City of Tempe, Arizona

STORMWATER MANAGEMENT PLAN

Prepared by the City of Tempe
Public Works Department, Water Utilities Division,
Environmental Services Section

As prescribed by
AZPDES Permit No. AZS000005-2010 Appendix C

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ACRONYMS

AAC	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ARCA	Alternative Retention Criteria Area
AZPDES	Arizona Pollutant Discharge Elimination System
BMP	Best Management Practice/ Control Measures
CCTV	Closed Circuit Television
CFR	Code of Federal Regulations
CGP	Construction General Permit
CIP	Capital Improvement Project
CWA	Clean Water Act
EPA	Environmental Protection Agency
ERP	Enforcement Response Plan
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
HPCC	Household Products Collection Center
HWMP	Hazardous Waste Management Plan
IDDE	Illicit Discharge Detection and Elimination
IPM	Integrated Pest Management
KG	Kilogram
LID	Low Impact Development
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
MSDS	Material Safety Data Sheet
MSGP	Multi-Sector General Permit
NEC	No Exposure Certification
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
OAW	Outstanding Arizona Water
PPB	Parts per Billion
PPE	Personal Protective Equipment
PPM	Parts per Million
POTW	Publicly Owned Treatment Works
SARA	Superfund Amendments and Reauthorization Act
SIC	Standard Industrial Classification
SU	Standard Units
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWQS	Surface Water Quality Standards
TMDL	Total Maximum Daily Load
TTL	Tempe Town Lake

1.0 EXECUTIVE SUMMARY

The City of Tempe Stormwater Management Plan (SWMP) identifies the major programs, policies, and procedures implemented by the city to minimize the impact of urban activities on the quality of stormwater. Tempe is required to develop this plan as a municipality authorized to discharge stormwater as a Municipal Separate Storm Sewer System (MS4) under the Arizona Pollutant Discharge Elimination System (AZPDES) permit program administered by the Arizona Department of Environmental Quality (ADEQ). Tempe's Phase I MS4 Permit (Permit) was most recently reissued by ADEQ on November 24, 2010, and modified on June 3, 2011, and contains requirements for the development and content of this document. Tempe is required to develop a SWMP that outlines the specific goals, objectives, and associated timelines for the management and monitoring of activities that impact the quality of stormwater runoff based upon the Permit conditions.

The SWMP addresses seven major areas including Public Education and Outreach, Public Involvement and Participation, Illicit Discharge Detection and Elimination (IDDE), Municipal Facility Pollution Prevention, Industrial and Commercial Facilities Pollution Prevention, Construction Sites, and Post-Construction. Additionally, it includes specific details for the wet weather monitoring program. The SWMP has been written to reflect the requirements of the Permit in addition to providing the details of the major program areas; therefore the SWMP includes fourteen sections including an Executive Summary, introduction, a description of how the stormwater program is managed, sections addressing the seven major program areas, and additional sections describing the training program, the monitoring program, financial resources, and program evaluation and modification.

The SWMP is a comprehensive planning tool that guides the implementation of the stormwater program components and provides a mechanism for measuring progress towards the program objectives. It is the goal of the SWMP to reduce the discharge of pollutants to and from the MS4 to the maximum extent practical (MEP), thus protecting the quality of water in the receiving water bodies. The updated SWMP was prepared with a central focus of describing best management practices and/or control measures established to minimize the discharge of pollutants over the current Permit term. The SWMP describes a wide range of continuing Best Management Practices (BMPs), which are being implemented during the five-year term of the Phase I MS4 Permit and describes the overall management strategies planned by the city.

The SWMP was developed with input from multiple City of Tempe departments and divisions and approved by the Director of Public Works. The Certification Statement is included in Attachment A.

Tempe has worked on Permit implementation in partnership with other Phoenix Area MS4s. In an effort to provide general implementation consistency, the City of Tempe has, in part, used a similar format and some similar general content used by the City of Phoenix in its 2008 SWMP. All program specifics are unique to Tempe.

2.0 INTRODUCTION TO THE STORMWATER MANAGEMENT PLAN

The SWMP translates the MS4 Permit requirements into city programs and procedures and is referenced by the city for development of ordinances, plans, policies and procedures to protect stormwater quality.

Tempe's initial SWMP was prepared in compliance with the requirements of the MS4 Permit issued by the Environmental Protection Agency (EPA) Region 9 in 1997. The original Permit was scheduled to expire in 2002, but was administratively continued. On December 5, 2002, EPA granted permitting authority to ADEQ to implement the National Pollutant Discharge Elimination System (NPDES) Program in Arizona. The State administers the program as the Arizona Pollutant Discharge Elimination System (AZPDES). Tempe performed a comprehensive assessment of its stormwater program in March 2002 and proposed a revised 2003 SWMP. The proposed 2003 SWMP was never approved or fully implemented. This SWMP incorporates some previously proposed management plans and further outlines the major programs and policies that the city has developed and implemented to protect stormwater quality in compliance with the Phase I MS4 Permit effective June 3, 2011. The primary program elements are illustrated in Figure 2-1.

The SWMP covers the geographic boundary of the City of Tempe with the exception of Arizona State University and Maricopa County land, both entities that maintain separate Phase II MS4 Permits.

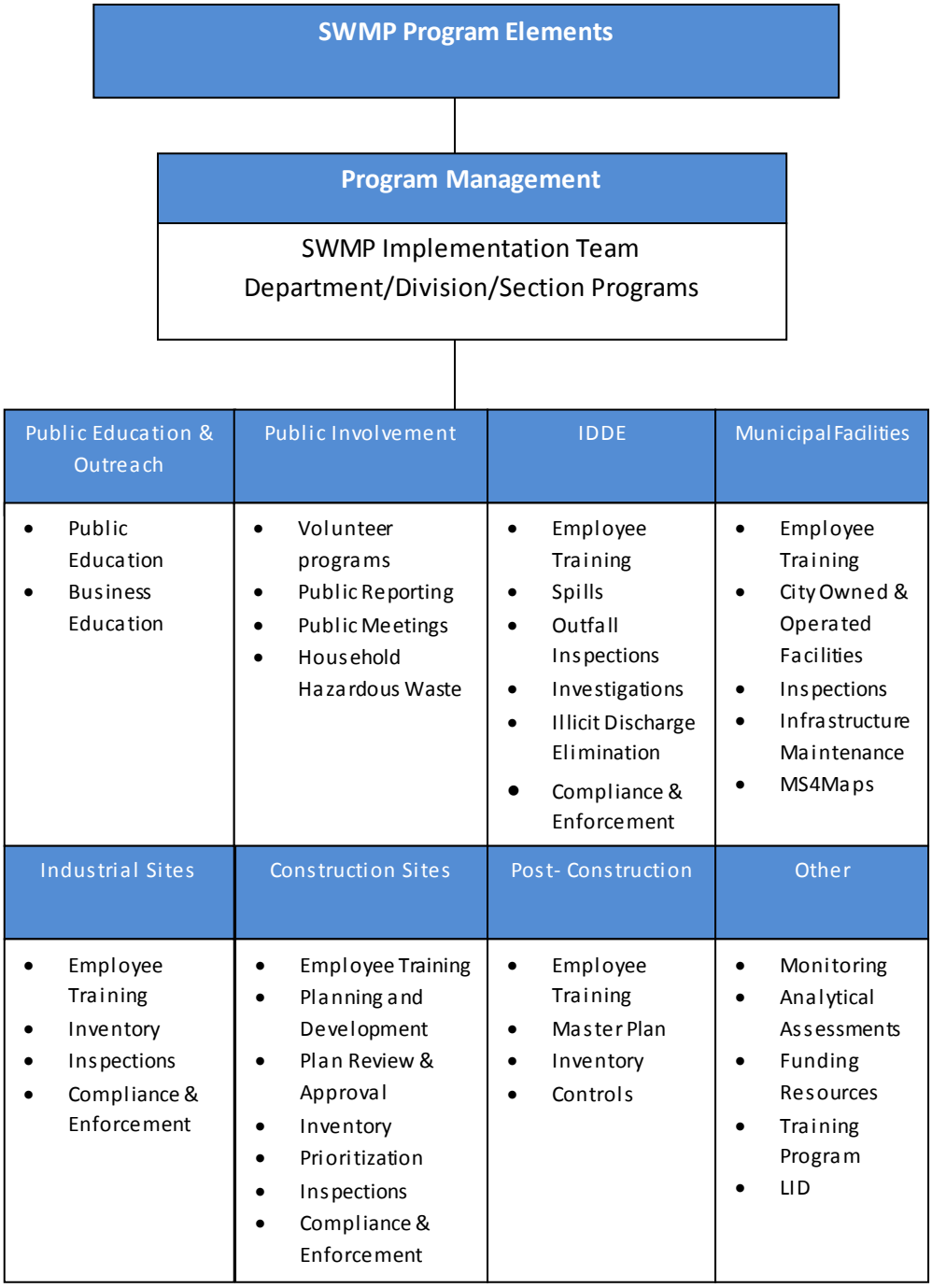
2.1 PROGRAM OVERVIEW

In addition to the descriptions of program elements contained within the SWMP, each city department or division with stormwater management responsibilities maintains documentation of its internal procedures for implementation of the program elements described in the SWMP. Examples of this documentation include the following information:

- Practices and procedures for field screening (dry weather outfall monitoring)
- City of Tempe facility assessment program and schedule
- Hazardous Waste Management Program
- Drainage system maintenance schedule for the MS4
- Development review, approval, and permitting
- Construction and Post-construction site inspection program, database, and checklist
- Industrial/commercial inspection program, database, and checklist.

Such documents are reviewed and updated as necessary or as required by Permit to keep up with changes within the city and with changing local, state, and federal regulations. These programs will remain in compliance with the Phase I MS4 Permit and the programs outlined in this SWMP.

Figure 1: SWMP Program Elements



2.2 REGULATORY FRAMEWORK

2.2.1 NPDES Permitting for Stormwater Discharges

The Water Quality Act of 1987 added Section 402(p) to the Clean Water Act (CWA), which required the EPA to develop a phased approach to regulate stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program. EPA published the final regulations on the first phase of the NPDES stormwater program on November 16, 1990. These regulations, known as the Phase I stormwater regulations, established permit application requirements for discharges from municipal MS4s serving a population of 100,000 or more. As defined in 40 CFR 122.26(b)(8), the term "municipal separate storm sewer system" refers to a conveyance, or system of conveyances (including roads with drainage systems, municipal streams, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that are:

1. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized tribal organization, or a designated and approved management agency under Section 208 of the Clean Water Act (33 U.S.C. 1288) that discharges to waters of the United States;
2. Designed or used for collecting of conveying stormwater; and
3. Not combined sewers; or
4. Not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

The Phase I stormwater regulations require an operator of a medium or large MS4 to obtain a NPDES permit for stormwater discharges from its system. A "large MS4" is generally defined as a system serving a population of 250,000 or more, and a "medium MS4" refers to a system serving a population of 100,000 or more but less than 250,000. As specified in 40 CFR 122.26(b), these are based on the population data from the 1990 census by the U.S. Bureau of Census. EPA Region IX issued eight individual Phase I Permits for MS4s operating in Arizona. Based on the 1990 census, Mesa, Phoenix, Tucson and Pima County operate large MS4s; and the cities of Glendale, Scottsdale, and Tempe operate medium MS4s. The Arizona Department of Transportation (ADOT) was also permitted under Phase I due to the relationship (i.e., physical interconnection) of its stormwater system with the other MS4s.

