

2011 ANNUAL REPORT

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Acronyms

ADEC	Alaska Department of Environmental Conservation
AMC	Anchorage Municipal Code
APDES	Alaska Pollutant Discharge Elimination System
ADOT&PF	Alaska Department of Transportation and Public Facilities
ARDSA	Anchorage Road and Drainage Service Area
AWC	Anchorage Waterways Council
CBERRRSA	Chugiak Birchwood Eagle River Rural Road Service Area
CESL	Certified Erosion and Sediment Control Lead
DCM	Design Criteria Manual
EPA	Environmental Protection Agency
GIS	Geographic Information System
GPS	Global positioning system
HGDB	Hydrogeodatabase
LID	Low Impact Development
M&O	ADOT&PF Central Region Division Maintenance and Operation
MASS	Municipality of Anchorage Standard Specifications
MOA	Municipality of Anchorage
MS4	municipal separate storm sewer system
MS4GDB	MS4 geodatabase
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
OGS	Oil and grit or oil and grease separator
SOP	Standard Operating Procedures
SWPPP	Storm Water Pollution Prevention Plan
SWTPRGM	Storm Water Treatment Plan Review Guidance Manual

Introduction

The Municipality of Anchorage (Municipality) and the State of Alaska, Department of Transportation and Public Facilities (ADOT&PF), submit this Report in fulfillment of the annual reporting requirements of APDES Permit No. AKS 05255-8, *“Authorization to Discharge Under the National Pollutant Discharge Elimination System”* (Permit), effective date February 1, 2010. This report satisfies the criteria set forth in Permit Section IV.C and is organized by program to demonstrate compliance with the *“Storm Water Management Program - Schedule for Implementation and Compliance”* presented in Section III of the Permit. Documents produced in compliance with this Report are included in associated Appendices A through H.

The permittees responsibilities are both joint and individual; they are laid out in their Inter-jurisdictional Agreement describing their respective roles and responsibilities related to this Permit. Coordination between groups within the permittees organizations are laid out in their Program Coordination Plans.

Responsibilities for certain requirements have been shared with the Anchorage Waterways Council based on interests expressed during the public comment period associated with the draft Permit. The delegated activities are in the area of Public Education for General Audiences located in Permit Part II.B.6.

1 Program Coordination

1.1 Annual Meeting

The 2011 Annual Meeting provided information to participants about the second term of the MS4 Permit. It was held the morning of March 22nd at the BP Energy Center and attended by 76 people from agencies and the public with an interest in storm water management. It covered the activities of the first two years of the Permit with a focus on the Monitoring Plan for stormwater outfall monitoring, low impact development pilot projects, and design criteria. The agenda and meeting summary are available in Appendix A1.

1.2 Quarterly Meetings

Quarterly Meetings between the permittees and ADEC continued through the second permit year to provide a means of discussion regarding permit activities and issues. These meeting summaries are available in Appendix A2.

1.3 SWMP

The Storm Water Management Plan (SWMP) action and activities, defined in the Permit, are intended to reduce the discharge of pollutants from the MS4 into receiving waters to the maximum extent practicable (MEP). With this core goal in mind the permittees have implemented the prescribed best management practices (BMP) including control measures, system design, engineering methods, and other provisions appropriate to the control and minimization of pollutants and addressed the Permit requirements as described in our compliance reports. The compliance measures taken in 2011 are identified in their appropriate program summaries along with results of information collected, summaries of activities, and appendix references and web-links to associated supporting materials. Also in each program section are self-assessments of performance and summaries of planned activities for future reporting cycles. The permittees believe all second year Permit requirements were met with the exception of municipal oversight of the common plan of development requirement associated with the Alaska Construction General Permit. This requirement was fully implemented retroactive to 2010 upon realization of the deficiency based on

receipt of a notice of violation from ADEC. Staffing issues were attributed as the cause for this non-compliance issue and steps are being taken to resolve them.

The primary coordinating groups have provided 2011 MS4 Summaries for their areas of permit compliance. These are provided in Appendix A3.

