

STORMWATER MANAGEMENT PLAN

for compliance with
Municipal Separate Storm Sewer System

Permit No. WQ0004200000

Permit Renewed: October 20, 2020



Prepared by the City of City of Corpus Christi, Stormwater Environmental Quality Division, to meet the requirements of the TPDES General Permit for Stormwater Discharges from Large MS4s.



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Introduction

Regulatory Requirement

The regulatory requirement for establishing a Stormwater Management Program (SWMP) came out of the Clean Water Act (CWA) and its amendments. Congress passed the act into law by two thirds majority on October 18, 1972. The CWA directed the U.S. Environmental Protection Agency (EPA) to promulgate rules to implement the new law. In doing so, it developed the National Pollutant Discharge Elimination System (NPDES) to issue permits aimed at reducing the pollutants from point sources. In 1990, the CWA was amended to require certain Municipal Separate Stormwater Sewer Systems (MS4) to obtain NPDES permits. The MS4 program was rolled out in two phases: Phase I required medium and large MS4s that served a population of 250,000 or more to implement a stormwater management program to reduce and control pollution to receiving waters. Phase II included smaller cities that were not covered in Phase I. Phase II permits are general permits while Phase I permits are individual permits. This permitting structure considers the unique characteristics of the large urban watershed. The City of Corpus Christi is a Phase I MS4.

Corpus Christi Stormwater Permit History:

Corpus Christi was the first city in Texas to receive a Phase I NPDES permit that became effective on June 1, 1996 (Permit number TXS000601). The Texas Commission on Environmental Quality received authority to administer the NPDES permit program for stormwater discharges on September 14, 1998. This program is called the Texas Pollutant Discharge Elimination System (TPDES). The City applied for the TPDES permit on November 30, 1999 and was declared administratively complete on June 22, 2000. The TPDES permit became effective on August 1, 2008, for a period of five years. The City applied for a minor permit amendment that eliminated fecal streptococcus from the grab sample requirement. The permit change request was granted, and the permit was re-issued with an effective date of December 1, 2009. The City and its co-permittees submitted and the TCEQ received an application for renewal of TPDES MS4 Permit WQ000420000 on February 11, 2013. The executive director declared the application administratively complete on April 10, 2013. Prior to the 2016/17 reporting period, Texas Department of Transportation – Corpus Christi TXDOT-CC was a co-permittee to TPDES MS4 Permit WQ000420000. On November 30, 2016, TXDOT-CC received authority to withdraw from the City of Corpus Christi's MS4 permit and was issued Permit WX0005011000. On October 20, 2020 TPDES MS4 Permit WQ0004200000 was revised and renewed for another 5-year permit term effective 10/20/2020 to 9/30/2025.

Permit Area

The City of Corpus Christi MS4 is located in Nueces, Kleberg, San Patricio, and Aransas Counties, Texas, and encompasses approximately 460 square miles with only 155 square miles being land and the balance covered by water. The MS4 watershed collects stormwater runoff

Stormwater Management Program (SWMP)

The SWMP is a guide to facilitate pollution reduction in stormwater that discharges to receiving waters from the MS4 system to the maximum extent practicable and to fulfill requirements of the TPDES permit. Reduction of pollutants in stormwater is expected to improve surface water quality of the receiving waters. Pollution reduction or elimination is achieved by a variety of activities known as Best Management Practices (BMPs) that may include public awareness, education and engagement, inspections of construction sites and industrial facilities, enforcement of ordinances, watershed and development planning, flood control projects, MS4 system design, maintenance and management, and discharge monitoring, to name a few.

This SWMP was developed to facilitate regulatory review and follows the format of the TPDES permit. It specifies the activities that the city will take to achieve the eight minimum control measures (MCMs) required by the permit. Measurable goals are developed and implemented according to the schedule over the five-year permit term. Effectiveness of the SWMP is examined every year with the Annual Report and changes are made if any BMP is deemed to be ineffective.

The Stormwater Treatment Division of the Public Works Department is primarily responsible for developing and implementing the SWMP, but nearly all city departments have varying degrees of responsibility for developing and implementing BMPs and reporting to the Stormwater Treatment Division on their effectiveness.

The City of Corpus Christi has three co-permittees: The Port of Corpus Christi, Del Mar College, and Texas A&M University at Corpus Christi. Each permittee is responsible developing and implementing their own SWMP. Each have unique concerns that are best addressed on an individual basis.

Legal Authority

The City of Corpus Christi is operated by a council-manager form of government. The elected mayor presides over eight elected council members from five districts and three city at-large elected positions. A city manager is appointed by the council. Activities within the city are regulated by Home Rule Authority by passing ordinances designed to protect the health, safety, welfare of its residents and that of the unique natural environments within the city limits. Ordinances that support the implementation of the SWMP include, but are not limited to, Stormwater Quality Management Plans, Prohibition of Pollution of the MS4, Pollution Control, Control of Aeolian Soils, Animal Care and Control, Emergency Management, Litter, Maintenance and Operation of Grease Interceptors and Oil/Sand Interceptors, Garbage, Trash and Refuse, and Beachfront Management and Construction.

SWMP Updates, Revisions, and Rationales for Revisions

This SWMP replaces the one developed for the permit with the effective date of December 1, 2009. Many of the selected BMPs and measurable goals remain the same as they have proven to be effective at reducing pollution in stormwater. New BMPs and measurable goals have been added to the existing ones to enhance the effectiveness of previous SWMPs and to meet the new TMDL requirements of the current permit.

SWMP Availability

The SWMP is available for review by contacting the Stormwater Treatment Division of the Public Works Department at (361) 826-1863. It is also posted on the City of Corpus Christi website at www.cctexas.com/departments/storm-water/about-our-system. Questions may be directed to the Environmental Services Superintendent position at (361) 826-1240.

Total Maximum Daily Load

1. Discharges to Water Quality Impaired Water Bodies with an Approved Total Maximum Daily Load (TMDL)

The permittees shall control the discharges of pollutant(s) that are of concern to impaired waters and waters with approved TMDLs....and shall assess the progress in controlling those pollutants (TPDES Permit, Part II, Section C.2.)

The city of Corpus Christi is currently subject to bacteria TMDL's in certain segments of its receiving waters. These impaired areas are: Cole, Ropes, and Poenisch Parks (2481CB_03, 04, and 06 respectively), and segment 2485A of Oso Creek. There is a wasteload allocation for Stormwater (WLASW) in the Oso Creek, but a 2012 study indicated that Stormwater discharges are responsible for <10% of the loading, and will be difficult to address. There is a TMDL for segment 2485 of Oso Bay, but it has been determined that Stormwater discharge is not a significant source of bacterial loading to the segment. An I-plan for these segments is currently being developed.

A. Targeted Controls

(Identifying areas of focused effort or implementing additional BMPs to reduce the pollutant(s) of concern in the impaired waters)

The city has implemented targeted controls in the TMDL areas by focusing existing programs in these sections. The city has a Stormwater quality team that focuses on illicit connection and discharge detection and elimination through an MS4 screening program. This team also enforces local ordinances related to Stormwater pollution and has citation power.

The city is in the process of upgrading the sanitary sewer system in the TMDL areas in order to address capacity, sanitary sewer overflow issues, and pump station inadequacies. The progress of this program is monitored by the Utilities Compliance program.

Education is done by multiple departments to address the causes of bacterial loading to the impaired waters. This education includes information on how fats oils and greases (FOGs) can cause sanitary sewer overflows (SSO) through clogging sanitary sewer lines, the contribution of residential sites to bacterial loading, proper disposal of pet waste, and the proper maintenance and operation of decorative ponds.

As a TCEQ Authorized Agent, the Corpus Christi- Nueces County Public Health District is responsible for the proper implementation of Texas Health and Safety Code, Chapter 366, and 30 TAC Chapter 285 which regulate On Site Sewage Facilities (OSSF). As the authorized agent, the

Corpus Christi Nueces County Public Health District administers the OSSF program within Nueces County and Corpus Christi as approved by the Executive Director of the TCEQ.

B. Measurable Goals

For each targeted control, the SWMP must include a measurable goal and implementation schedule describing BMPs to be implemented during each year of the permit term, provided in the table below which is similar to MCMs.

Progress towards the goal of reducing the Stormwater component of bacterial loading will be measured by reducing the number of SSOs occurring in the TMDL segments, increasing the number of Stormwater inspections seeking illicit connections and discharges, reports of illegal dumping, focused residential education efforts on sources of bacteria, and the number of upgrades made to the sanitary sewer system and pump stations.

C. Identification of Benchmarks

The benchmark the Stormwater management program aims to achieve is the waste load allocation to Stormwater from the respective TMDL. Benchmark units are in billions of colony forming units per day (bil CFU/day).

Impaired Water	Impairment	Benchmark
Segments: Cole, 2481CB_03 Ropes, 2481CB_04 Poensch: 2481CB_06	Bacteria	CB_03: 734 bil CFU/day CB_04: 4,199 bil CFU/day CB_06: In progress
Oso Creek, 2485A	Bacteria	26.748 bil MPN/day Enterococci
Oso Bay, 2485	Bacteria	Stormwater not a significant bacterial loading contributor.

D. Implementation Schedule

Permit year one	Develop schedule for increased focus of dry/wet weather screening programs in TMDL zones with goal of improving detection illicit discharges into the MS4.
Permit year two	Develop and implement education plan in TMDL zones with focus on pet and grass waste disposal. Work with consent decree program to track upgrades to wastewater infrastructure to decrease wastewater overflows to MS4. Develop and implement program with pretreatment department to target restaurants for education on proper disposal of fats, oils, and greases.

	Implement dry/wet weather screening emphasis in priority areas.
Permit year three to five	Evaluate effectiveness of new BMPs and make adjustments as necessary to achieve permit compliance. Effectiveness to be measured by increase in educational events, number of illicit discharge detections and eliminations, and number of reports of illegal dumping.

MCM 1 - MS4 Activities

Structural Controls

To the MEP, the permittees shall continue to operate and maintain the MS4, including any stormwater structural controls in such a manner as to reduce erosion and the discharge of pollutants (TPDES Permit Part III, Section B.1.a.i)

Channel Side Slopes

Channel geometry criteria affects water quality by reducing erosion and increasing the sedimentation of pollutants and percolation at low flows which contain the highest concentration of pollutants. A channel with flat side slopes will erode less and maintain a better vegetative ground cover which filters stormwater and allows percolation into the channel bottom. The proposed comprehensive drainage master plan will require 4:1 slopes, space permitting for all new channels, and major upgrades. To assess the effect of changes in the drainage criteria for channel construction, an economic analysis was performed on the cost impact of various ditch criteria.

With the change in a side slope of a channel to a flatter grade, the amount of erosion decreases and the ability to maintain vegetation improves. These factors, in turn, improve the hydraulic capacity of the channel - which is its primary purpose. Thus, a channel with flat side slopes, which is well maintained, can be constructed significantly smaller in width and carry the same amount of stormwater runoff as a wider, poorly maintained ditch.

To analyze the actual cost of various channel side slopes, a numerical model which contained the variables of water depth, bottom width, side slope, frictional coefficients of the sides and the channel bottom, channel slope, flow quantity, and velocity, was constructed. From these variables, estimates were determined for excavation quantities, right of way requirements, vegetative treatment areas, and maintenance factors.