On December 5, 2002, EPA granted permitting authority to the Arizona Department of Environmental Quality (ADEQ) to implement the NPDES program in Arizona, except for discharges on Indian Lands. In Arizona, the NPDES program is administered as the AZPDES program.

2.2.2 Impaired Water Bodies

Section 303(d) of the CWA requires that states, territories and authorized tribes develop lists of impaired waters in their jurisdictions. The lists are required to be updated every other year. Water bodies included on the 303(d) list are considered impaired because they do not meet water quality

standards for at least one designated use. As of 2010, 303(d) and other impaired water lists(s), the waters of the U.S. receiving discharges from Tempe have not been identified as impaired. Additionally, a draft list that has yet to be approved from 2012/2014 does not identify any water bodies in Tempe as being impaired.

2.2.3 Total Daily Load (TMDL) Allocations

At the time of Permit issuance, no Total Maximum Daily Loads (TMDLs) have been established for any water of the U.S. that receives discharges from Tempe's MS4. However, if a TMDL is established during the Permit term, the Permit may be reopened and modified to include the requirements of the TMDL and associated implementation plan.

2.2.4 Outstanding Arizona Waters

The Permit is intended to preserve and protect Outstanding Arizona Waters (OAW) within the State of Arizona. At the time of Permit issuance, no water of the U.S. receiving discharges from the MS4 has been classified as an OAW. However, if a water of the U.S. that has the potential to be impacted by the MS4 discharge is classified as an OAW during the Permit term, the Permit may be reopened and modified to include additional conditions to ensure that the OAW is adequately protected.

2.2.5 Receiving Waters

The Permit authorizes stormwater discharges from the Tempe MS4 to waters of the U.S., directly and by way of other conveyances not owned or operated by Tempe. Arizona Water Quality Standards that apply to the waters of the U.S. receiving discharges from Tempe are specified in A.A.C. Title 18, Chapter 11, Article 1.

The Tempe MS4 has potential to discharge stormwater to waters of the U.S., including the Salt River, Indian Bend Wash, Tempe Town Lake, Kiwanis Park Lake, Papago Park South, Gila River, and some Phoenix Area Canals.

2.3 Tempe Area Water Quality Concerns and Climate

2.3.1 Stormwater Runoff and Urbanization

Urbanization alters the natural infiltration capability of the land and generates pollutants associated with the activities of dense populations. Thus, urbanization causes an increase in the volume of stormwater runoff and the pollutant loadings in stormwater discharged to waters of the U.S. (EPA, 1992). Urban development increases the amount of impervious surface in a watershed as farmland and other undeveloped land with natural infiltration characteristics are converted into buildings with rooftops, driveways, sidewalks, roads, and parking lots with no ability to absorb stormwater. Stormwater washes over these impervious areas, picking up pollutants along the way, and gains speed and volume because it is unable to disperse and filter into the ground. As a result, stormwater flows are higher in volume, pollutants, and temperature than the flows in less impervious areas which have more natural vegetation and soil to filter the runoff (EPA, 1997). In addition to increased impervious areas, urban development creates new pollution sources as population density increases and generates higher

levels of car emissions, fertilizers and pesticides, litter, pet wastes, and household hazardous wastes. These pollutants can be washed into surface waters by stormwater runoff or may be dumped directly into storm drains that discharge to waters of the U.S. Therefore, higher population densities and increased impervious areas generally result in a greater concentration of pollutants in stormwater discharges from municipal separate storm sewer systems (Tempe AZPDES Fact Sheet, 2010).

2.3.2 Construction Impacts and Stormwater Runoff

Stormwater discharges generated during construction activities can also cause physical, chemical, and biological water quality impacts and compromise the integrity of surface waters. A primary concern at most construction sites is the erosion and transport process related to fine sediment because rain splash, rills, and sheet wash encourage the detachment and transport of this material to water bodies. Water quality impairments can result because a number of pollutants are absorbed onto fine sediment particles. The interconnected process of erosion (detachment of the soil particles), sediment transport, and delivery is the primary pathway for introducing pollutants, such as nutrients (particularly phosphorus), metals, and organic compounds into aquatic systems (Tempe AZPDES Fact Sheet, 2010).

2.3.3 Non-Stormwater Discharges

The Tempe MS4 can receive non-stormwater discharges. Many non-stormwater discharges are prohibited by the MS4 Permit unless authorized separately under the AZPDES Program or are not determined to be a significant source of pollutants. See Section 6.5.2 for a description of non-stormwater discharges that may be allowed. Other non-stormwater discharges may be illicit or exempt from regulation.

Sources of illicit discharges can include sanitary and industrial wastewater, oils and greases and other chemicals. These types of illicit discharges may contain heavy metals, toxics, oil and grease, solvents, household hazardous materials, radiator fluids, litter, viruses and bacteria. Many aspects of Tempe's program are designed to prevent, respond to, investigate and mitigate such discharge events.

Sources of exempt discharges that are routinely found in the MS4 are largely irrigation return water. These discharges have been found to not be a significant source of pollutants.

2.3.4 Climate

The City of Tempe is located in the semi-arid climate of southwest-central Arizona. This climate provides a variety of temperatures from hot summers, when temperatures tend to be in the 100's, to cool winters, when temperatures tend to be in the 60's.

The warmest month of the year is July, with an average maximum temperature of 105 degrees Fahrenheit, while the coldest month of the year is January, with an average minimum temperature of 39 degrees Fahrenheit. Temperature variations between night and day tend to be about 26 degrees Fahrenheit.

The annual average precipitation in Tempe is 7.6 inches, with an average of 35 days a year receiving rain. Precipitation events are categorized into winter storms and summer storms. Winter storms generally occur between October and May and tend to originate from the North Pacific Ocean. Storm precipitation during this time of year tends to be light, extending over relatively large areas. Summer storms generally occur between June and October and tend to originate from the southern Pacific Ocean. Precipitation during summer storms generally consists of short, heavy rains over localized areas.

3.0 PROGRAM MANAGEMENT

3.1 PERMITTEE RESPONSIBILITIES

The MS4 Permit is administered by Tempe's Water Utilities Division. However, multiple city departments and divisions are involved with the day-to-day responsibilities of implementing the stormwater program. A SWMP Implementation Team is tasked with overseeing and assessing progress on each of the elements of the program. The Team includes representatives from each of the following city departments and divisions and functions with direct stormwater responsibilities:

Table 1: City Responsibilities

Department/Division	Responsibilities
Water Utilities Division	Program Administration Public Education & Outreach Public Involvement Illicit Discharge Detection and Elimination Industrial Inspections Outfall Inspections Enforcement & Compliance Wet Weather Monitoring Data analysis Reporting Drainage System Inspection Maintenance Mapping CCTV Municipal Facility Inspections Training Program Oversight Stormwater Master Plan Review
Transportation Division	Drainage System Inspection Maintenance Roadway Maintenance and Street Sweeping Volunteer Programs
Engineering Division	Capital Improvement Plan Review Construction Inspections Post-Construction Inspections Low Impact Development Guidelines Enforcement & Compliance Stormwater Master Plan Review
Field Operations Division	Drainage System Inspection Maintenance Volunteer Programs Household Hazardous Waste
Community Relations Office	Public Education & Outreach Public Involvement
Community Development Department/	Construction Plan Review

Development Services Division	Construction Inspections Post-Construction Inspections Enforcement & Compliance

The purpose of the SWMP team is to direct the implementation of the SWMP and to coordinate program implementation at the appropriate organizational level. When changes to legislative initiatives and regulatory requirements occur, the Stormwater Program Administrator (Environmental Program Supervisor) reaches out to the SWMP team members for technical assistance and support.

3.2 FUNDING SOURCES

Implementation of the SWMP is funded through the following sources:

- **Water/Wastewater Enterprise Fund**: Funds most direct MS4 Permit compliance program activities
- **General Fund/Solid Waste Enterprise Fund**: Funds a portion of MS4 Permit compliance activities
- **Capital Improvement Fund**: Funds most large MS4 projects.

A detailed fiscal analysis will be provided to ADEQ as a component of the Annual Report.

3.3 LEGAL AUTHORITY AND ENFORCEMENT

3.3.1 Legal Authority

Tempe is required to continue to maintain and enforce legal authority to control the discharge of pollutants to the MS4 through ordinance, statute, permit, contract, or similar means. This legal authority must, at a minimum, authorize Tempe to:

- Control the contribution of pollutants to the MS4 by stormwater discharges associated with industrial activity (as defined by 40 CFR 122.26(b)(14)) and the quality of stormwater discharged from sites of industrial activity;
- Control the contribution of pollutants to the MS4 by stormwater discharges associated with construction activity and the quality of stormwater discharged from construction sites;
- Prohibit illicit connections and discharges to the MS4;
- Control discharges to the MS4 of spills, dumping, or disposal of materials other than stormwater;
- Require compliance with conditions in ordinances, Permits, contracts, or orders;
- Carry out all inspection, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with Permit conditions, including the prohibition of illicit discharges to the MS4; and
- Establish requirements for post-construction stormwater controls.

Tempe maintains this authority in Chapter 12, Articles IV and VI; and Chapter 19, Article IV of the Tempe City Code. Copies of these ordinances can be found in Attachment B. Over the course of the Permit term, Tempe will review and amend the Code where necessary.

Tempe does not have the authority to enforce the provisions of Arizona's General Permit for Stormwater Discharges Associated with Industrial Activities, Arizona's General Permit for Stormwater Discharges Associated with Construction Activity, or Arizona's De Minimis General Permit. The AZPDES permit program is administered by ADEQ. However, local stormwater and grading and drainage ordinances may address items similar to those identified in these statewide permits.

3.3.2 Enforcement

Tempe created an Enforcement Response Plan (ERP) that addresses violations and suspected violations of the City's Storm Water Pollution Control ordinances, Chapter 12, Articles IV and VI, Tempe City Code. The ERP was adopted by City Council and was approved by ADEQ on December 28, 2012. Tempe follows the ERP when initiating enforcement of the stormwater ordinance. Section VI is specific to stormwater enforcement response. Municipal stormwater enforcement activities are initiated by Tempe's Environmental Services Section. General construction/post-construction violations that don't have potential to result in an illicit discharge into the MS4 are enforced by Tempe's Engineering and Development Services Divisions.

