, commercial and residential property, parks, and open space. There are no known cross-connections with the City's separate sanitary sewer system; the City has completely inspected one section, the East Second Street/Marina area drainage basin, and found four cross-connections between storm and sewer lines. These cross connections were immediately corrected. City's ongoing program is to inspect all storm drains and sewers for cross connection. All cross connections have been corrected and none currently exist.

POLLUTANTS OF CONCERN

An important aspect of a water quality control plan, such as this SWMP, is an assessment of the beneficial uses that are to be protected. The beneficial uses are defined by California's Porter-Cologne Water Quality Control Act and include boating, swimming and fishing. Impacts from agriculture runoff, hillside development, and urban runoff have resulted in the Clean Water Act Section 303(d) listing of the Carquinez Strait for Mercury, Copper and Diazinon.

Mercury and Diazinon

The Carquinez Strait is listed on the Clean Water Act's 303(d) list due to impairment for multiple constituents. The City has identified two constituents listed as high to medium priority pollutants on the EPA's 2002 303(d) list for which storm water controls may have a positive influence. The constituents, their priority status and pollutant source are listed below:

CONSTITUENTS	PRIORITY	POLLUTANT SOURCE
Mercury	High Priority	Industrial Point Sources, Resource Extraction, Atmospheric Deposition, Natural Sources and Nonpoint Sources
Diazinon	Medium	Non-point Sources, Urban Runoff

Lake Herman is identified as significant surface water in the RWQCB – SF Bay Region Basin Plan. Lake Herman is part of the Suisun Bay Hydrologic planning area and has been listed as being impaired with respect to Mercury, but of a low priority. In the event of an emergency Lake Herman Reservoir may be used as a backup drinking water source for the City. Hastings Mine with the Sulfur Spring Creek watershed is listed as an inactive mercury mine on figure 4-5 of the Basin Plan.

In order to meet the requirements of the General Permit, the City of Benicia will implement a citywide program, and work to coordinate with the Fairfield-Suisun Sewer District, Vallejo Sanitation and Flood Control District, the city of Vacaville, and Solano County to form a county-wide program to collectively address, where possible, storm water pollution. A countywide program will allow Benicia to collaborate with other agencies, share financial resources for many of the public education items contained within the SWMP. Collaborating will be particularly useful in the Public Education and Outreach MCM, and will ensure that a consistent message regarding storm water pollution will be conveyed throughout Solano County.

MINIMUM CONTROL MEASURES

The City's SWMP consists of six program elements called Minimum Control Measures (MCMs) that are expected to attain a reduction of the pollutants that are present in the storm water discharged into the Carquinez Strait. The six MCMs to be implemented are:

MCM-1 Public Education and Outreach
MCM-2 Public Participation and Involvement
MCM-3 Illicit Discharge Detection and Elimination
MCM-4 Construction Site Runoff Control
MCM-5 Post-Construction Storm Water Management
MCM-6 Pollution Prevention for Municipal Operations

A comprehensive matrix providing details regarding the implementation plan, measurable goals to achieve the goal of the activity, an implementation timeframe for each element and the responsible division within the City for each element is attached.

Public Education and Outreach

The Public Education and Outreach MCM consists of distributing materials and performing outreach activities to inform citizens about the impacts polluted storm water runoff can have on receiving water bodies. Most people are completely unaware that there are everyday activities that they perform that have negative impacts on the creeks near their homes and businesses. Even when people are marginally aware that they may be contributing some form of pollution, the impacts of their actions, when multiplied by the activities of other inhabitants of the area, are not completely realized. A greater degree of compliance with the program can be expected as the responsive portion of the public becomes aware of their personal responsibility to protect water quality. As a first step in educating the public, each year as we prepare to submit the required annual report, a summary of the Stormwater Management Plan and documentation of achievements and implementation plans will be presented to the public and members of the City Council.

Multiple programs providing public education and outreach on a variety of issues revolving around storm water are already implemented by the City of Benicia. The City is conducting a trial pet waste management program that includes signs, bags and stations for pet waste disposal located at two City pedestrian paths. In 2005, Benicia plans to start monitoring the number of bags that are being distributed at public locations for the trial pet waste management program. With the assistance from Parks personnel, we can begin collecting baseline data from June 2004 to May 2005 at two locations, First Street Green and the Dog Park at Benicia Community Park. Once the baseline data is established, the City will evaluate and compare the progress of our pet waste management program yearly and determine if our measurable goal of increasing bags distributed has been reached.

In addition, the City is implementing several pollution prevention public education programs, including educational utility bill stuffers, 3rd –5th grade education programs and tours, and brochures regarding storm water pollution. The City began developing an elementary school

pollution prevention (P2) program during fiscal year 1996/97 (July/96 through June/97). During its inception, the P2 education program was introduced only to third grade classes. The Lindsay Wildlife Museum was hired by the City to coordinate and implement the program. The students were educated on the difference between storm and sanitary sewer systems, simple P2 concepts, and how wastewater is treated before discharge.

During the fourth year, Benicia hired a local teacher to conduct its pollution prevention education program and added a field trip with hands-on science activities. For the fifth year, the school outreach program has expanded to include the fifth grade and focus on water conservation. The program is currently offered to every third, fourth, and fifth grade class in Benicia. In addition, a second grade pilot program was introduced during the school year 2002/2003. Each grade's program has an hour in-class presentation and a half-day field trip.

Currently, the second graders are being educated about the wetlands and the water cycle, how people use water and how people pollute water. The third graders are taught storm water P2, discovery of wetlands, and restoration at Lake Herman. Fourth graders begin learning about microorganisms and their impact on wastewater treatment. Wastewater plant tours are given to the students and they participate with simple laboratory tests and equipment. In addition, fourth grade students will be introduced to a new program that entails learning the geography of California's natural water and aqueduct system, and learning about the state's watersheds. Finally, the fifth graders are discovering the benefits of water conservation and learning about the watershed, and what effects Lake Herman's (a city-owned lake/reservoir) water quality.

Classroom participation is very positive and encouraging. During the school year 2002/2003, all the third (20 classes) and fifth (17 classes) grades participated with 400 and 468 students attending the presentations, respectively. The fourth grade participation rate was 11 classes out of a possible 14 or 79% participation with 330 students in attendance. Since the inclusion of the second grade classes was a pilot program, the school outreach program was only offered to five classes or 100 students. The City's PE/WE Coordinator advertises her program with a brochure given to each teacher and conducts a meeting to introduce her program to the elementary teachers before the start of the school year. A copy of the brochure is enclosed. Classroom participation rate and a survey that is given to the teachers at the end of the school year are used to evaluate and measure each year's goal.

The City's PE/WE Coordinator, beginning with the Lindsay Wildlife Museum in 1996, has developed an evaluation form for participating teachers in the City's Water Education program. The PE/WE Coordinator is working with the teachers to establish goals at the beginning of the school year and we can measure the program's success by determining if these goals have been achieved. The surveys and a self-addressed, stamped envelope accompany "goody bags" that are issued to the teachers at the beginning of the school year. The City receives the responses throughout the academic year after the presentations, tours, etc. have been conducted. The effectiveness of the Water Education program is measured by the teacher's evaluations and thus far, the responses have been overwhelmingly positive. The surveys are continuously refined as the PE Coordinator analyzes and evaluates the teacher's responses. A survey form is enclosed.

The City's PE Coordinator began distributing "goody bags" directly to students when the program started in 1996. The goody bags contained pencils, rulers, erasers, bookmarks, P2 educational materials, brochures, activity books that encouraged student participation (such as word puzzles, coloring, etc.), and other promotional items. However, the City's current PE Coordinator believes that some of these giveaways were not always effective and that some of the literature materials were being wasted, used as toys or turned into trash. Thus, the PE Coordinator only issues goody bags to the teachers for distribution. The teachers are given activity books (hard-backed reference books) that teach about wastewater treatment, and P2 educational materials that can be incorporated into the classroom curriculum. We believe the giveaways are now more effective at reaching or teaching the students about P2 and related subjects when distributed by each teacher. The third-grade students are given a door hanger that contains a fish for the students to color on one side and a message about the City of Benicia's household hazardous waste recycling program on the opposite side. The PE Coordinator believes that the door hangers are less likely to be thrown away because the students have worked on coloring the fish, which personalizes it.

Our household waste company, Pleasant Hill Bayshore Disposal, tracks the household hazardous waste collected and Benicia submits the information annually with its Pollution Prevention Report.

The P2 program weaves storm water pollution prevention messages throughout the topics of water conservation, pollution prevention and wastewater microbial presentations.

The Water Quality Division performs distribution of educational information regarding the proper disposal options for household hazardous waste. Information about recycling household hazardous waste and trash management is made available by Pleasant Hill Bayshore Disposal, the City's waste management subcontractor. The Community Development Department distributes brochures on Erosion Control/Pollution Prevention with every applicable building permit.

