STORM WATER MANAGEMENT PROGRAM (SWMP)

Phase II Storm Water Permit
For
Small Municipal Separate Storm Sewer System (MS4)

Permit Number: TPDES No. TXR040095
LJA Project No. E086-0260

Prepared for:

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INTRODUCTION

This Storm Water Management Program (SWMP) was developed by LJA Engineering, Inc. for the City of Jacinto City (City) to comply with the Texas Commission on Environmental Quality (TCEQ) Phase II requirements, which are authorized under Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXR040000. The TCEQ's storm water program is divided into two phases. The first phase addressed storm water runoff from municipal separate storm sewer systems (MS4s) with a population of 100,000 or more as defined by the 1990 U.S. Census. The second phase of the storm water program addresses storm water runoff from systems serving populations of less than 100,000 as defined by the 2000 U.S. Census. The Phase II areas are classified as: urbanized areas (UA), areas that are becoming urbanized, and those which discharge to surface waters with impaired water quality.

Phase II regulated small MS4s are further categorized into four levels under TPDES Permit TXR040000, with different permit requirements applied to each level for some of the program elements. The level of a small MS4 is based on the population served by the MS4 within 2010 UA, except for non-traditional MS4s as defined in Part II.A.5:

1. Level 1 serves a population of less than 10,000 within a UA.
2. Level 2 serves a population of at least 10,000 but less than 40,000 within a UA. This category also includes all non-traditional small MS4s such as counties, drainage districts, transportation entities, military bases, universities, college, correctional institutions, municipal utility districts, and other special districts (regardless of population served in the UA).
3. Level 3 serves populations of at least 40,000 but less than 100,000 within a UA.
4. Level 4 serves populations of 100,000 or more within a UA.

The City of Jacinto City is classified as a Small Municipal Storm Sewer System (MS4) qualifying it for the Phase II requirements as a Level 2 MS4.

The requirements for an operator of a small MS4 are to design a program to: reduce the discharge of pollutants to the "maximum extent practicable" (MEP), protect the water quality, effectively prohibit illicit discharges to the system, and to satisfy the appropriate water quality requirements of the Clean Water Act (CWA).

To achieve the MEP of reduction in pollutants, best management practices (BMPs) are developed to satisfy the six minimum control measures (MCM). With the implementation of the minimum controls, significant reductions in the pollutants discharged from the City of Jacinto City should be achieved.

The six minimum controls are:

- Public Education, Outreach and Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management in New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operations
- Industrial Stormwater Sources

STORM WATER MANAGEMENT PROGRAM

MCM 1: PUBLIC EDUCATION, OUTREACH, AND INVOLVEMENT

Public Education and Outreach

From TPDES General Permit TXR040000:

(1) All permittees shall develop, implement, and maintain a comprehensive stormwater education and outreach program to educate public employees, businesses, and the general public of hazards associated with the illegal discharges and improper disposal of waste and about the impact that stormwater discharges can have on local waterways, as well as the steps that the public can take to reduce pollutants in stormwater. Permittees are encouraged to work together with other entities that have an impact on stormwater to implement this MCM.

Existing permittees shall assess program elements that were described in the previous permit, modify as necessary, and develop and implement new elements, as necessary, to continue reducing the discharge of pollutants from the MS4 to the MEP. New elements must be fully implemented by the end of this permit term and newly regulated permittees shall have the program fully implemented by the end of this permit term. The program must, at a minimum:

a. Define the goals and objectives of the program based on high priority community-wide issues (for example, reduction of nitrogen in discharges from the small MS4, promoting previous techniques used in the small MS4, or improving the quality of discharges to the Edwards Aquifer);

b. Identify the target audience(s);

c. Develop or utilize appropriate educational materials, such as printed materials, billboard and mass transit advertisements, signage at select locations, radio advertisements, television advertisements, and websites;

d. Determine cost effective and practical methods and procedures for distribution of materials;

(2) Throughout the permit term, all permittees shall make the educational materials available to convey the program's message to the target audience(s) at least annually.

(3) All permittees shall review and update as necessary, the SWMP and MCM implementation procedures required by Part III.A.2.. Any changes must be reflected in the annual report. Such written procedures must be maintained, either on site or in the SWMP and made available for inspection by the TCEQ.

(4) MS4 operators may partner with other MS4 operators to maximize the program and cost effectiveness of the required outreach.

A comprehensive stormwater education and outreach program should be developed, implemented and maintained by the MS4 to educate public employees, businesses, and the general public of hazards associated with the illegal discharges and improper disposal of waste and about the impact that stormwater discharges can have on local waterways, as the steps that the public can take to reduce pollutants in stormwater.

The City has developed, implemented and maintained a public education and outreach program during the first permit period that distributed educational materials or conducted equivalent outreach activities to inform the following groups within the City:

- Residents;
- Visitors;
- City employees;
- Businesses;
- Commercial and industrial facilities; and
- Construction site personnel.

The education and outreach efforts are designed to inform the public about the impacts polluted storm water run-off can have on water quality, hazards associated with illegal discharges and improper disposal of waste, and ways they can minimize their impact on storm water quality.

The City's stormwater education and outreach program strives to make a reasonable attempt to reach all constituents within the City to meet this measure, in accordance with ***40 CFR 122.34 (b)(1), "Implement a public education program to distribute educational materials to the community of contact, equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps the public can take to reduce pollutants in storm water runoff."***

Public Involvement

From TPDES General Permit TXR040000:

> *All permittees shall involve the public, and at minimum comply with any state and local public notice requirements in the planning and implementation activities related to developing and implementing the SWMP, except that correctional facilities are not required to implement this portion of the MCM.*
>
> *Existing permittees shall assess program elements that were described in the previous permit, modify as necessary, and develop and implement new elements, as necessary, to continue reducing the discharge of pollutants from the MS4 to the MEP. New elements must be fully implemented by the end of this permit term and newly regulated permittees shall have the program fully implemented by the end of this permit term. At a minimum, all permittees shall:*
>
> *(1) If feasible, consider using public input (for example, the opportunity for public comment, or public meetings) in the implementation of the program;*
>
> *(2) If feasible, create opportunities for citizens to participate in the implementation of control measures, such as stream clean-ups, storm drain stenciling, volunteer monitoring, volunteer "Adopt-A-Highway" programs, and educational activities;*
>
> *(3) Ensure the public can easily find information about the SWMP.*

Public involvement differs from public education in that it not only informs the public, but also provides opportunities for direct citizen action. When citizens participate in a project's decision-making process, they are more likely to support the final outcome. This plan

describes ways in which the City of Jacinto City community can play an active role in developing and implementing the City's Storm Water Management Program. An informed and involved public can be a valuable information resource and can help build compliance with the program. Participation by the public ensures that the program reflects community values and priorities and thus has the highest potential for success. The public involvement and participation program is also a requirement of the TPDES program and NPDES Phase II Final Rule.

The goals of the public involvement activities are as follows:

- raise public awareness about storm water runoff
- provide opportunities for the public to participate in the implementation of the SWMP
- develop public support for the SWMP

During the first permit period, the City explored numerous public involvement efforts including a community hotline to report stormwater violations, volunteer opportunities such as storm drain marking and trash pickup, a citizen advisory committee, and providing educational materials to schools, business groups, and local organizations about stormwater quality. After the first permit period, each of these public involvement efforts were evaluated and it was determined that the least effective was the citizen advisory committee. There was very little public interest in this participation opportunity and it is suspected that is due to the fact that the city is for all practical purposes completely developed out. While the City may explore the use of advisory committee again the future, the City has removed as a measurable BMP from the SWMP. The City will continue to explore new opportunities for public participation and involvement during the current permit period.

Also in accordance with ***40 CFR 122.34 (b) (2), at a minimum, comply with state, tribal, and local public notice requirements when implementing a public involvement/participation program. EPA recommends that the public be included in developing, implementing, and reviewing your storm water management program and that the public participation process should make efforts to reach out and engage all economic and ethnic groups.***

The effectiveness of this MCM will be evaluated by the completion of each of the measurable goals identified for the BMPs selected.

Best Management Practices and Measurable Goals

The table on the following page presents the various best management practices adopted by the City of Jacinto City for implementation within the storm water management plan for the City. The table includes practices along with a timeline for which the City intends to proceed or implement each practice. Each practice is described in detail in paragraphs within this program immediately after the table.

BMP	Measurable Goals	2019	2020	2021	2022	2023
Update City's Website with general storm water information.	Update website	X	X	X	X	X
Add SWMP to the City's Website	Update website	X	X	X	X	X
Post Annual Report to the City's Website	Update website	X	X	X	X	X
Post storm water messages at City Hall	Post 1 stormwater quality message	X	X	X	X	X
Utility Bill Stormwater Inserts	Distribute stormwater info once per year	X	X	X	X	X
City Newsletter	Include 2 stormwater messages annually	X	X	X	X	X
Educational Pamphlets Partnership with Harris County	Distribute pamphlets at City Hall, library and other public buildings	X	X	X	X	X
Employee Outreach	Evaluate the existing outreach program and update as necessary	X				
	Annual Presentation to employees	X	X	X	X	X
Brochures for Commercial and Industrial Facilities	Evaluate the existing brochures for effective message and update as necessary	X				
	Distribute Brochure during inspections	X	X	X	X	X
Brochure for Construction Personnel	Evaluate existing construction brochure(s)	X				
	Distribute during construction meetings and permit process	X	X	X	X	X
Participate in public outreach event	Participate in a minimum of one (1) public outreach event	X	X	X	X	X
Provide Volunteer Opportunities	Evaluate existing Volunteer Opportunities and look for new	X	X			
	Provide support materials	X	X	X	X	X

Storm Water Notification

The City of Jacinto City will continue to include a section about storm water on its

website. A copy of this SWMP and the annual report will be available on the City's website. The City of Jacinto City's website is www.jacintocity-tx.gov. The website will be updated to include pertinent storm water issues. SWMP topics may include, but are not limited to, lawn care, storm drains and ditches, used oil disposal, native plants, saving water, and household hazardous waste. The website will provide links to other websites that can further educate the public. A City Hotline will be provided to the Public Works Department for residents to express concerns.

Educational Pamphlets

The City of Jacinto City will evaluate and revise existing pamphlets, as necessary, and continue to distribute them at City Hall, the public library and other public buildings. The City will partner with Harris County through the county's Regional Watershed Protection Program for this effort.

Employee Outreach

The City has developed an employee outreach program discussing storm water quality issues. The outreach program is in the form of a power point presentation and training videos. The current employee outreach program will be evaluated and updated, if needed. Annually, the City presents the employee outreach program to the various city departments.

Brochures for Commercial and Industrial Facilities

The City has identified a priority list of commercial and industrial businesses within the community that may impact water quality as a result of the services they provide. The City has developed focused stormwater quality brochures informing these businesses about the potential impact polluted storm water run-off can have on water quality, hazards associated with illegal discharges, and the ways they can minimize their impacts on storm water quality. During this permit period, the priority list of businesses as well as the brochures will be reviewed and updated as needed.

The City distributes these brochures during inspections of regulated facilities. The brochures will also be available at City Hall.

Brochures for Construction Personnel

The City has developed an informational brochure for distribution during the permitting process. The brochure informs the construction industry about the impacts that polluted storm water can have on water quality, hazards associated with illegal discharges and ways they can minimize their impact. During this permit period, the brochures will be reviewed and updated as needed.

Advisory Committee

The City has formed an Advisory Committee as part of this Storm Water Management Program. The Committee represents different segments of the community that will be affected by the City of Jacinto City's Storm Water

Management Program (SWMP) implementation. The effectiveness of the Advisory Committee will be reviewed in this permit period and changes will be made if needed. The Committee will review this Storm Water Management Program and provide recommendations to facilitate implementation. They will be updated periodically regarding the ongoing program implementation.

Participate in Public Outreach Event

The City will participate in at least one public outreach event in each year during the five year permit period.

The City annually has a booth that delivers stormwater messages to residents and visitors at the Galena Park/Jacinto City Country Fair. The City has also participated in and/or sponsored such events as Pet Vaccination Days and Household Hazardous Waste Roundup Days during the first permit period where stormwater quality messages are conveyed to residents participating in those events. The city will continue to sponsor/participate in similar events where opportunities for public outreach exist.

Provide Volunteer Opportunities

The City currently has several suitable opportunities for volunteers to participate in storm water quality activities including community service projects for litter cleanup along drainages ditches and streams and storm drain stenciling. For these volunteer activities, the City provides support materials to the interested parties.

The City will reevaluate current opportunities and look at updating the program to possibly add new opportunities during this permit period. Currently, support materials and provide them to interested parties. These volunteer opportunities may include such things as storm drain stenciling (in both English and Spanish), planting campaigns and Adopt-a-Stream programs.

MCM 2: ILLICIT DISCHARGE DETECTION AND ELIMINATION

Introduction and Regulatory Requirements

From TPDES General Permit TXR040000:

(a) Program Development

(1) All permittees shall develop, implement and enforce a program to detect, investigate, and eliminate illicit discharges into the small MS4. The program must include a plan to detect and address non-stormwater discharges, including illegal dumping to the MS4 system.

Existing permittees must assess program elements that were described in the previous permit, modify as necessary, and develop and implement new elements, as necessary, to continue reducing the discharge of pollutants from the MS4 to the MEP. New elements must be fully implemented by the end of this permit term and newly

regulated permittees shall have the program fully implemented by the end of this permit term. See also Part III.A.1(c).

The Illicit Discharge Detection and Elimination (IDDE) program must include the following:

a. An up-to-date MS4 map (see Part III.B.2.(c)(1));

b. Methods for informing and training MS4 field staff (See Part III.B.2.(c)(2));

c. Procedures for tracing the source of an illicit discharge (see Part III. B.2.(c)(5));

d. Procedures for removing the source of the illicit discharge (see Part III.B.2.(c)(5));

e. For Level 2, 3 and 4 small MS4s, if applicable, procedures to prevent and correct any leaking on-site sewage disposal systems that discharge into the small MS4;

f. For Level 4 small MS4s, procedures for identifying priority areas within the small MS4 likely to have illicit discharges, and a list of all such areas identified in the small MS4 (See Part III.B.2.(g)(1));

g. For Level 4 small MS4s, field screening to detect illicit discharges (See Part III.B.2.(g)(2)).

h. Level 4 MS4s are required to develop and implement a program for collecting floatables in the MS4, similar to requirements in Phase I MS4 permits. (Permit Part III.B.2)).

(2) For non-traditional small MS4s, if illicit connections or illicit discharges are observed related to another operator's MS4, the permittee shall notify the other MS4 operator within 48 hours of discovery. If notification to the other MS4 operator is not practicable, then the permittee shall notify the appropriate TCEQ regional office of the possible illicit connection.

(3) If another MS4 operator notifies the permittee of an illegal connection or illicit discharge to the small MS4, then the permittee shall follow the requirements specified in Part III.B.2.(c)(3).

(4) All permittees shall review and update as necessary, the SWMP and MCM implementation procedures required by Part III.A.2.. Any changes must be reflected in the annual report. Such written procedures must be maintained, either on site or in the SWMP and made available for inspection by the TCEQ.

(b) Allowable Non-Stormwater Discharges

Non-stormwater flows listed in Part II.C do not need to be considered by the permittee as an illicit discharge requiring elimination unless the permittee or the TCEQ identifies the flow as a significant source of pollutants to the small MS4.

(c) Requirements for all Permittees

All permittees shall include the requirements described below in Parts III.B.2(c)(1)-(6)

(1) MS4 mapping

All permittees shall maintain an up-to-date MS4 map, which must be located on site and available for review by the TCEQ. The MS4 map must show at a minimum the following information:

a. The location of all small MS4 outfalls that are operated by the permittee and that discharge into waters of the U.S;

b. The location and name of all surface waters receiving discharges from the small MS4 outfalls;

c. Priority areas identified under Part III.B.2.(e)(1) if applicable.

(2) Education and Training

All permittees shall implement a method for informing or training all the permittee's field staff that may come into contact with or otherwise observe an illicit discharge or illicit connection to the small MS4 as part of their normal job responsibilities. Training program materials and attendance lists must be maintained on site and made available for review by the TCEQ.

(3) Public Reporting of Illicit Discharges and Spills

To the extent feasible, all permittees shall publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from the small MS4. The permittee shall provide a central contact point to receive reports; for example by including a phone number for complaints and spill reporting.

(4) All permittees shall develop and maintain on site procedures for responding to illicit discharges and spills. Permittees shall implement a method for informing or training field staff, who may come into contact or observe illicit discharges, on the identification and proper procedures for reporting illicit discharges. Field staff to be trained may include, but are not limited to, municipal maintenance staff, inspectors, and other staff whose job responsibilities regularly take them out of the office and into areas within the MS4 area. Permittee field staff is out in the community on a day-to-day basis and are in the best position to locate and report spills, illicit discharges, and potentially polluting activities.

(5) Source Investigation and Elimination

a. Minimum Investigation Requirements – Upon becoming aware of an illicit discharge, all permittees shall conduct an investigation to identify and locate the source of such illicit discharge as soon as practicable.

(i) All permittees shall prioritize the investigation of discharges based on their relative risk of pollution. For example, sanitary sewage may be considered a high priority discharge.

(ii) All permittees shall report to the TCEQ immediately upon becoming aware of the occurrence of any illicit flows believed to be an immediate threat to human health or the environment.