The model has been examined for a variety of different slopes, flow depth, and flow quantities. The optimum channel geometry to enhance water quality, considering all of the above factors, is a trapezoidal section with a flat bottom with 4:1 side slopes. The benefit to water quality is significant due to reduced erosion and improved percolation of low intensity and frequent rainfall runoff into the soil of the grassed-bottomed channels.

Vegetative Cover Requirements

Stabilizing slopes with a vegetative treatment greatly reduce the amount of soil erosion which occurs before native grasses and weeds take hold. Lower erosion reduces the amount

of pollutants reaching receiving waters and also reduces regrading maintenance of slopes. The choice of vegetative treatment compares acceptable levels of initial erosion versus the cost of the treatment. The most effective vegetative treatment is complete sodding but cost is high.

Cost effective vegetative treatment of some sort abates pollution and reduces maintenance action. The success of different treatments will depend upon the effectiveness of maintaining the slopes after application. Construction contractors are required to achieve vegetative growth on side slopes before a project is accepted as complete and usable. Treatment is a very minor portion of the total lifetime cost of a drainage channel. Therefore, the initial cost should not be the sole factor in determining the optimum method for adoption as standard construction practice on channels within the City. The City of Corpus Christi has traditionally favored vegetative cover but has utilized pervious pavers in areas with high erosion.

Erosion Prevention in Agriculture Areas

Reducing channel side slopes and providing vegetative treatment will greatly reduce the problems caused by soil erosion, but a problem remains in agricultural areas of the city where farming practices contribute to the erosion of channel banks. The problem is generally caused by farming practices that cultivate too closely to the top edge of the channel bank. The tilling under of the soil-retaining vegetation, several times a year, allows numerous washouts to occur when rainfall runs off the fields.

A line of vegetation along the top bank, in conjunction with a low berm which directs the runoff from the fields to a structure, will solve this problem and is the remediation method used by stormwater maintenance crews. Maintenance of an undisturbed vegetation zone or other stabilization method at least 10 feet wide along the top of all channels within a drainage ditch right-of-way should be considered on channels constructed adjacent to agricultural lands. Some regulations by the U.S. Soil Conservation Service require agricultural operations to maintain and follow a plan for preventing soil erosion. The actions by the City are also limited by the Agriculture Code which "limits the circumstances under which agricultural operations may be regulated or considered to be a nuisance" for agricultural areas of the City annexed after 1981.

Drainage System Maintenance and Mowing Programs

The goal of maintaining and mowing of drainage facilities is to ensure satisfactory operations and to preserve and enhance the quality of stormwater runoff.

The City's Stormwater Department maintains drainage ditch slopes and bottoms and maintains stormwater pump stations. The Parks and Recreation Department maintains street right of ways and ditch easements. Complaints related to illegal dumping into the City's storm sewer system are also investigated by Stormwater Department personnel.

These activities help eliminate obstructions from the drainage system to improve flow conveyance and water quality.

Removal of excessive vegetation, sediment, obstructions, and debris from drainage ways is performed year-around.

Certain channels require grading and dredging operations after large storms have changed the characteristics and conveyance. Heavy storm damage is the major cause of maintenance and repair of the stormwater drainage system.

Citizen inquiries and requests concerning the drainage system are assigned to an investigator. If a solution is determined to be feasible and appropriate, the work is assigned to a maintenance unit for action. Critical or emergency situations are dispatched by two-way radio to a maintenance unit for immediate action.

The City's mowing contracts require the contractor to furnish suitable machinery, equipment and labor as necessary to meet contract specifications.

The City shall set priorities for maintenance and repair activities based on the following criteria:

- a. Risk to public health and safety (including potential flooding)
- b. Water quality
- c. Complaints (usually about aesthetics)

Floatables

The permittees shall continue to implement a program to reduce the discharge of floatables (for example litter and other human generated solid refuse) into the MS4. The permittees shall include source controls at a minimum, and structural controls and other appropriate controls where necessary (TPDES Permit Part III, Section B.2.a.ii.)

a. Litter Removal

Litter is picked up along roadways and other public areas by city staff and mowing contractors. Additionally, contract personnel collect litter and debris prior to mowing the rights-of-way.

In addition to regular curbside garbage pickup, the City of Corpus Christi Litter Control Program targets (1) litter pickup in City rights-of-way, medians, and parks; (2) neighborhood cleanups of brush and bulky items on a scheduled basis; and (3) trash collection.

Heavy brush (tree limbs, shrub, clippings, etc.) is picked up by crews from the Solid Waste Services Department citywide on a scheduled basis. Although not as critical as litter in terms of leachate, excessive loose brush contributes to runoff obstruction and pollution.

The Litter Critter program of the Solid Waste Services Department allows neighbors to collectively dispose of household and yard debris. A resident may apply to have a brush truck placed in front of their home for the weekend to do a neighborhood cleanup. The Litter Critter was restarted in June of 2021 after being placed on hiatus during the 2020-2021 pandemic and will take place at set locations monthly in addition to resident requests.

In addition to the above programs, litter abatement (enforcement) is an active program within the City. The City employs Compliance Officers who cite illegal dumpers and refer cases to Environmental Court for prosecution.

By Ordinance, the City of Corpus Christi has the right to require premises within the city limits to be free of weeds, rubbish and unhealthful matter. As litter-filled or overgrown vacant lots are identified, the owner is contacted and is notified to clean up his/her property within 10 days. If a follow-up inspection shows the owner to be in “non-compliance,” the City will issue a work order to a subcontractor for remediation. Any expense incurred by the City will be billed to the property owner. If the property owner refuses to pay the City, a lien is placed on the property.

The City of Corpus Christi evaluates ordinances on a regular basis and has recently modified several which relate to litter, brush, and care of premise. The City employs several Code Enforcement Officers across multiple departments that actively enforce these ordinances. The City frequently partners with non-profit organizations such as the Beautify Corpus Christi Association, and the Coastal Bend Bays Foundation to assist in volunteer cleanups and education and outreach.

The City’s two downtown stormwater drainage pump stations have been retrofitted with trash rakes that capture trash and debris from the runoff, preventing it from being discharged into the receiving waters. The trash rake system captures an average of over 50 tons of trash and debris annually.

The City has over 18,000 inlets within its stormwater drainage infrastructure. Two vacuum trucks are assigned to clean each inlet on a three-year cycle or when conditions demand more frequent cleaning. This best management practice prevents over 200 tons of debris from being discharged into receiving waters.

Roadways

The permittees shall continue to operate and maintain public streets, roads, and highways (excluding public streets, roads, and highways under

jurisdiction of the Texas Department of Transportation's MS4 permit) to minimize the discharge of pollutants, including pollutants related to deicing or sanding activities (TPDES Permit Part III, Section B.2.a.iii)

a. City Street Department Activities

The City assesses the need for inlet protection on individual street projects depending on the size of the repair and the proximity of a storm water inlet. Inlet barriers will be placed in front of an inlet as needed to prevent the discharge of street repair materials and removed following the completion of the repair.

As needed, following street overlays or seal coating, street sweepers are contracted to remove excess rock from the streets, and curbs and gutters.

b. Street Sweeping

The City currently performs street sweeping operations in the downtown area, on selected collector streets, and after street projects. The Storm Water Department is responsible for management and operation of this program which targets the cleaning of City streets to remove trash, litter and dirt which have collected in the streets and gutters. This program addresses health, safety, aesthetic, and water quality concerns. The City contracts this service to a private company.

As needed, following street overlays or seal coating, street sweepers are contracted to remove excess rock from the streets, curbs, and gutters. At the end of 2021 all contracts will be ended, and 3 new street sweepers purchased.

(3.C. Measure: number of miles of curb and streets swept in a year.)

c. Litter Control

The City of Corpus Christi Code of Ordinance. Chapter 22, Sec. 22-2. Littering prohibited in public places.

Litter is picked up along roadways and other public areas by city staff and mowing contractors. Additionally, contract personnel collect litter and debris prior to mowing the rights-of-way. In addition to regular curbside garbage pickup, the City of Corpus Christi Litter Control Program targets (1) litter pickup in City rights-of-way, medians, and parks; (2) neighborhood cleanups of brush and bulky items on a scheduled basis; and (3) trash collection. The Litter Critter program of the Solid Waste Services Department allows neighbors to collectively dispose of household and yard debris. A resident may apply to have a roll off box placed in front of their home for the weekend to do a neighborhood cleanup. The city uses ordinance **Chapter 22, Sec. 22-2. Littering prohibited in public places** to regulate and control litter from the public and commercial interests within the city.

d. Deicing

The City of Corpus Christi coordinates activities associated with icy roads with the Texas Department of Transportation. On the rare occasions that icy conditions may cause hazards, the City Street personnel apply trap rock to roads and bridges, and have it removed when conditions allow.

MCM 2-Post Construction Stormwater Control Measures

Areas of New Development and Significant Redevelopment

The permittees shall continue implementation and enforcement of the controls to minimize discharge of pollutants from areas of new development and significant redevelopment, after construction is completed. The goals of such controls must include a) limiting increases in erosion and the discharge of pollutants because of new development and 2) reducing erosion and the discharge of pollutants in stormwater from areas of redevelopment. (TPDES Permit Part III, Section B.2.b.i)

City of Corpus Christi Code of Ordinance. Chapter 14, Article X, Sec. 14-1003. Stormwater Quality Management Plans.

A site-specific stormwater quality management plan for all residential, commercial, and industrial development of one (1) acre or more must be submitted with a preliminary/final plat. As a minimum the plan must include the location of ultimate outfall, receiving waters, and any environmentally sensitive areas. The plan must also state whether an NPDES or TPDES stormwater pollution prevention plan or a pollution plan will be submitted to the City of Corpus Christi. Moreover, the stormwater quality plan must be sealed by a registered professional engineer licensed to practice engineering in Texas.

Comprehensive Master Planning Process

The permittees shall continue to implement a comprehensive master planning process (or equivalent) to include all new development and redevelopment projects that disturb one acre or more of land including projects that are part of a larger common plan of development or sale that will result in a disturbance of one acre or more (TPDES Permit Part III, Section B.2.b.ii.)

The City of Corpus Christi's Comprehensive Plan identifies the management objectives for receiving waters. In 1987, the City Council adopted a policy statement concerning storm water, which has been incorporated into the Comprehensive Plan. One of the most important goals of the policy statement is to protect the natural amenities of the Corpus Christi area. The natural amenities of the area such as the bayfront, the aquatic recreation areas, and the topography all play an important role in making Corpus Christi a desirable place to live. These amenities provide a direct and inherent economic advantage over other communities. For these reasons, it is critical that these

natural amenities be protected from pollution and the area preserved for the future. Area Development Plans included in this management plan address issues such as protecting environmentally sensitive lands, protecting water quality, and ensuring the best use of private and public open spaces. The Comprehensive Plan indicates future growth areas of the community are included the Future Land Use and Area Development Plans.

The Comprehensive Plan also includes a Master Plan for Storm Water Drainage which provides detailed information on topography and proposed drainage channels.

Regulatory Mechanism, Structural and Non-Structural Controls, and Long-term Operation and Maintenance of BMPs

The permittees shall evaluate the existing SWMP as necessary to ensure that this MCM includes a regulatory mechanism such as an ordinance to implement and enforce the new requirements of this program and shall ensure that the SWMP includes strategies for structural and/or nonstructural controls (i.e., BMPs) appropriate for the community. In addition, the permittees shall provide for adequate long-term operation and maintenance of BMPs. (TPDES Permit Part III, Section B.2.b.iii)

a. Platting Ordinance

The City of Corpus Christi Platting Ordinance, Chapter 42, Sec. 42-1, No. 4168 details requirements for establishing criteria for design and construction of subdivision improvements including minimum design flows for drainage, acceptable limits of street flood, and gutter and inlet construction standards. The City of Corpus Christi passed an ordinance authorizing the enforcement of a Flood Hazard Prevention Code in compliance with FEMA requirements. The ordinance also includes provisions for development permits for construction within the City.

b. Stormwater Quality Management Plans

City of Corpus Christi Code of Ordinance. Chapter 14, Article X, Sec. 14-1003. Stormwater Quality Management Plans.

