



*Jurisdictional Runoff
Management Plan*

January 2020

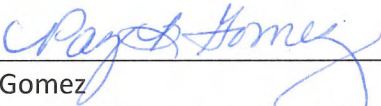
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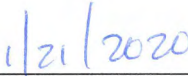
January 31, 2020

CITY OF CALRSBAD
JURISDICTIONAL RUNOFF MANAGEMENT PLAN UPDATE
STATEMENT OF CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Paz Gomez
Deputy City Manager, Public Works Branch



Date

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Contents

Executive Summary.....	v
1 Introduction	1
1.1 Purpose and Objectives	1
1.2 Overview of City of Carlsbad.....	1
1.3 Water Quality Improvement Plans	4
2 City Roles and Legal Authority	9
2.1 Legal Authority	9
2.2 Enforcement Procedures	9
2.3 City Department Program Responsibilities.....	9
3 Non-Storm Water Discharges	13
3.1 Introduction	13
3.2 Conditional Non-Storm water Discharges	13
3.2.1 Discharges Associated with Separate NPDES Permit.....	13
3.2.2 Controlled Non-Storm Water Discharges	14
3.2.3 Discretionary Discharge	14
3.3 Program for Non-Emergency Fire Fighting Flows	14
4 Illicit Discharge Detection and Elimination	17
4.1 Introduction	17
4.2 Program Elements.....	17
4.2.1 MS4 Map	17
4.2.2 Dry Weather MS4 Outfall Monitoring Programs	17
4.2.3 Source Specific Observations.....	18
4.2.4 Observation Reporting by City Staff.....	18
4.2.5 Reporting and Notification.....	19
4.2.6 City Staff Investigation	19
4.2.7 Program Efficiencies.....	20
4.2.8 Spill Reporting, Response, and Prevention	20
4.3 Enforcement	20
5 Development Planning.....	21
5.1 Introduction	21
5.2 Best Management Practice Requirements	21
5.2.1 BMPs for Standard Projects	22
5.2.2 BMPs for Priority Development Projects	22
5.3 Land Development Process.....	23
5.3.1 Environmental Review Process	23
5.3.2 Planning.....	24
5.3.3 Plan Review	25

5.3.4 Construction Verification Process..... 30

6 Construction..... 33

6.1 Introduction 33

6.2 Project Approval Process 33

6.3 Construction Site Inventory 34

6.4 Best Management Practice Requirements 35

6.5 Construction Site Inspections 37

6.6 Corrective Actions and Enforcement 39

7 Existing Development 41

7.1 Introduction 41

7.2 Inventory and Tracking 41

7.3 Best Management Practices Requirements..... 42

7.4 Program Implementation..... 43

7.4.1 Inspections 43

7.4.2 Inspection Frequency..... 45

7.4.3 Inspection Tracking and Records 45

7.4.4 Municipal Separate Storm Sewer System Program 45

7.4.5 Existing Flood Control Devices 46

7.4.6 Street Sweeping Program 46

7.4.7 Litter Removal..... 47

7.4.8 Pressure Washing..... 47

7.4.9 Application of Pesticides, Herbicides, and Fertilizers 47

7.4.10 Sanitary Sewer Systems 47

7.4.11 Special Events..... 48

7.4.12 Household Hazardous Waste Collection Services..... 50

7.5 Enforcement 51

8 Retrofitting and Rehabilitation in Areas of Existing Development..... 53

8.1 Introduction 53

8.2 Identifying Candidate Retrofits and Rehabilitation Projects 53

8.2.1 Retrofit Types..... 53

8.2.2 Rehabilitation Types..... 54

8.3 Implementing Candidate Retrofits and Rehabilitation Projects 55

9 Special Activities/Programs 57

9.1 Introduction 57

9.2 Buena Vista Lagoon Enhancement Project..... 57

9.3 Agua Hedionda Creek Restoration Project 57

9.4 Watershed Management Area Strategies 57

9.4.1 Integrated Regional Watershed Management (IRWM)..... 57

9.4.2 Sustainable Landscape Incentive Program 58

9.5 Optional/Contingency WQIP Strategies..... 58

9.5.1 Structural or Retrofit BMPs..... 58

9.5.2 Offsite Alternative Compliance..... 58

10 Enforcement Response Plan 59

10.1 Introduction 59

10.2 Enforcement Mechanisms 59

10.2.1 Administrative Enforcement Mechanisms..... 59

10.2.2 Judicial Enforcement Mechanisms..... 60

10.2.3 Escalated Enforcement 60

10.3 Enforcement Response Plan Components..... 61

10.3.1 Illicit Discharge Detection Elimination 61

10.3.2 Development Planning..... 62

10.3.3 Construction..... 62

10.3.4 Existing Development 63

10.3.5 Correction of Violations 63

10.4 Reporting of Non-Compliant Sites 63

11 Education 65

11.1 Introduction 65

11.2 Municipal Staff Training 65

11.3 Construction Site Owners and Operators 65

11.4 Commercial/Industrial Facilities Owners and Operators Training..... 66

11.5 Residential Community and General Public..... 67

11.6 Enhanced Education Program for Focus Areas 68

11.7 Partnership Programs 68

12 Public Participation 69

12.1 Introduction 69

12.2 Water Quality Improvement Plans 69

12.3 Local Public Participation 69

13 Monitoring and Assessment 71

13.1 MS4 Outfall Discharge Monitoring Station Inventory 71

13.2 Dry Weather Major MS4 Outfall Discharge Field Screening Monitoring..... 71

13.3 Non-Storm Water Persistent Flow MS4 Discharge Monitoring 71

13.4 Wet Weather MS4 Outfall Discharge Monitoring 72

13.5 Data Assessment, Reporting, and Quality Control 73

13.6 WQIP WMA Monitoring Requirements 74

14 Fiscal Analysis..... 75

14.1 Expenditure Categories..... 75

14.2 Staff Resources..... 75

14.3 Expenditures and Sources of Funds 76

List of Figures

Figure 1: City of Carlsbad Map..... 3
Figure 2: CB-PA1 Focus Area - Buena Vista Creek HA..... 5
Figure 3: CB-PA2 Focus Area - Agua Hedionda HA 6
Figure 4: CB-PA3 Focus Area - Buena Vista Creek HA..... 7
Figure 5: City of Carlsbad Organizational Chart..... 11

List of Tables

Table 1: Department Roles 9
Table 2: Hydrology and Water Quality Analysis Checklist 24
Table 3: BMP Table 26
Table 4: Development Process and Standards Manual Activities..... 27
Table 5: Inspection Frequency Based on Threat Prioritization..... 38
Table 6: Highest Priority Major Outfalls and Location Description 72
Table 7: Field Measurements..... 72

List of Appendices

Appendix A: City of Carlsbad MS4 Map
Appendix B: City of Carlsbad Existing Development Map

Executive Summary

The City of Carlsbad has developed this Jurisdictional Runoff Management Program (JRMP) to comply with Order R9-2013-0001 – National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4) (hereinafter referred to as the “Permit”), issued by the California Regional Water Quality Control Board (RWQCB), San Diego Region. The Permit was adopted in May 2013 and is valid for five years. The Permit requires Responsible Agencies in each of the region’s watersheds to develop Water Quality Improvement Plans (WQIP)s and JRMPs for each Responsible Agency’s jurisdiction. The Carlsbad Watershed Management Area (WMA) Water Quality Improvement Plan and the City of Carlsbad’s JRMP were developed in response to the requirements of the 2013 Permit.

The purpose of this JRMP is to implement programs to reduce pollution in urban runoff, including programs to regulate new public and private land development during each of the three major phases of urban development, i.e., the planning, construction, and existing development (or use) phases.

The purpose of the Carlsbad WMA WQIP is to guide the Responsible Agencies’ Jurisdictional Runoff Management Programs toward achieving improved water quality in MS4 discharges and receiving waters. Through the WQIP, priorities and goals are established and strategies selected for implementation through the Responsible Agencies’ JRMPs to progress toward improvements in water quality. This approach establishes the WQIP as the overarching plan that each Responsible Agency uses to develop and implement their jurisdictional programs. Responsible Agencies’ JRMPs contain the strategies, standards and protocols by which each Responsible Agency will implement their individual program in response to the priorities and goals established in the WQIP. The updated JRMP has been streamlined and provides the City of Carlsbad with the implementation procedures for development planning, construction, existing development, education, enforcement, public participation, municipal, and illicit discharge and detection components. Based on experience gained through the implementation of programs required by previous Permits, the City of Carlsbad maintained procedures that proved to be successful and included new programs to effectively reduce or eliminate discharges of pollutants to the MS4.

This JRMP will be revised as needed to reflect changes in the city’s urban runoff management programs such as revised or new best management practices or new educational or training programs. The annual updates will also reflect changes in the city’s commercial, industrial, and municipal databases, including revisions to facility/activity prioritizations that will be refined as additional monitoring and inspection data becomes available.

The city will submit a JRMP Annual Report that identifies the level of effort conducted by the city to implement its program. JRMP Annual Reports include a summary of all illicit discharge complaints and resolutions, and summaries of inspections, enforcement actions, and educational programs. This data and information will also be assessed and included in the WQIP Annual Reports.

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1 Introduction

The San Diego Regional Water Quality Control Board (RWQCB) adopted the Municipal Storm Water Permit Order No. R9-2013-0001, NPDES No. CA50109266 (Permit), on May 8, 2013, to control waste discharges in urban runoff from the Municipal Separate Storm Sewer Systems (MS4s), also known as storm drain system, draining the watersheds in the County of San Diego, the incorporated cities of San Diego County and the San Diego Unified Port District, collectively known as Copermittees.

The Permit's intent is to enable jurisdictions to focus their resources and efforts to "effectively prohibit non-storm water discharges to its MS4, reduce pollutants in storm water discharges from its MS4 to the Maximum Extent Practicable (MEP), and achieve the interim and final numeric goals..." (Permit). Furthermore, the Permit states that "Where appropriate, Watershed Management Areas (WMAs) may be separated into subwatersheds to focus water quality prioritization and jurisdictional runoff management program implementation efforts by receiving water." This approach represents a paradigm shift from previous Permits where jurisdictions essentially implemented the same activities throughout their jurisdictions with little or no regard for prioritizing water quality conditions, sources and pollutant generating activities that occurred within geographically based areas. Although topographic features define watershed areas, characteristics of the watershed areas have direct influence on non-storm water discharges and pollutants in storm water discharges, and ultimately the water quality conditions in receiving waters.

The Permit requires Responsible Agencies or Copermittees, in each of the region's Watershed Management Areas (WMAs) to develop Water Quality Improvement Plans (WQIPs). Through the WQIP, highest priority water quality conditions within the WMA are identified and strategies are implemented through the Copermittees' Jurisdictional Runoff Management Programs (JRMPs) to progress toward improvements in water quality. The WQIPs contain an adaptive planning and management process and a public participation component. The Permit and the WQIP process allow Copermittees to focus JRMPs on particular areas or water quality issues of concern.

1.1 Purpose and Objectives

The purpose of the City of Carlsbad JRMP is to implement strategies that effectively prohibit non-storm water discharges to the MS4 and reduce the discharge of pollutants in storm water to the maximum extent practicable (MEP). This involves improving existing programs and developing new programs intended to minimize or eliminate the effects of jurisdictional runoff from the city on receiving water bodies. Improving the quality of the discharge from the MS4 may have beneficial effects on the local receiving water bodies.

This document is based on the most updated information available at the time this document was prepared. Each year the city will submit a JRMP Annual Report to the RWQCB, and changes to the city's JRMP will be described in the annual report. Program modifications will be for the advancement of the city's program and will comply with all regulations as presented in the Permit.

1.2 Overview of City of Carlsbad

The City of Carlsbad is a unique coastal community located 35 miles north of the City of San Diego surrounded by mountains, lagoons and the Pacific Ocean. Although the "village" dates back more than 100 years, the city was incorporated July 16, 1952. At that time, Carlsbad covered 7.5 square miles and

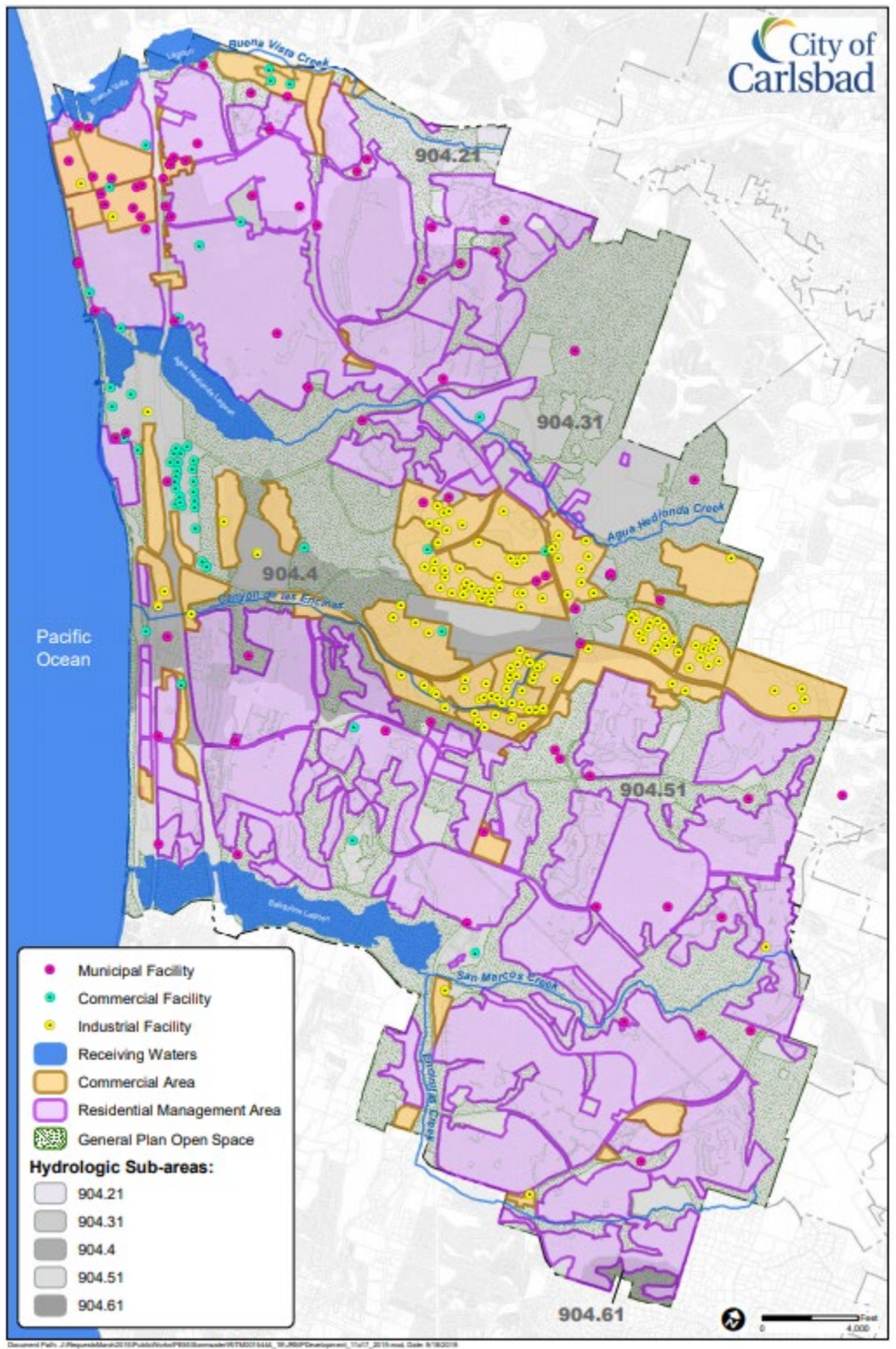
had a population of approximately 7,000 people. The city now encompasses approximately 39 square miles of land area and has a population of approximately 105,000 (2010 Census).

The physical geography and topography of the City of Carlsbad is very diverse with steep hills and coastal areas. As a result, there are a wide range of drainage conditions throughout the city including many waterways and tributary canyons. Although the City of Carlsbad is wholly within the Carlsbad Watershed Management Area (WMA) the city is tributary to four distinct Hydrologic Areas or sub-watersheds:

- Buena Vista Creek and Lagoon;
- Agua Hedionda Creek and Lagoon;
- Encinas Creek; and
- San Marcos Creek and Batiquitos Lagoon; and
- Escondido Creek (approximately 125 acres of mostly open space in the southeast corner of the city).

All drainage basins, with the exception of Encinas Creek, terminate in lagoons. As a result, the city's receiving water bodies are the three lagoons and the Pacific Ocean. A map of the city, including drainages, land uses, industrial and municipal facilities is presented below in Figure 1.

Figure 1: City of Carlsbad Map



1.3 Water Quality Improvement Plans

Along with the other Copermitttees within the Carlsbad WMA, the City of Carlsbad participated in the development of the Carlsbad WMA WQIP to establish the priorities and goals for the watersheds in order to focus jurisdictional strategies for implementation.

By identifying the Highest Priority Water Quality Conditions (HPWQC)s and Priority Water Quality Conditions (PWQCs) the city established the focus of the program's planning and implementation efforts.

The HPWQCs selected for the Buena Vista Creek, Agua Hedionda and San Marcos Hydrologic Areas are indicator bacteria (i.e., total coliform, fecal coliform and enterococcus), riparian habitat degradation, and hydromodification impacts.

The city identified areas (i.e. focus areas) within the hydrologic areas where specific WQIP strategies will be implemented. These strategies may differ from the city's core program in order to focus on the specific HPWQCs, sources and activities that may be contributing to the HPWQCs. These strategies are identified in call out boxes throughout the JRMP. Descriptions and locations of the focus areas are presented below.

CB-PA1 Focus Area

The CB-PA1 focus area is located immediately south of the Buena Vista Lagoon. This area is a mixture of single-family residential, commercial and multi-family land uses and includes homes, commercial buildings, apartment complexes, common areas, a school and recreational park areas. These facilities have a high concentration of landscaping and turf areas, which are known types of contributors to non-storm water discharge resulting and potential pollutant loadings.

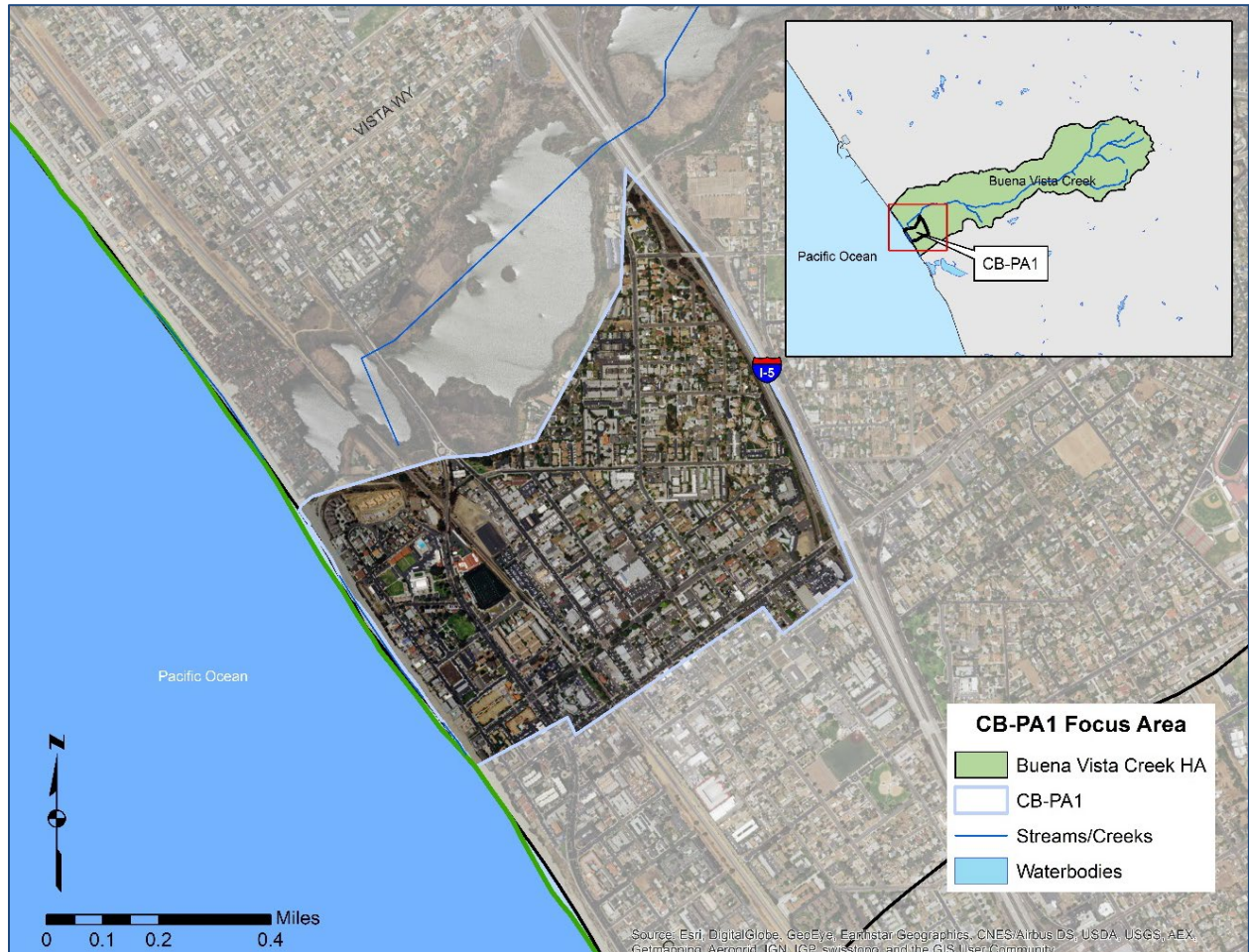


Figure 2: CB-PA1 Focus Area - Buena Vista Creek HA

CB-PA2 Focus Area

The CB-PA2 focus area is located south of Carlsbad Village Drive and CB-PA1. This priority area drains south towards Agua Hedionda Lagoon (Figure 3). This area is a mixture of single family residential properties, commercial and multi-family land uses and includes homes, commercial buildings, apartment complexes, common areas, a school and recreational park areas. These facilities have a high concentration of landscaping and turf areas, which are known types of contributors to non-storm water discharge resulting and potential pollutant loadings.