(iii) All permittees shall track all investigations and document, at a minimum, the date(s) the illicit discharge was observed; the results of the investigation; any follow-up of the investigation; and the date the investigation was closed.

b. Identification and Investigation of the Source of the Illicit Discharge –All permittees shall investigate and document the source of illicit discharges where the permittees have jurisdiction to complete such an investigation. If the source of illicit discharge extends outside the permittee's boundary, all permittees shall notify the adjacent permitted MS4 operator or the appropriate TCEQ Regional Office according to Part III.A.3.b.

c. Corrective Action to Eliminate Illicit Discharge

(i) If and when the source of the illicit discharge has been determined, all permittees shall immediately notify the responsible party of the problem, and shall

require the responsible party to perform all necessary corrective actions to eliminate the illicit discharge.

(6) Inspections –The permittee shall conduct inspections, as determined appropriate, in response to complaints, and shall conduct follow-up inspections as needed to ensure that corrective measures have been implemented by the responsible party.

(d) Additional Requirements for Level 3 and 4 small MS4s

In addition to the requirements described in Parts III.B.2(c)(1)-(6) above, permittees who operate level 3 and 4 small MS4s shall meet the following requirements:

(1) Source Investigation and Elimination

Permittees who operate level 3 and 4 small MS4 shall upon being notified that the discharge has been eliminated, conduct a follow-up investigation or field screening, consistent with Part III.B.2.(g)(2), to verify that the discharge has been eliminated. The permittee shall document its follow-up investigation. The permittee may seek recovery and remediation costs from responsible parties consistent with Part III.A.3., and require compensation related costs. Resulting enforcement actions must follow the procedures for enforcement action in Part III.A.3. If the suspected source of the illicit discharge is authorized under an NPDES/TPDES permit or the discharge is listed as an authorized non-stormwater discharge, as described in Part III.C, no further action is required.

(e) Additional Requirements for Level 4 small MS4s

In addition to the requirements described in Parts III.B.2(c)-(d) above, permittees who operate level 4 small MS4s shall meet the following requirements:

(2) Identification of Priority Areas

Permittees who operate level 4 small MS4s shall identify priority areas and shall document the basis for the selection of each priority area and shall create a list of all priority areas identified. This priority area list must be available for review by the TCEQ.

(3) Dry Weather Field Screening

By the end of the permit term, permittee who operate level 4 small MS4s shall develop and implement a written dry weather field screening program to assist in detecting and eliminating illicit discharges to the small MS4. Dry weather field screening must consist of (1) field observations; and (2) as needed, field screening.

If dry weather field screening is necessary, at a minimum, the permittee shall:

a. Conduct dry weather field screening in priority areas as identified by the permittee in Part III.B.2(g)(1). By the end of the permit term, all of those priority areas, although not necessarily all individual outfalls must be screened.

b. Field observation requirements – The permittee shall develop written procedures for observing flows from outfalls when there has been at least 72 hours of dry weather. The written procedures should include the basis used to determine which outfalls would be observed. The permittee shall record visual observations such as odor, color, clarity, floatables, deposits or stains.

c. Field screening requirements – The permittee shall develop written procedures to determine which dry weather flows will be screened, based on results of field observations or complaint from the public or the permittee's trained field staff. At a minimum, when visual observations indicate a potential problem such as discolored

flows, foam, surface sheen, and other similar indicators of contamination, the permittee shall conduct a field screening analysis for selected indicator pollutants as determined by the permittee. Screening methodology may be modified based on experience gained during the actual field screening activities. The permittee shall document the method used. All permittees shall involve the public, and at minimum comply with any state and local public notice requirements in the planning and implementation activities related to developing and implementing the SWMP, except that correctional facilities are not required to implement this portion of the MCM.

The City began implementing an Illicit Discharge Detection and Elimination (IDDE) Program during the previous permit period. The existing plan followed the key elements outlined in the TPDES permit including establishing regulations and means of enforcement; mapping the storm sewer system; identifying potential sources; establishing reporting mechanisms; and providing education to all MS4 users. The objective of the program is to detect and address non-storm water discharges and illegal dumping to the MS4.

The City adopted the Illicit Discharge and Connection Storm Water Ordinance (Ordinance 2008-6) in 2008 which establishes the regulation of non-storm water discharges to the storm water system to the maximum extent practicable as required by federal and state law. This ordinance establishes methods for controlling the introduction of pollutants into MS4 in order to comply with requirements of the TPDES permit process. The objectives of this ordinance are:

(1) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by storm water discharges by any user
(2) To prohibit Illicit Connections and Discharges to the municipal separate storm sewer system
(3) To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this ordinance

A copy of the Illicit Discharge and Connection Storm Water Ordinance is provided in Appendix 2.

In developing the Illicit Discharge Detection and Elimination Program, the City considered all non-storm water flows outlined in Part II.C of the permit and determined that none were significant contributors of pollutants to the MS4 and therefore they are not specifically addressed in the City's Stormwater Management Plan. However, if outfall screening (or future monitoring) indicates that any of these non-storm water discharges are in fact significant contributors of pollutants to the MS4, the City ordinance will be updated to prohibit those flows and the SWMP will be amended to include BMPs for those discharges.

As part of the IDDE Program, a set of maps of the storm sewer system has been developed and includes the following:

- the location of storm sewer pipes, ditches, and other conveyances owned by the City, or at a minimum, the drainage area for each outfall;
- the location of all major outfalls; and
- the names and locations of all waters of the U.S. that receive discharges from the outfalls.

The maps were developed through record drawings maintained by the City and field verified by City personnel. The outfall locations were located and mapped by Harris County and provided to the City through the partnership within the Regional Watershed Protection Program. The maps are updated and verified as new storm drainage projects are undertaken within the MS4, however, the City is nearly entirely developed and as a result there is very little new construction within the MS4 that requires significant additions to the storm drainage system within the MS4.

As part of the IDDE Program, the City advertises and maintains a hotline for citizens to report stormwater problems including illicit discharges and other violations. Procedures for public report, compliant tracking and resolution are provided in more detail in Appendix 2.

The City's IDDE program was developed in accordance with ***40 CFR 122.34 (b) (3), Develop, implement, and enforce a program to detect and eliminate illicit discharges into your small MS4. Develop a storm sewer system map, showing the location of all outfalls and the names and locations of all water of the U.S. that receive discharges from those outfalls. To the extent allowable under state, tribal or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions. Develop and implement a plan to detect and address non-storm water discharges including illegal dumping to your system. Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. Address categories listed in 122.34(b) (3) (D) (iii) if you determine they are significant contributors of pollutants to MS4.***

Best Management Practices and Measurable Goals

BMP	Measurable Goals	2019	2020	2021	2022	2023
Storm Water System Map(s)	Review existing maps and update as needed	X	X			
Ordinance for Illicit discharge detection and elimination	Review existing Ordinance and update as needed	X	X			
Illicit discharge detection plan	Evaluate existing program and identify additional resources and training needs	X	X			
	Acquire any new needed resources, training and personnel		X			
	Investigate 25% of storm system	X	X	X	X	X
Identify/Correct On-site Sewage Disposal Systems in MS4	Develop a list of on-site sewage disposal facilities within MS4	X				
	Develop procedures to prevent and correct leaking on-site sewage disposal systems		X			
Inspection program for regulated businesses	Review previously identified regulated businesses and update list as needed	X	X			
	Inspect 25% of regulated businesses	X	X	X	X	X
Provide information to regulated businesses on proper handling of discharges and chemicals	Review brochures and update or create new brochures as needed	X	X			
	Distribute during inspections of regulated businesses	X	X	X	X	X

Storm Water System Map

The City has developed storm water system maps, showing the location of all outfalls and the names and locations of all water of the U.S. that receive discharges from those outfalls. The structural information for storm water systems has been collected and the system has been field-verified for accuracy as part of the original permit period. The maps have been updated continually as new areas are developed and/or rehabilitated. These maps are maintained by the public works department and

will be reviewed during this permit period. The updates for new areas will be field-verified.

Ordinance for Illicit Discharge Detection and Elimination

The City will evaluate the existing ordinance for its effectiveness in prohibiting non-storm water discharges into the storm sewer system. The ordinance will be amended if necessary during this permit period. The City will also evaluate the current enforcement procedures and actions and update the process as needed.

Illicit Discharge Detection Plan

The City will evaluate existing programs and identify additional program requirements and resource needs to detect and address non-storm water discharges including illegal dumping into the storm water system. The City will acquire needed resources, training and personnel to implement this BMP. The City will investigate a minimum of 25% of the storm water system every year during the five year permit period.

Inspection Program for Regulated Businesses

The City has develop an inspection program for previously identified regulated businesses of concern including but not limited to restaurants, auto/service stations, car washes and light industrial businesses. The City will review current identify regulated business categories as well as check for any new regulated business categories and new businesses that need to be included in the inspection program. The City will continue to inspect a minimum of 25% of regulated businesses every year of the permit period.

Provide Information to Regulated Businesses

The City provides businesses information of hazards associated with illegal discharges and improper disposal of waste. Brochures were designed to target various types of businesses. The types of businesses currently targeted in the City of Jacinto City are restaurants, service stations, and car washes. The brochures encourage participation in the elimination of illicit discharges. The goal is to make the public aware of illicit discharges and to encourage participation in eliminating improper connections. The City distributes the brochure(s) during inspections of regulated businesses and explains the importance of compliance with the City's illicit discharge ordinance. The brochures are also available at City Hall.

The City will review the effectiveness of the current brochures being distributed to regulated businesses and if necessary update or redesign brochures with a more effective message. If the City identifies new types of regulated businesses during this permit period, new brochures targeting those business types will be developed.

MCM 3: CONSTRUCTION SITE RUNOFF CONTROL

Introduction and Regulatory Requirements

From TPDES General Permit TXR040000:

(a) Requirements and Control Measures

(1) All permittees shall develop, implement and enforce a program requiring operators of small and large construction activities, as defined in Part I of this general permit, to select, install, implement, and maintain stormwater control measures that prevent illicit discharges to the MEP. The program must include the development and implementation of an ordinance or other regulatory mechanism, as well as sanctions to ensure compliance to the extent allowable under state, federal, and local law, to require erosion and sediment control.

Existing permittees shall assess program elements that were described in the previous permit, modify as necessary, and develop and implement new elements, as necessary, to continue reducing the discharge of pollutants from the MS4 to the MEP. New elements must be fully implemented by the end of this permit term and newly regulated permittees shall have the program fully implemented by the end of this permit term.

If TCEQ waives requirements for stormwater discharges associated with small construction from a specific site(s), the permittee is not required to enforce the program to reduce pollutant discharges from such site(s).

(b) Requirements for all Permittees

All permittees shall include the requirements described below in Parts III.B.3(b)(1)-(7)

(1) All permittees shall review and update as necessary, the SWMP and MCM implementation procedures required by Part III.A.2.. Any changes must be included in the annual report. Such written procedures must be maintained on site or in the SWMP and made available for inspection by the TCEQ.

(2) All permittees shall require that construction site operators implement appropriate erosion and sediment control BMPs. The permittee's construction program must ensure the following minimum requirements are effectively implemented for all small and large construction activities discharging to its small MS4.

a. Erosion and Sediment Controls - Design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants.

b. Soil Stabilization - Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Soil stabilization must be completed as soon as practicable, but no more than 14 calendar days after the initiation of soil stabilization measures to be consistent with the TPDES CGP TXR150000. (Part III.B.3 in the permit)). In arid, semiarid, and drought-stricken areas, as determined by the permittee, where initiating vegetative stabilization measures immediately is infeasible, alternative stabilization measures must be employed as specified by the permittee.

c. BMPs – Design, install, implement, and maintain effective BMPs to minimize the discharge of pollutants to the small MS4. At a minimum, such BMPs must be designed, installed, implemented and maintained to:

(i) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters;

(ii) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater; and

(iii) Minimize the discharge of pollutants from spills and leaks.

d. As an alternative to (a) through (c) above, all permittees shall ensure that all small and large construction activities discharging to the small MS4 have developed and implemented a stormwater pollution prevention plan (SWP3) in accordance with the TPDES CGP TXR150000. In arid, semiarid, and drought-stricken areas, as determined by the permittee, where initiating vegetative stabilization measures immediately is infeasible, alternative stabilization measures must be employed as specified by the permittee. As an alternative, vegetative stabilization measures may be implemented as soon as practicable.

(3) Prohibited Discharges - The following discharges are prohibited:

a. Wastewater from washout of concrete and wastewater from water well drilling operations, unless managed by an appropriate control;

b. Wastewater from washout and cleanout of stucco, paint, from release oils, and other construction materials;

c. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and,

d. Soaps or solvents used in vehicle and equipment washing;

e. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, unless managed by appropriate BMPs.

(4) Construction Plan Review Procedures

To the extent allowable by state, federal, and local law, all permittees shall maintain and implement site plan review procedures, that describe which plans will be reviewed as well as when an operator may begin construction. For those permittees without legal authority to enforce site plan reviews, this requirement is limited to those sites operated by the permittee and its contractors and located within the permittee's regulated area. The site plan procedures must meet the following minimum requirements:

a. The site plan review procedures must incorporate consideration of potential water quality impacts.

b. The permittee may not approve any plans unless the plans contain appropriate site specific construction site control measures that, at a minimum, meet the requirements described in Part III.B.3.(a) or in the TPDES CGP, TXR150000.

The permittee may require and accept a plan, such as a SWP3, that has been developed pursuant to the CGP, TXR150000.

(5) Construction Site Inspections and Enforcement

To the extent allowable by state, federal, and local law, all permittees shall implement procedures for inspecting large and small construction projects. Permittees without legal authority to inspect construction sites shall at a minimum conduct inspections of sites operated by the permittee or its contractors and that are located in the permittee's regulated area.

a. Inspections must occur at a frequency determined by the permittee, based on the evaluation of factors that are a threat to water quality, such as: soil erosion potential; site slope; project size and type; sensitivity of receiving waterbodies; proximity to receiving waterbodies; non-stormwater discharges; and past record of non-compliance by the operators of the construction site.

b. Inspections must occur during the active construction phase.

(i) All permittees shall develop, implement, and revise as necessary, written procedures outlining the inspection and enforcement requirements. These procedures must be maintained on site or in the SWMP and be made available to TCEQ.

(ii) Inspections of construction sites must, at a minimum:

1. Determine whether the site has appropriate coverage under the TPDES CGP, TXR150000. If no coverage exists, notify the permittee of the need for permit coverage.

2. Conduct a site inspection to determine if control measures have been selected, installed, implemented, and maintained according to the small MS4's requirements.

3. Assess compliance with the permittee's ordinances and other regulations.

4. Provide a written or electronic inspection report.

c. Based on site inspection findings, all permittees shall take all necessary follow-up actions (for example, follow-up-inspections or enforcement) to ensure compliance with permit requirements and the SWMP. These follow-up and enforcement actions must be tracked and maintained for review by the TCEQ.

For non-traditional small MS4s with no enforcement powers, the permittee shall notify the adjacent MS4 operator with enforcement authority or the appropriate TCEQ Regional Office according to Part III.A.3(b).

(6) Information submitted by the Public

All permittees shall develop, implement and maintain procedures for receipt and consideration of information submitted by the public.

(7) MS4 Staff Training

All permittees shall ensure that all staff whose primary job duties are related to implementing the construction stormwater program (including permitting, plan review, construction site inspections, and enforcement) are informed or trained to conduct these activities. The training may be conducted by the permittee or by outside trainers.

(c) Additional Requirements for Level 3 and 4 small MS4s

In addition to the requirements described in Parts III.B.3(b)(1)-(7) above, permittees who operate level 3 and 4 small MS4s shall meet the following requirements:

(1) Construction Site Inventory

Permittees who operate level 3 and 4 small MS4s shall maintain an inventory of all permitted active public and private construction sites, that result in a total land disturbance of one or more acres or that result in a total land disturbance of less than one acre if part of a larger common plan or development or sale. Notification to the small MS4 should be made by submittal of a copy of an NOI or a small construction site notice. The permittee shall make this inventory available to the TCEQ upon request.

In the absence of proper management, construction sites can release significant amounts of sediment into storm water and eventually into a municipality's storm water system. Other construction site activities such as storage and handling of construction materials also can release pollutants into the storm water system. In addition, increases in compaction and impervious surfaces at construction sites impact storm water. Pollutants from construction sites that may impact storm water runoff include sediment, solid and sanitary wastes, fertilizer, pesticides, oil and grease, truck washout debris, and construction debris.

The Phase II Final Rule required that the City of Jacinto City develop, implement, and enforce a program to reduce pollutants in storm water runoff from construction sites within their jurisdiction. Construction activities to be regulated under this program include activities that would result in a land disturbance greater than or equal to 1 acre in size. In accordance with EPA-recommended guidelines for program development, the City of Jacinto City construction site storm water runoff control program is composed of the following components:

- an ordinance or other regulatory mechanism that requires the implementation of proper erosion and sediment controls, and controls to other wastes, on applicable construction sites
- requirements for construction site operators to implement appropriate erosion and sediment control BMPs
- procedures for construction site operators to control waste, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at construction sites that may cause adverse impacts on water quality
- procedures for site plan review that incorporate consideration of potential water quality impacts
- procedures for receipt and consideration of information submitted by the public
- procedures for site inspection and enforcement of control measures
- BMPs and measurable goals for this minimum control measure

The objective of this program is to provide a system through which development and construction activities can be monitored for storm water impacts. The City provides information regarding construction storm water regulations to all construction projects during plan review/permitting and inspects active construction sites within the City. Because the City is almost entirely developed, there is minimal construction activity within the MS4 that is greater than 1 acre and therefore, this program will continue to be evaluated for effectiveness when/if new construction projects begin within in the MS4.

