

Storm Water Management Plan

for the Municipality of Anchorage and
Alaska Department of Transportation and Public Facilities
Submittal date: 021517

Purpose

The Storm Water Management Plan (SWMP) documents the intended activities of the Anchorage Municipal Separate Storm Sewer (MS4) Operators to meet the requirements of the third term of their Permit to discharge storm water into waters of the U.S. This Plan addresses the minimum control measures laid out in each MS4 program over the five years of the Permit.

Introduction

The Municipality of Anchorage and the Alaska State Department of Transportation and Public Facilities are co-permittees of an Alaska Pollutant Discharge Elimination System Permit to discharge storm water through their respective Municipal Separate Storm Sewer Systems (MS4). The Phase I Permit, in its third term, requires the permittees to develop a SWMP.

The SWMP acknowledges the permit requirements and describes how the activities of the minimum control measures are to be implemented to control for the discharge of pollutants and ensure that the MS4 discharges will not cause or contribute to an excursion above applicable Alaska Water Quality Standards to the maximum extent practicable (MEP). It must specifically identify how the permittees evaluate and measure the effectiveness of the SWMP to control the discharge of the pollutant(s) of concern. For those activities identified in Part 3.0 requiring multiple years to develop and implement, the permittee must provide interim updates on progress to date. Consistent with Part 2.1, the permittee must update and submit this description of the SWMP implementation to DEC as part of the Annual Report required in Part 4.3, and must update its description annually in subsequent Annual Reports.

SWMP Requirement

Part 2 of the Permit provides the requirements of the SWMP. They are summarized below.

- Provide Ordinances or other regulatory mechanisms providing the legal authority necessary to implement and enforce requirements of the Permit
- Provide a written outline describing how the permittees will implement the requirements in Parts 3.0 and 4.0 of the Permit.
- Provide BMPs, control techniques, system design, engineering methods, and other provisions appropriate for the control of pollutants to the MS4.
- BMPs that are selected, implemented, maintained and updated to ensure that storm water discharges do not cause or contribute to an exceedance of an applicable numeric or narrative WQS;
- Measurable goals, including interim milestones, for each BMP.

SWMP Updates

The permittees must annually review the SWMP as part of the preparation of the Annual Report. Changes to any SWMP action or activity specified in this permit may be requested at any time according to specific procedures: Changes include deleting and replacing an action or activity specifically identified in the SWMP with an alternate action or activity may be requested at any time. Change requests to DEC must include:

- An analysis of why the original action or activity is ineffective, infeasible, or cost prohibitive;
- Expectations on the effectiveness of the replacement action or activity; and
- An analysis of why the replacement action or activity is expected to better achieve the SWMP requirements.

Change requests or notifications must be made in writing and signed by the permittee in accordance with Permit Appendix A, Part 1.12.

ADEC Requests for SWMP

Documentation of the actions or activities as required by the SWMP must be submitted to DEC upon request. DEC may review and subsequently notify the permittee that changes to the SWMP are necessary to:

Address discharges from the MS4 that are causing or contributing to water quality impacts; Include more stringent requirements necessary to comply with new federal or state statutory or regulatory requirements;

Include other conditions deemed necessary by the DEC to comply with WQS, and/or other goals and requirements of the CWA; or

Address the SWMP requirements of the permit, if DEC determines that the permittee's current SWMP does not meet permit requirements.

If DEC notifies the permittee that changes are necessary, the notification will offer the permittee an opportunity to propose alternative program changes to meet the objectives of the requested modification. Following this opportunity, the permittee must implement any required changes according to the schedule set by DEC.

Storm Water Management Program Resources

The permittee must provide adequate finances, staff, equipment, and other support capabilities to implement their SWMP actions and activities outlined in this permit. The permittees must report on total costs associated with SWMP implementation over the prior 12 months in each Annual Report. Permittees are encouraged to consider establishing consistent funding sources for continued program implementation.

3.0 SWMP MINIMUM CONTROL MEASURES

The permittees are continuing the program already in place for the control of Construction Site Runoff. The program controls construction activities for site disturbances 10,000 sf and above, projects that are part of a common plan of development, and projects of any size that are located in environmentally sensitive area through plan review, site inspection, and enforcement according to the requirements laid out in the permit.

- 3.1 Construction Site Runoff Control Program.** The permittees must continue to implement a construction site runoff control program to reduce discharges of pollutants

from public and private construction activity within its jurisdiction. “Construction activity” for this permit includes, at a minimum, construction involving a total land disturbance of 10,000 square feet or more at a single construction site or as part of a plan of common development. The permittees’ construction site management program must include the requirements described below:

The Anchorage Municipal Code 21.07.04E lays out the requirements for construction site runoff control. It can be found at:

https://www.municode.com/library/ak/anchorage/codes/code_of_ordinances?nodeId=TIT21LAUSPLNECOFFJA12014_CH21.07DEDESTNECOFFJA12014_21.07.04DRSTWATERRECPDI. It references the Stormwater Treatment Plan Review Guidance Manual, www.muni.org, which provides information regarding acceptable control practices and details for meeting local construction requirements.

The ADOT&PF implements construction runoff controls through their highway and aviation construction projects through its Statewide and Central Region Standard Specification Section 641 Erosion, Sediment and Pollution Control for Highway Construction and Item P-157 for Erosion, Sediment and Pollution Control for Airport Construction. These specifications sections were updated most recently in February 2016. These stormwater specifications are contractually enforced. ADOT&PF provides guidance on contract stormwater administration to its project staff through the Alaska Construction Manual, Chapter 9.9, and by having staff dedicated solely to stormwater guidance and education. This manual was updated on July 7, 2014 and outlines procedures for implementing and monitoring construction SWPPPs.

Highway Standard Modification for Section 641 and Item P-157 for Airports, Erosion, Sedimentation and Pollution Control link:

<http://www.dot.state.ak.us/stwddes/dcspubs/directives.shtml>

Alaska Construction Manual link:

http://www.dot.state.ak.us/stwddes/dcsconst/pop_constman.shtml

ADOT&PF revised its Alaska Storm Water Pollution Prevention Plan (SWPPP) Guide in December 2015. ADOT&PF updated the Alaska SWPPP Guide Appendix B, BMP Guide to reflect emerging technologies and practices.

Alaska SWPPP Guide Link:

http://dot.alaska.gov/stwddes/desenviron/assets/pdf/bmp/bmp_guide_preamble.pdf

http://dot.alaska.gov/stwddes/desenviron/assets/pdf/bmp/bmp_all.pdf

http://dot.alaska.gov/stwddes/desenviron/assets/pdf/bmp/mo_bmp.pdf

- 3.1.1 Ordinance and/or other regulatory mechanism.** To the extent allowable under local or state law, the permittees must adopt, implement, and enforce requirements for erosion controls, sediment controls, and materials management techniques to be employed and maintained at each construction project from initial clearing through final stabilization. Each permittee must require construction site operators to maintain adequate and effective controls eliminate pollutants in storm water discharges from construction sites. The permittees must use enforcement actions (such as, written warnings, stop work orders or fines) to ensure compliance. No later than four years after the effective date of this permit,

each permittee must review, and update if needed, formal ordinances or other regulatory mechanisms that are consistent with this permit and the current version of the APDES General Permit for Storm Water Discharges from Construction Activities, Permit #AKR10-0000 (APDES Construction General Permit or CGP).

- 3.1.2 Construction Storm Water Manual.** The permittees must update their respective construction storm water practices manuals within two years of the effective date of this permit, and require the use of the manual by construction site operators within their jurisdiction. The manual(s) must include all acceptable control practices, selection and sizing criteria, illustrations, and design examples, as well as recommended operation and maintenance of each practice. At a minimum, the manual(s) must include applicable elements for erosion control, sediment control, and pollution prevention consistent with the current version of the CGP.

The MOA requires commercial development projects to submit a Storm Water Pollution Prevention Plan for review and approval as part of its building permit issuance. If the project is an acre or greater or part of a common plan of development it is required to demonstrate it has filed for coverage under the Construction General Permit by producing a Notice of Intent. The project is required to install erosion and sediment control prior to site disturbance.

The MOA WMS has a dedicated Stormwater Treatment Plan Reviewer who oversees plan approval for private construction sites and public works projects within the municipal area. The types of projects reviewed include any work requiring a building permit, utility work, new subdivisions and road projects. Plan review includes a review for applicability of the CGP and a NOI if required. Review and approval activities are tracked via our Hansen Permit System.

The Anchorage Water and Wastewater Utility oversees approval plan review and approval of their own projects. They notify WMS of their active projects for code enforcement coordination.

The ADOT&PF oversees the compliance of their construction projects within MOA boundaries. ADOT&PF is a co-operator on these projects, with the Construction Contractor performing the work. After construction activities begin, most ADOT&PF active projects are subject to a documentation review performed by a Central Region Stormwater Specialist. This review is based on the EPA Appendix R NPDES Industrial Storm Water Investigation and Case Development Worksheet.

- 3.1.3 Plan Review and Approval.** The permittees must review and approve site plans from construction site operators within their jurisdiction. MOA must require the preparation and submittal of a storm water treatment plan or storm water pollution prevention plan (SWPPP) for the MOA's review and written approval prior to issuance of a municipal permit for construction projects. ADOT&PF must require the preparation and submittal of a SWPPP for the ADOT&PF &PF's review and written approval prior to commencing with the construction project. Permittees must ensure that the construction site operator is prohibited from commencing construction activity prior to receipt of written approval.

- 3.1.3.1 The permittees must not approve any stormwater treatment plan or SWPPP unless it contains appropriate site-specific construction site control measures that meet the minimum requirements in Part 3.1.2.
- 3.1.3.2 Within the MOA, the portion of the storm water treatment plan describing the active construction phase may serve as the SWPPP required under the APDES Construction General Permit, provided that the required storm water treatment plan is at least as inclusive of controls as the SWPPP requirements contained in the most recent version of the APDES Construction General Permit.
- 3.1.3.3 Prior to the start of a construction project disturbing one or more acres or less than one acre but part of a larger common plan of development, the permittees must verify whether the construction site operator(s) have obtained necessary coverage under the operative APDES Construction General Permit.
- 3.1.3.4 Permittees must use qualified individuals, knowledgeable in the technical review of storm water treatment plans/storm water pollution prevention plans to conduct such reviews.
- 3.1.3.5 Permittees must document the review of each storm water treatment plan and SWPPP using a checklist or similar process.

The MOA WMS oversees regulatory compliance for private construction projects and public works projects at the inspection frequency specified in Table 3. Individual projects are required to have their own certified inspectors meeting the qualifications of Section 3.1.6, overseeing day-to-day working conditions. MOA uses an Escalating Enforcement Policy, to gain compliance on construction sites and maintains written documentation of all enforcement actions. When a violation with the CGP is found MOA notifies the ADEC within 15 days.

ADOT&PF: ADOT&PF's Enforcement Response Policy is contained in the following documents:

Alaska Construction Manual, Chapter 9.9 SWPPP & HMCP Implementation and Monitoring, modified in 2016 and awaiting final approval for update from federal regulatory agencies

Standard Specification Item 641 Erosion, Sediment and Pollution Control for Highway Construction, Section 641-3.04 Failure to Perform Work; Central Region specification updated on February 2, 2016, Statewide specification updated on November 11, 2016

Item P-157 for Erosion, Sediment and Pollution Control Airport Construction, Section 157-3.4 Failure to Perform Work; Central Region specification updated on February 2, 2016, Statewide specification updated on March 2, 2016

The Alaska Construction Manual spells out the inspector qualifications and duties, non-compliance reporting and monitoring paperwork. The standard specifications provide project and administration requirements relating to control of erosion, sedimentation, and discharge of pollutants. The work must follow applicable local, state, and federal requirements, including the CGP and the MS4 Permit. The standard specifications are contractually enforced.