The Storm Water Quality Management Plans---requires a site-specific storm water quality management plan for all residential, commercial, and industrial development of one (1) acre or more be submitted with a preliminary/final plat. As a minimum the plan must include the location of ultimate outfall, receiving waters, and any environmentally sensitive areas. Moreover, the storm water quality plan must be sealed by a registered professional engineer licensed to practice engineering in Texas.

(2.C. Measure: number of accepted and approved Storm Water Quality Management Plans with total acreage encompassed.)

c. **Guidance Document – Post Construction**

The city adopted a handbook, “GUIDANCE DOCUMENT FOR DEVELOPMENTAL PLANNING & CONSTRUCTION ACTIVITIES”. This handbook has been prepared to provide technical guidance related to erosion and sediment controls and other measures to reduce pollutants from developing sites. The document is to be used as a guidance manual to implement a local storm water quality management program for new residential, commercial, and industrial developments and significant redevelopments. It is to be used as a general guidance manual in preparing individual storm water permit applications for construction activities or in preparing and implementing SWP3s required under provisions of the general permits for construction activities. It is also to be used as a guidance manual to implement a local storm water management program for construction activities.

The technical guidance and best management practices (BMPs) described in this handbook will provide information to owners, engineers, architects, and contractors to facilitate compliance with storm water permit requirements and with local regulations. The handbook discusses the preparation of erosion and sediment and other source control plans, the incorporation of BMPs in the design phase of improvements, and their implementation during construction. Development Services Department will establish a library or City document area for the public regarding technical construction standards and guidance documents related to erosion and sediment controls on development sites. In addition, handouts are provided to the customers at the time of permit issuance.

d. **Development along the Nueces River**

Portions of the Nueces River are in the city limits and other portions lie within the extraterritorial jurisdiction (ETJ). These areas must comply with all conditions set forth by the City’s Platting Ordinance, such as- the establishment of minimum requirements for lot sizes, road right-of-way widths, and ditch slope design. Drainage plans must be prepared and submitted by a registered engineer to the Development Services Department to determine compliance with the platting ordinance.

Flood Control Projects

The permittees shall assess the impacts on the receiving water(s) for all flood control projects. Where feasible, new flood control structures must be designed, constructed, and maintained to provide erosion prevention and pollutant removal from stormwater. (TPDES Permit Part III, Section B.2.b.iv)

a. **Federal Emergency Management Agency (FEMA)**

The City of Corpus Christi is authorized by local, state, and federal regulations to provide floodplain management to reduce flood damages and minimize the risk and danger of flooding. The floodplain management practices employed by the City of Corpus Christi are

endorsed by the Federal Emergency Management Agency (FEMA) because of their assigned reduction in risk and federal government floodplain insurance obligations.

The Federal Emergency Management Agency (FEMA) has studied the major creeks and drainage ways within the Corpus Christi area. As a result, FEMA has established floodplain elevations and floodplain widths for various design storms. Additionally, FEMA has specified floodways which comprise the minimum areas of the mainstream channel which must remain open and free from future land development improvement in order to pass the 100-year storm with no net rise in flood waters. This effectively prevents the placement of any fills or structures within this area along the main channel. In order to participate in the National Flood Insurance Program, the City and County are required to maintain FEMA's criteria for construction within the designated special flood hazard areas. To establish flood hazard areas, the City Council has adopted the Flood Insurance Rate Maps (FIRM) and Flood Boundary and Floodway Maps (FBFM) and supporting data. The FIRMs include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled "The Flood Insurance Study for Nueces County, Texas, unincorporated areas," dated September 27, 1972, as amended or revised, with the accompanying FIRM and FBFM and related supporting data. The criterion requires structures to be elevated above the 100-year flood elevation (or flood proofed), and to be located outside of the floodway.

b. Flood Hazard Prevention Code

City of Corpus Christi Code of Ordinance. Chapter 14, Article V. Flood Hazard Prevention Code.

The purpose of the Flood Hazard Prevention Code is to promote public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas.

Whenever necessary to make an inspection to enforce any of the provisions of the Code, or whenever the Floodplain Administrator, or duly authorized representative, has reasonable cause to believe that there exists in any building or upon any premises any condition of code violation which makes such building or premises unsafe, dangerous or hazardous, the Floodplain Administrator may enter such building or premises at all reasonable times to inspect the same or to perform any duty imposed upon the Floodplain Administrator by this Code, provided that if such building or premises is occupied, he shall first present proper credentials and request entry.

Upon notice from the Floodplain Administrator that work on any building, structure, dike, bridge or any improvement which would affect water drainage, is being done contrary to the provisions of this Code or in a dangerous or unsafe manner, such work shall be immediately stopped.

The Code lists provisions for flood hazard reduction that relate to drainage ways, new development, and significant redevelopment. The procedures for obtaining permits within flood hazard areas, and additional rules relating to the construction of structures within flood hazard areas, are published in the City of Corpus Christi Code of Ordinances. Development is prohibited within floodways unless a hydrologic and hydraulic study determines no net rise. Floodways are located in special flood hazard areas where velocity of waters which carry debris, potential projectiles, and erosion potential are addressed.

The Floodplain Administrator is assisted by the Floodplain Review Committee consisting of three positions, as follows:

- 1) Engineering Services staff member knowledgeable in subdivision development and hydrology.
- 2) Planning Department staff member knowledgeable in subdivision planning, and platting.
- 3) Community Development staff member knowledgeable in construction practices.

c. Information Bulletin – IB008 Pre/Post Construction Drainage Plan

The city adopted information bulletin IB008 in 2021. IB008 addresses the need for a design professional stamped pre and post construction drainage plans for infill and island lot construction. We look to expand this IB in conjunction with any storm water design manual to implemented in the coming four years.

d. Training and Education

Development Services Department continues to educate our staff and our customers with our extensive outreach programs and internal trainings. Our staff trains twice a month on varied subjects and storm water management has been a subject. We also inform our customers and citizens through numerous meetings and varied communication outlets like social media and email blasts.

MCM 3-Illicit Discharge Detection and Elimination

Illicit Discharge and Improper Disposal Screening and Inspections

The permittees shall prohibit illicit non-stormwater discharges from entering the MS4. The permittees shall continue to implement a program, including a schedule to detect and eliminate illicit discharges and improper disposal into the MS4. This program shall include:

A) A description of the program, including inspections procedures, frequencies, and methods for detecting and preventing illicit discharges, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the MS4; In addition, within one year from the date of permit issuance, the program must include items B) thru G):

B) A description of procedures to conduct on-going field screening activities, including areas or locations that will be evaluated by such field screens.

C) A description of procedures to be followed to investigate portions of the MS4 that indicate a reasonable potential of containing illicit discharges or other sources of non-stormwater; (TPDES Permit Part III, Section B.2.c.i)

a. Dry / Wet Weather Screening Program

The City of Corpus Christi – Environmental Services Division has implemented a dry / wet weather screening program to detect and eliminate illicit connections and discharges into the MS4. Throughout the permit period EQS’s systematically inspect outfalls, manholes, and Stormwater inlets for flowing water. The goal of the program is into inspect at least 20% of the outfalls and manholes in the city during the permit duration to ensure proper flow and quality of the MS4. Areas of priority for inspection are the TMDL discharge segments, with a set schedule to inspect these outfalls and manholes several times during the permit year.

b. Improper Disposal Screening Program

The city of Corpus Christi is divided into five zones with an EQS assigned to each zone. Throughout the day the EQS will patrol their zone looking for signs of illegal dumping into the city MS4. Signs can include staining around storm drains, sediment in the curbs and gutters, and residents and contractors placing grass into streets, curbs, and storm drains. If the EQS finds violations, they will address the responsible party (RP) regarding the violation. The EQS will first educate the RP as to ordinances related to the violation. If

violations continue to occur the EQS can escalate to warnings, notices of violation, and finally citations and liens as needed.

c. Spill Prevention, Containment, and Response

A description of procedures to prevent, contain and respond to spills that may discharge to the MS4 (TPDES Permit Part III, Section B.2.c.i.D)

d. Hazardous Material Spill Response Team

The City of Corpus Christi has the potential for hazardous material spills that threaten the safety, health and welfare of its citizens and the environment. The potential is realistic considering Corpus Christi's location and the many industrial facilities located in the area.

To properly respond to hazardous and non-hazardous material emergencies, the City's Fire Department created the Hazardous Material Response Team (HMRT) in 1987. The goal of the HMRT is to provide specialized response techniques and services that minimize damages to humans or the environment, either through direct contact or through contamination of soil, water, or air. This is accomplished through training, pre-planning, acquisition of equipment, etc.

The City of Corpus Christi Fire Department has taken significant steps toward obtaining specialized equipment and tools to assist with improving citizen safety. The Corpus Christi Fire Department is setup in three (3) shift workforces utilizing a 24 hours on/48 hours off duty schedule. Fire Stations 3, 5, and 12 provide HMRT responsibilities as a collateral duty in addition to normal fire department operations. The HAZMAT vehicle at Station 12 is not staffed, but manned whenever there is need for HMRT response. On any given day, up to 17 of the 96 daily minimum staffing level are Texas Commission on Fire Protection (TCFP) Certified HAZMAT Technicians. These technicians are trained to the National Fire Protection Association (NFPA) 472 Chapter 7 Competencies for Hazardous Materials Technician and 29 Code of Federal Regulations (CFR) 1910.120 (g)(6)(iii) for technician level personnel. All other members on duty are trained to the HAZMAT Operations level as a minimum. The HMRT is capable of preparing for, responding to, and mitigation hazardous materials incidents utilizing air monitoring, sampling, spill/leak control measures, research, identification, and classification involving hazardous materials in transport or fixed facilities. The team can provide Unmanned Aerial Vehicle (UAV) (drone) support for operations at hazardous materials emergencies as well as the ability to build plume models that can assist with taking public protective actions that safeguard the citizens of Corpus Christi and the surrounding areas. In addition, the HMRT members attend additional training throughout the year on specific hazards such as incidents involving crude oil, liquidities natural gas, or chemical/biological/radiological/nuclear and high yield explosive emergencies.

In Spring 2020, Station 5 and Station 12 was combined in order to strengthen the team. After the merger, HMRT is housed at Station 3 and Station 5. The HAZMAT vehicle is staffed full time out of Station 5 (3105 Leopard ST) allowing the assigned members to focus on HAZMAT response priorities.

The City of Corpus Christi has mutual aid agreements with the local Refinery Terminal Fire Control (RTFC) and Williams Fire Control in Houston, Texas in case of an emergency beyond the control of the municipal fire department. In addition, the City is a member of the Corpus Christi Area Oil Spill Association which provides assistance in spill containment.