In addition to the above-mentioned BMPs, the City is proposing to implement additional activities that will create greater awareness of storm water issues for the citizens of Benicia, with a particular focus on elementary school children, business owners, and city employees. The proposed BMPs include modifying and expanding the water conservation educational curriculum to include more storm water components. This modified curriculum will be presented to public and private schools located in Benicia. Providing annual training classes open to private developers and businesses to create awareness of storm water issues and educating them on project-specific requirements is another BMP being considered. The City will focus on storm water quality and pollution prevention during the City's annual Public Works Week in May and Pollution Prevention Week in September by utilizing informational displays at the Benicia Library and City Hall.

The City of Benicia has also begun to assist with organizing and participating in community spring and fall Coastal Cleanup Day events, stressing the benefits of trash reduction, tree planting, erosion prevention, and restoring wildlife to local wetland areas. The Community Development Department will meet with private developers and contractors early in the project development and environmental phase to advise and guide projects that may impact the storm water system, including adverse effects on riparian habitat and contributions of runoff that would affect the existing storm drain system or contribute additional polluted runoff.

Public Involvement and Participation

The Public Participation and Outreach MCM has the goal of providing opportunities for citizens to participate in storm water program development and implementation, including participation in public hearings, encouraging citizen representation in project and development reviews affecting storm water issues, and/or community environmental awareness events.

In recent years, Benicia has organized activities that have encouraged public involvement and participation in storm water related measures such as a storm drain stenciling program, which allows volunteers to stencil or affix storm drain inlet markers with the slogan, "Only Rain down the Drain." In 2001, the City of Benicia worked with a Boy Scout volunteer group to install markers on to storm drain inlets. The markers contained the message "Only Rain Down the Storm Drain." Using a map of downtown Benicia and First Street as a reference point, the City was divided into four areas for stenciling. Area One consisted of lower First Street and part of East Fifth Street or Southern East of Benicia, 39 storm drain inlets were stenciled. The Western portion of Benicia was assigned Area Two and 35 storm drains were stenciled. Area Three contained the upper First Street or Northern part of Benicia, 53 storm drains were stenciled. Area Four or Eastern portion of Benicia, 47 stencils installed. A total of 174 storm drain stencils out of approximately 500 (rough estimate) were installed.

Currently, the City is reviewing the feasibility of establishing a public outreach program that includes the use of high school volunteer students to assist with storm drain inlet stenciling. The City would use the volunteers only in the summer and one or two areas of the Town would be targeted for stenciling or for replacement of stencils during the summer. The stencils should be replaced once every five to seven years, which is the expected lifetime of the stencils. The stenciling program will be evaluated by how many stencils that are replaced each summer and by the participation rate of volunteers from year-to-year.

In addition to the public involvement and participation opportunities described above, the City will be providing two opportunities for public involvement and comment during regularly scheduled City Council meetings. The first of these meetings will be a Council Workshop on July 23, 2003 to educate the council and the public on the SWRCB requirements for the City's SWMP and the upcoming budget impact. On August 5, 2003 staff will introduce the Storm Water Management Plan, invite public comment and adoption. The goal of both meetings is to promote public awareness and involvement in the development of this SWMP. Subsequently, staff will prepare an annual report on the status of the SWMP and our progress.

Illicit Discharge Detection and Elimination

The Illicit Discharge Detection and Elimination MCM consists of developing a plan to systematically check the storm drain system for connections to sewer or septic systems. It includes verifying the existing storm drain system map and informing the community of hazards associated with illegal discharges and improper disposal of wastes. In addition to those mentioned above, illicit discharges are identified as commercial car wash and laundry wastewaters, grease from restaurants, radiator flushing disposal, spills from auto accidents, and improper disposal of household toxics and automotive fluids. Illicit discharge detection and elimination also includes adopting an ordinance to prohibit non-storm water discharges into the storm drain system and implement appropriate procedures and enforcement actions.

The City and regulatory agencies currently implement several programs regarding the identification and elimination of illicit discharges in Benicia. These programs include the City's Pretreatment/Pollution Prevention (P2) Coordinator who routinely inspects and monitors Industrial Users and enforce Pretreatment regulations to ensure local limit compliance. At the same time, storm water inspections are conducted concurrently with regular Pretreatment inspections. The Public Works inspector works in partnership with the City's Assistant Fire Marshall to conduct visual observations around the City to identify and detect illicit discharges in Benicia. The City is in the process of verifying a storm drain a map detailing the layout and outfalls of the storm drain system and defining the drainage basins to the Carquinez Strait.

In addition to the above-mentioned BMPs, the City is proposing to implement additional activities to identify and eliminate illicit discharges and to inform the community of the hazards associated with the improper disposal of wastes. The proposed BMPs include the development of an ordinance prohibiting and enforcing non-storm water discharges, prioritizing areas of concern for illegal dumping, providing bi-lingual educational materials to restaurants in these areas of concern, and coordinating with the Water Quality Division to add a storm water component to their industrial and commercial inspections. The City is working with other agencies to acquire posters to distribute to restaurants as part of a public education campaign to reduce fats, oils, and grease (FOG) in the sanitary sewer lines. These posters will have bilingual language, in English and Spanish. As the number of restaurants and residents have increased in Benicia, there has also been an increase in FOG and sanitary sewer overflows (SSO) have become a concern. In addition, the City will be working with the Bay Area Pollution Prevention Group (BAPPG) to do a group printing of FOG control door hangers as part of a public outreach program to the residential community. The City's P2 Coordinator will be working with the field collection crew in 2004/2005 to collect baseline data for FOG induced clean up and SSOs in the collection system. Subsequently, the City can evaluate and measure the success of its FOG control program beginning in 2005/2006.

The City's P2 Coordinator will conduct visual inspections of industries and businesses throughout the community on a quarterly or bi-monthly basis to detect non-storm water discharges. In addition, the P2 Coordinator will be using brochures, and P2 educational materials as part of a public outreach program to educate City employees, businesses, and residents about proper waste disposal. The annual Coastal Clean-up event will be advertised in

the newspaper, through water bill inserts, and various media outlets. The effectiveness of the public education program can be measured by the number of volunteers participating in special events and by monitoring the volume of waste and comparing it year-to-year.

The City will be conducting training workshops to educate various departments (Parks, Planning, Building, Engineering, Collection System, Water Quality, etc.) about the importance of an effective storm water P2 program. These workshops will include storm water ordinance training and the importance of enforcement and guidance on the Enforcement Response Plan. An evaluation form will be developed to determine the effectiveness of the training and to determine employee awareness. Refresher courses will be given bi-enially (every other year.)

Construction Site Storm Water Runoff Control

The Construction Site Storm Water Runoff Control MCM consists of developing, implementing and enforcing an erosion and sediment control program for construction activities that disturb one or more acres. The soil that can be carried from a construction site during a relatively short period would take approximately 30 years to erode under naturally vegetated conditions. Excess sediment requires periodic dredging of navigable waterways and destroys aquatic habitat. This control measure mandates erosion and grading ordinance or policy that requires implementation of appropriate sediment controls. Procedures must be implemented for site plan review of construction plans to ensure that the plans define the types of controls and precautions to be installed. Site inspections and checklists must be utilized that verify that the erosion control plan has been implemented as permitted. A protocol must also be implemented for enforcing the ordinance or policy. Examples of pollutants discharged from construction sites are sediment, fertilizers, pesticides, oil and grease from vehicle fueling and maintenance, wash water from concrete trucks, construction chemicals and debris/trash. Projects that are greater than five acres in size are required to obtain a separate statewide Construction Storm Water Permit from the SWRCB and prepare a Storm Water Pollution Prevention Plan (SWPPP).

Contractor will also be required to manage the construction site for not only sediment and erosion, but materials management so that non-stormwater runoff from materials and storage areas does not enter the storm drain system. contractors will be specifically directed to the RWQCB SFBR Erosions and Sediment Control Field Manual. Project proposals will be reviewed for compliance with the Phase II General Permit. Conditions of development will also be developed and implemented that mobilize the requirements for runoff reduction and erosions and sedimentation elimination.

As part of the Enforcement Response Plan, procedures are established for the receipt, distribution and response to illicit discharges.

The City of Benicia implemented several BMPs pertaining to construction site storm water runoff control in the early 1990's. The City Engineer reviews Erosion and Grading Control Plans, and the Public Works Inspector and the Benicia Building Official inspect construction sites during the rainy season to ensure that the eight categories of effective erosion control methods are being utilized (*California Stormwater Best Management Practice handbook: Construction).* In addition to the above-mentioned BMPs, each permit that is issued includes a

brochure on Erosion Control. Upon completion of the project review process, the PW Inspector creates an Erosion Control card to track inspection dates and conditions. The Inspector verifies that the Erosion Control Measures are in place and ensures compliance with the SWRCB General Construction Permit.