These specifications authorize ADOT&PF personnel to verbally warn and provide written notices to the construction after each inspection. The SWPPP Construction Inspection Report

and the Corrective Action Log document the timely maintenance or corrective actions required. ADOT&PF revised the Section 641 and Item P-157 Statewide and Regional Specifications in 2016 because of:

EPA terminated the ADOT&PF Consent Decree; ADOT&PF removed Consent Decree language references from the specifications and modified the attendant requirements ADEC issued a new 2016 ACGP; ADOT&PF updated the specifications to reflect changes from the 2011 ACGP

Escalation enforcement measures include:

Orally suspending the work if the suspension is to protect workers, the public or the environment from imminent harm

Written suspension of work explaining the defects, reasons, corrective actions and time allowed to complete the corrective actions

Withhold monies from the construction contractor until corrective actions is completed

Assess damages or equitable adjustments against the contract amount

Employ others to perform the corrective action and deduct the costs from the Contract amount

Alaska Construction Manual link:

http://www.dot.state.ak.us/stwddes/dcsconst/pop_constman.shtml

Highway Standard Modification for Section 641 and Item P-157 for Airports, Erosion, Sedimentation and Pollution Control link:

<http://www.dot.state.ak.us/stwddes/dcspubs/directives.shtml>

3.1.4 Construction Site Inspections. The permittees must inspect utility projects, construction sites that require a building permit, and non-publicly funded transportation projects at the frequency specified in Table 3 below:

Table 3: Construction Site Inspections

Site	Inspection Frequency
(A) All sites 5 acres or larger in size	Inspection must occur at least monthly during the construction season.
(B) Other sites 10,000 sq. ft. or more, or part of a larger common plan of development, that are determined by the permittee or permitting authority to be a significant threat to water quality*	
(C) All other construction sites with 10,000 sq. ft. or more, or that are part of a larger common plan of development and do not meet the criteria specified in (A) or (B)	Inspection must occur at least once per construction season.
(D) Construction sites less than 10,000 sq. feet in size	Inspection must occur as needed based on the evaluation of the factors that are a threat to water quality.*
* In evaluating the threat to water quality, the following factors must be considered: soil erosion potential; site slope; project size and type; site proximity to receiving water bodies; sensitivity of receiving water bodies; non-storm water discharges; and past record of non-compliance by the operators of the construction site.	

3.1.4.1 Inspections of construction sites must include, but not be limited to:

3.1.4.1.1 Check for coverage under the Construction General Permit by requesting a copy of any application or Notice of Intent (NOI) during initial inspections;

- 3.1.4.1.2 Review the applicable storm water treatment plans/storm water pollution prevention plans to determine if control measures have been installed, implemented, and maintained according to the plan;
 - 3.1.4.1.3 Assess compliance with the permittee's ordinances/requirements related to storm water runoff, including the implementation and maintenance of required control measures;
 - 3.1.4.1.4 Assess the appropriateness of planned control measures and their effectiveness;
 - 3.1.4.1.5 Visually observe non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff;
 - 3.1.4.1.6 Provide education and outreach on storm water pollution prevention, as needed; and
 - 3.1.4.1.7 Provide a written or electronic inspection report.
- 3.1.4.2 The permittees must track the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies required.
- 3.1.4.3 Based on site inspection findings, each permittee must take all necessary follow-up actions (i.e., re-inspection, enforcement) to ensure compliance. These follow-up and enforcement actions must be tracked as well.
- 3.1.5 **Enforcement Response Policy for Construction Site Management Program.** Each permittee must maintain and implement a written escalating enforcement response policy (ERP) appropriate to their organization. The ERP for MOA must address enforcement of construction site runoff controls for utility construction projects, construction projects that require a building permit, and non-publicly funded transportation construction projects. The ERP for ADOT&PF must address contractual enforcement of construction site runoff controls at ADOT&PF owned construction sites and be submitted in the first annual report. Each ERP must describe the permittee's potential responses to violations with an appropriate educational or enforcement response. The ERP must address repeat violations through progressively stricter responses as needed to achieve compliance. Each ERP must describe how the permittee will use the following types of enforcement response based on the type of violation:
- 3.1.5.1 **Verbal Warnings:** Verbal warnings are primarily consultative in nature. At a minimum, verbal warnings must specify the nature of violation and required corrective action.
 - 3.1.5.2 **Written Notices:** Written notices must stipulate the nature of the violation and the required corrective action with deadlines for taking

such action.

- 3.1.5.3 **Escalated Enforcement Measures:** The permittees must have the legal ability to employ any combination of the enforcement actions below (or their functional equivalent):
- 3.1.5.3.1 The ERP must indicate when the permittees will initiate a Stop Work Order. Stop work orders must require that construction activities be halted, except for those activities directed at cleaning up, abating discharge, and installing appropriate control measures.
 - 3.1.5.3.2 The permittees must also use other escalating measures provided under local or state legal authorities, such as assessing monetary penalties. The permittees may perform work necessary to improve erosion control measures and collect the funds from the responsible party in an appropriate manner, such as collecting against the project's bond, or directly billing the responsible party to pay for work and materials.

MOA is required to review projects for coverage under the APDES Construction General Permit. As a result most projects meeting the requirements have coverage prior to starting construction. Occasionally, MOA will come across a project that disturbed more ground than approved and should be covered under the permit. These projects are required to file for coverage immediately, and MOA follows up with notification to ADEC of their condition.

- 3.1.5.4 **Construction General Permit Violation Referrals:** For those construction projects subject to the APDES Construction General Permit, permittees must refer non-filers (i.e., those projects that cannot demonstrate that they have appropriate APDES permit coverage) to DEC within 15 days of making that determination. In making such referrals, permittees must include, at a minimum, the following documentation:
- 3.1.4.5.1 Construction project location;
 - 3.1.5.4.2 Name of owner or operator;
 - 3.1.5.4.3 Estimated construction project size; and
 - 3.1.5.4.4 Records of communication with the owner or operator regarding filing requirements.
- 3.1.5.5 **Enforcement Tracking:** The permittees must track instances of non-compliance either in hard-copy files or electronically. The enforcement case documentation must include, at a minimum, the following:
- 3.1.5.5.1 Name of owner/operator;
 - 3.1.5.5.2 Location of construction project;

- 3.1.5.5.3 Description of violation;
- 3.1.5.5.4 Required schedule for returning to compliance;
- 3.1.5.5.5 Description of enforcement response used, including escalated responses if repeat violations occur;
- 3.1.5.5.6 Accompanying documentation of enforcement response (e.g., notices of noncompliance, notices of violations, etc.); and
- 3.1.5.5.7 Any referrals to different departments or agencies.

The MOA WMS gains training through offerings by national associations whose purpose is to provide information about construction site management methods, products, and applications, as well as regulatory requirements and policy updates. Additionally, WMS periodically engages professional trainers to provide training or other relevant information to their staff, operators, and specialists.

ADOT&PF has an annual construction training program including a yearly spring meeting to pull all their construction personnel together and identify the projects for the year along with their major challenges, and the MOA and ADOT&PF participate in the multi-agency Construction Erosion Sediment Control (AK-CESCL) program providing regular training and certification to construction site operators who specialize in erosion and sediment control for day-to-day operations. The training has been developed and approved by the participating agencies, and these agencies provide support for the University of Alaska to oversee a related three-year certification program in which local operators must participate. The program is available at ak-cescl.com.

- 3.1.6 **Construction Program Education and Training.** Annually the permittees must ensure that all staff whose primary job duties are related to implementing the construction program (including permitting, plan review, construction site inspections, and enforcement) are trained to conduct such activities. The education program must also provide regular training opportunities for construction site operators. This training must include, at a minimum:

3.1.6.1 *Erosion and Sediment Control/Storm Water Inspectors:*

- 3.1.6.1.1 Initial training regarding proper control measure selection, installation and maintenance as well as administrative such as inspection reporting/tracking and the implementation of the enforcement response policy; and
- 3.1.6.1.2 Annual refresher training for existing inspection staff to update them on preferred BMPs, regulation changes, permit updates, and policy or standards updates.

- 3.1.6.2 *Other Construction Inspectors:* Initial training on general storm water issues, basic control measure implementation information, and procedures for notifying the appropriate personnel of noncompliance.

3.1.6.3 *Plan Reviewers:*

- 3.1.6.3.1 Initial training regarding control measure selection, design standards, and review procedures;
- 3.1.6.3.2 Annual training regarding new control measures, innovative approaches, permit updates, regulation changes and policy or standard updates.
- 3.1.6.4 *Third-Party Inspectors and Plan Reviewers.* If the permittee utilizes outside parties to either conduct inspections and or review plans, these outside staff must be trained per the requirements listed in Part 3.1.6.1 - 3.1.6.3 above.
- 3.1.6.5 *Construction Operator Education.* Permittees must educate construction site operators as follows:
 - 3.1.6.5.1 At least once per year, the permittees must either provide information to all construction companies on existing training opportunities or provide training for construction operators regarding appropriate selection, installation, and use of required construction site control measures at sites within the permit area.
 - 3.1.6.5.2 The permittees must require construction site operators to have at least one person on-site during construction that is appropriately trained in erosion and sediment control.
 - 3.1.6.5.3 Permittees must require construction operators to attend training at least once every three years.
 - 3.1.6.5.4 The permittees must provide appropriate information and outreach materials to all construction operators who will be disturbing land within their jurisdiction.

3.2 Storm Water Management for Areas of New Development and Redevelopment.

The permittees are continuing a New Development program established in the second term. The MOA has revised its Design Criteria Manual to require development projects 10,000sf and larger to implement low impact development where possible to treat and manage stormwater runoff according to the permit requirements. Guidelines and worksheets were established to help project designers identify eligible projects. The manual is available at www.anchoragestormwater.com.

The ADOT&PF regulates project development through the Alaska Highway Preconstruction Manual and Alaska Aviation Preconstruction Manual. Both manuals require ADOT&PF to comply with local ordinances. Therefore, all projects within the Municipality of Anchorage follow the Municipal Design Criteria Manual (DCM).

