



**Storm Water Management Program
For The
CITY OF HUGHSON
Report of Waste Discharge**

3/17/04

DRAFT

March 17, 2004

Under the California State Water Resources Control Board
General Permit for Small City
Adopted _____

Permittee Fact Sheet

City of Hughson

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Population (2002) 4,920

Notice of Intent

Filed 4/16/03
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>>>>> *insert Notice of Intent*

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Fact Sheet
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Section 1 Introduction

Note, as of March 10, 2003: This Storm Water Management Program is based on the provisions of the Draft California State Water Resources Control Board General Permit for Small City, which had not yet been adopted as of February 4, 2003. Under the direction given by the SWRCB on its website, the City of Hughson is submitting the Draft NOI and this SWMP to the SWRCB as compliance with 40 DFR Part 122.

This Storm Water Management Program (SWMP) describes the stormwater quality management activities proposed by the City of Hughson ("City") in compliance with the federal stormwater quality regulations, 40 CFR, Part 122 et seq. (Phase II), Porter-Cologne Water Quality Control Act § 13376, and with the State Water Resources Control Board General Permit for Small City _____, adopted _____. The City of Hughson has filed the Notice of Intent to participate the State's General Permit.

The federal and state regulations require designated MS4s to develop a plan to undertake six Minimum Control Measures (MCMs). The permittees are also required to demonstrate a 5-year workplan, with a reasonable budget for the activities. The Storm Water Pollution Prevention Plan must also include performance measures for the workplan. This report describes the control measures, workplan, budget and performance measures for the City of Hughson.

The Minimum Control Measures include:

1. Public Outreach and Education
2. Public Participation and Involvement
3. Illicit Discharge Elimination
4. Construction Site BMPs Over 1 Acre
5. Post Construction BMPs
6. Municipal Activities

The City of Hughson provides positive storm drainage for the community. The storm drainage system includes pipelines, local and regional detention and retention basins, as well as discharges to the T.I.D., Ceres Main Canal. Storm drainage serves residential, commercial, industrial, City parks, and undeveloped land uses. The City of Hughson is a full service municipality providing water, sewer, storm drainage, streets and park services to the community.

The objectives of this Storm Water Pollution Prevention Plan are:

- To meet the requirements of 40 CFR, Part 122, Porter-Cologne Water Quality Control Act § 13376, and the SWRCB General Permit # _____
- To address stormwater quality concerns specific to the community.
- To provide a plan consistent with the community's values and means.
- To involve the community in development and implementation of the plan in order to meet the requirements in the most cost-effective manner.

>>>>> Figure 1.1 Location Map

Section 2 Storm Water System Description and Needs Assessment

This Section describes the City, their storm drainage system, stormwater quality concerns, projected growth, and demographics. This Section also describes the current status of stormwater quality control measures implemented by the City. The needs assessment for the City's Storm Water Management Plan, based on current activities and the presence of potentially polluting factors in the storm water system are addressed herein. There is not enough site-specific information currently available in the City of Hughson to identify specific pollutant sources and their loading.

1. Description of the City

Storm Water Infrastructure

The Hughson stormwater system is composed of neighborhood collections systems, detention/retention basins, rockwells, four stormwater pump stations, stormwater trunks and three discharge points to the Turlock Irrigation District (T.I.D.) irrigation canal. Stormwater is disposed of by percolation, and by discharge to one T.I.D. Ceres Main canal. Discharge to the TID canal from detention basins begins as soon as significant storm runoff arrives at a detention basin. The majority of storm runoff in the City goes through storm basins. A few existing neighborhoods have direct discharge to the canal. Discharge to TID facilities is permitted under an Agreement between TID and the City (See Appendix A).

The City's design standard for stormwater facilities is based on the Rational Method as presented in the Stanislaus County 1976 Storm Drainage Design Manual. Detention/retention facilities are designed for a 50-year, 24-hour storm. The City's system operates within this standard. Some areas have flooding problems due to the lack of positive drainage facilities. Storm inlet plugging and street ponding are generally cleared by City crews within a half-day. During the major (170-year) storm of 1997, the most significant problem was the large amount of stormwater that entered to the sanitary sewer system and caused high flow problems through the wastewater treatment plant. The City eliminates any illegal discharges to the stormwater system whenever they are found.

The City of Hughson does not operate any combined sewer and stormwater pipelines or discharges. The only treatment received by the separate stormwater system occurs in a limited manner at the detention and retention basins.

Storm Water Operations and Maintenance

The City conducts a variety of municipal operations that have a relationship to storm water quality, including stormwater, water, sewer, street sweeping, leaf and limb program, streets maintenance, parks maintenance, fire fighting (Hughson Fire Protection District), and fleet operations. Many of these operations have current service standards that reduce impacts on storm water quality. Most of these municipal operations are housed at the Corporation Yard at Pine Street, Hughson.

1. Storm Drainage

Overall the City of Hughson's storm drainage system is in good condition. Storm water lift stations and pipelines are cleaned and repaired as needed. Drain inlets and rockwells are cleaned once a year before the beginning of

winter. Storm basins receive spring weed spraying, disking or mowing, and rockwell cleaning.

Hawkins and Associates Engineering, the City's engineering consultant is currently in the process of updating the Storm Drain Master Plan.

2. Water and Sewer Field Operations

Sewer collection and water distribution operations staff respond to water line breaks and sewer backups as needed. The City has an established procedure for responding to sewer spills that might impact storm drainage and public health. During a sewer spill, catch basins are sandbagged to prevent release to receiving waters, spilled sewage is vacuumed up and transported to the wastewater treatment plant, and the street is disinfected with chlorine solution.

The Waste Water Treatment Plant operates under a permit issued by the Central Valley Regional Water Quality Control Board. The City's WWTP has one industrial pretreatment permittee.

The City does have a water conservation program that includes public education and information. This program will be expanded to include storm water quality messages for the community.

3. Streets

Asphalt maintenance activities include overlays, pothole patching and crack sealing. Currently, the City's capital improvement program includes reconstruction of streets. Streets operations include street lighting, traffic signals and signage.

4. Street Sweeping, Leaf and Limb Program

Street sweeping is performed by a contractor. Residential streets are swept every month. Commercial and industrial areas are swept twice a week. The collected street sweepings are hauled to a compost facility.