The Fire Department coordinates its activities with all governmental regulatory agencies, including Texas Commission on Environmental Quality; Texas Railroad Commission; Texas General Land Office; Texas Department of Public Safety; US Environmental Protection Agency; and the US Coast Guard. The Local Emergency Planning Committee (LEPC) Coordinator is an active participating member in the Corpus Christi Fire Department's HMRT program. As a liaison, the Coordinator shares information on local industry Tier II reports, operational updates, and helps coordinate training events with local industry. The Department also coordinates with other city departments, depending on the type and magnitude of a given incident, as outlined the City's Emergency Management Plan.

The City of Corpus Christi passed an ordinance requiring reimbursement from responsible parties for expenses incurred related to a hazardous material incident emergency response.

When the HMRT responds to a hazardous material spill, the responsible party is assessed a fee, under City Ordinance Chapter 18, Article 1, Sec. 18-3, of not less than \$100.00 and up to the actual cost of cleanup, whichever is greater. If a responsible party is not identified, the Department may attempt to recover costs from the U.S. Environmental Protection Agency under Title 40 Code of Federal Regulations, Part 310 [Reimbursement to Local Governments for Emergency Response to Hazardous Substance Releases].

e. Coordinated Spill Response Program

The Coordinated Spill Response Program (CSRP) is a coordinated effort between the Environmental Services team, CCPD, and CCFD to respond to motor vehicle fluid spills post-accident. Post-accident CCPD will contact Metrocom or gas dispatch to notify the EQS team if there is absorbent that needs to be recovered from the city roadways. The EQS team will only respond to accidents that occur on city roadways, with TxDOT responding to accidents on the freeways and state highways that run through the city.

The CSRP was implemented on July 27, 2017. The Effectiveness of the program is measured in the amount of liquid (gallons) and absorbent (pounds) removed and disposed of. The number of total spill responses prior to CSRP implementation averaged about 8 per year. From July 27, 2017, to March 8, 2018, the EQS team responded to 247 spills

recovering an estimated 578 gallons of motor vehicle fluid and 14,890 pounds of absorbent material. From November 1st, 2019 to October 19th, 2020 the EQS team responded to 339 accidents, recovering an estimated 531 gallons of automotive fluid and 26,560lbs of absorbent.

Promote, Publicize, and Facilitate Public Reporting

A description of a program to promote, publicize, and facilitate public reporting of illicit discharges or water quality impacts associated with discharges from the MS4 (TDPEs Permit Part III, Section B.2.c.i.E)

The City of Corpus Christi public awareness and education plan targets all segments of the community and consists of the year-round programs and special projects. The program scope has been designed to create citizen awareness on pollutants and their prevention.

The City of Corpus Christi has established a call center and mobile app to enable citizens to report a variety of issues, including illegal dumping, illicit discharges, littering, sediment tracking, and spills. The call center number is printed on materials distributed by the City and is included on the City's website.

The City of Corpus Christi Stormwater division also maintains a phone number and email address so that citizens can contact the division directly to report stormwater issues.

Education and Public Information to Facilitate Proper Management of Used Oil and Toxic Materials

A description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials; (TDPEs Permit Part III, Section B.2.c.i.F)

The City of Corpus Christi educates the public on the proper management and disposal of used oil and household hazardous waste through programs more fully described in MCM 4.

Limit of Overflows and Infiltration of Seepage from Municipal Sanitary Sewers

A description of controls to limit infiltration of seepage from municipal sanitary sewers to the MS4 where necessary. (TPDES Permit Part III, Section B.2.c.i.G)

a. Wastewater Pipelines

The City of Corpus Christi's Wastewater collection system includes approximately 1,274 miles of gravity and force mains and 97 lift stations. The Wastewater Department has the responsibility to maintain, inspect, and operate this publicly owned system, as well as

respond to all customer calls and complaints concerning wastewater collection and treatment. The collection system's primary goals are to ensure public health, continuously transfer wastewater from the private property through the collection system to the treatment plants, and to provide customers with uninterrupted sewer service.

The Plumbing Inspections Activity of the Development Services Department oversees and enforces the appropriate provisions of Codes and the City's Ordinances related to wastewater service connections at the private property line.

The Wastewater Collection Activity is funded through the Wastewater Department, an Enterprise Fund (revenues are generated by collecting of monthly utility bills). Inspection, maintenance, and many recurring repairs are performed by in-house forces. Larger rehab/replacement/rerouting projects are funded through the City's Capital Improvement Program. Renovation of existing or installation of new collection lines, lift stations and/or force mains are inspected by the City Engineering Services Construction Inspection Activity.

The Wastewater Collection Activity maintains the system's integrity through dye testing, high-pressure cleaning, root killing/removal, televising, smoke testing, manhole rehabilitation and affecting City-owned collection line repairs. These methods identify problem areas with defective facilities, infiltration, and exfiltration. In addition, when in the field, crews make visual inspections at and around the job site when doing maintenance or repairs, and these additional inspections may generate reports of irregularities which are evaluated for subsequent maintenance or repair.

The Wastewater Collection Activity's main line televising crew is primarily used to identify and mark defective pipe locations for repair crews, and to identify and report locations of infiltration into collection lines. If requested, the Wastewater Collection televising crew follows up on third party line inspections, confirming that lines are to grade and new sewer manholes are acceptable, to ensure the City is accepting good, long-lived collection facilities.

Smoke testing is focused on isolated areas that are selected and investigated to check for deficiencies, based on reports of odors, suspected infiltration, or cross connections to storm water lines. Small areas in the City are also selected for manhole condition inspection. This includes a detailed inspection of each manhole; noting any defects, repairs needed, and assessing the need for inflow inhibitors.

Combination Units and high -pressure cleaning units are the City's most active and thus far most effective means of identifying locations of defective pipe, thereby controlling exfiltration, and preventing overflows into the storm water system. Units operate 7 days

per week, performing both preventive maintenance cleaning of lines, and responding to customer reports of line obstructions by washing out and vacuuming settled debris.

Locations with extensive inflow and infiltration (I&I) or exfiltration are evaluated and prioritized for repair, replacement, rehabilitation, or rerouting. Cross-connections between sanitary sewers and storm sewers are remedied upon detection.

Within the City's Capital Improvement Program, there continues to be a consistent record of cleaning and televising of the collection system components by contract, to identify severe problems with structure and/or capacity of lines. Through Sanitary Sewer Evaluation Surveys, I & I and exfiltration in six individual treatment plant service areas are assessed. As with in-house forces noted above, this is an excellent avenue to locate cross-connections with the storm water system, and to remove sources of exfiltration of wastewater into storm water facilities.

The Wastewater Department has developed and continuously updates the Geographic Information System infrastructure base map layers for the Wastewater collection system. Through overlaying these digital layers over other department layers, the proximity of wastewater lines to storm water facilities can be assessed during repair work planning and help minimize opportunities for damage. This, along with the use of a line locating service, helps to preclude exfiltration of wastewater into storm water lines.

b. Wastewater Pretreatment Program

The City of Corpus Christi has a Pretreatment Program, which was established by the Clean Water Act, and is implemented through the General Pretreatment Regulations and Categorical Pretreatment Standards in 40 CFR. It involves a joint effort with the State and Federal government to control pollutants from non-domestic (i.e. industrial and commercial) wastewater sources and prevent toxic pollutant pass through, interference, and sludge contamination at Wastewater Treatment Plants and the sanitary sewer collection system.

Some industrial dischargers are required to pretreat their wastewaters, prior to discharge to the sanitary sewer collection system, in accord with national pretreatment standards (consisting of Federal prohibited discharge standards, technology-based categorical standards, and technically based local discharge limits). In addition, industrial users must meet other obligations such as monitoring, reporting, and spill prevention. The City also monitors the users to ensure compliance.

The City of Corpus Christi Wastewater Department is the principal developer and enforcer of the Pretreatment Program. The EPA approved Program consists of narrative enforcement methodology including an Ordinance, Article XI. Commercial and Industrial Waste Disposal and Pretreatment Sec. 55-140 through 55-149, and an Enforcement

Response Plan (ERP). The ERP contains procedures for the enforcement of pollution control measures and establishes who will be involved in enforcement actions.

The City's Pretreatment Program was first approved in 1984 and subsequently amended in 1992 and 2005. It has been very effective in regulating discharges from industrial and commercial users.

c. Private On-site Wastewater Systems

As a Texas Commission on Environmental Quality (TCEQ) Authorized Agent, the Corpus Christi- Nueces County Public Health District is responsible for the proper implementation of Texas Health and Safety Code, Chapter 366, and 30 TAC Chapter 285 which regulate On Site Sewage Facilities (OSSF). As the authorized agent, the Corpus Christi Nueces County Public Health District administers the OSSF program within Nueces County and Corpus Christi as approved by the Executive Director of the TCEQ.

Consent Decree

As part of a settlement with the Environmental Protection Agency, the U.S Department of Justice, and the Texas Commission on Environmental Quality, the City of Corpus Christi has agreed to reduce Sanitary Sewer Overflows (SSO) within its jurisdiction, formally entering a consent decree with all interested parties. The decree requires that the city clean 12% of small gravity mains by January 11, 2031. As SSO's present a threat to the MS4, the consent decree program shares any SSO's that discharge wastewater into the MS4 to the Stormwater Environmental Services division. In addition, the consent degree program also assesses the wastewater system to determine what, if any, remediation is required, with a timeline of January 11, 2025 to complete and submit remediation plans, and January 11, 2036 as a deadline for completing remediation.

Progress towards this goal is measured in miles of gravity mains inspected and number of SSOs remediated.

Categories of Permitted Miscellaneous, Non-Stormwater Discharges

The SWMP must identify all categories of miscellaneous, non-stormwater discharges that may be discharged into the MS4 and include a description of any local controls or conditions placed on discharges exempted from the prohibition on non-stormwater. (TPDES Permit Part III, Section B.2.c.iii)

MCM 4-Pollution Prevention and Good Housekeeping for Municipal Operations

a. Pollution Prevention and Good Housekeeping Program.

The permittees shall continue to implement a pollution prevention and good housekeeping program for municipal operations. The program must include MCMs that address:

A) Identification and implementation of good housekeeping and BMPs to reduce pollutant runoff from municipal operations such as street and highway maintenance, parks, municipal office buildings and water treatment plants.

B) Reduction of discharge of pollutants to the MEP from road repair, equipment yards, and material storage facilities, or maintenance facilities.

C) Training for all employees responsible for municipal operations which includes information on preventing and reducing stormwater pollution from all municipal operations subject to this MCM; and

D) Within one year from the date of permit issuance, implement a program for structural control maintenance. (TPDES Permit Part III, Section 2.B.d.i)

b. Identification and Implementation of Good Housekeeping and BMPs from Municipal Operations

Municipal Marina

Bilge Water and Wastewater Collection

The City of Corpus Christi Municipal Marina has invested in many improvements which have reduced the oil and wastewater discharges into the MS4 from the boating community. It is equipped with a bilge water reclamation system which pumps out oily bilge water for proper disposal. Bilge pumping activities are supervised by marina staff to prevent and mitigate spills. Spill response materials are kept next to the bilge pumping area. The Marina also has vacuum systems along the docks for wastewater discharges. In recent years, Texas General Land Office has evaluated adding other bilge water reclamation systems in Cover Harbor, Aransas Pass Harbor, and Port Aransas Municipal Marina to accommodate the many citizens with boats in that area. As the city grows, the number and placement of these systems are anticipated to increase.

Marina Operations

Municipal Marina Operations include minimal vegetation management, by contract, with no pesticide application. Sanitation activities include changing out trash cans/liners, collecting ground litter, and skimming floatable debris from adjacent waters. Marina employees remove trash from piers and park areas 24 hours, 7 days per week which helps reduce debris from entering into the bay and waterways. Collected trash is removed from the premise by a licensed contractor. Bilge water and engine lubricants are collected, separated, and removed from site by licensed contractor.