The city maintains records of enforcement activities including:

- Inspection reports and narratives
- Copies of communications with the parties in violation of city code
- Documentation of follow-up actions
- Responses received from violators

4.0 PUBLIC EDUCATION AND OUTREACH

4.1 INTRODUCTION

Public education and outreach is an important element of Tempe's stormwater program. Increasing public awareness of stormwater pollution concerns and prevention ultimately serves to reduce the contribution of pollutants in stormwater runoff. Tempe will continue to operate a city-wide public education and outreach program and, where feasible, continue efforts regionally through involvement with organizations such as Stormwater Outreach for Regional Municipalities (STORM) as long as such organizations continue to provide value to the City.

4.2 MS4 PERMIT REQUIREMENTS

The city's MS4 Permit identifies target audiences and topics for the public education & outreach component of the SWMP. These requirements are divided into two distinct categories: public and business sector.

4.2.1 Business Sector

Tempe will provide business sector education/outreach to at least one (1) target group on one (1) or more appropriate topic(s) listed in Table 2 during each year of the Permit. The annual report will summarize the outreach approach selected for each event, the topic, the target group, and an estimated number of participants reached.

Table 2: Business Sector Education and Outreach Requirements

Target Group	Topics
Development Community Construction Site Operators Targeted sources or Types of Businesses (industrial or commercial) Restaurants Downtown Tempe Vendors/Businesses	• Planning ordinances and grading and drainage design standards for stormwater management in new developments and significant redevelopments • Municipal stormwater requirements and stormwater management practices for construction sites • Illicit discharges and proper management of non-stormwater discharges • Spill prevention, proper handling of toxic and hazardous materials, and measures to contain and minimize discharges to the storm sewer system • Proper management and disposal of used oil and other toxic materials, including practices to minimize exposure of materials/wastes to rainfall and minimize contamination of stormwater runoff • Stormwater management practices, pollution prevention plans, and facility maintenance procedures • Fats, oils, and grease disposal • Automotive repair • Exterior building wash • Cooling towers

4.2.2 Public

Tempe will provide public education/outreach to at least one (1) target group on one (1) or more of the topics listed in Table 3 during each year of the Permit. The annual report will summarize the outreach approach selected for each event, the topic, the target group, and an estimated number of participants reached.

Table 3: General Public Education and Outreach Requirements

Target Group	Topics
General Public Residential Community Home Owners/ Home Owner Associations Schools Downtown Tempe Visitors Tempe Town Lake Visitors	• Post-construction ordinances and long-term maintenance requirements for permanent stormwater controls • Stormwater runoff issues and residential stormwater management practices • Potential water quality impacts of application of pesticides, herbicides, and fertilizer, and control measures to minimize runoff of pollutants in stormwater and any applicable permitting requirements • Potential impacts of animal waste on water quality and the need to clean up and properly dispose pet waste to minimize runoff of pollutants in stormwater • Illicit discharges and illegal dumping, proper management of non-stormwater discharges, and information on reporting spills, dumping, and illicit discharges • Spill prevention, proper handling and disposal of toxic and hazardous materials, and measures to contain and minimize discharges to the storm sewer system • Installation of catch basin markers or stenciling of storm sewer inlets to minimize illicit discharges and illegal dumping to the storm sewer system • Proper management and disposal of used oil • Proper maintenance of pools and spas • Proper disposal of medication • Good home repair practices • Residential/general public auto repair • Residential/general public fats, oils and grease disposal practices

4.3 IMPLEMENTATION

The city will continue to implement existing program elements and further expand the scope of stormwater-related public education and outreach activities to meet target group and topic requirements. Mechanisms used to disseminate education and outreach messages will include, but are not limited to, the following:

- Commercial and Industrial electronic "Environmental Bulletins"
- Tempe water and wastewater customer newsletters

- Social media
- Public events
- News releases
- City websites
- City of Tempe facilities

Tempe will also to continue the development and distribution of BMP brochures and other handouts used to convey stormwater educational messages.

5.0 PUBLIC INVOLVEMENT

5.1 INTRODUCTION

The Permit requires Tempe to engage the public to help spread the message on preventing stormwater pollution, to undertake group activities that highlight storm drain pollution, and contribute volunteer community actions to restore and protect local water resources.

5.2 MS4 PERMIT REQUIREMENTS

Tempe is required to implement at least one (1) of the following requirements during each year of the Permit to provide fundamental support to the city's SWMP. Under each requirement is a description of public involvement activities designed to meet the applicable Permit condition. Appropriate documentation of activities will be provided in the annual report.

Requirement: *Provide the opportunity to involve the public in the city's stormwater management program and encourage public participation in monitoring and reporting spills, discharges, or dumping within their communities (such as facilitation of neighborhood watch groups) once per year.*

Activities: Tempe continues to provide the public with the opportunity to participate actively in the city's stormwater program by providing avenues for the reporting of spills, discharges, or dumping within the community. In this capacity, Tempe continues to operate its stormwater hotline and web-reporting form for public reporting of illegal discharges to the city's storm drain system. Means of reporting are as follows:

- 480-350-2811 Stormwater Hotline
- 480-350-4311 Tempe 311 - One Call to City Hall
- http://www.tempe.gov/city-hall/community-relations/tempe-311/environmental-issues

In addition, Tempe regularly disseminates the general Environmental Services Section phone number and stormwater webpage for purposes of allowing public discussion of stormwater issues and providing copies of stormwater material and the most current SWMP. The general contact number and program information location are as follows.

- 480-350-2678
- http://www.tempe.gov/stormwater/

Participation is also encouraged during outreach events and public awareness activities, and contact information is provided with all outreach materials.

Requirement: *Provide the public with education on SWMP implementation and the opportunity to give feedback during bi-annual open meeting events. Involve the public with ordinance*

development and adoption. These events shall begin after ADEQ has approved the SWMP.

Activities: At least bi-annually, Tempe will incorporate "open meeting events" into community activities or other public events. These open forums will be used for public education, input, and feedback on the city's stormwater management program.

Tempe will continue to allow for public comment and participation with any ordinance related modifications.

Requirement: *Provide the public the opportunity to participate in the city's stormwater management program, such as voluntary litter control activities (e.g., facilitation of Adopt-A-Park, Tempe Town Lake clean-up, or Adopt-A-Street litter control activities) or voluntary erosion control projects. Maintain and support program as a regular ongoing activity.*

Activities: In 2011, Tempe began using volunteer programs such as Adopt-A-Park and Adopt-A-Street as a component of the public involvement and participation portion of the city's stormwater program. The addition of programs such as these has allowed for a more detailed and accurate assessment of proactive pollutant prevention and elimination activities, and allows the public and community service workers an opportunity to help Tempe remove trash and debris that could otherwise end up in the MS4 system and/or subsequently a water of the U.S. Information on Tempe's Adopt-A-Park, Adopt-A-Street, Adopt-A-Path, and Adopt-An-Alley can be found at:

- http://www.tempe.gov/city-hall/public-works/adopt-a-

In addition to these programs, Tempe will continue to maintain "doggy bag" dispensers at various Tempe parks. This activity specifically involves the public in the reduction of pet waste that has a potential to reach the MS4.

Requirement: *Provide the public with a household hazardous waste program to facilitate proper disposal of used oil, antifreeze, pesticides, herbicides, paints, and other hazardous and toxic materials by city residents (such as scheduled household hazardous waste collection events or operation of full-time disposal facilities) a minimum of two (2) times per year for the first two (2) years of the permit, six (6) times per year for years three (3) and four (4) of the permit, and eight (8) times per year thereafter.*

Activities: Tempe continues to operate its Household Products Collection Center (HPCC), which opened in 1999. The HPCC provides Tempe residents with an outlet for disposing of and recycling potentially hazardous household products. Materials commonly collected include batteries, used motor oil, paint, antifreeze, pesticides, herbicides, and solvents. Materials are either recycled or disposed of in accordance with local, state, and federal regulations. Usable materials, such as paint, are processed, packaged, and made

available to Tempe residents free of charge. Information on the HPCC and the proper handling and disposal of household waste, is available at www.tempe.gov/householdproducts or http://www.tempe.gov/city-hall/public-works/household-products-collection-center-hpcc-

6.0 ILLICIT DISCHARGE DETECTION AND ELIMINATION

6.1 MUNICIPAL EMPLOYEE TRAINING

Please see Section 11 for employee training information.

6.2 SPILL PREVENTION AND RESPONSE

Several Permit sections require various plans, documents or procedures ensuring the proper handling, storage and disposal of chemicals and response to chemical spills. Tempe's efforts in this area involve multiple city sections, all of which serve an important role related to the protection of human life and the environment. Below is a summary of activities performed by the various city sections.

Environmental Services

Tempe's Environmental Services Section is responsible for industrial, commercial, and initial municipal facility stormwater inspections required by the Permit. In part, the purpose of these inspections is to ensure proper housekeeping and the implementation of stormwater BMPs pertaining to spill prevention. During these inspections, facility chemical storage practices are reviewed from an environmental protection perspective. All inspected facilities are advised of chemical handling BMPs. Municipal facilities at which any single container exceeding five (5) gallons of a hazardous material is stored are required to post or maintain documentation of practices and procedures designed to prevent and respond to spills that may come into contact with stormwater. Industrial and commercial facilities are required to demonstrate appropriate MS4 protection.

Tempe's Environmental Services Section is also responsible for city-wide MS4 stormwater training and city-wide education and outreach. Much of this training and community education/outreach includes the topics of proper chemical handling, spill prevention, storage, disposal, and spill response practices.

Household Products Collection Center

The HPCC provides various levels of support for chemical handling, storage, disposal, and spill response practices. In large part, the HPCC is a city-wide liaison for the acquisition of necessary spill prevention and response equipment and Tempe's in-house mechanism for the disposal of chemical wastes. The HPCC also maintains and implements Tempe's Hazardous Waste Management Plan (HWMP).

Risk Management

Risk Management provides support, guidance and training in areas related to chemical handling, storage and spill response. All city-wide safety programs are managed by this section and include the City of Tempe Hazard Communication Program, which was developed to inform employees of their "Right-To-Know" about all physical and health hazards associated with handling materials that contain hazardous ingredients.

Fire Department

The Tempe Fire Department provides emergency response services for incidents involving hazardous materials. Stormwater protection is a critical part of emergency response procedures and is included as part of the city's emergency response training. The Tempe Fire Department's Hazardous Materials Policy addresses containment of hazardous materials as a critical component of spill response procedures.