The Leaf and Limb Program is performed by public works staff. Leaves and limbs are set out in street piles in residential areas for pickup during winter months. The collected leaves and limbs are hauled off. Street piles are a potential source of organic material in storm runoff.

5. Parks maintenance

The City operates two parks and recreational facilities. Parks maintenance includes the application of fertilizer and pesticides, mowing, pruning, parking lot sweeping, and litter removal. One regional storm basin is a dual use basin, used for recreation purposes. Chemical usage is conducted at agronomic rates and at appropriate times to minimize chemical release in runoff.

6. Fire fighting

The Hughson Fire Protection District is responsible for fire fighting within City limits. Fire fighting can result in runoff of excess fire fighting water to storm drains. The potential for fire fighting water containing pollutants has not been assessed, but is not expected to be a significant source.

7. Fleet

The City operates a fleet of cars, work trucks and heavy equipment for Public Works, Municipal Utilities, and Park functions. The fleet is operated and maintained at the Corporation Yard. Vehicle maintenance is conducted under cover. Vehicle washing occurs on a paved area. One above ground fuel tank is located at the Corporation Yard.

8. Corporation Yard

The City's Corporation Yard, is the site for vehicle parking and maintenance, building maintenance supplies, and the field office for streets, water, sewer and storm drain operations. The Corp. Yard would benefit from a detailed review of its activities and their potential for exposing deleterious materials to storm runoff. The containment of paving materials, industrial chemicals, batteries, vehicle drips, and painting materials need to be addressed. Part of the Corporation Yard is unpaved. Runoff in this area percolates into the soil or flows to adjacent street curb and gutter. The City does not have a formal program for training its field employees in storm water quality management.

Storm Water Quality

The City `s land uses include residential, commercial and industrial areas. These land uses have the potential to generate pollutants. Community activities that are likely to be contributing to runoff pollution include automobile maintenance and washing, building construction, landscape maintenance, pest control, restaurants, aging sewers, pet waste disposal, municipal infrastructure maintenance, industrial activities, new development and redevelopment.

The City of Hughson does not conduct any specific or routine monitoring of storm water quality. No particular chronic or acute concerns have been identified with Hughson's storm water quality to date. City staff has not observed non-stormwater discharges or flows from the following list (as defined in the draft General Permit section D.2.c(6)) that are significant contributors of pollutants to their MS4:

1. Water line flushing
2. Landscape irrigation
3. Diverted stream flows
4. Rising ground waters
5. Uncontaminated ground water infiltraton to separate storm sewers
6. Uncontaminated pumped ground waters
7. Discharges from potable water sources
8. Foundation drains
9. Air conditioning condensation
10. Irrigation water
11. Springs
12. Water from crawl space pumps
13. Footing drains
14. Lawn watering
15. Individual residential car washing
16. Flows from riparian habitats and wetlands, and
17. Dechlorinated swimming pool discharges

Projected Community Growth

Hughson is mostly a residential community, with a downtown commercial core, and a small industrial area. The City's population was estimated at 4,920 by the DOF in 2002. The population increased about 16 % last year making it the fastest growing City in the state. The City added or replaced, between October 2001 to October 2003, the following:

Item	Quantity
Storm Lift Station	2
Storm Drain Line	25,000 linear ft
Water Main	24,341 linear ft
Sidewalk with curb & gutter	33,316 linear ft
Sewer Main	22,406 linear ft.
Streets	3.75 miles added since Dec '02

The total maintained street miles is now approximately 16.75 miles.

The City is currently updating its General Plan. Future planned growth of the City is yet to be determined. The plan for future storm water infrastructure requires that new development will construct and dedicate necessary storm drainage facilities.

The community is diverse, both in an economic and ethnic sense. The two most commonly used languages are English and Spanish.

Funding of Storm Water Activities

Storm water operations and maintenance costs are funded by the General Fund and newly formed lighting and landscape districts. There is currently not a separate line item for Storm Water Operations & Maintenance.

New storm drainage infrastructure is constructed by developers in accordance with City design standards, and then dedicated to the City, or constructed by the City through the use of funds already collected through developer fees. Some ongoing Operations & Maintenance costs for newly developed areas are covered by assessment districts, managed by the City. Capital funding for rehabilitation of existing storm drainage facilities is provided by local transportation, gas taxes, and State or Federal grants. The capital improvement program funding level for storm water purposes varies depending on annual funding and over all capital improvement program priorities.

Legislative Authority for Storm Water Activities

Hughson was incorporated in 1972, empowered to provide public works services, collect service fees, and to set regulations related to storm water quality. The City establishes an annual budget based on established service standards for storm drainage and other municipal maintenance activities.

The City of Hughson's Municipal Code addresses various aspects of storm water quality control. The Municipal Code will need to be updated to incorporate stormwater quality measures relevant to the SWRCB General Permit. Among the topics to be evaluated are the prohibition on pollutant discharges to the storm drainage system, construction activity procedures and fees, and the enforcement protocol for violations.

Receiving Streams

Storm Runoff

The Hughson's stormwater system discharges to three locations along the T.I.D. canal, which then discharges to the San Joaquin and Tuolumne Rivers. Because the San Joaquin River and Tuolumne River are major watersheds of the State, the City's stormwater discharge volume represents a minor percentage of the river's storm event flow. No data is available on the quantity of non-storm runoff from the City of Hughson.

Receiving Stream Quality

The City of Hughson discharges its storm water to the Tuolumne and San Joaquin River. The Tuolumne River is listed as an impaired water body on the 1998 California 303(d) list by the Central Valley Regional Water Quality Control Board. Table 2.1 is an extract of the relevant 303(d) listing information.