Alaska Highway Preconstruction Manual link:

<http://www.dot.state.ak.us/stwddes/dcsprecon/preconmanual.shtml>

Alaska Aviation Preconstruction Manual link:

http://www.dot.state.ak.us/stwddes/dcsprecon/pop_aviation_preconstman.shtml

At a minimum, the permittees must implement and enforce a program to control storm water runoff from new development and redevelopment projects that result in a land disturbance of 10,000 square feet or more. This control program must apply to private and public sector development, including roads and streets. The program implemented by the permittees must ensure that permanent controls or practices are utilized at each new development and redevelopment site to protect water quality. The program must include, at a minimum, the elements described below:

- 3.2.1 **Ordinance or other regulatory mechanisms.** In the first year of this permit, the permittees must begin carrying out the five-year implementation plan developed during the 2010 permit term. By the fourth year of the permit, the permittees must update and implement the applicable ordinance, or other enforceable regulatory requirement(s) as allowed under state law, to require the installation and long-term maintenance of permanent storm water management controls at new development and redevelopment projects.
 - 3.2.1.1. The updated ordinance or regulatory mechanism must include site design standards for all new and redevelopment that require, in combination or alone, management measures that treat and manage the runoff generated from the first 0.52 inches of rainfall from a 24 hour event preceded by 48 hours of no measureable precipitation. Runoff treatment can be achieved by green infrastructure and LID such as canopy interception, soil amendments, evapotranspiration, rainfall harvesting, engineered infiltration, extended filtration, and/or any combination of such practices that will treat the first 0.52 inches of rainfall. An Underground Injection Control permit may be required when certain conditions are met. The ordinance or regulatory mechanism must require that the first 0.52 inches of rainfall be 100% treated with LID, except when the permittee chooses to implement the conditions of 3.2.1.2 below.
 - 3.2.1.2 For projects that cannot meet 100% treatment through LID, extended detention and alternative water quality treatment may be substituted. The permittee allowing this option must develop and apply criteria for determining the circumstances that alternative treatment may be allowed. A determination that the treatment requirement cannot be met with LID may not be based solely on the difficulty and/or cost of implementing such measures, but must include multiple criteria that would rule out an adequate combination of practices suggested in Part 3.2.1.1, such as: inadequate room onsite to create the necessary treatment capacity; site-specific constraints such as high groundwater, shallow bedrock, or poorly infiltrative soils; and/or a land use that is inconsistent with capture and reuse or infiltration of storm water.

- 3.2.1.3 The ordinance or regulatory mechanism must include the following water quality requirements:
- 3.2.1.3.1 Projects with potential for excessive pollutant loading(s) must provide water quality treatment for associated pollutants before treatment incorporating infiltration.
 - 3.2.1.3.2 Projects with potential for excessive pollutant loading(s) that cannot implement adequate preventive or water quality treatment measures to ensure compliance with surface water standards must properly convey storm water to an APDES or NPDES permitted wastewater treatment facility or via a licensed waste hauler to a permitted treatment and disposal facility.
- 3.2.1.4 The ordinance or other regulatory mechanism must include procedures for storm water plan review and approval.
- 3.2.1.5 The ordinance or other regulatory mechanism must include sanctions (including fines) to ensure compliance, as allowed under state or local law.
- 3.2.2 **Storm Water Design Criteria Manual.** The permittees must update a Storm Water Design Criteria Manual specifying acceptable permanent storm water management and control practices reflective of Part 3.2.1. MOA must comply with this Part no later than two years from the effective date of this permit. ADOT&PF must comply with this Part no later than two years from the effective date of this permit. The manual must contain design criteria for each practice. Existing manual(s) may be updated to fulfill this requirement. The manual must include:
- 3.2.2.1 Specifications and incentives for the use of site-based practices appropriate to local soils and hydrologic conditions;
 - 3.2.2.2 A list of acceptable practices, including sizing criteria, performance criteria, design examples, and guidance on selection and location of practices; and
 - 3.2.2.3 Specifications for proper long term operation and maintenance, including appropriate inspection interval and self-inspection checklists for responsible parties.

The MOA is implementing incentives for the increased use of LID within Anchorage in two ways: first, the funding amount of the matching grant available to encourage LID projects has been increased to encourage more commercial projects to participate; second, the design criteria offers a break in drainage report requirements for LID design elements compared to traditional treatment.

The permittees are developing and monitoring five demonstration projects during this term of the permit. The ADOT&PF will install LID on three roadway projects. The MOA will construct two

projects on roadways or public property and conduct an additional project focused on a parking lot retrofit. The projects will meet the requirements laid out by the permit. Monitoring will track the performance of the projects and be useful in evaluating and revising the design criteria manual.

Locations for demonstration projects are:

For ADOT&PF –

- **West Dowling Extension Phase III,**
- **New Seward Highway Improvements Phase II: O'Malley Road Reconstruction;**
- **Phase I, New Seward to Livingston; Jewel Lake Road Widening, 88th Ave to Strawberry St.**

For MOA-

- **Fire station #9 located in Rabbit Creek Watershed which included grass pavers, bio-swales, and an engineered bio-filtration basin;**
- **Rain garden and bioswale as part of the King's Landing Ship Creek Project;**
- **Underground infiltration gallery within the West Dimond Avenue Right-of-Way;**
- **Infiltration gallery project to treat runoff in the Folker/48th Avenue area Campbell Creek;**
- **Tentatively, Cuddy Midtown Park and Valley of the Moon Park Rain Garden.**

3.2.3 Green Infrastructure/LID Strategy and Demonstration Projects. Within one year of the effective date of this permit, the permittees must update the strategy to provide incentives for the increased use of LID techniques in private and public sector development projects within both the MOA and ADOT&PF jurisdictions. The strategy must outline the methods of evaluating the Green Infrastructure/LID demonstration projects described below. Permittees must begin implementation of the Green Infrastructure/LID Strategy and demonstration projects within three years of the effective date of this permit.

3.2.3.1 Beginning with the four year Annual Report, the permittees must report on and evaluate the status of five new demonstration projects that use LID concepts for on-site control of water quality. Projects must involve managing runoff from at least 10,000 square feet of impervious surface. At least three of the five LID demonstration projects must be ADOT&PF &PF-owned locations. Parking lot retrofits as required in Part 3.2.3.6 may be used as demonstration projects. At least two of the demonstration sites must address drainage areas greater than five acres in size. At least one demonstration project must be located in the Chester Creek, Fish Creek, Campbell Creek, or Little Campbell Creek watersheds.

3.2.3.2 The permittees must monitor the performance of each demonstration project and report the results beginning with the fourth year Annual Report. The permittees must calculate or model changes in runoff quantities for each of the demonstration project sites in the following manner:

3.2.3.2.1 For retrofit projects, changes in runoff quantities shall be calculated as a percentage of 100% pervious surface before

and after implementation of the LID practices.

- 3.2.3.2.2 For new construction projects, changes in runoff quantities shall be calculated for development scenarios both with LID practices and without LID practices.
- 3.2.3.2.3 The permittees must measure runoff flow rate and subsequently prepare runoff hydrographs to characterize peak runoff rates and volumes, discharge rates and volumes, and duration of discharge volumes. The evaluation must include quantification and description of each type of land cover contributing to surface runoff for each demonstration project, including area, slope, vegetation type and condition for pervious surfaces, and nature of impervious surfaces.
- 3.2.3.2.4 The permittees must use these runoff values to evaluate the overall effectiveness of various LID practices and to develop recommendations for future LID practices addressing appropriate use, design, type, size, soil type and operation and maintenance practices. The permittees must use the recommendations to update their final LID criteria, as necessary, and utilize the information obtained through the LID demonstration studies to revise the Storm Water Design Criteria Manual(s) no later than five years from the effective date of this permit.

As part of its incentive program the MOA has provided matching grants to community members, both commercial and residential, for their installation of raingardens on private property. The MOA will continue to follow representative selections of these gardens to see how they are quantitatively performing over time. The information collected will contribute to updates in design criteria. The raingarden program is available online at www.anchorageraingardens.com.

- 3.2.3.3 **Rain Gardens.** Within four years of the effective date of this permit, the permittees must evaluate the effectiveness of rain gardens located in any of the following: neighborhoods, parking lots or public-private community partnerships. If feasible, demonstration projects should be located within a TMDL watershed listed in Table 2. The permittees must quantitatively evaluate the effectiveness of the rain gardens as outlined in Part 3.2.3.2 above. Previously evaluated projects may be re-evaluated for this requirement.

During the fall of 2015, the MOA completed work on disconnecting one stormwater outfall in the Campbell Creek Watershed. The outfall drains Subbasin 1221 and is categorized as a major outfall as it receives stormwater flows from an area larger than 50 acres that is comprised entirely of industrial areas. Formerly, this subbasin drained to a single outfall located near the intersection of the Old Seward Highway and International Airport Road. As part of the project, subbasin flows were split resulting into two, new subbasins. One basin drains to the location of the original outfall and a second outfall was added in the 56th Avenue right-of-way, west of the Old Seward Highway. Both new outfalls convey stormwater to Campbell Creek via a swale after

it has been treated in two, new oil and grit separators.

The permittees will consider street and parking lot repair projects for incorporation of runoff reduction techniques. The MOA has developed a worksheet to assist project designers to work through this activity. Information gained from the worksheets will contribute to updates in design criteria.

The MOA has tentatively identified a parking lot retrofit LID project for construction to capture runoff from an impervious surface. The parking lot at Valley of the Moon Park may be redirected to a Rain Garden. This information will be updated as details are available.

- 3.2.3.4 **Riparian Zone Management.** Prior to the expiration date of this permit, the permittees must disconnect at least one MS4 outfall from discharging from receiving waters using vegetated swales or other appropriate techniques.
- 3.2.3.5 **Repair of Public Streets, Roads or Parking Lots.** When public streets, roads or parking lots are repaired as defined in Appendix C, the permittees must evaluate the feasibility of incorporating runoff reduction techniques into the repair using canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, rain gardens, infiltration trenches, extended filtration and/or evapotranspiration and/or any combination of the aforementioned practices. Where such practices are found to be feasible, the permittees must consider the use of such practices in the design and repair. These requirements apply only to projects whose design is started after the effective date of this permit. Beginning in the first year Annual Report, and annually thereafter, the permittees must document and list the locations of street, road and parking lot repair work completed within the last 12 month period that has incorporated such runoff reduction practices.
- 3.2.3.6 **Parking Lot Retrofits.** Prior to the expiration date of this permit, the permittee must retrofit at least one public facility parking lots with infiltration, evapotranspiration or reuse techniques designed to treat 100% of the parking lot runoff from the 90th percentile, 24 hour rainfall event. Each retrofit site must be located in a watershed draining to an impaired receiving water listed in Table 2. The permittees must quantitatively measure the effectiveness of the new techniques through measurement of runoff volume both before and after the retrofit.

The MOA has a review program for private construction projects performed prior to building permit issuance. In the past, this review has been focused on structural controls, however, as LID is becoming the preferred method of permanent stormwater treatment, reviews are incorporating them for water quality management.

ADOT&PF Projects. ADOT&PF continues to review all projects during the three phases of the project development:

Local Review (approximately 30 to 50 percent complete)

Plans-In-Hand Review (approximately 75 percent complete)

Pre-Plans, Specification and Estimate (Pre-PS&E) Review (approximately 95 percent complete)

ADOT&PF requires Erosion and Sediment Control Plans (ESCP) for each project covered under this permit. The ADOT&PF assigns design and environmental staff, the Central Region Hydrologist and an ADOT&PF Central Region Stormwater Specialist to review the ESCP. The review process for Airport projects is:

The ESCP writer creates a project -specific ESCP at the Plans-in-Hand phase

Individuals enter their review comments into the Design Review Comment web page or give the ESCP writer red-lined edits of the ESCP

ESCP writer can discuss comments or the red-lined edits with the individual who wrote the comments. ADOT&PF enters all comment responses in the comment web page

Individuals review the Revised ESCP at the Pre-PS&E phase

Individuals review of Pre-PS&E ESCP and follow the same process as the Plans-in-Hand ESCP

The ADOT&PF Design Project Manager checks and verifies the ESCP review comments are incorporated at the time bid documents receive Federal Aviation Administration (FAA) project certification. The FAA requires ADOT&PF Certifications stating that they will comply/have complied with statutory and FAA-imposed administrative requirements.