The permittees have broken their program costs into two functional categories: Operations & Maintenance and Program Management/Project Administration. These are

Table 1.1 SWMP Program Costs

	ADOT&PF	Municipality	CBERRRSA	Total
Maintenance & Operations	\$4.3M	\$ 2.4M	\$0.70M	\$7.4M
Program Management/ Administration	\$0.5M	\$1.3M	-	\$1.8M
	\$4.8M	\$3.7M	\$0.26M	\$8.8M

1.4 Storm Water Website

In 2011 the permittees developed a new website. The website can be found at www.AnchorageWatershed.com or www.AnchorageStormwater.com and will act as the repository for all program information including project reports, data, map products, forms, permit applications, and SWPPP guidance, and watershed plans. This site has been updated with new permit information and links. An additional link through the municipal website: http://www.muni.org/Departments/works/project_management/WM/Pages/Default.aspx directs user to updated information as well.

1.5 Watershed Planning

The permittees are required to complete two watershed plans before the end of the second term of the Permit. The Little Campbell Creek Watershed Plan was developed under the guidance of a working group composed of diverse agency interests and supported by staff from WMS, U.S. Fish and Wildlife Service, and the Anchorage Waterways Council. The report is available on the WMS website.

The second watershed plan under way is the update of the draft Chester Creek Watershed Plan. A working group composed similarly to the Little Campbell Creek Plan began meeting in January of 2011 to define this project's activities including the incorporation of information on invasive species, fish passage, wildlife management, and an implementation plan for achieving desired goals. A work scope has been developed to identify locations within drainage areas experiencing higher pollutant loading to consider attenuating flows using green infrastructure. WMS anticipates six months for the opportunities analysis and two years for completion of the plan.

2 Construction Site Management

2.1 Regulatory Mechanism and Standards

ORDINANCE AND/OR REGULATORY MECHANISM

ADOT&PF Projects ADOT&PF regulates construction site management of its projects through Section 641 of its standard specifications. These were updated in 2010. These standard specifications are contractually enforced. ADOT&PF provides guidance on contract administration to its project staff through Chapter 9.9 of the Alaska Construction Manual which outlines procedures for implementing and monitoring construction SWPPPs. These documents were provided in the 2010 Annual Report

Private Development The Municipality regulates storm water management at private construction sites Anchorage Municipal Code (AMC) Title 21. The Municipal ordinance 2010-81, adopted on December 7, 2010, amends Title 21 to require a permit, entailing plan review and approval, for ground disturbing activities. This ordinance adds a new section, AMC 21.67.09, to municipal code. A copy of the pertinent portion of ordinance 2010-81 (Section 47) was provided in the 2010 Annual Report

Municipal Projects The Municipality regulates storm water management during construction of its own (public) projects through Division 20 (MASS Section 20.02) of its Municipality of Anchorage Standard Specifications (MASS). These standard specifications are contractually enforced. MASS Section 20.02, is being updated to incorporate requirements of Alaska's 2011 Construction General Permit. A link to the MASS is found at http://www.muni.org/Departments/project_management/Pages/MASS.aspx.

CONSTRUCTION STORM WATER MANUAL

ADOT&PF Projects ADOT&PF revised its Alaska SWPPP Guide in March 2011. The revised guide is available on the ADOT&PF web site. A link to the manual is found at: http://www.dot.state.ak.us/stwddes/desenviron/pop_swppp.shtml

Private and Municipal Projects The Municipality updated its Storm Water Plan Review and Treatment Guidance Manual in September, 2010, to reflect the 2010 Alaska Construction General Permit and to include new items, such as a requirement for submittal of record drawings (as-builts) and to specify new inspection requirements. The manual is referenced both from AMC 21.67 (applicable to private projects) and from the Municipal Design Criteria Manual Chapter 2 (applicable to Municipal projects; see Section 3.1). A link to the manual is found at http://www.muni.org/Departments/project_management/Pages/StormWaterTreatmentPlanReview.aspx.

2.2 Plan Review and Approval

ADOT&PF Projects ADOT&PF reviewed 7 projects conducted or funded by ADOT&PF. A list is provided in Appendix B1.