Table 2.1
Extract of 1998 California CWA Section 303(d) List and TMDL Priority Schedule
(CVRWQCB)

<u>Pollutant/Stressor</u>	<u>Source</u>	<u>Priority</u>
San Joaquin River		
Boron	Agriculture	High
Chlorpyrifos	Agriculture	High
DDT	Agriculture	Low
Diazinon	Agriculture	High
Electrical Conductivity	Agriculture	High
Group A Pesticides	Agriculture	Low
Selenium	Agriculture	High
Unknown Toxicity	Source Unknown	Medium
Lower Tuolumne River		
Diazinon	Agriculture	High
Group A Pesticides	Agriculture	Low
Unknown Toxicity	Source Unknown	Medium

The 303(d) listed pollutants of concern in the rivers to which Hughson storm water system is tributary are chlorpyrifos, DDT, diazinon, electrical conductivity, Group A pesticides, mercury, organic enrichment, unknown toxicity, boron, selenium, dioxin, furans, and PCBs. Of these, only chlorpyrifos, diazinon, organic enrichment and unknown toxicity are shown as potentially related to urban runoff and storm sewers. To the extent that the City's runoff is a source of these pollutants or stressors, Hughson may be called on in the future to participate in TMDL proceedings to reduce the load of these pollutants to the river. Chlorpyrifos is the most widely used pesticide in the US. It is used in agriculture, commercial and residential landscaping and as termiticide. Diazinon is a dormant spray pesticide used in orchards and on backyard fruit trees, and has been documented as being present in urban runoff in other cities in the San Joaquin Valley. Organic enrichment occurs when dissolved nutrients, such as nitrate, potassium or phosphorus are contained in discharges to a river, caused reduced dissolved oxygen in the stream. Organic enrichment usually is present in urban runoff due to garden fertilizers, animal waste, and trash washed off streets. The sources of unknown toxicity have yet to be determined for the San Joaquin valley's stream. It is possible that toxicity to aquatic wildlife occurs due to a combination of pollutants and

stressors in runoff to the streams. The mitigation of unknown toxicity by the CVRWQCB will take a coordinated effort by scientists, discharges and wildlife agencies. The elimination of other known pollutants and stressors will likely be the CVRWQCB's first approach to addressing toxicity on a regional basis.

Related Regulatory Activities on the Tuolumne River

The Tuolumne River is a critical waterway of the State, and is the subject of a number of varied water quality activities. MID and TID have been closely involved in the river's water quality by means of their FERC¹ license renewal process. The city of Modesto holds a Phase I Storm Water NPDES permit, relevant to their discharges of storm water to the Tuolumne River. The Tuolumne is tributary to the San Joaquin River, the Delta and San Francisco Bay. This means that the Tuolumne River's water quality is also a concern of the Bay-Delta proceedings of the SWRCB, for both water quality and quantity. The efforts of regulatory agencies and responsible parties to address other water quality impairments in the San Joaquin River watershed will have a relationship to the quality of Hughson's storm water runoff over time. Therefore, the City will need to remain involved in regional water quality issues to make sure the City's Storm Water Management Program is coordinated with regulatory actions for multiple pollutants.

¹ Federal Energy Regulatory Commission

Table 2.2 Relationship of Sources to Primary Pollutants of Concern

Source	Physical Parameters	Synthetic Organics	Petro. Hydrocarbons	Heavy Metals	Nutrients	Pathogens	Sediment	Oxygen Demanding Substances	Floatables
Vehicle Services		X	X	X					
Gas Stations		X	X	X					
Metal Fabrication		X	X	X					
Restaurants									X
Mobile Cleaners		X							
Parking Lots	X		X	X					
Residential Dwellings	X	X		X	X	X	X	X	
Parks / Open Spaces					X	X	X	X	X
Construction Sites	X						X	X	
Corporation Yards	X	X	X	X					
Streets	X		X	X				X	X
Sewer Releases	X					X		X	

Ref: Model Urban Runoff Program, July 1998, City of Monterey et al

Section 3 Storm Water Management Program

Approach

The City of Hughson assumes that a typical level of urban runoff pollution exists in its storm water runoff and that a variety of City wide pollution prevention activities can be adopted to minimize that pollution. Insufficient evidence is available about specific sources of pollutants and their loading rates to develop a more targeted approach. The pollution prevention activities to be undertaken are organized into the following Minimum Control Measures:

1. Public Outreach and Education
2. Public Participation and Involvement
3. Illicit Discharge Elimination
4. Construction Site Best Management Practices
5. Post Construction Best Management Practices
6. Municipal Activities

The approach to storm water pollution prevention will also be an adaptive management plan. The results of each year's activities will be evaluated in preparation for the next year's work. Priorities and scheduling of activities may change from this initial plan based on the needs of the community to meet the overall objective of reducing the potential for pollution in urban runoff.

This section outlines the control measures in each of the 6 categories to be undertaken during the 5-year permit period. It is proposed that the City hold an annual planning meeting to determine which tasks they will conduct. This decision should then be incorporated into the City's annual budget preparation.

TASK CODING: The tasks numbers are coded to indicate where they fit into the 5-year workplan. The first number indicates the year of the activity. The second number identifies it within the year, usually as part of a continuing program element that corresponds with one of the six Minimum Control Measures.

I. PUBLIC OUTREACH AND EDUCATION

The objectives of the Public Outreach and Education Element of this Storm Water Management Plan are:

- To raise public awareness that citizen actions has an impact on storm water quality in the City's system.
- To involve the public in the development of the Storm Water Management Plan, and
- To develop support for the necessary funding.

A. General Public Education on Storm Water Quality impacts and prevention measures.

The purpose of these tasks are to provide the widest communication with the general public about what they can do to prevent storm water pollution. Because Hughson has a significant multi-lingual population, public information needs to be provided in at least English and Spanish. Public outreach should also be implemented at cultural events where different groups may be reached most effectively.

Task 1.1 Develop or purchase bi-lingual public outreach and education materials, such as brochures, magnets, posters, and coloring books for general public information about storm water quality control. This purchase of materials will be made the first year.

Since the NPDES Stormwater Program was established in 1991, a number of the Phase I permittees have developed a wide range of public education materials that are in the public domain, and available for use by Phase II permittees. Examples can be found in the Model Urban Runoff Program or by contacting Phase I permittees.

Task 2.1 Distribute educational materials to the public, schools, multi-cultural events and libraries, and through the City's utility bills. Perhaps as many as 10,000 flyers will be required.

Task 3.1 Distribute educational materials at point of sale of household, automotive and garden chemicals, at multi-cultural events, and other relevant venues. The goal is to cover all such events.

Task 4.1, 5.1 Review needs and results, and conduct additional public education, based on the community's response to the first three years of outreach.