The City's in accordance with ***40 CFR 122.34 (b)(4), Develop, implement and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Program must include: the development and implementation of (at a minimum) an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, requirements for construction site operators to implement appropriated erosion and sediment control BMPs, requirements for construction site operators to control waste at the construction site, procedures for site plan review which incorporate consideration of potential water quality impacts, procedures for receipt and consideration of information submitted by the public.***

Best Management Practices and Measurable Goals

BMP	Measurable Goals	2019	2020	2021	2022	2023
Ordinance for erosion, sediment controls and controls for other wastes at construction sites	Review Ordinance effectiveness and update if needed	X				
Provide information regarding requirements for construction site storm water controls during site plan review	Evaluate brochure(s) for effective message and update as needed	X	X			
	Distribute brochure during site plan review	X	X	X	X	X
Reporting/Tracking of construction site complaints	Evaluate tracking method and follow-up practices and update as necessary implement response program	X	X			
Construction site inspection program and enforcement of control measures	Evaluate existing program	X	X			
	Inspect 50% of construction activities	X	X	X	X	X

Ordinance for Erosion and Sediment Controls

The City of Jacinto City has developed an Erosion and Sediment Control Plan. This plan has been implemented by ordinance as a standard for architects, engineers, and developers. The City adopted the Erosion and Sediment Control (Ordinance 2008-8) in 2008 which establishes the regulation of construction storm water discharges to the storm water system to the maximum extent practicable as required by federal and state law. This ordinance establishes methods for controlling the introduction of pollutants into MS4 in order to comply with requirements of the TPDES permit process.

Provide Information for Construction Site Storm Water Controls

The City has developed a public education brochure to inform the public and construction site operators of the requirements for Construction Site Storm Water Controls. The brochure is distributed during the site plan review. The brochure is also available at City Hall.

Reporting Mechanism for Construction Site Problems

The City has a phone line in the public works department dedicated to the public for reporting construction site problems. This reporting mechanism combined with one for reporting illicit discharges. This facilitates the ability of the public to provide information that will assist in detection of problem discharges. The City has a system where all complaints reported to the Public Works Department generate a work order that is forwarded to the designated department(s) and when a response to the complaint is completed the work order is closed. The work orders pertaining to the MS4 are tracked.

Construction Site Inspection Program

The City has developed a Construction Site Inspection Program that follows the criteria within the TPDES Permit TXR150000. The City has trained plan review staff and inspection staff so that they can inform applicants, review plans for compliance, and inspect the sites for implementation of BMPs during and after construction that will prevent discharges to the MS4. The City staff implementing construction storm water regulations are provided training and refresher courses at least once each year during the permit period. Implementation of this program will include training the plan review staff and inspection staff so that they can inform the applicant, review plans for compliance, and inspect the sites for implementation of BMPs during and after construction that will prevent discharges to the MS4. Once the training materials are developed, inspectors will be provided with training. The City will inspect a minimum of 50% of construction activities annually.

MCM 4: POST-CONSTRUCTION RUNOFF CONTROL

Introduction and Regulatory Requirements

From TPDES General Permit TXR040000:

(a) Post-Construction Stormwater Management Program

(1) All permittees shall develop, implement and enforce a program, to the extent allowable under state, federal, and local law, to control stormwater discharges from new development and redeveloped sites that discharge into the small MS4 that disturb one acre or more, including projects that disturb less than one acre that are part of a larger common plan of development or sale. The program must be established for private and public development sites. The program may utilize an offsite mitigation and payment in lieu components to address this requirement.

Existing permittees shall assess program elements that were described in the previous permit, modify as necessary, to continue reducing the discharge of pollutants from the MS4 to the MEP. New elements must be fully implemented by the end of this permit term and newly regulated permittees shall have the program fully implemented by the end of the permit term.

(2) All permittees shall use, to the extent allowable under state, federal, and local law and local development standards, an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects. The permittees shall establish, implement, and enforce a requirement, that owners or operators of new development and redeveloped sites design, install, implement, and maintain a combination of structural and non-structural BMPs appropriate for the community and that protects water quality. Structural controls may include practices such as rainwater harvesting, rain gardens, permeable pavement, and vegetated swales; which are considered to be low impact development practices or green infrastructure BMPs. If the construction of permanent structures is not feasible due to space limitations, health and safety concerns, cost effectiveness, or highway construction codes, the permittee may propose an alternative approach to TCEQ. Newly regulated permittees shall have the program element fully implemented by the end of the permit term.

(b) Requirements for all Permittees

All permittees shall include the requirements described below in Parts III.B.4.(b)(1)-(3)

(1) All permittees shall review and update as necessary, the SWMP and MCM implementation procedures required by Part III.A.2.. Any changes must be included in the annual report. Such written procedures must be maintained either on site or in the SWMP and made available for inspection by TCEQ.

(2) All permittees shall document and maintain records of enforcement actions and make them available for review by the TCEQ.

(3) Long-Term Maintenance of Post-Construction Stormwater Control Measures

All permittees shall, to the extent allowable under state, federal, and local law, ensure the long-term operation and maintenance of structural stormwater control measures installed through one or both of the following approaches:

a. Maintenance performed by the permittee. See Part III.B.5

b. Maintenance performed by the owner or operator of a new development or redeveloped site under a maintenance plan. The maintenance plan must be filed in the real property records of the county in which the property is located. The permittee shall require the owner or operator of any new development or redeveloped site to develop and implement a maintenance plan addressing maintenance requirements for any structural control measures installed on site. The permittee shall require operation and maintenance performed is documented and retained on site, such as at the offices of the owner or operator, and made available for review by the small MS4

(c) Additional Requirements for Level 4 small MS4s

In addition to the requirements described in Parts III.B.5(b)(1)-(3) above, permittees who operate level 4 small MS4s shall meet the following requirements:

(1) Inspections - Permittees who operate level 4 small MS4s shall develop and implement an inspection program to ensure that all post construction stormwater control measures

are operating correctly and are being maintained as required consistent with its applicable maintenance plan. For small MS4s with limited enforcement authority, this requirement applies to the structural controls owned and operated by the small MS4 or its contractors that perform these activities within the small MS4's regulated area.

a. Inspection Reports - The permittee shall document its inspection findings in an inspection report and make them available for review by the TCEQ.

(d) Requirements and Control Measures

The intent of post-construction runoff control is to assure that storm water runoff from developed land does not negatively impact receiving streams, either through hydrologic impacts or pollutant discharges. As land is developed, it becomes more impervious. Vegetation in open fields and forests is replaced with paved surfaces and rooftops. This results in more rainfall becoming storm water runoff. In addition, conveyance systems are installed to drain the site more efficiently resulting in storm water runoff with more energy than the runoff from undeveloped land. These hydrologic impacts, coupled with the increased concentration of pollutants contained in storm water runoff from developed land use, result in degradation of the water resources to which the storm water is discharged.

The City began implementing a Post Construction Runoff Control Program during the previous permit period. The existing plan addresses storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale that will result in disturbance of one or more acres, that discharge into the storm water system. The City program was designed to ensure that controls are in place that would prevent or minimize water quality impacts.

The purpose of the post-construction program is to provide a mechanism by which ongoing protection of storm water quality can be addressed and attained. The plan incorporates both structural BMPs (storage practices, infiltration practices, and vegetative practices) as well as non-structural components such as planning procedures and site-based local controls (e.g., buffer strips, riparian zones).

The City adopted the Ordinance for the Control of Post Construction Storm Water Runoff (Ordinance 2008-5) in 2008 which establishes the regulation for new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale that will result in disturbance of one or more acres, that discharge into the storm water system. The objectives of this ordinance are:

(1) Minimize increases in storm water runoff from any development in order to reduce flooding, silting, increases in stream temperature, and stream bank erosion and maintain the integrity of stream channels;
(2) Minimize increases in non-point source pollution caused by storm water runoff from development which would otherwise degrade local water quality.
(3) Minimize the total annual volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic regime to the maximum extent practicable.
(4) Reduce storm water runoff rates and volumes, soil erosion and non-point source pollution, wherever possible, through storm water management controls

and to ensure that these management controls are properly maintained and pose no threat to public safety.

A copy of the Ordinance for the Control of Post Construction Storm Water Runoff is provided in Appendix 4.

The City's Post Construction Runoff Control Program was also developed in accordance with ***40 CFR 122.34 (b) (5), Develop, implement and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects that are less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Develop and implement strategies which include a combination of structural and/or non-structural BMPs appropriate for your community. Use an ordinance or other regulatory mechanism to address post-construction runoff. Ensure adequate long-term operation and maintenance of BMPs.***

Best Management Practices and Measurable Goals

BMP	Measurable Goals	2019	2020	2021	2022	2023
Post-construction requirements into ordinance(s) criteria	Evaluate Ordinance effectiveness	X	X			
Integrate post-construction requirements into site plan review and inspection programs	Evaluate program and integrate with construction site programs	X	X			
	Implement any changes to program with construction site programs, if needed	X	X	X	X	X

Integrate Post-Construction Requirements into Ordinance Criteria

The City has developed and integrated Post-Construction requirements in an ordinance and updated the City of Jacinto City's Design Criteria manual. These documents have been updated to ensure that post-construction storm water management for new development and redevelopment are addressed. The City will require post-construction runoff best management practices (BMPs) for new development and redevelopment and ensure proper long-term operation and maintenance of BMPs.

Integrate Post-Construction into Site Plan Review and Inspection Program

The City has integrated post-construction storm water quality requirements into site plan review and inspection programs. Permittees are required to inspect post-

construction controls to ensure that control measures are operating correctly and being maintained. Without maintenance, stormwater controls will not be able properly to protect water quality. Because there is very minimal construction within the MS4, the post construction BMPs have not been fully evaluated for effectiveness. The City will continue to evaluate existing procedures and identify needed changes and implement the revised post construction program with the construction site program.

MCM 5: POLLUTION PREVENTION/GOOD HOUSEKEEPING

Introduction and Regulatory Requirements

From TPDES General Permit TXR040000:

(a) Program development

(1) All permittees shall develop and implement an operation and maintenance program, including an employee training component that has the ultimate goal of preventing or reducing pollutant runoff from municipal activities and municipally owned areas including but not limited to park and open space maintenance; street, road, or highway maintenance; fleet and building maintenance; stormwater system maintenance; new construction and land disturbances; municipal parking lots; vehicle and equipment maintenance and storage yards; waste transfer stations; and salt/sand storage locations.

Existing permittees shall assess program elements that were described in the previous permit, modify as necessary, and develop and implement new elements, as necessary, to continue reducing the discharges of pollutants from the MS4 to the MEP. New elements must be fully implemented by the end of this permit term and newly regulated permittees shall have the program fully implemented by the end of this permit term. See also Part III.A.1.(c))

(b) Requirements for all Permittees

All permitees shall include the requirements described below in Parts III.B.5.(1)-(6) in the program:

(1) Permittee-owned Facilities and Control Inventory

All permittees shall develop and maintain an inventory of facilities and stormwater controls that it owns and operates within the regulated area of the small MS4. If feasible, the inventory may include all applicable permit numbers, registration numbers, and authorizations for each facility or controls. The inventory must be available for review by TCEQ and must include, but is not limited, to the following, as applicable:

a. Composting facilities;

b. Equipment storage and maintenance facilities;

c. Fuel storage facilities;

d. Hazardous waste disposal facilities;

e. Hazardous waste handling and transfer facilities;

f. Incinerators;

g. Landfills;

h. Materials storage yards;

i. Pesticide storage facilities;

j. Buildings, including schools, libraries, police stations, fire stations, and office buildings;

k. Parking lots;

l. Golf courses;

m. Swimming pools;

n. Public works yards;

o. Recycling facilities;

p. Salt storage facilities;

q. Solid waste handling and transfer facilities ;

r. Street repair and maintenance sites;

s. Vehicle storage and maintenance yards;

t. Structural stormwater controls.

(2) Training and Education

All permittees shall inform or train appropriate employees involved in implementing pollution prevention and good housekeeping practices. All permittees shall maintain a training attendance list for inspection by TCEQ when requested.

(3) Disposal of Waste Material - Waste materials removed from the small MS4 must be disposed of in accordance with 30 TAC Chapters 330 or 335, as applicable.

(4) Contractor Requirements and Oversight

a. Any contractors hired by the permittee to perform maintenance activities on permittee-owned facilities must be contractually required to comply with all of the stormwater control measures, good housekeeping practices, and facility-specific stormwater management operating procedures described in Parts III B.5.(2)-(6).

b. All permittees shall provide oversight of contractor activities to ensure that contractors are using appropriate control measures and SOPs. Oversight procedures must be developed before the end of the permit term and maintained on site and made available for inspection by TCEQ.

(5) Municipal Operation and Maintenance Activities

a. Assessment of permittee-owned operations

All permittees shall evaluate operation and maintenance (O&M) activities for their potential to discharge pollutants in stormwater, including but not limited to:

(i) Road and parking lot maintenance may include such areas as pothole repair, pavement marking, sealing, and re-paving;

(ii) Bridge maintenance may include such areas as re-chipping, grinding, and saw cutting;

(iii) Cold weather operations, including plowing, sanding, and application of deicing and anti-icing compounds and maintenance of snow disposal areas;

(iv) Right-of-way maintenance, including mowing, herbicide and pesticide application, and planting vegetation;

b. All permittees shall identify pollutants of concern that could be discharged from the above O&M activities (for example, metals; chlorides; hydrocarbons such as benzene, toluene, ethyl benzene, and xylenes; sediment; and trash).

c. All permittees shall develop and implement a set of pollution prevention measures that will reduce the discharge of pollutants in stormwater from the above activities. These pollution prevention measures may include the following examples:

(i) Replacing materials and chemicals with more environmentally benign materials or methods;

(ii) Changing operations to minimize the exposure or mobilization of pollutants to prevent them from entering surface waters;

(iii) Placing barriers around or conducting runoff away from deicing chemical storage areas to prevent discharge into surface waters.

d. Inspection of pollution prevention measures - All pollution prevention measures implemented at permittee-owned facilities must be visually inspected at a frequency determined by the permittee to ensure they are working properly. A log of inspections must be maintained and made available for review by the TCEQ upon request.

(6) Structural Control Maintenance

If BMPs include structural controls, maintenance of the controls must be performed at a frequency determined by the permittee and consistent with maintaining the effectiveness of the BMP.

(c) Additional Requirements for Level 3 and 4 small MS4s:

In addition to the requirements described in Parts.B.5.(b)(1)-(6) above, permittees who operate level 3 or 4 small MS4s shall meet the following requirements:

(1) Storm Sewer System Operation and Maintenance

a. Permittees who operate level 3 or 4 small MS4s shall develop and implement an O&M program to reduce to the maximum extent practicable the collection of pollutants in catch basins and other surface drainage structures.

b. Permittees who operate level 3 or 4 small MS4s shall develop a list of potential problem areas. The permittees shall identify and prioritize problem areas for increased inspection (for example, areas with recurrent illegal dumping).

(2) Operation and Maintenance Program to Reduce Discharges of Pollutants from Roads

Permittees who operate level 3 or 4 small MS4s shall implement an O&M program that includes, if feasible and practicable, a street sweeping and cleaning program, or an equivalent BMP such as an inlet protection program, which must include an implementation schedule and a waste disposal procedure. The basis for the decision must be included in the SWMP. If a street sweeping and cleaning program is implemented, the permittee shall evaluate the following permittee-owned and operated areas for the program: streets, road segments, and public parking lots

including, but not limited to, high traffic zones, commercial and industrial districts, sport and event venues, and plazas, as well as areas that consistently accumulate high volumes of trash, debris, and other stormwater pollutants.

a. Implementation schedules – If a sweeping program is implemented, the permittee shall sweep the areas in the program (for example, the streets, roads, and public parking lots) in accordance with a frequency and schedule determined in the permittee's O&M program.

b. For areas where street sweeping is technically infeasible (for example, streets without curbs), the permittee shall focus implementation of other trash and litter control procedures, or provide inlet protection measures to minimize pollutant discharges to storm drains and creeks.

c. Sweeper Waste Material Disposal – If utilizing street sweepers, the permittee shall develop a procedure to dewater and dispose of street sweeper waste material and shall ensure that water and material will not reenter the small MS4.

(3) Mapping of Facilities

Permittees who operate level 3 or 4 small MS4s shall, on a map of the area regulated under this general permit, identify where the permittee-owned and operated facilities and stormwater controls are located.