The Public Works Inspector gives guidance and is authorized by the City Engineer to enforce the existing encroachment and grading ordinances by issuing stop work orders when compliance has not been satisfied. If non-compliance continues the PW Inspector can cite and has the authority to contact the RWQCB to have them enforce the SWMP and issue fines if necessary.

The City is proposing to implement additional activities to control storm water runoff from construction sites. Proposed BMPs include the development and adoption of erosion and sediment control standards for construction, as well as revising the existing Grading and Erosion Control Ordinance. In addition to the above-mentioned BMPs, the City is proposing to implement additional activities to control storm water runoff from construction sites. Finally, an Application submittal form will be adopted that will have additional questions regarding potential storm water impacts for projects that are subject to review by CEQA.

Post-Construction Storm Water Management

The Post-Construction Storm Water Management MCM is intended to ensure that building and site improvements incorporated into building permits and in new developments and redevelopment projects as conditions of approval are managed and maintained in such a fashion to preserve their effectiveness in storm water pollution prevention. Areas within the City that have undergone new development and changes to building and site improvements may oftentimes create storm water pollution if the storm water pollution reduction measures originally constructed are not maintained. Many studies have indicated that advance planning and designs that minimize pollutants in post-construction discharges are the most cost-effective means of storm water quality management. As rainwater flows over areas altered by land development, it picks up small particles of soil and chemicals (such as oil, grease, pesticides, fertilizers, metals, and fecal matter) that are conveyed to the Carquinez Strait through the storm drain system. Once discharged, these materials can affect aquatic habitat and ultimately degrade the quality of the receiving waters.

Urban runoff also affects water bodies by increasing the volume and velocity of water entering storm drains and creeks. Urban development replaces natural vegetation with impervious surfaces such as rooftops, driveways, parking lots, and streets. These surfaces prevent water from soaking into the ground, thus replenishing groundwater supplies, and send unnaturally large, short-term volumes of storm water to creeks. This combination can create streambed scouring and downstream flooding and may lead to aquatic and property damage.

The BMPs to be implemented under this MCM include: Restricting or otherwise limiting construction within twenty-five feet of the top-of-bank on either side of a waterway to reduce the migration pathways for sediment, nutrients and pathogens into creeks. The City will adopt an ordinance requiring post-construction BMPs for new development and redevelopment projects as required by the General Permit. Post construction BMP will also include measures to ensure that runoff flows will not substantially increase from pre-construction levels. Developing and

adopting planning guidelines and engineering standards is a key component of the SWMP. The City will also develop and implement a post-construction BMP inspection program.

The City will direct designers and developer to such guidance as the California Stormwater Quality Association's Stormwater BMP Handbook for New Development and Redevelopment and the Bay Area Stormwater Management Agencies Association's Start at the Source Guidance manual for Stormwater protection.

Pollution Prevention for Municipal Operations

In order to implement the Pollution Prevention for Municipal Operations MCM, the responsibility of reducing polluted storm water runoff falls on the municipality operating the storm water system. This control measure will examine, adjust and modify maintenance methods to reduce polluted runoff from municipal facilities, streets, parking lots, open spaces, and corporation yards (storage of road repair materials and vehicle fluids, and vehicle maintenance) into local receiving water bodies. This measure requires the development of an Operation and Maintenance Plan; training employees on good housekeeping techniques; erosion controls for repairs on water and sewer lines, storm drain maintenance; and determining which BMPs and goals will work best for City owned property.

City staff and its subcontractors are already implementing multiple programs regarding pollution prevention and good housekeeping for municipal operations. City employees and citizens are advised to contact 911 to notify the Police/Fire Departments (PD/FD) in the event of any sort of spill regardless of the source. The PD/FD determines the procedure to be undertaken depending on the nature of the spill; non-hazardous materials are contained and storm drains secured by the PW maintenance crews. In the event of hazardous materials, a Hazardous Materials Response Team is alerted to respond and the Solano County Department of Environmental Health is contacted.

The City currently performs annual storm drain system cleaning in the areas known to be a source of non-point source pollution. The City is also planning a three mile pipeline to carry increased volumes of Infiltration and Inflow of storm water into sanitary sewers that will begin on the west end of the city and end on the east side of the city at the Wastewater Treatment Plant.

Pleasant Hill Bayshore performs street cleaning in the City on a regular and systematic basis. Every street in the city (over 97 curb miles) is swept monthly.

This control measure will include examination, development and implementation of BMPs to reduce polluted runoff from municipal facilities, streets, parking lots, open spaces, and corporation yards (storage of road repair materials and vehicle fluids, and vehicle maintenance).

The BMPs to be implemented under this MCM include: Training employees on good housekeeping techniques, erosion control inspection and storm drain maintenance storm, sewer and drinking water line BMPs will also be developed. Annual inspection and cleaning the storm drain system in the areas known to be a source of non-point source pollution is already conducted.

Decholorinating water discharged as part of the water main flushing program has been conducted for approximately seven years.

Monitoring and Evaluation

Every year of the permit, a report is required to be submitted to the SWRCB. The first report is due in September 2005, the next in September 2006. Benicia will internally document activities that took place during the fiscal year, determine if measurable goals were achieved, and assess the success or failure of the selected BMPs included in the attached tables. If changes need to take place to alter a BMP to make it more successful, the City will make those changes and note the decision in the annual assessment. The SWMP is a dynamic document that will be updated and augmented annually to reflect the progress of the program and how reducing pollutants to the maximum extent practicable will be achieved.

SIGNATORY REQUIREMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

James R. Erickson
City Manager
City of Benicia

Date

Recommended by:

Daniel Schiada
Director of Public Works
City of Benicia

Date

ACRONYM LIST

Acronym	Meaning
BMPs	Best Management Practices
CEC	Community and Environment Commission
CEQA	California Environmental Quality Act
EPA	Environmental Protection Agency
FOG	Fats, Oils, and Grease
MCMs	Minimum Control Measures
MS4s	Municipal Separate Storm water Systems
SWRCB	State Water Resources Control Board
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
P2 Coordinator	Pollution Prevention Coordinator
PE/WE Coordinator	Pollution Education/Water Education Coordinator
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Loading
VSFCD	Vallejo Sanitation & Flood Control District
FSSD	Fairfield Suisun Sewer District
RWQCB	Regional Water Quality Control Board
FAQ	Frequently Asked Questions
PHBD	Pleasant Hill Bayshore Disposal

Attachment B

MAP PREVIOUSLY SUBMITTED

City of Benicia
Public Education and Outreach

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
1.a. Outreach to local government officials.		x				Develop presentation to inform local government officials of the importance of reducing storm water pollution, the regulatory requirements, and the local Storm Water Management Plan.	Completed PowerPoint presentation.	Only rain down the storm drain.	Local government officials	**PW-Engineering** City Engineer, Management Asst.
1.b.		x				Give presentation at Council Workshop and regularly scheduled council meetings.	Presentation given to local council members, and department heads			
1.c		x				Invite local government officials to be part of the Citizen's Public Workshop that will be providing input to the Stormwater Management Plan.	At least one local government official or a recommendation from a local government official who will be part of the Citizen's Public Workshop.	Local government official's support and participation is vital to successful and effective storm water management program.		
1.d.		x				Prepare and present an annual summary to Council Members at a public hearing documenting the SWMP requirements, implementation plans and achievements.	Annual presentation given at a regularly scheduled council meeting.	Local government official's support and participation is vital to successful and effective storm water management program.		
1.e Prepare training manuals and train staff and new staff		x				Prepare a training manual that will be used to train existing and new staff in the requirements of the NPDES permit, and conduct training of existing staff and new staff as they are hired.	Complete preparaton of the manual and staff training.	Increased level of awareness of staff's influence on water quality		

City of Benicia
Public Education and Outreach

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
2.a. Characterize general public.										
2.b. Collect census data.		x				Identify the general public through census data, and public survey to determine groups of population in terms of age, language spoken and concentration.	Completion of identification of demographic groups,			**PW-Engineering** City Engineer, Management Asst.
2.c. Collect survey examples and adapt.		x				Review and adapt other agencies' survey to gather resident's current knowledge of storm water pollution, gardening, and vehicle servicing habits; and to determine how to best reach different pockets of audience.	Other Agencies surveys collected and reviewed.			**PW-Engineering** City Engineer, Management Asst.
2.d. Collect survey data		x				Evaluate options to collect survey data and implement additional public education and outreach as necessary in those categories.	Finalize a survey form	Public's opinion on pollution and how to protect our waters is important	Public	
2.e. Implementation of survey		x				Distribute survey and collect data	15% of surveys returned	Involve public in the program		
2.f. Review data			x			Compile survey data to determne level of awareness and need for, and types of, public promotional information	Prepare and distriburte promotional/educational information.	Increased level of awareness of public's influence on water quality		
2.g. Re-survey					x	Re-survey public	Increase public awareness	Quantify an increase in the level of awareness		