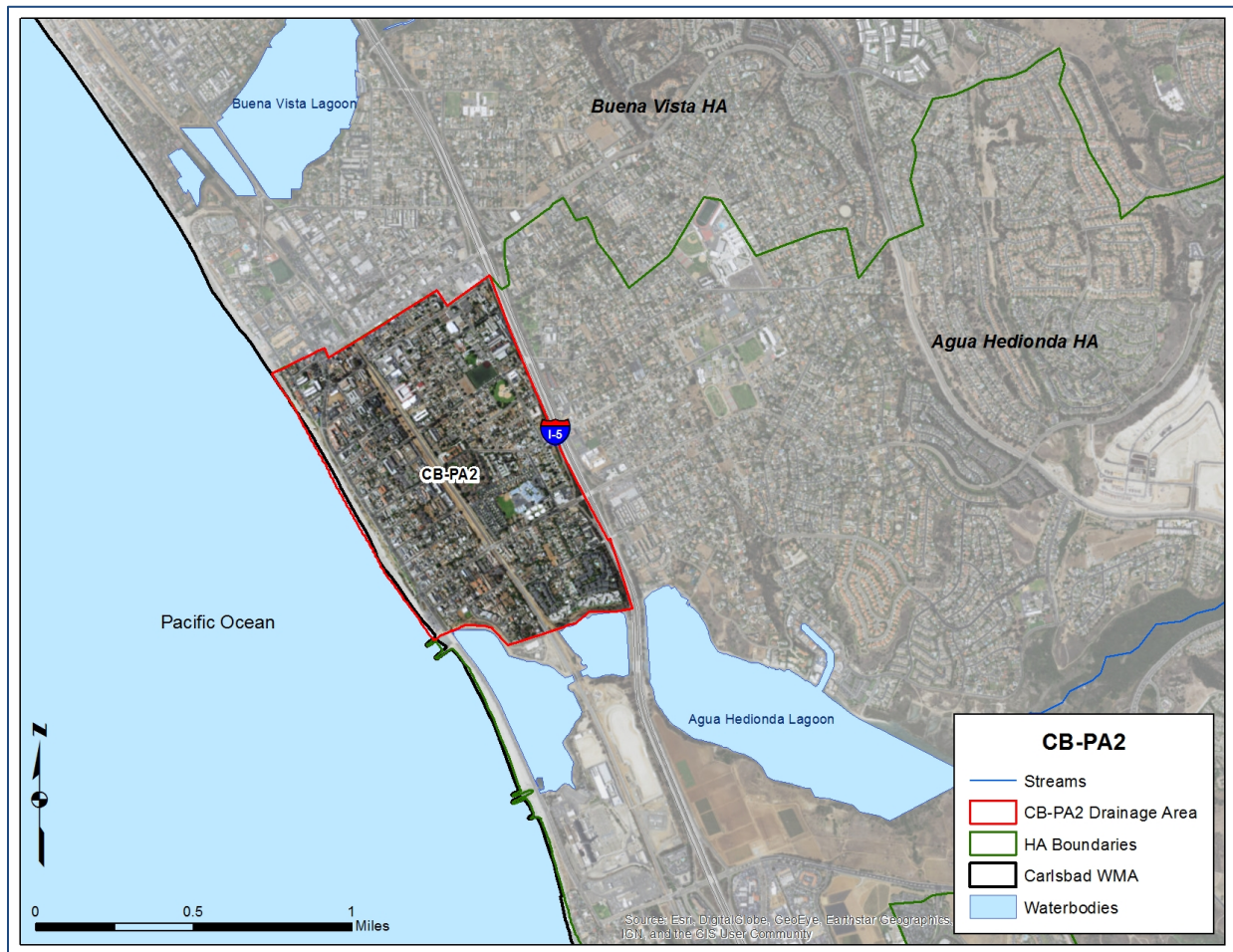


Figure 3: CB-PA2 Focus Area - Agua Hedionda HA

CB-PA3 Focus Area

The CB-PA3 focus area is located in the Buena Vista Creek HA, just east of the Buena Vista Lagoon. This area is a majority of commercial land use and associated parking lots, with a small residential area, that drain to a single outfall. Past monitoring efforts at this outfall has identified persistent flow and bacteria exceedances.

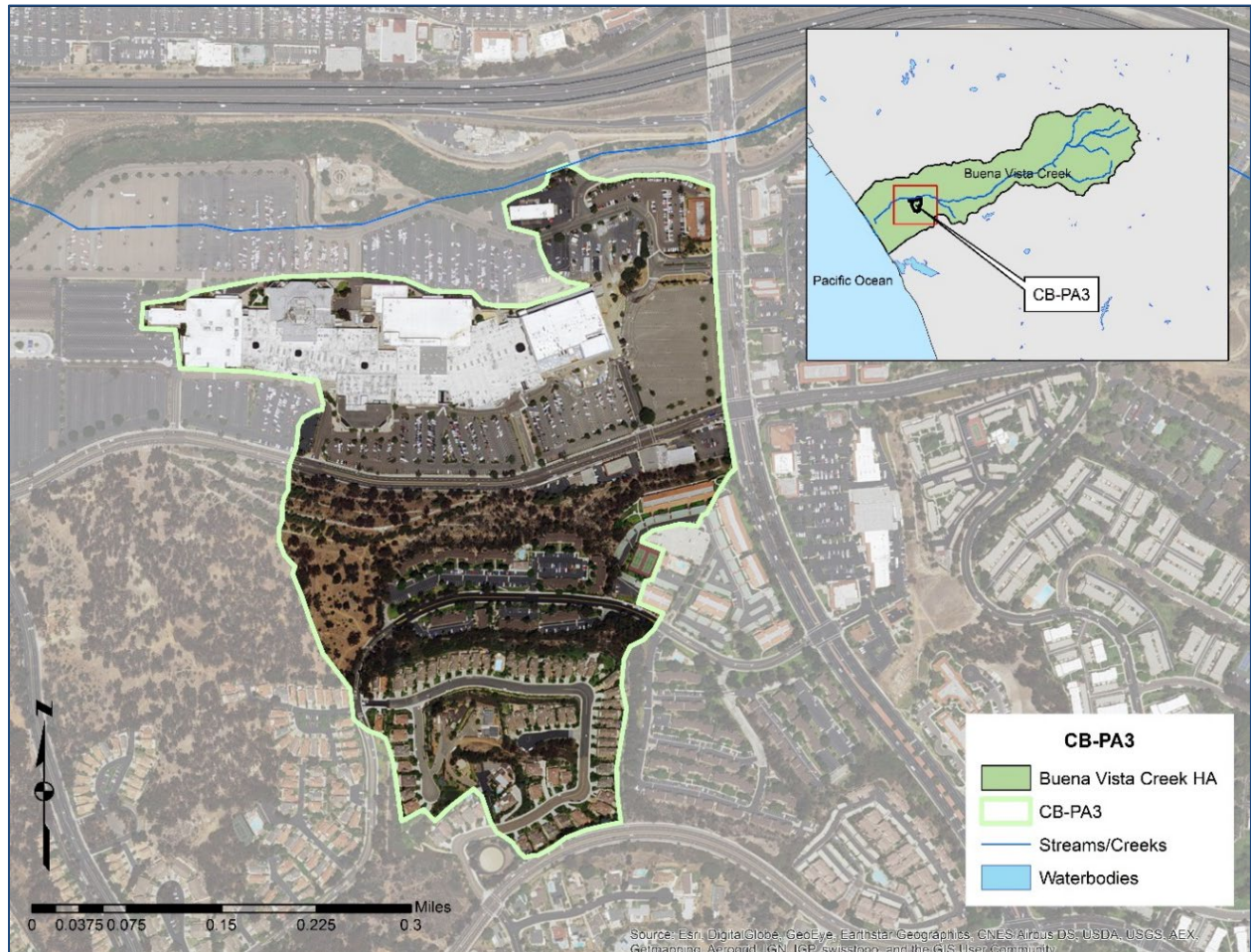


Figure 4: CB-PA3 Focus Area - Buena Vista Creek HA

For more information regarding the WQIPs, the reader is directed to the Project Clean Water website for the current Carlsbad WMA WQIP documents and Annual Updates.

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2 City Roles and Legal Authority

This section describes the city’s legal authority and Department Program responsibilities and roles, regarding storm water management. The city maintains adequate legal authority within its jurisdiction to control pollutant discharge into and from its MS4 through the city’s Municipal Code and ordinances.

2.1 Legal Authority

The city has established and maintains its legal authority to control pollutant discharges into and from its MS4. The city will continue to ensure that it has the legal authority to require BMP implementation, to prohibit all identified illicit discharges, to prohibit and eliminate illicit connections to the MS4, and to control the discharge of spills, dumping, and disposal of materials other than storm water to its MS4. Municipal Code Chapter 15.12 is the primary section related to the program and can be found at the city’s website.

2.2 Enforcement Procedures

The city employs a tiered, escalating enforcement system for violations of the city’s Municipal Code throughout the city. The escalating administrative and judicial enforcement measures are described in Section 10 Enforcement Response Plan of this JRMP.

2.3 City Department Program Responsibilities

The following table identifies the departments and staff that conduct urban runoff management activities and their roles under the city’s JRMP. For broader descriptions of the departments and their overall roles in the city operations, please see the city’s website at www.carlsbadca.gov.

Table 1: Department Roles

Department	Roles
City Manager’s Office	Overall oversight for JRMP implementation;
City Attorney	Certification of adequate legal authority; Enforcement assistance when necessary
City Clerk	Maintains records of programs and implementation; provides public records request support when applicable
Public Works Director	Designee for JRMP oversight with authority to certify related documents.
Community and Economic Development – Planning Division and Land Development Division	General Plan update; Environmental Review process update and implementation; review of projects for compliance with all city development codes; conditions of approval for project permitting process; provide data and information for annual reports; provide education to development community; Represent the city at regional meetings related to Development Planning
Community and Economic Development – Land Development Division	Modifications to development requirements; ensure that new development and significant redevelopment requirements (e.g., SUSMP) are included in all development projects; maintain inventory of permits; assist in development of and implementation of Hydromodification Management Plan; provide data and information for annual reports; provide education to development community
Public Works – Capital Projects Division, Public Works – Property Division, Public Works – Utilities Divisions, Parks Planning Division	Ensure that capital improvement projects meet the new development or significant redevelopment requirements; ensure that the capital improvement projects construction activities have adequate BMPs required for implementation by the city’s contractor; provide data and information for annual reports

Department	Roles
Community and Economic Development – Building Division, Public Works – Construction Management and Inspections Division, Public Works – Property Division, Public Works – Utilities Division, Parks Planning Division	Maintain construction site inventory; Conduct inspections and regulate construction sites regarding erosion, sediment control and other site management activities; including post-construction BMPs; Contribute to education and outreach for construction audience; Conduct post-construction BMP construction verification; Maintain the treatment control BMP inventory and oversee maintenance tracking activities; Special event inspections; Provide data and information for annual reporting
Community and Economic Development – Building Division and Code Enforcement	Plan review, permit issuance, building inspection and code enforcement for building permit projects; provide data and information for annual reports; provide education to development community, Provide enforcement support for construction activities
Public Works – Environmental Management	Coordinate and implement the IDDE program; Conduct/manage water quality monitoring programs; Conduct education and outreach for businesses and residents; Maintain business and residential inventory; Conduct inspections and assessments of industrial and commercial sites, commercial areas, residential areas, and municipal sites, including minimum BMPs; Provide data and coordinate data collection for annual reporting; Develop and conduct effectiveness assessments for existing development programs; Perform Principle Copermittee duties for the CWMA and participate in meetings and collaboration; Represent the city at regional meetings; Act as a liaison with the RWQCB

The organizational chart, shown below, identifies these departments in relation to the city management.

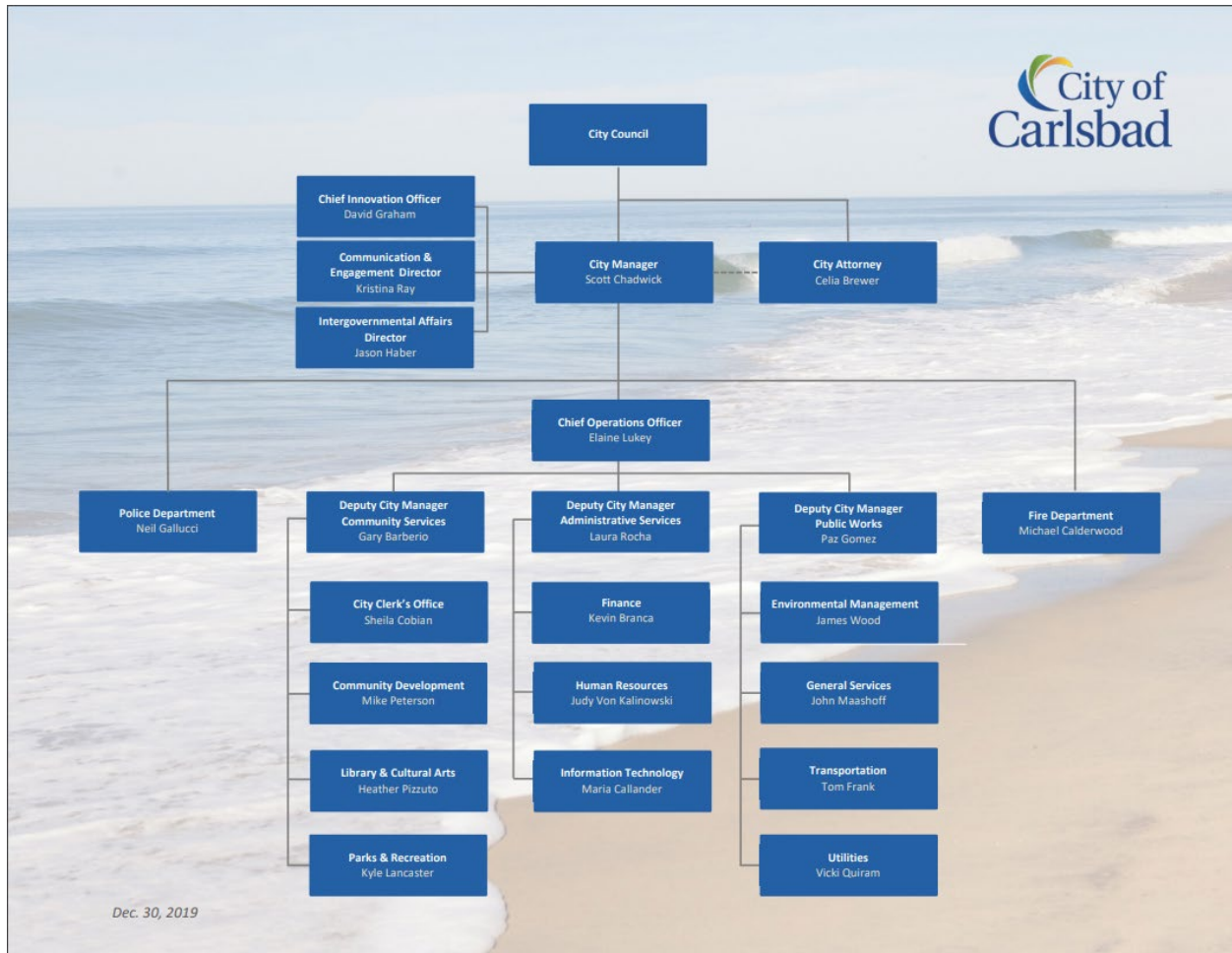


Figure 5: City of Carlsbad Organizational Chart

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3 Non-Storm Water Discharges

3.1 Introduction

This section describes the city's approach to controlling the non-storm water discharges to the MS4. The city addresses non-storm water discharges as illicit discharges unless a non-storm water discharge qualifies as a conditional discharge.

Non-storm water discharges are runoff flows from any type of activity other than weather caused precipitation or naturally occurring groundwater. Typical non-storm water discharges include, but are not limited to:

- Residential vehicle washing
- Residential and commercial street, sidewalk and parking lot washing (e.g., hosing down and high pressure washing)
- Air conditioning condensation
- Swimming pool discharges
- Sanitary sewer overflows
- Septic system overflows
- Irrigation runoff (e.g., overspray and over irrigation runoff)

Identifying and eliminating non-storm water discharges from entering the city's MS4 is a cost-effective best management practice (BMP) for improving water quality. Through the illicit discharge detection and elimination program (IDDE), the city investigates and eliminates any known or observed non-storm water discharge. The IDDE program is explained in more detail in Section 4.

Prohibited Non-Storm Water Discharges

The City prohibits all non-storm water discharges unless a discharge is authorized by a separate NPDES permit or qualifies as a conditional discharge.

3.2 Conditional Non-Storm water Discharges

The following categories of non-storm water discharges are conditionally allowed by the city if the discharge meets the criteria described below. If a discharge does not meet the criteria, then it is prohibited by the city.

3.2.1 Discharges Associated with Separate NPDES Permit

The RWQCB may permit a discharger to discharge water to the city's MS4, as long as the city does not determine that the discharge is a source of pollutants.

Pumping and Groundwater

The following non-storm water discharges are allowed if the discharge has coverage under NPDES Permit No. CAG919002 (Order No. R9-2008-0002):

- Uncontaminated pumped ground water
- Discharges from foundation drains (i.e., If the system is located at or below the groundwater table to extract groundwater)
- Water from crawl space pumps
- Water from footing drains

Water Line Flushing and Breaks

The city considers non-storm water discharges associated with water line flushing or breaks as an illicit discharge, unless the discharge has coverage under NPDES Permit No. CAG 679001 (Order No. R9-2010-0003 or subsequent order). In addition, discharges from recycled or reclaimed water lines are illicit, unless covered under a separate NPDES Permit.

3.2.2 Controlled Non-Storm Water Discharges

The City of Carlsbad allows the following non-storm water discharges to enter the MS4 if the following controls and criteria are implemented:

Air Conditioning Condensation

The discharge should be directed to landscaped areas or other pervious surfaces.

Dechlorinated Swimming Pool Discharges

Prior to discharging to the MS4, residual chlorine, algaecide, filter backwash, or other pollutants from the swimming pools, must be eliminated. The discharge of saline swimming pools must be directed to the sanitary sewer, landscaped areas, or other pervious surfaces that can accommodate the volume of water.

Individual Residential Vehicle Washing

The use of water and washing detergent should be minimized and the discharge of wash water should be directed to landscaped areas or other pervious surfaces.

3.2.3 Discretionary Discharge

The following discharges are not prohibited unless they are identified by the city or the RWQCB as pollutant sources to receiving waters:

- Diverted stream flows
- Rising ground waters
- Uncontaminated ground water infiltration to MS4s
- Springs
- Flows from riparian habitats and wetlands
- Direct discharges from potable water sources
- Direct discharges from foundation drains
- Direct discharges from footing drains

3.3 Program for Non-Emergency Fire Fighting Flows

The Carlsbad Fire Department (CFD) has developed the Non-Emergency Fire Fighting Program to meet the requirements of Order R9-2013-0001. This section describes the city's program to reduce pollutants from non-emergency firefighting flows (i.e., flows from controlled or practice blazes and maintenance activities). By default, the non-emergency firefighting flows are flows generated by the Fire Department other than emergency situations.

The CFD will maintain a storm water pollution prevention manual (SWPPP) specific to each fire station to serve as a central location for all storm water documents, training, and BMP descriptions, as well as departmental policies related to storm water; these SWPPPs are reviewed annually and updated on an as-needed basis. The BMPs incorporated at Fire Stations are listed below:

- The SWPPPs include facility specific site maps, storm water inspection reports, facility specific spill response procedures, training records, department policies, and other related storm water compliance information.
- A written department policy on outside water use is followed and covers vehicle, hose, and equipment washing.
- Spill response equipment and materials are clearly identified and staged in accessible locations.
- Sweeping and removal of organic material from parking lots and walkways is completed on a weekly or as needed basis at all fire stations.
- The city's Safety Training Center is used for various methods of training and testing for firefighting. Water used for this non-emergency training is retained on-site through the use of flow retention devices and other BMPs.
- The Fire Department will continue to provide acceptable wet training opportunities for personnel, while ensuring that appropriate BMPs are in place to protect storm drains and eliminate discharges to the MS4.
- Awareness is heightened at fire scenes to minimize the potential for excessive water flow.
- Awareness is heightened at incident scenes to contain potential discharges (once the scene had been stabilized) to prevent pollutants from entering the storm drain system.
- The Fire Department will continue to implement the city's spill response procedure for incidents that occur on city streets.