City-wide

In the event a spill occurs, regardless of origin, cause, location, etc., Tempe can utilize contracted environmental response professionals for responses for which the city is not equipped.

6.3 MAJOR OUTFALLS

6.3.1 Outfall Inventory

Tempe has identified 42 major outfalls as defined by 40 CFR 122.26. A list identifying the outfall name, size, location (latitude/longitude), receiving water and priority status can be found in Attachment C. A map of all Tempe outfalls can be found in Attachment H. The number of major outfalls is subject to change based on system changes or the identification of previously unidentified outfalls.

6.3.2 Inspection Priority and Schedule

Of these 42 major outfalls, 19 are identified as priority outfalls. Priority outfalls are determined using the following criteria:

- All outfalls that discharge to an impaired or an outstanding Arizona water (OAW) or other perennial water
- All outfalls that have been a source of illicit discharge in the past five (5) years (unless the source has been eliminated or has been shown not to be a significant source of pollutants)
- All outfalls identified as priority by the city for illicit discharges or other non-stormwater flows

The number of priority outfalls is subject to change based upon changes in receiving water designation, detection of illicit discharges that have not been eliminated or shown to be a significant source of pollutants, elimination of illicit discharges or confirmation that non-stormwater flows do not contain a significant source of pollutants, or other factors.

All major outfalls are inspected annually. If prohibited discharges are identified, more frequent quarterly inspections may be implemented.

6.3.3 Field Screening Procedures

Outfall inspections are conducted utilizing standard field screening procedures and are typically completed when rainfall, temperature and moisture are lowest, but may be conducted at any time in dry weather conditions.

For each outfall or field screening point, the following information is recorded on an individual screening log:

General Information

1. General Information:
    a. Date and Time of Inspection
    b. Name of Inspector
    c. Outfall Location/Description
        i. Outfall ID and description (MH, channel, outfall, etc.)
        ii. Location description if not an outfall (GPS Coordinates)
        iii. Diameter
    d. Time since last measurable rain event and approximate amount (> or < 72 Hours)
    e. Watershed Use (industrial, commercial, residential, etc.)
2. Estimated Flow Rate (if flow exists)
3. If flow does not exist, then complete as many visual and olfactory observations as allowable.
4. If flow exists,
    a. Conduct all visual and olfactory observations
    b. Conduct all Field Analysis
    c. Determine if flow is illicit or a significant source of pollutants.
        i. If illicit or a significant source of pollutants, complete form and initiate investigation form.
        ii. If not illicit or a significant source of pollutants, document finding (i.e. tail water, TTL bypass, de-chlorinated pool discharge, etc.)
5. Complete form and determine if follow-up or increased inspections are necessary (Quarterly or semi-annually).

Physical/Chemical Observations

If screening is needed based upon General Information findings, the parameters in Table 4 will be observed or field tested and documented.

Table 4: Field Screening

Parameter/ Analyte	Method*	Trigger*
Color	Visual	"Off-Color"
Odor	Olfactory	Chemical, gas, sulfur, etc.
Clarity	Visual or Field	Highly Turbid
Floatables/Oil	Visual	Presence of solid or liquid floatables or sheen
Stains/Deposits	Visual	Presence
Biological Growth	Visual	Excessive growth, death, etc.
Temperature	Field	Hot or cold compared to ambient
pH	Field	< 6.5 or >9 S.U.
Total Chlorine	Field	>0.02 ppm, >4 ppm, depending on SWQS
Copper	Field	Presence
Phenol	Field	Presence
Detergents	Field	Presence

*Methods and Triggers are detailed in Tempe program guidance documents.

Any flow for which the discharge is unknown or an analytical trigger is reached will be screened again for verification.

If upon the second screening the flow remains or the analytical trigger is still exceeded, a source identification investigation will be initiated. If upon the second screening the flow is absent and/or the analytical trigger is no longer exceeded, a screening follow-up will occur at the same location within 3 months. If the 3 month follow-up screening does not detect flow or a trigger exceedance, routine screenings at this location will resume. If the 3 month follow-up does indicate flow or an analytical trigger exceedance, a source identification investigation will be initiated.

Once inspections are completed, field data forms are provided to the next level of supervision for review. Upon review completion, all forms are scanned, entered into Tempe's document tracking system, and stored for MS4 Permit tracking and reporting.

6.3.4 Industrial Facility Inspections

Tempe inspects industrial and commercial facilities to identify potential sources of illicit discharges to the storm sewer system. These inspections may be initiated as a result of a complaint or may be part of Tempe's industrial/commercial facility inspection program. Please see Section 8 for more detailed industrial/commercial facility inspections information.

6.4 Illicit Discharge Investigations

City of Tempe Environmental Compliance Inspectors will use IDDE investigation measures when potential illicit discharge or dry weather flows are identified or reported. Such flows may be identified

during outfall inspections, field reconnaissance, industrial inspections, or when reported to the Environmental Services Section by other City of Tempe personnel, the public, or other sources.

6.4.1 Investigation Priorities

Tempe will respond to 90% of all reported potential illicit discharges and initiate investigation of these discharges within three (3) business days of detection or reporting. If the discharge is found to be illicit, corrective action, including enforcement mechanisms, will be used to eliminate illicit discharge within 60 days of identification, when feasible. Discharges found to not be a significant source of pollutants are not subject to the 60 day timeframe, but Tempe will maintain documentation of all investigations, sampling, and information used to assess "significance".

Any identified wastewater discharges, such as raw sewage or grease, will be immediately investigated and eliminated as soon as practicable.

6.4.2 Investigations

Investigations may include field screening, discharge sampling, data collection, industrial inspections, research, or stormwater infrastructure inspections. Investigations may begin with the use of field screening tools, if needed or available. For some illicit discharges for which the discharge is known (i.e., sewage, grease, oil, solids, etc.), field screening is not necessary and resources will be utilized to eliminate the discharge. All outfall illicit discharge investigations will use Field Screening Procedures as applicable. Any discharge or dry weather flow that exceeds a field screening trigger will be investigated. If field screening indicates the presence of a prohibited discharge, Tempe inspectors will physically "trace" the prohibited discharge upstream. The following protocol will be used to trace prohibited discharges to a source:

- Successive storm drain access points (catch basins, manholes) upstream of the outfall or discharge location will be inspected for flow until no flow is identified.
- Properties located along last run in which flow is identified will be inspected for illicit discharges or connections by inspectors.
- If visual inspections do not result in the detection of illicit discharges or connections in the last wet run, CCTV equipment may be utilized to locate the source(s) of the flow.
- Analytical sampling may be conducted at the outfall or in the storm drain to help assess the source by identifying specific pollutants. See Section 6.4.3.

Information gathered from these activities will be used for discharge source identification, discharge characterization, and corrective action, if necessary.

6.4.3 Monitoring

If the source of an illicit discharge cannot be identified through physical investigations and field screening, grab samples will be collected at the outfall or field location where the potential prohibited discharge occurred and analyzed at a state certified lab for any appropriate combination of the pollutants listed in Table 5.

Table 5: IDDE Monitoring

Parameters	
Biological Oxygen Demand (BOD)	Iron
Chemical Oxygen Demand (COD)	Lead
Total Suspended Solids (TSS)	Magnesium
Arsenic	Mercury
Aluminum	Nitrate+Nitrite N
Ammonia	Phosphorous
Cadmium	Selenium
Copper	Silver
Cyanide	Zinc

If additional analytical information is needed, further sampling will be conducted. The results of this analytical monitoring will be used to help narrow investigative leads.

6.4.4 Identification and Elimination

Tempe Inspectors will use the collected information to help identify and eliminate illicit discharges. Once the flow and source is identified, Tempe will take necessary corrective action consistent with City of Tempe Ordinance.

6.4.5 Tracking and Reporting

Non-stormwater discharges identified by field personnel are recorded in a "callout" database. After inspections are completed, findings and any actions initiated are indicated in the appropriate database fields. This information is provided in the Annual Report.

6.5 Illicit Discharge Elimination

Tempe has adopted ordinances prohibiting and eliminating illicit discharges and has established programs to enforce them. Tempe maintains this authority in Chapter 12, Articles IV and VI; and Chapter 19, Article IV of the Tempe City Code. Copies of these ordinances can be found in Attachment B. Through enforcement of City code and implementation of this SWMP, Tempe is able to prevent and eliminate illicit discharges to the MS4.

6.5.1 Ordinance

Tempe's stormwater ordinance prohibits non-stormwater discharge to the public storm drain system. This prohibition does not apply to discharges authorized by ADEQ or EPA or discharges that are not anticipated to be a significant source of pollutants. Any discharge that could result in or contribute to a violation of Tempe's Phase I MS4 Permit is also prohibited. Tempe's ordinance also allows for enforcement of code violations and any preventative or mitigation measures that may be needed.

6.5.2 Non-Stormwater Discharge Evaluation

The following non-stormwater discharges are not addressed by the IDDE Program in accordance with 40 CFR 122.26(d)(2)(iv)(B)(1) and Tempe City Code, Section 12-125(c)(3), provided they are not significant sources of pollutants to waters of the United States:

- Water line flushing and other discharges from drinking water sources
- Lawn watering
- Irrigation water
- Diverted stream flow
- Rising groundwater
- Uncontaminated groundwater infiltration
- Uncontaminated pumped groundwater
- Foundation and footing drains
- Water from crawl space pumps
- Air conditioning condensation and evaporative cooler run-off
- Natural springs
- Individual residential car washing
- Flows from riparian habitats and wetlands, as those areas are designated under applicable federal and state laws
- De-chlorinated swimming pool discharges

These, and other discharges, are managed as a result of notification from the public or Tempe employees, inspections, and/or investigations. If a discharge must be eliminated, Tempe inspectors will initiate enforcement action.

6.5.3 Non-Stormwater Discharge Records

See Section 6.4.5.

6.6 Compliance Activities and Enforcement

Tempe created a stormwater specific Enforcement Response Plan (ERP), that was approved by City Council and became effective December 28, 2012. All formal stormwater enforcement activities are conducted by Tempe's Environmental Compliance Inspectors. General construction/post-construction violations (i.e. stormwater control measures) are enforced by Tempe's Engineering and Community Development Divisions. The Enforcement Response Plan is available on line at http://www.tempe.gov/home/showdocument?id=2932

The City's Enforcement Response to any Violation of Chapter 12, Article VI, may include, but is not limited to, the following:

- Contact by Environmental Compliance Inspector
- Provide educational material of BMP and Code requirements and/or prohibitions

- Written warning letter advising the person of the specific code violation(s)
- Written order to immediately remove pollutant from MS4 and to restore to original condition
- Written order to implement or correct BMP activities
- Issuance of Notice of Violation
- Issuance of Administrative Order, which may include:
    - Affirmative obligations; i.e., increased sweeping or track out pad maintenance
    - Prohibited actions or obligations to cease and desist
    - Other appropriate orders
- Administrative Fines
- Emergency suspension or permanent termination of water and wastewater service
- Hearing to show cause
- Publication of significant violators and imposition of fines

Judicial enforcement action, including injunctive relief and criminal prosecution

Enforcement of Violations of Chapter 12, Article VI, from domestic sources shall be limited to items 1 through 5 unless the Public Works Director determines that special circumstances warrant additional enforcement measures.