The Design Project Manager files the ESCP comments after certification

The review process for Highway projects is:

The ESCP writer creates a project -specific ESCP at the Pre-PS&E phase

Individuals submit their written comments to the Design Project Manager or give the ESCP writer red-lined edits of the ESCP

ESCP writer can discuss comments or the red-lined edits with the individual who wrote the comments. ADOT&PF enters a response to all comments

The Design Project Manager checks and verifies the ESCP review comments are incorporated at the time bid documents receive Federal Highway Administration (FHWA) project certification. The FHWA requires ADOT&PF certification stating that the PS&E is complete and has been developed in accordance with applicable design standards and the Title 23 USC responsibilities assumed by ADOT&PF in the Stewardship and Oversight Agreement dated December 21, 2012.

The Design Project Manager files the ESCP comments after certification

In addition, on larger projects, a separate ESCP-focused meeting occurs after the Pre-PS&E review. This meeting discusses the ESCP comments from above and project-specific stormwater issues. The Design Project Manager follow the same process as described above to check and verify ESCP review comments and then files the comments after certification.

Private Development. The Municipality continues to review all work requiring building

permits and new subdivisions for permanent stormwater runoff practices. Issuance of a building or stormwater permit will serve as written approval as specified by the APDES MS4 Permit. The Municipality manages construction reviews through an electronic submittal and tracking system which applies a comprehensive review checklist to all projects. Records are available on request. Qualified review staff are trained in detention and other permanent control techniques through a number of programs including those covered in Section 3.5.

Municipal Projects. The Municipality performs a regulatory review of all Municipal projects 10,000sf and greater in compliance with our MS4 Permit requirement under part 3.2.4. The reviews encompass construction erosion control measures and permanent stormwater management practices. Reviews are documented through the Municipality's online tracking system and are a requirement for development project permit issuance. The MOA will continue to coordinate with ADEC to insure our projects meet the ADEC waste water regulations.

3.2.4 Plan Review and Approval. The permittees must continue to review and approve pre- construction plans for permanent storm water management. The permittees must review plans for consistency with the ordinance/regulatory mechanism and Storm Water Design Criteria Manual required by this Part. The permittees must ensure that the project operator is prohibited from commencing construction activity prior to receipt of written approval from the permittee. Throughout the permit term, the MOA must require the preparation and submittal of plans for permanent storm water controls, for the MOA's review and written approval prior to commencing with the construction project. Throughout the permit term, the ADOT&PF must require the preparation and submittal of plans for permanent storm water control for the ADOT&PF &PF's review and written approval prior to commencing with the construction project.

3.2.4.1 The permittees must not approve or recommend for approval any plans for permanent storm water controls that do not contain appropriate permanent storm water management practices that meet the minimum requirements specified in this Part.

3.2.4.2 Permittees must use qualified individuals, knowledgeable in the technical review of plans for permanent storm water controls to conduct such reviews.

3.2.4.3 Permittees must document the review of each storm water treatment plan using a checklist or similar process.

The MOA is now tracking permanent controls on commercial projects greater than 10,000sf and requiring them to have an operation and maintenance plan and agreement manual for their required permanent controls. Through their agreements, these projects must have their controls recorded on their deeds, identifying them as part of the property that transfers with ownership. The documents for this program are found with the "Construction Program" materials on the WMS website, www.anchoragestormwater.com.

3.2.5 **Operation and Maintenance (O&M) of Permanent Storm Water Management Controls.**

- 3.2.5.1 **Inventory and Tracking.** Throughout the permit term the permittees must update and maintain a database for tracking public and private sector permanent storm water controls. All of the existing permanent storm water controls must be included in the inventory database. For the purposes of this Part, new permanent controls are those installed after February 1, 2010; existing permanent controls are those installed prior to February 1, 2010. The tracking must begin in the plan review stage with a database that incorporates geographic information system (GIS) information. The tracking system must also include, at a minimum: type and number of practices; O&M requirements, activity and schedule; self-inspection schedule;
- 3.2.5.2 **O&M Agreements.** Throughout the permit term where parties other than the permittees are responsible for operation and maintenance of permanent storm water controls, the permittees must require a legally enforceable and transferable O&M agreement with the responsible party, or other mechanism, that assigns permanent responsibility for maintenance of structural or treatment control storm water management practices.

MOA will inspect the permanent controls periodically in accordance with permit conditions for compliance with the O&M plan and based on their risk of causing downstream impacts. Inspections will be based on project size, proximity to sensitive sites including impaired waters, and a history of compliance problems. High priority sites will be inspected annually using a checklist developed for these controls.

3.2.6 **Inspection and Enforcement of Permanent Storm Water Management**

Controls. Throughout the permit term the permittees must ensure proper long term operation and maintenance of all permanent storm water management practices within the permit area. The permittees must maintain an inspection program, and prioritize new development and redevelopment sites for inspections of permanent storm water management controls having O&M agreements. Factors used to prioritize sites must include, but not be limited to: size of new development or redevelopment area; sensitivity and/or impaired status of receiving water(s); and, history of non-compliance at the site during the construction phase.

- 3.2.6.1 High priority sites must be inspected at least once annually between August through October. The inspections must determine whether storm water management or treatment practices have been properly installed (i.e., an “as built” verification). The inspections must evaluate the operation and maintenance of such practices, identify deficiencies and potential solutions, and assess potential impacts to receiving waters.
- 3.2.6.2 The permittees must develop checklists to be used by inspectors during these inspections, and must maintain records of all inspections conducted on new development and redevelopment

sites.

- 3.2.6.3 The permittees must continue to implement an enforcement strategy developed in the 2010 permit term to maintain the integrity of permanent storm water management and treatment practices.

Training will be a key element in implementing LID and green infrastructure in Anchorage. Helping review staff learn to identify and guide reasonable designs, and educating designers regarding new criteria and what practices are available how to meet it will be essential to a successful implementation of the new requirements. Training will be performed by staff and project consultants, and will be tailored to specific audiences. MOA staff will participate in nationally available technical training and in turn provide training annually to MOA and ADOT&PF staff, project consultants, and anyone with an interest in permit implementation. It will be tailored to specific audience interests.

ADOT&PF conducts quarterly design meetings for all design and environmental staff, including topics related to permanent stormwater controls. In addition, ADOT&PF technology transfer staff set up annual training schedules with some courses specifically focused on storm water and drainage issues.

- 3.2.7 **Education and Training on Permanent Storm Water Controls.** Throughout the permit term the permittees must maintain a training program regarding the selection, design, installation, operation and maintenance of permanent storm water controls. The training program and materials must be updated as necessary to include information on updated or revised storm water treatment standards, design manual specifications, LID techniques, and proper operation and maintenance requirements.

- 3.2.7.1 Annually all persons responsible for reviewing plans for new development and redevelopment and/or inspecting storm water management practices and treatment controls must receive training sufficient to determine the adequacy of storm water management and treatment controls at proposed new development and redevelopment sites.

- 3.2.7.2 Annually permittees must provide training to local audiences on the stormwater management requirements described in Part 3.2.

3.3 Industrial and Commercial Storm Water Discharge Management.

*The permittees have an established program to respond to reports of pollutants from industrial and commercial facilities within the Municipality of Anchorage. This includes maintaining an inventory and map of facilities listed in 3.3.1.2. While there are very few sites that fall under the community right to know act, there are many more that are listed by Anchorage Animal Control as commercial animal facilities. Further, the ADEC keeps an updated list of business subject to the Alaska Multi-Sector General Permit, and the MOA includes them in the facilities coverage. **The permittees update this list and provide it with the Annual Reports.***

Upon the effective date of this permit, the permittees must implement a program to reduce to the MEP the discharge of pollutants from industrial and commercial operations within their jurisdiction. Throughout the permit term, the permittees must conduct educational and/or enforcement efforts to reduce the discharge of pollutants from locations considered to be significant contributors of fecal coliform and/or petroleum products to receiving waters. At a minimum, the program must include the following elements:

- 3.3.1 **Inventory of Industrial and Commercial Facilities and Activities.** Within three years of the effective date of this permit, the permittees must update an inventory and map of facilities and activities discharging directly to their MS4s.
- 3.3.1.1 At a minimum, the inventory must include information listing the watershed/receiving waterbody, facility name, address, nature of business or activity, SIC code(s) that best reflect the facility's product or service;
- 3.3.1.2 The inventory must include the following types of facilities: municipal landfills (open and closed); permittee-owned maintenance yards and facilities; hazardous waste recovery, treatment, storage and disposal facilities; snow disposal sites, as discussed in Part 3.3.2; facilities subject to Section 313 of the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. 11023; all industrial sectors listed in 40 CFR §122.26(b)(14); vehicle or equipment wash systems; animal facilities as discussed in Part 3.3.3, including kennels, show facilities, stables, the Anchorage Zoo, or other similar commercial locations where improper management of domestic animal waste may contribute pollutants to receiving waters or to the MS4; and any other industrial or commercial facility that the permittees determines is contributing a substantial pollutant loading to the MS4.

To further the control of illicit discharges within the Municipality of Anchorage the permittees will identify an activity that is not adequately addressed for watershed protection.

Performance standards will be developed and information will be provided to the affected interest groups as part of implementation of the standard into the community. Possible activities will be considered in years two and three for implementation in year four.

Performance standards for private snow disposal sites and animal facilities developed in the previous permit term will be assessed for their success at controlling the target pollutant. The standards will be revised as needed. Both types of facilities are tracked annually as part of the MOA's ongoing illicit discharge program activities.

- 3.3.1.3 The permittees must each identify at least one specific activity within their respective jurisdictions where storm water discharges are not adequately addressed, and develop performance standards for the activity. Examples include, but are not limited to: gas stations, animal facilities, carpet cleaners, mobile vehicle washing operations, and automobile repair shops.

- 3.3.1.4 The industrial and commercial inventory must be updated at least bi-annually and submitted to DEC with the Annual Report.
- 3.3.2 **Snow Disposal Sites.** Within one year of the permit effective date, the permittees must update the inventory and map locations of all permittee-owned and privately owned snow disposal sites that discharge directly to the MS4 or to receiving waters. The snow disposal site inventory and map must be updated annually thereafter. Within two years from the effective date of this permit, the permittees must evaluate whether the ordinance adopted during the 2010 permit term is effective for protecting water quality by explicitly regulating the operation of private snow disposal sites within the corporate boundaries of the MOA through ordinance or other regulatory mechanism.
- 3.3.2.1 Within four years, develop an evaluation report determining whether the ordinance is effective in regulating private snow disposal sites to adequately protect water quality and the report must be submitted with the corresponding Annual Report.
- 3.3.3 **Animal Facilities.** Within three years of the effective date of this permit, MOA must evaluate the program implemented during the 2010 permit term to further regulate commercial animal facilities or other locations within the corporate boundaries of the MOA through ordinance or other regulatory mechanism to prevent animal waste from entering the MS4 and protect water quality. The evaluation must address kennels, pens, recreational facilities, stables, show facilities, or other commercial animal facilities currently regulated by the MOA, dog parks and the zoo.
- 3.3.3.1 An evaluation report must be submitted with the corresponding Annual Report.
- 3.3.3.2 Within four years of the effective date of this permit, MOA must revise all applicable requirements as necessary in accordance with recommendations contained in the evaluation report.