Private and Municipal Projects The Watershed Management Section (WMS) of the municipality continues to review construction SWPPPs for projects conducting ground disturbance greater than 500 square feet. The types of projects reviewed include utility work, any work requiring a building permit, new subdivisions and road projects. On July 1, 2011, WMS began regulatory review of all Municipal projects 1 acre and greater. The reviews encompass construction erosion control measures and permanent stormwater management practices.

In 2011, WMS reviewed, approved, and inspected approximately 233 new single family dwellings, 21 duplexes, 34 multi-family dwellings, 34 commercial buildings 42 government building and a number of residential, commercial and government building additions. WMS also conducted Storm Water Pollution Prevention Plan reviews of Municipal Projects.

The Municipal Development Services Division implemented a computer-based building permit administration system to track and document plan reviews and approvals in 2010. WMS continues to pursue applicable program updates in compliance with conditions of the MS4 Permit.

2.3 Construction Site Inspections and Enforcement

2.3.1 Inspection and Enforcement Tracking

A summary of inspection activities reveals that 148 commercial site inspections and 295 residential site inspections were conducted during 2011 including 15 construction related inspections from the illicit discharge reporting website located at:

<http://www.muni.org/Departments/development/BSD/Pages/CodeEnforcement.aspx>. For each of these inspections the SWPPP or other site documentation was reviewed and a physical inspection of the site was performed to confirm there were no illicit discharges. At the conclusion of the visit an inspection report of findings and any required corrections was given to the site representative. Where corrections were indicated a re-inspection was scheduled to confirm compliance. When compliance isn't achieved within the specified period of time a stop work order is issued until compliance is achieved. In 2011 no stop work orders were given. The records for site inspections along with associated compliance follow-up are available for review at WMS.

2.3.2 Enforcement Response Policy

ADOT&PF ADOT&PF provides guidance on enforcement and corrective action implementation to its project staff through Chapter 9.9 of the Alaska Construction Manual. A link to this manual can be found at <http://www.ADOT&PF.state.ak.us/stwddes/dcsconst/resources.shtml>.

Municipal The Municipality updated its escalating enforcement policy during the second year of the Permit. It is provided in Appendix B2.

2.3.3 Construction General Permit Violation Referrals

ADOT&PF ADOT&PF provides guidance to its project staff on reporting noncompliance in Chapter 9.9 of the Alaska Construction Manual. A link to this manual can be found at <http://www.ADOT&PF.state.ak.us/stwddes/dcsconst/resources.shtml>.

Municipal The permit requires the Municipality to report to ADEC when they find projects which failed to comply with the Construction General Permit prior to breaking ground. Two non-compliance reports were provided to the ADEC. Both reports were related to the common plan of development requirement of the permit.

2.4 Construction Program Education and Training

Agreement was reached by agencies and interest groups for a standardized training course targeted for construction site owners and operators and their key personnel. In 2009, a Memorandum of Understanding to establish Certified Erosion and Sediment Control Leads in Alaska (AK-CESCL) was signed by eight governing members comprised of the Alaska Department of Environmental Conservation, the Alaska

Department of Natural Resources, ADOT&PF, the Alaska Railroad Corporation, the Associated General Contractors, the Municipality, the US Army Corp of Engineers, and the Associated Builders and Contractors Alaska. The agreement, training requirements, and course elements for the AK-CESCL program were provided in the 2010 Annual Report.

ADOT&PF ADOT&PF conducted the following trainings (outlines and sign-in sheets in Appendix B3):

Spring Fling: 4-5-11 and 4-6-11. CR Construction Annual Training. A portion of this training always deals with environmental issues and emphasizes things that have changed in the last year or things that ADOT&PF had problems with during the last year.

Environmental Expo: 3-24-11. This day-long information seminar incorporates a variety of speakers and topics related to all aspects of construction topics.

AK CESCL: 30-01-11, 4-13-11 and 5-18-11. Alaska Certified Erosion and Sediment Control Lead (AK CESL) is a 2 day course. Per ADOT&PF's Consent Decree with the EPA all Project Engineers and SWPPP Inspectors must be AK CESCL certified or an approved equal. This program requires recertification every 3 years.