(4) Facility Assessment

Permittees who operate level 3 or 4 small MS4s shall perform the following facility assessment in the regulated portion of the small MS4 operated by the permittee:

a. Assessment of Facilities' Pollutant Discharge Potential - The permittee shall review the facilities identified in Part III.B.5.(b) once per permit term for their potential to discharge pollutants into stormwater. Regular inspections will allow inspectors to observe different types of operations that occur at different times of the year and ensure that corrective action can be taken where necessary to improve stormwater controls.

b. Identification of high priority facilities - Based on the Part III.B.5.(c)(2)a. assessment, the permittee shall identify as high priority those facilities that have a high potential to generate stormwater pollutants and shall document this in a list of these facilities. Among the factors that must be considered in giving a facility a high priority ranking are the amount of urban pollutants stored at the site, the identification of improperly stored materials, activities that must not be performed outside (for example, changing automotive fluids, vehicle washing), proximity to waterbodies, proximity to sensitive aquifer recharge features, poor housekeeping practices, and discharge of pollutant(s) of concern to impaired water(s). High priority facilities must include, at a minimum, the permittee's maintenance yards, hazardous waste facilities, fuel storage locations, and any other facilities at which chemicals or other materials have a high potential to be discharged in stormwater.

c. Documentation of Assessment Results - The permittee shall document the results of the assessments and maintain copies of all site evaluation checklists used to conduct the assessments. The documentation must include the results of the permittee's initial assessment, and any identified deficiencies and corrective actions taken.

(5) Development of Facility Specific SOPs

Permittees who operate level 3 or 4 small MS4s shall develop facility specific stormwater management SOPs. The permittee may utilize existing plans or documents that may contain the following required information:

a. For each high priority facility identified in Part III.B.5.(c)(4)b., the permittee shall develop a SOP that identifies BMPs to be installed, implemented, and maintained to minimize the discharge of pollutants in stormwater from each facility.

b. A hard or electronic copy of the facility-specific stormwater management SOP (or equivalent existing plan or document) must be maintained and be available for review by the TCEQ. The SOP must be kept on site when possible and must be updated as necessary.

(6) Stormwater Controls for High Priority Facilities

Permittees who operate level 3 or 4 small MS4s shall implement the following stormwater controls at all high priority facilities identified in Part III.B.5.(c)(4)b.. A description of BMPs developed to comply with this requirement must be included in each facility specific SOP:

a. General good housekeeping – Material with a potential to contribute to stormwater pollution should be sheltered from exposure to stormwater when feasible.

b. De-icing and anti-icing material storage - The permittee shall ensure, to the MEP, that stormwater runoff from storage piles of salt and other de-icing and anti-icing materials is not discharged; or shall ensure that any discharges from the piles are authorized under a separate discharge permit.

c. Fueling operations and vehicle maintenance - The permittee shall develop SOPs (or equivalent existing plans or documents) which address spill prevention and spill control at permittee-owned and operated vehicle fueling, vehicle maintenance, and bulk fuel delivery facilities.

d. Equipment and vehicle washing - The permittee shall develop SOPs that address equipment and vehicle washing activities at permittee-owned and operated facilities. The discharge of equipment and vehicle wash water to the small MS4 or directly to receiving waters from permittee-owned facilities is not authorized under this general permit. To ensure that wastewater is not discharged under this general permit, the permittee's SOP may include installing a vehicle wash reclaim system, capturing and hauling the wastewater for proper disposal, connecting to sanitary sewer (where applicable and approved by local authorities), ceasing the washing activity, or applying for and obtaining a separate TPDES permit.

(7) Inspections

Permittees who operate level 3 or 4 small Ms4s shall develop and implement an inspection program, which at a minimum must include periodic inspections of high priority permittee-owned facilities. The results of the inspections and observations must be documented and available for review by the TCEQ.

(d) Additional Requirements for Level 4 small MS4s:

In addition to all the requirements described in Parts III.B.5(b) and III.B.5.(c) above, permittees who operate level 4 small MS4s shall meet the following requirements:

(1) Pesticide, Herbicide, and Fertilizer Application and Management

a. Landscape maintenance - The permittee shall evaluate the materials used and activities performed on public spaces owned and operated by the permittee such as

parks, schools, golf courses, easements, public rights of way, and other open spaces for pollution prevention opportunities. Maintenance activities for the turf landscaped portions of these areas may include mowing, fertilization, pesticide application, and irrigation. Typical pollutants include sediment, nutrients, hydrocarbons, pesticides, herbicides, and organic debris.

b. The permittee shall implement the following practices to minimize landscaping-related pollutant generation with regard to public spaces owned and operated by the permittee:

(i) Educational activities, permits, certifications, and other measures for the permittee's applicators and distributors.

(ii) Pest management measures that encourage non-chemical solutions where feasible. Examples may include:

(a) Use of native plants or xeriscaping;

(b) Keeping clippings and leaves out the small MS4 and the street by encouraging mulching, composting, or landfilling;

(c) Limiting application of pesticides and fertilizers if precipitation is forecasted within 24 hours, or as specified in label instructions;

(d) Reducing mowing of grass to allow for greater pollutant removal, but not jeopardizing motorist safety.

c. The permittee shall develop schedules for chemical application in public spaces owned and operated by the permittee that minimize the discharge of pollutants from the application due to irrigation and expected precipitation.

d. The permittee shall ensure collection and proper disposal of the permittee's unused pesticides, herbicides, and fertilizers.

(2) Stormwater Pollutant Removal

a. The permittee is required to evaluate flood control projects for their ability to remove pollutants from stormwater, similar to requirements in Phase 1 MS4 permits. (Permit Part III.B.5)). An assessment of their flood control projects shall be conducted to evaluate their impacts on receiving waters and determine if existing structures could be retrofitted. New flood control projects must be designed, constructed, and maintained to provide erosion control and pollutant control for storm water. (e) Post-Construction Stormwater Management Program

This section within the SWMP was developed to establish an operation and maintenance program. According to the guidelines, the operation and maintenance program must have the ultimate goal of identifying methods and practices for conducting municipal operations in a manner to prevent or reduce pollution in storm water runoff. Good Housekeeping and Best Management Practices Controls are practiced in City operations to reduce or eliminate the discharge of pollutants when runoff from municipal operations is determined to be a significant contributor of pollution to the MS4. Examples of municipal operations and municipally owned areas include, but are not limited to:

- park and open space maintenance;
- street, road, and highway maintenance;
- fleet and building maintenance;

- storm water system maintenance;
- new construction and land disturbances.
- municipal parking lots;
- vehicle and equipment maintenance and storage yards;
- waste transfer stations; and
- salt/sand storage locations.

A comprehensive training program was developed for all employees responsible for municipal operations subject to the pollution prevention/good housekeeping program. The training program includes training materials directed at preventing and reducing storm water pollution from municipal operations. Examples or descriptions of training materials being used are included in the SWMP as Appendix 5.

If best management practices include structural controls, maintenance of the controls must be performed at a frequency determined by the City and consistent with maintaining the effectiveness of the BMP. The SWMP lists all of the following:

- maintenance activities;
- maintenance schedules; and
- long-term inspection procedures for controls used to reduce floatables and other pollutants.

Waste removed from the MS4, from structural controls, or collected as a result of municipal operations and maintenance activities is disposed of properly. A section within the SWMP was developed to include procedures for the proper disposal of waste, including:

- dredge spoil;
- accumulated sediments;
- floatables; and
- Municipal Operations and Industrial Activities

The SWMP includes a list of all:

- municipal operations that are subject to the operation, maintenance, or training program developed under the conditions of this section; and
- municipally owned or operated industrial activities that are subject to TPDES storm water regulations.

Also in accordance with ***40 CFR 122.34 (b) (6), Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.***

Best Management Practices and Measurable Goals

BMP	Measurable Goals	2019	2020	2021	2022	2023
Provide spill response and prevention training at city maintenance facility	Evaluate curriculum	X				
	Provide training to City employees	X	X	X	X	X
Evaluate City maintenance facility	Observe pollution prevention procedures, good housekeeping and make recommendations	X	X	X	X	X
	Implement recommendations, if needed	X	X	X	X	X

Provide Training at City Maintenance Facility

The City has developed a curriculum and provides training to applicable city employees in spill response procedures at least once per year. The City also provides spill response kits in convenient locations at the facility.

Evaluate City Maintenance Facility

The City presently implements a series of BMPs to address activities at the various operational areas of the Public Works Facility. Such activities include designated areas for equipment cleaning and tank clean-outs, and pollution prevention training. In an effort to improve upon the present program, the City periodically evaluates the activities listed in the table below for storm water impact.

Urban Runoff Concerns and Their Sources

Source/Activity	Urban Runoff Concern
Vehicle washing	Discharge to storm drains
Changing auto fluids	Spills of fluids, especially in outdoor areas
Parked vehicles and equipment	Fuel leaks and drips in outdoor areas
Outdoor waste/materials storage	Release/spill of stored materials in uncovered areas with no secondary containment
Illicit connections	Floor drains from work areas and covered areas discharging to storm drains or dry wells
Unpaved/compacted surfaces	Release of dust and sediment due to vehicle movement across such surfaces

BMPs have been implemented for the areas of concern discussed above, but these areas will be evaluated for storm water quality impacts and identification of areas for improvement. The City will conduct assessments of each municipal operation to evaluate potential storm water impacts during each year of the permit period.

MCM 6: INDUSTRIAL STORMWATER SOURCES

Introduction and Regulatory Requirements

From TPDES General Permit TXR040000:

(a) Permittees operating a level 4 small MS4 shall include the requirements described below in Part III. B.6.(1) – this requirement is only applicable to level 4 MS4s

(1) Permittees who operate level 4 small MS4s shall identify and control pollutants in stormwater discharges to the small MS4 from permittee's landfills; other treatment, storage, or disposal facilities for municipal waste; hazardous waste treatment, storage, disposal and recovery facilities and facilities that are subject to Emergency Planning and Community Right-to-Know Act (EPCRA) Title III, Section 313; and any other industrial or commercial discharge the permittee determines are contributing a substantial pollutant loading to the small MS4. The program must include priorities and procedures for inspections and implementing control measures for discharges.

The City is operating a Level 2 small MS4 therefore this MCM does not apply to the SWMP. However, the City has adopted a Storm Water Discharged Associated with Industrial Activity Ordinance (Ordinance 2008-7), regulating industrial discharges into the storm water system.

MCM 7 : MS4-OPERATED CONSTRUCTION SITES

Introduction and Regulatory Requirements

From TPDES General Permit TXR040000:

(a) Permittees operating a small MS4 have an option to discharge stormwater runoff from construction sites under the authority of the small MS4 general permit, where the small MS4 is the operator of the construction activity.

(1) Stormwater Runoff from Concrete Batch Plants

a. The benchmark value for total suspended solids for discharges from concrete batch plants under MCM 7 from 100 milligrams per liter to 50 mg/L to be consistent with the Sector E in the TPDES Multi Sector General Permit (MSGP) TXR050000, issued on August 14, 2016, and the TPDES Construction General Permit (CGP) TXR150000, issued on March 5, 2018. (Permit Part VI.E));

(2) Effluent Limits

a. Added effluent limits for regulated construction sites based on the federal Effluent Limitation Guidelines (ELGs) at 40 CFR Part 450.21 that consist of a series of BMPs. (Permit Part VI.J.7)).

The City does not utilize the optional MCM 7 for construction activities where the small MS4 is the site operator.

Transfer of Ownership, Operational Authority, Responsibility for SWMP Implementation

Implementation of the SWMP in new areas must be done as expeditiously as possible but not later than three years from addition of the new area. Within 90 days of transfer of ownership, operational control, or responsibility for SWMP implementation the MS4 must have developed a plan for implementing the SWMP. (Part II.E.7 in the permit)).

SUMMARY

The City of Jacinto City's Storm Water Management Plan was developed in order to comply with the TPDES and Environmental Protection Agency's Phase II requirements. The plan will be reviewed, updated and revised each year, as necessary to maintain the goals of: reducing the discharge of pollutant to the "maximum extent practicable" (MEP), protecting the water quality, and satisfying the appropriate water quality requirements of the Clean Water Act.

The best management practices (BMPs) will be reviewed each permit cycle in December and January to verify the measurable goals are being met. At that time, if a measurable goal is not being met, the BMP will be improved to better meet our goals. The improvement to the SWMP or to any BMP will be included in the annual report. The change of the BMP will be made to increase the effectiveness of the measurable goals. All additions or revisions will be submitted to the Texas Commission on Environmental Quality (TCEQ).

To comply with the permit requirements a copy of the TPDES permit, the Storm Water Management Program, the NOI and a copy of each annual report will be kept on file at the City Hall in Jacinto City, Texas. Additionally, the SWMP and annual reports are posted on the City's website at: www.jacintocity-tx.gov.

Each permit cycle will be summarized in an annual report. The annual report is required to include the status of our compliance with the permit conditions, an assessment of the appropriateness of the identified BMPs, progress toward achieving the statutory goal of reducing the discharge of pollutants to the MEP, and the measurable goals for each of the minimum control measures. Also required in the annual report are the results of information collected and analyzed, including monitoring data used to assess the success of the program at reducing the discharge of pollutants to the maximum extent practicable. The annual report will also include a summary of the storm water activities the city plans to undertake during the next reporting cycle.

The City must sign and certify that annual report in accordance with Part VII.E.1.(a) of the General Permit, and the annual report shall be submitted to the TCEQ by March 31 (of the following year) for each year of the permit term electronically to:
http://www.tceq.state.tx.us

The goals of reducing the discharge of pollutant to the "maximum extent practicable" (MEP), protecting the water quality, and satisfying the appropriate water quality requirements of the Clean Water Act depends on the success of the Storm Water Management Program.

APPENDIX 1 – PUBLIC EDUCATION, OUTREACH, AND INVOLVMENT

PUBLIC EDUCATION & OUTREACH –SAMPLES OF OUTREACH MATERIALS

EPA
United States
Environmental Protection
Agency

EPA 841-F-03-003

Protecting Water Quality *from* URBAN RUNOFF

Clean Water Is Everybody's Business

In urban and suburban areas, much of the land surface is covered by buildings and pavement, which do not allow rain and snowmelt to soak into the ground. Instead, most developed areas rely on storm drains to carry large amounts of runoff from roofs and paved areas to nearby waterways. The stormwater runoff carries pollutants such as oil, dirt, chemicals, and lawn fertilizers directly to streams and rivers, where they seriously harm water quality. To protect surface water quality and groundwater resources, development should be designed and built to minimize increases in runoff.

The most recent National Water Quality Inventory reports that runoff from urbanized areas is the leading source of water quality impairments to surveyed estuaries and the third-largest source of impairments to surveyed lakes.

Did you know that because of impervious surfaces like pavement and rooftops, a typical city block generates more than 5 times more runoff than a woodland area of the same size?

How Urbanized Areas Affect Water Quality

Increased Runoff

The porous and varied terrain of natural landscapes like forests, wetlands, and grasslands traps rainwater and snowmelt and allows them to filter slowly into the ground. In contrast, impervious (nonporous) surfaces like roads, parking lots, and rooftops prevent rain and snowmelt from infiltrating, or soaking, into the ground. Most of the rainfall and snowmelt remains above the surface, where it runs off rapidly in unnaturally large amounts.

Storm sewer systems concentrate runoff into smooth, straight conduits. This runoff gathers speed and erosional power as it travels underground. When this runoff leaves the storm drains and empties into a stream, its excessive volume and power blast out streambanks, damaging streamside vegetation and wiping out aquatic habitat. These increased storm flows carry sediment loads from construction sites and other denuded surfaces and eroded streambanks. They often carry higher water temperatures from streets, roof tops, and parking lots, which are harmful to the health and reproduction of aquatic life.

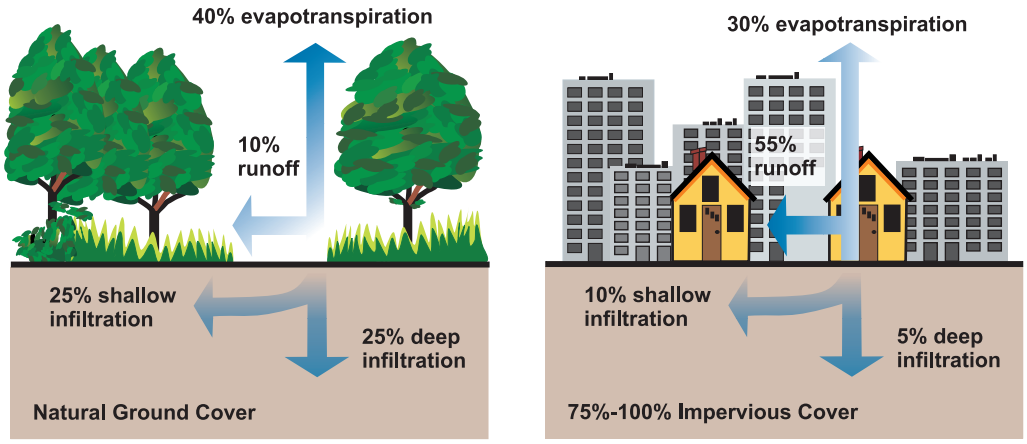
The loss of infiltration from urbanization may also cause profound groundwater changes. Although urbanization leads to great increases in flooding during and immediately after wet weather, in many instances it results in lower stream flows during dry weather. Many native fish and other aquatic life cannot survive when these conditions prevail.

Increased Pollutant Loads

Urbanization increases the variety and amount of pollutants carried into streams, rivers, and lakes. The pollutants include:

- Sediment
- Oil, grease, and toxic chemicals from motor vehicles
- Pesticides and nutrients from lawns and gardens
- Viruses, bacteria, and nutrients from pet waste and failing septic systems
- Road salts
- Heavy metals from roof shingles, motor vehicles, and other sources
- Thermal pollution from dark impervious surfaces such as streets and rooftops

These pollutants can harm fish and wildlife populations, kill native vegetation, foul drinking water supplies, and make recreational areas unsafe and unpleasant.