The City of Corpus Christi Parks & Recreation Department - Marina Division maintains a Stormwater Pollution Prevention Plan (SWP3).

The Corpus Christi Marina is also a member of the Clean Marina program which is a voluntary program that encourages environmental stewardship through guidance and incentives. Clean Marina Programs (which vary from state to state) offer marina operators and boaters guidance and technical assistance in fulfilling best management practices that can be used to reduce or prevent pollution.

The Corpus Christi Marina has voluntarily taken many measures to reduce pollution. The Marina offers free contaminated bilge water pump outs to interested boaters, regardless of whether they are personal boats or commercial fishing boats. The marina provides training on how to use the free pump out facilities and provides demonstrations when needed. The Corpus Christi Marina also provides details and printed information on environmental practices in the marina.

Airport Activities

The Corpus Christi International Airport (CCIA) currently maintains a TPDES Multi-Sector General Permit (MSGP) and Stormwater Pollution Prevention Plan (SWP3) as well as a Spill Prevention Control and Countermeasure (SPCC) Plan. A training program has been implemented that addresses elements of each plan as well as procedures to be followed to prevent and control spills. Facility inspections are performed regularly, and copies of inspection forms are maintained onsite. CCIA performs quarterly wet and dry inspections of the designated outfalls on Airport property in accordance with the SWP3. In addition, quarterly meetings with CCIA and tenant personnel are conducted along with yearly training. CCIA also conducts yearly inspections of all the CCIA and tenant facilities and materials on airport property.

Spill response equipment maintained on site consists of absorbent pads, granular absorbent material, waste containers, shovels and brooms. The City of Corpus Christi Fire Department (CCFD) will provide additional resources when necessary.

Landfill Stormwater Discharge Monitoring Program

Solid Waste operates an active landfill and a waste transfer station. Cefe Valenzuela is the active landfill and contains above ground double wall fuel tanks and maintenance barn. Product and Used Oils are stored in their original packaging on secondary containment pallets. All contact water and leachate are drained or pumped to onsite evaporation ponds. JC Elliott Transfer Station operates as a collection drop off point for all solid waste in the city. All contact stormwater is drained to a detention pond that is pumped to Greenwood WWTP. In addition, household hazardous waste is stored under roof and on secondary containment pads. Both sites operate under unique SWPPP on file with TCEQ.

The new landfill, Cefe Valenzuela, is located outside the city limits in Nueces County, 14 miles southwest of Corpus Christi's City Hall, at the intersection of Farm to Market 2444 and County Road 20. The Cefe Valenzuela Landfill opened in October 2007, under MSGP, TXR050002.

This Landfill is classified as a Type K Municipal Solid Waste Management Facility, which allows for the disposal of Municipal Solid Waste, class 1 Non-hazardous Industrial Waste, Class 2 Industrial Waste, Class 3 Industrial Waste, and Special Waste. The landfill property covers 2,273.59 acres.

A site-specific Stormwater Pollution Prevention Plan (SWP3) has been developed for the Cefe Valenzuela Landfill and the City has applied for a TPDES Multi-Sector General Permit. All monitoring will be conducted in accordance with this plan.

J.C. Elliot Transfer Station and Citizen Collection Center

The J.C. Elliott Landfill was a 258-acre permitted site for the disposal of municipal solid waste. It no longer accepts waste, but programs managed at this site include:

- Leachate & condensate management and disposal. Leachate and condensate are periodically released for direct disposal to the Greenwood Wastewater Treatment Plant. Records of releases are maintained onsite.
- Stormwater runoff management. Stormwater management is implemented per the Landfill's Site Operating Plan (SOP) and Stormwater Pollution Prevention Plan requirements. The Landfill uses hay bales at each stormwater letdown to act as a natural filter media for the control of suspended solids.
- Used Oil Disposal Program. The household hazardous waste collection facility, located at the J. C. Elliott Transfer Station, is open six days a week to the public as a convenient drop-off location for both lead acid batteries and used motor vehicle oil.
- Recycling Collection. The City of Corpus Christi collects recyclables daily except on Sundays and City Holidays. An outside vendor is used for the recycle drop offs located at several sites within the City. Heavy appliances may be dropped off at J. C. Elliot Transfer Station.

Wastewater Treatment Plants

The EPA, under the Clean Water Act, published final regulation on November 16, 1990, and requires permits for stormwater discharges from industrial activities. The industrial activities include wastewater treatment facilities with design capacity of 1.0 MGD or greater. The City of Corpus Christi has six wastewater treatment plants (WWTP), which each have a design capacity exceeding 1.0 MGD.

Each WWTP has its own unique TPDES permit and SWP3 in accordance with its facility's TPDES MSGP.

Current procedures are reviewed in order to monitor and reduce any potential storm water discharges/runoff from these facilities. An inventory to identify potential sources of storm water contamination areas was conducted.

Best Management Practices (BMPs)

- a. A concrete pad with berm has been installed around the manholes where the liquid waste haulers discharge to the plant. These manholes with pads and berms, which drain to the plant lift station, will contain any spills resulting from liquid waste discharges.
- b. The pollution prevention team checks the mechanical bar screens regularly and will make certain that all debris is properly disposed. A bar screen high level alarm alerts plant operators when this equipment is not operating properly.
- c. The corbels of manholes have been raised to alleviate the problem of spills.
- d. All problem areas where spills had occurred in the past or where potential spills can occur have been modified either by berming or by draining the area back to the head works.
- e. The walls of aeration tanks have been raised to alleviate the problem of spills.

Sludge, grit, and screenings from the treatment plants are transported to the landfill either by containerized trucks or by dump trucks. The containers are made out of sheet metal and do not have any drains; hence, the chance of discharging contaminated liquid from them is minimized. The dump trucks are parked at designated areas in the plants, under chutes on concrete pads which drain to the head works.

Site for Treating Sludge

Each plant has its own sludge treatment facility. All plants are furnished with belt filter presses which are installed indoors, and the sludge dewatering equipment does not come in contact with precipitation or storm water runoff. Sludge from the wastewater treatment plants is taken to the Cefe Valenzuela Landfill.

Chemical Storage

Each plant, except one, has outdoor storage tanks for disinfection chemicals. All disinfection chemical storage tanks are furnished with secondary containment facilities which prevent chemical spills due to tank or feed equipment failures from becoming exposed to storm water runoff.

O.N. Stevens Water Treatment Plant

The City of Corpus Christi operates the O.N. Stevens Filtration Plant and two river pump stations.

The following Best Management Practices are utilized at the O.N. Stevens Filtration Plant to protect stormwater from potential pollutants.

BMPs for Loading and Unloading of Materials

- Drum handling is conducted with approved equipment such as dollies, grapplers, pallets, and drum containments.
- All chemical solution machines and rail car bulk storage are labeled with approved EPA NFAP/DOT placards.

BMPs for Liquid Storage in Above Ground Tanks

- All liquid chemical storage tanks are contained within concrete containment facilities. Drainage of containment facilities is routed to an internal plant drainage and recycling system.
- Oil absorbent socks/pads are stocked at the plant's warehouse.
- Chemical absorbent socks/pads are stocked at the plant's warehouse.
- Chlorine leak detection systems are located in the chlorine railcar unloading facility and in the chlorine evaporation and gas measurement building.
- The chlorine railcar unloading facility is equipped with a water deluge system that sprays water on top of the railcars and also forms water curtain walls at each end of the facility. The spent deluge water is routed to the Pre-Sedimentation Pond.
- Used oil is stored in barrels in a plastic lined containment area.
- Diesel fuel for the water treatment plant's auxiliary power is stored in double walled steel tanks. O.N. Stevens is subject to the EPA's Spill Prevention Control and Countermeasure (SPCC) rule, and as such operates under a SPCC Plan.

Discharges authorized by a Separate NPDES or TPDES Permit

a. Non-Stormwater Discharge Ordinance

City of Corpus Christi Code of Ordinance. Chapter 55, Article XVI, Sec. 55-203. Prohibited discharges into the MS4. The ordinance regulates the discharge of certain materials into the City of Corpus Christi MS4 providing a penalty for the violation of such provisions and directing publication of subject ordinance.

b. Firefighting Activities

Program descriptions must address discharges or flows from fire-fighting activities only where such discharges or flows are identified as significant sources of pollutants. (TPDES Permit Part III, Section B.2.c.v.)

Firefighting activities are not identified as significant sources of pollutants in the City of Corpus Christi.

c. Elimination of Illicit Discharges and Improper Disposal

The permittees shall continue to 1) keep a list of techniques (inspection procedures, frequencies, and methods) for detecting and preventing illicit discharges and revise the procedures as necessary; and 2) use appropriate actions and enforcement procedures for removing the source of an illicit discharge, and revise where necessary (TPDES Permit Part III, Section B.2.c.vii.B)

The illicit discharge and improper disposal program is discussed in MCM 2, and includes brief descriptions of goals associated with the program.

d. Household Hazardous Waste and Used Motor Vehicle Fluid.

The permittees shall prohibit the discharge or disposal of used motor vehicle fluids, household hazardous wastes, and the intentional disposal of collected quantities of grass clippings, leaf litter, and animal wastes into the MS4.

A) The permittees shall ensure the implementation of programs to collect used motor vehicle fluids (including, at a minimum, oil and antifreeze) and household hazardous waste materials (including paint, solvents, pesticides, herbicides, and other hazardous materials) for recycling, reuse, or proper disposal. Such programs shall be readily available to the residential sector within the MS4 and shall be publicized and promoted on a regular basis. (TPDES Permit Part III, Section B.2.c.ix)

The City of Corpus Christi has developed a disposal program for Household Hazardous Waste (HHW) from area residents. This program emphasizes the importance of proper disposal of such products that may be harmful to human health, the environment and groundwater. Program objectives are:

- 1) To make the public aware of consumer products classified as household hazardous wastes and educate them on the proper method of disposal.

- 2) To explain the environmental danger associated with the improper disposal of household hazardous waste and how the public can correct the situation.
- 4) To establish a permanent collection site to facilitate the disposal of household hazardous waste.

Used motor vehicle fluids are accepted at the household hazardous waste collection facility daily during normal business hours at the J. C. Elliot Citizen Collection Center. The following items are currently being accepted at the facility:

Automotive

- Anti-freeze
- Solvents
- Oil
- Brake fluid
- Batteries
- Transmission fluid

Cleaning supplies

- Drain cleaners
- Cleaner concentrates (powders, liquids)
- De-greasers, oven-cleaners
- Moth balls
- Cleaning solvents, spot removers, polishes
- Pool chemicals and household batteries

Paint

- Spray paint
- Paint thinners
- Paint strippers
- Wood preservatives
- Bruch cleaners

Gardening

- Pesticides
- Any sprays or dusts
- Weed killers
- Rat poison
- Insecticides

All collections are monitored by the site trained employees. The collection site includes office buildings, equipment storage buildings, above-ground waste oil tanks, hazardous material storage buildings, permanent canopy area over a treated concrete foundation, and security gates and fencing.

The program operates under the jurisdiction of the City of Corpus Christi Solid Waste Department. A contract has been awarded with a solid waste disposal firm for material identification, sorting, packaging, transportation, and ultimate disposal of materials collected. The contractor is required to reuse paints and recycle materials as much as possible.