Municipal The Municipality conducted the following training (list of attendance in Appendix B4):

AK CESCL: The Municipality recertified its construction project staff through the AK CESCL training program on April 27-28.

3 Storm Water Management for Areas of New and Redevelopment

3.1 Regulatory Mechanisms and Standards

3.1.1 Ordinance and/or Regulatory Mechanism

ADOT&PF ADOT&PF regulates project development through the Preconstruction Manual and SWPPP manual (most recently updated in February 2011). These manuals are backed by Alaska State law. Chapter 11 of the Preconstruction Manual dictates highway design criteria. Manuals are periodically updated to reflect new requirements. In addition, project or region-specific requirements are disseminated by the Preconstruction Engineer or Division Director. This Permit requirement is being met through periodic manual updates. In addition, the newest APDES Construction General Permit has been issued, effective July 1, 2011 through January 31, 2016.

Municipal Projects The Municipality regulates permanent storm water controls on its own projects through the Municipal Design Criteria Manual (DCM). This Permit requirement has been met by changes to the DCM prior to the Permit expiration date, as described in section 3.1.2.

Private Projects The Municipality regulates permanent storm water controls through the Anchorage Municipal Code Title 21, which refers to the DCM. This Permit requirement will be made by changes to DCM prior to the Permit expiration date, as described in section 3.1.2.

3.1.2 Storm Water Design Criteria Manual

ADOT&PF Projects The ADOT&PF Central Region Design Division has updated design criteria, including standard specification section 641 (Erosion, Sediment, and Pollution Control) to meet the Permit requirement. The latest update is effective January 1, 2012 and can be found on the state website.

Private and Municipal Projects The Municipality establishes design criteria for permanent storm water controls through Chapter 2 of its DCM, which is referenced from AMC Title 21. The DCM provides policy and incorporates by reference associated manuals, including the Drainage Design Guidelines, the Low Impact Development Design Guidance Manual, and the Storm Water Treatment Plan Review Guidance Manual (SWTPRGM). These manuals have all been updated between 2008 and 2010 to reflect current regulations and storm water management practices; they may be found on the Municipal website.

With the requirement to retain a portion of stormwater runoff on site, the Municipality began a process to update and consolidate their various manuals into two comprehensive manuals incorporating related regulation, site-based practices, and operations and maintenance procedures. A public-review draft of the new DCM, and its companion the Anchorage Stormwater Manual, is available on the Municipal and WMS websites. We anticipate this new version will be implemented in 2012 upon completion of the public review process with portions of it phased in over a three year period to accommodate community planning time and meet due date specified in the Permit.

3.2 LOW IMPACT DEVELOPMENT STRATEGY AND PILOT PROJECTS

3.2.1 LID Strategy

The Municipality continues to sponsor an incentive program for rain gardens supported by a grant from the United States Fish and Wildlife Service. In 2011, this program expanded to sponsor all types of vegetated Low Impact Development (LID) techniques and offer a larger financial incentive for bigger and more varied rain garden projects; Rain gardens with contributing areas greater than 2,000sqft now qualify for a reimbursement of up to \$5,000. In 2011, the program supported the construction of 33 rain gardens throughout Anchorage. Incentive support includes, but is not limited to, technical guidance, manuals, brochures, websites, tours, financial cost sharing, hands-on workshops, private consultations, ongoing classroom support for school projects, and ongoing maintenance for public rain gardens. More information on the Anchorage Rain Garden Program can be found on the website www.AnchorageRainGardens.com. A map and more details on the constructed rain gardens can be found in Figure 4.1 and Table 4.1 below.