Compliance activities and enforcement actions will be summarized in the Annual Report.

7.0 MUNICIPAL FACILITY POLLUTION PREVENTION, GOOD HOUSEKEEPING PRACTICES AND ACTIVITIES

7.1 MUNICIPAL EMPLOYEE TRAINING

Please see Section 11 for employee training information.

7.2 MUNICIPAL FACILITY STORMWATER INSPECTION PROGRAM

Tempe has implemented a Municipal Stormwater Inspection Program for facilities that that are owned and/or operated by Tempe. Once fully evaluated, facilities will be ranked by potential to discharge pollutants in stormwater and inspected based upon the Permit driven criteria. Initial facility assessments will be conducted by the Tempe Environmental Services Section and subsequent inspections will be conducted by facility managers or designees.

7.2.1 Inventory

Tempe has identified and inventoried 148 facilities. A list of currently inventoried facilities can be found in Attachment D and a map of general facility location can be found in Attachment H (map available upon request by ADEQ). This inventory is subject to change based upon internal annual reviews.

Tempe has developed an inventory of all city facilities that are subject to inspection under the Permit. This information was obtained from internal municipal sources and the list will be reviewed and updated annually. Types of facilities inventoried include, but are not limited to:

- City parks, golf courses, and other recreational facilities (where landscape maintenance; herbicide, pesticide, and fertilizer application; and waste management are implemented)
- Public swimming pools (pool maintenance/repair and chemical storage)
- Water treatment plants
- Fire stations and other city fleet maintenance facilities (vehicle washing and maintenance, chemical handling, waste storage)
- POTWs and sludge handling areas
- Material and waste storage and processing facilities, including oil collection facilities

7.2.2 Prioritization

Based upon initial inspections, Tempe will prioritize inventoried municipal facilities based upon on-site risk factors and Permit-required criterion. Based upon these factors, each facility will be given a priority ranking and corresponding inspection schedule. Table 6 summarizes these priorities.

Table 6: Facility Ranking Criteria

Municipal Stormwater Inspection Program Priorities	
Priority #1:	To be inspected biennially
• **Potential to discharge a substantial pollutant load to the MS4 or waters of the U.S.** • **High potential for spills** • Chemical storage in single containers over 5 gallons • Fueling Stations • Outside handing or storage of chemicals or hazardous waste and has potential for exposure to stormwater • High potential for sediment discharges (non-hazardous) • High potential for discharges related to site-specific activities (e.g.. equipment usage/storage, housekeeping practices, stock pile/bulk material management, etc.)	
Priority #2:	To be inspected every three (3) years
• **Minimal potential to discharge a substantial pollutant load to the MS4 or waters of the U.S.** • **Low potential for spills** • Chemical storage in single containers over 5 gallons • Outside handling or storage of chemicals or hazardous waste that has minimal potential for exposure to stormwater • Low potential for sediment discharges (non-hazardous) • Low potential for discharges related to site-specific activities.	
Priority#3:	To be inspected every five (5) years
• **Minimal or no potential for stormwater to discharge a substantial pollutant load to the MS4 or water of the U.S.** • Minimal or no chemical storage • Minimal to no outside handling or storage of chemicals • No hazardous waste on site • Minimal or no potential for sediment discharges (non-hazardous) • Minimal or no potential for discharges related to site-specific activities.	

For purposes of this inspections program, a "City of Tempe Facility Chemical Handling and Spill Procedures" document has been developed to outline practices and procedures designed to prevent and respond to spills that may come into contact with stormwater. This document is a single page, easy to read, and designed to be posted at any municipal facility that handles, stores, or otherwise uses hazardous material where any single container exceeds five (5) gallons. Note that any facility that falls within this chemical handling description automatically requires inspection at least every three years regardless of other factors. In addition to chemical storage, Tempe will evaluate potential sediment discharge, storage practices, site activities, and general housekeeping. Any facility that maintains separate MSGP or other AZPDES coverage must meet the most stringent chemical handling and storage requirements. A list of all Tempe facilities that are subject to MSGP or SARA Title III requirements can be found in Attachment E.

7.2.3 Process

Initial municipal facility inspection will be conducted by Tempe's Environmental Services Section and subsequent inspections will be conducted by facility managers or their designee. All inspections will be documented using inspection forms. All Municipal facilities will be inspected, prioritized, and placed on an inspection schedule.

During initial facility inspections, employees at the inspected facilities will receive brief "stormwater awareness" reminders. These reminders are not formal, are separate from Permit-required municipal employee training, and are designed to provide general awareness of the Permit to those that do not require formal training.

Facility inspections requiring follow-up action or facility improvements must be satisfactorily addressed within three (3) months of inspection date. The information gathered on the inspection forms and follow-up corrective correspondence will be used to prioritize or re-prioritize facilities for future inspections.

All inspection reports and summarized inspection and follow-up activities will be reported to ADEQ in the Annual Report.

7.3 Hazardous Waste Material Handling

Any facility that handles, stores, transports, disposes of, or generates hazardous waste must maintain a copy and follow procedures outlined in Tempe's HWMP. This plan is managed by Tempe's Environmental Safety and Compliance Section and is reviewed and revised, if necessary, at least every two years. At least one reviewing member includes an Environmental Services Section member that is knowledgeable in stormwater regulations and may provide recommendations that include practices to minimize hazardous material exposure to precipitation.

In addition to the HWMP, Tempe has implemented a Hazardous Waste Minimization Plan. As a generator of hazardous waste, the City of Tempe requires employees to implement waste minimization practices. Waste Minimization effectively reduces the amount of hazardous material that permanently leaves the process or operation areas as waste. Minimization of hazardous wastes results in a reduced need for disposal, a lessened risk to the community and environment from hazardous waste releases, and conservation of natural resources.

7.4 Pesticides, Herbicides, and Fertilizers

Tempe continues to reduce the amount of pesticides and herbicides used by employing integrated pest management practices. However, when pesticide use is needed, established pesticide application best management practices are utilized.

To minimize pesticides in stormwater runoff, the following best management practices (BMPs), for pesticide and herbicide applications by city staff are followed. These guidelines involve employing natural and physical controls and, when possible, using the least toxic chemicals.

- Apply pesticides that are Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) approved for aquatic application in any area within or adjacent to waters of the U.S., including ephemeral washes.
- If application directly to water bodies or to banks of water bodies requires permit coverage, appropriate coverage will be obtained.
- Applicators must be certified in the appropriate license category with the Arizona Office of Pest Management or be employees under the direct supervision of a certified employee.
- The chemical storage areas, designated pest control vehicles, pest control logs, MSDSs, sample labels, and PPE are to be kept in accordance with Arizona Office of Pest Management regulations.
- Application/disposal/spill cleanup procedures adhere to label and MSDS instructions.
- When possible, integrated pest management (IPM) practices should be considered, using minimal or no pesticides and alternative natural approaches to remove unwanted pests.
- Pesticides should only be used when needed.
- Spot treatment should be used when possible, using the minimal effective amount of the least toxic chemicals.
- Equipment should be calibrated and maintained to prevent over application.
- Minimize off target effect: 1) avoid application during winds greater than 5 mph to prevent drift, 2) power sprayers should be used in a manner to prevent drift and application of chemical to areas that don't require treatment, 3) avoid application when rain is expected to prevent runoff.
- Annually review procedures to ensure BMPs are being followed.

7.5 INFRASTRUCTURE INSPECTION AND MAINTENANCE

Tempe manages several proactive program activities designed to minimize the discharge of pollutants from Tempe owned and operated infrastructure. These activities involve the routine inspection, cleaning, and maintenance of stormwater infrastructure and involve several city workgroups: Environmental Services, Parks, Streets, Water Engineering, and Utility Services. Each section maintains responsibilities for various aspects of stormwater infrastructure inspection and cleaning/maintenance. For purposes of this program, infrastructure includes all aspects of the MS4 such as catch basins, drywells, bubbler boxes, inlet structures, outfalls, streets, conveyance pipes, retention basins, etc. Outfall inspections are covered separately in Section 6.3 and Municipal Facilities Inspections are covered in Section 7.2.

The sections below outline defined areas of the MS4 drainage system that are a priority for inspection and are based upon system history, location within the city (e.g., downtown), public input, workgroup specialties, etc. Each city section that conducts activities is required to routinely enter program activities into Tempe's compliance tracking data-base for evaluation of program status. This information is reviewed by Tempe's Regulatory Compliance Group and provided to ADEQ in the Annual Report.

Tempe developed a control measure field manual in July 2012 and implements these practices.. This manual contains standard control measures and procedures for street-related repairs and improvements in a manner that protects stormwater and conveyance structures.

7.5.1 Downtown/ARCA

Within portions of the Alternative Retention Criteria Area (ARCA - defined in Section 10.3), Tempe will continue to implement an aggressive catch basin inspection and cleaning program. The primary focus of this inspection and cleaning program will be the downtown Tempe area that experiences large volumes visitors and frequent large downtown events such as 4th of July and New Year Eve festivities. Since 2003, Tempe has been inspecting catch basins in this area after a number of large downtown events and has determined that such inspections have been a highly effective means of identifying and removing potential pollutants from Tempe's stormwater infrastructure.

Environmental Compliance Inspectors will continue to conduct catch basin inspections and cleaning after at least two (2) large downtown events annually. All inspections and cleaning events are documented and reported to ADEQ annually.

7.5.2 Retention, Common, Recreation, and Open Areas

Tempe provides routine maintenance of various parks, retention areas, common areas, open areas, and recreational areas throughout the city. Since many of these areas maintain critical components of Tempe's stormwater infrastructure, the Parks Maintenance section has implemented an inspection program that will result in the inspection of at least 200 stormwater infrastructure components annually. All inspections and cleaning events are documented and reported to ADEQ annually.

7.5.3 Streets

Tempe's Street Maintenance section is tasked with the maintenance and cleaning/sweeping of Tempe streets and various other MS4 components. In this capacity, the Streets program includes street sweeping and routine infrastructure inspections. To reduce the amount of debris entering the MS4, Tempe continues to implement an effective street sweeping program. Based upon historic sweeping activities, the following schedule provides significant debris removal at an operationally feasible frequency. (Adherence to this schedule varies occasionally due to unforeseen events that require staff and/or equipment reprioritization.)