The MOA and ADOT&PF will separately operate their respective street and facility management programs. The participating street management groups will track their inventories of roads, parking lots, storm water infrastructure, facilities and controls. They will forward their inventories to WMS for incorporation into a coordinated GIS data structure identifying the elements listed in Permit Part 3.4.1. WMS will then place the comprehensive coverage on its website, www.anchoragestormwater.com, in a manner to be available to all users.

Agencies will categorize their catch basins and inlets for fill rates depending on street category, land use, and drainage basin size along with specific basin cleaning experience. Cleaning schedules will then be based on these rates. They will update Standard Operating Procedures for cleaning and for all other maintenance activities by the second year of the permit term and annually thereafter. A management practice for disposal of catch basin and OGS wastes will be

identified during the third term. Stockpiled materials will be inventoried and reported on an annual basis.

3.4 Storm Water Infrastructure and Street Management. The permittees must maintain their MS4 and related facilities to reduce the discharge of pollutants from the MS4 to the MEP. All permittee activities and permittee-owned and operated facilities, must be properly operated and maintained, including but not limited to structural storm water treatment controls, storm sewer systems, roads, parking lots, snow disposal sites, waste facilities, and street maintenance facilities. The program must include the following:

3.4.1 Storm Sewer System Inventory and Mapping. Within three years of the effective date of this permit, each permittee must develop a maintenance tracking database with schedules, actions taken, and progressive needs for continued MS4 function. Within one year of the effective date of the permit develop and implement a process to annually incorporate information from construction record drawings to update the MS4 inventory. The inventory must identify all areas that each permittee has responsibility. The inventory must include:

- 3.4.1.1 The location of all inlets, catchbasins and outfalls;
- 3.4.1.2 The location of all MS4 collection system pipes (laterals, mains, etc.);
- 3.4.1.3 The names and locations of all receiving waters of the United States that receive discharges from the outfalls;
- 3.4.1.4 The location of all existing structural storm water treatment controls;
- 3.4.1.5 Identification of subbasin and approximate acreage draining into each MS4 outfall;
- 3.4.1.6 The location of permittee-owned vehicle maintenance facilities, material storage facilities, maintenance yards, and snow disposal sites; permittee-owned or operated parking lots and roadways;
- 3.4.1.7 The location, age, type, size and configuration of Oil Grit Separator (OGS) structures and the drainage area served by each OGS structure; and
- 3.4.1.8 The entity responsible for the maintenance of the road and drainage facility.

3.4.2 Catch Basin and Inlet Cleaning. Throughout the permit term, the permittees must maintain a program to inspect all permittee-owned or operated catch basins and inlets at least annually and take appropriate maintenance action based on those inspections.

- 3.4.2.1 Permittees will collect and develop rate of fill data for their catch basin facilities and submit the results with the fourth year annual report;
- 3.4.2.2 Permittees will use results from the rate study to update their maintenance schedules and standard operating procedures (SOP) prior to the expiration of the permit; and

3.4.3 Within five years of the effective date of this permit, the permittees must develop and implement a SOP for the treatment and disposal of catch basin and OGS wastes. The SOP shall address both solid and liquid portions of the waste stream.

3.4.4 **Street and Road Maintenance.** Within two years of the effective date of this permit, the permittees must update the Street Maintenance Standard Operating Procedures for Storm Water Control (SOPs) to ensure the use of BMPs that, when applied to the permittee's activity or facility, will protect water quality, and reduce the discharge of pollutants to the MEP. The SOPs must contain, for each activity or facility, inspection and maintenance schedules specific to the activity, and appropriate pollution prevention/good housekeeping procedures for all of the following types of facilities and/or activities listed below.

3.4.4.1 **Streets, Roads, and Parking Lots.** The SOPs must address, but are not limited to: road deicing, anti-icing, and snow removal practices; snow disposal areas; street/road material (e.g., salt, sand, or other chemical) storage areas; maintenance of green infrastructure/LID practices; and BMPs to reduce road and parking lot debris and other pollutants from entering the MS4. Throughout the permit term, the permittees must implement all of the pollution prevention/good housekeeping practices established in the SOPs for all roads, highways, and parking lots with more than 5,000 square feet of pollutant generating impervious surface that are owned, operated, or maintained by the permittees.

3.4.4.2 **Inventory of Street Maintenance Materials.** Throughout the permit term, the permittees must maintain an inventory of street /road maintenance materials, including use of sand and salt, and document the inventory in the corresponding Annual Reports.

During the second term of the permit ADOT&PF constructed three sand storage facilities and MOA constructed two sand storage facilities for the purpose of keeping stored sand dry. Salt usage is then limited to a minimum amount added at the time of distribution on to the road. During this term the permittees will assess their use of the storage sites and address whether their overall salt reduction goals were met.

3.4.4.3 **Covered Sand and Salt Storage.** Within four years of the effective date of this permit, the permittees must evaluate the performance of covered storage facilities at each of their primary material storage locations. The evaluation must include the amount of salt reduction in operations as a result of the covered storage.

The MOA and ADOT&PF will each update their Street Sweeping Plans for work beginning in 2016 to reflect minor adjustments to sweeping timelines, a visually clean assessment, and changes in performance based on practicable recommendations from the 2013 Performance Evaluation.

Permittees will each sweep according to their plans and Permit Table 4, and they will perform annual measures of sweeping effectiveness for their programs to quantify a visually clean standard for Anchorage streets. Additionally, MOA and ADOT&PF will track and report on associated data to the street sweeping program as directed by the permit in Part 3.4.5.4.

3.4.5 **Street and Road Sweeping.** The permittees must update and implement their respective street sweepings management plans within nine months of the effective date of this permit. Prior to March 1, 2016, the permittees must follow the street sweeping procedures of the previous permit. Each permittees updated plan must address the recommendations and discussion for street sweeping improvements in the report *Anchorage Street Sweeping and Storm Water Controls: 2013 Performance Evaluation*. Each permittees updated plan must designate streets, roads, and public parking lots within their jurisdiction for street sweeping frequency based on land use, traffic volumes, jurisdictional area, road type, sweep method, and other pertinent information useful in determining appropriate sweeping maintenance operations. Street and parking lot categories are as follows:

- Residential – Streets and road segments that include, but are not limited to, light traffic zones and residential zones.
- Arterial and all other – Streets and road segments with high traffic volumes serving commercial or industrial districts.
- Parking lots – large lots serving schools and cultural facilities, plazas, sports and event venues or similar facilities.

3.4.5.1 Throughout the permit term the permittees must maintain a map of all designated streets, roads, and public parking lots with their respective sweeping frequency.

3.4.5.2 Within nine months of the effective date of this permit, the permittees must, at a minimum, sweep streets, roads, and public parking lots in their jurisdictions according to the following schedule in Table 4:

Table 4: Sweeping Schedule

Period in the Year	Residential	Arterial and all other	Public Parking Lots ¹
April 1 – June 15	1 tandem ²	2 tandem	1 vacuum ³
June 15 –Sept. 15	1 tandem	1 tandem	—
After Sept 15	1 tandem	1 tandem	1 vacuum

Notes:

- 1 A vacuum sweeper sucks up loosened street particles with a vacuum and sends the directly to a hopper
- 2 “Tandem” means one mechanical sweeper preceding one vacuum sweeper during the same sweeping event (on the same day). This is equivalent to two sweepers sweeping the same surface; a mechanical sweeper uses a conveyor belt to carry the collected debris to a hopper. Tandem method is relevant for curb and gutter configured streets. Methods may vary for ditched roads as indicated in the Street Sweeping Operations Plan.
- 3 Threshold size for public parking lots to be swept will be determined as permittees update their street sweeping plan(s).

3.4.5.3 For areas where street sweeping is technically infeasible, the permittees must document in the first year Annual Report why sweeping is infeasible, and document how the permittee will increase implementation of other trash/litter control procedures to minimize pollutant discharges to the MS4 and receiving waters.

3.4.5.4 The permittees must perform annual assessments of street sweeping effectiveness to minimize pollutant discharges to storm drains and creeks on the basis of the following factors and report in the Annual

Report:

- 3.4.5.4.1 Provide in the first year Annual Report a map of the residential, arterial, and public parking lots. Identify any significant changes in subsequent Annual Reports and the basis for those changes;
- 3.4.5.4.2 Report annually on road sweeping activities including dates of sweep, completeness, types of sweepers used, number of passes on road surfaces and gutters, interference from parked vehicle or construction activities, other relevant qualitative information such as 'visually clean' evaluation, and frequency category, volume or weight of materials removed and a representative sample of the particle size distribution of swept material, in summary form within the Annual Report;
- 3.4.5.4.3 Report annually on any public outreach efforts or other means to address excess leaves and other material as well as areas that are infeasible to sweep. Incorporate efforts encouraging residents to move vehicles to maximize street surfaces available for sweeping. Include results with road sweeping activities report.

The MOA has a pesticide application certification ordinance for commercial application. It is located in Title 15.75, available at: <http://library.municode.com/index.aspx?clientId=12717>. It was updated during the second term to strengthen application restrictions, notifications, and certification requirements. These code requirements are enforced at Municipal and ADOT&PF facilities and an applications log is maintained. The certification is available through the Alaska Cooperative Extension, www.uaf.edu/ces/ah/psep/

The MOA and ADOT&PF each created SWPPPs for their material and maintenance facilities and their snow disposal sites during Term II of the permit. These are revised regularly, as needed, and monitoring is performed according to the SWPPP schedules. During this permit term, these monitoring reports are submitted with the annual reports.

The MOA and ADOT&PF provide training to staff regarding management of facilities and operations for pollution prevention. Training is specific to the SOPs and SWPPPs applicable to permittee sites.

- 3.4.6 **Implement appropriate requirements for pesticide, herbicide, and fertilizer applications.** Permittees must continue to implement practices to reduce the discharge of pollutants to the MS4 associated with the application, storage and disposal of pesticides, herbicides and fertilizers from municipal areas and activities. Municipal areas and activities include, at a minimum, municipal facilities, public right-of-ways, parks, recreational facilities, golf courses, and

landscaped areas. All MOA and ADOT&PF employees or contractors applying restricted use pesticides must be registered as certified applicators.

- 3.4.7 **Develop and Implement Storm Water Pollution Prevention Plans.** The permittees must conduct annual inspections and revise, as necessary, and implement SWPPPs for all permittee-owned, material storage facilities, maintenance yards, and snow disposal sites identified in the inventory required in Parts 3.3.1 and 3.4.1. Annual inspections must be submitted with the next Annual Report following the inspection. Permittee-owned facilities discharging storm water associated with industrial activity as defined in 40 CFR 122.26(b)(14) must obtain separate APDES permit coverage as required in Part 1.4.5 of this permit. Where presence of prohibited discharges indicates the need for corrective action, perform necessary corrections, update SWPPPs to incorporate preventative measures, and submit details with the annual report. When new facilities are built, develop and implement a SWPPP as part of the start-up activities.
- 3.4.8 **Training.** The permittees must provide regular training to appropriate permittee staff on all operations and maintenance procedures and SOPs designed to prevent pollutants from entering the MS4 and receiving waters. Appropriate permittee staff must receive training annually for their respective job duties.