The J.C. Elliott Transfer Station and Citizen Collection Center is convenient to all sectors of the community for household hazardous waste drop-off. In order to provide a higher service to the community, household hazardous waste collection is available six days per week from 8:00am to 5:00pm instead of utilizing the well-publicized quarterly events.

The City of Corpus Christi educates the public on the proper management and disposal of used oil and household hazardous waste through programs more fully described in the Stormwater Public Education and Outreach Plan.

Within one year from the date of permit issuance, the permittees shall develop a list of priority areas likely to have illicit discharges. The permittees shall continue to evaluate and update this list each year and report the results in the annual report. (TPDES Permit Part III, Section B.2.c.xi.)

NPDES and TPDES Permittee List

The permittees shall maintain an updated list of dischargers that discharges directly to the MS4 and that have been issued an NPDES or a TPDES permit. The list shall include the name, location, and permit number (if known) of the discharger. (TPDES Permit Part III, Section B.2.c.xii)

The Stormwater Department maintains a list of facilities that discharge directly to the MS4 and that have been issued a NPDES or TPDES permit. The list is reviewed and updated regularly.

MS4 Map

A) The permittees shall maintain a current, accurate MS4 map of: the location of all MS4 outfalls; the names and locations of all waters of the U.S. that receive discharges from the outfalls; and any additional information needed by the permittees to implement their SWMP. Where possible, the permittees shall use the Global Positioning System (GPS) to locate outfalls and photographs for documenting baseline conditions.

B) The permittees shall document the source information used to develop the MS4 map, including how the outfalls are verified and how the map will be regularly updated.

C) New MS4 Areas: The permittees shall continue to develop and implement procedures to ensure that the above mapping requirements in Part III.B.2.c.xiii are met for any new additions of the MS4.

D) Existing MS4 Areas: The permittees shall continue to evaluate all existing portions of the MS4 and that the mapping requirements have been implemented to the MEP. (TPDES Permit Part III, Section B.2.c.xiii.)

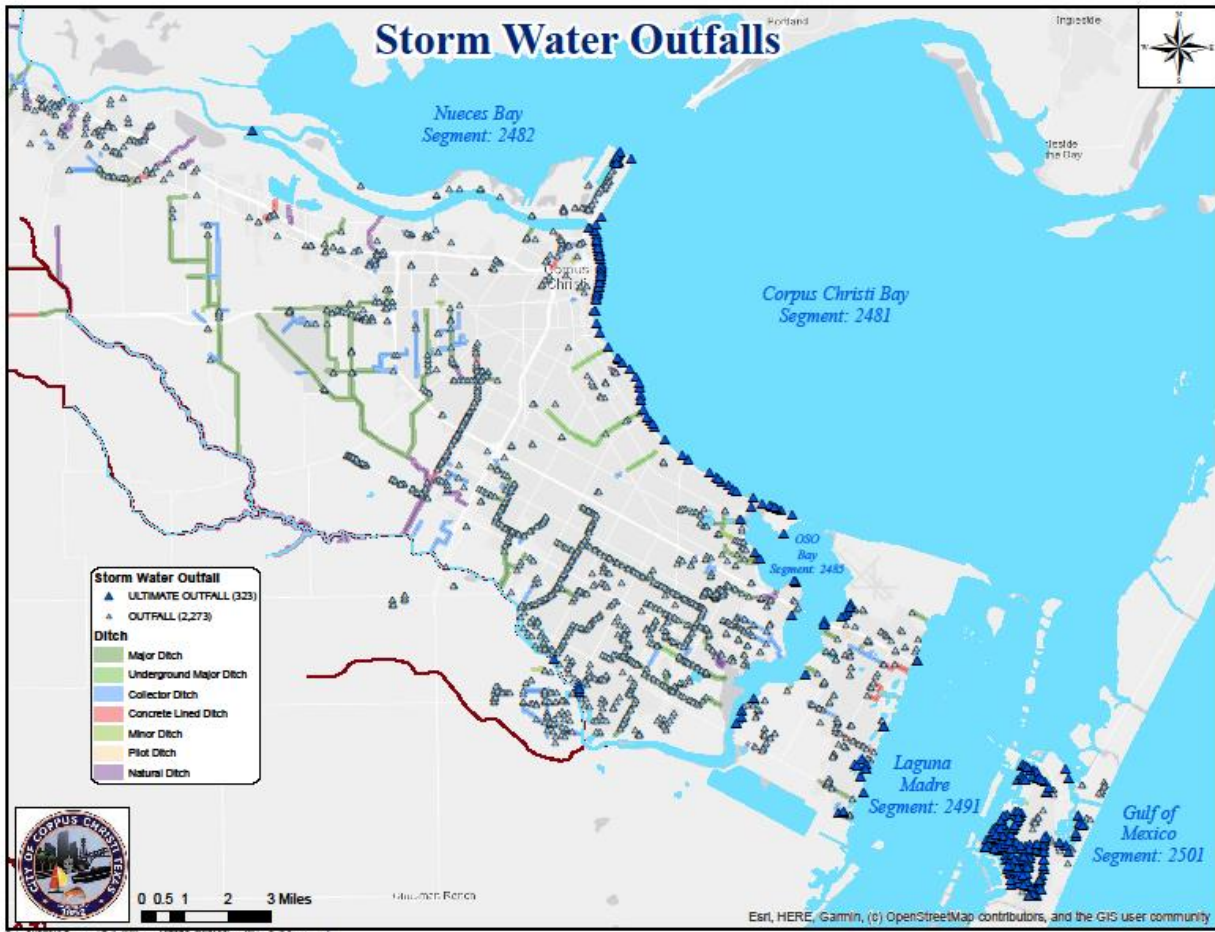


Figure 2 – Ultimate and intermediate outfalls in Corpus Christi, Texas.

GIS Updates

GIS receives proposed stormwater plans for subdivisions, but they wait until they see as built plans to ensure nothing has been changed from the proposal. However, if subdivision plat has been out more than three months and as-builts have not been added in the Engineering Sharepoint drive, the as-builts are added. GIS also locates the bond plans on Civcast as those take longer to go to as built. They will then draw them in once the road has opened up while they wait for the final plans.

Reduction of Pollutants from Road Repair, Equipment Yards, Material Storage Facilities, or Maintenance Facilities

Road repair

The City assesses the need for inlet protection on individual street projects depending on the size of the repair and the proximity of a storm water inlet. Inlet barriers will be placed in front of an inlet as needed to prevent the discharge of street repair materials and removed following the completion of the repair.

As needed, following street overlays or seal coating, street sweepers are contracted to remove excess rock from the streets, and curbs and gutters.

Municipal Maintenance Yard Activities

The City's fueling station consists of four underground storage tanks. Each tank has EPA approved spill and overfill devices. All piping is cathodically protected. Logs are kept of fuel tank inspections. The Maintenance Facility is subject to the EPA's Spill Prevention, Control and Countermeasure (SPCC) rule, and as such, operates under a SPCC Plan.

The City's fueling station, covered by a canopy, has automatic shutoff nozzles, and is located on a concrete area. Fuel material spills are cleaned using absorbent materials. Used absorbent materials are disposed of by an outside vendor and hazwaste manifests are kept on site.

The cleaning of vehicle parts is performed inside a building, using a solvent bath. The solvent and residue collected within the bath/vat are collected by an outside vendor for recycling.

Oil/fluids removed from vehicles being serviced are collected in drain-pans and disposed of in an above ground holding tank which is spill protected. All containers/drums are protected from stormwater runoff and are properly labeled. The oil/fluids are recycled and disposed of by an outside vendor. Batteries detained for disposal are placed in an enclosed room until picked up by an outside vendor for recycling or disposal. A vendor also removes tires from the repair facility on a periodic basis. The Maintenance Yard has a Spill Prevention Control and Countermeasures Plan (SPCC) in which personnel receive training annually.

Training for Employees

Annual training will be done for all employees whose job is a risk of being a potential pollutant into the City's MS4.

Program for Structural Control Maintenance

The program for structural control maintenance is described thoroughly in MCM 1. MS4 Maintenance Activities

Waste Handling

The permittees shall ensure that waste removed from the MS4 or from other municipal operations owned or controlled by the permittees is properly disposed. (TPDES Permit Part III, Section B.2.d.ii.)

The city of Corpus Christi contracts with Miller Environmental to dispose of hazardous materials after spills. Waste is typically disposed of at US Ecology in Robstown, Texas, and copies of the waste manifests provided to the city along with invoice. The CSRPs dispose of spilled automotive fluids post auto accident at the JC Elliot landfill through the Hazardous Waste Disposal Program.

Pesticide, Herbicide, and Fertilizer Application

The permittees shall continue to implement controls to reduce the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers, by the permittees' employees or contractors, to public rights of-way, parks, or other municipal property. If the permittees have jurisdiction over lands they do not directly own (e.g. incorporated city), they shall implement programs to reduce the discharge of pollutants related to the commercial application and distribution of pesticides, herbicides, and fertilizers on those lands. (TPDES Permit Part III, Section 2.B.d.iii.)

The Texas Department of Agriculture is the lead agency for pesticide use, regulation, applications, and licensing. Commercial, non-commercial, and private applicators of pesticides, herbicides and insecticides are required to obtain training and licensing under the Texas Pesticide Control Act (Texas Agricultural Code Chapter 76). There are various mandatory continuing education credits that must be earned for re-certification purposes.

The Texas AgriLife Extension Service, and other entities, provides training materials for testing and re-certification purposes. Minimum continuing education credit units must be earned toward re-certification purposes.

Currently, the City acquires its certification for municipal applicators from the Texas Department of Health and the Texas Structural Pest Control Board. All municipal applicators in the Vector Control Division of the Health Department are currently certified or are presently training for non-commercial certification. Training is being provided in-house by a licensed municipal applicator. Course curriculum is being provided by the Texas AgriLife Extension Service, a division of the Texas A&M University System. Applicators are licensed according to the type of application used. For example, Texas Department of Health certifies those applicators of health-related pest control and sanitation control, (i.e. mosquitoes, fleas, rodents and ticks). Applicators licensed under the Structural Pest Control Board concentrate mostly on pesticides and rodenticides.

The City of Corpus Christi educates the public on the proper use, application, and disposal of pesticides, herbicides and fertilizers by public, commercial, and private applicators and distributors through programs more fully described in the Storm Water Public Education and Outreach Plan (SWPEOP), as amended.

Animal Care and Vector Control

As of 2021 Animal Control no longer has pesticide application activities, and vector control in under the Health department. See section iv. for description of pesticide activities.

Landscape Standard

Corpus Christi, Texas Unified Development Code. August 2017. Article 7: General Development Standards, §7.3 Landscaping

The City of Corpus Christi Unified Development Code, amended on August 15, 2017, requires new and existing public/private development to establish minimum landscape standards. The landscape standard emphasizes the use of Xeriscape type landscape which is a source of reducing non-point source pollution due to the reduced use of fertilizers and pesticides that may drain into the storm sewer drainage system.

The landscape standards require three basic elements: 1) minimum landscape area, 2) minimum landscape material, and 3) minimum parking area screening. The three elements are not separated from each other but overlap and interact in a landscape development. For example, plants used to satisfy screening requirements also apply to satisfying landscape materials requirements, or the number of landscape material in excess of the minimum requirement can be used to reduce the landscape area requirement.

The landscape requirements are applicable in all zoning districts within the Corpus Christi city limits at the time a building permit or modification of an existing permit is requested. Single family or two-family dwelling units in any zoning district are exempt from the ordinance.