City of Benicia
Public Education and Outreach

Activity/Best Management Practices	Begin Implementation 2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
3. Develop a Stormwater Website		x				Develop website with information on the SWMP, illicit discharge hotline, upcoming workshop/events, FAQ, and BMP's for businesses and residences.	Website developed	"Only rain down the drain".	Public	**PW-Engineering** City Engineer, Management Asst.
		x				Receive feedback on website and continue development/updates	Annual evaluations and continued development/updates			
4. Develop a Stormwater booth		x				Develop a booth to inform the public on the importance of reducing storm water pollution and what they can do to reduce storm water pollution	Utilize Booth at Annual Public Works Week, City events such as the Waterfront Festival, Peddler's Fair. Attend annual Coastal Cleanup Day events. (spring and fall)	"Only rain down the drain". Reduce use of water, nutrients and pesticides; household hazardous waste disposal and used oil recycling.	Public	**PW-Engineering** City Engineer, Management Asst.
5.a. Enhance the Stormwater Education program components for grades 3-5		x				Review other agencies presentations.	Determine our message and include in our presentation	"Only rain down the drain".	Public Grades 3-6	**PW-Engineering** City Engineer, Management Asst. Water Qlty Supvsr.
5.b. Ensure that a consistent Storm water presentation is being used.		x				Develop presentation and curriculum.	Presentation and curriculum developed by the PE/PW Coordinator by June 30, 2005.	"Only rain down the drain".	Public Grades 3-6	**PW-Engineering** City Engineer, Management Asst. Water Qlty Supvsr.
5.c. Develop evaluation form for presentation.		x				Utilize an evaluation form to measure effectiveness of presentation before and after.	Evaluation form developed. Evaluation form will be reviewed by city staff.			
5.d. Utilize the evaluation form for presentation.		x				Make form completion part of a contest to encourage a high percentage of participation	Show an increase in awareness			
5.e. Conduct Presentation		x				Conduct presentations to all 5th grade classrooms in public schools in the first year, and 3rd, 4th , 5th and 6th grade classrooms in public and private schools every year thereafter	Show an increase in awareness			

City of Benicia
Public Involvement/Participation

Activity/Best Management Practices	Begin					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
1. Citizens' Public Workshop		x	x	x	x	Annual presentation to the City Council at public workshop	Workshop completed annually	Help control the discharge of pollutants into the storm drain.	Public	**PW-Engineering** City Engineer, Management Asst. **CDD**
2. Public review of Storm Water Management Plan.		x				Have an annual public review and comment on the Annual Report	Annual review completed.	Help control the discharge of pollutants into the storm drain.	Public	**PW-Engineering** City Engineer, Management Asst. **CDD** Planner
		x				Invite public to comment as required by State and local public notice requirements.	Post the public commenting period.			
		x				Respond to comments.	Response to comments.			
		x				Revise Storm Water Management Plan based on comments.	Update Storm Water Management Plan to accommodate updated techniques and to reflect MEP.			
3. Storm Drain Stenciling Program		x				Once a year, provide materials and supplies to citizens and groups. Advertise program on Storm Water website, in the stormwater booth.	The number of drains stenciled and the number of volunteers will be tracked each year. Provide required materials and guidance for stenciling once each year.	Help control the discharge of pollutants into the storm drain. "Only rain down the drain".	Public	**PW-Maintenance** Maint. Worker
4. Trash Can Decal Program		x				Provide trash can decals about proper disposal of household hazardous waste and used oil.	Decals given to all new customers when container is delivered, and to existing customers in a bill insert.	Help control the discharge of pollutants into the storm drain. "Only rain down the drain".	Public	**PW-Engineering** Maint. Suprvsr. Maint. Worker (PHBD)
5. Household hazardous waste (HHW) collection			x			Schedule and advertise HHW collections days for citizens. As educational materials are distributed to citizens, the number of pickup days per year will be increased over time. Schedule and conduct 1 collection day beginning in year two.	Collection completed and amounts recorded	Help control the discharge of pollutants into the storm drain. "Only rain down the drain".	Public	**Fire Department** (PHBD) Valcor

City of Benicia
Public Involvement/Participation

Activity/Best Management Practices	Begin 2003-2004	Begin 2004-2005	Begin 2005-2006	Begin 2006-2007	Begin 2007-2008	Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
6 Yard Waste Reduction Education Program		x				In addition to weekly/bi weekly waste collections, annually schedule and conduct a yard waste reduction and home composting education workshop.	Composting and waste reduction workshop conducted. The number of homeowners that attend home composting workshops will be tracked each year. Subsequent year's workshop scheduled.	Help control the discharge of pollutants into the storm drain. "Only rain down the drain".	Public	**Fire Department** (PHBD) Valcor
7. Coastal Cleanup Day		x				Promote and participate at event. When possible, additional sites will be added. Increase garbage collected and number of participants by 10% in following years.	Cleanup day completed and number of participants and the amount of garbage collected each year increased.	Reduce trash in receiving water.	Public	**PW-WQD** WQD Supervisor **PCSD** Maint. Worker

City of Benicia
Illicit Discharge Detection and Elimination

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
1.a. Establish a structure to effectively conduct illicit discharge screenings and investigations.		x				Develop an Enforcement Response Plan. Include guidance for scheduled and unschedule inspections to address non-stormwater discharges.	Publish Plan for use	Only rain down the storm drain.	Inspection staff, Public Works Maintenance Crews	**PW-Engineering** City Engineer-Management Asst., Maint. Suprvsr., Water Qlty Suprvsr. **CDD** Planner
1.b. Design data base to track illicit discharge reports and follow-up actions.		x				Review other agencies data bases. Adapt and design data base for in-house use.	Data base developed.	Only rain down the storm drain.	Inspection staff, Public Works Maintenance Crews	**PW-Engineering** City Engineer-Management Asst., Maint. Suprvsr., Water Qlty Suprvsr. **CDD** Planner
1.c. Identify structure to implement illicit discharges program.		x				Identify staff to conduct inspections, follow-up, elimination, and clean-up of illicit discharges.	Staff identified.	Only rain down the storm drain.	Inspection staff, Public Works Maintenance Crews	**PW-Engineering** City Engineer-Management Asst., Maint. Suprvsr., Water Qlty Suprvsr. **CDD** Planner
		x				Establish a phone number, email address, and staff dedicated to receiving information about non-storm water discharge.	Phone number, email address, and staff identified.	Only rain down the storm drain.	Inspection staff, Public Works Maintenance Crews	**PW-Engineering** City Engineer-Management Asst., Maint. Suprvsr., Water Qlty Suprvsr. **CDD** Planner

City of Benicia
Illicit Discharge Detection and Elimination

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
1.d. Create database		x				Dedicated staff will also be responsible for recording information in data base, disseminating to appropriate staff for follow-up actions, and updating data base.	Database created	Only rain down the storm drain.	Inspection staff, Public Works Maintenance Crews	**PW-Engineering** City Engineer-Management Asst., Maint. Suprvsr., Water Qlty Suprvsr. **CDD** Planner
1.e. Develop and adopt ordinance.	x					Review other agencies' ordinances.	Ordinance developed.			**PW-Engineering** PW Director, City Engineer, Water Qlty Suprvsr. **CDD** Planner
1.f. Adapt and adopt.		x				Develop anordinance that will incorporate SWMP activities, and allow city staff to check for illicit connections.	Ordinance adopted.			
1.g. Record keeping	x					Staff will maintain and update database and generate reports as requested.	Database developed and maintained.			**PW-Engineering** City Engineer, Management Asst.
2.a Initial staff training		x				Train City employees on the administrative process for ordinace implementation, Enforcement Response Plan and the illicit discharge screening and investigations programs	Administer a test at the end of the training to ensure staff's understanding of the administrative process.	Following the administrative process will help control the discharge of pollutants to the storm drain.	City employees	**PW-Engineering** PW Director, City Engineer, Management Asst., PW Inspector, Maint. Supvsr. **CDD** Planner, Building Inspector

City of Benicia
Illicit Discharge Detection and Elimination

Activity/Best Management Practices	Begin Implementation 2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
2.b. Refresher Training			x			Annually train appropriate staff to recognize illicit discharges and the procedures for responding to these discharges.	Administer a survey at the beginning of the training to gauge staff's understanding of illicit discharges. At the end of the training, give case studies as a quiz to ensure staff can recognize illicit discharges and understand the procedures for responding to them.	Non Stormwater discharges		
3. Develop maps of outfalls.		x				Collect and confirm all existing information on outfalls and map it.	Information compiled.	Final outfall map will assist in locating all the outfalls .	PW Maintenance Staff, Engineers, Private Developers, Planners	**PW Engineering** City Engineer, Sr. Engineer
			x			Identify data gaps.	Data gaps identified.			
				x		Collect data to fill in data gaps.	Data gaps filled.			
					x	Draw final map.	Final outfall map completed.	Final maps exist		
4a. Develop an Enforcement Response Plan (ERP) for Illicit Discharges.		x				Develop an ERP that address Illicit Discharges, and utilizes the ordinance to establish guidance on selecting initial and follow-up enforcement actions. Include a listing of high priority potential sources of non-stormwater discharges that may be significant sources of pollutants.	Complete Enforcement Response Plan and inform public	Protect the Storm Drain	PW Maintenance Staff, Citizens	**PW Engineering** City Engineer, Sr. Engineer, PW Maint. Suprvsr.
4b. Train Staff in use of Enforcement Response Plan		x				Perform staff training so that staff is fully prepared to implement the Enforcement Response	Complete staff training	No Illicit discharges	PW Maintenance Staff, Citizens	**PW Engineering** City Engineer, Sr. Engineer, PW Maint. Suprvsr.