At the completion of each year's public education program, the City needs to review the results and set priorities for the next year's target audience for storm water quality control education. For example, if a neighborhood has been the focus of education related to crankcase oil dumping in storm drains, results can be measured by the number of occurrences of such dumping before and after the education effort.

- B. **Education of Specific Community Groups**
The purpose of this task is to focus on certain business types that have a higher potential to generate pollutants in municipal runoff. The first of these are restaurants and automotive repair shops. But other businesses that may benefit from focused education include milk processing facility, farm equipment repair, farm fertilizer and chemical distributors, and commercial/residential landscape service providers, vehicle steam cleaning services, pool service companies, and pest control companies. This program element can include incentives and public recognition for good environmental citizenship by businesses.

Task 2.2 Prepare and distribute education materials to all restaurants and auto repair shops about Best Management Practices for their business.

Since the NPDES Storm Water Program was established in 1991, a number of the Phase I permittees have developed public education materials to focus on the high risk behaviors of certain businesses. Many of these public education materials are in the public domain, and available for use by the Phase II permittees. Examples can be found in the Model Urban Runoff Program, or by contacting the Phase I permittees. Santa Clara Valley Water District and the Fresno Metropolitan Flood Management District are leaders in this area. The City should also consider developing incentive programs or public recognition programs for good environmental citizenship by businesses. Such programs may incorporate aspects of solid waste management, hazardous waste management or water conservation that relate to other City programs and objectives.

Task 3.2 Follow-up education with restaurants and auto repair shops.

Tasks 4.2, 5.2 Educate additional targeted business groups, with the highest potential for storm water polluting actions.

Depending on the results in the first three years of public education for targeted businesses, and new information gathered during the early years of the SWMP, the City should adapt their management plan for educating certain businesses. For example, if good results are achieved with restaurants and vehicle repair shops, then public education for business could be shifted to the next highest priority business sector.

II. PUBLIC PARTICIPATION AND INVOLVEMENT

The objectives of the Public Participation and Involvement Element are:

- To educate the public about the relationship between community activities and runoff pollution,
- To educate about specific pollutants and what citizens can do about them, and
- To foster participation in community-based projects and volunteer activities regarding pollution prevention.

The purpose of these activities is to support community participation in preventing and eliminating sources of pollution in urban runoff. The second purpose is to provide opportunities for the community to prioritize the types of activities that should be included in the Storm Water Management Program and any implementing ordinances, as adopted by the City Council. These two processes provide a key connection between the behaviors of the community and most cost effective means of preventing pollution.

A. Storm Drain Marking and Community Cleanup Days

Task 1.2 Purchase storm drain stencils or placards, depending on durability and durability of volunteers to mark storm drains. Begin organizing volunteers. Since 1991, vendors have developed and Phase I permittees have tested the effectiveness of storm drain marking devices. The City will need to evaluate marking devices best suited for their storm drain system, and the work force available to install them. For example, Eagle Scouts may want to participate in gluing placards at storm drains.

Task 1.3 Begin organizing volunteers to stencil storm drains and do community cleanups. The City has some experience in working with volunteers for environmental efforts. For example, Eagle Scouts have planted trees. Other options include environmental organizations and after school sports fund raising organizations.

Task 2.3 Mark 1/3 of the City's storm drains or install marking tiles using volunteers whenever possible. Use City crews or alternative work programs when volunteers not available or appropriate. Based on past experience, painted storm drain stencils have a useful life of about 4-5 years. Replacement of storm drain marking devices, whether painted or glued placards or tiles, will require a consistent replacement program.

Task 3.3 Mark the next third of the City's storm drains, as in Task 2.3.

Task 4.3 Mark the final third of the City's storm drains, as in Task 2.3.

Task 5.3 Maintain marking program.

Task 2.4, 3.4, 4.4, and 5.4

Continue the annual community cleanup day with volunteers. This cleanup day will be coordinated annually with the County's household hazardous waste disposal schedule.

B. Legislative Action

Task 1.4 Conduct a public workshop on the proposed Storm Water Management Program, to educate the community on upcoming activities, and seek their input on the most appropriate approach.

Task 1.5 Prepare a draft Storm Water Quality ordinance or update an existing ordinance.

The Storm Water Quality ordinance needs to address allowable non-storm water discharges to the storm drain system, a prohibition on the discharge of pollutants to the storm drainage system, and a tiered enforcement protocol and due process for violations. The ordinance may include provisions to recover the cost of enforcement actions. The ordinance may include the authority for incentive programs or public recognition of businesses that display good environmental citizenship.

Task 1.6 City Council adoption of Storm Water Quality ordinance.

The City Council should take legislative action to enact or update the Storm Water Quality ordinance, in order to provide the authority for City staff to undertake certain actions required in the Storm Water Management Plan, and by the SWRCB Small MS4 General Permit.

Task 2.5 Educate businesses and all new developments about the new Storm Water Ordinance.

City staff should develop press releases, attend business organization meetings, and create handouts, newsletters or other materials to provide business and the development community with the information they need on their role in preventing storm water pollution. Again, examples are available from Phase I permittees on how to undertake this kind of business education. The public information should inform businesses about any incentives or public recognition programs for good environmental citizenship.

III. ILLICIT DISCHARGE DETECTION AND ELIMINATION

The objectives of the Illicit Discharge Detection and Elimination Element are:

- To control illicit discharges or illegal connections to storm drains by methodical field surveys and investigations of the storm drain system,
- To prevent improper disposal of wastes in a program that combines public education, alternative disposal options, incentives, and enforcement as needed, and
- To contain and clean up accidental spills with proper methods.

The purpose of this section is to provide a program under which uncontrolled sources of pollution directly discharged to storm drains are eliminated. The workplan for the Illicit Discharge Detection and Elimination Element will establish permissible discharges to storm drains, establish enforcement procedures for violations of the discharge standards, conduct field investigations and provide a complaint/spill response program. Some of these tasks overlap with the Public Involvement and Participation Element described above.

Illicit discharges can include sewer lines improperly connected to storm drains, or improper dumping of crankcase oil, household chemicals, illegal drug lab chemicals or other deleterious materials into storm drains. It can even include the discharge of chlorinated swimming pool water into a storm drain. This part of the program is the most detection and enforcement oriented part of the SWMP.