Figure 4.1: Map of Rain Gardens Constructed in 2011

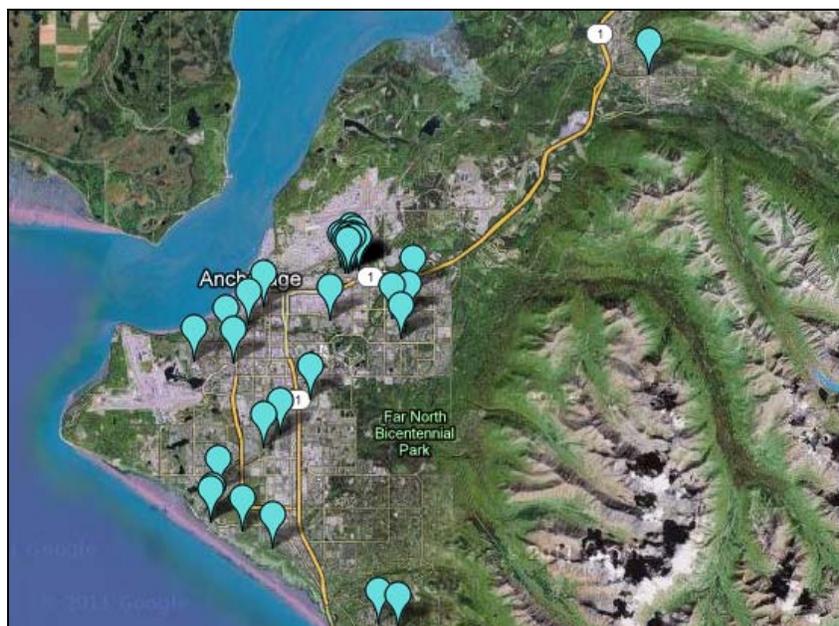


Table 4.1 Rain Gardens Incentivized in 2011

Type (Commercial, Residential, School)	Project Name	Size of Impervious Contributing Area (sqft)	Final Garden Size (sqft)	In-kind Labor (hr)	Reimbursement	In-kind Materials	Total Garden Cost
R	Cook Inlet Housing Authority	1,672	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,674	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,674	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,416	100	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,674	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,674	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,714	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,674	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,674	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,672	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,674	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Cook Inlet Housing Authority	1,674	120	0	\$750.00	\$1,113.60	\$1,863.60
R	Residential	300	31	0	\$750.00	\$2,250.00	\$3,000.00
R	Residential	200	25	12	\$750.00	\$885.00	\$1,685.00
R	Residential	400	42	16	\$750.00	\$765.00	\$1,515.00
R	Residential	750	90	0	\$750.00	\$2,701.00	\$3,451.00
R	Residential	700	25	0	\$750.00	\$943.00	\$1,693.00
R	Residential	1,200	28	3	\$750.00	\$753.40	\$1,503.40
R	Residential Rain Barrel	900	n/a	6	\$94.47	\$94.48	\$188.95
R	Residential	600	66	0	\$750.00	\$2,250.00	\$3,000.00
R	Residential	300	32	0	\$750.00	\$1,485.00	\$2,235.00
R	Residential	930	96	12	\$750.00	\$1,750.00	\$2,500.00
R	Residential	1,400	70	1	\$750.00	\$1,139.60	\$1,889.60
R	Residential	1,100	50	0	\$750.00	\$2,650.00	\$3,400.00
R	Residential	1,900	60	15	\$750.00	\$2,770.00	\$3,520.00
R	Residential*	300	36	20			
R	Residential*	240	24	36			*To be reimbursed next year
R	Residential*	600	30	0			
R	Residential*	750	50	40			
C	Campbell Crk Condo Assoc.	2,373	56	25	\$1,186.00	\$6,324.00	\$7,510.00
C	Joy Lutheran Church	1,918	132	31.5	\$682.31	\$682.32	\$1,364.63
S	Klatt Elementary School	10,925	550	0	\$5,000.00	\$15,000.00	\$20,000.00
S	Mears Middle School	10,000	600	300	\$3,832.23	\$11,472.07	\$15,304.30
TOTAL:	33 Rain Gardens	57,652	3,513	518	\$28,795.01	\$67,278.07	\$96,123.08

The 3,500 square feet of rain gardens constructed in 2011 capture and treat runoff from roughly 57,600 square feet of impervious surface. For a single half inch rain event, the rain gardens would collectively pool and infiltrate approximately 18,000 gallons of storm water throughout the Municipality, relieving the slightest pressure from the MS4. With 518 hours of in-kind labor, those who build rain gardens learn much about Low Impact Development.