Relationship between impervious cover and surface runoff. Impervious cover in a watershed results in increased surface ruunoff. As little as 10 percent impervious cover in a watershed can result in stream degradation.

Managing Urban Runoff

What Homeowners Can Do

To decrease polluted runoff from paved surfaces, households can develop alternatives to areas traditionally covered by impervious surfaces. Porous pavement materials are available for driveways and sidewalks, and native vegetation and mulch can replace high maintenance grass lawns. Homeowners can use fertilizers sparingly and sweep driveways, sidewalks, and roads instead of using a hose. Instead of disposing of yard waste, they can use the materials to start a compost pile. And homeowners can learn to use Integrated Pest Management (IPM) to reduce dependence on harmful pesticides.

In addition, households can prevent polluted runoff by picking up after pets and using, storing, and disposing of chemicals properly. Drivers should check their cars for leaks and recycle their motor oil and antifreeze when these fluids are changed. Drivers can also avoid impacts from car wash runoff (e.g., detergents, grime, etc.) by using car wash facilities that do not generate runoff. Households served by septic systems should have them professionally inspected and pumped every 3 to 5 years. They should also practice water conservation measures to extend the life of their septic systems.

Controlling Impacts from New Development

Developers and city planners should attempt to control the volume of runoff from new development by using low impact development, structural controls, and pollution prevention strategies. Low impact development includes measures that conserve natural areas (particularly sensitive hydrologic areas like riparian buffers and infiltrable soils); reduce development impacts; and reduce site runoff rates by maximizing surface roughness, infiltration opportunities, and flow paths.

Controlling Impacts from Existing Development

Controlling runoff from existing urban areas is often more costly than controlling runoff from new developments. Economic efficiencies are often realized through approaches that target "hot spots" of runoff pollution or have multiple benefits, such as high-efficiency street sweeping (which addresses aesthetics, road safety, and water quality). Urban planners and others responsible for managing urban and suburban areas can first identify and implement pollution prevention strategies and examine source control opportunities. They should seek out priority pollutant reduction opportunities, then protect natural areas that help control runoff, and finally begin ecological restoration and retrofit activities to clean up degraded water bodies. Local governments are encouraged to take lead roles in public education efforts through public signage, storm drain marking, pollution prevention outreach campaigns, and partnerships with citizen groups and businesses. Citizens can help prioritize the clean-up strategies, volunteer to become involved in restoration efforts, and mark storm drains with approved "don't dump" messages.

Related Publications

Turn Your Home into a Stormwater Pollution Solution!
www.epa.gov/nps

This web site links to an EPA homeowner's guide to healthy habits for clean water that provides tips for better vehicle and garage care, lawn and garden techniques, home improvement, pet care, and more.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas
www.epa.gov/owow/nps/urbanmm

This technical guidance and reference document is useful to local, state, and tribal managers in implementing management programs for polluted runoff. Contains information on the best available, economically achievable means of reducing pollution of surface waters and groundwater from urban areas.

Onsite Wastewater Treatment System Resources
www.epa.gov/owm/onsite

This web site contains the latest brochures and other resources from EPA for managing onsite wastewater treatment systems (OWTS) such as conventional septic systems and alternative decentralized systems. These resources provide basic information to help individual homeowners, as well as detailed, up-to-date technical guidance of interest to local and state health departments.

Low Impact Development Center
www.lowimpactdevelopment.org

This center provides information on protecting the environment and water resources through integrated site design techniques that are intended to replicate preexisting hydrologic site conditions.

Stormwater Manager's Resource Center (SMRC)
www.stormwatercenter.net

Created and maintained by the Center for Watershed Protection, this resource center is designed specifically for stormwater practitioners, local government officials, and others that need technical assistance on stormwater management issues.

Strategies: Community Responses to Runoff Pollution
www.nrdc.org/water/pollution/storm/stoinx.asp

The Natural Resources Defense Council developed this interactive web document to explore some of the most effective strategies that communities are using around the nation to control urban runoff pollution. The document is also available in print form and as an interactive CD-ROM.

For More Information

U.S. Environmental Protection Agency
Nonpoint Source Control Branch (4503T)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

www.epa.gov/nps

February 2003

Brochures

SWIM Brochure (English)

http://www.cleanwaterways.org/downloads/brochures/SWIM brochure english.pdf

(Spanish)- PDF 6MB

http://www.cleanwaterways.org/downloads/brochures/SWIM Brochure 2008 Spanish.pdf

Recycle Quick Guide (English)

http://www.recycleinfo.org/recycleguide-English.html

(Spanish) - PDF 1.45MB

http://www.recycleinfo.org/introSpanish.html

Pet Waste - PDF 4.6MB

http://www.cleanwaterways.org/downloads/brochures/dogWaste_bro_hiresCS2.pdf

Lawn Care - PDF 6MB

http://www.cleanwaterways.org/downloads/brochures/lawn_bro_hires_pdf2.pdf

Recipes - Less Toxic Alternatives - (English)

http://www.cleanwaterways.org/downloads/brochures/Recipes - Less Toxic Alternatives.pdf

(Spanish) - PDF 170KB

http://www.cleanwaterways.org/downloads/brochures/recipes_less_toxic_alternatives_span.pdf

Fats Oils Greases (FOG) Brochure (English)

PDF 291KB

http://www.cleanwaterways.org/downloads/brochures/FOG_brochure_English.pdf

Grass Clippings - PDF 4.5MB

http://www.cleanwaterways.org/downloads/brochures/Grass Clippings_ENG.pdf

Paint: The Household Paint Planner Brochure (English)

http://www.cleanwaterways.org/downloads/brochures/Paint_The Household Paint Planner Brochure.pdf

(Spanish) - PDF 4MB

http://www.cleanwaterways.org/downloads/brochures/Paint_The Household Paint Planner Brochure_Spanish.pdf

Septic System Brochure (English)

http://www.cleanwaterways.org/downloads/brochures/Septic System Brochure.pdf

(Spanish) - PDF 5MB

http://www.cleanwaterways.org/downloads/brochures/Septic System Brochure_Spanish.pdf

Houston Chronicle Fall 06 Insert - PDF 1.59MB

http://www.cleanwaterways.org/downloads/brochures/Houston Chronicle Insert 2006.pdf

Houston Chronicle Fall 07 Insert - PDF 1MB

http://www.cleanwaterways.org/downloads/brochures/Houston Chronicle Fall 07 Insert.pdf

Commercial Paint Brochure (English)

http://www.cleanwaterways.org/downloads/brochures/Commercial Paint Brochure Eng 2006.pdf

(Spanish) PDF 1.62MB

http://www.cleanwaterways.org/downloads/brochures/Commercial Paint Brochure Span 2006.pdf

Houston Chronicle Spring 07 Insert - PDF 2MB

http://www.cleanwaterways.org/downloads/brochures/Houston Chronicle Spring 07 Insert.pdf

Houston Chronicle Spring 08 Insert - PDF 1MB

http://www.cleanwaterways.org/downloads/brochures/SW HouChron Insert - June 2008.pdf

Houston Chronicle Fall 08 Insert (English)

http://www.cleanwaterways.org/downloads/brochures/Houston Chronicle Fall 08 Eng.pdf

(Spanish) - PDF 2MB

http://www.cleanwaterways.org/downloads/brochures/Houston Chronicle Fall 08 Span.pdf

Houston Chronicle Spring 09/10 Insert (English)

http://www.cleanwaterways.org/downloads/brochures/English Spring Insert 2009.pdf

(Spanish) - PDF 6MB

http://www.cleanwaterways.org/downloads/brochures/Spanish Spring Insert 2009.pdf

Houston Chronicle Spring 11 Insert

(English) - PDF 5MB

http://www.cleanwaterways.org/downloads/brochures/Houston_Chronicle_Spring_11_English.pdf

Professional Brochure (English)

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(Spanish) PDF 1.50MB

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General Brochure (English)

http://www.cleanwaterways.org/downloads/brochures/General Brochure Eng 2006.pdf

(Spanish) - PDF 1.58MB

http://www.cleanwaterways.org/downloads/brochures/General Brochure Span 2006.pdf

Tip Sheet Beach - PDF 6.5MB

http://www.cleanwaterways.org/downloads/brochures/Tip Sheet Beach.pdf

Tip Sheet Dead Fish - PDF 14MB

http://www.cleanwaterways.org/downloads/brochures/Tip Sheet Dead Fish.pdf

Tip Sheet Fishing - PDF 23MB

http://www.cleanwaterways.org/downloads/brochures/Tip Sheet Fishing.pdf

Tip Sheet Flood - PDF 9.5MB

http://www.cleanwaterways.org/downloads/brochures/Tip Sheet Flood.pdf

SWQ Press Kit Inserts - PDF 2MB

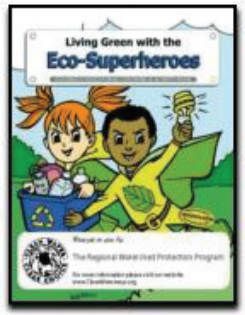
http://www.cleanwaterways.org/downloads/brochures/SWQ Press Kit Inserts 2006.pdf

Power Washing - PDF 3MB

http://www.cleanwaterways.org/downloads/brochures/Power_Washing_brochure.pdf

Residential Green Infrastructure Guide - PDF 2MB

http://www.cleanwaterways.org/downloads/brochures/ResGreenInfrastructure.pdf



Coloring Book: Living green with the Eco-Superheroes - PDF 408KB

http://www.cleanwaterways.org/downloads/brochures/EcoSuperheroes.pdf

Restaurants - Storm Water Best Management Practices (English)

http://www.cleanwaterways.org/downloads/brochures/Restaurant Brochure - Eng.pdf

(Spanish) - PDF 2MB

http://www.cleanwaterways.org/downloads/brochures/Restaurant Brochure - Span.pdf

Additional Outreach Material

Utility Bill Insert - PDF 97KB

http://www.cleanwaterways.org/downloads/outreach_material/Utility_Bill_Insert.pdf

Utility Bill Insert Opt. 2 - PDF 3MB

http://www.cleanwaterways.org/downloads/outreach_material/Utility_Bill_Insert_Opt2.pdf

Lawn Care Payment Envelope - PDF 157KB

http://www.cleanwaterways.org/downloads/outreach_material/Lawn_Care_Payment_Envelope.pdf

Currents Newsletters

Currents Newsletter Winter 2009

https://www.piersystem.com/go/doc/2139/360303/

Currents Mar. 2009 Vol. 15 - PDF 551KB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_March09_Vol.15.pdf

Currents Dec. 2008 Vol. 14 - PDF 1.43MB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_Dec08_vol14.pdf

Currents Sep. 2008 Vol. 13 - PDF 495KB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_Sep08_vol13.pdf

Currents Jun. 2008 Vol. 12 - PDF 528KB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_June08_vol12.pdf

Currents Jan. 2008 Vol. 10 - PDF 1.32MB

http://www.cleanwaterways.org/downloads/Newsletters/Currents Jan_2008_Vol_10.pdf

Currents Mar. 2007 Vol. 9 - PDF 1MB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_March07_Vol9.pdf

Currents Dec. 2006 Vol. 8 - PDF 728KB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_December06_Vol.8.pdf

Currents Sep. 2006 Vol. 7 - PDF 668KB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_September06_Vol.7.pdf

Currents Jun. 2006 Vol. 6 - PDF 751KB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_June06_Vol.6.pdf

Currents Mar. 2006 Vol. 5 - PDF 774KB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_March06_Vol.5.pdf

Currents Dec. 2005 Vol. 4 - PDF 739KB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_December05_Vol.4.pdf

Currents Sep. 2005 Vol. 3 - PDF 914KB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_September05_Vol.3.pdf

Currents Jun. 2005 Vol. 2 - PDF 1MB

http://www.cleanwaterways.org/downloads/Newsletters/Currents_June05_Vol.2.pdf

SWQS Newsletter Mar 2005 Vol. 1- PDF 1.6MB

http://www.cleanwaterways.org/downloads/Newsletters/SWQS Newsletter_March05_Vol.1.pdf

Annual Reports

Annual Report Five: August 1, 2002 - July 31, 2003 - PDF, 828KB

http://www.cleanwaterways.org/downloads/annualreports/Year_5_Annual_Report.pdf

Annual Report Six: August 1, 2003 - July 31, 2004 - PDF, 15.6MB

http://www.cleanwaterways.org/downloads/annualreports/Annual_Report6.pdf

Annual Report Seven: August 1, 2004 - July 31, 2005 - PDF, 21.9MB

http://www.cleanwaterways.org/downloads/annualreports/Annual_Report7.pdf

Annual Report Eight: August 1, 2005 - July 31, 2006 - PDF, 129MB

http://www.cleanwaterways.org/downloads/annualreports/Annual Report Aug. 1, 05 - July, 31, 06.pdf

Annual Report Nine: August 1, 2006 - July 31, 2007 - PDF, 187MB

http://www.cleanwaterways.org/downloads/annualreports/Annual Report Aug. 1, 06 - July 31, 07.pdf

Annual Report Ten: August 1, 2007 - July 31, 2008 - PDF, 197MB

http://www.cleanwaterways.org/downloads/annualreports/Annual Report Aug. 1, 06 - July 31, 07.pdf

Annual Report Eleven: August 1, 2008 – July 31, 2009 – PDF, 341MB

http://www.cleanwaterways.org/downloads/annualreports/Final_Annual_Report_NPDES_Year_11_TPDES_Year_1.pdf

Annual Report Twelve: August 1, 2009 – July 31, 2010 – PDF, 300MB

http://www.cleanwaterways.org/downloads/annualreports/Annual_Report_12_Aug1_2009_to_July31_2010.pdf

Annual Report Thirteen: August 1, 2010 – July 31, 2011 – PDF, 267MB

http://www.cleanwaterways.org/downloads/annualreports/Annual_Report_13_Aug1_2010_to_July31_2011.pdf

WON'T COME OUT

This is a water quality monitoring station.

The nearby stormwater detention basin was excavated for the purpose of flood damage reduction. As an added benefit, while the stormwater is detained, pollutants are cleaned from the water as it passes through the basin. The basin's permanent pools and stormwater treatment wetlands are intended to both filter and settle out pollutants before the water passes downstream.

Our monitoring program enables us to improve the way our projects are designed and implemented based on information obtained from these water quality stations.

LEARN MORE ABOUT STORMWATER QUALITY

CLEAN WATER · CLEAR CHOICE ·

www.cleanwaterways.org

HARRIS COUNTY FLOOD CONTROL DISTRICT

www.hcfcd.org

PUBLIC INVOLVEMENT – INLET MARKING

Storm Drain Marking

Preventing Water Pollution in Your Community

GI-212, PDF version
(revised August 2005)

Contents

Introduction

This manual is a how-to guide for communities interested in starting a Storm Drain Marking Program to reduce nonpoint source pollution. The manual covers a range of methods for labeling storm drain inlets and offers examples of programs operating in selected Texas cities. The Texas Commission on Environmental Quality (TCEQ) does not endorse one labeling approach over another, and the manual does not represent a complete catalog of programs in Texas. Its purpose is to give cities and community groups the tools to launch a successful citizen-education effort to reduce dumping and protect local water supplies.

What Is Nonpoint Source Pollution?

Nonpoint source (NPS) pollution is caused when rainfall carries pollutants from a wide variety of sources into surface water or ground water. The term distinguishes pollution that is diffuse in its origins from pollution that is traceable to a single "point source," like a factory or wastewater treatment plant.

What Are Nonpoint Source Pollutants?

Many products and materials we use in daily life become nonpoint source pollutants when they reach a body of water. NPS pollutants can be chemicals (like pesticides and fertilizers), automotive products (like gasoline, motor oil, antifreeze and road salt) or common household items (like paint and solvents). They can even be natural materials like soil, animal wastes, grass clippings, and fallen leaves.

How Do NPS Pollutants Reach Waterways?

Sometimes NPS pollutants wash directly into a creek, river, lake or bay. Disturbing soil, for example, can send dirt and debris directly into nearby creeks and streams. Agricultural activities also may generate NPS pollutants when fertilizers, pesticides, livestock wastes, and eroded soil are not managed properly and are allowed to wash directly into nearby surface waters.

In urban areas, the most common route for NPS pollutants is the network of storm drains that carry excess rain water away from streets and directly into waterways. Rainfall can wash NPS pollutants from lawns and streets into the storm

drains, or they can be dumped there deliberately by people who are careless about the environment or who mistakenly think the storm drains flow into a water treatment plant.

How Do NPS Pollutants Affect Water Quality?

Just as the nature of NPS pollutants varies widely, so do their effects on water quality. Pesticides, antifreeze, and motor oil contain toxic chemicals that are harmful to humans, animals, and plants. Just one quart of motor oil can ruin the quality of 250,000 gallons of water. Certain fertilizers, pet and livestock wastes, and decomposing leaves and grass can cause large amounts of algae to grow, which depletes the oxygen level in the water and can lead to fish kills. Animal wastes also introduce harmful bacteria and other pathogens into water supplies. Sediment from soil erosion or construction activity can reduce the clarity of water and block sunlight needed by aquatic plants and fish. Litter and debris, particularly plastic items that float, spoil the beauty of lakes, rivers and bays and can be harmful to fish and birds who mistake them for food.