The CFD will continue to communicate with other City departments to improve coordination and education with regards to storm water. The Fire Department conducts annual trainings to ensure that all fire department personnel are versed in storm water as it relates to fire station and firefighting activities.

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4 Illicit Discharge Detection and Elimination

4.1 Introduction

This section describes the responsibilities of staff with respect to implementation of the Illicit Discharge Detection and Elimination (IDDE) component of the JRMP. This program section is intended to provide direction to actively seek and eliminate illicit discharges and connections.

In general, illicit discharges to the MS4 are any discharges not composed entirely of storm water unless they are authorized under a separate NPDES permit or are considered conditional discharges, described further in Section 3, Non-Storm Water Discharges.

The city's program to actively seek and eliminate illicit discharges to the MS4 is comprised of the following elements:

- Visual outfall monitoring
- Source specific observations
- Use of City staff for reporting observations
- Use of public hotline and reporting methods
- Investigations and enforcement
- Spill response, reporting, and prevention

In almost all cases of illicit discharges, elimination of the discharge requires some level of enforcement and/or abatement action. Specifications in the Carlsbad Municipal Code grant the city the powers to enforce its regulations pertaining to illicit discharges. The Municipal Code requires the violator to conduct abatement activities required to eliminate an illicit discharge or for the city to conduct the abatement activities itself.

4.2 Program Elements

4.2.1 MS4 Map

The city maintains an updated map of its MS4 and the corresponding drainage areas. A detailed map is included as Appendix A, identifies the following:

- Segments of the MS4 owned, operated, and maintained by the city
- Locations of inlets
- Known locations of connections with other MS4s, not owned by the city
- Known locations of MS4 outfalls and private outfalls that discharge runoff collected from areas within the city
- Segments of receiving waters within the city that receive and convey runoff discharge from the MS4 outfalls
- Locations of MS4 outfall discharge monitoring stations
- Locations of non-storm water persistent flow MS4 outfall discharge monitoring stations

4.2.2 Dry Weather MS4 Outfall Monitoring Programs

The city conducts field screenings of MS4 outfalls and portions of the MS4 infrastructure, to detect illicit discharges. The following sections briefly describe the monitoring programs performed by the city that are specific to IDDE. Monitoring programs are explained in more detail in Section 13, Monitoring Programs.

The intent of the Dry Weather MS4 Outfall Discharge Monitoring Program is to investigate any observed discharge from the MS4 and determine if the discharge is an illicit connection or discharge. The city will use dry weather field and analytical monitoring information to characterize dry weather discharges in the MS4 and identify conveyances that are discharging elevated levels of pollutants. The minimum number of field screenings conducted annually will be the same as the quantity of major MS4 outfalls identified per in the MS4 outfall discharge monitoring station inventory (currently 147) Follow-up studies and source investigations will be conducted as required, to detect and eliminate the sources of these pollutants.

There are three components to the dry weather-monitoring program:

1. Field observations
2. Field screening
3. Laboratory analyses

Field observations include various site descriptions and a series of qualitative (primarily visual) observations of physical and biological conditions at the site. Field screening includes determinations of several water quality parameters and flow in the field. The laboratory analysis component involves the collection of samples for a more extensive laboratory analysis of pollutants that can cause water quality degradation. The presence of abnormal conditions in any of the three dry weather-monitoring components is justification for initiating a pollutant source identification investigation.

The Non-Storm Water Persistent Flow MS4 Outfall Discharge Monitoring Program focuses on analytical monitoring at locations known to have persistent flow. The city monitors five highest priority major outfalls.

Monitoring is required to continue unless one of the following events occurs:

- The flow is eliminated
- The flow is identified as an allowable non-storm water discharge
- The non-storm water discharge does not exceed numerical action levels (NALs) and the flow can be re-prioritized to a lower priority
- The flow is identified as a conditional non-storm water discharge

4.2.3 Source Specific Observations

The city implements investigational source identification procedures in order to identify and eliminate discharge sources. The city inspects municipal, industrial, commercial, residential, and construction activities to identify sources of illicit discharge. Often, when an illicit discharge is detected during an inspection, it can be eliminated before it affects receiving waters.

Non-storm water flows from irrigation runoff observed from field staff or reported through the storm water hotline or email, will be forwarded to Public Works – Utilities (Carlsbad Municipal Water District) for response and enforcement, if necessary.

4.2.4 Observation Reporting by City Staff

The city trains full-time maintenance and operations staff to immediately refer all storm water violations observed while working in the field to the Watershed Protection Program. City maintenance and operations staff can reach the Watershed Protection Program through the following methods:

- City of Carlsbad Storm Water Hotline, (760) 602-2799

- City of Carlsbad Watershed Protection Program e-mail: stormwater@carlsbadca.gov

4.2.5 Reporting and Notification

The City of Carlsbad operates a Hotline used by the public to report potential illicit discharges and connections. The Hotline number is posted on the city's website and is provided in informational mailers to residents and businesses, advertisements, and social media. The Hotline is capable of receiving reports in English and Spanish 24 hours per day, seven days per week. Relevant issues received through the County of San Diego hotline will be forwarded to the City of Carlsbad Watershed Protection Program.

Reports and notifications can be filed by phone or e-mail using the two public hotlines and e-mail address listed below, which are currently operated by the City of Carlsbad and the County of San Diego Department of Environmental Health:

- City of Carlsbad Storm Water Hotline, (760) 602-2799
- City of Carlsbad Watershed Protection Program e-mail: stormwater@carlsbadca.gov
- County Storm Water Hotline (888) 846-0800

When reports or notifications are made, the city will implement the following receipt procedures:

1. Collection of Information, including:
 - a. Complainant information,
 - b. Potential Responsible party information,
 - c. Location and description of the discharge or issue, and
 - d. Materials and waste involved, etc.
2. Information/Investigation Tracking
 - a. All provided information is entered into city database.
3. Prioritization
 - a. Reports and notifications are prioritized using the following criteria:
 - i. Is the discharge currently occurring?
 - ii. Is there an immediate threat to human health or the environment?
 - iii. Is a hazardous or unknown material involved?
4. Routing / Referral
 - a. Based on the prioritization, complaints are routed to the appropriate city staff or department, or other appropriate agency for further investigation and the city will confirm receipt.

4.2.6 City Staff Investigation

Once a report or notification is received, staff visit the location of the issue, investigate, and determine the appropriate course of action in a timely matter. Within the city's selected focus areas (CB-PA 1, CB-PA2, CB-PA3), a maximum response time of 45 minutes from the time of notification has been established for initiating response investigations. This response time is expected to eliminate discharges while they are occurring and provide an opportunity to immediately educate or issue enforcement proceedings as necessary. If the responsible party is found, and depending on the severity of the violation, City staff may provide educational information or materials to the potential responsible party or follow the appropriate enforcement action(s) as described in Section 10, Enforcement Response Plan. If deemed necessary, staff would conduct a follow-up investigation to ensure the correction has been made. This process encourages pollution prevention methods and verifies the implementation of required BMPs.

4.2.7 Program Efficiencies

The city implemented a new computer database compatible with mobile devices. This system lets Watershed Protection Program staff assess and resolve reported/discovered illegal discharges more efficiently and comprehensively by enabling the following abilities in the field: creation of code cases; direct attachment of photos to the code case; review of all previous inspection of facilities including photos taken; and automated notification to office staff to create and send enforcement notices. The inspectors have the ability to directly enter all inspection info (including photos) into the database during the inspection. Upon completion of inspections, automated tasks are immediately sent to office staff to create and send inspection forms, as well as any related enforcement notices. This process has eliminated the time-consuming steps of filling out inspection forms on paper, scanning and saving them, attaching photos, and manually entering the data into a database.

4.2.8 Spill Reporting, Response, and Prevention

The City of Carlsbad's Spill Response Plan covers spills to the storm water conveyance system. The intent of the Spill Response Plan is to prevent or minimize the impact of spills by implementing appropriate actions, by various city departments, to prevent spills from entering the MS4 and/or using appropriate cleanup and mitigation methods. Additionally, the city has a Sanitary Sewer Overflow Response Plan (SSORP) as described in Section 7.4.10.2 of this JRMP.

Spills that require an emergency response by the Fire Department and the San Diego County Department of Environmental Health Hazardous Incident Response Team (HIRT) for management or mitigation will be reported to the Governor's Office of Emergency Services and any other appropriate agencies, including the San Diego Regional Water Quality Control Board, by the HIRT in accordance with State requirements and within the required timeframes.

4.3 Enforcement

The city investigates illicit discharges or connections upon receipt or following an in-field observation. City staff document issues, observations and responses through internal memorandums, emails, and work orders.

For any enforcement actions, the city follows the established protocols described in Section 10, Enforcement Response Plan.

5 Development Planning

5.1 Introduction

The development planning process is a comprehensive process that includes planning, engineering, construction and post-construction phases. Each phase includes review, conditional requirements and verification that the requirements have been satisfied. The construction portion of the development process is described in Section 6 of the JRMP. Because the process weaves through various phases, there are several City Departments/Divisions involved in the development process, including, Community and Economic Development – Building Division and Land Development Division, Public Works – Construction Management and Inspections Division, Public Works – Property Division and Utilities Division, Parks Planning Division.

This section describes the requirements of the city’s Development Planning Component and staff responsibilities. As development or redevelopment occurs, the city requires projects to plan for, design and construct post-construction BMPs to mitigate the water quality impacts of the planned land use.

Development Planning is intended to:

- reduce discharges of pollutants from developed properties;
- prevent discharges from the MS4 from causing or contributing to a violation of water quality standards, and;
- manage increases in runoff discharge rates and durations from developed properties that are likely to cause increased erosion of stream beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

The city’s Storm Water requirements are located in the city’s Engineering Standards Manual (Standards Manual). The Standards Manual includes guidelines and procedures on how storm water requirements are applied to the different types of development and redevelopment projects. These requirements apply to both private and public development projects. The storm water requirements are more specifically located in the SWPPP Manual (Volume 4) and the BMP Design Manual (Volume 5) of the city’s Engineering Standards Manual. Please follow the following link for the city’s Standards Manual: <http://www.carlsbadca.gov/services/building/codes/lde.asp>.

5.2 Best Management Practice Requirements

Carlsbad’s Standards Manual explains how Best Management Practices (BMPs) are applied to development and redevelopment projects. One of the first steps is to determine the type (or level) of storm water standards that apply to a project. The Standards Manual explains how development projects are, either subject to Standard Storm Water Requirements or Priority Development Project (PDP) Requirements. For minor activities, such as re-roofing and interior remodels, etc. certain projects are considered exempt from storm water requirements. Refer to the Manual for a comprehensive list of activities exempt from storm water. For projects not considered exempt, they will normally fall into one of two categories for water quality requirements. This determination is found by completing a form called the ‘Storm Water Standards Questionnaire’, which is explained further in Section 5.3.2.

The Standards Manual includes guidance to understand how a project may affect runoff in the watershed and to consider downstream impaired water bodies or sensitive habitat. The Standards Manual provides information on the anticipated pollutants generated by a project category. This knowledge helps to assess

the effectiveness of BMPs that are being considered for a project. Selecting the appropriate BMPs helps treat the runoff prior to discharge from the project. In addition, the Standards Manual has design procedures to ensure BMPs are incorporated into the project features.

In general, simpler projects disturbing small areas or resulting in small amounts of new impervious areas, Standard Storm Water requirements are likely to apply. When projects disturb larger areas or are more complex, they will usually trigger the need for PDP (or enhanced water quality treatment) requirements. However, the thresholds are sensitive so that certain smaller projects along sensitive habitat or waterways might also trigger PDP requirements. For more information on how storm water standards are triggered or applied, refer to section 5.3.2.

Selecting the appropriate BMPs will vary from project to project depending on the physical site constraints, downstream impairments, development category, types of soil, and target pollutant(s) generated by their specific project.

5.2.1 BMPs for Standard Projects

BMPs for Standard Storm Water Requirements must use Low Impact Development (LID) techniques and site design features using the city's E-36 form found online at the following link: <http://www.carlsbadca.gov/services/building/forms/engineering.asp> . Although BMPs do not need to be sized by a technical report (engineered), using E-36 provides a menu of different BMPs with narrative to explain when they are used and where to deploy them on their project.

The following are examples of BMPs for projects subject to Standard Storm Water Requirements:

- Having impervious areas drain to pervious surfaces (roof downspouts to vegetation).
- Store liquids or materials in covered areas to avoid contact with storm runoff.
- Minimizing impervious surfaces or using pervious paving where appropriate
- Having covers on bins for refuse storage area
- Having extended canopy covers for fuel dispensing areas
- Minimizing run-on to loading docks
- Adding stencils to inlets for no dumping of waste

The city ensures BMPs for Standard Storm Water projects are incorporated during planning and/or plan review process through the normal project development process using E-36 of the Standards Manual.

5.2.2 BMPs for Priority Development Projects

Volume 5 of the Standards Manual includes sizing methods (volume or flow-based) to select and size treatment control BMPs (TCBMPs) for projects. BMPs for PDP projects are sized (engineered) to treat those areas draining to them. The Standards Manual also provides several treatment control BMP options that applicants may choose for their projects including raised planters, bio-retention facilities, pervious pavements, infiltration trenches, cisterns, and more. To help make the appropriate BMP selections, the Standards Manual includes the BMP types and their relative efficiency at removing certain categories of pollutants. Projects are required to select BMPs that have a high or medium efficiency at removing target pollutants. Those that choose low efficiency BMPs are required to include extensive narrative to explain the other high efficiency BMPs and why they were not selected for their project. If sufficient justification cannot be provided, then through the planning and/or plan review process, other BMPs are required that are more effective at removing the anticipated pollutants.

In addition to sizing treatment control BMPs the city also has hydromodification management requirements for priority development projects. This ensures post-development runoff does not exceed pre-development runoff for a select range of storm flow conditions. Hydromodification requirements are included [BMP selection and sizing methods in](#) Volume 5.

The city has Storm Water Quality Management Plan (SWQMP) guidelines for PDP projects and includes an HMP applicability checklist. This checklist is completed to determine whether the project is required to comply with HMP or if exemption criteria can be met. The applicability checklist is reviewed for concurrence on the determination. If HMP requirements apply to a project, the BMPs for the project are designed to meet both treatment and HMP requirements. The Standards Manual includes an integrated BMP sizing approach for applicants to select and size BMP's to satisfy both these requirements.

The city uses the County of San Diego Low Impact Development (LID) handbook as a guidance document for applicants. The handbook is a tool to educate developers, contractors, City staff and homeowners regarding different types of LID features on a typical project. The handbook includes different LID features, what their purpose is, and how they are deployed on a project site. Go to the following link for this handbook:

http://www.projectcleanwater.org/images/stories/Docs/LID/countyofsd_LID_handbook.pdf.

The BMP selection and implementation steps are reviewed by staff during the environmental review (Section 5.3.1), planning/discretionary process (Section 5.3.2) and plan review process (Section 5.3.3). Once plan review is complete, the process of BMP installation is carried through via the construction verification process (Section 5.3.4).

5.3 Land Development Process

5.3.1 Environmental Review Process

In accordance with California Environmental Quality Act (CEQA) guidelines, the city's environmental review process begins with the submittal of an Initial Study Checklist for private projects or the Early Assessment Form for city projects. The city's Planning staff is responsible to assess and promulgate environmental determinations for development projects. Using CEQA guidelines, projects may either be issued an exemption, mitigated negative declaration or an Environment Impact Report (EIR). Based on the results of the checklist, the city requires additional studies to elaborate on the environmental impacts of the project.

The Initial Checklist provides an expanded section on potential water quality impacts for each project. Table 2 shows an excerpt of the updated Initial Study Checklist that includes specific hydrology and water quality analysis the city uses during the environmental review process.

Table 2: Hydrology and Water Quality Analysis Checklist

HYDROLOGY AND WATER QUALITY. Could the project:
a. Violate any water quality standards or waste discharge requirements?
b. Substantially deplete groundwater supplies or interfere substantially with ground water recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground water table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the flow rate or amount (volume) of surface runoff in a manner, which would result in flooding on- or off-site?
e. Create or contribute runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?
f. Otherwise substantially degrade water quality?
g. Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood delineation map?
h. Place within 100-year flood hazard area structures, which would impede or redirect flood flows?
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?
j. Inundation by seiche, tsunami, or mudflow?
k. Increase erosion (sediment) into receiving surface waters?
l. Impact aquatic, wetland, or riparian habitat?
m. Change receiving water quality (marine, fresh or wetland waters) during or following construction?
n. Increase any pollutant to an already impaired water body as listed on the Clean Water Act Section 303(d) list?
o. Increase impervious surfaces and associated runoff?
p. Result in the exceedance of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses?

If the project has potential impacts to water quality, technical reports (i.e. preliminary Storm Water Quality Management Plan) are prepared for review. These reports are prepared to address the anticipated pollutants and measures considered to avoid or address the development impacts to runoff to downstream tributaries. The format for preliminary SWQMPs includes the same basic content of a final SWQMP in final design, as it is used to demonstrate project feasibility similar to how a preliminary soils investigation or a preliminary hydrology study is used to address project impacts and mitigation measures. For the current City SWQMP requirements, please refer to the following City website: <http://www.carlsbadca.gov/civicax/filebank/blobload.aspx?BlobID=22712>.

5.3.2 Planning

Certain projects require entitlements (discretionary process) before plan development begins. City Planning staff evaluate projects against the Municipal code and planning overlays to determine whether

discretionary action is first required before design begins. If the entitlement process is required, submittal packages using submittal checklists are prepared. Please refer to the following link for City's discretionary project submittal checklists: <http://www.carlsbadca.gov/civicax/filebank/blobdload.aspx?BlobID=24116>.

During the development review process, the city requires that new development and redevelopment projects evaluate their project against the required project Standards Manual thresholds to determine the level of storm water requirements that apply to their project. To evaluate projects, applicants are required to fill out and submit a Storm Water Standards Questionnaire (SWSQ) to the city. The SWSQ was developed using criteria from the 2013 Municipal Permit. Upon submittal, City staff reviews each SWSQ to evaluate the accuracy of the thresholds that may apply to the project and to ensure the proper outcome of the SWSQ and compliance with the Carlsbad Standards Manual. Please refer to the following link for the city's SWSQ: <http://www.carlsbadca.gov/civicax/filebank/blobdload.aspx?BlobID=22711>.

If the project thresholds trigger Priority Development Requirements, a preliminary SWQMP is prepared for City review (mimics the environmental review process). Staff reviews the preliminary SWQMPs to seek concurrence with the project description, anticipated pollutants, impaired water bodies, BMP selection, and BMP sizing methods. Staff also reviews the BMPs in the preliminary SWQMP to ensure they are included in the project design.

Private Development

If a preliminary SWQMP is not submitted, the application is deemed incomplete and the applicant is notified.

For development projects subject to Standard Storm Water Requirements, staff use the checklist (E-36 form) to ensure typical BMPs are deployed for the project.

This process results in projects that meet Carlsbad's Standards Manual requirements and requirements of the Municipal Permit. Projects subject to PDP requirements that receive discretionary approval include conditions-of-approval requiring the:

- Submittal of final SWQMPs as part of final design, subject to City review and approval.
- Inclusion of BMPs on final grading or improvement plans in accordance with the final SWQMP.
- Inclusion of an executed/notarized permanent BMP maintenance agreements (for private development)

Private Development

During submittal review, if discrepancies are identified on storm water related items, they are included in the review comments. The Applicant is responsible for addressing the discrepancies, updating exhibits and/or technical reports (e.g.: preliminary SWQMP) and resubmitting until the comments are addressed.

5.3.3 Plan Review

Projects are reviewed to ensure that the city's Standards Manual requirements are included and met. The submittal requirements for plan review require the submittal of a completed SWSQ. If a project is subject PDP requirements, a SWQMP must also be included.

During plan review, if discrepancies are identified on storm water related items, they are included in the review comments to the Engineer-of-Work. The plans and/or SWQMP are updated and resubmitted until the comments are addressed.

Grading and Improvement plans for projects subject to PDP requirements will include BMP table on the title sheet that summarizes the permanent treatment control BMPs (TCBMPs) being installed and which sheet includes their construction. This process helps notify the reviewer, developer and inspector of this permanent water quality facility and also is used by our City Asset Management staff

as they add these TCBMPs to our GIS inventory for tracking. Our GIS system is used to generate reports on TCBMPs in the city. Below is a sample of the TCBMP table included on these plans:

Private Development

The City requires a SWSQ and SWQMP to be included for a complete project application. The City’s engineering improvement plan submittal checklist can be found at:

<http://www.carlsbadca.gov/civicax/filebank/blobdload.aspx?BlobID=22692>

The City’s grading plan submittal checklist, can be found at:

<http://www.carlsbadca.gov/civicax/filebank/blobdload.aspx?BlobID=22691>.