- Arterial streets are swept once every two weeks.
- Residential, Collector, and Industrial streets are swept once every month.
- City-owned parking lots and large city facilities vary upon condition.
- Upon request (e.g., water main breaks, emergency road repairs, track out, special events, etc.)

The approximate number of linear miles, based upon above-described frequencies, and approximate amount of debris removed will be reported to ADEQ annually.

Streets Maintenance also conducts visual inspections of 80 catch basins, and other similar infrastructure per year. . All visual inspections and subsequent cleaning events are documented and reported to ADEQ annually.

In addition to the inspections and cleaning outlined above, two additional street programs are used to conduct cursory infrastructure inspections. Structures located on arterial roadways are inspected as part of the city's right-of-way weed control program and structures located on streets other than arterials are inspected as part of the city's street sweeping program. These inspections are not specifically documented unless further detailed component inspection or cleaning is deemed necessary.

7.5.4 CCTV

Tempe operates one sanitary sewer CCTV crew. As a component of the MS4 program, this crew is available to conduct underground infrastructure inspections for Streets, Parks, or Water Utilities work groups. When available, this crew also conducts MS4 CCTV inspections. As a component of the stormwater program, the CCTV crew will inspect at least 8,000 feet of underground MS4 conveyance annually. Inspection records will be reported to ADEQ annually.

7.5.5 Other

Tempe's Water Utilities Division, Utility Services Section, is responsible for the operation and maintenance of Tempe's water and wastewater infrastructure. On occasion, this section is also requested to perform unique stormwater-related cleaning or maintenance activities. Any MS4 cleaning or maintenance activity conducted by this section will be provided to ADEQ annually.

7.6 MS4 MAPPING

Upon completion or modification, Tempe will maintain maps of the MS4 system showing the following items (completed and/or recently modified maps can be found in Attachment H):

- Linear Drainage Structures: Line layer showing the location of all stormwater system pipes and the direction of stormwater flow.
- Storm Drain Inlets and Catch Basins: Point layer showing the locations of all storm drain inlets and catch basins.
- Outfalls: Point layer showing the location of all major outfalls (pipes or culverts); polygon layer showing the drainage area associated with each of the monitored outfalls identified in Table 1 of the Permit.
- Detention/Retention Basins: Point or polygon layer showing the locations of all identified city-owned retention and detention basins that are connected to the municipal stormwater conveyance system (i.e., that receive drainage from or discharge to a stormwater conveyance).
- Jurisdictional MS4 Boundary: Line or polygon layer showing the jurisdictional boundaries of the MS4, including any new land annexations during the Permit term.

8.0 INDUSTRIAL AND COMMERCIAL FACILITIES

8.1 MUNICIPAL EMPLOYEE TRAINING

Please see Section 11 for employee training information.

8.2 INVENTORY

Tempe has developed an inventory of all industrial and commercial facilities within the city that are subject to inspection under Tempe's MS4 Permit. This inventory was developed using the following Permit-required criteria:

- Industrial facilities identified in 40 CFR 122.26(d)(2)(iv)(C)
- Industrial facilities subject to MSGP requirements, including those facilities that have submitted a no exposure certification
- Other industrial and/or commercial sources (or categories of sources) Tempe determines are contributing a significant pollutant load to the MS4

The inventory for SARA Title III and MSGP Facilities was developed by acquiring information from these types of sources:

- Arizona State Emergency Response Commission – (Tempe facilities subject to SARA Title III)
- InfoGroup, Government Division – Reference USAGov Data Base [Tempe facilities subject to MSGP as identified in 40 CFR 122.26(b)(14)(i, ii, iv-ix, xi)]

An inventory of these facilities can be found in Attachment F.

Other sources used to identify industrial and/or commercial sources (or categories of sources) Tempe determines are contributing a substantial pollutant loading to the MS4 are:

- Utility Billing Records
- Building Permit Records
- Tax and License Records (name, address, NIACS code(s))
- Multi-media inspections conducted by Environmental Compliance Inspectors
- Industrial or commercial facilities subject to Tempe's Pretreatment Program

The inventory of SARA Title III and MSGP facilities is duplicative in some respects and is inclusive of facilities within Tempe that are subject to industrial pretreatment permitting requirements. In addition to the above-listed facilities, Tempe has added restaurants as a "category of sources" with a potential to impact the MS4.

The industrial commercial inventory is maintained electronically and is modified regularly by Environmental Services staff based upon stormwater inspection information. Tempe continues to identify facilities that are subject to industrial pretreatment requirements as higher risk facilities due to

the nature of such operations. For this reason, industrial pretreatment facilities are prioritized for annual stormwater inspections.

8.3 AZPDES Non-Filers

Tempe's Permit requires the city to provide a potential non-filer notification for industrial and commercial activities that are believed by the city to be occurring without ADEQ's required Notice of Intent to Discharge (NOI) authorization for permit coverage under the Multi-Sector General Permit (MSGP), the Construction General Permit (CGP), or other general or individual NPDES Permit for stormwater discharges associated with industrial activity. During industrial and commercial inspections, Tempe inspectors use SIC codes with industrial/commercial activities and try to determine potential MSGP applicability. Note that Tempe does not inspect for compliance with MSGP authorizations or requirements. If a facility may be eligible for coverage under the MSGP, but Tempe does not have evidence that coverage or a NEC has been obtained, Tempe will flag this inspection and document facility information for reporting to ADEQ. At least every six months, Tempe will provide the following potential non-filer information to ADEQ:

- Business name and address
- Business SIC code
- Business contact number and name

8.4 Prioritization and Inspection

8.4.1 Prioritization

Tempe will conduct a minimum of 120 industrial or commercial facility inspections annually. This number will include re-inspections of facilities as deemed necessary by the inspections group. All inspections will be documented and reported to ADEQ in the Annual Report. Inspections will be prioritized as outlined in Table 7.

Table 7: Industrial and Commercial Facility Ranking Criteria

Industrial and Commercial Stormwater Inspection Program Priorities
Priority #1
• Facilities subject to Tempe's Pretreatment Program • Facilities that may conduct activities that cause or contribute to SWQS exceedances • Public complaints
Priority #2
• Industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) • Industrial facilities that are subject to ADEQ's MSGP
Priority#3
• Other facilities deemed to be a potential source of pollutants to the MS4 (e.g., restaurants)

To allow for inspection flexibility and the need to address impending stormwater quality issues related to industrial or commercial discharges, inspections may not always be conducted as outlined in this prioritization schedule. Note that all facilities identified in the ranking criteria above are considered higher risk facilities.

8.4.2 Inspections

Tempe's inspection program is designed to identify and eliminate potential discharges of pollutants to Tempe's MS4, ensure compliance with the city's stormwater ordinance; and, consistent with Permit requirements, identify facilities that may be subject to ADEQ's industrial stormwater permit (MSGP). Procedures to accomplish this requirement are as follows:

- Inspectors will determine if the facility is conducting activities identified in 40 CFR 122.26(b)(14).
- If the facility is conducting such activities, inspectors will obtain the following information as appropriate:
    - NOI submittal date
    - NEC submittal date
    - NEC certification date
    - MSGP Authorization Number
    - Any relevant compliance information from ADEQ
- If the facility is not subject to these state regulations or has the appropriate coverage, non-filer notification will not apply, though inspection documentation will be retained.
- If the facility is subject to these state regulations and does not provide evidence of the necessary coverage or no exposure certification, the facility will be advised of these potential state requirements and the city will provide ADEQ with this information biannually.

Inspection procedures vary depending on the type of facility that is being inspected. Table 8 summarizes the general topics covered during priority inspections.

Table 8: General Inspection Information

Topic	Example of Information Collected	
Initial Information for all Inspections		
General Facility Information	• Name • Address	• Contact information • SIC Code
AZPDES or SARA Title III Information	• SARA activities or MSGP activities (yes/no) • If yes, full stormwater inspection triggered and MSGP information gathered.	
Stormwater Discharge Location	• Waters of the U.S. • MS4 • Retention	• Detention • Drywell • Other
Discharge to MS4	• Signs of any discharge to the MS4 (yes/no) • Signs of non-stormwater discharges (yes/no) • If yes, full stormwater inspection triggered.	
If Stormwater Inspection is Triggered		
Chemical Storage	• Types of chemical • Haz Waste • Quantity • Location	• Containment • Potential for discharge • Exposure
Housekeeping	• Refuse containers • Cleanliness • Leakage • Storage Tanks • Containment, • Maintenance	• Storm Drainage infrastructure • Parking • External cleaning/washing
Other Activities	• Other activities that could contribute to the discharge of pollutants	
Sampling/Photo Documentation	• Analytical sample collection (if needed) • Photo documentation (if needed)	
Further Action	• Follow-up needed • Educations (BMPs)	• Enforcement Action • Other
Comments	• Any other relevant information	

Random, multi-media inspections (non-priority) are not considered high risk facility inspections and may not necessitate such detailed information. Such inspections do contain trigger information that could initiate further investigation. Inspection triggers are identified in Table 8.

8.4.3 Documentation, Review, and Reporting

Once inspections are completed, inspection forms are provided to Tempe's Environmental Compliance Supervisor for review. After this review, all forms are scanned, entered into Tempe's document tracking system, and separately provided to an Environmental Quality Specialist for MS4 Permit tracking and reporting.

8.4.4 Compliance Activities and Enforcement

Please see Sections 3.3.2 and 6.6.

9.0 CONSTRUCTION SITES

9.1 MUNICIPAL EMPLOYEE TRAINING

Please see Section 11 for employee training information.

9.2 PLANNING AND LAND DEVELOPMENT

Tempe's General Plan 2040 provides the framework for development that, in part, looks to the future to improve the quality of life for all those who live, learn, work and play within the city's boundaries. The General Plan was adopted by the City Council (December 2013) and ratified by voters (May 2014). It defines the concept and direction for sustainable stormwater management within the City of Tempe. Link to the plan http://www.tempe.gov/GP2040 (Conservation Chapter, p. 21.)

Through this process, and as required by Tempe's Permit, the city evaluated sustainable stormwater management practices, in the form of LID, its applicability, and other factors that could contribute to the reduction of pollutants in stormwater discharges from new construction, significant redevelopment, and retrofits of commercial and residential areas. The results of the evaluation were included in the 2013/2014 Annual Report.

As part of this evaluation, Tempe will convene a team of representatives from applicable Community Development, Engineering and Environmental Services sections. This team will focus on the General Plan stormwater strategies, review of existing practices, and explore the possibility for policy or procedural modifications.

Examples of current sustainable stormwater management practices are as follows:

Not precluding and allowances for:

- Use of pervious pavers in parking areas
- Use of decomposed granite (stabilized) in lieu of concrete for walking paths
- Capture and infiltration of the 100-year storm flow on the development site, and in some locations include the ½ street in front of the site.
- Landscape islands are not required to be curbed, especially where draining into storm drainage retention.