What Is Storm Drain Marking and Why Is It Necessary?

Many people mistakenly believe storm drain inlets empty to water treatment facilities, so they pour chemicals or sweep debris directly into storm drains. This dumping greatly increases the level of nonpoint source pollutants (leaves, soil, litter, fertilizers, pesticides, and street residues) already present in urban storm water runoff and can contribute substantially to a decline in water quality.

More communities are working to reduce nonpoint source pollution by labeling storm drain inlets with messages warning citizens not to dump polluting materials. These storm drain marking projects usually are conducted by volunteer groups in cooperation with local authorities. The stenciled messages—usually a simple phrase like "No Dumping! Protect Our Water"—remind would-be dumpers and passers-by that the storm drains connect to local water bodies and that dumping pollutes those waters.

In recent years, as states and local governments have learned more about how nonpoint source pollution degrades water quality, storm drain marking efforts have sprung up in communities across the country.

What Are the Basics of Storm Drain Marking?

This section describes a range of storm drain marking approaches. Projects vary widely from community to community in terms of the materials used, the message conveyed, and the physical placement of the message.

While these descriptions may refer to specific products, the TCEQ does not endorse any particular vendor. The product information is provided strictly as an example.

Materials

Some communities use stencils and paint to label storm drains. Cities sometimes use a single stencil to imprint its slogan (such as "You Dump It, You Drink It. No Waste Here") directly onto the concrete above the inlet. Some communities use a two-phase marking process. They first paint a rectangular area white to create a background for the message. When this layer is dry, they stencil the message on top of it in a contrasting color. For example, you can use a white paint for the background and green paint for the message "No dumping! Drains to bay."

The most commonly used stencils are made of Mylar™, a flexible plastic material that can be cleaned and reused many times. Stencils also can be made from cardboard, aluminum or other metal.

Paint (or ink) can be sprayed on or applied by brush or roller. Spray paint is the quickest and probably the easiest to apply neatly. However, you should consider paint or ink that contains no heavy metals and is low in volatile organic compounds (VOCs). Empty steel aerosol cans and paint cans can be recycled in some communities.

Not all communities use stencils and paint to label their storm drains. Some have opted for permanent signs made of aluminum, ceramic, plastic or other durable materials. Often ceramic tiles or aluminum plaques can be used. These signs last longer than stenciled messages. Tiles can last 5 to 10 years and require only glue to affix them to storm drain inlets. This ease of application is particularly important when volunteers provide much of the labor.

Many city officials prefer the permanent signs because they are neater than stencils, which sometimes look smeared and may be hard to read from a distance. Some cities require contractors who build storm drains to place the city's storm drain tiles on new and replacement drains.

Permanent signs can be more expensive than painted stencils. Ceramic tiles can cost $5 or more per piece. A Mylar™ stencil, by contrast, costs from $10 to $15, depending on the quantity ordered, but can be used for 25 to 500 markings, depending on whether paint is sprayed on or applied with a brush or roller. In addition, tiles or plaques can be dislodged by pedestrian traffic if they are disturbed before the glue dries.

Content of the Message

Nearly all signs and stencils used on storm drain inlets discourage deliberate dumping. Some communities focus on a particular material such as motor oil while others warn against the dumping of chemicals.

Regardless of the materials, the most important idea to get across is that storm drains lead to open waterways. Often communities will specify which water body the inlet drains to, saying for example, "drains to creek" or "drains to lake." Some even name the river, lake, or bay.

Here are some samples of messages:

- **No Dumping. Drains to Water Source**
- **No Dumping. Drains to Bay**
  (creek, stream, river, lake, or ocean)
- **Don't Dump. Drains to Creek**
  (stream, river, lake, bay, or ocean)
- **Don't Dump. Protect Our Water**
- **You Dump It, You Drink It. No Waste Here/ Si Usted Lo Tira, Usted Lo Toma.**
- **Dump No Waste. Drains to Bay**
  (creek, stream, river, lake, ocean)
- **No Oil or Chemicals. Drains to Bay**
- **Do Not Dump. Flows to Bay**
  (creek, stream, river, lake, or ocean)
- **Do Not Dump. Flows to Trinity River**

Communities often combine words and pictures to convey their message. The graphic portion may reinforce the verbal message by depicting the pathway from storm drain to water body in some stylized fashion. Graphics also may refer to some topic of local interest. For instance, some use a picture of a shrimp on a stencil to remind passers-by that the bay's shrimping industry can be hurt by pollutants dumped in the bay. Others may superimpose an anti-dumping message against the silhouette of a largemouth bass, one of the most popular game fish in the southern United States. Others use pictures of wind surfers or sailboats to remind people that dumping pollutants affects the recreational value of local waterways.

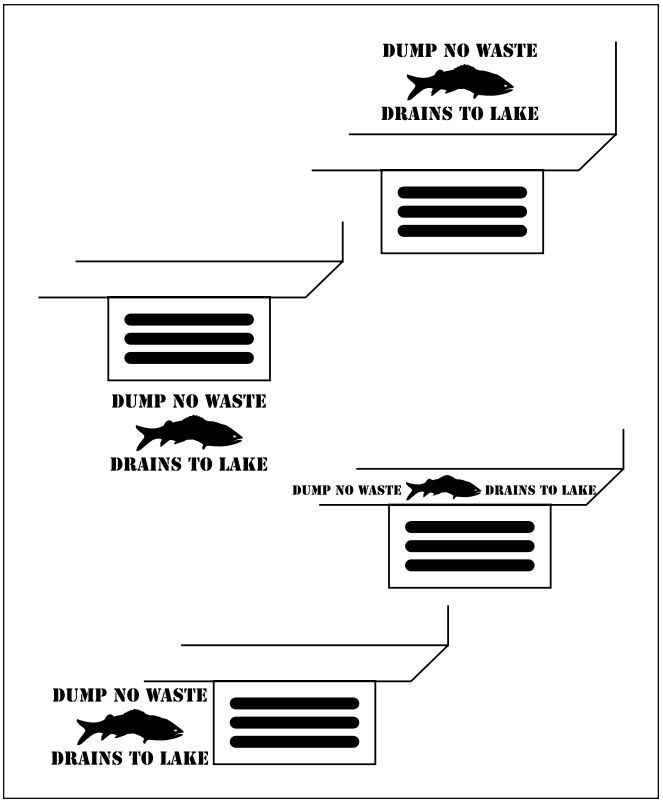
Other communities with a large population of Spanish speakers may wish to develop signs or stencils in both English and Spanish. Still others use just a graphic alone with no text, for example, showing an oil can in a circle with a slash through it.

Placement of the Message

Messages may be positioned in several ways (see figure 1). Some are placed flat against the sidewalk surface just above the storm drain inlet. Others are placed on the curb facing the street. Still others are located on the street itself, either just upstream of the storm drain or on the street in front of the drain. However, messages placed on the street may wear out sooner.

Potential dumpers will see the message in any of these locations. The decision about where to place the message also should take into account who else will see it. Signs facing the street will be seen more easily by motorists; signs aligned with the sidewalk or with the street itself are more likely to be seen by pedestrians. It's important that even those who would not dump motor oil down a storm drain be exposed to the stenciled messages. Because the signs raise awareness about the connection between storm drains and water bodies, they help deter littering, over-fertilizing and other practices that contribute to nonpoint source pollution.

Figure 1



How Do Storm Drain Marking Programs Operate?

Storm drain marking programs are carried out in a variety of ways. In some cases, cities use their own public works staff to do all marking. Some cities feel that having their own crews do the work produces better results and eliminates liability and safety concerns. However, in many areas, volunteer groups are a necessity.

It is more common for storm drain marking programs to use volunteer groups for the labor with the city providing supplies, safety equipment, and other forms of support.

This public-private partnership may be initiated by either side. If a civic association or local environmental group initiates the project, it must be sure to obtain the support and cooperation of local authorities. Storm drains are city property and local ordinances or policies may prohibit marking them without permission. Most cities also will want certain safety measures in place before volunteers set to work.

Safety

Since marking projects take place on city streets, volunteer safety is of utmost importance. The city may wish to designate lower-traffic residential areas as targets for volunteer marking and provide safety equipment and training. Most programs require that marking be done in teams, with at least one person designated to watch for traffic. Adult supervision is needed when the volunteers are

school children or members of a youth group. Most cities also require participating volunteers (or their parents) to sign a waiver of liability. (See Appendix A for sample of waivers.)

The City's Role

In many cities, the public works or water quality department will designate a person to coordinate marking projects by volunteer groups. Coordination may mean any of the following:

- providing marking kits containing all materials and tools needed to carry out a marking project; (See Appendix B for examples of the contents of kits.)
- furnishing a list of locations or a map of storm drains to be stenciled;
- training volunteers on safety procedures and on the technique for using stencils or affixing signs;
- providing safety equipment: traffic cones, safety vests, masks and/or goggles (if spray paint is used) and gloves (if glue is used);
- providing incentives and rewards for volunteers (badges, T-shirts, certificates); and
- providing pollutant tracking forms to collect data on serious instances of dumping.

Working with Volunteers

Since most storm drain marking programs depend heavily on volunteer labor, organizers or coordinators must be skilled in the art of recruiting, training, managing, and recognizing volunteers. This section focuses on how to work successfully with volunteers.

Recruiting Volunteers

Cities can spread the word about storm drain marking to volunteer organizations through many channels. Some cities:

- mail information or brochures to civic groups, youth groups, schools, environmental clubs, chambers of commerce, volunteer centers, or other local organizations;
- place articles in local magazines;
- buy newspaper ads to publicize;
- place an insert in the local newspaper;
- make presentations at community meetings;
- encourage word-of-mouth communications about the program; and
- create and distribute a public service announcement.

Most volunteer groups do their storm drain marking projects on a Saturday morning. The program has been popular with Girl Scouts, Boy Scouts, 4-H clubs, environmental clubs, church youth groups, neighborhood associations, grade-school classes, and a wide range of civic and service organizations.

Training Volunteers

Before participating in a marking project, volunteers need training in three areas: technique, safety, and information tracking.

Technique

Instructions on how to stencil a storm drain vary with the materials the city uses. Spray painting requires a different technique than rolling or brushing paint onto a stencil. Most projects have certain elements in common as listed below.

- Advise volunteers to wear old clothes.
- Clean the area to be labeled with a wire brush.
- Warn volunteer about applying too much paint, which can make a marking unreadable.
- Wait a few minutes before removing the stencil to avoid smearing the paint.

Refer to the Appendix B for sample sample marking instructions for stencils and tiles.

Safety

Storm drain marking is normally conducted in teams of two or more people. The following are common safety guidelines.

- Groups of young people must have an adult supervise each team.
- One person on each team should be assigned to watch for traffic.
- All participants should wear safety vests provided by the sponsoring city.
- If spray paint is used for marking, participants also should wear goggles or masks.
- If glue is used to affix permanent signs, participants should wear rubber gloves.
- If volunteers are working in the street, they must use traffic cones and/or barricades provided by the city.

Sample safety instructions are included in the appendix.

Information Tracking

Storm drain marking projects provide cities with valuable information about nonpoint source pollution. Cities typically have thousands of storm drain inlets in their jurisdictions and public works staff cannot inspect them all. Most cities ask participants to note storm drains that are clogged with debris or show obvious signs of dumping. This enables city crews to target cleanup efforts. Volunteers should be instructed on what kinds of pollutants to look for and how to fill out data cards.

Volunteers also should list the locations of all storm drains labeled during the project, so the city can keep track. Sample data cards are included in Appendix D. Regardless of whether tracking forms are used, it is a good idea to assemble the participants after the event to talk about what they have found. Their reactions and impressions can help organizers improve future marking projects.

Recognizing Volunteers

For any volunteer project to be successful, volunteers must feel they have done something worthwhile. Communities active in storm drain marking have developed a variety of ways to recognize volunteers. The following are a few examples:

- Provide each participant with a certificate of appreciation and/or letter of thanks signed by the mayor. (See Appendix E for a sample certificate.)
- Distribute T-shirts, hats, badges or other gifts to each participant after the event. The city of Austin distributes plastic water bottles to participants before the event so they can have a supply of water while they're working. "I helped curb pollution" is the message on the bottles.
- Hold a picnic or small party after the event, with refreshments donated by a local business.
- Provide free coupons for pizza, hamburgers, ice cream, or movies donated by local merchants.
- Take pictures of marking teams before, during and after the event to create a pictorial record of volunteers' activity.

Marking As an Educational Tool

A storm drain marking project affords many opportunities for public education. The labeled storm drains themselves become public education tools, reminding potential polluters, motorists, pedestrians, and area residents that storm water runoff flows to area water bodies. The knowledge that whatever enters a storm drain enters the nearby creek, river, or lake makes people more conscientious about littering, over-fertilizing, sweeping grass clippings into the gutter, and other practices that aggravate nonpoint source pollution.

Some cities have volunteers distribute door hangers in the targeted neighborhoods to notify residents that storm drain marking is taking place. The hangers also explain the purpose of the project and offer tips on how citizens can reduce nonpoint source pollution.

Cities or community groups can notify daily and weekly newspapers to get advance coverage of the planned marking event. A news release issued for the day of the event can draw TV and/or daily newspaper coverage. (See Appendix G for a sample news release.) Newspapers may choose to cover the event itself as an environmental feature story to further heighten public awareness. Public service announcements (PSAs) distributed before the event also will help reinforce the message. Sample PSAs are in the Appendix H.

It is important to remember that, to be effective, a city does not have to mark every storm drain. Large cities have thousands of inlets and it would be impractical to cover all of them. In fact, to do so might defeat the public education purpose because if people see the message on every drain, it may cease to register with them.

It is also important to view storm drain marking as one part of a larger educational campaign to reduce nonpoint source pollution. For the message on a storm drain to sink in, people need to hear it explained in other forums.

Cities may want to develop TV, radio, and print advertisements or PSAs to reinforce the idea that storm drains lead to local waterways and that dumping pollutes those waters. Community groups could approach a local television station about producing and running a free PSA on storm drains and nonpoint source pollution.

One reason the Texas Department of Transportation's "Don't Mess With Texas"anti-littering campaign succeeded was that the department conveyed its message through TV and radio ads and reinforced the slogan by printing it on trash barrels located along the highways. The city of Houston used "You Dump It, You Drink It" as one of its storm drain messages partly because the slogan had already been used in a joint city/TCEQ public education effort to encourage motor oil recycling.

Assessing the Effectiveness of Storm Drain Marking

By raising public awareness of nonpoint source pollution, storm drain marking programs should discourage practices that generate nonpoint source pollutants. As with any public education project, however, it is difficult to precisely measure the effect these programs have on human behavior; nor is it easy to measure reductions in certain components of nonpoint source pollution, which by definition is diffuse in origin.

Some cities attempt to assess the effectiveness of storm drain marking programs by periodically examining water samples from targeted storm drain outfalls (places where storm drains empty into a body of water). If the storm drains leading to a particular outfall have been labeled, and if the level of pollutants from the outfall declines over time, one can assume the labeling has had some deterrent effect.

The city of Fort Worth plans to track pollutant levels at 600 storm drain outfalls over the next five years to determine whether storm drain labeling and other pollution prevention efforts have improved water quality in local creeks. The city of Plano is now collecting baseline water quality data from targeted outfalls and will take periodic samples to measure program results in the future.

Monitoring outfalls is time-consuming, and periodic testing for component NPS pollutants can be expensive. Some cities infer success from increases in the volume of used motor oil delivered to used-oil recycling centers.

Others measure success in terms of how many drains are marked and the number of requests to participate are received from volunteer groups. They can also take into consideration the number of cleanups conducted by the city from reports filed by volunteers.

Citizen groups can be trained to monitor water quality in local waterways through the Texas Watch program. To learn more about Texas Watch, go to www.texaswatch.geo.txstate.edu.

Profiles of Successful Texas Programs

Contact the individual city for more information. The TCEQ does not endorse any of the vendors or products mentioned in these profiles.

City of Irving

Contact: 972/721-2600, www.ci.irving.tx.us

Message: Don't Dump! This leads to a local creek; This Drain for Rain. Don't Dump.

Graphic: Arrow, fish

Method: Round buttons, ceramic tiles, glued to inlet

Program Start Date: 1998

Irving has been using volunteers exclusively to label about 30 percent of its total storm drains throughout the city. These groups include mostly Eagle Scouts and other student/community organizations. The city has been promoting its marking program to the rest of the community through cable-TV announcements, speaking engagements, and volunteer organization meetings.

The city's primary marker presents the message "Don't Dump! This leads to a local creek." along with the image of an arrow pointing towards the storm drain inlet. The other main marker it uses displays a picture of a fish along with the message "This Drain for Rain. Don't Dump." These 4-inch round buttons have been purchased from the North Central Texas Council of Governments since 1998, and the city also has used 6"x6" blue ceramic tiles in the past. Caulking guns and Liquid Nail have been used to apply all of the markers.

For more information on the area's other programs, go to www.dfwstormwater.com/fy2k/curbmarker.html.