Table 3: BMP Table

POST-CONSTRUCTION BMP TABLE					
STORMWATER REQUIREMENTS THAT APPLY:			EXEMPT FROM HYDROMODIFICATION?		
<input type="checkbox"/>	STANDARD STORMWATER REQUIREMENTS		<input type="checkbox"/>	YES (SEE SWMP FOR DOCUMENTATION)	
<input type="checkbox"/>	PRIORITY PROJECT REQUIREMENTS		<input type="checkbox"/>	NO	
TYPE	DESCRIPTION	OWNERSHIP	MAINTENANCE AGREEMENT	SHEET NO.	MAINTENANCE FREQUENCY

A single-sheet post construction BMP (SSPCBMP) plan that includes a project site plan and shows the comprehensive locations of each BMP such as site design, source control, low impact development technique, treatment controls, and hydromodification features is prepared. The SSPCBMP plan contains a table that contains cross-references summarizing the selected BMPs together with the appropriate construction document (e.g.: grading, improvement, building or landscape) that is responsible to build each particular post-construction BMP. Upon permit issuance, a copy of the SSPCBMP plan is signed and distributed with the construction drawings for reference by the contractor and inspector. At the conclusion of the project and prior to issuance of an occupancy permit or acceptance of the improvements, the inspector uses the SSPCBMP plan to help ensure all required post-construction BMPs are installed as required. After verification, the inspector initials the plan and places a copy in the project inspection file.

The SSPCBMP is required content for a SWQMP. The SSPCBMP includes project information and other tables to help organize and present the different types of post construction BMPs for a project. The SSPCBMP serves as a comprehensive document displaying the project and the location of different post construction BMPs that are be installed along with calling out which construction document (grading, improvement, building, landscape plan, etc.) that is responsible to install each listed BMP. The template is found on the city’s website for use by applicants when preparing SWQMPs. For a copy of the template

SSPCBMP plan, refer to <http://www.carlsbadca.gov/civicax/filebank/blobdload.aspx?BlobID=22678>. Once final plans and reports are approved, they are prepared for scanning into the city’s Digital Management System. This process ensures both plans and final SWQMPs are available for reference similar to any other project-related technical study (geotechnical report, drainage study, structural calculations, etc.).

Grading and Improvement plans for projects subject to PDP requirements also require the owner, if other than the city, to execute a city standard permanent BMP maintenance agreement. Prior to plan approval, this must be executed by the property owner and submitted to the city for recordation against the property. This document provides a notice to current and prospective property owners of their obligation to monitor and maintain permanent BMPs on their property. It also links BMP maintenance information to the SWQMP on file with the city.

For plan reviews subject to Standard Storm Water Requirements, staff use the checklist (E-36 of the Standards Manual) to ensure typical BMPs are deployed in appropriate locations.

5.3.3 Summary of process steps

Table 4 is a comprehensive summary of the various steps where Standards Manual requirements are integrated with City processes.

Table 4: Development Process and Standards Manual Activities

Development Process Stage	Standards Manual Activity Description	Process Review Documents/References
Conceptual Project Design	Developer uses the Carlsbad STANDARDS MANUAL and Storm Water Standards Questionnaire to determine project priority and begins project layout and design. For priority projects the city recommends to developers that a preliminary SWQMP should be prepared.	<ul style="list-style-type: none"> • Storm Water Standards Questionnaire • Storm Water Standards Manual which includes the Carlsbad Standards Manual • 303(d) List
Pre-application Review	Developer submits the preliminary project proposal to staff to obtain input on conceptual project layout including storm water compliance issues.	<ul style="list-style-type: none"> • Preliminary site plan checklist • SWQMP Fact Sheet
<i>For projects that require Discretionary Action(s):</i> Application for Discretionary Review	City staff review application package at front Counter for completeness of submittal including storm water compliance documents. Project is logged into the city database for tracking. A completed Environmental Initial Assessment (EIA) form is submitted with the application package.	<ul style="list-style-type: none"> • Project Application Submittal Checklist • City review letter

Development Process Stage	Standards Manual Activity Description	Process Review Documents/References
Application Review	City staff reviews application, site plans and accompanying reports and documents including any SWQMP, geotechnical and hydrology/hydraulic reports. Project is reviewed for consistency with General Plan, Local Coastal Plan (LCP), Habitat Management Plan, Carlsbad Standards Manual and City Codes and other Standards including all storm water policies and requirements including new LID and interim hydromodification requirements. Project location is reviewed for proximity to environmentally sensitive areas and to determine if project drains to a water body on the 303(d) list. Project EIA is reviewed and appropriate environmental review documents are requested and reviewed in compliance with California Environmental Quality Act (CEQA) requirements.	<ul style="list-style-type: none"> • Site plan review checklist • SWQMP checklist • 303(d) List • General Plan • Local Coastal Plan • Habitat Management Plan • City Codes • Environmental Assessment Form • CEQA Guidelines • City review letter (if any)
Discretionary Approval	City denies project or approves with conditions including storm water compliance conditions. Applicable standard conditions of approval are applied to the project together with any special conditions of approval as City staff determines necessary to reduce or eliminate the projects storm water pollution impacts to the MEP. Approving authority makes required findings that project complies with the General Plan, LCP, Habitat Management Plan, Standards Manual, City Codes and any other appropriate land use planning documents. Environmental documents are certified and any mitigation monitoring requirements are noted in the project approval.	<ul style="list-style-type: none"> • City’s standard conditions of approval • Project Conditions of Approval • Environmental mitigation and monitoring plan (if any)
Final Project Design	Developer prepares project construction plans including grading, improvement, landscape and building detailing required BMPs. Construction SWPPP is prepared and SWQMP is finalized. A single sheet post construction BMP site plan is prepared.	<ul style="list-style-type: none"> • Storm Water Standards Manual • Project Conditions of Approval • Environmental mitigation and monitoring plan (if any)
<i>For Private Development:</i> Construction Plan Review Application Submittal	City staff review application package for completeness of submittal including storm water compliance documents. Applicant completes and submits Project Storm Water Threat Assessment Worksheet included as part of the Storm Water Requirements Applicability Checklist.	<ul style="list-style-type: none"> • Plan review Application Submittal Checklist • Project Threat Assessment Worksheet • Project Conditions of Approval
Construction Plan Review	City staff reviews construction plans and accompanying reports and documents including any SWQMP, single sheet post construction BMP site plan, Construction SWPPP, geotechnical and hydrology/hydraulic reports. All storm water pollution prevention requirements are checked against construction plan checklist, SWQMP checklist, Construction SWPPP checklist and project conditions of approval. Construction cost estimates are approved for bonding costs including costs for structural BMPs. For priority projects, a BMP Maintenance Agreement is prepared.	<ul style="list-style-type: none"> • Construction Plan checklist • SWQMP Checklist • Construction SWPPP Checklist • Project conditions of approval • Project Threat Assessment • City Engineering plan review procedures • Environmental mitigation and monitoring plan (if any) • Cost estimates

Development Process Stage	Standards Manual Activity Description	Process Review Documents/References
Construction Plan Approval	<p>City approves construction plans and accompanying Construction SWPPP and SWQMP including single sheet post construction BMP site plan. The executed BMP Maintenance Agreement is recorded and entered into the city's document management system database. All treatment control BMPs are noted on the construction plans and forwarded to the GIS group for entry into the BMP inventory. Any project design changes that differ from the approved site plan or project conditions of approval are reviewed in compliance with the city's Substantial Conformance Procedures to ensure that the project remains in compliance with all land use planning findings. If other than the city, secured agreements to construct project improvements are obtained backed up with cash and/or other securities. Developer is required to note the WDID number on the project plans</p>	<ul style="list-style-type: none"> • Plan review completion letter • BMP Maintenance Agreement • BMP Inventory update procedures • Substantial Conformance Procedures • Environmental mitigation and monitoring plan (if any) • Cost estimates • Secured Agreements • Single sheet post construction BMP site plan
Ministerial (Construction) Permit Issuance	<p>City issues permit(s) for construction activities including grading, improvement, building, demolition and blasting. Any special storm water compliance requirements are noted on permit. City staff review plan review completion letter for any special storm water compliance requirements. Copies of the permit, construction plans, Construction SWPPP, single sheet post construction BMP site plan and SWQMP are forwarded to the Construction Management and Inspection Division. A construction inspection level (low, medium or high) is assigned in accordance with the project's threat assessment form. The project tracking database is updated with the project threat assessment construction level and permit issuance status.</p>	<ul style="list-style-type: none"> • Plan review completion letter • Project SWQMP • Project Construction SWPPP • Construction Threat Assessment Worksheet • Pollution Prevention Guide for the Construction Industry • Construction SWPPP Fact Sheet • Single sheet post construction BMP site plan
Preconstruction Meeting	<p>City staff meets with contractor and other parties to review project construction issues, schedule, and storm water BMP implementation, monitoring and testing requirements. Contractor is informed of storm water inspection and enforcement procedures and reminded to maintain compliance with the city's storm water pollution prevention requirements. City inspector verifies the NOI has been filed with the Regional Board and a WDID number has been assigned to the project.</p>	<ul style="list-style-type: none"> • Preconstruction checklist • Construction SWPPP • SWQMP • Construction plans • Pollution Prevention Guide for the Construction Industry • Single sheet post construction BMP site plan
Construction and Inspection	<p>Developer constructs project including temporary and permanent BMPs. City inspectors enforce compliance with SWPPP, SWQMP and Municipal Permit. During construction City project inspector reviews construction for compliance with all plans, the Construction SWPPP, SWQMP and City Standards. Regular storm water compliance inspections are scheduled and tracked per City procedures and the requirements of the JRMP. Enforcement actions are taken as necessary in accordance with City inspection and enforcement procedures. City inspector reviews and approves any minor construction revisions. Major construction revisions are referred to the Engineering Development Services Division for review and approval.</p>	<ul style="list-style-type: none"> • Construction SWPPP • SWQMP • Construction plans • City inspection and enforcement procedures • Pollution Prevention Guide for the Construction Industry • Inspection reports • Enforcement action reports • Secured Agreements • Single sheet post construction BMP site plan

Development Process Stage	Standards Manual Activity Description	Process Review Documents/References
Project Completion	Construction plans are “as-built”, securities released, and BMP construction verified. As-Built plans prepared and forwarded to the GIS Group to update the BMP inventory. City inspector reviews project site to verify installation of permanent BMPs prior to occupancy permit and/or project acceptance using the single sheet post construction BMP site plan. Public Improvements are accepted for maintenance including any public structural control BMPs.	<ul style="list-style-type: none"> • Construction SWPPP • SWQMP • Construction plans • Pollution Prevention Guide for the Construction Industry • Punch list • Secured Agreements • Project Acceptance Forms • Single sheet post construction BMP site plan
Post Construction Annual Treatment Control BMP Inspections	BMP owners maintain BMPs in accordance with recommended and regulatory maintenance schedules. Treatment Control BMP owners submit annual verification of effective operation and maintenance of installed treatment control BMPs. City staff inspects project sites with installed treatment control BMPs to verify compliance with storm water requirements. (New requirement was implemented in FY 2008-09).	<ul style="list-style-type: none"> • SWQMP • BMP Inventory List • Site BMP Inspection Report • BMP Maintenance Agreement

5.3.4 Construction Verification Process

5.3.4.1 Structural BMP Verification of Installation Prior to Occupancy

The installation of all structural BMPs required for Priority Development projects will continue to be verified prior to occupancy. The process is initiated when the contractor/developer requests a pre-construction meeting with City inspectors. During the pre-construction meetings, the contractor/developer is notified of the BMP installation requirements and issued a copy of the city’s memo outlining the requirements for occupancy.

In addition, the city’s inspection process requires documentation on BMP installations prior to occupancy. This process requires written verification from the developer, engineer of work, or other responsible party that BMPs were installed in accordance with the SWQMP. This verification must be submitted before a request for occupancy is made. For all Priority Development Projects, the Certificate of Occupancy will not be issued unless the BMPs have been inspected and signed off as being constructed properly.

The city inspects the construction and installation of BMPs associated with engineering permits, grading permits, public improvement permits, and Capital Improvement Program (CIP) projects. The Construction Inspectors review the projects for compliance with the water quality requirements for the project and the storm water ordinances. Building Inspectors inspect the construction and installation of BMPs that are associated with private development that requires a demolition or building permit.

The city will continue to scan Storm Water Management Plans (SWQMPs) into the digital management system (HPRM). This allows these water quality reports to be accessed by CM&I inspectors, reviewers, and researchers. Having access to SWQMPs helps verify the types and locations of approved post construction treatment control BMPs.

5.3.4.2 Priority Development Project Inventory and Prioritization

The city has developed and maintains a GIS watershed-based inventory of publicly and privately-owned treatment control BMPs. The inventory will continue to be used to track and document information about

structural BMPs including BMP type, inspection dates and findings, maintenance frequencies and requirements, verifications, and other required information. Updating the inventory is an ongoing process, as new structures are researched, verified, and added on a continual basis. The following information about structural BMPs will continue to be tracked and updated:

1. Unit ID#
2. Status
3. Priority
4. PDP# and Drawing#
5. Location (mailing and physical address)
6. Responsible Party (name, address and phone)
7. BMP Type (CASQA identifier)
8. BMP Description (general type description)
9. BMP Detail (specific type description)
10. BMP Manufacturer and Model No., if applicable
11. Inspection and maintenance frequency
12. Inspection Dates and Findings
13. Verification of Maintenance Dates and Findings
14. Watershed and Proximity to ESA

The database is used to verify that structural BMPs are regularly maintained by the responsible parties. Post-construction inspection priority for each PDP will be based on the types of BMPs installed. The inspection priority is assigned during preparation of the SWQMP in accordance with the BMP Design Manual. The prioritization of inspection of PDPs with structural BMPs will consider the following:

1. The highest water quality priorities identified in the Water Quality Improvement Plan;
2. Receiving water quality;
3. Number and sizes of structural BMPs;
4. Recommended maintenance frequency of structural BMPs;
5. Likelihood of operation and maintenance issues of structural BMPs;
6. Land use and expected pollutants generated; and
7. Compliance history.

5.3.4.3 Structural BMP Maintenance Verifications and Inspections

The city has developed an inspection and annual verification of effective operation and maintenance program for structural BMPs. Annually, the city will review PDP sites with structural BMPs in accordance with the inspection requirements noted above. At a minimum, the city will inspect 100% of the high priority structural BMPs prior to October 1st of each year.

The city's structural BMP inspection and verification of maintenance program will utilize the following steps to verify the effective operation and maintenance of each structural BMP, regardless of priority, associated with a PDP:

1. The structural BMP inventory will be used to create a list of sites, responsible parties, addresses and the associated BMPs required for inspection and annual verification of maintenance.
2. A verification of maintenance form is mailed out on May 1 of each year to help responsible parties more accurately provide information about the structural BMP maintenance. The form also includes the following information:

- a. BMPs to be verified;
 - b. Description of maintenance taken during previous year;
 - c. Requirement to supply information to demonstrate maintenance and/or operating status (vendor invoices, photos etc.);
 - d. Certification from the responsible party or third party that the BMP(s) were maintained and are operating;
3. The city will continue to use the TCBMP email address for the BMP verification program. Owners and responsible parties can send questions, verification forms, and other requests to the tcbmp@carlsbadca.gov email address, which is monitored by Public Works – Construction Maintenance & Inspection Division. The city also uses and updates the structural BMP email list of responsible parties. The email list has been useful in providing information about treatment control BMP compliance program and notices about upcoming deadlines for maintenance verification submittals.
4. The inspection process will include records review prior to a site inspection. The inspector will use the structural BMP inspection form) and the following criteria to review and determine the condition of the treatment control BMP. The condition of each structure is rated using:
 - a. **Good:** Currently no maintenance or corrective action is required for the treatment control BMP. No trees, large plants, excessive trash, stagnant water, blockages, or other major sources of pollutants were observed. The treatment control BMP appears to be functioning as designed. Re-inspect in one year.
 - b. **Fair:** Light to minor maintenance required within the next year. Small amounts of trash, weeds, plants, debris, and/or silt has accumulated, but the treatment control BMP is functioning as designed. The structure should be re-inspected within one year by the responsible party and/or the city.
 - c. **Poor:** Maintenance, installation, replacement and/or repairs are required on the structure. Excessive trash, weeds, vegetation, stagnant water, trees, silt, and/or other pollutants were observed during the inspection. In addition, a BMP could be rated as “Poor” if the structure was blocked, needed repair, or is not functioning as required.
5. In the event that a responsible party does not adequately respond and/or has not maintained the structural BMPs as required, the city will use its escalated enforcement authority (Warning Notice, NOV, Fines, etc.) to achieve compliance.

6 Construction

6.1 Introduction

This section describes the requirements of the city's Construction Component and staff responsibilities. As construction activities occur, the city requires projects to plan for and implement temporary construction BMPs to mitigate the water quality impacts of land disturbance and non-storm water discharges related to construction activities. All requirements of the Construction Component are applicable to both private and public development projects.

The Construction Component is intended to:

- eliminate or reduce discharges of pollutants from construction activities; and
- prevent discharges from the MS4 from causing or contributing to a violation of water quality standards.

6.2 Project Approval Process

The city's project approval process requires project proponents to incorporate storm water pollution prevention and urban runoff management into their projects during construction activities. The city requires the development of appropriate pollution control plans, including SWPPPs, and construction BMP plans, to comply with the requirements of the Municipal Permit, local ordinances, and other applicable regulations.

All new construction projects are required to prepare and submit an appropriate Construction SWPPP in accordance with the Storm Water Standards Manual. For private development projects, the Construction SWPPP is reviewed and approved by Engineering Development Services Division prior to issuance of construction permits. For Capital Improvement Program (CIP) projects, Construction SWPPPs are prepared prior to the notice to proceed. The approved Construction SWPPP must comply with all applicable requirements of the State's Construction General Permit.

Pollution prevention practices are required at all project sites. In accordance with the city's Storm Water and Grading Ordinances (CMC 15.12 and 15.16), project proponents are required to implement the minimum BMPs year-round. BMPs and other erosion control practices must be implemented as the most important "first line of defense". The project approval process also allows the city to confirm compliance with storm water regulations by requiring the following documentation and verification of appropriate pollution prevention efforts:

- Develop and implement a plan to manage storm water and non-storm water discharges;
- Emphasize erosion and sediment controls as the most important measure for keeping sediment onsite;
- Select seasonally appropriate and effective BMPs;
- Temporarily stabilize and/or re-seed disturbed soil areas as soon as possible;
- Permanently re-vegetate or landscape as soon as feasible; and
- When applicable, provide evidence of coverage under the Construction General Permit.

6.3 Construction Site Inventory

The management of the construction site inventories is divided as follows:

Private Development

The Land Development Engineering and Construction Management and Inspection (CM&I) Division are responsible for updating the watershed-based inventory of new grading, building and right-of-way permits in a database at permit issuance including the appropriate construction inspection frequency/priority. The permit tracking database is used to generate inspection requests, update inspection records, record enforcement actions, and follow-up inspection work. The permit tracking database is used in conjunction with an Excel spreadsheet to track the following project information:

1. Project status (active, inactive, completed, finalized);
2. Project threat prioritization;
3. Project and grading number;
4. Project start and completion dates;
5. The frequency and number of required and completed inspections by month;
6. The number of weeks active during the rainy and dry season;
7. Waste Discharge Identification (WDID) number (if applicable), size of the site; and approximate area of disturbance;
8. The basic site information including project description and location (address, APN, and hydrologic subarea);
9. Relevant contact information for each site (e.g., name, address, phone, and email for the owner and contractor);
10. The date the city accepted or approved the pollution control plan; construction BMP plan, and/or erosion and sediment control plan; and
11. Ongoing enforcement actions administered to the site.

The construction permit application for private development (grading, building or right-of-way) includes submittal of a completed Construction Threat Assessment Worksheet for Determination of Threat to Storm Water Quality. For public development projects, the project proponent completes the construction threat form to help determine the priority and threat to water quality the project may pose. When determining threat prioritization and associated frequency of inspection, one of three threat priorities is assigned: high; medium, or; low. At a minimum, the following project types will be considered high threat to water quality criteria:

1. Sites located within a hydrologic subarea where sediment is known or suspected to contribute to the highest priority water quality conditions identified in the WQIP;
2. Sites located within the same hydrologic subarea and tributary to a water body segment listed as impaired for sediment on the CWA section 303(d) List;
3. Sites located within, directly adjacent to, or discharging directly to a receiving water within an ESA;
4. Sites greater than an acre that have coverage under the Construction General Permit;
5. All sites located within the city's Priority Focus Areas as identified in the WQIP; and
6. Other sites determined by the city or the San Diego Water Board as a high threat to water quality.

Grading Permits and Capital Improvement Program (CIP) Projects

CM&I is responsible for updating and maintaining the inventory of all active grading permits and CIP projects from approval to completion. CM&I verifies and updates the inventories on a monthly basis. The

database is used to update inspection records, record enforcement actions, and follow-up inspection work. The inventories contain the most current information including when a site was last inspected, the current construction status, changes in priority and rationale, inspection frequency priorities, and other relevant site information.