The landscape standards utilize a landscape area and point requirement based on the total street yard area. The percentage of area and number of points required for each property varies according to the zoning of the property. In the case of public and semi-public uses, required landscape area and points are calculated based on the number of parking spaces located in the street yard.

Xeriscape Landscape Program

The Xeriscape Corpus Christi Steering Committee, in partnership with the City, maintains a Xeriscape demonstration garden with more than 100 plant varieties adjacent to Corpus Christi Museum of Science and History. The garden is utilized to educate and motivate people to conserve water by modifying their landscaping using Xeriscape principles that beautify and enhance landscaping at their own homes. Attention is given to wise pesticide and herbicide use.

The City's Xeriscape demonstration garden serves as a free outdoor exhibit where visitors can enjoy interpretive exhibits. The garden features interpretive exhibits on the seven principles of Xeriscape gardening to provide visitors with the primary knowledge of how to develop efficient landscaping. The Learning Center gazebo features practical landscape ideas and photographs.

The following elements were incorporated into the garden.

- Display of various types of organic and inorganic mulches used to reduce evaporation and soil erosion.
- Illustration of the benefits of limited turf areas to reduce use of fertilizer and herbicides.
- Illustration of the benefits of rainwater harvesting by collecting rainwater from the gazebo roof to irrigate the garden.
- Display of native and drought tolerant plant material suitable to the region.

The Xeriscape demonstration garden has been actively maintained since its inception in 1993. A Xeriscape Symposium is presented annually and is free to the public. This event has increased awareness about conservation, integrated pest management, minimizing pesticide, herbicide and fertilizers and overall water quality issues. The free community garden serves to educate South Texans and visitors on our critical water supply resources and underscores the benefits of water conservation and energy.

List of Municipal Facilities

1. Airport – 1000 International Dr., Corpus Christi, TX 78406
2. J.C. Elliot Transfer Station – 7001 Ayers St., Corpus Christi, TX 78415
3. Solid Waste - 2525 Hygeia, Corpus Christi, TX 78415
4. Marina – 400A N. Shoreline Blvd, Corpus Christi, TX 78401
5. Animal/Vector Control – 2626 Holly Rd, Corpus Christi, TX 78415
6. Parks – 1406 Martin Luther King Dr, Corpus Christi, TX 78401
7. Public Works – 2525 Hygeia, Corpus Christi, TX 78415
8. O.N. Stevens Water Treatment Plant – 13101 Leopard St, Corpus Christi, TX 78410
9. Allison Wastewater Treatment Plant – 4101 Allison Rd, Corpus Christi, TX 78410
10. Greenwood Wastewater Treatment Plant–6541 Greenwood Dr, Corpus Christi, TX 78417
11. Broadway Wastewater Treatment Plant-1402 W Broadway St, Corpus Christi, TX 78401
12. Oso Wastewater Treatment Plant - 501 Nile Dr, Corpus Christi, TX 78412
13. Laguna Wastewater Treatment Plant – 201 Jester St, Corpus Christi, TX 78418
14. Whitecap Wastewater Treatment Plant –13409 Whitecap Blvd, Corpus Christi, TX 78418
15. Fleet Maintenance – 5352 Ayers St, Corpus Christi, TX 78415

MCM 5-Industrial and High-Risk Runoff

The permittees shall continue to improve their existing programs to identify and control pollutants in stormwater discharges to the MS4 from: municipal landfills; other treatment, storage, or disposal facilities for municipal waste (e.g. transfer stations, incinerators, etc.); hazardous waste treatment, storage, disposal and recovery facilities; 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 permittees determine are contributing a substantial pollutant loading to the MS4. This MCM must include:

A) priorities and procedures for inspections and for establishing and implementing control measures for such discharges.

B) an Industrial and High-Risk Monitoring Program as described in Part III, Section B.2.h.iii. of this permit; and

C) the permittees shall use ordinances, permits, contracts, orders, or similar means to control the contribution of pollutants to the MS4 by stormwater discharges associated with industrial activity.

Priorities and Procedures for Inspections and Establishing Control Measures

Facility inspections will be performed on all Type 1 and Type 2 facilities identified by the City of Corpus Christi at least once per permit term.

Type 1 facilities are identified as:

- Municipal landfills,
- Hazardous waste treatment, storage, disposal, and recovery facilities,
- EPCRA Title III, section 313 facilities,
- Industrial facilities the City determines are contributing a substantial pollutant load to the MS4.

Type 2 facilities are identified as:

- Other treatment, storage, or disposal facilities from municipal waste,
- Any other commercial or industrial facility that the City of Corpus Christi determines may be contributing to pollutant loading to the MS4,

These businesses shall be identified using the following mean:

- Casual observation.

- Target industry type through the use of the phone book, business publications, etc.
- Complaint/Accident investigations.
- Specific industrial lists (Toxic Release Inventory)

Facility inspections may be performed on any facility identified to have one or more of the following parameters:

- The business has or needs a TPDES stormwater runoff permit.
- Complaints are received regarding that facility.
- Facility must report under the Toxic Release Inventory (Tier III).

Industrial and High-Risk Runoff Monitoring Program

The Stormwater division keeps and maintains a list of TPDES permit holders operating within the city limits. At least one in the five-year MSGP period permit holders are inspected for compliance with the conditions of their industrial permit. Inspection assignment is based on previous violations and likelihood of contribution to pollutant loading from the facility. This list is delineated into high and low risk facilities based on the potential to contribute pollutants to the MS4, and the danger that the pollutant may present to life, property, and the environment.

Ordinance or Other Regulatory Mechanisms to Control Pollutants to the MS4 from Stormwater Discharge Associated with Industrial Activity.

Sec.55-206 through 55-210 of the City of Corpus Christi Code of Ordinances lay out the parameters a holder of a TPDES or NPDES permit must adhere to. It mandates annual reporting of compliance status, and the entry of city personnel for purposes of inspecting a facility. These ordinances also describe the penalties and possible enforcement actions that may be taken to ensure compliance with Stormwater discharge permits and local ordinances. These facilities are inspected in compliance with the City's MS4 Operator permit.

MCM 6-Construction Site Stormwater Runoff

The permittees shall continue to implement a program to reduce the discharge of pollutants into the MS4 from construction sites. This MCM must include an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State or local law. The permittees shall continue to ensure that the existing program is revised as necessary to address construction projects that result in a land disturbance of one acre or more, including activities disturbing less than one acre that are part of a larger common plan of development or sale that would disturb one acre or more. (TPDES Permit Part III, Section B.2.f.i)

Ordinances

- **Requirement to use and maintain appropriate erosion and sediment control (14-1006)**
- **Requirement to address control of site waste (14-901 to 14-907)**

Inspections and Enforcement of Control Measures

The city of Corpus Christi Environmental Services Divisions employees five Environmental Quality Specialists that are trained and tasked with inspections of the MS4 and enforcement of various aspects of the Stormwater ordinances, including inspection of construction BMPs related to Stormwater and possible enforcement actions in relation to ordinances regulating them.

Education and Outreach to Construction Site Operators

Annual training is given to Contractors along with educational material dispersed throughout the year as needed.

Construction Site Runoff Program

Erosion during the construction phase of both public and private projects is a major cause of siltation of drainage channels and storm sewer conduits. The eroded soil not only clogs the drainage system and reduces its capacity, but also transports organic debris and chemical nutrients to the receiving waters. This leads to increased biological activity and reduced water quality.

The city has adopted a Construction Guidance Manual that includes criteria and technical guidance for development projects from the planning stage through the post-construction stage. Planning guidance and criteria shall also address water quality concerns after construction. The guidance manual incorporates special requirements for development that

may impact environmentally sensitive areas (i.e. wetlands, coastal zones). The manual meets local needs and includes local enforcement controls.

The City of Corpus Christi adopted Ordinance No. 022941 which requires that adequate erosion control measures are in place and maintained until final stabilization of construction projects. For construction sites greater than one acre, applicants are required to submit an executable NOI and acceptable storm water pollution prevention plan prior to receiving a permit. Development Services reviews storm water pollution prevention plans. Through the building inspection process, Development Services ensures that construction sites not only construct but verify the appropriate soil erosion control measures (BMPs) during the construction process until the final inspection.

The use and maintenance of structural and non-structural best management practices (BMPs) to reduce pollutants discharged to the City's MS4 from construction sites is achieved through inspections and enforcement. City staff is equipped with citation power to assist in enforcement.

Notification to Construction Site Operators of Responsibilities under Permitting Regulations

a. Notification to Building Permit Applicants

The Development Services department will continue to educate building permit applicants of their responsibilities under the TPDES permitting program. Development Services will continue to screen proposed developments to determine the appropriate compliance requirements and the associated storm water pollution prevention plans.

The Development Services department provides the responsible party of any construction site within the city information on the implementation measures necessary to control erosion, sedimentation, debris, and storm water pollution at the time of permit. These measures include temporary pollution control measures such as: structural control of soil erosion, waste controls, dust control, hazardous material storage, concrete truck wash out, and regularly scheduled street cleaning in the immediate vicinity of the construction site. The responsible party is responsible for the maintenance and performance of the temporary pollution control measures until permanent measures are in place. The pollution controls are designed to be selected by the developer based on the most cost effective and appropriate means to provide the required controls.

Site Plan Review Procedure Incorporating Water Quality Impacts

The City of Corpus Christi Development Services Department employs an engineer to review and approve Stormwater controls on building permits and public improvement plans based on city code and best management practices.

Procedure for Receiving and Considering Input from the Public

The Development Services Department engages with stakeholders regarding construction activities through a variety of mediums including public meetings, e-mails, mail-outs, etc.

Procedure for Establishing Frequency of Inspections and Follow Up

The development services department performs an inspection for sites at the permittees request. The Stormwater Environmental Services Department inspects sites as they are discovered by an EQS. The EQS team is authorized to enforce city ordinances in regards to construction site stormwater runoff.

Description of Program to Implement and Maintain Structural and Non-Structural BMPs to Reduce Pollutants from Construction Sites to the MS4

- Procedures for site planning
- Requirements for structural and non-structural BMPs
- Procedures for identifying priorities for inspecting sites
- Education and training for construction site operators

List of Sites

The permittees shall maintain a current list of construction sites that discharge directly to the MS4 and that have been issued an NPDES or TPDES permit. The list must include the name, location, and permit number of the discharges that have been authorized under an NPDES or TPDES stormwater discharge permit for construction activities (if known). (TPDES Permit Part III, Section 2.B.f.iii)

Development Services keeps and maintains a list of all construction activities that have applied for a permit. This list is publicly accessible from the Development Services website and is updated regularly.

Staff training.

The permittee 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. (TPDES Permit Part III, Section 2.B.f.iv.C)

Environmental Services staff are all Qualified Compliance Inspector of Stormwater (QCIS) certified and are required to be highly knowledgeable in the implementation and evaluation of construction BMPS. Staff making construction inspections are also licensed code enforcement

offices in the state of Texas and are authorized to enforce construction Stormwater related ordinances.

Development Services holds twice monthly trainings covering a variety of construction related topics, including Stormwater education.

MCM 7-Public Education, Outreach, Involvement, and Participation

Public Education and Outreach

A) The permittees shall document and ensure that the SWMP promotes, publicizes, and facilitates public education and outreach program to residents, visitors, public service employees, businesses, commercial and industrial facilities, and construction site personnel and provide justification for any group that is not addressed by the program. The permittees shall document the activities conducted and materials used to fulfill this program element and provide enough detail to demonstrate the amount of educational and outreach resources and materials used to address each group.