City of Benicia
Illicit Discharge Detection and Elimination

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
5. Develop and Distribute Bi-lingual Material		x				Develop bi-lingual material about illicit discharge prevention and distribute to restaurant owners and kitchen staff.	Complete development of material and distribution	No Illicit discharges	Business owners	**PW Engineering** City Engineer, Sr. Engineer, PW Maint. Suprvsr.

City of Benicia
Construction Site Storm Water Runoff Control

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
1. Develop and adopt ordinance requirements for construction sites that disturb one acre or more.		x				Review other agencies ordinances. Adapt and adopt.	Ordinance adopted.	Sediment	Contractors and Property Owners	**PW-Engineering** PW Director, City Engineer **CDD** Planner
2.a. Draft brochure materials regarding erosions control and site waste controls.			x			Develop a brochure explaining the permit process. Including the Five Guiding principles and BMP fact sheet for construction activities. Include references to the Regional Water Quality Control Board San Francisco Bay Region "Erosion and Sediment Control Field Manual"	Create brochure	Five Guiding Principles 1) Good Site Planning 2) Minimizations of soil movement 3) Capture of sediment to the MEP 4) Good Housekeeping practices 5) Minimization of impacts of post-construction stormwater discharges	Contractors and Property Owners	**PW-Engineering** PW Director, City Engineer, Management Asst. **CDD** Planner, Building Official
2.b. Distribute Brochure			x			Attach to all building/grading permit applications by 1st year; implementation of BMPs required as a condition of approval for all construction activities over 1 acre by second year.	The number of brochures will match the number of permits issued each year. Reports will be generated through the permit tracking software.	Sediment	Contractors and Property Owners	**PW-Engineering** PW Director, City Engineer, Management Asst. **CDD** Planner, Building Official
3.a. Construction Site Erosion Control Workshop			x			Planners, inspectors, municipal staff to attend annual construction workshops held by the SWRCB and SFEI.	Staff trained	Installation and maintenance of erosion and sediment controls are necessary to significant reduce erosion.	Contractors, City employees	**PW-Engineering** City Engineer Management Asst. **CDD** Planner, Building Official

City of Benicia
Construction Site Storm Water Runoff Control

Activity/Best Management Practices	Begin Implementation 2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
3.b. Review project proposals for compliance with the SWRCB General constrtuction Permit			x			During the review of project applications, review the site plan for compliance with the General Construction Permit by creating a checklist based on the RWQCB SFBR "Guidelines for Construction Projects"	Checklist prepared and implemented	Installation and maintenance of erosion and sediment controls are necessary to significant reduce erosion.	Contractors, City employees	**PW-Engineering** Asst. City Engineer Management Asst. **CDD** Planner, Building Official
3.c. Construction Site Inspection			x			Develop inspection forms and training for dry weather, pre-rainy season and wet weather inspeciton, and general site and materials management	Forms published and used and training conducted.	Installation and maintenance of erosion and sediment controls and site materials and waste management are necessary to significant reduce erosion and pollution potential	Contractors, City employees	**PW-Engineering** City Engineer Management Asst. **CDD** Planner, Building Official
3.d. Construction Site Erosion Control Workshop			x			Develop a program for contractors focusing on the Five Guiding Principles	Program conducted	Installation and maintenance of erosion and sediment controls are necessary to significant reduce erosion. Focus on the Five Guiding Principles	Contractors, City employees	**PW-Engineering** City Engineer Management Asst. **CDD** Planner, Building Official
3.e. Train all employees in Construction Runoff Controls (CRC)			x			Require All employees involved with the implementation of the CRC MCM will receive initial erosion and sediment control training and periodic refresher courses and train on Ordinance.	Pre and post survey for effectiveness evaluation	Installation and maintenance of erosion and sediment controls are necessary to significant reduce erosion. Focus on the Five Guiding Principles	City Employees	**PW-Engineering** City Engineer Management Asst. **CDD** Planner, Building Official
3.f. Conduct periodic staff refresher courses					x	``	Pre and post survey for effectiveness evaluation	Updates and new requirements and technology in erosion and sediment prevention and control	City Employees	**PW-Engineering** City Engineer Management Asst. **CDD** Planner, Building Official

City of Benicia
Construction Site Storm Water Runoff Control

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
3.g. Post storm inspection			x			Inspect all construction sites before rainy season.	All sites inspected.	Ensure that erosion and sedimentation control measures are installed, intact and effective.	City Employees and developers	**PW-Engineering** City Engineer Management Asst. Inspector
3.h. Post storm inspection			x			Inspect all construction sites within 48 hours after each rain storm	Ensure that 50% of sites are in full compliance in year one. And a 10% increase each year thereafter.	Ensure that erosion and sedimentation control measures are installed, intact and effective.	City Employees and developers	**PW-Engineering** City Engineer Management Asst. Inspector
4 Prepare an Information/Complaint receipt, distribution and reaction procedure.			x			Prepare an emergency communication and responsibility flow chart including phone numbers of responders and agency contacts as an appendix to the Enforcement Response Procedure	Flow chart and phone list published and implemented	Timley receipt and distribution of information received for necessary action	City Employees	**PW-Engineering** City Engineer Management Asst. **CDD** Planner, Building Official

City of Benicia
Post-Construction Storm Water Management in New Development and Redevelopment

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
1. Develop and adopt ordinance requirements for post-construction stormwater management for sites that disturb one acre or more.		x				Review other agencies ordinances. Adapt and adopt.	Ordinance adopted.	Erosion, sedimentand pollution reduction	Contractors and Property Owners	**PW-Engineering** PW Director, City Eng ineer **CDD** Planner
2.a Develop guidance for structural and non-structural stormwater controls			x			Develop a guidance document that reflects the requirements for development	guidance document developed	Reduce sources of runoff and potential pollution	Contractors, developers and Property Owners	**PW-Engineering** PW Director, City Engineer **CDD** Planner
2.b. Developer and Contractor Training		x				Conduct training in the use of the guidance document for developers and contractors	Complete training for deelopers and contractors	Reduce sources of runoff and potential pollution	Contractors and Property Owners	**PW-Engineering** PW Director, City Engineer **CDD** Planner
2.c. Develop program to maintain structural storm water controls.			x			In the first year conduct an inventory of structural runoff controls. Year 2, develop a system to integrate the location of these controls with a schedule for regular inspection and maintenance	Conduct four inspections of each structural control per yea amd conduct regular maintenance as prescribed for each type of practice.	Prompt inspection and maintenance of structural controls will reduce discharge of polluted water into the storm drain system and help comply with SWMP	Property owners, developers and architects.	**PW-Engineering** City Engineer, Asst. Engineer **CDD** Planner **FD** Fire Chief
2.d. Develop standards conditions of approval related to structural and non-structural stormwater controls			x			Create a standard set of conditions to apply to development	Standard development conditions created	Reduce sources of runoff and potential pollution	Property owners, developers and architects.	**PW-Engineering** City Engineer, Asst. Engineer **CDD** Planner **FD** Fire Chief

City of Benicia
Post-Construction Storm Water Management in New Development and Redevelopment