Requirements for:

- Inclusion of oil/water separator before water enters retention ponds
- Low Water Use/ drought tolerant planting
- On-site retention

Tempe reported findings, in the 2014 Annual Report, of how the implementation of sustainable stormwater management practices could contribute to the reduction of pollutants in stormwater

discharges to the MS4 and if applicable, identify a plan and schedule for incorporation into city policies or procedures.

9.3 Plan Review and Approval

Tempe's stormwater construction program is managed by the Public Works, Engineering Division for Capital Improvement Projects (CIP) and the Community Development Department, Development Services Division for private development projects. The program encompasses plan review, inventory, prioritization, inspection, and enforcement projects that will result in a land disturbance of one (1) acre or more, and those that disturb less than one (1) acre, but are part of a larger common plan of development.

For construction projects that will result in a land disturbance of one (1) acre or more, and those that disturb less than one (1) acre but are part of a larger common plan of development, the City of Tempe will:

- Review plans for all new development and significant redevelopment projects (such as grading and drainage plans). The review will verify conformance with Tempe's requirements for stormwater, erosion, and sediment control, and land use decisions prior to issuing construction approvals or authorization.
- Require a copy of the ADEQ authorization document, Notice of Intent (NOI Certificate), for construction projects to be submitted prior to issuing final construction approval or authorization.

9.4 Inventory

Tempe's Public Works Department, Engineering Division and Community Development Department, Development Services Division each maintain and update, at least annually, an inventory of their respective construction projects that will result in a land disturbance of one (1) acre or more, and those that disturb less than one (1) acre but are part of a larger common plan of development. The private development project inventory is extracted from Community Development's permit database, which is continuously updated with new projects when any project is issued a grading and drainage permit. The City of Tempe requires proof of ADEQ's AZPDES Notice of Intent to Discharge (NOI) Authorization from the Project's owner/developer prior to issuance of a grading and drainage permit.

Construction projects will be inventoried and tracked using a spreadsheet that is routinely maintained and updated. A copy of the inventory will be reported in each Annual Report. Projects will be removed from the inventory list when construction is complete and the Construction Notice of Termination (NOT) is filed with ADEQ.

9.5 Prioritization

The Engineering Division of the Public Works Department and the Development Services Division of Community Development Department inspect construction projects that are granted a permit at least once during construction or once per year if the project lasts longer than one year.

The inventory list of qualifying non-municipal construction sites will be reviewed on a quarterly basis with the inspection staff and the sites that have a higher potential to discharge to the storm sewer system will be identified. Frequency of inspection for these sites will be discussed and established during the quarterly review of the inventory.

Inspection records are maintained in the project development file and are scanned and stored electronically in Tempe's document filing system.

The inventory list of CIP construction sites will be prioritized using a predetermined rating system and reported annually.

9.6 INSPECTION

At a minimum, the following items are addressed during construction site inspections:

- For projects of one acre or more, verify that the Storm Water Pollution Protection Plan (SWPPP), the AZPDES Notice of Intent (NOI) Authorization and City of Tempe permits are on-site.
- Confirm compliance with the city's stormwater ordinance.

After notification from the contractor/developer that work is to begin, a pre-construction meeting is scheduled. It is verified by inspection staff that the contractor/developer has obtained grading and drainage permits prior to holding the pre-construction meeting. At the meeting, the contractor/developer is notified of drainage requirements, and that the SWPPP must be available at the construction site. A construction entrance location and placement of Best Management Practice devices (BMPs) are verified prior to the start of grading activities. Once installed, grading and drainage inspections can occur as part of any inspection by city inspections staff at the site. The BMP's generally include, but are not limited to:

- Track out measures
- Tire wash racks
- Silt fencing
- Straw bales
- Straw wattles

BMPs are to be installed and maintained in place during the construction period. During periods of rain, inspections may be specifically conducted for purposes of observing drainage at project sites. Other observations of BMPs are incidental to other inspections occurring at the construction site at the same time.

Qualifying construction sites will be inspected at least one time per calendar year to confirm that effective erosion and sediment controls are in place and verify conformance with Tempe's stormwater requirements and approved construction plans.

9.7 COMPLIANCE ACTIVITIES/ENFORCEMENT

If determined during a routine inspection, or an inspection in response to a complaint, that a site/project is non-compliant with the city's stormwater ordinance or with any conditions of City of Tempe permits, the Engineering Division or Development Services Division begins enforcement procedures. Upon observing a deficiency of any installed BMP, inspection staff will follow a procedure of progressive actions to assure compliance by the contractor or developer. The actions are as follows:

1. The inspector will verbally notify the superintendent of the job (owner's representative) of the observed deficiency and ask for corrective action, usually by the end of the day.
2. The inspector will issue a written notification (correction notice) stating that the verbal notification was not acted on and issuing a specific schedule for the completion of the corrective action.
3. A 2nd written notice is issued stating that all inspections by Engineering Division for CIP projects or Development Services Division staff for private development projects will cease on the project until corrections are completed and requiring a meeting between the project owner or contractor and the inspector's supervisor to discuss the breakdown in communication before inspections may resume.
4. All inspections are held on the project – no forward progress can be approved.

If deficiencies cause an illicit discharge into the MS4, the city's Environmental Services Section will be notified at which point enforcement pursuant to the city's stormwater ordinance may be initiated.

9.8 OTHER CONTROL PRACTICES

Listed below is a variety of practices, structural and non-structural, that the city may employ or recommend in order to control pollutants from construction sites.

Erosion Control:

- Existing vegetation preservation
- Rip Rap/Rock
- Erosion control blankets, geotextiles, etc.
- Permanent landscaping
- Diversion Channel/berms
- Soil binders, hydraulic mulch, etc.
- Hydro seeding

Sediment Control BMPs:

- Slope Protection (fiber rolls, slope drains)
- Sediment Capture (traps, basins, netting)
- Storm sewer inlet protection (fiber rolls, wattles, drain covers)
- Stabilized entrance/Track-out mitigation

- Velocity reduction (check dams, detention, swales, etc.)
- Perimeter protection (silt fence, berm, dikes/dams, etc.)

Materials Management BMPs:

- Spill prevention & control
- Fuel/chemicals storage
- Waste collection/litter control
- Stockpile management
- Concrete wash-out

10.0 POST-CONSTRUCTION

10.1 MUNICIPAL EMPLOYEE TRAINING

Please see Section 11 for employee training information.

10.2 REVIEW OF MASTER PLAN

Consistent with Permit requirements, Tempe conducted an evaluation of Tempe's existing Stormwater Master Plan in 2012. The findings of the evaluation and needed improvements were consolidated in August 2012 and reported in the 2012-2013 Annual Report. Work on the Tempe Area Drainage Master Study/Plan (ADMS) project being conducted by the Flood Control District of Maricopa County (FCDMC), continues as of April 2015.

The Tempe ADMS project will utilize FLO2D and SWMM modeling that will meet most of Tempe's Master Plan update needs. Once the project is completed, Tempe will utilize the product to update the city's stormwater master plan. The evaluation will focus on the reduction of pollutant discharges in stormwater and an assessment of the adequateness and effectiveness of existing control measures. Findings will include recommendations, as necessary, to improve the plan and a schedule for implementing enhancements.

10.3 POST-CONSTRUCTION CONTROLS

Tempe's most effective post-construction control remains on-site retention as implemented by Tempe's Stormwater Retention Ordinance - Chapter 12, Article IV, of the Tempe City Code. This ordinance is an effective control measure by providing containment for much of the rainfall in Tempe, and accordingly limiting discharges of pollutants to waters of the United States. Tempe's Stormwater Retention Ordinance has been in effect since 1967 and was modified in April 2004 to accommodate more dense development in and around downtown Tempe, an area designated as the Alternative Retention Criteria Area (ARCA). Outside the ARCA, all new development or substantial improvements to existing developments must provide storage of sufficient volume (on-site retention) to hold the runoff from the 100-year design storm. Inside the ARCA, new development or substantial improvements to existing developments must provide on-site retention for the two-year design storm. The two-year requirement may be waived within the ARCA subject to approval by the City of Tempe Public Works Director if equivalent best management practices for on-site pollutant removal are implemented.

Tempe will continue to implement the requirement for new facilities to install and maintain on-site retention for a 100-year, 2-hour storm event in all areas of Tempe, except Alternative Retention Criteria Areas (ARCA), areas exempted by law, or areas excluded under the technical appeals process. When possible, the city will require such exempt facilities to install stormwater control measures.

10.4 Implementation and Inspections

A post-construction inspection is conducted on 100% of all permitted CIP, residential and commercial projects that will result in a land disturbance of one (1) acre or more, and those that disturb less than one (1) acre but are part of a larger common plan of development. This post-construction inspection will generally occur shortly after construction is complete or as a part of the warranty period inspection which occurs within a year after completion of construction for CIP projects. The inspection provides an opportunity to identify corrective action to be implemented by the developer or responsible contractor for a variety of items, including permanent stormwater and/or drainage controls.

Post-construction or permanent controls may also apply to City-owned parcels. The following is a list of those most frequently used stormwater control features. Stormwater controls can utilize one feature or a combination of several features. These control features will be examined during post-construction site inspections for which an NOI is required.

- Surface retention basin
- Underground stormwater retention
- Storm Drain Pipe
- Catch Basin or Scupper
- Drywell, with or without an Interceptor Chamber
- Oil Stop Structure
- Rip rap

Tempe's Community Development Department will not issue a grading and drainage permit, building permit, or a certificate of occupancy to an owner/developer until notification, from the Deputy Community Development Director, is received indicating that a drainage plan and on-site grading and drainage improvements are in compliance with Chapter 12, Article IV, of the Tempe City Code. In addition, the Deputy Community Development Director will not issue notification unless a project provides the required retention or unless the project is in the ARCA and the Public Works Deputy Director has approved alternative on-site pollutant removal BMPs. Sections 12-71 and 12-73 of Tempe's on-site retention ordinances contain the administrative requirements that ensure implementation of this program.

10.5 Compliance Activities/Enforcement

If determined during warranty inspection that a site/project is non-compliant with the city's stormwater ordinance, the Engineering Division or Development Services Division begins enforcement procedures. Upon observing a deficiency of any installed retention areas, inspection staff will follow a procedure of progressive actions to assure compliance by the owner/ developer or contractor. The actions are as follows:

1. The inspector will issue a written notification (correction notice) for the completion of the corrective action.

2. If corrective action is not effective, the owner/ developer or contractor will be notified in writing by the City Engineer for CIP projects or by the Deputy Community Development Director for private development projects. The notice, which will be sent by certified mail, will state specifically the nature of the violation and request that it be corrected. If a violation is not corrected within thirty (30) days after notice, the City Engineer or by the Deputy Community Development Director will hand over all pertinent facts to the City Attorney with a request for prosecution under the provisions of this article.