Building Permits

The Building Division maintains an inventory of all building permits. The building inspector is responsible for maintaining and documenting of all storm water inspections related to building permits. The inventory and tracking of permitted building sites is maintained in the permit tracking database where inspectors are able to schedule inspections, track information about compliance, issue enforcement actions, and document other relevant information.

6.4 Best Management Practice Requirements

The city has established a set of minimum BMPs for all projects. Because all sites, regardless of priority, must be protected to prevent discharges, the minimum BMP requirements are the same for each priority. Each site must be protected by an effective combination of site and seasonally specific erosion and sediment controls, materials and waste management controls, and site management controls. These minimum requirements are included in the Storm Water Standards Manual.

In addition, inactive sites must also be fully protected from erosion and discharges of sediment. A site is considered inactive if construction activities cease for a period of ten or more consecutive days. It is also the project proponent's responsibility at both active and inactive sites to implement a plan to address all potential discharges.

SWPPPs and Erosion Control Plans are reviewed prior to commencement of construction activities to ensure that the required minimum BMPs will be implemented. The city continues to utilize the pollution prevention measures contained in the Storm Water Best Management Practice Handbooks published by the California Storm Water Quality Association (CASQA), Caltrans Storm Water Quality Handbooks, and Standards for Design & Construction of Public Works Improvements in the City of Carlsbad. All inspectors are required to obtain CESSWI certification and complete bi-monthly storm water training on construction site BMPs and the appropriate application. In addition, inspectors are encouraged to attend conferences, workshops, and other professional learning opportunities in an effort to stay current with the storm water industry standards and practices. The city requires the following minimum BMPs components for all construction sites:

1. Project Planning;
2. Good site management "Housekeeping", including waste management;
3. Non-storm water management;
4. Erosion control;
5. Sediment control;
6. Run-on and Run-off control; and
7. Active/Passive Sediment Treatment Systems, where applicable.

Year-Round Requirements

Property Owners/Developers/Contractors working at active construction sites in Carlsbad are required to comply with all applicable storm water regulations and implement BMPs in accordance with CASQA guidelines. Each operator must implement effective BMPs to reduce discharges of pollutants from

construction sites. These BMPs must be site specific, seasonally and construction phase appropriate, and **implemented at each construction site year-round**. The following are the minimum BMPs required at all sites throughout the year:

- The contractor/developer must provide the name and phone number of the QSP or erosion control professional responsible for BMP compliance. The QSP or erosion control professional must conduct a BMP compliance inspection prior to a forecasted event of 50% or greater within 48 hours, after a rain event, and weekly **between October 1 and May 1 of each year**.
- The city reserves the right to temporarily stop work on any private construction site that may have the potential to contribute to storm water pollution during a forecasted rain event due to lack of BMPs, proximity to an environmentally sensitive area, previous compliance issues, amount and duration of rain expected, and/or any storm water compliance issue. Each site will be evaluated on a case by case basis to determine if a temporary stop work is necessary.
- An updated SWPPP map is required to be maintained for all projects. The SWPPP map must show BMP installations, locations, and status updates.
- All graded areas must have erosion protection BMPs properly installed;
- Adequate perimeter protection BMPs must be installed and maintained;
- Adequate sediment control BMPs must be installed and maintained;
- Adequate BMPs to control offsite sediment tracking must be installed and maintained;
- A minimum of 125% of the material needed to install standby BMPs to protect the exposed areas from erosion and prevent sediment discharges, must be stored onsite. Areas already protected from erosion using physical stabilization or established vegetation stabilization BMPs are not considered to be “exposed” for purposes of this requirement;
- The project proponent must be able to deploy standby BMPs within 48 hours of a predicted storm event (a predicted storm event is defined as a forecasted, 50% chance of rain by five (5) day National Weather Service). On request, the project proponent or the city’s contractor must provide proof of this capability that is acceptable to the city;
- Deployment of physical or vegetation erosion control BMPs must commence as soon as slopes are completed. The project proponent may not continue to rely on the ability to deploy standby BMP materials to prevent erosion of slopes that have been completed;
- The area that can be cleared, graded, and left exposed at one time is limited to the amount of acreage that the contractor can adequately protect prior to a predicted rain event. For larger sites grading should be phased. It may be necessary to deploy erosion and sediment control BMPs in areas that are not completed, but are not actively being worked before additional grading is completed.
- All exposed disturbed areas must have erosion protection BMPs properly installed. This includes all building pads, unfinished roads, and slopes;
- Perimeter protection and sediment control BMPs will be upgraded, if necessary, to provide sufficient protection from runoff during the rainy season;
- Deployment of erosion control BMPs will commence as soon as slopes are completed for any portion of the site. Erosion control BMPs will be installed and maintained for all completed slopes prior to October 1;
- All disturbed areas that are not completed and/or not being actively graded must be fully protected from erosion if left for 10 or more days. The ability to install BMP materials in a prompt manner is NOT sufficient; BMPs need to be installed for these areas;

- BMPs must be stockpiled at various locations throughout the project site for the duration of the rainy season.
- Whenever there is a 50% chance or greater of a rain within a three (3) day forecast, the inspector will verify that BMPs are adequately stockpiled. BMPs must be ready for deployment when there is 50% chance of a rain event within a 48-hour forecast. Failure to comply with this requirement could result in the issuance of a Stop Work Notice or other enforcement action;
- When a Rain Event Action Plan is required it must be prepared and completed in accordance with the Construction General Permit. The plan shall include, in detail, any and all actions to be taken in advance (50% chance or greater) of a rain event in the five (5) day forecast by the National Weather Service. A copy of each updated action plan shall be placed in the project SWPPP and be available for review by the city inspector;
- All treatment and erosion control BMPs must be inspected weekly and prior to a forecasted rain event with probability of precipitation of greater than 50%. In addition, treatment control BMPs must be inspected and/or serviced prior to October 1;
- Inspections at sites covered under the CGP shall be conducted by the QSD/QSP or designee prior to a forecasted event, during and after a rain event, at least bi-weekly during the rainy season, and as necessary to ensure site compliance;
- **All construction workers**, including sub-contractors, must be trained on the importance of storm water pollution prevention and BMP maintenance prior to October 1 of each year and prior to the commencement of work. Training records must be retained with the SWPPP and available upon request.;
- All construction and grading projects are required to emphasize erosion prevention as the most important measure for keeping sediment on-site during construction. Sediment controls are to be used as a supplement to erosion prevention never as the single or primary method.

6.5 Construction Site Inspections

The city inspects all active construction projects including private development and CIP projects. CM&I inspectors are responsible for grading, infrastructure, CIP, right-of-way, and engineering projects, while Building Inspectors are responsible for all building projects. All inspectors are responsible for ensuring construction activities are performed in accordance with the city Standards, building and grading permits, and all applicable codes, regulations and ordinances. Inspections are electronically documented and placed in the project files. In addition, the city regularly verifies the projects threat priority and status throughout the active construction phase.

Inspection Frequency

The inspection frequencies for determining compliance with the city’s requirements are based upon the threat to water quality prioritization (Table 6-1). Inspection frequencies will be periodically reevaluated, particularly when grading activities occur during the rainy season. The need for additional inspections may vary depending upon several factors including: site conditions; previous violations; history of developer or contractor past performance; grading during rainy season; and weather patterns.

WQIP Focus Areas

Based on the City’s identification of WQIP Focus Areas, the inspection frequency is different in these areas vs. non-Focus Areas. The table below reflects the inspection frequencies for the various project categories.

Additional Controls Required for Project Sites Located Within the High Priority Focus Areas (WQIP Area)

The High Priority Focus Areas are located south of Buena Vista Lagoon, north of Agua Hedionda Lagoon, and west of Interstate 5. There is also a small designated area located west of El Camino Real and south of Highway 78. For project sites located within the High Priority Focus Areas, the following additional controls are required to be implemented at all times to the maximum extent possible:

- Maintain vegetative cover, as much as possible, by developing the project in a phased approach to reduce the amount of exposed soil at any one time;
- Limit the areas of active construction to five acres at any one time;
- Provide 100 percent soil cover for areas of inactive construction throughout the duration of the project;
- Provide perimeter control at all appropriate locations along and at all storm drain inlets. Perimeter protection will be upgraded and must provide sufficient protection from run off during rain events;
- Provide vegetated buffer strips between the active construction area and any water bodies; and
- Provide stabilized construction entrances that limit vehicle and foot traffic.

Table 5: Inspection Frequency Based on Threat Prioritization

Threat Priority	Minimum Inspections Required												Minimum Wet Season Inspections	Minimum Dry Season Inspections	Minimum Required Inspections
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun			
High**	2	2	2	4	4	4	4	4	4	4	2	2	28	10	38
High	1	1	1	2	2	2	2	2	2	2	1	1	14	5	19
Medium**	1	1	1	2	1	2	1	2	1	2	1	1	11	5	16
Medium	1	0	1	1	1	1	1	1	1	1	0	1	7	3	9
Low	0	0	1	0	0	1	0	0	1	0	0	1	2	2	4

**Projects located within a WQIP Focus Area

If inspected sites do not comply with the city’s requirements, inspectors immediately direct compliance and conduct follow-up inspections to assure compliance. Enforcement procedures are used when necessary and may include verbal or written warnings, stop work orders, revocation of permits, and/or legal action. Please see the city’s Enforcement Response Plan for more information about escalated enforcement actions.

Inspection Content

The city’s inspection content and procedures include the following:

- Assessment of BMP adequacy and effectiveness including implementation of a combination of erosion, sediment, and non-storm water BMPs to meet the minimum water quality protection requirements and prevent the discharge of pollutants into storm water and receiving waters;
- Checking for coverage under the Construction General Permit (CGP), Waste Discharger Identification (WDID) number, and CGP SWPPP during the pre-construction meeting. The city will continue to work with RWQCB staff to ensure compliance at these sites;

- Assurance of compliance with applicable ordinances, permits and other site-specific requirements;
- Visual observations of actual or potential non-storm water discharges, potential illicit connections, and/or potential discharge of sediment, pollutants or other construction related materials in storm water runoff;
- Documentation of violations and escalation of appropriate enforcement actions, when required;
- Review of proper implementation of plans and specifications; and
- Education and outreach on storm water pollution prevention as needed.

Inspection Tracking and Records

The city tracks inspections and re-inspections of all inventoried construction sites, including those covered by building permits. City inspectors will continue to use the NPDES Inspection Report and electronic database to verify BMP compliance and effectiveness. The results of each inspection are entered in the construction site inventory database. The inspection form/record documents BMP compliance, clarifies required corrective actions, tracks the numbers and types of violations, and identifies any necessary escalated enforcement actions. The NPDES Inspection Report and database covers all administrative requirements including inspection and evaluation of SWPPPs, wall maps, basins, materials and waste management, temporary BMPs, slope protection, and site conditions and interactions. A copy of the inspection report can be provided directly to the site representative upon completion of an inspection. Inspection reports and data tracking includes the following:

1. Site name, location (address and hydrologic subarea), and WDID number (if applicable);
2. Inspection date and time;
3. Project No. and Permit No.;
4. Type of Inspection (follow-up, compliance, pre-event, complaint, etc.);
5. Approximate amount of rainfall since last inspection and percentage of rain expected;
6. BMP implementation and compliance activity which includes descriptions of problems observed with BMPs, CMC violations, indication of need for addition/repair/replacement of BMPs, any scheduled re-inspection, and date of re-inspection;
7. Descriptions of any other specific inspection comments, including rationales for longer compliance time, changes in status or priority, and other notable information;
8. Description of enforcement actions issued in accordance with the Enforcement Response Plan; and
9. Resolution of problems noted and date problems fixed.

6.6 Corrective Actions and Enforcement

The enforcement measures and remedies are available to the city for grading and construction related activities are described in the city's Enforcement Response Plan – see Section 10.

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7 Existing Development

7.1 Introduction

This section describes the responsibilities of the city with respect to implementation of the Existing Development Component of the JRMP including commercial, industrial, municipal, and residential facilities and areas. This program section is intended to reduce existing development discharges of non-storm water and pollutants from the MS4 to the MEP.

7.2 Inventory and Tracking

City Watershed Protection staff maintain a watershed-based inventory of all industrial facilities and commercial sites/sources within the city's jurisdiction. A copy of the current commercial and industrial inventory is available upon request. Basic inventory information includes:

- Facility name
- Contact information
- Location information (address and watershed)
- Identification of business type (stationary or mobile)
- Industrial General Permit NOI and/or WDID number, if applicable
- Identification of pollutants generated and potentially generated by the facility or area
- Whether facility is adjacent to an ESA
- Whether the facility or area is tributary to and within the same hydrologic subarea as a water body segment listed as impaired on the CWA section 303(d) list and if the facility or area generates pollutants for which the water body segment is impaired for.

The city's commercial and industrial inventory includes commercial areas, commercial facilities, and industrial facilities. Commercial areas include areas where commercial activities occur. Commercial facilities include for example, repair shops, restaurants, and various types of wholesalers. Industrial facilities include facilities such as manufacturing and hazardous waste treatment. Mobile businesses include businesses such as power washers, auto detailers, landscapers, and contractors.

At a minimum, the commercial and industrial inventory is updated annually through reviewing business license records for new businesses, performing routine inspections, and responding to reported incidents.

The following are the categories within the existing development inventory:

1. Commercial facilities or areas
All commercial use areas, properties, parcels and facilities will be represented in the existing development inventory. They may be grouped together as commercial management areas or inventoried as individual businesses or parcels. The inventory consists of:
 - a. Commercial Areas, Shopping Center or, Commercial Zone or
 - b. Commercial Facility (Individual Business or Parcel)
2. Industrial facilities
Industrial facilities will be inventoried and inspected as individual industrial entities. Inventoried Industrial facilities will include all facilities enrolled in the Industrial General Permit and those facilities that report to the city and are confirmed to conduct activities onsite consistent with the industrial SIC and/or NAICS codes (listed in Attachment A of the Industrial General Permit).
3. Municipal Facilities
4. Residential Management Areas

Residential Management Areas (RMAs), are geographic designations that constitute the residential inventory and delineate the inspection areas. The RMAs within the City of Carlsbad were created using GIS information such as General Plan land use, Home Owner Association, drainage basin and neighborhood delineations. Geographic size, private gated communities and other information were also taken into consideration.

The city maintains an existing development map (Appendix B) that identifies locations of:

- commercial and industrial facilities;
- commercial areas;
- residential management areas;
- municipal facilities;
- watershed boundaries; and
- water bodies.

The city's inventory of existing development will include the following information, as applicable, and any additional information necessary to effectively implement this existing development program:

1. Name;
2. Location;
3. Classification as commercial, industrial, municipal, or residential;
4. Status of facility or area as active or inactive;
5. Identification if a business is a mobile business;
6. SIC Code or NAICS Code, if applicable;
7. Industrial General Permit NOI and/or WDID number, if applicable;
8. Identification if a residential area is or includes a Common Interest Area / Home Owner Association, or mobile home park;
9. Identification of pollutants generated and potentially generated by the facility or area;
10. Whether the facility or area is adjacent to an ESA;
11. Whether the facility or area is tributary to and within the same hydrologic subarea as a water body segment listed as impaired on the CWA section 303(d) List and generates pollutants for which the water body segment is impaired
12. Presence of Common Interest Area or Home Owner Association; and Potential/actual pollutants generated.

7.3 Best Management Practices Requirements

Existing development facilities and areas produce a range of pollutants that can threaten human and environmental health if washed into the storm drain system by storm water runoff. The City of Carlsbad requires all existing development facilities and areas to ensure proper implementation, operation and maintenance of required BMPs. For Municipal facilities, the city develops and maintains written BMP Plans/SWPPPs which are updated on an as-needed basis. The city also requires the use of pollution prevention methods to address the HPWQCs (indicator bacteria, riparian habitat degradation, hydromodification impacts) and strategies in the WQIP(s).

Facilities that utilize pesticides, herbicides, and/or fertilizers are required to implement BMPs to address application, storage, and disposal. Improper use, handling, or storage of pesticides, herbicides, and fertilizers may allow these chemicals to come into contact with receiving waters via storm water or urban runoff.

Described below is a summary of minimum BMPs required to be implemented for commercial, industrial, municipal and residential facilities and areas throughout the city:

Commercial and Industrial Facilities/Areas

- Good housekeeping
- Preventative maintenance
- Material storage, handling and application
- Employee training
- Solid waste (non-hazardous) handling and recycling
- Spill response
- Record keeping
- Self-inspection/quality assurance

Municipal Facilities/Areas

- Employee training
- Pollution prevention
- Good housekeeping
- Equipment and materials storage
- Spill response and prevention

Residential Areas

- Irrigation system maintenance
- Equipment and materials storage
- Dry cleanup methods
- Residential car washing
- Pet waste cleanup methods
- Trash management
- Recycle, reduce and reuse
- Reduce the use of landscape chemicals

7.4 Program Implementation

7.4.1 Inspections

The City of Carlsbad implements a hybrid inspection program that includes patrolling and complete inspections throughout its jurisdiction. The city's Storm Water Staff utilize patrols to monitor and inspect commercial areas and residential areas for storm water violations per the city's ordinances. Patrolling inspections are an effective and efficient method to enforce compliance with the storm water ordinances, discover and abate hotspots and trouble areas, and educate business owners, property managers, and residents regarding the city's storm water requirements. In addition, the patrol methodology allows for a more efficient visual observation of the city and incorporates multiple components of the JRMP, e.g., IDDE, existing development, construction and TCBMP inspections as applicable.

Inspections of residential areas constitute a new element to the management and enforcement of residential pollutant sources. Visual inspections of RMAs identify the presence of actual and potential illegal discharges, and actual or potential illicit connections. Assessment of compliance and BMP

implementation will also occur. If any problems or violations are noted or observed, the inspector would follow the Enforcement Response Plan.

1. Inspection Types:

- a. Property-Based Inspections/Patrol Inspections (Focus Areas) – Inspections of all properties and businesses via patrols in each of the CB-PA1, CB-PA2, and CB-PA3 focus areas will include:
 - i. Visual inspection of all public streets;
 - ii. Inspections of each existing development property;
 1. Each commercial/industrial property;
 2. Each residential property;
 - iii. Identification of active dry weather discharges and evidence of historical discharges;
 - iv. Identification of pollutant generating activities and areas that may contribute wet weather storm water pollutant loading; and
 - v. Performing follow-up with property owner/manager on identified issues to resolve discharges and/or potential pollutant discharges.
- b. Property-Based Inspections/Patrol Inspections (Non-Focus Areas) – Inspections may be either onsite or drive-by. They focus on publicly accessible, high-risk outdoor areas and activities of commercial areas and facilities including: Trash dumpsters, grease bins and general housekeeping BMPs, Irrigation systems and irrigations runoff; outdoor work areas; washing activities; sediment and erosion control; and non-storm water discharges to the MS4. During Patrol Inspections, only observed issues and/or violations are documented.
- c. Facility Inspection – An on-site inspection in which a city employee or contractor conducts a complete site assessment of a commercial or industrial facility and records all required information regardless of whether issues are observed.
- d. Follow-up Inspection– City staff verifies that required corrective actions are completed and/or violation is no longer occurring. An entire site evaluation may not be completed during follow-up inspections. Follow-up inspections may be conducted as a drive-by or onsite.

Periodically, inventoried Commercial and industrial facilities are selected for an inspection and/or review. Throughout the year, the city conducts scheduled, unscheduled and follow-up site inspections.

During site inspections city staff:

- Assess BMP implementation, maintenance and effectiveness.
- Review BMP implementation plans, if applicable.
- Check for coverage under the IGP (Notice of Intent, No Exposure Certification, and/or Waste Discharge Identification Number), if applicable.
- Assess compliance with Copermittee ordinances and permits related to storm water runoff.
- Conduct visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff.
- Review facility monitoring data, if applicable.

7.4.2 Inspection Frequency

At a minimum, city staff conduct patrol inspections or facility inspections at each existing development facility or area once in five years. More frequent inspections are based on the potential for a facility or area to discharge non-storm water and pollutants. Additionally, inspection frequency is based on the facility's potential to discharge pollutants associated with the highest priority water quality condition as defined by the WQIPs.

The city will perform property-based/patrol inspections multiple times per year at various times of the day to capture irrigation runoff and other non-authorized discharges as well as identify BMP issues. Property-based inspections/patrols of *each* property in the City of Carlsbad's selected focus areas will be performed at least once annually. In all other areas within the city's jurisdiction, the city will inspect at least 20 percent of the existing development inventory, annually.

Follow-up Inspections

City staff conducts follow-up inspections to determine if corrective actions have occurred in accordance with city ordinances and minimum BMP requirements. Escalating enforcement steps, providing flexibility for the city staff to establish appropriate compliance periods on a case-by-case basis, will be used to ensure compliance. Follow-up and enforcement actions are documented in the inspection tracking system.