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
2.e. Compile list of BMPs.		x				Designate existing City employee to compile BMPs.	Completed list of BMPs.	Prompt inspection and maintenance of structural controls will reduce discharge of polluted water into the storm drain system and help comply with SWMP	Property owners, developers and architects.	**PW-Engineering** City Engineer, Asst. Engineer **CDD** Planner **FD** Fire Chief
2.f. Identify all structural controls operated by the City.		x				Locate, map, photograph and describe the site conditions of the structural controls. Group the different structural controls with their respective BMPs in a final report.	Completed report.	Prompt inspection and maintenance of structural controls will reduce discharge of polluted water into the storm drain system and help comply with SWMP	Inspectors and Code Enforcement Officers	**PW-Engineering** City Engineer Maint. Suprvsr. **CDD** Planner
2.g. Develop inspection and maintenance schedule for public facilities.			x			Develop an inspection and maintenance schedule to maximize efficiency and minimize labor requirements.	Completed inspection and maintenance schedule of public facilities.	Prompt inspection and maintenance of structural controls will reduce discharge of polluted water into the storm drain system and help comply with SWMP	Inspectors and Code Enforcement Officers	**PW-Engineering** City Engineer Maint. Suprvsr. **CDD** Planner
2.h. Develop inspection and maintenance schedule on private developments.			x			Develop an inspection and maintenance schedule to maximize efficiency and minimize labor requirements.	Completed inspection and maintenance schedule of private development with Storm Water Condition of Approval.	Prompt inspection and maintenance of structural controls will reduce discharge of polluted water into the storm drain system and help comply with SWMP	Property owners, developers and architects.	**PW-Engineering** City Engineer Maint. Suprvsr. **CDD** Planner
2.i. Train staff in inspection of private BMP's.			x			Develop a training program on proper inspection and maintenance of structural controls, BMPs, and record keeping.	80% compliance with scehdule and BMP's on a quarterly basis.	Prompt inspection and maintenance of structural controls will reduce discharge of polluted water into the storm drain system and help comply with SWMP	Inspectors and Code Enforcement Officers	**PW-Engineering** City Engineer Maint. Suprvsr. **CDD** Planner

City of Benicia
Post-Construction Storm Water Management in New Development and Redevelopment

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
2.j. Implement schedule.			x			Inspect and maintain structural controls according to implementation schedule. Use post test to ensure workers understand training materials and measurable goals.	80% compliance with scehdule and BMP's on a quarterly basis.	Prompt inspection and maintenance of structural controls will reduce discharge of polluted water into the storm drain system and help comply with SWMP	Maintenance staff, Inspectors and Code Enforcement Officers	**PW-Engineering** City Engineer Maint. Suprvsr. **CDD** Planner
3.a. Develop an Enforcement Response Plan (ERP) for Post Construction Storm Water Management in New Development and Redevelopment		x				Develop an ERP that address Post Construction Storm Water Management in New Development and Redevelopment concerns , and utilizes the ordinance to establish guidance on selecting initial and follow-up enforcement actions.	Compile information on existing procedures and train staff on the appropriate response. Training will also include strategies on the correct actions needed to implement the Enforcement Response Plan, on the proper maintenance and operation of Post Construction measures to ensure that runoff leves are	Sediments, oil and grease, trash, fertilizer and pesticides. Reduce polluted discharge into the storm drain system.	PW Maintenance Staff, engineering and building inspectors, Property Owners	**PW Engineering** City Engineer, Asst. Engineer, PW Maint. Suprvsr.
3.b. Train Staff in Post Construction ERP	x					Conduct training in post-constructioon ERP	All enginering and building inspectors trained in post-construction ERP	Sediments, oil and grease, trash, fertilizer and pesticides. Reduce polluted discharge into the storm drain system.	PW Maintenance Staff, engineering and building inspectors, Property Owners	**PW Engineering** City Engineer, Asst. Engineer, PW Maint. Suprvsr.

City of Benicia
Municipal Operations

Activity/Best Management Practices	Begin Implementation 2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
1. Street sweep according to Attachment A.	x					Street sweep according to schedule. (attachment A)	Review records quarterly to ensure compliance to schedule in "Attachment A" 80% of the time.	Oil and grease, metals garbage, fertilizer, dirt, and leaves.	Pleasant Hill Bayshore Disposal (PHBD)	**PW Engineering** City Engineer PW-Maintenance Maint. Suprvsr.
2.a. Address problems that affect efficient street sweeping								Street Sweepers:		**PW Engineering** City Engineer PW-Maintenance Maint. Suprvsr.
2.b. Parked and abandoned vehicles	x					Assess which areas have high numbers of parked cars and potential conflicts with pedestrians.	Completed assessment.	Comply with measurable goals and implementation plans.	Businesses and residents	
		x				Develop at least two different outreach programs. Pilot outreach programs to a few area with high numbers of parked cars.	40% reduction in the number of parked cars during sweeping times.	Businesses and Residents:	Businesses and residents	
			x			Evaluate success of pilot programs	Completed evaluation.	Help ensure clean streets by parking cars outside of street sweeping areas on sweeping days.	Businesses and residents	
			x			Modify, as appropriate, and expand pilot programs to other areas.	Reduce total number of parked cars by 40% over 2 years during sweeping times. Evaluate mid-term.	Help ensure clean streets by parking cars outside of street sweeping areas on sweeping days.	Businesses and residents	
2.c. Leaves during Leaf Season	x					Assess which areas have high volume of leaves during Leaf Season	Completed assessment.	Help ensure clean streets by parking cars outside of street sweeping areas on sweeping days.	PHBD	
	x					Investigate at least two appropriate leaf handling method. Prioritize methods for pilot programs.	Investigation and prioritization of leaf handling methods completed.	Help ensure clean streets by parking cars outside of street sweeping areas on sweeping days.	Businesses and residents	
	x					Evaluate at least two appropriate leaf handling methods	Evaluation of methods completed	Oil and grease, metals garbage, fertilizer, dirt, and leaves.	Businesses and residents	

City of Benicia
Municipal Operations

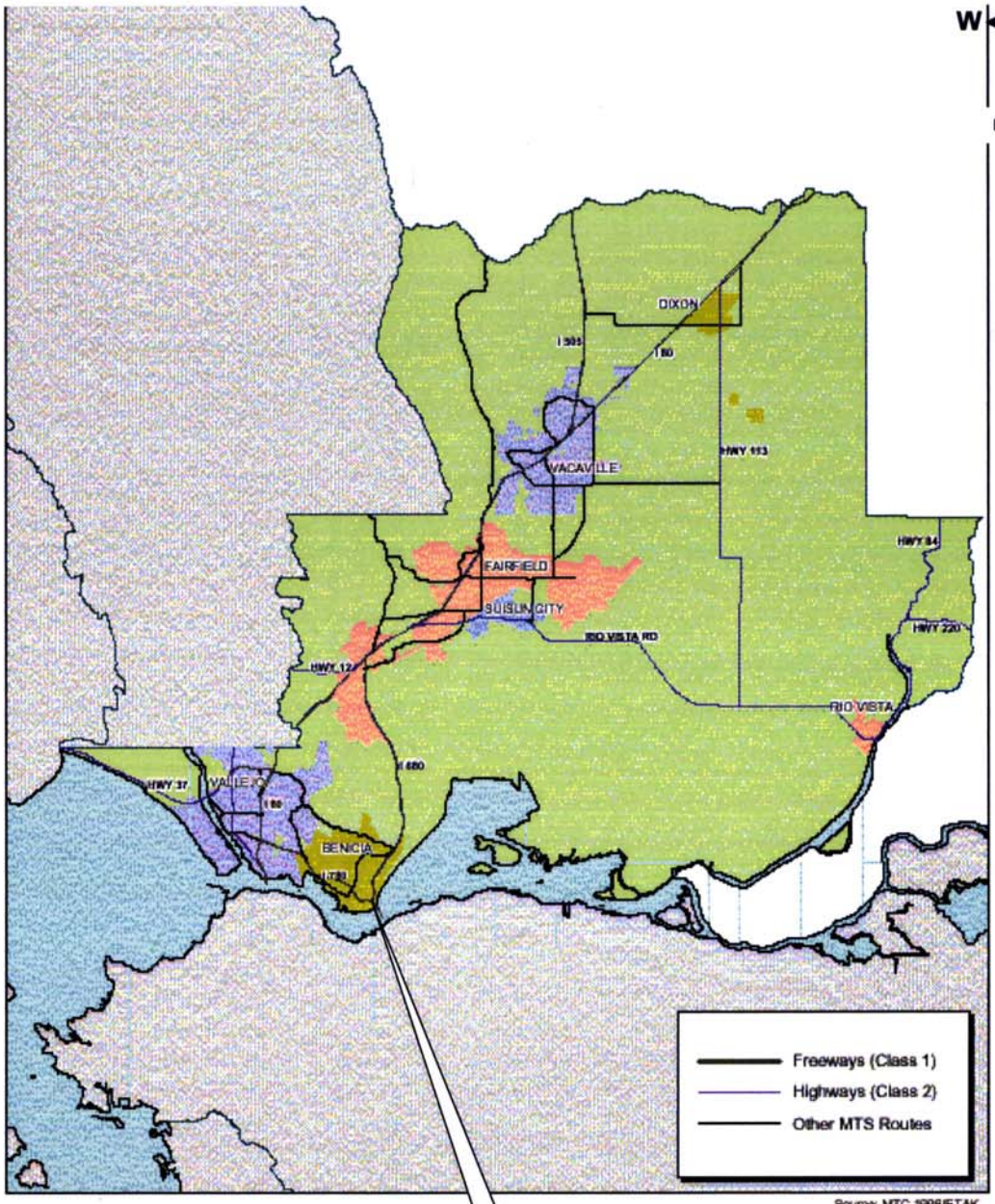
Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
2.c. Leaves during Leaf Season, Continued		x				Pilot measures to reduce volume of leaves on streets.	Increase frequency by 10%..	Oil and grease, metals garbage, fertilizer, dirt, and leaves.	PHBD	**PW-Maintenance** Maint. Supervisor
			x			Evaluate success of pilot programs	Completed evaluation.	Street Sweepers: Comply with measurable goals and implementation plans.		
				x		Expand pilot programs to other areas.	Increase frequency by 20% over 2 years. Evaluate mid-term.	Oil and grease, metals garbage, fertilizer, dirt, and leaves.		
2.d. Trees near streets			x			Assess the miles of streets that have trees interfering with street cleaning.	Completed assessment.		PHBD	
			x			Investigate and evaluate at least two appropriate methods to reduce tree interference with street cleaning. Prioritize methods for pilot programs.	Evaluation and prioritization of methods.			
				x		Pilot measures to reduce tree inference with street cleaning.	Increase sweepable areas by 25%.			
					x	Evaluate success of pilot programs.	Completed evaluation.			
					x	Expand pilot programs to other areas.	Increase total sweepable areas by 25% over 2 years. Evaluate mid-term.			
3. Properly operate cleaning equipment.		x				Ensure proper operation of cleaning equipment per manufacturer's directions 50% of the time, increasing by 5% each year over the next 5 years. Certification from PHBD	Survey sweepers at the annual training to determine how often sweepers adjust equipment and if they operate sweepers per manufacturers directions. Certification from PHBD		PHBD	**PW-Maintenance** Maint. Supervisor