If deficiencies have potential to cause an illicit discharge into the MS4, the city's Environmental Services Section will be notified, at which point enforcement pursuant to the city's stormwater ordinance may be initiated.

11.0 STORMWATER TRAINING PROGRAM

Tempe has developed a comprehensive stormwater training program to address Permit requirements. This training is divided into four distinct categories and is designed to disseminate applicable stormwater information to Tempe employees that hold varying stormwater program responsibilities.

The categories of training are as follows:

- General Permit Training
- Environmental Compliance Inspector Training
- Municipal Facility Training
- Construction/Post-Construction Training

Training is tracked in Tempe's electronic training tracking system and individual events are summarized in Tempe's Annual Report.

11.1 GENERAL PERMIT TRAINING

While not specifically required by Permit, Tempe has developed training designed for senior level management. Tempe's success in implementing the stormwater program is contingent on support from city management. In an effort to ensure continued support for and understanding of the program, Tempe uses various management forums to disseminate stormwater education. Topics discussed during these events include, but are not limited to, topics outlined in Table 9.

Table 9: General Permit Training

Topics	
General Permit Conditions	Legal Requirements
Organizational Requirements	Resource Allocation
Compliance Status	Program Development
Program Needs	Annual Reporting Summary

These training events occur on an as needed basis and are tracked separately from other municipal training events.

11.2 Environmental Compliance Inspector Training

Tempe Environmental Compliance Inspectors are directly involved with, and hold direct responsibilities pertaining to, many aspects of the stormwater program. Tempe provides new inspectors training within the first year of employment and provides refresher training for existing inspectors at least once every two (2) years. This training may be conducted internally or by an external vendor. Training for all inspectors includes, but is not limited to, topics outlined in Table 10.

Table 10: Environmental Compliance Inspector Training

Topics	
Legal requirements	Industrial/Commercial Inspections
IDDE*	Outfall Inspections*
Call-out procedures	Investigations
Field Screening*	Non-stormwater discharges
Municipal Facility requirements	Investigations
Enforcement	

*As of the 2013/14 reporting year Water Quality Specialists conduct outfall screening. Accordingly, Water Quality Specialists will receive training on IDDE, outfall inspections, and field screening procedures least once every two (2) years or within 12 months of hire for new employees.

These training events are tracked in Tempe's electronic training tracking system and individual events are summarized in Tempe's Annual Report.

11.3 Municipal Facility Training

Various Tempe employees with and with no direct stormwater responsibilities receive routine stormwater training. Tempe has developed a training program designed to reach selected groups of employees that could provide benefit as a result of this training. These groups include, but are not limited to, most field staff employees. Training is provided to employees in the following city sections:

- Water Utilities Services
- Parks Maintenance
- Streets Maintenance
- Solid Waste
- Facilities Maintenance
- Custodial Services

Tempe provides this training internally within the first year of employment and provides refresher training for existing employees at least once every two (2) years. These training events include, but are not limited to, topics outlined in Table 11.

Table 11: Municipal Facility Training

Topics	
Tempe City Code	Pollution Prevention
Spill Management	Chemical handling and storage
Used oil and other hazardous materials	Identifying and reporting illicit discharges
Identifying and reporting non-stormwater discharges	General field practices
General Awareness	

These training events are tracked in Tempe's electronic training tracking system and individual events are summarized in Tempe's Annual Report.

11.4 Construction/Post-Construction Training

Tempe's Engineering Division and Development Services Division provide stormwater training to their staff with stormwater responsibilities. Applicable staff is provided training within the first year of employment and refresher training for existing inspectors at least once every two (2) years. CIP and private development sections are both trained on similar topics, which include topics outlined in Table 12.

Table 12: Construction/Post Construction Training

Topics	
Erosion and Sediment Controls	Maintenance Requirements for BMPs
Municipal Ordinances Related to Stormwater and Construction	Plan Review Procedures
Grading and Drainage Design Standards	Requirements for Structural and Non-structural BMPs on Construction Sites
Inspection Procedures	Enforcement Procedures
Post-construction Stormwater Controls	Post-construction Inspection Procedures

These training events are tracked in Tempe's electronic training tracking system, and individual events are summarized in Tempe's Annual Report.

12.0 WET WEATHER MONITORING PROGRAM

12.1 OVERVIEW OF THE PROGRAM FOR WATER QUALITY MONITORING

Tempe conducts monitoring at five (5) major outfall locations as a component of the wet weather monitoring program. Fact sheets for each monitoring location can be found in Attachment G.

Tempe conducts monitoring at these locations to obtain analytical data used in part for the following purposes:

- assist with stormwater quality characterization and identify stormwater pollutants
- provide information that may be used to detect and eliminate illicit discharges
- provide elements used in the evaluation of the general effectiveness of specific control measures and the SWMP as a whole in reducing the discharge of pollutants
- estimate pollutant loads to waters of the U.S.

12.2 REPRESENTATIVE STORM EVENT

Tempe conducts wet weather monitoring for storm events of 0.1 inches (or greater) that results in an actual discharge from the monitoring locations. Since a certain level of flow is required for adequate sample collection, flow triggers for each sampling event may vary based upon sampling equipment capabilities. Discrete sampling events for each location will not be less than 72 hours since the last storm event discharge.

Each season, Tempe will record measurable storm events occurring at each sampling station until all samples required to be to be collected during the season are obtained from the outfall. Tempe will report this storm event data in the Annual Report and include the following information:

- Date of each storm event.
- Amount of rainfall (in inches) in the drainage area for each stormwater monitoring location.
- For those storm events producing 0.10 inches of rainfall or greater, indication of whether or not a stormwater sample was collected, and if not, a brief explanation on the conditions that prevented or did not require sampling (i.e., insufficient flow, seasons sample had already been collected, etc.).

Sampling of a representative event is not required during adverse climatic conditions. Adverse climatic conditions which prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, electrical storms, etc.). Information on the conditions that prevented sampling will be reported to ADEQ in the Annual Report. Tempe will continue to monitor subsequent storm events during the monitoring season and perform stormwater sampling of a representative storm event if another occurs during the same wet season.

12.3 SEASONAL SAMPLING

Tempe will sample stormwater discharging from the Tempe MS4 throughout the Permit term and will commence on the first measurable storm event of each wet season identified below and will continue each subsequent wet season as necessary. Any needed make-up sampling will occur during subsequent summer and winter wet seasons if greater than one measurable storm event occurs during those seasons.

Wet seasons, for the purposes of monitoring, are defined as follows:

Summer wet season:	June 1 – October 31
Winter wet season:	November 1 – May 31

Stormwater samples will be collected at least once per season per sampling station consistent with the parameter list identified in the Permit. Sampling will be conducted over the first three (3) hours of the discharge or for the entire discharge period if less than three (3) hours. The samples will include stormwater from the "first flush" (first 30 minutes of the stormwater event) whenever possible to do so.

12.4 WATER QUALITY ASSESSMENTS

As required by Permit, Tempe will compare stormwater quality monitoring data, as measured from the monitoring locations, to the Surface Water Quality Standards (SWQSs) applicable to the waters of the U.S. receiving the discharge. In the event that a pollutant concentration greater than the applicable SWQS is detected, Tempe will continue to perform monitoring of stormwater discharges as required by the Permit.

If monitoring data shows a recurring (more than once) value greater than the applicable SWQS, Tempe will investigate and make all reasonable efforts to identify potential source(s) of the pollutant(s). Where feasible, Tempe will evaluate the effectiveness of existing control measures on the pollutant(s) of concern and modify existing control measures or implement additional control measures, as necessary, to reduce the discharge of pollutants to the MEP.

Any occurrence of monitoring data exceeding a SWQS will be reported to ADEQ as required by the Permit.

12.5 ASSESSMENT OF POLLUTANT LOADING

Beginning the 2011-2012 reporting year, Tempe will estimate the pollutant loadings each year from all identified municipal outfalls to waters of the U.S. for BOD, COD, TSS, total dissolved solids, total nitrogen, total ammonia plus total organic nitrogen (TKN), total phosphorous, and metals. An event mean concentration of each pollutant shall be estimated using representative storm event data for each year. The city will estimate the annual (total) pollutant loadings from the MS4 to waters of the U.S. each year.

Pollutant loadings and event mean concentrations will be calculated from sampling and analytical data collected at the representative monitoring locations and shall take into consideration land uses and drainage areas for the respective outfall. The pollutant loadings estimated each year shall be compared to previous estimates of pollutant loadings throughout the Permit term.

Loading data will be calculated using concentration data generated by lab analysis and flow data recorded specific to each event and be reported in units of kilograms (kg) per event. Estimates of pollutant loadings and event mean concentrations will be included in the annual report and shall be accompanied by a description of the procedures for estimating pollutant loads and concentrations, all raw data analysis, and the appropriate calculation methods.

13.0 FINANCIAL RESOURCES

Tempe's stormwater program expenditures are supported by funding from Tempe's CIP Fund and various Public Works Department funds.

The following factors will be considered when developing the annual fiscal analysis:

- Some public involvement and participation programs are not exclusively related to the stormwater program. Accordingly, stormwater expenditures in these areas are either estimated to be one half of total operational budget or time and material specific to stormwater activities.
- Most of the operational street sweeping activities are funded as a stormwater program component and will be reflected as such.
- Costs for employee attendance at training events will not be incorporated as stormwater expenditures, though cost to develop and conduct training is considered. External training will be fully accounted for.

On an annual basis, all Tempe sections that implement stormwater programs are required to provide a summary of annual expenditures and funding source. This information will be provided to ADEQ in summary format annually.

Tempe will continue to streamline various city processes and increase operational efficiencies to ensure that all stormwater regulatory mandates are met in an economically responsible manner.

14.0 Program Evaluation and Modification

14.1 Program Evaluation

In an effort to ensure consistent, effective and efficient implementation, Tempe regularly evaluates the status of SWMP programs. These evaluations occur as a result of:

- routine dialogue with city sections charged with program implementation
- review of routine internal status reporting
- ongoing development of new or modified program elements
- implementation of practices designed to meet Permit measurable goals
- training feedback
- annual report preparation
- annual SWMP review

As a product of these ongoing evaluations, Tempe continues to improve program effectiveness, which ultimately promotes the reduction of pollutants in stormwater.

14.2 Program Modification

This SWMP has been designed to allow for as much program flexibility as possible; however, the Permit requires ADEQ approval for many plan modifications or revisions. In the event program evaluations require plan modifications or revisions, Tempe will comply with Permit notification and approval requirements.