In compliance with the permit, the MOA has a pollution prevention ordinance in AMC Title 21.07.04, available at www.muni.org. WMS provides code enforcement for it based on citizen complaints via a hotline at 343-4141, and a website, <http://www.muni.org/Departments/OCPD/development/BSD/Pages/CodeEnforcement.aspx>. From these sources, complaints are logged into a data tracking system and followed up within two working days until they are resolved. They are additionally mapped and provided annually to ADEC with the annual reports.

3.5 Illicit Discharge Management. An illicit discharge is any discharge to an MS4 that is not composed entirely of storm water. Exceptions are described in Part 1.4 of this permit. The permittees must implement their illicit discharge management program to reduce to the MEP the unauthorized and illegal discharge of pollutants to the MS4. The program must include:

- 3.5.1 **Ordinance or Other Regulatory Mechanisms.** Upon the effective date of this permit, the permittees must effectively prohibit non-storm water discharges to the MS4 (except those identified in Part 1.4 of this permit) through enforcement of relevant ordinances or other regulatory mechanisms. Such ordinances or regulatory mechanisms must be updated prior to the expiration date of this permit, as necessary, to provide adequate controls. To be considered adequate, this ordinance or regulatory mechanism must:

3.5.1.1 Authorize the permittee to prohibit, at a minimum, the following discharges to the MS4, unless otherwise authorized in Part 1.4:

- Sewage;
- Discharges of wash water resulting from the hosing or cleaning of

gas stations, auto repair garages, or other types of automotive services facilities;

- Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility, including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.;
- Discharges of wash water from mobile operations, such as mobile automobile or truck washing, steam cleaning, power washing, and carpet cleaning, etc.;
- Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas - including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc. - where no detergents are used and no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed);
- Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials;
- Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;
- Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and
- Discharges of food-related wastes (grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).

3.5.1.2 Prohibit and eliminate illicit connections to the MS4;

3.5.1.3 Control the discharge of spills, and prohibit dumping or disposal of materials other than storm water into the MS4.

3.5.2 **Illicit Discharge Complaint Reporting and Response Program.** At a minimum, permittees must respond to reports of illicit discharge from the public in the following manner:

3.5.2.1 **Complaint Hotline.** The permittees must maintain the dedicated telephone number and email address used by the public to report illicit discharges. This complaint hotline must be answered by trained staff during normal business hours. During non-business hours, a system must be in place to record incoming calls to the hotline and a system must be in place to guarantee timely response. The telephone number must be printed on all education, training, and public participation materials produced under Part 3.6, and clearly listed in the local telephone book and displayed on the program webpage.

3.5.2.2 **Response to Complaints.** The permittees must respond to all complaints as soon as possible, but no later than within two working days.

3.5.2.3 **Maintain log of complaints received and actions taken.** The permittees must maintain a record documenting all reports of illicit discharges and responses taken by the permittees.

3.5.3 **Illicit Discharge Mapping.** Throughout the permit term the permittees must maintain a map of reported and documented illicit discharges or illicit connections to identify priority areas. The map must identify, at a minimum, the location, type and relative quantity or severity of the discharge to the MS4. This map must be updated annually.

The permittees continue to perform dry weather screening for outfalls throughout the Municipality in accordance with Permit requirements in Part 3.5.4. The details about outfall selection and annual monitoring are provided in the QAPP and Monitoring Plan presented in the 2015 Annual Report. Follow-up for above threshold results is performed as soon as the information is reported, and if verified, the pollutant is traced to its source in the watershed and resolved. The MOA and its contractors perform the screening and follow-up activities on behalf of the permittee.

3.5.4 **Dry Weather Screening.** Permittees must conduct, and update as necessary, a dry weather analytical and field screening monitoring program. Field observations, monitoring, and analyses must be conducted at a minimum between June 1st and August 30th of each year. This dry weather screening program must emphasize frequent, geographically widespread monitoring to detect illicit discharges and illegal connections, and to reinvestigate potentially problematic outfalls. At a minimum, the procedures must be based on the following guidelines and criteria:

3.5.4.1 **Outfall Identification.** The permittees must update as necessary the storm water outfall identification and screening work plan, describing the reconnaissance activities that must be performed and other information to be used to determine outfalls to be screened and the project design for chemical and microbiological analysis including methodologies, thresholds to be used, and prioritization of target outfalls and land uses.

3.5.4.2 **Monitoring Illicit Discharges.** Throughout the permit term dry weather analytical and field screening monitoring must be conducted at least once between June 1st and August 30th of each year (or more often if the permittees deem necessary.)

- The permittees must monitor a minimum of 15 outfalls per year, and must have another 30 outfalls (minimum) designated as alternative sites for when a monitored outfall is dry.
- The outfalls must be geographically dispersed across the MS4 and must represent all major land uses and areas in the MS4. In addition, the permittees must ensure that dry weather screening includes, but is not limited to, screening of outfalls discharging to Category 4 and 5 water bodies listed in the State of Alaska's most recent Integrated Report.
- At a minimum, the permittees must collect grab samples for

analysis of the following constituents: pH, total chlorine, detergents as surfactants; total copper; total phenols; fecal coliform bacteria; and turbidity.

- Photos may be used to document conditions.
- Results of sampling must be compared to MOA-established threshold levels and existing state water quality standards. If the station is dry (no flowing or ponded runoff), the permittees must make and record all applicable observations and select another station from the list of alternate stations for monitoring.

3.5.4.3 Maintain Records of Dry Weather Screening. The permittees must keep detailed records of the dry weather screening with the following information: time since last rain event; quantity of last rain event; site description (i.e., conveyance type, dominant watershed land uses); flow estimation (i.e., width of water surface, approximate depth of water, approximate flow velocity, flow rate); and visual observations (i.e., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology).

3.5.5 Follow-up. The permittees must investigate recurring illicit discharges identified as a result of complaints or as a result of dry weather inspections within fifteen (15) days of its detection. Permittees must take necessary action to address the source of the ongoing illicit discharge within 45 days of its detection.

The permittees have a Spill Response Plan to respond to spills and discharges to the MS4. The plan was developed in the second term of the permit through stakeholder meetings between MOA, ADOT&PF, and ADEC. It was updated during the third term of the permit based on feedback from stakeholder groups. To assist with spill response MOA obtained a professional contract to provide assistance on an as-needed basis. The O&M personnel on shift at the time a spill notification is obtained responds and places protection around storm sewer or receiving water points of entry. They then clean the spill with their equipment or call in the contractor to complete the clean-up. They notify WMS of the spill for follow-up and reporting, and if appropriate, they notify ADEC of a reportable quantity.

When an orphan drum is found on a MOA right-of-way, the O&M crew evaluates the site for evidence of a spill and calls in the contractor for the needed level of cleanup and disposal.

To discourage the dumping of hazardous materials in open spaces the MOA has a used oil and toxic material collection site. They take small quantities for free at the Anchorage Transfer Station and at the Highland Regional Landfill.

Permittee staff are trained on recognizing illicit discharges and responding appropriately. When the situation isn't known, or isn't well defined, contractors with specific hazmat training are engaged to help with cleanup.

3.5.6 Prevent and Respond to Spills to the MS4. The permittees must prevent, respond to, contain and clean up all sewage and other spills that may discharge into the MS4 from any source (including private laterals and failing septic systems).

Throughout the permit term the permittees must coordinate and update plans spill prevention, containment and response activities throughout all appropriate departments, programs and agencies to ensure maximum water quality protection at all times. The Permittees must provide an update of their spill response program in the second year annual report.

- 3.5.7 **Facilitate Disposal of Used Oil and Toxic Materials.** Throughout the permit term the permittees must continue to facilitate the proper management and disposal or recycling of used oil, vehicle fluids, toxic materials, and other household hazardous wastes by their employees and the public. Such a program must include educational activities, public information activities, and establishment of collection sites operated by the permittees or other entity.
- 3.5.8 **Training.** Annually the permittees must update training materials and provide training to staff on identifying and eliminating illicit discharges, spill, and illicit connections to the MS4. At a minimum, the permittee's construction inspectors, maintenance field staff, and code compliance officers must be sufficiently trained to respond to illicit discharges and spills to the MS4.

3.6.0 Public Education and Involvement

The permittees partner with the Anchorage Waterways Council (AWC) for education and outreach within the Municipality of Anchorage based on a recommendation from the permitting agency. The AWC is the only non-profit organization with a surface water interest in the area and there is benefit for the permittees to have a community centered relationship with them to provide the best outreach coverage possible and identify areas needing ongoing outreach over a longer timeframe. A five-year work plan makes it easier to track and measure educational progress. To that end, AWC has developed a matrix of outreach subjects and targets for analysis considering what groups have been given information and where more work needs to be done. They measure progress every five years at the end of each permit term.

The work scope for the third term is appended in the 2015 Annual Report.

- 3.6.1 The permittees must conduct an ongoing education and public involvement program aimed at residents, businesses, industries, elected officials, policy makers, and employees of the permittees. The goal of the education program is to reduce or eliminate behaviors and practices that cause or contribute to adverse storm water impacts. The program must be designed and conducted using the recommendations from the MOA's 2010 and 2014 public awareness study, or other more recent assessment of public knowledge.

- 3.6.1.1 Throughout the permit term the permittees must implement or participate in an education and outreach program that uses a variety of methods to target the audiences and topics listed below. The outreach program must be designed to achieve measurable improvements in each target audience's understanding of the problem and what they can do to solve it.

- 3.6.1.1.1 General Public

- General impacts of storm water flows into surface water and awareness of storm water management practices in Anchorage
- Impacts from impervious surfaces
- Source control best management practices and environmental stewardship, actions and opportunities for pet waste control/disposal, vehicle maintenance, landscaping and vegetative buffers, trash and litter, and snow/ice chemical and sand usage

3.6.1.1.2 General public and businesses, including home based and mobile businesses

- Best management practices for use and storage of automotive chemicals, hazardous cleaning supplies, vehicle wash soaps and other hazardous or polluting materials.
- Impacts of illicit discharges and how to report them

3.6.1.1.3 Homeowners, landscapers, and property managers

- Yard care techniques protective of water quality
- Best management practices for use and storage of pesticides and fertilizers
- Best management practices for carpet cleaning and auto repair and maintenance
- Low Impact Development techniques, including site design, pervious paving, retention of mature trees and other vegetation
- Pet waste management
- Storm water treatment and flow control practices

3.6.1.1.4 Engineers, contractors, developers, review staff, and land use planners

- Technical standards for storm water site plans
- Low Impact Development techniques, including site design, pervious paving, retention of mature trees and other vegetation
- Storm water treatment and flow control practices.
-

3.6.1.2 The permittees must implement or participate in an effort to measure understanding and adoption of behaviors by the target audiences. The resulting measurements must be used to direct education and outreach resources most effectively.

3.6.1.3 The permittees must track and maintain records of public education activities.

The permittees perform targeted education and training for specific areas of the permit where they believe information is required for attainment of permit goals. Construction site operator training for erosion and sediment control is performed through the AK-CESCL program described in 3.1.6. Permanent storm water control training is handled through professional development meetings and subject-specific training in conjunction with the development and implementation of the design criteria manual which incorporates low impact development and green infrastructure. Staff training for watershed management and street maintenance crews is performed during regular staff meetings by going over SOPs, safety procedures, and illicit discharge detection and elimination training programs developed by professional educators. Staff is made aware of protocols for dealing with spills and discharges.