7.4.3 Inspection Tracking and Records

City staff track and record all inspections and follow-up inspections at all locations in the existing development inventory. This information is retained in a database. The information and data gathered as part of the inspections includes, but is not limited to:

- Name and location of the facility (address and hydrologic subarea) consistent with inventory name and location;
- Inspection and re-inspection date(s);
- Inspection method(s) (drive-by or onsite);
- Observations and findings from the inspection(s);
- Descriptions of any problems or violations found during the inspection;
- Description of enforcement actions issued in accordance with the city's Enforcement Response Plan; and
- The date that problems or violations were resolved.

The city is currently developing an updated Municipal facility form so that City inspectors can capture additional information during site visits. This includes assessment on general site conditions, landscaping practices, materials and waste BMPs, equipment and vehicle storage, non-storm water management, erosion and sediment control BMPs, MS4 facilities on-site, and corrective/required actions based on the inspection.

In addition to existing development inspections, daily inspections are completed at Municipal facilities that have staff onsite. Staff gather and document all required information and data listed above.

7.4.4 Municipal Separate Storm Sewer System Program

The city's Public Works Department is responsible for the routine and emergency maintenance of the city's MS4. The Storm Drain Maintenance Division (SDMD) and or their contractors will inspect and clean

as needed, the following types of facilities: catch basins, curb inlets, under sidewalk drains, channels, and detention/desiltation basins.

The city will implement the following schedule for inspection and cleaning of MS4:

- Once a year the city will inspect/clean all MS4 facilities determined to be High Priority between May 1st and September 30th of each year. Priority of MS4 facilities is determined by location, (e.g. proximity receiving water) type of structure, (e.g. TCBMP) and/or inspection history (e.g. historically collected higher volumes of material.) All remaining MS4 facilities/structures will be inspected at any time during the calendar year. Inspections are conducted to ensure the following:
 - BMPs are properly implemented and functioning effectively.
 - Identify necessary maintenance (material removal is needed) and repair needs.
 - Ensure proper implementation of JRMP requirements.
- Any catch basin or storm inlet that has accumulated trash and debris greater than 33% of the design capacity (holding area) will be cleaned in a timely manner. Any MS4 facility/structure that is designed to be self-cleaning will be cleaned of any accumulated trash and debris immediately upon inspection. Open channels shall be cleaned of all observed anthropogenic trash and litter in a timely manner.

When practical, work is to be done when conditions are dry. The SDMD will vacuum water runoff to remove any silt buildup from MS4 activity maintenance. Acceptable vacuums, wet and dry shop vacuum, or large Hydro flusher vacuum machines are used for the operations. Sediment control BMPs will be implemented to prevent materials from discharging downstream of the sites cleaning activities.

During rain events staff from Public Works - Streets Division will be out from beginning of rainfall to do the following:

- Clear debris from inlets, grates, pipe openings, and road shoulders
- Remove debris from roadways prior to entering the conveyance system.
- Provide emergency erosion/sediment control as needed.
- Provide other city departments with needed assistance with their multiple requests.
- Survey city streets for damage due to rain and or flooding, and monitor drainage throughout the city.

7.4.5 Existing Flood Control Devices

The city's inventory of existing flood control devices will be reviewed updated and Incorporated into the city's GIS system annually. If additional pollutant removal and urban runoff is possible and feasible, permanent pollution removal measures would be incorporated in future retrofit projects.

7.4.6 Street Sweeping Program

Street sweeping is widely recognized as an effective BMP for reducing the amount of pollutants, litter, green waste, grease and sediments, on streets and parking lots that would impact storm water quality. The city contracts out street sweeping service and currently sweeps approximately 1,700 miles monthly.

The city has developed a frequency for street sweeping based on historic sweeping volumes collected and traffic loadings. The street network is stratified into high, moderate and low volume generating areas which is used to classify the streets with relation to each other, not to qualify the streets as generating

significant or non-significant amounts of trash and debris. The following is a breakdown of the street sweeping categories:

1. High volume (arterials, majors and primes) 4 times per month;
2. Moderate volume (residential and local streets) 2 times per month;
3. Low volume (parking lots and sea wall) 2 times per month;
4. Focus Areas (CB-PA1, CB-PA2, and CB-PA3) every 2 weeks.

7.4.7 Litter Removal

The city removes anthropogenic trash from arterial, major and prime streets on a daily basis. The city also removes bulky items and other anthropogenic trash as needed in other locations. This facilitates removing all litter and debris prior to reaching the MS4 conveyance system and getting into receiving waters.

7.4.8 Pressure Washing

The city cleans all high-volume foot traffic areas of dirt, sediments, gum and other food related substances on a daily basis. As a part of this process, the city captures all the water and places it into the sanitary sewer system. Other as-needed locations are cleaned throughout the year to prevent the pollutants from reaching the receiving waters. Recommended best management practices include berming and vacuuming wash water and disposing of it to the sanitary sewer or a vegetated area.

7.4.9 Application of Pesticides, Herbicides, and Fertilizers

The Federal Pesticide, Fungicide, and Rodenticide Act and California Title 3, Division 6, Pesticides and Pest Control Operations place strict controls over pesticide application and handling and specify training, annual refresher, and testing requirements. The regulations cover a list of approved pesticides and selected uses, updated regularly; general application information; equipment use and maintenance procedures; and record keeping. The California Department of Pesticide Regulations and the County Agricultural Commission coordinate and maintain the licensing and certification programs. These certifications require the implementation of Integrated Pest Management (IPM) practices during maintenance activities. All City staff who apply pesticides and herbicides in “agricultural use” areas such as parks, golf courses, rights-of-way and recreation areas are certified/supervised in accordance with state regulations. All certifications are kept on file at the city’s Parks Division. Contracts for landscape maintenance include similar requirements.

All employees that handle or apply pesticides are trained on and responsible for understanding and implementing safety precautions in current Materials Safety Data Sheets (MSDS). City staff implements BMPs for IPM practices, including; minimizing use; caution when handling any hazardous product; reading and following use instructions, completely using the product prior to marking as waste, and hazardous waste storage and proper disposal.

BMPs for pesticide and fertilizer management are implemented at all municipal facilities, public rights-of-ways, parks, recreational facilities, and other landscaped areas.

7.4.10 Sanitary Sewer Systems

The city provides wastewater collection, transmission and some treatment for its residential, commercial, and industrial users. The average daily wastewater flow for the city is approximately 7.3 million gallons per day (MGD).

7.4.10.1 Source Characterization

In general, the wastewater system is an underground utility system that is a conveyance system for polluted waters. The system includes a network of approximately 265 miles of pipeline which range in size from 6-inch to 42-inch in diameter and approximately 6,300 manholes. The system also includes 14 pump stations, a water reclamation facility (operated under a separate permit by Encina Wastewater Authority), and several metering stations that conveys wastewater (along with other jurisdictions' wastewater) to the 35 MGD Encina Wastewater Treatment Plant located in Carlsbad.

7.4.10.2 Best Management Practice Requirements

Prevention or response based BMPs will be implemented to reduce or eliminate the potential for wastewater system failures, infiltration, or emergencies. The following is a summary of the prevention and response efforts that will be implemented for the wastewater operations.

Sewer System Overflow Response

The Maintenance and Operations (M&O) Division conducts Sewer System Overflow Response under varying emergency conditions. The primary function of the responses is to prevent human and environmental impacts from sanitary sewer spills. The Sewer System Overflow Response Plan (SSORP) details all of the procedures that are implemented during any type of sanitary sewer overflow and includes procedures for response, clean-up and reporting.

System Cleaning

A primary function of the Wastewater Division is to perform sanitary sewer collection system cleaning. As a part of the cleaning efforts, the division uses jet-rodding equipment and Vactor trucks to collect the cleanings.

Video Inspection

Another primary function of the Wastewater Division is to perform video inspections of the sanitary sewer collection systems to identify potential problems and to prioritize the City's maintenance and rehabilitation program. These video inspections are currently performed on an as-needed basis. The city began a comprehensive system-wide video inspection program in Fiscal Year 2008-09.

Utility Crew Work

Another primary function of the Wastewater Division is to perform general utility work, including maintenance and modifications to sanitary sewer manholes, and point repairs in the sanitary sewer collection system.

7.4.11 Special Events

Periodically the city is host to special events, both directly as City functions, and indirectly, permitted to special event organizers. Examples of these special events are:

- Street Festivals;
- Marathons;
- Taste of Carlsbad;
- Art Splash.

7.4.11.1 Source Characterization

Typically, special events have a high density use of people per square foot raising the potential for pollutant generation. The pollutant generating activities and their potential pollutant types at special events typically include:

- Setup and teardown of equipment booths– illicit discharges and trash generation;
- Booth operation – trash generation;
- Food/drink preparation and consumption – illicit discharges, trash generation, and organic materials;
- Hydraulic rides – oil and grease;
- Temporary Portable Restrooms – chemicals and bacteria;
- Hydration stations – water cups and other trash items.

7.4.11.2 Best Management Practices

The following standard Best Management Practices represent the minimum requirements for a variety of special events that could take place in the city. The city may improve or modify these BMPs at any time if it is determined to provide equal or greater protection.

It is imperative that Event Organizers train event staff in storm water pollution prevention activities at the event venue and to notify all vendors of their storm water pollution prevention responsibilities.

All Event Organizers shall select an effective combination of Storm Water Best Management Practices (BMPs) to prevent trash or other pollutants from entering the storm drain system – BMPs to select from include:

Food and beverage, and all chemical and liquid activities or products

Event Hosts/Organizers and vendors must have spill kits in or adjacent to their work area. Spill kits include: paper towels, cloth towels, kitty litter and/or sand. All spill materials must be picked up out of the public right of way once the spilled material is absorbed off the ground. Spills leaving the event venue area into the surrounding streets must be captured and prevented from entering the surrounding non-event area(s) and storm drains.

Storm Drain Protection

- Event Hosts/Organizers must protect all storm drains identified on their site plans. If no rain is projected, consider placing fabric filters or approved inlet protection device over the drain opening. The use of fabrics and other types of inlet protection devices will require gravel bags or other form of anchor to keep them in place during the event. The gravel bags must be clean and free of sediment.
- If a 40% (5-day National Weather Service) chance or greater of rain is forecasted, gravel bags protecting the storm drain perimeter or other approved inlet protection devices are sufficient, however must be removed in the event of rain to prevent flooding.
- All impacted catch basins identified on the special events storm water pollution prevention plan must be visually inspected and cleaned, if necessary, following the special event and prior to an anticipated rain event (40% from 5-day National Weather Service).

Craft/Art Creative Areas and Post Event Public Art Removal

- All craft/art creative areas must have spill kits on hand (see above).

- Post event clean-up of these areas includes removal of temporary public art (chalk, paint, charcoal, clay, etc.). Event/vendor staff must use wet-mops. Any water in a bucket must be either poured into the sanitary sewer via for example a sink, or released over a landscaped area that has adequate capacity to contain the liquids and the pollutant without allowing discharge onto sidewalks, curbs, gutters streets and storm drains.

Trash and Debris

- Adequate trash and recycling containers must be provided throughout the event venue, including at the exit and entry points. All trash containers must be covered. Regular collection of loose trash and debris is required.
- All trash and /or recycling collection areas should have spill kits and wet mop(s) and brooms available and staff trained in spill clean-up methods.
- Temporary Fencing will be required to be put into place if the event, or any portion thereof, is determined to pose a threat of wind-blown debris into any water bodies.
- Post event sweeping of the entire venue area and related staging areas may be required, where necessary.

Temporary portable restrooms

- All temporary portable restrooms will be placed away from all storm drain inlets, drainage swales, water bodies, and any other locations that have the potential to impact the storm drain system.
- All temporary portable restrooms are required to have a secondary containment pan or additional BMPs in place around the stations for possible overflows.
- The contact information for the company responsible for the restrooms clearly marked on or around the restrooms.

7.4.11.3 Program Implementation

Event Organizers must complete a permit application which includes developing a site plan that shows the limits of the special event and identifies all of the drain inlets (and other entry ways to the storm drain system). This application will be reviewed and approved by the city prior to permit issuance.

Site conditions and post-event conditions will be inspected by City staff. In the event that the Special Event organizer fails to adequately clean the venue, the city will clean the site and seek retribution for costs through enforcement actions.

7.4.12 Household Hazardous Waste Collection Services

The city has successfully implemented a Household Hazardous Waste (HHW) program, and continues to promote used oil recycling for all residents. The city will continue to implement the HHW Door-to-Door pick up program approved and adopted by the Carlsbad City Council in FY 05-06. The Door-to-Door collection program is contracted and offers residents a toll-free phone number to call for a disposal appointment. The program provides a means for Carlsbad residents to have HHW picked up from their homes and hauled away for a nominal fee. The maximum weight allowable is 15 gallons or 125 pounds. Appointments are typically made a week from the collection date. In addition, residents can also dispose of HHW for free at two permanent facilities in Vista and Oceanside.

In addition, the City of Carlsbad will continue to sponsor a free annual HHW disposal day where Carlsbad residents can dispose of up to 15 gallons or 125 pounds of HHW materials. During the event, residents

will be able to dispose of HHW and receive information about other, available environmental programs, including storm water, bulky item pick up, used oil recycling, water conservation, and trash collection.

The city will continue to endorse a used oil-recycling program to ensure residents have access to facilities to recycle used oil in their community.

The city will continue to promote the used oil collection program through various outreach and education efforts and the web site.

7.5 Enforcement

If the city determines that an existing development facility or area is out of compliance with requirements, the violation and the corrective actions necessary to bring the site into compliance are documented. Corrective actions include a compliance date at which the city inspector or investigator determines that the site needs to be in compliance. A follow-up inspection is performed to determine compliance. If compliance has not been achieved by the follow-up inspection, increased enforcement actions may be implemented.

For further details regarding the city's enforcement procedures see Section 10, Enforcement Response Plan.

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8 Retrofitting and Rehabilitation in Areas of Existing Development

8.1 Introduction

The city will be developing a retrofit and rehabilitation program that identifies opportunities to implement retrofits and stream, channel and/or habitat rehabilitation within areas of existing development. The intent of the city's program is to encourage the construction of retrofit or rehabilitation projects in areas of existing development where controls do not exist or are ineffective. Construction of retrofit and rehabilitation projects in areas of existing development are expected to improve the discharges from the city's MS4.

8.2 Identifying Candidate Retrofits and Rehabilitation Projects

The city will develop and maintain a list of candidate retrofits and rehabilitation projects using a system of identification and field verification. Identification will be conducted using desktop analyses to identify key areas in the city where it is expected that retrofits and rehabilitation projects will have effective and efficient benefits. Field confirmations will be used for final verification that the identified retrofits and rehabilitation projects are appropriate applications of BMPs and controls both in type and location.

The process for identifying projects will evaluate the following considerations:

- Water Quality Improvement Plan (WQIP) Priority and Highest Priority Water Quality Conditions
- Likely sources of pollutants generating pollutants related to WQIP conditions
- Focus areas identified in WQIP
- Vintage of geographic areas of the city – time period when existing development was constructed
- Areas of persistent discharges
- Inspection/Illicit Discharge Detection and Elimination program findings
- Identified areas of hydromodification or other stream impacts

Using the considerations above, the city will identify areas where opportunities could provide water quality improvement benefits. Evaluation will include layering of the findings to determine where compounding factors overlap. The city will consider the locations where overlapping occurs and significance of the factors to prioritize areas suited for retrofits and rehabilitation projects.

Once specific areas within the city have been identified and prioritized for retrofits and/or rehabilitation projects, the city will perform field verifications on an as-needed basis to substantiate the:

- locations of potential retrofits or rehabilitation projects
- appropriate type(s) of retrofit or rehabilitation project
- appropriate responsible party to implement the retrofits or rehabilitation projects

8.2.1 Retrofit Types

The type of retrofit recommended for a specific area will depend on the site conditions and consider the desktop analyses conducted during the initial candidate evaluations. Types of retrofits range from large storage systems to on-site applications of source control and treatment. The types of retrofits the city will consider when evaluating applicability may include:

- Modifications to existing basins (flood control or treatment basins)
- Installing inline filtration (e.g., inlet, vaults)

- Disconnecting impervious surfaces (e.g., roof drainage from conveyance system)
- Creating buffer areas around irrigated systems
- Creating storage in areas adjacent to conveyance systems (e.g., culverts, outfalls)
- Installing source control systems, e.g., covering pollutant generating activity areas (e.g., trash enclosures, material storage)
- Creating storage within the conveyance system
- Installing bioretention systems
- Converting impervious surfaces to pervious
- Upgrading irrigation systems to low-flow or direct systems
- Installing green roofs
- Installation of green streets
- Installation of additional covered trash receptacles in key areas
- Stabilization of erodible areas

Geographic areas identified and prioritized for retrofits as well as site specific retrofit candidates will be maintained by the city and available to the various departments that may require or use the list for implementation of retrofits.

8.2.2 Rehabilitation Types

The type of rehabilitation recommended for a specific area will depend on the site conditions and consider the desktop analyses conducted during the initial candidate evaluations. Types of rehabilitation projects range from in-channel improvements to habitat improvements. The city will consider the following types of rehabilitation projects when evaluating applicability:

- Stream/channel modifications
 - Hard bank stabilization
 - Soft bank stabilization
 - Grade controls
 - Flow deflection/diversion
 - Habitat enhancement
- Habitat restoration
- Wetland restoration

Geographic areas identified and prioritized for rehabilitation projects as well as site specific rehabilitation project candidates will be maintained by the city and available to the various departments that may require or use the list for implementation.

Agua Hedionda Creek Restoration Project

The city has identified an area along Agua Hedionda Creek that will include approximately 2.43 acres of wetland area and 5.5 acres of upland habitat for restoration to serve as a regional flood control detention basin. See Section 9, Special Activities/Programs for more information.

8.3 Implementing Candidate Retrofits and Rehabilitation Projects

Facilitating the construction of retrofits and rehabilitation projects is a multi-pronged long-term process. The city will continue to develop this aspect of the program and provide appropriate updates.

Mechanisms to fund retrofits and rehabilitation projects may include:

- Grants from other public agencies and/or private organizations;
- Development impact fees;
- Developer implementing offsite alternative compliance (if applicable);
- City funding; and/or
- Private property owners.

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9 Special Activities/Programs

9.1 Introduction

The City of Carlsbad has designed special activities and programs to be implemented within the Carlsbad Watershed WMA. These activities and programs will be implemented by the city in addition to the requirements of Permit Provisions E.2 through E.7. Furthermore, Watershed Management Area Strategies have been designed for the watershed. These strategies are optional regional or multi-jurisdictional BMPs, incentives, or programs that may be implemented to effectively prohibit non-storm water discharged to the MS4, reduce pollutants in storm water discharges from the MS4 to the maximum extent practicable, protect the beneficial uses of receiving waters from MS4 discharges, and/or achieve the interim and final numeric goals.

9.2 Buena Vista Lagoon Enhancement Project

The Buena Vista Lagoon Enhancement Project is being led by the San Diego Association of Governments (SANDAG) in partnership with Caltrans and the City of Oceanside. The Buena Vista Lagoon Enhancement Project includes engineering studies and the preparation of an Environmental Impact Report (EIR) to analyze possible approaches to enhancement of the lagoon. Numerous federal, state and local agencies and organizations have cooperated in the past in an effort to gain consensus on a solution. Future enhancements to the Buena Vista Lagoon could serve as mitigation for potential impacts from the I-5 and rail improvements.

9.3 Agua Hedionda Creek Restoration Project

The Agua Hedionda Creek Restoration Project consists of the construction of a regional flood control detention basin, and creation of wetland habitat with upland habitat buffers. The project is located within the northeast quadrant of the city along Agua Hedionda Creek and will include approximately 2.43 acres of wetland area and 5.5 acres of upland habitat. The goals of the project are to enhance existing wetland habitat, and re-establish wetland upland habitat. The project is expected to improve and increase the receiving water's functions and services (e.g. water filtration, sensitive wildlife and plant habitat). Once completed, the restored area will be included in the City of Carlsbad's Habitat Management Plan for long-term maintenance and monitoring.

9.4 Watershed Management Area Strategies

9.4.1 Integrated Regional Watershed Management (IRWM)

Coordinate with Integrated Regional Watershed Management (IRWM) regional water managers to plan for and implement water quality improvement projects (retrofits, stream rehabilitation, or other projects). In order to trigger the implementation of this strategy, the following must occur:

- Interim goals are not met;
- Progress towards numeric goals is not adequate;
- Staff resources are identified and secured; and/or
- Adaptive management informs the jurisdictions to implement.

Resources required to implement the strategy include participation as a stakeholder in the IRWM Program as appropriate, council approval of an IRWM proposed project, and staffing necessary to implement any identified project. Participation as a stakeholder in the IRWM program will occur as needed and if funded, to encourage applicable project adoption in the Carlsbad WMA. Individual projects and further participation in grant funding offered through this IRWM will be assessed on a case-by-case basis.

9.4.2 Sustainable Landscape Incentive Program

The purpose of the Sustainable Landscape Incentive Program is to encourage landscape retrofits. Implementation of this strategy may be triggered if: (1) it has been determined by the County of San Diego through adaptive management that implementation is necessary; and (2) all of the necessary resources have been secured. Resources required to implement this strategy include staff resources, grant funding, incentive items, and partnerships. This strategy addresses pollutants from residential areas, nurseries, and greenhouses.