B) The permittees shall continue to implement a public education and outreach program component to promote, publicize, and facilitate:

1) public reporting of illicit discharges or improper disposal of materials, including floatables, into the MS4.

2) the proper management and disposal of used oil and household hazardous wastes; and

3) the proper use, application, and disposal of pesticides, herbicides, and fertilizers by public, commercial, and private applicators, and distributors. (TPDES Permit Part III, Section 2.B.)

The City of Corpus Christi public awareness and education plan targets all segments of the community and consists of the year-round programs and special projects. The program scope has been designed to create citizen awareness on pollutants and their prevention.

Outreach is done throughout the year via Facebook, Twitter, Billboards, outreach events and educational materials.

Annual training is done for employees whose job is at risk of potentially releasing pollutants into the City's MS4 and receiving water bodies.

Reporting

The City of Corpus Christi has established a call center and mobile app to enable citizens to report a variety of issues, including illegal dumping, illicit discharges, littering, sediment tracking, and spills. The call center number is printed on materials distributed by the City and is included on the City's website.

The City of Corpus Christi Stormwater division also maintains a phone number and email address so that citizens can contact the division directly to report stormwater issues.

Management and Disposal of Oil and Household Hazardous Wastes

The City educates the public on the proper management and disposal of used oil and household hazardous wastes. The goals and methodology of this program are more fully described in the City's Stormwater Public Education and Outreach Plan (SWPEOP), as amended.

Pesticides, Herbicides, and Fertilizers

The City educates the public on the proper use, application, and disposal of pesticides, herbicides, and fertilizers by public, commercial, and private applicators and distributors. The goals and methodology of this program are more fully described in the City's Stormwater Public Education and Outreach Plan (SWPEOP), as amended.

a. Public Involvement and Participation

The permittees shall continue to develop a public involvement and participation program which complies with State, Tribal, and local public notice requirements. This program element must include opportunities for a wide variety of constituents within the MS4 area to participate in the SWMP development and implementation. (TPDES Permit Part III, Section 2.B.g.ii.)

MCM 8-Monitoring, Evaluation, and Reporting

Wet Weather Screening Program

The permittees shall identify, investigate, and address areas within their jurisdiction that may be contributing excessive levels of pollutants to the MS4. The wet weather screening program shall: A) screen the MS4, as specified in the SWMP; and B) specify the sampling and non-sampling techniques to be used for current screening and for follow-up screening. (TPDES Permit Part III, Section 2.B.h.ii)

The city of Corpus Christi Stormwater-Environmental Services division maintains a wet weather screening program in order to seek out illicit connections and discharges, as well as inspect Stormwater lines for issues after qualifying rain events. This program is fully described in (insert proper section here).

Rain Event Monitoring

TPDES Permit WQ000420000 requires the City of Corpus Christi to collect representative grab and composite samples from three permit-specified monitoring locations:

- Outfall 001-Carmel Parkway – Located between Staples Street and Fort Worth Street along the Carmel Parkway Ditch, prior to discharge into Corpus Christi Bay (27.731807, -97.378029)
- Outfall 002- Rodd Field Road – Located between Saratoga and Woolridge in a box culvert under Rodd Field Road, prior to discharge into Oso Bay (27.6761918, -97.3524120)
- Outfall 003- Schanen Ditch – Located between Cedar Pass and Yorktown Boulevard, along Schanen Ditch, prior to discharge into Oso Creek (27.685035, -97.416935)

A grab sample is a single sample collected a specific time and place that represents conditions at that time and place. A composite sample is a sample collected over time to represent the average characteristics of the water during the period that the sample was collected.

In addition to permit-required sampling locations the City of Corpus Christi also collects and analyzes stormwater samples on behalf of 2 co-permittees: Del Mar College and Texas A&M University-Corpus Christi (TAMUCC) at the following locations:

- Del Mar College East Campus (27.7623092, -97.4083337)
- Del Mar College West Campus (27.7744571, -97.4388013)
- TAMUCC Campus (27.7151551, -97.3295562)

At the Del Mar College East and West Campus sampling sites, only grab samples are collected. At the TAMUCC Campus sampling site both a grab sample and a time-weighted composite sample are collected.

Samples are collected twice during two seasonal monitoring periods:

1. Wet Season (April 1 through September 30)
2. Dry Season (October 1 through March 31)

Samples are collected during qualifying storm events. **A qualifying storm event is defined as an event that has greater than 0.1-inch rainfall and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch) rainfall event.**

During the first month of the wet and dry seasons (e.g. April and October), rain event grab samples will only be collected during regular work hours. If the required grab samples are not collected within the first month of the season, the team will be required to be on-call 24-hours for rain event grab sample collection when a qualifying rain event is expected to occur. The number of team members required to be on-call will vary based on the number of grab samples that need to be collected.

Additionally, maintenance is performed on a monthly basis at each city-maintained site, as well as after every sampling event. Site samplers are calibrated at least once between qualifying storm events. In addition to monthly calibrations and preventative maintenance, the stations must be calibrated at least once a year by a trained individual and certified in writing that the device is operating properly and giving precise and accurate results. Copies of the certification must be kept and be readily available for review by TCEQ for a period of 3 years. The Environmental Services Superintendent will schedule annual calibrations.

Receiving Water Body Sampling (RWBS)

The City of Corpus Christi Municipal Code of Ordinance prohibits pollution of the Municipal Storm Sewer System (MS4), including illicit discharges. However, a person may raise as a defense that the illicit discharge was uncontaminated if the quality of the water being discharged is equal to or better than the first natural body of water into which the portion of the MS4 flows. The results of the receiving water body sampling program are used as evidence of the quality of receiving waters.

Sampling is conducted by Environmental Quality personnel on a quarterly basis, as follows:

- 1st Quarter: January-March
- 2nd Quarter: April-June
- 3rd Quarter: July-September
- 4th Quarter: October-December

Receiving water body samples are usually collected in the morning, before 12:00 pm.

Samples are collected at 13 sample sites, as detailed in the following table.

Sample ID	Location	Latitude	Longitude	Receiving Segment	Segment Name
OB001	Yorktown Bridge	27.64068	-97.34367	2485 & 2485OW	Oso Bay
OB003	SPID Turnaround	27.67895	-97.30948	2485 & 2485OW	Oso Bay
LM001	End of Martha Dr.	27.61101	-97.2981	2491 & 2491OW	Laguna Madre
CCB001	Jester St. Municipal Fishing Pier	27.66965	-97.26946	2481 & 2481OW	Corpus Christi Bay
CCB002	4224 Ocean Dr. (rear); 1st steps on pier	27.74067	-97.36737	2482 & 2481OW	Corpus Christi Bay
CCB003	1102 S. Shoreline Blv.	27.78099	-97.39213	2483 & 2481OW	Corpus Christi Bay
IH001	Under Harbor Bridge	27.81205	-97.39585	2484	Inner Harbor
OC001	JC Elliot Landfill	27.70196	-97.46141	2485A	Oso Creek
OC002	Yorktown and Sun Valley Road	27.686049	-97.42335	2485A	Oso Creek
NR001	13741 Smith Dr.	27.86725	-97.68369	2102	Nueces River
NRT001	Labonte Park IH37	27.89547	-97.62879	2101	Nueces River Tidal
NB001	5151 W. Causeway Blvd.	27.83742	-97.38133	2482 & 2482OW	Nueces Bay
GM001	Zahn Rd./Gulf Beach	27.61455	-97.19988	2501	Gulf of Mexico

These sample locations correspond to sample stations monitored by the Nueces River Authority as part of the Texas Clean Rivers Program administered by Texas Commission on Environmental Quality. See Appendix A “City of Corpus Christi Receiving Water Body Sampling Program Site Descriptions” for more details on site selection.

Samples are analyzed for Total Suspended Solids, Total Dissolved Solids, Nitrate, Nitrite, pH, and temperature. All sample results are reported in mg/L (analogous to Parts Per Million) excepting pH which is measured in standard units.

Industrial and High-Risk Runoff Monitoring Program

This program shall include monitoring for pollutants in stormwater discharges to the MS4 from Type 1 facilities and Type 2 facilities. (TPDES Permit Part III, Section 2.B.h.iii)

The City of Corpus Christi, in accordance with the Industrial & High-Risk Runoff Monitoring Program identified in 8.A, will implement a program to identify and control pollutants in stormwater discharges from Type 1 and Type 2 facilities.

Type 1 facilities include:

- Municipal landfills;
- Hazardous waste treatment, storage, disposal, and recovery facilities,
- EPCRA Title III, Section 313 (Toxic Release Inventory) facilities,
- Industrial facilities the City determines are contributing a substantial pollutant load to the MS4.

Type 2 facilities include:

- Other treatment, storage, and disposal facilities for municipal waste
- Other industrial or commercial facilities that the City believes are contributing pollutants to the MS4.

The City of Corpus Christi maintains a list of Type 1 and Type 2 facilities. All Type 1 and Type 2 facilities will be inspected by the City of Corpus Christi no less than once during the permit term.

Type 1 and Type 2 facility inspections will determine if a facility requires coverage under the TPDES Multi-Sector General Permit (MSGP) TXR050000 or an individual permit. If a facility requires coverage under the MSGP and the facility has authorization under the MSGP, the inspection will be conducted to determine if they are compliant with the MSGP and if found compliant, monitoring requirements for the facility will be waived. If the facility has Conditional No Exposure Exclusion under the MSGP, the inspection will be performed to verify the “no exposure” exemption. The “no exposure” verification inspection may be waived if a facility participates in the TCEQ’s all Business and Local Government Compliance Commitment program. If a Type 1 or Type 2 facility has authorization through the MSGP and is inspected and found non-compliant, results of monitoring performed by the facility required by the MSGP will be reviewed by the City of Corpus Christi.

If a Type 1 or Type 2 facility is required to have coverage through the MSGP, but does not have authorization to discharge stormwater through the MSGP, the City of Corpus Christi will notify the facility of the requirement to obtain authorization under the MSGP or through an individual

permit. It is a violation of the City of Corpus Christi Code of Ordinances (Chapter 55, Sec 55-206,) for a facility to operate without a NPDES permit when a permit is required.

If a Type 1 facility does not require authorization to discharge stormwater, or lacks required coverage, the City of Corpus Christi will determine if any quantitative data have been collected by the facility. If data are available, the methods of sample collection and analysis will be reviewed, and if samples have been collected and analyzed using EPA accepted methods, quantitative data will be reviewed by the City of Corpus Christi. If quantitative data are unavailable or collected and analyzed with unapproved methods, the City of Corpus Christi will determine pollutants of concern for the facility and set forth monitoring requirements at the facility. The City of Corpus Christi can require the owner or operator of a business facility to install monitoring equipment (City of Corpus Christi Municipal Code of Ordinances Chapter 55, Sec. 55-206). The City of Corpus Christi will then review quantitative data generated through monitoring.

In an effort to conform to TPDES MSGP the City may accept results from quarterly visual monitoring in lieu of analytical monitoring for Type 1 facilities.

If a Type 2 facility does not require authorization to discharge stormwater through the MGSP or individual permit, or lacks required coverage, the City of Corpus Christi will determine if results from visual monitoring are available. If results from visual monitoring are available, the City of Corpus Christi will review the results. If visual monitoring has not been conducted the City of Corpus Christi will determine necessary monitoring requirements for the facility.

The City of Corpus Christi may sample on an as needed basis to validate questionable facility monitoring.