3.6.2 **Targeted Education and Training.** The permittees must develop and implement comprehensive education and training as outlined in this permit in the following sections:

- 3.6.2.1 Construction Storm Water Management Training for construction site operators and staff;
- 3.6.2.2 Permanent Storm Water Control Training for project operators and staff
- 3.6.2.3 Storm Water Infrastructure and Street Management/ Maintenance training for State and Municipal staff;
- 3.6.2.4 Illicit Discharge Management Training for state and municipal staff.

The permittees hold the annual meeting every year prior to the start-up of the Anchorage construction season. It is attended by MS4 permit stakeholders including professional interest groups, local non-profit groups, regulatory interests, and a large range of permittee staff. During the meeting information is presented regarding the activities of the past permit year as well as those of the upcoming permit year. Frequently, an in-depth training is offered on one of the targeted education topics.

3.6.3 **Annual Meeting.** The permittees must jointly organize an annual meeting to coordinate implementation of the SWMP among their respective agencies, as well as with other municipal, state and federal agencies and groups involved or interested in the permittees program.

- 3.6.3.1 The annual meeting must be held during February, March, or April of each year.
- 3.6.3.2 An invitation must be sent to individuals on a list comprised of all persons responsible for implementation of the SWMP, those making decisions that may impact storm water runoff, key individuals representing groups regulated by the SWMP, regulators, and specialists (experts on water quality, information management, land-use planning, etc.), and water quality interest groups.
- 3.6.3.3 The meeting must include a review of the previous year's activities, a presentation and discussion of next year's activities, and a presentation and discussion of monitoring efforts for the following year.

3.6.3.4 The permittees must accept public input during the annual meeting.

The permittees hold two meetings per year with coordinating groups for oversight of the permit. These include MOA and ADOT&PF program leads for Maintenance, Construction, and New Development, WMS staff, and the ADEC permit administrator. Agendas are focused on project updates, current issues, and items needing clarification. WMS puts together meeting summaries and they are reviewed and approved at the next meeting. This provides the permittees and the administrator a method of communicating regarding regulatory concerns.

3.6.4 **Semi-Annual Meetings.** The permittees must jointly organize and participate in permit coordination meetings with DEC to discuss permit requirements, SWMP implementation results over the previous two quarters, and SWMP implementation objectives for the following two quarters. At a minimum, meetings must be held in March and October of each year, or at a schedule mutually agreed upon by the permittees and DEC.

The permittees maintain a website with two URLs, anchoragestormwater.com, and anchoragewatershed.com. This gives users two distinct pathways of accessing information based on how they perceive environmental protection. The website has information to help the regulated community find forms and guidance to comply with construction and development. It provides access to the annual reports and project documents developed for permit compliance. It provides a platform for providing, training, draft documents for review, and information about upcoming meetings.

3.6.5 **Storm Water Website.** The permittees must each maintain and promote a publicly- accessible website that acknowledges the program activities; the websites must describe and provide relevant information regarding the activities of both permittees. The website must be updated within one year from the effective date of this permit, at least semi- annually thereafter as new material is available. The website must incorporate the following features:

3.6.5.1 All reports generated in compliance with this permit must be posted, in draft form when input is being solicited from the public, and in final form when the document is completed;

3.6.5.2 Information and/or links to key sites that provide education, training, licensing, and permitting related to construction and post-construction activities, industrial activities and illicit connections; and

3.6.5.3 Contact information, including phone numbers for staff and hotline, mailing addresses, and electronic mail addresses.

4.0 MONITORING, EVALUATION, REPORTING, AND RECORD KEEPING REQUIREMENTS

4.1 Monitoring Program Plan

The permittees will use quantitative and qualitative assessment to evaluate their compliance

with permit conditions. Annual evaluation will include review of performance records for street sweeping and catch basin cleaning, review of illicit discharge complaint response, monitoring performance and follow-up for wet and dry weather screening and pesticides, for proper execution of permit requirements. The results of these evaluations will be presented throughout the annual report in the relevant section associated with each program activity.

In the first permit year permittees developed a plan to monitor and characterize the quality of storm water discharges from the MS4. The evaluation includes a review of monitoring to broadly assess fecal coliform and petroleum products based on total results over the life of the project. It will evaluate the adequacy of control measures for fecal coliform and petroleum. It will also consider what additional control will be needed to deal with any deficiencies in source control determined as a result of the evaluation.

- 4.1.1 **Assess Permit Compliance.** At least once per year, each permittee must individually evaluate their organization's compliance with these permit conditions, and progress toward achieving each of the control measures defined in Part 3.0. The compliance evaluation must be documented in each Annual Report required in Part 4.4.3.
- 4.1.2 **Monitoring and Evaluation Objectives.** The permittees must conduct a monitoring and evaluation program to characterize the quality of storm water discharges from the MS4, and to evaluate effectiveness of selected storm water management practices. Not later than one year from the effective date of this permit, the permittees must develop a monitoring and evaluation plan that includes the quality assurance requirements, pesticide screening, outfall monitoring, and site retrofit activities described later in this Part. In general, the permittees must develop and conduct a monitoring and evaluation program to:
- 4.1.2.1 Broadly estimate the annual pollutant loading of fecal coliform bacteria and petroleum products discharged to impaired receiving waters from the MS4s;
- 4.1.2.2 Assess the effectiveness and adequacy of at least two control measures implemented through this permit term in reducing fecal coliform bacteria and petroleum products; and
- 4.1.2.3 Identify and prioritize those portions of each permittee's MS4 requiring additional controls.
- An updated monitoring and evaluation plan must be submitted to DEC with the First Year Annual Report.
- 4.1.3 **Representative Sampling.** Samples and measurements must be representative of the nature of the monitored discharge.
- 4.1.4 **Analytical Methods.** Sample collection, preservation, and analysis must be conducted according to test procedures approved under 40 CFR Part 136 unless otherwise approved by DEC. Where an approved 40 CFR Part 136 method does not exist, and other test procedures have not been specified, any available method

may be used after approval from DEC.

The QAPP for the ongoing permittees' monitoring plan was updated in the six month submittal of the permit term. Along with the monitoring and evaluation plan, the QAPP is updated as needed and submitted in conjunction with the monitoring plan. The QAPP will use the DEC approved procedures described in 4.1.5.2.

4.1.5 Quality Assurance Requirements. Permittees must update, implement, and maintain a quality assurance project plan (QAPP) for all analytical monitoring conducted in accordance with this permit. The QAPP must be developed concurrently as part of the monitoring and evaluation plan. The permittees must submit written notice to DEC (Appendix A, Part 1.1.2) within 6 months of the effective date of this permit affirming that its QAPP to DEC is up to date and has been developed or updated and implemented. Any existing QAPP may be modified for the requirements under this section.

4.1.5.1 The QAPP must be designed to assist in the collection and analysis of storm water discharges in support of this permit and in explaining data anomalies when they occur.

4.1.5.2 Throughout all sample collection and analysis activities, permittees must use the DEC-approved QA/QC and chain-of-custody procedures described in the following documents:

4.1.5.2.1 *EPA Requirements for Quality Assurance Project Plans EPA-QA/R-5* (EPA/240/B-01/003, March 2001). A copy of this document can be found electronically at: <http://www.epa.gov/quality/qs-docs/r5-final.pdf>;

4.1.5.2.2 DEC's Elements of a Good Quality Assurance Project Plan (QAPP) (DEC, 2002);

4.1.5.2.3 *Guidance for Quality Assurance Project Plans EPA-QA/G-5*, (EPA/600/R-98/018, February, 1998). A copy of this document can be found electronically at: <http://www.epa.gov/r10earth/offices/oea/epaqag5.pdf> ;

4.1.5.2.4 *Urban Storm BMP Performance Monitoring*, (EPA-821-B-02-001, April 2002). A copy of this document can be found electronically at: <http://www.epa.gov/npdes/pubs/montcomplete.pdf>

The QAPP must be prepared in the format specified in these documents.

4.1.5.3 At a minimum, the QAPP must include the following:

4.1.5.3.1 Organization chart reflecting responsibilities of key permittee staff;

4.1.5.3.2 Details on the number of samples, type of sample containers, preservation of samples, holding times, analytical methods, analytical detection and quantitation limits for each target

compound, type and number of quality assurance field samples, precision and accuracy requirements, sample representativeness and completeness, sample preparation requirements, sample shipping methods, and laboratory data delivery requirements;

- 4.1.5.3.3 Data quality objectives;
 - 4.1.5.3.4 Map(s) and associated documentation reflecting the location of each sampling point and physical description including street address or latitude/longitude;
 - 4.1.5.3.5 Qualification and training of personnel;
 - 4.1.5.3.6 Name(s), address(es) and telephone number(s) of the laboratories, used by or proposed to be used by the permittees;
 - 4.1.5.3.7 Data management;
 - 4.1.5.3.8 Data review, validation and verification; and
 - 4.1.5.3.9 Data reconciliation.
- 4.1.5.4 The permittees must amend the QAPP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAPP. Amendments must be submitted to DEC within seven days of changing the QAPP.
- 4.1.5.5 Copies of the approved QAPP must be maintained by the permittees and made available to DEC upon request.

The permittees will continue to perform pesticide screening as they have in previous terms of the permit. This will involve two sampling events during the third term at three closed basin lakes. The details of the sampling including locations and methods will be provided in the pesticide monitoring plan due with the first annual report. A deviation from the permit was necessary due to lack of acceptable immunoassay kits available on the market. A laboratory procedure was substituted, originally a drinking water method, and then a last minute substitution for a surface water screening method. This substitution is a more reliable method for pesticide detection.

- 4.1.6 **Pesticide Screening.** The permittees must conduct pesticide screening activities during the late summer at Lake Otis, Hideaway Lake, and Little Campbell Lake (reference basin) in years two and four using immunoassay test kits to measure pesticide concentrations. If pesticides are detected using the screening test kits, the permittees must confirm the results by collecting representative samples from the location where the occurrence was measured as soon as possible and analyzing the samples at an analytical testing laboratory using approved methods.

The permittees will continue to perform storm water outfall monitoring as they have over the second term of the permit. There are two additions to the list of parameter for this term; both dissolved copper and hardness will be included in the monitoring program. Permittees will monitor rain events of 0.1 inches or greater during the months of July to November at ten sites in a mid-transect across Anchorage. The site selection criteria, and monitoring methodology are provided in the monitoring plan due with the first annual report. An evaluation of the monitoring will be performed in years one and four of the permit.

4.1.7 Storm Water Outfall Monitoring

4.1.7.1 The permittees must continue to implement a Storm Water Outfall Monitoring Plan consistent with the monitoring and evaluation plan objectives described above. The Storm Water Outfall Monitoring Plan must include a list of at least 30 outfalls prioritized to identify “high” and “medium” priority monitoring locations. The permittees must select a subset of at least 10 outfall locations to monitor throughout the permit term. The outfalls selected by the permittees in the Storm Water Outfall Monitoring Plan must be representative of major land uses within the Anchorage area.