City of Benicia
Municipal Operations

Activity/Best Management Practices	Begin Implementation					Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008					
4. Properly maintain cleaning equipment.		x				Routinely inspect and maintain street cleaning equipment according to manufacturer's directions to ensure proper operation and less down time. Certification from PHBD	Review maintenance records quarterly to ensure proper and timely maintenance of cleaning equipment 80% of the time. Certification from PHBD	Oil and grease, metals garbage, fertilizer, dirt, and leaves.	PHBD	**PW-Maintenance** Maint. Supervisor
5.a. Implement spill response plan.	x					Advertise phone number for public and staff to report spills.	Review records quarterly to ensure staff is responding to spills as described in the Enforcement Response Plan.	Street Sweepers: Comply with implementation plans.	PHBD	**PW-Maintenance** Maint. Supervisor
5.b. Implement spill response plan.	x					Respond to spills as described in the Emergency Response Plan.	Review records quarterly to ensure staff is responding to spills as described in the Storm Drain Facility Performance Standards	PW maintenance Staff, PD, FD		**PW-Maintenance** Maint. Supervisor
6. Keep records			x			Develop and use forms to report the miles swept, volume or weight of material removed for each street sweeping day, and the areas that need special cleaning, educational efforts to remove parked cars, or educational efforts to encourage illegal dumping	Review records quarterly to ensure the information is recorded. Chart data over 3 years to evaluate trends. Provide annual analysis of the data.	Contract Sweepers: Comply with terms of contract in order to assure maximum removal of pollutants from streets.	PHBD	**PW-Maintenance** Maint. Supervisor
		x				Develop and use form to track areas where spills are reported.	Review records quarterly to ensure the information is recorded.			

City of Benicia
Municipal Operations

Activity/Best Management Practices	Begin Implementation 2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	Implementation Plan	Quantifiable Target/Evaluation Tool	Message(s)/Pollutants Addressed	Targeted Audience(s)	Implementer(s)
7. Ensure contract sweepers comply with measurable goals and implementation plans.	x					Specify requirements to comply with measurable goals and implementation plans in contracts. Require sweeping to be completed as scheduled and safely.	Review records quarterly to ensure compliance with contract agreements.		PHBD	**PW-Maintenance** Maint. Suprvsr.
8. Provide education and training	x					Annually train contract sweepers on how to report illicit dischargers and to comply with street sweeping measurable goals and implementation plans.	At the beginning of the training, survey audience for knowledge of measurable goals, implementation plans, and personal in-the-field habits. At the end of the training, repeat a similar survey to assess audience's understanding of training materials and how it will change their in-the-field	Contract Sweepers: Comply with terms of contract in order to assure maximum removal of pollutants from streets.	PHBD	**PW-Maintenance** Maint. Suprvsr.
9. Assess areas of municipal activity		x				Assess practices such as fertilizing, psets management, weed abatement, vehicle washing and material management	Complete identification and review of added areas of municial prqctices and develop added BMP's	Reduce sources of pollution	PW maintenance staff	**PW-Maintenance** Maint. Suprvsr.



REVISIONS			
NO.	DESCRIPTION	BY	DATE

THE CITY OF BENICIA CALIFORNIA

CITY OF BENICIA

PUBLIC WORKS DEPARTMENT

BENICIA AND VICINITY

PROJECT	DATE	SHEET
2003 SWMP	AUGUST 2003	

File: 03-8 Vicinity Map.ved LastRev: Aug 7, 2003

CITY OF BENICIA

ORGANIZATIONAL CHART

CITIZENS OF BENICIA

CITY COUNCIL

STEVE MESSINA, MAYOR

CITY CLERK	ELIZABETH PATTERSON, VICE MAYOR	CITY TREASURER
LISA WOLFE	TOM CAMPBELL	VIRGINIA SOUZA
	DAN SMITH	
	BILL WHITNEY	