City of Austin

Contact: 512/974-2550, www.ci.austin.tx.us

Message: No Dumping, Drains to Creek

Graphic: Frog, fish, salamander

Method: Square tiles glued to inlet or sidewalk

Program Start Date: 1994 or 1995

Since the mid 1990s, Austin has been labeling its area storm drains using 4" x 4" frost-proof, square, ceramic tiles. These tiles are usually found above storm drain inlets, displaying the message "No Dumping. Drains to Creek." along with images of a frog, fish, or salamander. Costing about $7 each, Austin buys the tiles from a local manufacturer, Clayworks. You can view samples of them at www.clayworks.net/stormwater.html. They have been affixed to the surfaces using an adhesive from das Manufacturing, Inc. (about $4.60 a tube) or Liquid Nail.

Austin's storm drain marking effort has been an important part of the city's Water Quality Protection Program and the Keep Austin Beautiful campaign. About 450 storm drains have been marked per year for the past 6 years. That's a total of 2,700 drains marked, which makes up close to 20 percent of the city's total 15,000 drains. Volunteer groups include university fraternities, Girl and Boy Scout groups, and other community groups.

The actual marking activities are coordinated by the city, and volunteer groups are trained at city offices. The marking efforts have been sponsored by the city's Watershed Protection and Development Review Department, which has an informative Web site (www.ci.austin.tx.us/watershed/stormdrain_marking.htm).

City of El Paso

Contacts: 915/541-4000, www.ci.el-paso.tx.us

Message: No Dumping. Drains to Waterway

Method: Round plastic labels glued above inlets

Graphic: Fish

Program Start Date: Spring 2000

The city of El Paso has been labeling its storm drains using both volunteer groups and employees from the Texas Department of Transportation. Using round plastic labels, the city marks its storm drains with the message "No Dumping. Drains to Waterway." with the image of a fish. The markers cost $3 each and are affixed using a $5-tube of adhesive.

Mostly volunteer groups, such as the Job Corps and the Boy Scouts, have been marking El Paso's storm drains. For training, each group is given a 30-minute presentation on how to install the markers. The volunteers are provided with supplies such as orange safety traffic vests, wire brushes, sun screen lotion, water, ice, snacks, and gloves. For recognition, each volunteer project is usually mentioned in the local news media.

These projects have been promoted throughout the city and surrounding area by a local public awareness campaign and hotline. The help of the Job Corps volunteer groups from the David L. Carrasco center has helped the city to stop illegal dumping into the city's municipal separate storm sewer system (MS-4). At the same time, the efforts have helped to maximize the limited funds available for these city programs.

City of Garland

Contact: 972/205-2000, www.ci.garland.tx.us

Message: No Dumping—This Drains to Creek.

Method: 5+" plastic marker glued to inlet

Graphic: Fish

Program Start Date: 1993-1994, resumed 1997

The city of Garland is another community in the North Central Texas area that has been actively marking its storm drains. Beginning in 1993, Garland used mostly volunteer

groups to stencil the area storm drains using money from a National Pollutant Discharge Elimination System grant, which bought marking supplies, but the funding lasted only a few years. The city resumed its marking efforts in 1997 when a new permit was issued by the North Central Texas Council of Governments and the city Storm Water Management Department. In 1999, Garland switched to using plastic storm drain markers purchased from das Manufacturing, Inc.

The plastic labels are five-inches round, in blue, white, and black design simply stating "No Dumping—This Drains to Creek" with the image of a fish under water. Throughout the city, about 420 out of the total 6,100 inlets have been marked using the plastic markers, and 2,154 have been marked using stencils. The city has found that marking with paint largely wears away and the text becomes undistinguishable. Marking is not long-lasting enough to make the effort worthwhile. It also found that plastic curb markers are far more durable.

Volunteer groups such as scout troops, homeowner's associations, and civic organizations have marked most of the city's storm drains. These activities have been promoted using advertisements in the Garland Morning News and with bulletins on local cable access channels. A basic summary of Garland's storm drain inlet marker project can be viewed at www.ci.garland.tx.us.

City of Fort Worth

Contact: 817/392-4477, www.fortworthgov.org

Message: Don't Dump! Drains to Creek; This Drain for Rain. Flows to Creek; No Dumping. Drains to Waterways

Method: 4" x 8"Aluminum plaques, 4" plastic markers glued to inlets

Graphic: Fish

Program Start Date: Marking program–1989, Marking program–1994

Storm drain curb inlet markers have proven to be an effective means of providing a pollution prevention message to citizens of Fort Worth. These markers inform citizens that anything dumped into a curb inlet will pollute a local waterway. The city began its curb-marking program in 1989 using spray-painted stencils. In 1994, staff designed an aluminum plaque to replace the stencils.

The plaques are more attractive and eye-catching, quicker to install, and more durable than the stenciled messages. More recently, the city added plastic markers produced by Das Manufacturing Inc. In 1999, the Fort Worth District of the Texas Department of Transportation—a co-permit of the city's National Pollutant Discharge Elimination System (NPDES) Storm Water Permit—provided about 2,000 plastic markers, and the city purchased others with a slightly different design from the North Central Texas Council of Governments.

As one requirement of the city's NPDES Storm Water Permit, the city affixes a minimum of 250 plaques/markers each year. For high visibility, the city targeted locations with heavy traffic, areas with a history of dumping or reported illicit discharge problems, and locations where citizens have requested them. Markers are affixed primarily by city staff, but it also supplies markers to citizen groups such as neighborhood associations and scout troops. By increasing public awareness of the consequences of disposing of materials into a storm drain, curb inlet markers are helping the city to maintain or improve water quality in Fort Worth's creeks and lakes.

City of San Antonio

2001 Texas Environmental Excellence Award Recipient

Contact: San Antonio Water System, 210/704-7297, www.saws.org

Message: No dumping. Drains to River, Creeks, Waterways, etc.

Method: das Manufacturing 4" round labels/curb markers

Graphic: Fish, Frog, "Watershed Willie" (custom 3.5 x 8" rectangle)

Program Start Date: March 1998

The San Antonio Water System (SAWS) has been coordinating storm drain marking projects throughout the city since the program's induction in March of 1998. The program was started under the city's Water Quality Awareness campaign, which was initiated by the state's NPDES Phase II education requirement. The program has been promoted using brochures and Web sites by SAWS' Source Water and Water Education department. Get an overview of the program at its Web site (www.saws.org/education/community/index.shtml).

Volunteer groups have participated in the marking efforts, mostly high school environmental groups and neighborhood organizations. Usually, volunteers are trained by SAWS employees who provide information on the program's purpose, safety tips, and marking techniques. About 400 to 500 drains have been marked throughout the city since the program's kickoff. San Antonio has been marking its storm drains using four-inch round label curb markers ($2.87 each for an order of 1,000 from das Manufacturing), which include images of a fish, frog, or the local character "Watershed Willie." A variety of messages are used on the markers, including "No Dumping. Drains to ___ (River, Creeks, or Waterways).

Appendix A
Sample Liability Waivers for Volunteers

Most cities also require participating volunteers (or their parents) to sign a waiver of liability. The following pages have two sample waivers.

Storm Drain Marking Project

I am authorized to act on behalf of [name of your group or organization] (referred to as the Sponsor). I have carefully read and understand the guidelines for the Storm Drain Marking Project, (the Project). In order to participate in the Project the Sponsor assumes the following responsibilities:

1. Participants in the Project are solely under the supervision of the Sponsor.
2. Waivers of Liability will be signed for each participant prior to commencement of the Project.
3. Sponsor will train each participant in pedestrian and other relevant safety rules. All participants will be evaluated by Sponsor to determine if they are responsible individuals who will be able to abide by the rules of the road and use due caution while participating in the project.
4. Sponsor will use stencil kits and instructions as provided by the City of [your city's name] only for the purposes intended.
5. Sponsor will consult with the City of [your city's name] in the selection of Project sites.

_____ _____

Signature Date

_____ _____

Print Name Organization

_____

Office or capacity of person signing

Liability Waver

I, the undersigned, being of lawful age or the parent or legal guardian of the volunteer involved in the Storm Drain Marking Project (Project), in consideration of being allowed to participate in the Project, I hereby release, discharge, and forever acquit the City of [your city's name], a municipal corporation, and its officers, agents, and employees from any and all actions, causes of action, claims, or any other liabilities whatsoever, known or unknown, or that may arise in the future, on account of or in any way related to or arising out of my participation in the Project.

Further, I assume liability for any non-participants who accompany me.

_____

Participant's name (Please print)

_____

Age

_____

Signature of participant or legal guardian

_____

Date

Appendix B
Sample Plans for Marking Drains

Important

Remember to bring the written approval from the entity that gave you permission to mark the drains and inlets.

Marking Drains Using Stencils

Many cities and organizations make it easy for individuals to stencil neighborhood inlets by providing kits that include all the materials needed. Before incurring the expense of assembling these materials, contact your public works department to see if they sponsor a storm drain marking program and can provide these kits. If not, contact the TCEQ at 512/239-3150 to find out if there is a state agency, municipality, or organization in your area that is participating in a program that can loan you, at least, the stencils.

Sample Materials List

For marking drains:

- stencil(s)
- paint or ink that contains no heavy metals and is low in volatile organic compounds (VOCs).

  Make sure the paint meets any standards (color, type) set by the agency that gave you permission to mark drains. In some areas, you can buy oil-based traffic or highway paints from local paint stores. Other areas may require a flat water-based latex paint; the TCEQ recommends either white or green depending on the surface being painted. Read the label for instructions and ask if you can return any unused cans of paint before purchasing.
- paint brushes (3") and stirrers (unless you are using spray paint)
- "WET PAINT" signs
- masking tape
- drop cloths
- trash bags (2) - one for dirt and debris cleaned from the storm drain area and one for soiled stenciling supplies
- wire brush
- whisk broom and dust pan
- paper towels or old rags
- traffic safety vests and flags
- orange traffic cones, if available
- pencil/paper/clipboard/CMCss standardized data card for recording observations and activities

For cleaning up:

- newspaper and rags
- coffee cans and lids
- mineral spirits or paint thinner (small amount)

Sample Instructions for Marking Drains

1. Use a wire brush to remove any dirt or scum by scrubbing briskly.
2. With a whisk broom, sweep the surface free of dirt.
3. Lay the stencil above the face of the storm sewer, bending the stencil over the beam of the storm sewer. By doing this, the first line of the stencil will be on the TOP of the storm sewer and the second line will be on the BEAM. If the stencil does not fit this configuration due to a small beam, use either side of the storm drain. Experiment with how the stencil will best fit and look. Do not stencil the bottom of the storm drain.
4. One or two people should hold the stencil securely in place or tape the stencil in place with heavy tape. Be careful not to move the stencil once in place.

   If using spray paint or ink, shake the can for one minute, hold spray can inverted about five inches from stencil. In a series of wide sweeping motions, spray one line at a time using a side to side motion until letters are uniformly covered. Do not spray too much paint or ink will run under stencil making the words unreadable.

   If using a brush, stir contents well, brush over stencil being careful not to use too much paint or ink as it will run under stencil making the words unreadable.

   If using a roller, test that it is well inked by rolling on the pad and then testing on a newspaper. Do not put too much ink on the pad. A roller with too much ink will run, making the words unreadable. It is best to roll over the stencil in a back and forth motion a number of times using a constant pressure until the words are legible.
5. When finished carefully lift the stencil.
6. If stenciled message turns out unreadable, do not try to clean it off again. The mess will only get bigger. Go to another storm sewer and learn from your mistakes.

Marking Drains with Tiles

Sample Materials List

- tiles
- glue
- orange safety vests
- pencil, paper, clipboard
- traffic cones
- storm drain data card

Sample Instructions

1. Use a wire brush to scrub away any dirt or scum.
2. With a whisk broom, sweep the surface free of dirt.
3. Only place markers when all surfaces are dry. Otherwise the glue may not stick and the marker may wash into the storm drain.
4. Make sure the glue covers the back of the drain marker completely (it should cover all the way to the edge of the marker).
5. Complete a storm drain data card (just one for all of the drains marked).

Appendix C
Sample Safety Procedures and Tips for Volunteers

Please keep these procedures and safety tips in mind as you mark drains.

- Prior to marking, volunteers must sign and return ALL waivers.
- Verbally review these safety procedures with all volunteers.
- Marking is a group activity, requiring a minimum of two people; never do marking alone.
- Wear clothing that you do not mind getting dirty (you may get permanent ink or paint on it.)
- All participants must wear safety vests.
- Bring paper towels or rags to wipe up.
- Two plastic bags are in marking kits. One is for the used stencil—which can be reused and is not garbage—the other is to carry paper towels, gloves, and any garbage picked up along the way.
- At all times, someone must be watching for oncoming traffic.
- Use traffic cones to alert vehicular traffic of your presence.
- All storm drains that are marked should be recorded on the Tracking Sheet and returned to the project captain when marking is completed.
- Any storm drain with oil, paint, or any other hazardous substance should be noted and reported to the captain.
- Do not mark a storm drain if a vehicle or other private property is so close to it that marking would get ink or paint on the property.
- Do not mark any inlet that appears to be on private property (such as at a mall, church, etc.)
- Do not allow anyone to crawl inside any inlet.
- If tiles are used, glue them so that they can be read from the street.

Appendix D
Sample Data Collection Form

Storm Drain Data Card

Please fill out one card for all of the drains that you stencil using this kit.

City of Marking Project _____

Name of Organization _____

Contact Person _____

Street Address _____

Daytime Phone _____

Number of Storm Drains Marked _____

Number of Participants _____ Date(s) of Marking _____

Please return completed data cards to your city contact person.

Nonpoint Source Pollutants

Please keep track of the items found within six feet of each side of the storm drains you marked by making tick marks in the areas below:

Grass Clippings _____
Leaves _____
Motor Oil _____
Paint _____
Pet Wastes _____
Street Litter/Plastics:
- Beverage Bottles _____
- Beverage Cans _____
- Caps/Lids _____
- Cigarette Butts _____
- Clothing/Scraps _____
- Fast Food Containers _____
- Foam Plastic Pieces _____
- Newspaper/Magazines _____
- Paper Bags _____
- Plastic Bags/Wrappers _____
- Plastic or Foam Cups _____
- Plastic Pieces _____
- Six-Pack Holders _____
- Straws _____
- Other _____

Potential Nonpoint Sources

Mark the number of storm drains that you mark near each of the following:

Residential Area _____
Shopping Center/Parking Lot _____
Golf Course _____
Business District _____
Service Station _____
Farmland _____
Other _____

Log of Marked Storm Drains

Location

Name of Street Marked _____
Between Streets _____ and _____
Number of Drains Marked _____

Name of Street Marked _____
Between Streets _____ and _____
Number of Drains Marked _____

Name of Street Marked _____
Between Streets _____ and _____
Number of Drains Marked _____

Name of Street Marked _____
Between Streets _____ and _____
Number of Drains Marked _____

Name of Street Marked _____
Between Streets _____ and _____
Number of Drains Marked _____

Name of Street Marked _____
Between Streets _____ and _____
Number of Drains Marked _____

Total Number of Drains Marked _____

Appendix E
Sample Certificate of Recognition

Appendix F
Resources

TCEQ Materials

The TCEQ can provide you with promotional and educational materials (some in both English and Spanish) or with camera-ready copy so you can produce them on your own.

For more information on available materials, contact the TCEQ at 512/239-3150 or visit the Web site at www.tceq.state.tx.us (use the keyword "nonpoint source pollution").

If you live in a coastal watershed, the Galveston Bay Estuary Program can provide you with a stencil that says "Dump No Waste–Drains to Bay" with an image of a shrimp. For more information, call 281/332-9937 or go to www.gbep. state.tx.us.

Manufacturers of Storm Drain Markers

The TCEQ does not endorse any particular vendor. The following manufacturers are provided as a courtesy.

- das Manufacturing, Inc., www.curbmarker.com
- East Jordan Iron Works, Inc., "http://www.ejiw.com"
- Clayworks, www.clayworks.net/stormwater.html

Types of Storm Drain Markings

Here is a list of different ways to mark or identify storm drains with pollution prevention messages:

- traditional vinyl markers
- ceramic or metal medallions (raised metal castings) set into walkways next to storm drain inlets
- customized cast-iron inlet covers with messages (similar to storm drain stencils) and fish logos or city seals

In addition to storm drain markers, increase public awareness about nonpoint source pollution by using:

- manhole covers and inlet grates
- billboards
- roadside signs

Appendix G
Sample News Release

[City or organization letterhead] FOR IMMEDIATE RELEASE
[Date]

Storm Drain Marking Project Aims to Reduce Water Pollution

This Saturday [INSERT DAY OR DATE], you might see a group of people painting a _____ [INSERT APPROPRIATE DESCRIPTION such as "green and white"] sign on the storm drain inlets in your neighborhood. These volunteers are participating in a project to alert residents that dumping in storm drains pollutes lakes, rivers, bays and streams. The city of _____ [OR, _____ ORGANIZATION NAME] is sponsoring this project as part of its effort to reduce nonpoint source pollution.

Much of the pollution in areas streams and lakes comes from common, everyday materials like household chemicals, fertilizers, pesticides, gasoline, used motor oil and antifreeze and litter. These substances are washed by rainwater from our streets, yards, driveways and parking lots into storm drain inlets. Contrary to what many people think, these storm drains don't lead to wastewater treatment plants. They carry untreated storm water directly into area lakes and streams.