The City will need to conduct an assessment of the extent and nature of illicit discharges that are occurring in their City. Then the detection and elimination program can be prioritized towards the most probable source of illicit discharges.

The City has only a few businesses that may be subject to the SWRCB Industrial General Stormwater Permit. The potential for pollutants from these businesses is considered low, and so this Work Plan does not include a requirement to monitor these industries' compliance with the SWRCB industrial permit.

Task 1.7 Develop the outline of Illicit Discharge Detection and Elimination Program. The City should be scheduled to adopt this Program by the third year.

This task should include the workplan for periodic inspection of the storm drain system, and the plan of action for responding to any illicit discharges identified. Illicit discharges may include fixed pipeline connections from non-storm water sources, and illegal dumping into the City's storm drain system. A two part approach is needed for each of these possible pollution sources. Illicit discharges are discovered by periodic inspection of pipelines and by responding to complaints of odors or foul water in storm drains. Illegal dumping detection may require a hotline system for citizen reporting of observed dumping, and education of City employees and the public to report illegal dumping. The workplan needs to set priorities among the activities, and include an annual assessment step to adapt the management of the Illicit Discharge Detection and Elimination Program to the highest priorities.

Task 2.8 Develop a map of the City's storm drain system, showing areas to be targeted for illicit discharge surveillance. The map should be the basis for geographically tracking storm water quality data as monitoring data accumulates, in order to address site-specific pollution sources. It is intended this mapping be developed during years two and three.

The permittee has maps of the City's storm drain system, currently being

updated. The objective of this task is to utilize the City's computer based GIS system that is a management tool for storm water quality as well as other storm water system functions. By the end of the 5-year permit period, the ideal mapping system would include maps that can track and report on stormwater management activities, stormwater quality data, and enforcement actions, as well as system hydraulics and maintenance management. Funding will determine how far the City is able to move towards this ideal mapping system. For stormwater quality purposes, mapping of stormwater quality data and enforcement actions should be given higher priority.

- Task 1.8** Use the WWTP pretreatment program to review the participation of local industries with the SW industrial permit program, as applicable.
The relationship with Industrial Permittees can be a forum for communicating about industry's role in preventing storm water pollution from their sites. Some industries may be subject to the SWRCB Phase I Industrial General Permit. The City should seek cooperative efforts with Industrial Permittees in accomplishing stormwater quality control.
- Task 2.6** Conduct pilot surveillance of the targeted areas for illicit discharges. Review and revise the scope and the approach to detecting illicit discharges, for the purpose of refining the multi-year program.
The first year's work on illicit discharge detection and elimination should be focused on understanding the scope of the problem, if any, and the effort that will be required to address the entire City. A pilot program will inspect a section of town, with the highest likelihood of illicit discharges. The pilot program will test various detection methods, such as TV inspection, smoke testing, or pipeline sediment testing to assess costs, equipment needs and effectiveness in detecting illicit discharges. The results of the pilot test should be used to refine a multi-year program to address illicit discharges City wide on a periodic basis.
- Task 2.7** Eliminate illicit discharges by cooperation of property owners whenever possible, or by City action or enforcement action if necessary. Inspections will be on-going, being performed as a part of the City's service inspections. See Task 1.7
The City needs to develop a tiered procedure for eliminating illicit discharges and illegal dumping. The tiers may include education and incentives, voluntary compliance, mandatory compliance with a violation citation, and legal action, as each case warrants. Staff responsibilities should be established for each tier of enforcement. Protocols to involve the RWQCB should be included. Whenever an illicit discharge or illegal dumping situation is identified, the City needs to take action with the responsible parties to eliminate the pollution source.
- Task 3.5, 4.5, and 5.5** Conduct annual survey of targeted areas of the City for illicit discharges. The performance measure should be to survey the entire City on a 5 year rotation.
- Task 3.6, 4.6 and 5.6** Eliminate illicit discharges as they are found, as in Task 2.7. This task will also include training of staff and provide for community education. See Section 2.

IV. CONSTRUCTION SITE RUNOFF CONTROL, OVER 1 ACRE

The objective of the Construction Site Runoff Control Element is:

- To develop and implement a control program to reduce the potential for the discharge of pollutants into urban runoff from construction sites over 1 acre.

In March 2003, the Federal regulations required construction sites over 1 acre to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). Construction over 5 acres has been subject to the regulations since 1991. A SWPPP describes the Best Management Practices that will be used during construction to reduce the sources of potential pollution, control sediments and educate construction workers. Under the General Storm Water Permit for Small MS4s, City participating in the General Permit will be delegated the regulatory authority and responsibility to require SWPPPs and inspect their implementation at construction sites.

The City may consider using the existing resources such as the State Storm Water Handbook for Construction as guidance for Best Management Practices.

Task 1.8 Educate all local developers, construction firms and building department staff about the new requirements for Best Management Practices during construction.

Developers and construction firms in the San Joaquin Valley have already been working with the stormwater pollution program in Phase I Cities and for any project over 5 acres. Building departments in Phase I Cities should be able to assist the permittee in developing their own program, design standards and plan review procedures to incorporate stormwater pollution prevention measures. Prepare handouts, design standards and guidance documents specific to the City. Conduct workshops in association with other communities on a quarterly basis. This would help to reduce overhead costs and facilitate the sharing of knowledge. Develop and distribute a newsletter informing the development community of the new requirements and BMP's. Require SWPP brochures with sale of houses and businesses.

Task 1.9 Require Storm Water Pollution Prevention Plans, (SWPPPs) in accordance with the SWRCB General Permit for Construction Activities, after March 10, 2003, for all construction over 1 acre, for both public and private projects. The City will review all SWPPP's. The City will also develop inspection procedures and checklist for inspections and procedures to identify priority sites for inspection and enforcement. Establish a tracking system for inspections and develop a reporting system for submittal of public information and development procedures for responding to information.

Each project over 1 acre will now be required to include stormwater pollution prevention measures in the design and construction of the project. Then the owner or developer is required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and to submit a Notice of Intent (NOI) and fee to the RWQCB. The RWQCB sends the developer back a notice with the project's WDID number.

In order to obtain a building permit, the developer will also have to provide the City with a copy of the project's NOI and SWPPP. The City reviews the SWPPP and the project plans to determine that the construction and post-construction BMPs are appropriate for controlling the potential pollutant sources from the site. This review is part of the regular plan review and building permit issuance.