4.1.7.2 Upon the effective date of this permit, the permittees must continue monitoring the identified storm water outfalls in the Anchorage area during wet weather events at least four times per year. The specific monitoring requirements are outlined in Table 5

Table 5: Outfall Monitoring Requirements

Parameter	Monitoring requirements		
	Sample location ¹	Sample frequency ²	Sample type ³
Dissolved Oxygen		4 times/year	Grab
pH		4 times/year	Grab
Temperature (°C)		4 times/year	Grab/Recording
Turbidity		4 times/year	Grab/Recording
Flow (cfs)		4 times/year	Grab/Recording
Biochemical Oxygen Demand, 5-day (mg/L)		4 times/year	Grab
Fecal coliform bacteria (#colonies/100mL)		4 times/year	Grab
Hardness (mg/L) ⁴		4 times/year	Grab
Dissolved Copper (µg/L) ⁴		4 times/year	Grab
Total suspended solids (mg/L)		4 times/year	Grab
Total Aromatic Hydrocarbons (TAH), and Total Aqueous Hydrocarbons (TaqH) ⁵		4 times/year	Grab

1 Outfall locations must be defined in the permittees’ Storm Water Outfall Monitoring Plan.
 2 A minimum of four (4) samples must be collected in calendar year assuming the presence of storm events sufficient to produce a discharge.
 3 Permittees may use other sample types as long as previously identified in the monitoring plan. Grab samples may be taken manually or with an automatic water sampler
 4 Sample for Hardness and Dissolved Copper in years three and four only.
 5 Sampling of this parameter depends upon the characteristic of, or potential for, this pollutant within the contributing area to the outfall. This parameter may or may not be required at all outfalls based on the analysis and rationale presented in the monitoring plan.

- 4.18 **Evaluate Monitoring Results.** Within one year and four years of the effective date of the permit, evaluate the results of the monitoring program to-date and submit the results with the Annual Report. In the evaluation, discuss the effectiveness of street sweeping to reduce turbidity in the outfall, street sweeping and public education to reduce fecal coliform bacteria in the outfall, and other trends or characteristics that may appear as a result of monitoring.

The permittees will continue to evaluate snow storage retrofits to assess the effectiveness of the retrofits performed in the second term of the permit. Chloride and turbidity will represent the salt and sediment pulled off the street with the snow throughout the winter. The monitoring method is presented with the monitoring plan and QAPP. Results for two years of monitoring will be submitted with the corresponding year annual report and summarized in the fourth annual report.

- 4.19 **Evaluate Snow Storage Retrofits.** The permittees must continue to monitor their new or retrofitted snow storage sites according to the criteria developed by MOA-Watershed Management Section (WMS) regarding siting, design and operation and/or by using infiltration, evapotranspiration or reuse techniques. The permittees must quantitatively assess the effectiveness of their retrofits by measuring changes in chloride and turbidity in melt water at least twice during the permit term and must document results in a final project report to be submitted in the fourth Annual Report.

4.2 Reporting Requirements

An annual report will be submitted by February 15th of each permit year. It will contain progress updates of the year's compliance activities as directed by 4.4.3 along with a status of the entire permit. It will include in the form of individual project reports for Stormwater Monitoring, Dry Weather Screening, etc., the elements of the Storm Water Discharge Monitoring Report including sampling locations and results, and examples of public education products. An assessment of the permittees' compliance and overall effectiveness will also be submitted with the annual report. The detailed annual report will be accompanied by a form summarizing the compliance deliverables, provided by Appendix D of the permit.

- 4.2.1 **Storm Water Discharge Monitoring Report.** Annually, all storm water discharge monitoring data must be submitted as part of the Annual Report. At a minimum, this Storm Water Discharge Monitoring Report must include:
- 4.2.1.1 Dates of sample collection and analyses;
 - 4.2.1.2 Results of sample analyses; and
 - 4.2.1.3 Location of sample collection.
- 4.2.2 **Annual Report.** One year from the effective date of this permit, and annually thereafter, each permittee must prepare and submit an Annual Report to DEC. Copies of all Annual Reports must be made available to the public, at a minimum, through a permittee- maintained website, or other easily accessible location. The following information must be contained in each Annual Report:
- 4.2.2.1 Each report must assess the permittee's compliance with this permit and progress towards achieving the identified actions and activities for each control measure in Parts 3.0 and 4.0. The status of each activity must be addressed, even if activity has previously been completed or not yet been implemented;
 - 4.2.2.2 Results of any information collected and analyzed during the previous 12 month period, including storm water discharge, pesticide screening, and any other information used to assess the success of the SWMP;
 - 4.2.2.3 A summary of the number and nature of complaints received by the permittees, as well as a summary of the number and nature of inspections, formal enforcement actions, and/or other similar activities performed by the permittees;
 - 4.2.2.4 Copies of education materials, ordinances (or other regulatory mechanisms), inventories, guidance materials, or other products produced as a result of actions or activities required by this permit;

- 4.2.2.5 A general summary of the activities the permittees plan to undertake during the next reporting cycle (including an implementation schedule) for each minimum control measure;
- 4.2.2.6 A description and schedule for implementation of additional controls or practices that may be necessary, based on monitoring results, to ensure compliance with applicable WQS; and
- 4.2.2.7 Notice if the permittees are relying on another entity to satisfy any of the permit obligations, if applicable.

4.3 Evaluation of Overall Program Effectiveness

Annual Effectiveness Assessment – At least annually the permittee must evaluate its compliance with the permit conditions, the appropriateness of identified BMPs, and progress toward achieving identified measurable goals for each of the minimum control measures in Part 3.0. This evaluation of program compliance must be documented in the Annual Report. The annual effectiveness assessment must:

- 4.3.1 Use the monitoring and assessment data described in Part 4.1 to specifically assess the effectiveness of each of the following:
 - 4.3.1.1 Each significant activity/control measure or type of activity/control measure implemented;
 - 4.3.1.2 Implementation of each major component of the SWMP, and
 - 4.3.1.3 Implementation of the SWMP as a whole.
- 4.3.2 Identify and use measurable goals, assessment indicators, and assessment methods for each of the items listed in Part 4.3.1.
- 4.3.3 Document the permittee's compliance with permit conditions.
- 4.3.4 Based on the results of the effectiveness assessment, the permittee must annually review their activities or control measures to identify modifications and improvements needed to maximize SWMP effectiveness, as necessary to achieve compliance with this permit. The permittee must develop and implement a plan and schedule to address the identified modifications and improvements. Base activities/control measures that are ineffective or less effective than other comparable base activities/control measures must be replaced or improved upon by implementation of more effective base activities/control measures.

4.4 Annual Reports

- 4.4.1 **Submission Deadlines** - According to the schedule in Table 6: Submission Deadlines for Annual Reports, and annually thereafter, the permittee must submit

an Annual Report for the previous twelve months to DEC at the address in Part 4.6. The Annual Report must clearly refer to the permit requirements and describe in quantifiable terms the status of activities undertaken to comply with each requirement. In addition, copies of all Annual Reports must be available to the public through the municipal library system, a permittee- maintained website, or other easily accessible location.

Table 6: Submission Deadlines for Annual Reports

Reporting Period	Submission Deadline
1 st year Annual Report (permit issuance date – December 2015)	February 15, 2016
2 nd year Annual Report (January 1, 2016 – December 31, 2016)	February 15, 2017
3 rd year Annual Report (January 1, 2017 – December 31, 2017)	February 15, 2018
4 th year Annual Report (January 1, 2018 – December 31, 2018)	February 15, 2019
5 th year Annual Report (January 1, 2019 – permit expiration date ¹)	February 15, 2020
Note:	
1. Unless the permit is extended to or past December 31, 2019; in which case December 31, 2019. Subsequent reporting periods will follow similar format for the calendar year with submission deadline of February 15 th the following year.	

4.4.2 **Summary Annual Report** – The permittee must use the MS4 – Summary Annual Report template in Appendix D to document a summary of the past year’s activities. All of the information required on this form must be submitted.

4.4.3 **Detailed Annual Report** – The permittee must also submit a detailed Annual Report that addresses the activities described in the SWMP document required in Part 2.0. The Annual Report must include, at a minimum:

4.4.3.1 An updated SWMP document as required in Part 2.0;

4.4.3.2 A description of the effectiveness of each SWMP program component or activity (see Part 4.3);

4.4.3.3 Planned activities and changes for the next reporting period for each SWMP program component or activity.

4.4.3.4 An evaluation of compliance with the requirements of this permit, the appropriateness of identified BMPs, and progress toward achieving identified measurable goals of the SWMP for each minimum control measure;

4.4.3.5 Results of any information collected and analyzed during the previous twelve month reporting period, including monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP;

4.4.3.6 A summary of the activities the permittee plans to undertake during the next reporting cycle (including an implementation schedule) for each minimum control measure;

- 4.4.3.7 Proposed changes and completed changes to the SWMP, including changes to any BMPs or any identified measurable goals for any minimum control measures;
- 4.4.3.8 Description and schedule for implementation of additional BMPs that may be necessary, based on monitoring results, to ensure compliance with applicable WQS;
- 4.4.3.9 Notice if the permittee are relying on another entity to satisfy some of the permit obligations, if applicable;

4.5 Recordkeeping

Reports along with raw data files summarizing much of the permittees compliance activities are available on their website, anchoragestormwater.com. Anything permittees have generated or collected that is not part of the project report, such as project communications, is kept in an electronic folder along with their associated reports for at least five years beyond the end of the permit term. These miscellaneous articles are available at the WMS offices on request.

- 4.5.1 **Retention of Records:** The permittee must retain records and copies of all information (including all monitoring, calibration and maintenance records and all original strip chart recordings for any continuous monitoring instrumentation, copies of all reports required by this permit, copies of DMRs, a copy of the APDES permit, and records of all data used to complete the application for this permit) for a period of at least five years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer. This period may be extended at the request of the DEC at any time within that time frame. Records include all information used in the development of the storm water management program, all monitoring data, copies of all reports, and all data used in the development of the permit application.
- 4.5.2 **Availability of Records:** The permittee must retain the SWMP required by this permit (including a copy of the permit language and all Annual Reports) at a location accessible to the DEC. The permittee must make records, including the permit application and the SWMP, available to the public if requested to do so in writing and make those records available during normal business hours. The permittee may charge the public a reasonable fee for copying requests.

4.6 Address

Submittals required by this permit must be made to the address specified in Appendix A, Part 1.1.2.

Acronyms

Abbreviations	Nomenclature
AAC	Alaska Administrative Code
ACGP	Alaska Construction General Permit
ADOT&PF	Alaska Department of Transportation and Public Facilities
AK-CESCL	Alaska-Certified Erosion and Sediment Control Lead
APDES	Alaska Pollutant Discharge Elimination System
AS	Alaska Statute
BMP	Best Management Practice
CAG	Community Advisory Group
CAM	Construction Activity Manual
C&D	Construction and Development
CGP	Construction General Permit
CFR	Code of Federal Regulations
CWA	Clean Water Act
DEC	Alaska Department of Environmental Conservation
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
EFH	Essential Fish Habitat
EISA	Energy Independence and Security Act
ELG	Effluent Limitation Guideline
EPA	United States Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
LID	Low Impact Development
MOA	Municipality of Anchorage
MS4	Municipal Separate Storm Sewer System
MSGP	Multi-Sector General Permit
NMFS	United States National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units

Abbreviations	Nomenclature
NURP	Nationwide Urban Runoff Program
PCAM	Post-Construction Activity Manual
POA	Port of Anchorage
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
SCM	Storm Water Control Measure
SPCC	Spill Prevention, Control, and Countermeasure
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
WMS	Watershed Management Services
WQS	Water Quality Standard