Deliberate dumping of hazardous materials into storm sewers makes the pollution problem worse. Motor oil is often dumped down storm drains, yet just one quart can ruin the quality of 250,000 gallons of water. Dumping oil and other hazardous substances is illegal in Texas. Residents are encouraged to recycle or properly dispose of these materials instead.

The marked message _____ [SAY WHAT THE MESSAGE IS] is there to remind citizens not to dump waste into storm sewers or contribute more pollutants to ordinary storm water runoff by littering, over-fertilizing or sweeping yard debris into the street.

_____ [CITY OFFICIAL OR SPOKESPERSON FOR COMMUNITY ORGANIZATION] pointed out that storm drain marking has been used successfully in others cities to reduce nonpoint source pollution.

"Every citizen has a role in preventing pollution," he [she] said. "These kinds of projects work because they get government, volunteer groups and businesses working together to solve a common problem."

The _____ [VOLUNTEER GROUP] will be marking storm drains in the following neighborhoods on _____ [DATE]: _____[LIST NEIGHBORHOODS]

Several businesses and government agencies are cosponsoring this event. They include [LIST SPONSORS, DONORS, ETC.]

For more information, call _____. [PHONE NUMBER]

Appendix H
Sample Public Service Announcements (PSAs)

Storm Drains and Water Pollution

30-second Radio PSA

ANNCR: Contrary to popular belief, the storm drains on our neighborhood streets do not lead to a water treatment plant. They lead to nearby creeks, which flow into the _____River. [SUBSTITUTE _____Lake OR _____Bay.] If hazardous materials like motor oil and antifreeze get dumped into a storm drain, they end up in the (river). And that's bad for all of us. So don't dump waste down your neighborhood storm drains. Help keep our waterways clean. For more information, call _____. [PHONE NUMBER]

Announcement courtesy of _____ [SPONSOR] and this station.

Storm Drains and Water Pollution

60-second Radio PSA

ANNCR: Contrary to popular belief, the storm drains on our neighborhood streets do not lead to a water treatment plant. They lead to nearby creeks, which flow into the _____River. [SUBSTITUTE _____Lake OR _____Bay.] So when hazardous materials like motor oil and antifreeze get dumped into a storm drain, or when street trash and garden chemicals wash into the sewer after a rain, they end up in the (river). And that's bad for all of us. You can help keep our waterways clean. Don't litter and don't use fertilizers and pesticides before a rain. And never dump any kind of waste down your neighborhood storm drains.

The _____ [ORGANIZATION NAME] is looking for volunteers to label storm drains with the message "_____." [MESSAGE] If you can help, call _____. [PHONE NUMBER]

This message brought to you by _____ [SPONSOR] and _____ [CITY NAME].

STORM WATER INLET MARKING (SWIM) PROGRAM

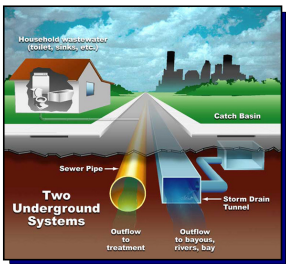
Storm Water Quality

- Preserving our environment is important to our health and survival.
- We've become more aware of effects of environmental practices like
  - the destruction of the rainforest, or
  - the release of hazardous chemicals to the atmosphere.

Start in Our Own Backyards

- Storm water runoff from urban areas can carry pollution generated by:
  - Littering,
  - Construction activity
  - Use of pesticides/fertilizers,
  - Illegal dumping or discharges,
  - Improper disposal of used oil and toxics, and
  - New development and redevelopment.

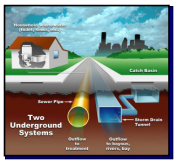
Sewage Treatment



Water that flows down the drain in our homes goes to a sewage treatment facility and then to bayous and rivers.

Storm Water Drainage

Water that flows into our storm water drainage system goes directly into our bayous, rivers, and ultimately, into Galveston Bay.



Storm water receives no treatment.

Storm Water Inlet Marking (SWIM) Program

- An environmental public education program
- To involve communities in reducing non-point source (NPS) pollution.

SWIM Program

- Working together to solve a common problem:
  - Government,
  - Volunteer groups, and
  - Businesses.

SWIM Program Goals

- Raise awareness in Harris County communities about storm water quality issues,
- Connect residents to their neighborhood storm drains and local waterways, and
- Encourage citizens to protect their water resources

SWIM Storm Drain Marker Design

Benefits of SWIM Program

Awareness

↓

Action

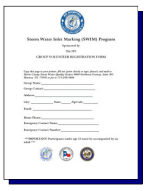
↓

Environmental Stewardship

SAFETY PROCEDURES AND TIPS FOR SWIM TEAM LEADERS

Remember Safety First!

- Before you start:
  - Prior to marking, sign and return ALL waivers
  - Orally review these safety procedures with your volunteer groups.



Use the Buddy System

- Marking is a group activity, requiring a minimum of two people.
- There should NEVER be any marking done alone.
- At least 2 people should wear safety vests.

Traffic Management

- Traffic cones are used to alert vehicular traffic.
- Please designate persons to wave safety flags in case of street traffic.

Keeping Clean

- Wear clothing you do not mind getting dirty.
- Bring paper towels or a rag to wipe up.

Report Dumping

- If you see an indication
  - Of oil, paint, or any other potentially hazardous substances
  - At any storm drain
- Note the occurrence and report it to the SWIM Team Leader for your project.

1. Clean Storm Drain Surface

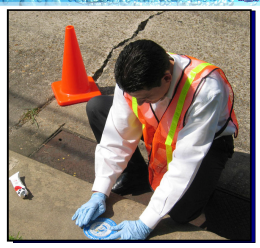
- Make sure the storm drain surface is:
  - Flat,
  - Dry, and
  - Free of any loose debris.

2. Apply Adhesive

- Coming in 1/8" from the outside edge of the marker:
  - Apply a bead of adhesive, and
  - Then work in to the center.

3. Stick It!

- Apply the marker to the storm drain surface:
  - Push down **HARD**
  - Force adhesive out around the entire edge.



Making A Good Seal

Note: It is important that the entire edge of the marker is **SEALED** to the application surface.

Finished Installation

- Once installed, the curb markers stay affixed.
- They maintain their attractive appearance for years.

Returning Materials

Please return safety vests, cones and brushes to:

Harris County
Watershed Protection Group
10555 Northwest Freeway,
Suite 270
Houston, Texas 77092

Any Questions?

For more information:
(713) 290 - 3000
or
www.CleanWaterways.org

APPENDIX 2 – ILLICIT DISCHARGE DETECTION AND ELIMINATION

ORDINANCE(S)

Illicit Discharge and Connection Storm Water Ordinance

ORDINANCE NO. 2008-06

Prepared by:

LJA Engineering & Surveying, Inc.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF JACINTO CITY, TEXAS.

SECTION 1. The City of Jacinto City, City Code is amended by amending Chapter 16, Utilities, Article V, and Storm Water Management, to add Division 2, as follows:

DIVISION 2 – ILLICIT DISCHARGE AND CONNECTION

Sec. 16-244. PURPOSE/INTENT.

The purpose of this ordinance is to provide for the health, safety, and general welfare of the citizens of the City of Jacinto City through the regulation of non-storm water discharges to the storm water system to the maximum extent practicable as required by federal and state law. This ordinance establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the Texas Pollutant Discharge Elimination System (TPDES) permit process. The objectives of this ordinance are:

(1) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by storm water discharges by any user
(2) To prohibit Illicit Connections and Discharges to the municipal separate storm sewer system
(3) To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this ordinance

Sec. 16-245. DEFINITIONS.

For the purposes of this Division, the following shall mean:

Authorized Enforcement Agency*:* employees or designees of the director of the municipal agency designated to enforce this ordinance.

Best Management Practices (BMPs): schedules of activities, prohibitions of practices, general good house keeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to storm water, receiving waters, or storm water conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Clean Water Act (CWA). The Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972, (33 U.S.C. ' 1251 et seq.), and any subsequent amendments thereto.

Construction Activity**.** Activities subject to TPDES Construction Permits. These include construction projects resulting in land disturbance of 1 acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

Hazardous Materials. Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illicit Discharge. Any direct or indirect non-storm water discharge to the storm water system, except as exempted in Section X of this ordinance.

Illicit Connection. An illicit connection is defined as either of the following:

Any drain or conveyance connecting an illicit discharge directly to the storm water system,

whether on the surface or subsurface, which allows an illegal discharge to enter the storm water system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency or,

Any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

Industrial Activity. Activities subject to NPDES or TPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b) (14).

Non-Storm Water Discharge. Any discharge to the storm water system that is not composed entirely of storm water.

Pollutant. Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coli form and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

Premises. Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

Storm Water System .The system or network of storm and surface water management facilities including but not limited to inlets, conduits, manholes, channels, ditches, drainage easements, retention and detention basin, infiltration facilities and other components as well as all natural waterways.

Storm Water. Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

Storm water Pollution Prevention Plan: A document which describes the Best Management Practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to Storm water, Storm water Conveyance Systems, and/or Receiving Waters to the Maximum Extent Practicable.

Wastewater means any water or other liquid, other than uncontaminated storm water, discharged from a facility.

Sec. 16-246. APPLICABILITY.
This ordinance shall apply to all water entering the storm water system generated on any developed and undeveloped lands unless explicitly exempted by an authorized enforcement agency.

Sec. 16-247. RESPONSIBILITY FOR ADMINISTRATION.
The City manager or his/her designee shall administer, implement, and enforce the provisions of this ordinance. Any powers granted or duties imposed upon the authorized enforcement agency may be delegated in writing by the City manager to persons or entities acting in the beneficial interest of or in the employ of the agency.

Sec. 16-248. SEVERABILITY.
The provisions of this ordinance are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this Ordinance or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this Ordinance.

Sec. 16-249. ULTIMATE RESPONSIBILITY.
The standards set forth herein and promulgated pursuant to this ordinance are minimum standards; therefore this ordinance does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

Sec. 16-250. DISCHARGE PROHIBITIONS.

Prohibition of Illicit Discharges.
No person shall discharge or cause to be discharged into the municipal storm water system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water.
The commencement, conduct or continuance of any illicit discharge to the storm water system is prohibited except as described as follows:

(a) The following discharges are exempt from discharge prohibitions established by this ordinance: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water and springs, uncontaminated ground water infiltration, uncontaminated pumped ground water, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensate, individual residential vehicle washing, natural riparian habitat or wetland flows, pavement and exterior building wash water conducted without the use of detergents or other chemicals, swimming pools (if dechlorinated - typically less than one PPM chlorine), fire fighting activities, and any other water source not containing Pollutants.

(b) Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.

(c) Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.

(d) The prohibition shall not apply to any non-storm water discharge permitted under an NPDES or TPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency or the Texas Commission on Environmental Quality, provided that the discharger is in full compliance

with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm water system.

Prohibition of Illicit Connections.

(a) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.
(b) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
(c) A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

Sec. 16-251. SUSPENSION OF MS4 ACCESS.

Suspension due to Illicit Discharges in Emergency Situations

The City Manager or his/her designee may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or Waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the MS4 or Waters of the United States, or to minimize danger to persons.

Suspension due to the Detection of Illicit Discharge

Any person discharging to the MS4 in violation of this ordinance may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. The authorized enforcement agency will notify a violator of the proposed termination of its MS4 access. The violator may petition the authorized enforcement agency for a reconsideration and hearing.

A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this Section, without the prior approval of the authorized enforcement agency.

Sec. 16-252. INDUSTRIAL OR CONSTRUCTION ACTIVITY DISCHARGES.

Any person subject to an industrial or construction activity NPDES or TPDES storm water discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the City Manager or his/her designee prior to allowing discharges to the MS4.

Sec. 16-253. MONITORING OF DISCHARGES

A. Applicability.
This section applies to all facilities that have storm water discharges associated with industrial activity, including construction activity.

B. Access to Facilities.

(a) The City Manager or his/her designee shall be permitted to enter and inspect facilities subject to regulation under this ordinance as often as may be necessary to determine compliance with this ordinance. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the authorized enforcement agency.

(b) Facility operators shall allow the City Manager or his/her designee ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of a NPDES or TPDES permit to discharge storm water, and the performance of any additional duties as defined by state and federal law.

(c) The City Manager or his/her designee shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the authorized enforcement agency to conduct monitoring and/or sampling of the facility's storm water discharge.

(d) The City Manager or his/her designee has the right to require the discharger to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure storm water flow and quality shall be calibrated to ensure their accuracy.

(e) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the operator at the written or oral request of the City Manager or his/her designee and shall not be replaced. The costs of clearing such access shall be borne by the operator.

(f) Unreasonable delays in allowing the City Manager or his/her designee access to a permitted facility is a violation of a storm water discharge permit and of this ordinance. A person who is the operator of a facility with a NPDES or TPDES permit to discharge storm water associated with industrial activity commits an offense if the person denies the authorized enforcement agency reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this ordinance.

(g) If the City Manager or his/her designee has been refused access to any part of the premises from which storm water is discharged, and he/she is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the authorized enforcement agency may seek issuance of a search warrant from any court of competent jurisdiction.

Sec. 16-254. REQUIREMENT TO PREVENT, CONTROL, AND REDUCE STORM WATER POLLUTANTS BY THE USE OF BEST MANAGEMENT PRACTICES.

The City of Jacinto City will adopt requirements identifying Best Management Practices for any activity, operation, or facility which may cause or contribute to pollution or contamination of storm water, the storm water system, or waters of the U.S. The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural BMPs. Further, any person responsible for a property or premise, which is, or may be, the source of an illicit discharge, may be required to implement, at said person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the municipal separate storm sewer system. Compliance with all terms and conditions of a valid NPDES or TPDES permit authorizing the discharge of storm water associated with industrial activity, to the extent practicable, shall be deemed in compliance with the provisions of this section. These BMPs shall be part of a storm water pollution prevention plan (SWPPP) as necessary for compliance with requirements of the NPDES and/or TPDES permit.

Sec. 16-255. WATERCOURSE PROTECTION.

Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

Sec. 16-256. NOTIFICATION OF SPILLS.

Not withstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illicit discharges or pollutants discharging into storm water, the storm water system, or waters of the U.S. said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the authorized enforcement agency in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the City Manager or his/her designee within three business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

Sec. 16-257. ENFORCEMENT.

A. Notice of Violation.

Whenever the City Manager or his/her designee finds that a person has violated a prohibition or failed to meet a requirement of this Ordinance, the authorized enforcement agency may order compliance by written notice of violation to the responsible person. Such notice may require without limitation:

(a) The performance of monitoring, analyses, and reporting;

(b) The elimination of illicit connections or discharges;

(c) That violating discharges, practices, or operations shall cease and desist;

(d) The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property; and

(e) Payment of a fine to cover administrative and remediation costs; and

(f) The implementation of source control or treatment BMPs.

If abatement of a violation and/or restoration of affected property are required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

Sec. 16-258. APPEAL OF NOTICE OF VIOLATION

Any person receiving a Notice of Violation may appeal the determination of the authorized enforcement agency. The notice of appeal must be received within 2 days from the date of the Notice of Violation. Hearing on the appeal before the City Manager or his/her designee shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the City Manager or their designee shall be final.

Sec. 16-259. ENFORCEMENT MEASURES AFTER APPEAL

If the violation has not been corrected pursuant to the requirements set forth in the Notice of Violation, or, in the event of an appeal, within 10 days of the decision of the City Manager or his/her designee upholding the decision, then representatives of the authorized enforcement agency shall enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.

Sec. 16-260. COST OF ABATEMENT OF THE VIOLATION

Within 30 days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment within 10 days. If the amount due is not paid within a timely manner as determined by the decision of the City Manager or his/her designee or by the expiration of the time in which to file an appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this article shall become liable to the city by reason

of such violation. The liability shall be paid in not more than 12 equal payments. Interest at the rate of 6 percent per annum shall be assessed on the balance beginning on the 1st day following discovery of the violation.

Sec. 16-261. INJUNCTIVE RELIEF

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Ordinance. If a person has violated or continues to violate the provisions of this ordinance, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

Sec. 16-262. COMPENSATORY ACTION

In lieu of enforcement proceedings, penalties, and remedies authorized by this Ordinance, the authorized enforcement agency may impose upon a violator alternative compensatory actions, such as storm drain stenciling, attendance at compliance workshops, creek cleanup, etc.

Sec. 16-263. VIOLATIONS DEEMED A PUBLIC NUISANCE

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this Ordinance is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

Sec. 16-264. CRIMINAL PROSECUTION

Any person that has violated or continues to violate this ordinance shall be liable to criminal prosecution to the fullest extent of the law, and shall be subject to a criminal penalty of _____ dollars per violation per day and/or imprisonment for a period of time not to exceed ____ days. The authorized enforcement agency may recover all attorney=s fees court costs and other expenses associated with enforcement of this ordinance, including sampling and monitoring expenses.

Sec. 16-265. REMEDIES NOT EXCLUSIVE

The remedies listed in this ordinance are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the authorized enforcement agency to seek cumulative remedies.

Sec. 16-266. ADOPTION OF ORDINANCE

This ordinance shall be in full force and effect immediately after its final passage and adoption. All prior ordinances and parts of ordinances in conflict with this ordinance are hereby repealed.

PASSED AND ADOPTED this ____ day of _____, 20__, by the following vote:

, MAYOR

ATTEST:

, CITY SECRETARY

MAJOR OUTFALL LOCATION MAP