Once the project is permitted, the building inspectors observe the implementation of the BMPs to assure that they are effective. This can include observing where concrete and stucco washout is occurring, the containment of construction chemicals, the control of dirt being tracked off-site, the installation of on-site pollution prevention structures such as oil-water separators, etc. When the project is complete, the developer sends the RWQCB a Notice of Termination.

Task 2.9 Implement Storm Water ordinance enforcement provisions to deal with problem sites. The task goal is to establish a system for enforcement of storm water violations. Site inspections would include all construction sites. All effort will be made to perform inspections prior to and after rain events and during the winter months. Priority sites will require more frequent inspection, based upon job site conditions.

The adoption or upgrading of a stormwater ordinance, in Task 1.6, will provide a tiered enforcement protocol to deal with any problems in stormwater control at construction sites. The Building Department, the stormwater team and perhaps the City Attorney's office will make a team to address such problems.

Task 2.10 Develop or revise the City's grading ordinance to incorporate sediment control measures for storm water quality protection. The requirements of job site SWPPP's and BMPs shall be complied with. Establish a storm water hotline for the public and develop procedures for receiving and responding to complaints. The ordinance will include enforcement provisions including fines and the ability to stop work on construction if significant problems are identified and not corrected by the developer.

The City's grading ordinance may be to be revised to coordinate with the storm water pollution prevention measures called for in this Storm Water Management Program.

Task 3.7 Continue training for building inspectors and plan review staff on SWPPP requirements and best management practices.

After the initial phases of the Work Plan, the Building Department may need continuing education in new materials and methods of stormwater pollution prevention, that are relevant to new construction. The products and methods used in stormwater pollution prevention are rapidly evolving.

V. POST CONSTRUCTION BMPs

The objective of the Post Construction Best Management Practices (BMP) Element is:

- To reduce the potential for discharge of pollutants from new development and redevelopment areas, using a strategy that combines reducing and eliminating sources of pollutants, managing site runoff volumes and flow rates such that they are similar to pre-construction levels, and treating runoff as appropriate.

Existing development which generates pollution will be addressed by Public Outreach and Education, and if warranted by a serious condition, by the Illicit Discharge Elimination element of the SWMP. The City may use the existing Storm Water Handbooks or may consider Post-Construction BMPs guidance documents developed by Phase I Cities.

Task 1.10 Educate local developers, engineering firms and building department staff about post-construction BMP requirements. Prepare handouts and guidance documents. Conduct two workshops. Training will continue as required in subsequent years.

This task can be combined with Task 1.9.

Task 1.11 Develop a model Long-term Maintenance and Monitoring Agreement for Post Construction BMPs, that will assure that BMPs are being operated and maintained on private property, and to cover costs of annual inspection. All staff shall receive training as per Task 3.7.

Phase I Cities have found the need to assure long-term maintenance and measurable effectiveness of post-construction BMPs by entering into an agreement with the developer. Not every project will require an agreement, just those with a high potential for pollution and complex post-construction BMPs, such as oil-water separators at gas stations. Examples of such Agreements are available from Phase I Cities. Enter into and implement an Agreement on appropriate projects.

Task 2.11 Require appropriate post-construction BMPs on new development. Each site shall be reviewed for application of appropriate BMPs.

As discussed in Task 2.8 above, include post-construction BMPs as part of the plan review and building permit process.

Task 3.8 Training will continue on a yearly basis updating staff to latest BMPs and storm water inspection processes.

This task can be combined with Task 3.7.

Task 4.7 Implement Storm Water ordinance enforcement provisions to deal with problem sites, where post-construction BMPS are not being utilized or maintained.

Task 5.7 Include SWPPP BMP needs in regular update of City standard specifications. Whenever the City updates its design standards, post-construction BMPs should be included.

VI. MUNICIPAL ACTIVITIES

The objective for the Municipal Activities Element is:

- To identify, develop and implement Best Management Practices and good housekeeping procedures to address urban runoff pollution associated with municipal operations.

The City provides water, sewer, storm drain, streets, parks and recreation services. The City is also the owner of a number of public works construction projects that have potential to generate pollutants and sediment in runoff. The program is a progression of activities that educate City staff and then take positive action to eliminate the potential sources of storm water pollution from municipal activities.

Task 1.12 Develop a training program regarding BMPs for municipal activities, such as good housekeeping, landscape maintenance chemical use, containment of industrial chemicals and fuels, sediment and erosion control.

Task 1.13 Conduct an inspection and assessment of all municipal activities, such as the Corporation Yard, pipeline repair procedures, street pavement maintenance activities, parks fertilizer and pesticide applications, etc. prioritize the BMPs to be implemented within City operations.

The State BMP Handbooks and the Model Urban Runoff Program provide guidance on how a City should conduct an assessment of their physical plant for the potential to release pollutants to storm drainage. Potential sources such as material storage, vehicle maintenance, and field activities are included.

Task 1.14 Obtain or update General Permit participation for any industrial activities conducted by the City.

Certain municipal activities such as the wastewater treatment plant, and fleet maintenance are required to participate in the SWRCB General Stormwater Permit for Industrial Activities, unless certain very limited exemptions exist. The City should review its compliance in the industrial permit requirements.

Tasks 1.15, 2.15, 3.12, 4.9, 5.11

Participate in related regional regulatory activities that involve the water quality of the Tuolumne and San Joaquin Rivers, to coordinate the City's SWMP with regional, multi-pollutant remediation measures.

Participation can include the Storm Water Task Force, any TMDL committees, and the river groups that have a relationship to either the sources of pollution or the health of the receiving streams.

Task 2.12 Conduct BMP training for all field supervisors, construction inspectors and design engineers for the City's own construction projects.

This task can be combined with Task 1.9. Training efforts might be combined with sessions from other municipalities including Ceres, Riverbank, Oakdale and Patterson.

Task 2.13 Begin implementation of BMPs for municipal operations and capital improvement projects. Particular focus shall be on the corporation yard to bring it into compliance with the latest BMPs for storm water pollution prevention. Develop and implement Facility Pollution Prevention Plans at all

applicable municipal facilities. Forty percent of BMPs for municipal activities are being implemented.