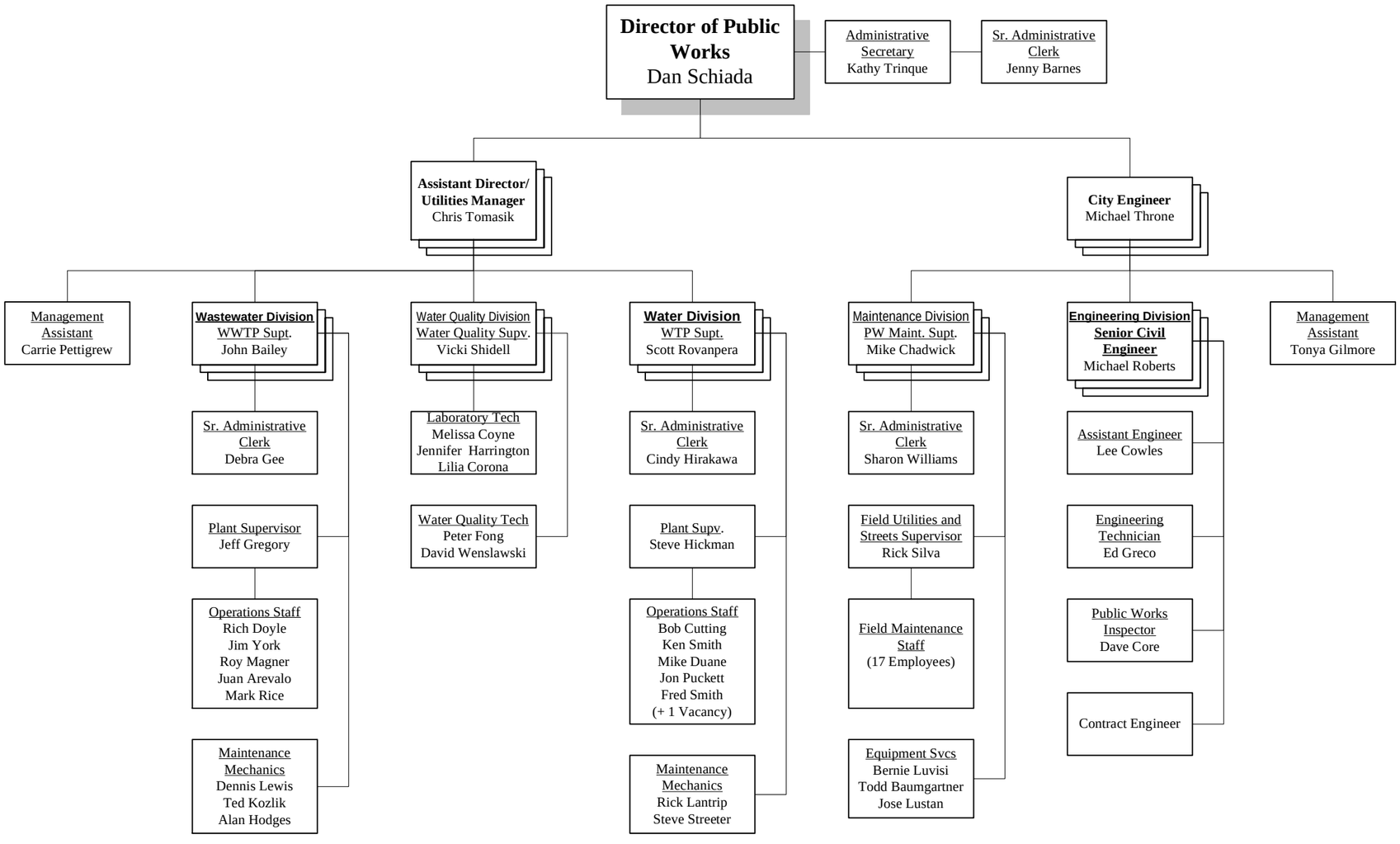
CITY MANAGER	CITY ATTORNEY
JIM ERICKSON	HEATHER C. McLAUGHLIN

ECONOMIC DEVELOPMENT DIRECTOR/
ASSISTANT CITY MANAGER
KAREN MAJORS

POLICE CHIEF	FIRE CHIEF	FINANCE DIRECTOR	COMMUNITY DEVELOPMENT DIRECTOR	PUBLIC WORKS DIRECTOR	PARKS & COMMUNITY SVCS. DIRECTOR	HUMAN RESOURCES DIRECTOR	LIBRARY DIRECTOR
JIM TRIMBLE	KEN HANLEY	ROBERT SOUSA	COLETTE MEUNIER	DAN SCHIADA	MIKE ALVAREZ	DIANE O'CONNELL	MONIQUE le CONGE

CITY OF BENICIA
PUBLIC WORKS DEPARTMENT

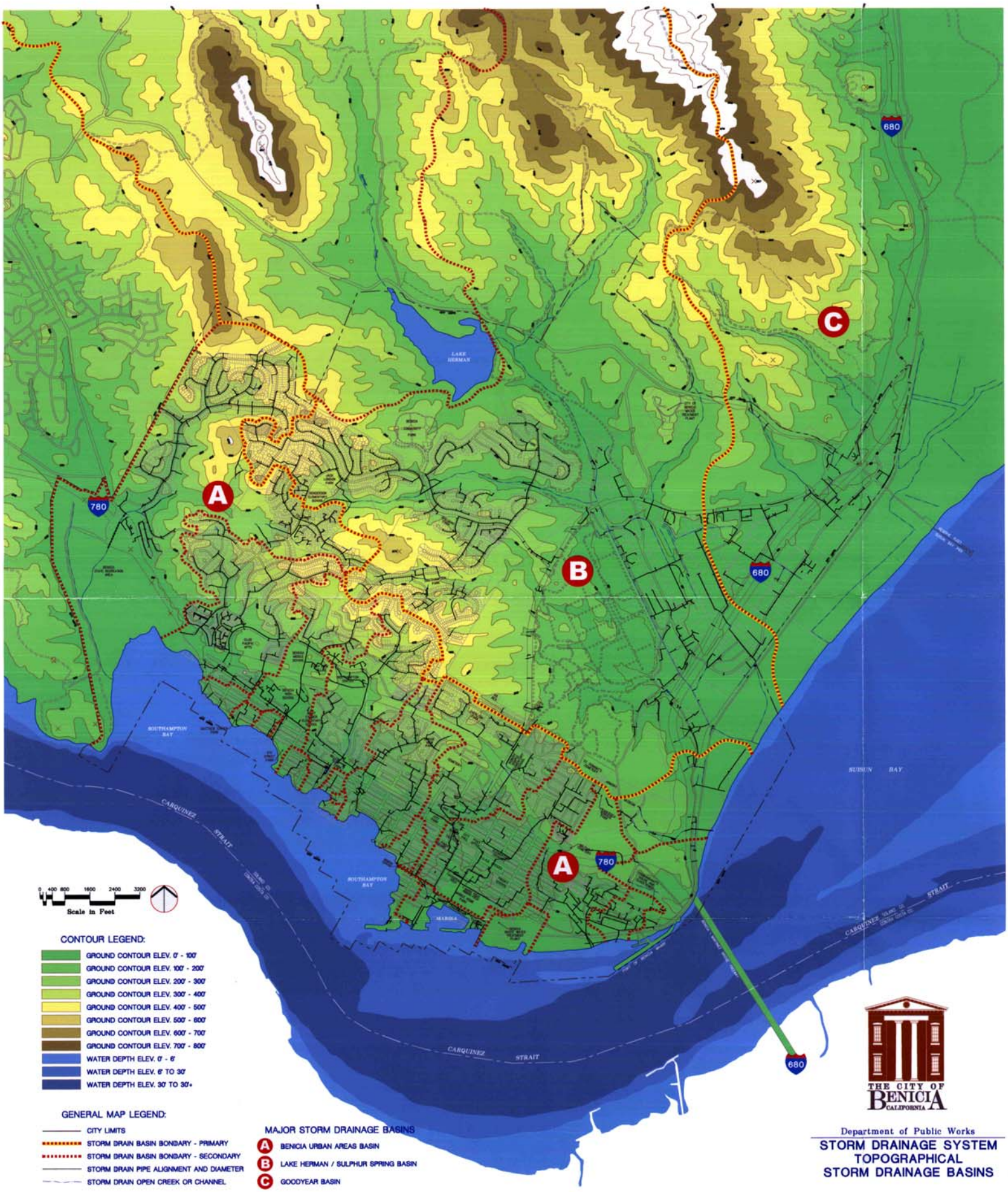
November 22, 2004



REVISIONS			
NO.	DESCRIPTION	BY	DATE

THE CITY OF BENICIA CALIFORNIA

CITY OF BENICIA	PUBLIC WORKS DEPARTMENT
TITLE: DEPARTMENTAL ORGANIZATION CHART	
PROJECT	DATE / SHEET


680
780
A
B
C
LAKE HERMAN
SOUTHAMPTON BAY
SUISUN BAY
CARQUINEZ STRAIT
0 400 800 1600 2400 3200
Scale in Feet
CONTOUR LEGEND:
GROUND CONTOUR ELEV. 0' - 100'
GROUND CONTOUR ELEV. 100' - 200'
GROUND CONTOUR ELEV. 200' - 300'
GROUND CONTOUR ELEV. 300' - 400'
GROUND CONTOUR ELEV. 400' - 500'
GROUND CONTOUR ELEV. 500' - 600'
GROUND CONTOUR ELEV. 600' - 700'
GROUND CONTOUR ELEV. 700' - 800'
WATER DEPTH ELEV. 0' - 6'
WATER DEPTH ELEV. 6' TO 30'
WATER DEPTH ELEV. 30' TO 30'+
GENERAL MAP LEGEND:
CITY LIMITS
STORM DRAIN BASIN BONDARY - PRIMARY
STORM DRAIN BASIN BONDARY - SECONDARY
STORM DRAIN PIPE ALIGNMENT AND DIAMETER
STORM DRAIN OPEN CREEK OR CHANNEL
MAJOR STORM DRAINAGE BASINS
A BENICIA URBAN AREAS BASIN
B LAKE HERMAN / SULPHUR SPRING BASIN
C GOODYEAR BASIN
THE CITY OF BENICIA CALIFORNIA
Department of Public Works
STORM DRAINAGE SYSTEM
TOPOGRAPHICAL
STORM DRAINAGE BASINS

SECTION 1
East of First Street from Military East to the Bay. East of East 2nd Street from Military East to freeway over to Clock Tower.

SECTION 2
West of First Street from Military West to the Bay.

SECTION 3
From Chelsea Hill Drive and Warwick Drive to White Chapel and Banbury to East 2nd Street to the Corporation Yard and over to the Armory and down to the freeway.

SECTION 4
North of Military West and from West of East 2nd Street to the freeway.

SECTION 5
Larkin Drive to Solano Drive and Hastings Drive to Henderson Elementary School. From Morning Glory Drive and Snapdragon Place, Rose Drive and Snapdragon Place, Daffodil Drive and Periwinkle Place, Primrose Lane and Kip Court to Kearney Street and Rose Drive. From Tustin Court and Panorama Drive down to White Chapel Drive and Chelsea Hills Drive.

SECTION 6
From Barton Way and Carsten Circle to Windsor Drive and Rose Drive down to Hastings Drive and Cambridge Drive down to Mills Drive and Southampton over to Turner Drive to Larkin Drive and Brentwood Drive, up to Mills Drive and Larkin Drive to Hastings Drive to Snapdragon Place to Periwinkle Place.

SECTION 7
From Cambridge Drive and Hastings Drive down to Southampton and Devonshire Drive over to Rose Drive and Columbus Parkway then up to Oxford Drive and Carstan Circle, then down to Windsor Drive.

SECTION 8
From Kearney Street and Rose Drive to East 2nd and Panorama Drive, McCall to Tustin, East 2nd from Corporation Yard to Channel Road.

STREET SWEEPING IS DONE BY SECTIONS IN THE RESIDENTIAL AREAS OF BENICIA