9.5 Optional/Contingency WQIP Strategies

9.5.1 Structural or Retrofit BMPs

This strategy includes the implementation of structural (engineered) BMPs or retrofit of existing structural BMPs to address flow and/or pollutant issues. This strategy is triggered if:

- Interim goals are not met;
- Progress towards numeric goals is not adequate;
- Staff resources are identified and secured; and/or
- Adaptive management informs the jurisdictions to implement.

If implemented, structural BMPs will be integrated into the city's Capital Improvement Program for planning, design and construction. Many of the city's typical capital projects are funded through dedicated sources, e.g. transportation tax dollars. Structural BMPs will have to identify alternative sources of funding, e.g., grants or partnerships, and therefore may take longer to process than typical capital projects. It is estimated that structural BMP projects may take five years to secure the resources necessary to initiate each project within the strategy.

9.5.2 Offsite Alternative Compliance

The County is currently implementing Phase 1 of the Offsite Alternative Compliance Program as defined in the WPO, Section 67.811(b)(4)(c). This phase allows for an Applicant-Implemented Offsite Alternative Compliance Project (ACP) project. This program became effective on February 26, 2016 and allows for a developer to wholly or partially satisfy their on-site storm water compliance obligations through the implementation of an ACP that is owned or constructed by the PDP project applicant. The city will develop an alternative compliance program utilizing the guidelines established in the accepted Water Quality Equivalency Guidance for Region 9 and will incorporate potential candidate project areas identified in the Watershed Management Area Analysis. The city is also exploring the development of a possible In-Lieu Fee program.

The following all will need to be satisfied to trigger this strategy: (1) The Copermittees finalize water quality equivalency standards for riparian habitat and submit it to the RWQCB for approval; (2) the RWQCB approves the water quality equivalency standards; (3) an acceptable framework for allocating credits for offsite BMPs is developed by the Copermittees and approved by the city; (4) the program does not require the city to take on unfunded long-term maintenance responsibility for BMPs used as a means of compliance by private projects; and (5) adequate staffing resources have been obtained.

10 Enforcement Response Plan

10.1 Introduction

The city implements an Enforcement Response Plan as part of its jurisdictional runoff management program. The Enforcement Response Plan describes the applicable approaches and options to enforce the city's legal authority to achieve compliance with the requirements of the Permit.

The city enforces its Municipal Code throughout its jurisdiction and implements escalating enforcement responses to compel compliance with statutes, ordinances, permits, contracts, orders, and other requirements for the IDDE, development planning, construction management, and existing development components of the JRMP. A storm water enforcement action will typically occur as a result of an inspection or in response to a reported incident by the public or City staff.

10.2 Enforcement Mechanisms

The city typically employs a tiered, increasing enforcement system. However, the city reserves the right to apply stricter initial enforcement measures where significant non-compliance is noted or when a potential rain event increases the potential for the violation to have a negative impact on water quality. The various increasing administrative and judicial enforcement measures, as prescribed by the city's Municipal Code, are discussed below.

10.2.1 Administrative Enforcement Mechanisms

Verbal and Written Warnings

Warnings are used as an initial method of requesting corrective action and enforcing compliance. City staff notifies the violator, verbally or in writing, and may establish a specific time frame for correcting the problem.

Notice of Violation

If the violation noted in a warning is not corrected by the scheduled follow-up date, or the severity of the violation is such that a warning is not strong enough, a notice of violation (NOV) would be issued. The NOV describes the infraction that is to be corrected, and provides a time frame and date for corrective actions. Associated follow-up inspections are conducted to ensure compliance. A copy of the notice will be provided in person or via certified mail, to the violator. The city inspector or investigator will document the violation and date of resolution.

Enforcement of Contracts (For Municipal Projects Only)

Construction contracts include the city's authority to refuse payment, stop work (without time penalties) or revoke contracts, if contractors performing the construction activities do not comply with appropriate permits, laws, regulations and ordinances.

Stop Work Orders (Construction Activities)

If an NOV has not been addressed by the follow-up inspection, the contractor has not complied with permit requirements, or a significant threat to water quality is observed (such as a failure of BMPs resulting in a significant release of sediment or other pollutants), a stop work order may be issued by the appropriate City official. Stop work orders prohibit further construction activity until the violation is resolved and provide a time frame for correcting the problem. The stop work order describes the infraction and specifies what corrective action must be taken. To restart work once a stop work order has been issued, the contractor's project supervisor must request that the city re-inspect the project and

verify that the deficiencies have been satisfactorily corrected. If the city is satisfied with the corrections, work may proceed. The stop work order and other related information is documented in the inspection inventory.

Denial or Revocation of Permits

In severe cases of non-compliance or significant discharges related to development or construction projects, the city may decide to revoke the building or grading permits or deny future permits. The project proponents would have to re-apply for permits and meet any requirements that the city may place on the project.

Denial or Revocation of Business License

In severe cases of non-compliance or significant discharges related to businesses, it may be appropriate to revoke a business' license. If revocation occurs, the facility owner would need to re-apply for a business license and meet all applicable City requirements.

10.2.2 Judicial Enforcement Mechanisms

Civil and Criminal Court Actions and Penalties

The city may use Civil and or Criminal court actions under the State Porter Cologne Water Quality Act, the Federal Clean Water Act, and/or the city's municipal code to enforce requirements. The approach may result in significant fines for the violator. Any violation of the Carlsbad Municipal Code Section 15.12 (Storm Water Management and Discharge Control) can result in monetary fines.

The following factors are considered when the city determines the amount of civil and criminal penalties:

- Seriousness of the violation
- Duration of the violation
- Frequency or recurrence of the violation
- History of the violation
- Violator's conduct after issuance of the Notice and Order
- Violator's good faith efforts to comply
- Impact of the violation upon the community

10.2.3 Escalated Enforcement

Escalated Enforcement is considered to be major enforcement actions taken by the city to correct a significant threat to water quality or discharge that has occurred. Threats are generally corrected through the tiered increasing enforcement actions applied by the city. However, if the threat to water quality is not addressed in a timely manner – Escalated Enforcement would be implemented by the city. If a significant discharge has occurred and penalties need to be considered and assessed, the city considers these penalties to be Escalated Enforcement.

Escalated Enforcement actions for construction sites include:

- Notice of Violation
- Administrative Citations
- Civil and Criminal Court Actions and Penalties

Escalated Enforcement actions for existing development include any enforcement that is Notice of Violation or higher and is at least the second enforcement action for the same violation and responsible party. Enforcement typically progresses in the following order:

1. Education and Outreach
2. Warning (Oral or Written)
3. Notice of Violation
4. Administrative Citation Warning
5. Administrative Citation

Education and Outreach and Warnings can be omitted or bypassed if the enforcement official deems it necessary to initiate enforcement at a higher level. The enforcement official may use additional mechanisms to eliminate the violation and/or threat to water quality, if necessary. These actions are not required to progress in any order, are also considered escalated enforcement actions, and include the following:

1. Other Administrative code enforcement powers and procedures
 - a. Cease and Desist Orders
 - b. Notice to Clean, Test and/or abate
 - c. Stop Work Order
 - d. Permit or License Suspension, Denial or Revocation
 - e. Civil Penalties
2. Judicial Enforcement
 - a. Criminal Penalties
 - b. Injunction/Abatement of Public Nuisance
 - c. Other Civil Action

Escalated Enforcement is implemented through each of the individual Enforcement Response Plan components. Should the city determine that Escalated Enforcement is not required for any violation; the rationale would be properly documented in the city's tracking system. Violations are documented in the Enforcement Response Plan excel database. Documentation includes the violation type, when it was identified and compliance achievement date.

In general, the city's approach to enforcement is to use an iterative process. Upon issuing any level of enforcement, if the violator does not take appropriate corrective actions in a timely manner, the city would increase enforcement actions. The city, on a case by case basis, may forgo lower tier enforcement and increase to higher level of enforcement. Generally, this is based on severity of the issue, past violations by violator/responsible party or other factors.

10.3 Enforcement Response Plan Components

10.3.1 Illicit Discharge Detection Elimination

The city enforces its ordinances and orders to prevent illegal connections and illicit discharges to its MS4. Enforcement mechanisms are implemented on an increasing scale to enforce compliance, and follow-up inspections are conducted to confirm compliance is achieved.

The typical process for implementing necessary actions involves an administrative abatement procedure in the form of a notice of violation with corrective actions. The city requires the violator to conduct

activities necessary to eliminate the illicit discharge at his or her own expense. The activities necessary are directed by City staff and are described on the notice. A deadline for correcting the infraction with the required activities is provided by City staff. If the violator does not meet compliance by the deadline, the city may conduct the necessary corrective actions and charge the resulting costs to the violator.

The nature of the city's enforcement approach is determined on a case-by-case basis and is based on factors such as the severity of the violation, the threat to human health or the environment, site-specific circumstances, and past compliance history. If the situation is determined to pose an immediate risk to public health or the environment, the city may coordinate with other agencies or teams that are specifically trained to assess and mitigate emergency situations (e.g., those involving hazardous wastes or materials). If the discharge is a significant threat to water quality and/or human health, the San Diego Regional Water Quality Control Board (RWQCB) will be notified.

10.3.2 Development Planning

The city will use a variety of enforcement methods to ensure storm water requirements are implemented for all development projects within the city's jurisdiction. Enforcement methods include verbal and written warnings, monetary penalties, stop work orders, withholding the release of securities and denial of permits or occupancy. Construction inspectors review the projects for compliance with the water quality requirements for the project and the storm water ordinances. For CIPs that are Priority Development Projects, enforcement may include withholding operational acceptance or notification of completion until post-construction BMPs are properly installed.

Building inspectors inspect the installation of BMPs that are associated with private development and that require a demolition or building permit. For Priority Development Projects that are private developments, final inspections for building permits will not be issued unless the BMPs have been inspected and signed off as being constructed properly by the city.

Prior to certifying a project ready for occupancy (one of the final project releases) or releasing the applicant's bonds, the city will verify that each post-construction BMP has been installed per City requirements.

10.3.3 Construction

The city is responsible for enforcement of applicable local ordinances and permits at all construction sites in its jurisdiction. City inspection staff have the authority to take immediate enforcement actions when necessary. This facilitates rapid correction of inadequate BMP implementation, reducing the risk of pollutant discharges from a construction site.

If an inspector determines that a construction site is out of compliance with the city's requirements, the inspector would document the corrective actions necessary to bring the site into compliance. Documentation of the corrective actions includes a compliance date at which the inspector has determined that the site needs to be in compliance. This compliance date is based on the best professional judgment of the inspector. The inspector will perform a follow-up inspection to determine compliance.

If compliance has not been achieved, the city would implement appropriate enforcement measures based on the severity of the violation. Enforcement can range from verbal warnings to more severe enforcement such as stop work orders. Increasing enforcement measures would be used when necessary if proper corrective actions are not implemented during the allotted time frame.

10.3.4 Existing Development

Municipal

If the city determines that a municipal facility or activity is out of compliance with requirements, the corrective actions are documented and implemented in order to bring the site into compliance as practicable.

Industrial and Commercial

If City staff determines that a site is out of compliance with City requirements, the violation and corrective actions necessary to bring the site into compliance are documented and include a compliance date by which the site needs to be in compliance. If compliance has not been achieved by the follow-up inspection, City Staff would implement increasing enforcement actions.

Residential

The city uses the following mechanisms to determine areas where residential enforcement actions may be necessary:

- Public reporting hotline
- Analysis of monitoring data (field screening and analytical monitoring results)
- Observations from City field personnel
- Residential Management Area inspection program

If City Staff observe a significant and/or immediate threat to water quality, enforcement actions are taken to require the residential property owner to immediately eliminate the discharge. City Staff would conduct follow-up inspections to determine if corrective actions have been taken in accordance with City ordinances and minimum BMP requirements. Escalating enforcement steps may be utilized at the discretion of City staff in order to establish appropriate compliance time frames on a case-by-case basis.

10.3.5 Correction of Violations

The city requires any violation to be corrected in a timely manner with the goal of correcting the violations within 30 calendar days after the violations are discovered, or prior to the next predicted rain event, whichever is sooner. If more than 30 calendar days are required to achieve compliance, then the city documents the rationale.

10.4 Reporting of Non-Compliant Sites

The city will notify the RWQCB in writing within five (5) business days of issuing Escalated Enforcement to a construction site that poses a significant threat to water quality as a result of violations or other non-compliance with its permits and applicable location ordinances, and the requirements of the Permit.

The city will notify the RWQCB of any persons required to obtain coverage under the statewide IGP and CGP and failing to do so, within five (5) calendar days from the time the city becomes aware of the circumstances. For both instances, the written notification may be provided electronically by email to RB_9@waterboards.ca.gov.

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11 Education

11.1 Introduction

The city implements a public education program to promote and encourage pollution prevention best management practices that reduce the discharge of pollutants to receiving waters.

11.2 Municipal Staff Training

Storm water training for municipal departments and personnel will include general training and job specific training using appropriate topics. The objectives of the employee training programs are as follows:

- Promote a clear understanding of the urban runoff and water quality issues, including activities that can potentially pollute receiving water bodies.
- Identify and implement strategies for BMPs.
- Promote employee ownership of the problems and their ability to apply solutions.
- Integrate employee feedback into training and BMP implementation.

The city provides training annually to staff involved with the implementation of the JRMP. Staff training may take the form of class room style presentations, attending conferences, field trainings, tailgate meetings, videos, reading written SOPs, emails, and/or other appropriate methods.

In addition to the specific training topics listed above, City staff will continuously receive information and general storm water training through various communication methods including:

1. City website: Employees are able to access BMP information
2. Internal Newsletters: Internal newsletters feature updates on the Watershed Protection Program and Environmental Programs. Employees are notified by e-mail when these newsletters are published and posted on the city's intranet, and hard copies were given to personnel without computer access.
3. Workshops: All new employees are invited to attend a three-day orientation workshop entitled First Mondays. At this workshop, employees are given a Power Point presentation introducing them to the Watershed Protection Program.
4. Promotional Items: Items such as water bottles, notepads, mouse pads, cups, and pens with the hotline numbers and other pollution prevention messages continue to be distributed to employees.
5. Hotline Decals and Notepads: Car window decals and notepads with the storm water hotline are distributed for employee use in the field.

11.3 Construction Site Owners and Operators

The greatest strength of Carlsbad's efforts to educate construction site owners and developers is our motivated and well-informed project review and inspection staff. The city is committed to working with and educating project proponents on storm water compliance during all phases of construction. During the application process, one-on-one or small group meetings, pre-construction meetings, inspections, and complaint investigations the city provides outreach and education that promotes and encourages the development of programs, management practices, and behaviors that potentially lead to the prevention of illegal discharges.

The city also provides sample SWPPPs and SWQMPs for engineers, developers, and applicants to use as guides when preparing documents for proposed development projects. Construction and Building

Inspectors work with contractors, homeowners, developers, and others in the construction industry to identify storm water compliance issues, detail corrective actions, assess the appropriateness of BMPs, and provide educational information and resources. CM&I requires pre-construction meetings with contractors and developers prior to the issuance of grading permits. During the pre-construction meeting, the contractor/developer is educated on the city's storm water requirements and compliance efforts. Each contractor/developer is also provided with a copy of the city's minimum BMP requirements and any applicable compliance update memos.

In addition, the city has set up public email addresses to request information from Utilities Construction Maintenance and Inspection Division, Community and Economic Development - Land Development Division and Building Division. Contractors, developers, the public, structural BMP responsible parties can send questions, verification forms, and other requests to the various departmental email addresses, which are monitored during business hours. The city has also developed an email address list for structural BMP responsible parties. The email mailing list has been useful in providing information about BMP compliance and other educational information.

The city will continue to provide regular storm water training to engineers, plan checkers, and inspectors covering topics such as regulatory requirements, new and evolving BMP standards, inspections and compliance, inventory management and reporting, and new development design and BMP effectiveness. The city also encourages attendance at storm water conferences and workshops, supports applications for storm water compliance certifications, and distributes BMP and pollution prevention information to contractors, developers, and the general public.

11.4 Commercial/Industrial Facilities Owners and Operators Training

The City of Carlsbad conducts education of storm water regulations during inspections and through trainings/workshops. As part of the inspection program, site-specific BMPs, employee training and pollution prevention information is shared with the facility and/or business manager. These strategies are in accordance with those identified in Permit No. R9-2013-0001 and the Carlsbad WMA Water Quality Improvement Plan.

Forms of outreach education:

- Brochures
- Direct mailings
- City website
- Onsite presentations
- Inspection reports
- Workshops
- Informational booths
- Other activities as needed

Areas/Issues addressed:

- Pollution prevention
- BMP Implementation and Maintenance
- Pesticides, Herbicides and Fertilizers BMPs
- Other BMPs as identified and required

11.5 Residential Community and General Public

The City of Carlsbad continues its outreach and education to the residential community and general public in accordance with Permit No. R9-2013-0001 and the Carlsbad WMA WQIP.

Outreach and education to these target audiences occurs during complaint investigations, storm water patrols, public events, workshops and presentations, among other opportunities. The city may also contract with third party vendors, non-profit organizations and other groups to implement the outreach and education program.

In accordance with Permit No. R9-2013-0001, Provision E.7.a, the City of Carlsbad will focus on the reduction of pollutants associated with the application of pesticides, herbicides and fertilizers; proper management and disposal of used oil and toxic materials; and other pollutants of concern associated with specific target audiences.

Pollutants/sources of concern associated with residential communities and the general public:

- Pesticides, herbicides and fertilizers
- Used oil and toxic materials
- Trash
- Pet waste
- Sediment
- Irrigation runoff
- Prohibited discharges
- Other pollutants

Forms of outreach education:

- Direct mailings
- Correspondence from inspections and investigations
- Public events
- Outreach materials
- Neighborhood events
- Classroom presentations
- Workshops
- Media
- Other strategies as identified and needed

Printed materials can be provided in Spanish and Spanish speaking employees are available during regular business hours city-wide for verbal interpretation, if needed. In addition, the city promotes proficiency in Spanish by offering bilingual pay.

The City of Carlsbad continues to provide storm water education to school-aged children within the city. Presentations and outreach can be available to all levels from kindergarten to high school.

11.6 Enhanced Education Program for Focus Areas

Within each of the City of Carlsbad focus areas (CB-PA1, CB-PA2, and CB-PA3), an enhanced education program has been selected as a strategy to address pollutants of concern. This strategy targets sources that include Municipal Fixed Facilities, Industrial and Commercial Facilities/Owners, Residential, and the General Public. This strategy will be applied in both wet and dry weather conditions and aims to target bacteria, trash, heavy metals, nutrients, toxicity, oil and grease, riparian habitat, sediment, and pesticides.

Enhancements to the education program can include:

1. Priority pollutant specific education and outreach program to be conducted in CB-PA1, CB-PA2, and CB-PA3 for residents and commercial/industrial facilities related to priority pollutants within the HA. The materials will have an emphasis on discharges to the city's MS4 and the receiving waters impacts.
2. Developing and implementing a training/seminar for property managers and others that have direct responsibility for common areas within HOAs and commercial properties. Educational materials and information will be developed and provided to the managers for them to distribute to their residents and tenants.
3. As the CB-PA1 focus area is a high-tourist area, the city will develop outreach materials directed specifically to out-of-jurisdiction visitors, including materials for distribution through hotels, long-term rental properties and commercial businesses.
4. As part of the residential outreach program, the City of Carlsbad will work with residents and property owners to educate through various means, which may include school programs, block parties or one-on-one meetings.

11.7 Partnership Programs

The City of Carlsbad will partner with entities to coordinate, share, or back projects and programs that have the potential to support overall water quality objectives. These partnerships may come in various forms including, but not limited to:

- Coordination/information sharing meetings;
- Review of projects;
- Joint grant applications;
- Agreements;
- Private or joint funding; and
- Generating letters of support for projects.

It is vital for the city to collaborate with outside entities in order to achieve overarching water quality improvement objectives. Based on the MS4 discharge permit, the city has a direct responsibility for the discharges generated from their MS4 systems. Outside entities have a significant interest in downstream waterways. Partnerships may offer a synergistic pathway to achieving desired outcomes in both MS4 discharges and in waters.

12 Public Participation

12.1 Introduction

The goals of the public participation program are to develop mechanisms for public participation throughout the development and implementation of the JRMP. The city encourages public participation through the programs discussed below.

12.2 Water Quality Improvement Plans

The process of developing and implementing the WQIPs incorporates a significant public participation process, through engaging stakeholders at public workshops, coordinating with formal Consultation Panels including businesses, developers and Environmental stakeholder members, as well as providing significant public review and comment periods for all WQIP documents. The public participation process not only influences the development of the WQIP, but also the implementation mechanisms included in the city's JRMP.

The public participation process of the WQIP was and continues to be rigorous and transparent. All public meetings are communicated through all city media outlets, including social media.

12.3 Local Public Participation

Public participation is fundamental in the implementation of storm water permit regulations. The City of Carlsbad will deploy strategies to engage the public, and to allow for a public forum to provide input and feedback to improve programs. Public participation implements a process for the public to participate in the WQIP process; opportunities for the public to provide feedback on improving the program; and opportunities for the public to participate in programs and/or activities.