- Task 2.14** Develop or update the Standard Operating Procedure (SOP) for responding to chemical or sewer spills onto City streets and into storm drains.
The SOP should include first responder risk assessment methods, notification procedures, public access control, collaboration with public safety officials, cleanup protocols, incident closure, and outside resources such as hazardous materials cleanup contractors or mutual aid agreements. The type of spills to be covered should include raw sewage, hazardous materials, unknown materials and explosive materials.
- Task 3.9** Conduct follow-up training for City staff, on an as-needed basis for specific topics related to municipal activities.
- Task 3.10** Fifty percent of BMPs for municipal activities are being implemented.
- Task 3.11** Assess street sweeping effectiveness.
Conduct targeted studies to optimize street sweeping effectiveness with existing equipment, reviewing the frequency of sweeping or speed of sweepers for residential, commercial and industrial areas.
- Task 4.8** Research street sweeping options, to improve sweeping effectiveness. One hundred percent of BMPs for municipal activities are being implemented.
Evaluate available research in other Cities regarding street sweeping methods and equipment, for possible improvements in the City.
- Task 4.9** Review and revise BMPs for municipal activities with operational and construction staff input.
- Task 4.10** Conduct pilot testing for metals in the oldest detention and retention basins (2 total in the City), to determine whether metals accumulation is occurring, and to assess the need for routine evaluations of storm basins.
Collect data on the construction date, maintenance activities and land use in the tributary area of 13 storm basins, to characterize the potential for heavy metals sources. Test the soil in each basin using standard EPA methods to determine the concentration of heavy metals at various levels of soil, and at the inlet and outlet of each basin. Compare the metals concentrations found to the standards for related metals limits, such as toxic pits and cumulative metals concentrations allowable in biosolids land application. Analyze the probable accumulation rate of metals in storm basins in the City to begin to assess whether Best Management Practices such as soil stripping or metals source controls are needed to prevent excess metals accumulation.

**Table 3.1
Summary of Pollution Prevention Work Plan**

Control Measure	Year 1	Year 2	Year 3	Year 4	Year 5
Public Education and Outreach	1.1 Develop bi-lingual brochures,	2.1 Distribute educational	3.1 Distribute educational	4.1 Assess additional public	5.1 Assess additional public education needs
		2.2 Begin education of restaurants and auto repair shops about BMPs	3.2 Follow up education with restaurants and auto repair shops	4.2 Educate additional business groups	5.2 Educate additional business groups
Public Participation and Involvement	1.2 Buy storm drain stencils or tiles.				
	1.3 Organize volunteers to mark storm drains and do community cleanups	2.3 Mark storm drains using volunteers	2.4 Mark storm drains in the next section of the City	4.3 Mark more storm drains as needed	5.3 Mark more storm drains as needed
	1.4 Conduct public workshop on the proposed SW Pollution Prevention Plan	2.4 Have a community cleanup w/volunteers	3.4 Have a community cleanup in the next section of the City	4.4 Conduct annual community cleanup day	5.4 Conduct annual community cleanup day
	1.5 Write draft or revise SW quality ordinance				
	1.6 Governing body adoption of SW ordinance	2.5 Educate businesses about the new ordinance			
Illicit Discharge Detection and Elimination	1.7 Develop outline of illicit discharge detection and eliminate program	2.6 Conduct pilot surveillance for illicit discharge elimination program	3.5 Conduct annual survey of City for illicit discharge	4.5 Conduct annual survey of City for illicit discharge	5.5 Conduct annual survey of City for illicit discharge
		2.7 Eliminate illicit discharges	3.6 Eliminate illicit discharges as found	4.6 Eliminate illicit discharges as found	5.6 Eliminate illicit discharges as found
		2.8 Develop map of storm drain system and target areas			
Construction Site Runoff Control	1.8 Educate local developers, construction firms and Building Dept. on BMP requirements	2.9 Implement SW Ordinance enforcement provisions to deal with problem sites	3.7 Continue training for building inspectors and plan review engineers on SWPPP requirements		
	1.9 Require SWPPP's for all construction over 1-5 acres	2.10 Develop or revise grading ordinance			
Post Construction BMPs	1.10 Educate local developers and engineering firms about BMP requirements	2.11 Require appropriate post construction BMPs on new development	3.8 Train building inspectors and plan review engineers on SWPPP requirements	4.7 Implement SW Ordinance enforcement provisions to deal with problem sites	5.7 Include SWPPP BMPs needs in regular update of City standard specifications

Table 3.1 Continued

Control Measure	Year 1	Year 2	Year 3	Year 4	Year 5
	1.11 Implement Long-term Maintenance and Monitoring Agreements for private BMPs				
Municipal Activities – Good Housekeeping	1.12 Develop training program for City Staff	2.12 Conduct BMP training for City staff	3.9 Follow up training with City Staff		
		2.13 Begin BMP implementation	3.10 50% of BMPs implemented	4.8 100% of BMPs implemented. Research street sweeping options	
			3.11 Assess street sweeping effectiveness	4.8 Review and revise BMPs with staff input	
	1.13 Inspect and assess cleanliness of municipal activities	2.14 Develop or revise SOP for street or storm drain spills		4.10 Conduct pilot metals testing on storm water detention basins	
	1.14 Verify or update Industrial SW permits for WWTP, airport,, or Corp. Yard.				
	1.15 Participate in regional water quality initiatives	2.15 Participate in regional water quality initiatives	3.12 Participate in regional water quality initiatives	4.9 Participate in regional water quality initiatives	5.11 Participate in regional water quality initiatives

Section 4 5-Year Workplan Budget

Table 4.1 estimates costs for the additional activities proposed to be included in the SWMP. These activities are in addition to current City services that have a beneficial impact on stormwater quality, such as system maintenance, street sweeping, and solid waste disposal. The actual costs of each task will depend on the amount of volunteer contributions, and the extent of a particular activity.

This estimate provides costs per activity. Not all activities will occur on one year. Some activities will occur every year. The staff time is for each year that the activity occurs.

Table 4.1
Estimate of Costs and Staff Time
for Additional Storm Water Activities

<u>Control Measure</u>	<u>Probable Material Cost In a Year Activity Occurs</u>	<u>Staff Time</u>
Public Education and Outreach Obtain and distribute public education brochures or novelties.	\$8,000	80 hrs/yr
Public Participation and Involvement Purchase storm drain stencils or tile volunteers	\$3,000	50 hrs/year Organize
Stormwater Ordinance Update ordinance, public input for Council adoption	\$0	60 hrs
Illicit Discharge Detection and Elimination Develop program and map \$2,000 to \$25,000 ¹ Conduct investigations, allowance for lab work Correct discharges	40-80 hrs \$1,000 each occurrence \$0	100 hrs varies
Construction Site Runoff Control Educate local developers and construction companies	\$500	40 hrs/workshop
Post-Construction Runoff Control Educate developers and local engineering firms	\$500	40 hrs/workshop
Pollution Prevention/Good Housekeeping Provide BMP training for staff Conduct housekeeping assessment Implement BMPs	\$500 \$0 varies ²	40 hrs/workshop 60 hrs varies
Permitting and Reporting Requirements Coordination meetings among the 4 City Annual report and fee to SWRCB Permit Renewal in Year 5	--- \$3,000 - \$5,000 ³ \$10,000	40 hrs/yr 40 hrs/yr
Total Program Costs in busiest year	\$20K to \$50K depending on mapping and BMPs required	
Population	4,920	
Estimated Program Cost per capita	\$4.00 to \$10.00/yr	

¹ I/I map cost will depend on whether the City has an electronic base map and pipeline system map now.

² Cost to implement BMPs will vary depending on the extent of municipal activities exposed to storm runoff.

³ Per SWRCB Res. No. 2002-0150, the fee for area wide municipal stormwater permittee will be 50% of full fee for FY 2002-03, then 100% for FY 2003-04 and after.

Table 4.2
Projected Five-Year Direct Cost Distribution,
Based on Planned Activities

Control Measure	Year 1	Year 2	Year 3	Year 4	Year 5
Public Education & Outreach	\$8,000	\$5,000	\$5,000	\$5,000	\$5,000
Public Participation & Involvement	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
Storm water Ordinance	\$0				
Illicit Discharge Detection & Elimination	\$2,000 - \$25,000 ⁵	\$5,000 ⁴	\$5,000	\$5,000	\$5,000
Construction Site Runoff Control		\$500			
Post Construction Runoff Control		\$500			
Pollution Prevention / Housekeeping	\$500	varies ⁶	varies	varies	varies
Permitting and Reporting	\$3,000 - \$5,000	\$3,000 - \$5,000	\$3,000 - \$5,000	\$3,000 - \$5,000	\$10,000 - \$15,000
Total	\$20K - \$50K	\$20K +	\$20K +	\$20K +	\$20K - \$30K

⁴ Some enforcement costs may be recoverable.

⁵ Cost depends on the status of GIS mapping.

⁶ Cost varies depending on the need for containment of municipal activities.

Section 5 Performance Measurement and Reporting

The purpose of this Section is to establish the methods by which the permittee will measure and report on their efforts to implement the Storm Water Management Program. The City performance under the General Permit will be measured in two ways:

1. Storm Water Management Program activities completed as scheduled.
2. Tabulation of potential pollutants removed from the City's environment each year. These include measures such as the number of pounds of street sweepings collected each year, or the number of illicit discharges discovered and eliminated.

The performance measures are organized on the suggested worksheet shown in Figure 5.1, for routine use by field supervisors during the year.

In the event the City is not able to comply with the General Permit, or with the planned activities of their Storm Water Management Program, the City shall notify the Central Valley Regional Water Quality Control Board (CVRWQCB) within 30 days. If an emergency condition exists that endangers human health or the environment, the City shall notify the CVRWQCB within 24 hours of becoming aware of the circumstances, and follow-up with a written report within 5 days.

By September 15th of each year, beginning in 2004, the City must submit an annual report to the Central Valley Regional Water Quality Control Board. The report shall include:

1. The status of compliance with permit conditions.
2. An assessment of the appropriateness and effectiveness of the identified BMPs.
3. Status of identified measurable goals,
4. Results of information collected and analyzed, including monitoring data, if any, during the reporting period;
5. A summary of the storm water activities the City plans to undertake during the next reporting cycle;
6. Any proposed changes to the SWMP along with a justification of why the changes are necessary, and
7. A change in the person or persons implementing and coordinating the SWMP.

Figure 5.2 is an annotated outline of the annual report to be submitted by the City.

The City will retain the records corresponding to the SWMP implementation for at least 5 years, or during the duration of the General Permit. Such records are public documents, accessible to the public in accordance with the Public Information Act.

Figure 5.1

**Storm Water Management Program
Monthly Tabulation of Storm Water Quality Activities**

City of Hughson

Month/Year _____

Activity	Tally	Notes
Street Sweeping, tons or number of bins		
Garden Refuse Pickup, Tons		
Storm inlets marked		
Illicit discharges or illegal connections found and eliminated		
Corp. Yard cleanup activities		
Bulky Item Pickup Days & Estimated Tons Removed		
Catch Basins and Storm Drains Cleaned		
Public Education Contacts by Field Crews		

Figure 5.2

**Storm Water Management Program
Outline of Annual Report to CVRWQCB**

I. Executive Summary

(This section should summarize the main challenges encountered and accomplishments achieved by the City during the year.)

II. Control Measures Implemented

- a. Public Involvement and Outreach
- b. Public Participation
- c. Illicit Discharge/Illegal Connection Elimination
- d. Construction BMPs
- e. Post-Construction BMPs.
- f. Municipal Operations.

(This section should record the Tasks completed for each control measure. This discussion may include an assessment of the effectiveness of the various Tasks. Measurements of actual potential pollutants removed from the City's environment, such as tons of street sweepings or bulky items, should be tabulated. The section should also include a report of any enforcement actions taken. If the year's tasks included any monitoring, the monitoring data should be attached to the annual report.)

III. Funding Status

(This section should present the current and next year's budget for storm water quality activities for the City. This section may also include a discussion of the cost effectiveness of any of the control measure tasks.)

IV. Next Year's Work Plan

(This section should present the SWMP tasks to be accomplished during the coming year. This discussion can include the justification for any adaptive management changes in the planned work, based on the effectiveness or lack thereof of a previous year's task.)