In addition, the City of Carlsbad provides numerous other opportunities to engage the public and allow for input:

- City of Carlsbad Council meetings
- City boards, commissions, and committees
- WQIP meetings
- Public events
- Social media
- Neighborhood events
- Storm Water Hotline
- Storm Water email
- Public events, such as California Coastal Cleanup Day, Kids Day at the Flower Fields, Citizens' Academy
- Workshops
- Inspections and investigations

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13 Monitoring and Assessment

The city conducts wet and dry weather monitoring of MS4 outfalls and receiving waters to assess water quality improvement efforts with respect to 303(d) listed constituents and the Highest Priority Water Quality Conditions (HPWQCs) as identified in the Carlsbad Watershed Management Area (WMA) Water Quality Improvement Plan (WQIP). This section describes the city's monitoring and assessment efforts performed on a jurisdictional level and as part of the Carlsbad WMA.

13.1 MS4 Outfall Discharge Monitoring Station Inventory

The city has identified 147 major MS4 outfalls that discharge directly to receiving waters within its jurisdiction and maintains information about the outfalls in the inventory. The MS4 network is regularly evaluated to ensure that applicable discharge points are included in the inventory. Additionally, monitored outfalls are evaluated onsite to ensure they meet the MS4 outfall discharge monitoring station inventory.

13.2 Dry Weather Major MS4 Outfall Discharge Field Screening Monitoring

As a component of its Dry Weather Monitoring (DWM) efforts, field screening is conducted at outfalls identified in the MS4 outfall discharge monitoring station inventory to:

- identify and investigate observed discharges;
- prioritize dry weather MS4 discharges to eliminate;
- assess effectiveness of source elimination; and
- differentiate monitoring conducted for the highest priority MS4 outfalls with persistent and transient non-storm water discharge.

The minimum number of field screenings conducted annually will be the same as the quantity of major MS4 outfalls identified in the MS4 outfall discharge monitoring station inventory (currently 147). However, specific outfall locations and frequencies of visual monitoring may change according to non-storm water discharges observed, source elimination, and the HPWQCs of the WMA.

Major MS4 outfalls are assessed through field observations and data measurements. Field observations collected are unique to specific major MS4 outfalls and describe:

- Site conditions (i.e. vegetation, structural condition, trash, etc.);
- Evidence of illicit connections or illegal dumping; and
- Presence and characteristics of flow, pooled or ponded water found.

When field observations or field screening monitoring identifies an obvious illicit discharge, immediate action is taken to identify the source – see Section 4 Illicit Discharge Detection and Elimination.

13.3 Non-Storm Water Persistent Flow MS4 Discharge Monitoring

The city conducts non-storm water persistent flow MS4 outfall discharge monitoring at specific major MS4 outfalls identified during an assessment of the city's MS4. Monitoring of persistent flow is performed to identify which persistent non-storm water discharges contain concentrations of pollutants below NALs and which have the potential to impact receiving water quality during dry weather. The city prioritizes all persistently flowing major MS4 outfalls based on:

- Transitional monitoring results;
- HPWQCs;
- Historical data (DWM/CSDM);

- 3rd party data;
- Historical Temporary Watershed Assessment Station (TWAS) monitoring; and
- Historical Mass Loading Station (MLS) monitoring.

The city identified five major MS4 outfalls and classified them as the highest priority outfalls for additional monitoring. These highest priority major outfalls and their locations within the Carlsbad WMA are listed in Table . The city monitors these high priority outfalls semi-annually during dry weather conditions until results from non-storm water discharges no longer qualify as a highest priority outfall. This occurs when:

- Discharge has been eliminated for three consecutive dry-weather monitoring events;
- Data evaluation illustrates that constituents fall below an NAL; and/or
- The outfall is found to be an authorized discharge or covered by a separate NPDES permit.

Table 6: Highest Priority Major Outfalls and Location Description

MS4 Outfall ID	Location
19C-1	North of Sunny Creek Rd.
1D-21	West of Haymar Dr. and El Camino Real
16C-61	South of Chinquapin. Near YMCA camp.
9B-S216	State St. north of Laguna Dr.
9B-38	State St. north of Laguna Dr.

The city will periodically reevaluate and prioritize (as needed) its non-storm water persistent flow MS4 outfalls. This process ensures that the highest priority major MS4 outfalls are focused on for their contributions. In general, the city will continue to focus on addressing the highest priority MS4 outfalls until one of the conditions above are met and lower priority outfalls will be integrated into the highest priority MS4 outfall listing.

Discharge monitoring includes DWM field observations identified above (Section 13.2) with the addition of field parameter measurements and collection of grab samples when discharge is either ponded/pooled or flowing. Field parameters measured are shown below in Table .

Table 7: Field Measurements

Parameter	Units
Temperature	°C
Specific Conductivity	µmhos/cm
pH	pH Units
Dissolved Oxygen	mg/L
Turbidity	NTU

When active flow is present, the non-storm water discharge is sampled and is analyzed for the constituents identified in the Carlsbad WMA MS4 Outfall Monitoring Plan: Attachment D – Table D-3. The current monitoring plan can be found at the Project Clean Water website under the Carlsbad WMA page.

Collection methods of samples and field parameters follow SWRCB approved SWAMP guidelines and/or EPA methods described, unless a site-specific method must be used enable to collect representative data.

13.4 Wet Weather MS4 Outfall Discharge Monitoring

The city performs wet weather MS4 outfall monitoring to identify pollutants in storm water discharges from the MS4s and to guide pollutant source identification and mitigation efforts. MS4 wet weather

monitoring stations within the Carlsbad WMA were selected to best represent land use types (i.e. residential, commercial, industrial and mixed) within its limits. The city performs monitoring at one MS4 outfall monitoring station. The city's wet weather monitoring station is currently outfall 1D-21. Each year the city will reevaluate the site selection and make changes as needed in order to provide accurate data or facilitate better assessments.

During the wet season (October 1- April 30), the city monitors at least one wet weather event at 1D-21 using the procedures identified in the Carlsbad WMA MS4 Outfall Monitoring Plan. If pollutants are identified that cause or contribute to a HPWQC at the wet weather monitoring station, additional wet weather monitoring and source investigation will be scheduled to guide pollutant source identification efforts until eliminated. For each wet weather monitoring event, the city records the following information:

1. A narrative description of the location and condition of the monitoring station.
2. A narrative description and quantification of the storm event conditions.
3. Results of field measurements listed in Table 14-2. Collected grab samples may be used to collect field measurements with the addition of hardness and indicator bacteria.
4. Results of time-weighted, flow-weighted, manual compositing or a blend composite sample for a duration of a storm event to represent the changes in pollutant concentration and runoff flows.

Samples are collected using methods and protocols approved by the SWRCB and described in the MS4 Outfall Monitoring Plan. Composite samples are analyzed for constituents that have been identified in the Carlsbad WMA MS4 Outfall Monitoring Plan: Attachment D – Table D-4.

The city analyzes the wet weather monitoring results to support and assess the effectiveness of the water quality improvement efforts. Based on the results, the city may implement additional efforts to achieve water quality benchmarks set for the WMA.

13.5 Data Assessment, Reporting, and Quality Control

The city assesses collected dry and wet weather monitoring data for assessing the effectiveness of the current water quality improvements implemented. Results from dry weather MS4 outfall discharge monitoring is used as part of a prioritization procedure for non-storm water discharges to be addressed by the IDDE program. It is a key component in the iterative approach to water quality improvements and provides the city with adaptive management options to best address water quality concerns.

Monitoring efforts that occur at a greater frequency than expressed in this Monitoring and Assessment section are reported to the RWQCB at prescribed intervals. Annually, collected monitoring data are uploaded using specified templates to the California Environmental Data Exchange Network (CEDEN) Southern California Regional Data Center. The uploaded regional water quality information is ultimately available to the general public through the CEDEN website.

As a quality control component, the city maintains monitoring and calibration data for a minimum of five years from date sampled, measured, reported or applied. Sample collection methods involve the inclusion of a quality assurance/quality control (QAQC) program. The sampling, analysis, and, QAQC were conducted in accordance with the Quality Assurance Management Plan (QAMP) for SWAMP.

13.6 WQIP WMA Monitoring Requirements

As part of the Carlsbad WMA, the city works in collaboration with the other stakeholders within the WMA boundary. The goal is to create a bridge between the overall health of the receiving waters within the WMA and water quality from MS4 systems. These requirements include:

- Sediment Quality Monitoring;
- Long-term Receiving Water Monitoring Requirements;
- Special Studies;
- Storm Water Monitoring Coalition Regional Monitoring; and
- Southern California Bight Regional Monitoring.

These monitoring programs are described in the following documents:

- Carlsbad WMA Water Quality Improvement Plan;
- Carlsbad WMA Sediment Monitoring Plan; and
- Carlsbad Receiving Water Monitoring Plan.

The current versions of these documents are located at the Project Clean Water website under the Carlsbad WMA page – www.projectcleanwater.org.

14 Fiscal Analysis

Effective programs require adequate funding to implement planned strategies. The first step in securing adequate program funding is to provide a strategy for effectively conducting a fiscal analysis of the Program in its entirety. The fiscal analysis evaluates the expenditures (such as capital, operation and maintenance, outreach and education, and administrative expenditures) necessary to accomplish the activities of the Program. The fiscal analyses will be completed annually and included in the Carlsbad Water Quality Improvement Plan Annual Reports.

14.1 Expenditure Categories

The city has identified categories of expenditures related to storm water management and implementation. The following are category descriptions of specific implementation, capital, operation and maintenance activities. Five expenditure categories were identified for fiscal analysis to effectively communicate the types of program costs. Descriptions for these categories of expenditures are provided below:

Administrative Tasks

Administrative activities include a range of tasks across multiple Divisions. Such tasks include general government services related to storm water management programs and miscellaneous administrative tasks such as contract management, invoice processing, and accounting.

Development Planning and Construction Management

Development planning and construction management relate to both public and private projects. City capital projects are primarily the responsibility of the Public Works Department and private discretionary projects are primarily the responsibility of the Community Development Department. Tasks include development planning review, project management, and construction site inspections.

Existing Development Management and O&M

This category covers existing development and includes program implementation and management of storm water best management practices (BMPs) for the municipal, commercial, residential, and treatment control inventories. It also includes operation and maintenance activities that relate to storm water management such as street and MS4 cleaning. The Public Works Department is primarily responsible for the management and O&M of existing development.

Capital Projects

The Public Works Department is responsible for implementing the Capital Improvement Program (CIP) for the city. Water quality capital projects are included in this category and may be considered as individual projects or as features within other CIP projects implemented by the city.

Watershed and Regional Costs

Regional and watershed costs are allocated from the Public Works Department and are tracked according by program type.

14.2 Staff Resources

To meet the storm water management requirements in the Municipal Permit, implementation efforts and costs are shared across the entire City. For the fiscal analysis the city staff will identify the staff resources and needed to implement the city's overall program. City staff resources will be analyzed according to their functions related to the city using the Expenditure Categories identified above.

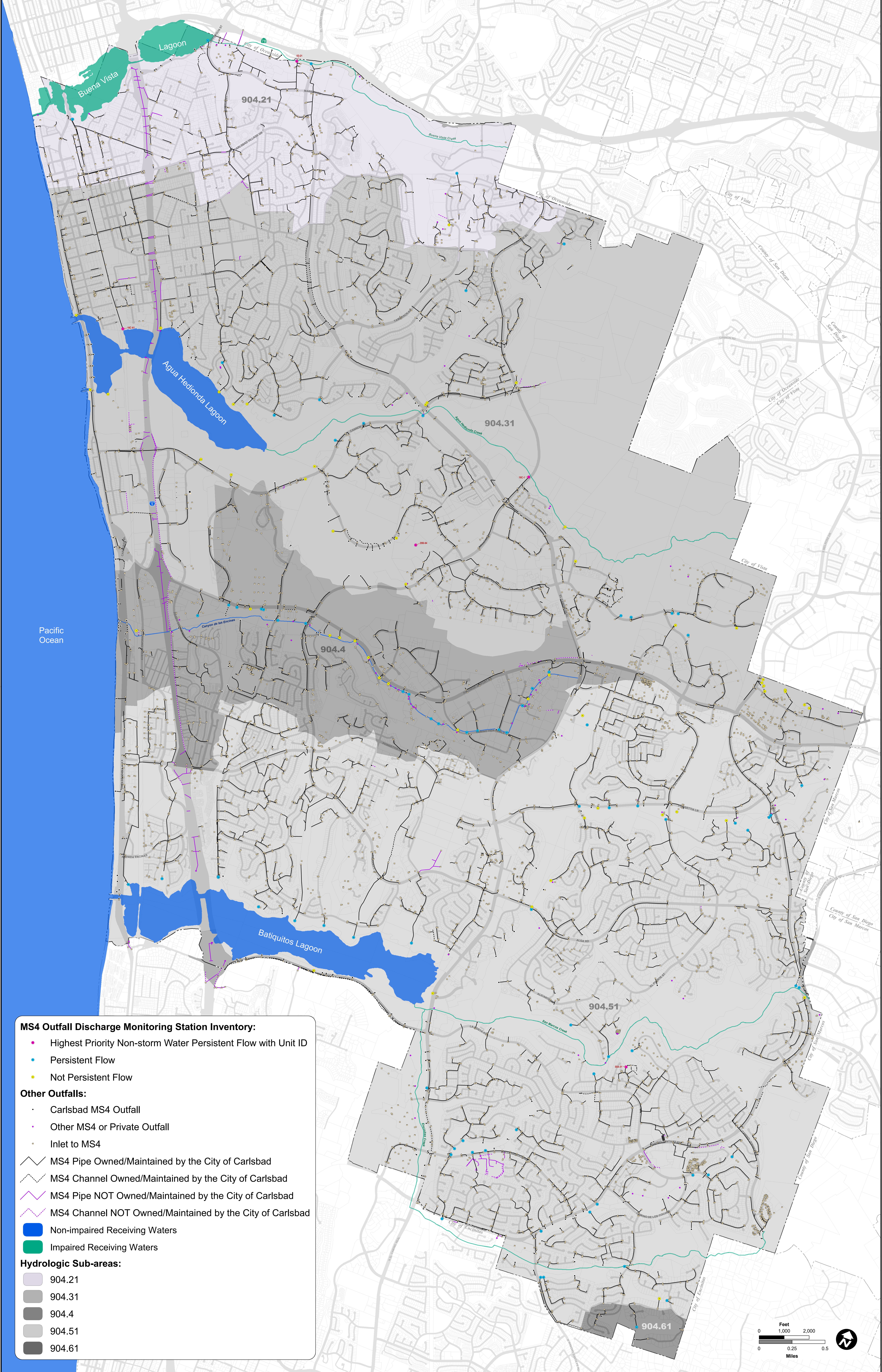
14.3 Expenditures and Sources of Funds

Annually, the city will present its expenditures for the fiscal year as well as a proposed budget for the next fiscal year. The fiscal year expenditures are presented in tabular format with separate rows for different divisions and subdivisions. The budget for the next fiscal year is presented in similar format and includes the anticipated total expenditures.

The sources of the funds needed to fund the current and next fiscal year will be included in the analysis and include any identified restrictions on the use of those funds.

Appendix A: City of Carlsbad MS4 Map

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MS4 Outfall Discharge Monitoring Station Inventory:

- Highest Priority Non-storm Water Persistent Flow with Unit ID
- Persistent Flow
- Not Persistent Flow

Other Outfalls:

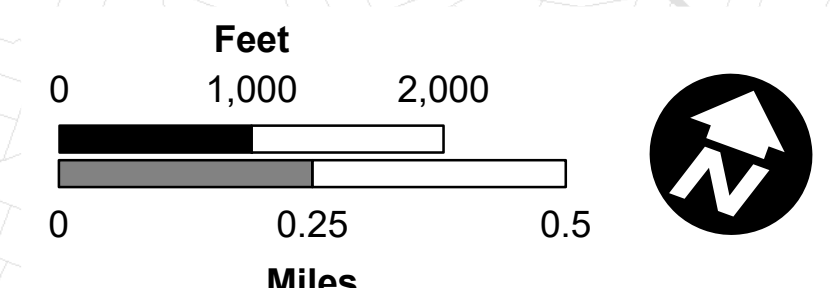
- Carlsbad MS4 Outfall
- Other MS4 or Private Outfall
- Inlet to MS4

— MS4 Pipe Owned/Maintained by the City of Carlsbad
 - - MS4 Channel Owned/Maintained by the City of Carlsbad
 MS4 Pipe NOT Owned/Maintained by the City of Carlsbad
 - · - MS4 Channel NOT Owned/Maintained by the City of Carlsbad

■ Non-impaired Receiving Waters
 ■ Impaired Receiving Waters

Hydrologic Sub-areas:

- 904.21
- 904.31
- 904.4
- 904.51
- 904.61



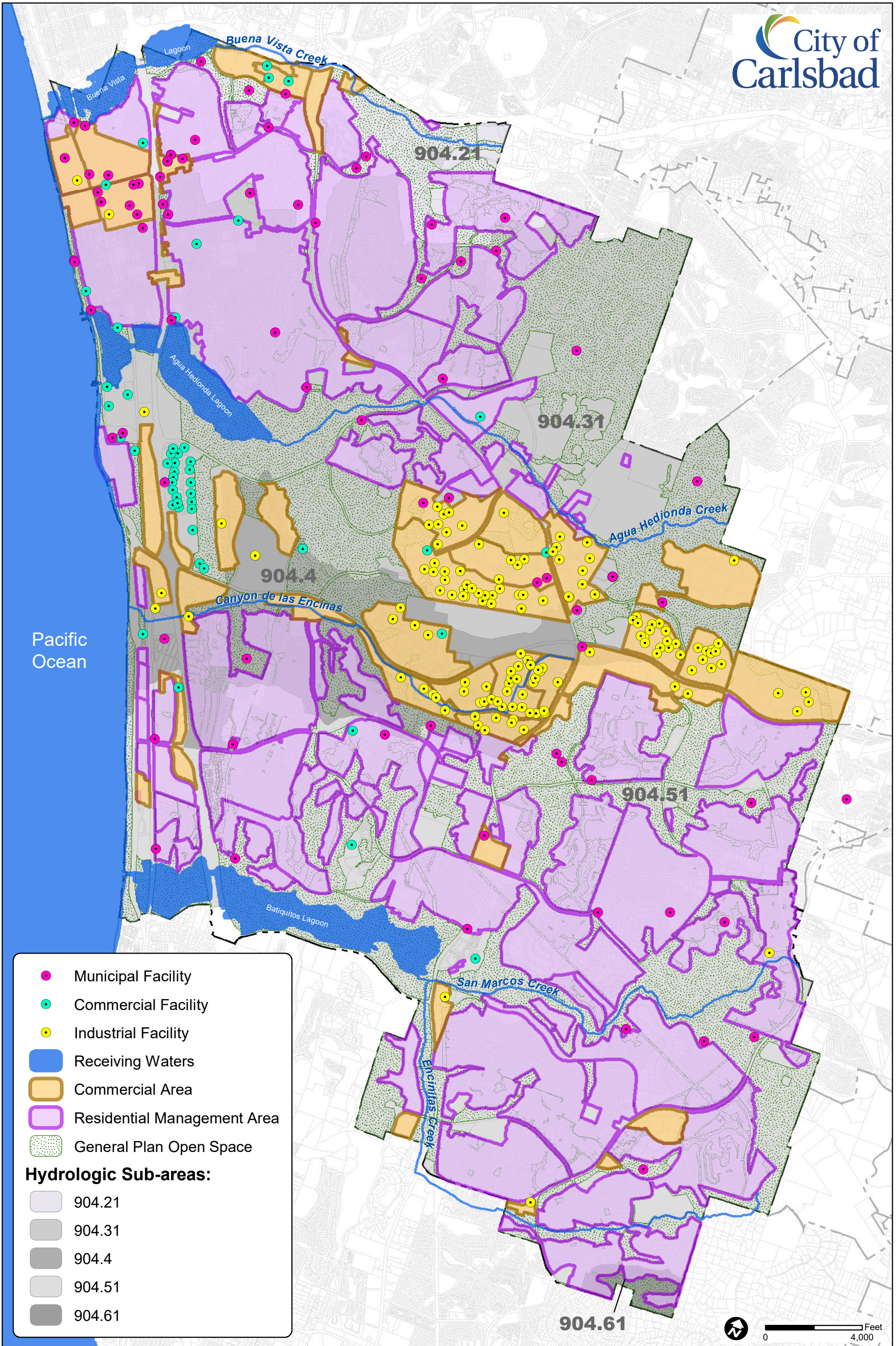
MS4 Map and Corresponding Drainage Areas E.2.b.(1)

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Appendix B: City of Carlsbad Existing Development Map

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- Municipal Facility
- Commercial Facility
- Industrial Facility
- Receiving Waters
- Commercial Area
- Residential Management Area
- General Plan Open Space

Hydrologic Sub-areas:

- 904.21
- 904.31
- 904.4
- 904.51
- 904.61



Municipal, Industrial, Commercial, Residential Map

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