3.2.2 Pilot projects

This Permit requirement is due in 2013. The ADOT&PF and the Municipality began selection of projects for incorporation of LID. The Municipality will conduct the hydrologic performance evaluations upon each project's completion. The monitoring plan for evaluation of LID pilot projects is included in the Quality Assurance Project Plan, Municipality of Anchorage Monitoring Program, provided in the 2010 Annual

Report, available on the Municipal website. Results of the evaluation may be used to revise the design criteria described in Section 3.2. The need for criteria revision will be assessed, and if necessary, completed by the Permit expiration date.

ADOT&PF Projects In 2011, the ADOT&PF Central Region selected three pilot projects, including West Dowling Phase I and II, the Seward Highway Tudor to Dowling project, and the AMATS Muldoon Road pedestrian & landscaping, Phase III project. Initial meetings have been conducted between Municipality and ADOT&PF representatives to discuss LID methods and begin pre-construction monitoring efforts.

Municipal Projects In 2011, the Municipality began screening and identifying potential LID projects that would satisfy this Permit condition.

In 2012, ADOT&PF and the Municipality will continue to identify and design or construct LID projects to meet this Permit requirement.

3.2.3 Rain Gardens

This Permit requirement is due in 2013 and is included in the LID Strategy and pilot projects discussed above.

3.2.4 Riparian Zone Management

This Permit requirement is due in 2014. In 2010 and 2011, the Municipality began evaluating outfalls as candidates for outfall disconnection. Two existing outfall projects were considered and rejected for disconnection for reasons related to drainage area size or ground water depth. The Municipality has project funding in place and will make an outfall selection in 2012.

3.2.5 Parking Lot Retrofit

This Permit requirement is due in 2013 and is included in the LID Strategy and pilot projects discussed above.

3.2.6 Street and Parking Lot Repair

This Permit requirement is due in 2013 and will be addressed by the maintenance and operations agencies within the ADOT&PF and the Municipality.

3.3 Permanent Storm Water Controls Plan Review and Approval

ADOT&PF Projects ADOT&PF continues to review all projects during 3 phases of development. Reviews are conducted at the local review (30% completion), plans in hand review (65% completion), and pre-PS&E review (95% completion). In addition, on larger projects, an ESCP-focused review occurs after the pre-PS&E review to ensure stormwater issues are addressed. Plan reviews are conducted by design and environmental staff, as well as the Central Region Hydrologist.

Private Development The Municipality continues to review all work requiring building permits and new subdivisions for permanent storm water runoff practices. Issuance of a building or storm water permit will serve as written approval as specified by the APDES MS4 Permit. The Municipality will continue to review and approve permanent stormwater controls in 2012.

Municipal Projects On July 1, 2011, WMS began regulatory review of all Municipal projects 1 acre and greater. These reviews are part of our MS4 Permit requirement under part II.B.2.d)i and the ADEC

Construction General Permit. The reviews encompass construction erosion control measures and permanent stormwater management practices. The MOA will continue to coordinate with ADEC to insure our reviews meet the ADEC waste water regulations.

3.4 Permanent Storm Water Management Controls Tracking and Enforcement

3.4.1 Inventory and Tracking

This Permit requirement is due in 2012.

Private Storm Water Controls In 2010, WMS began developing a database schema for the required information. In 2011, the database was built and populated to approximately 20% completion with information from archived building permits (dated 1999 to 2010). WMS started requiring the submittal of storm drain as-built/inventories certified by a Professional Engineer prior to closing a Municipal Building Permit. These as-built/inventories are being entered into the database as well.

Public (ADOT&PF and Municipal) Storm Water Controls In 2010, the Municipal Street Maintenance Division acquired and began implementing an asset management database that will be used to inventory and track municipally- and state-owned storm water controls. In 2011, the Street Maintenance Division began mapping storm water controls using GPS instruments and populating the asset management database. They continue to improve their storm sewer information management tools.

3.4.2 O&M Agreements

As part of its review and approval process, as described in the SWTPRGM, the Municipality now requires submittal of an Operations and Maintenance (O&M) Manual for private storm water controls. This is a first step towards alerting property owners of their responsibilities in maintaining storm water controls. The Municipality will use these plans as the basis of O&M agreements for new and redevelopment that will be implemented before the Permit expires. The O&M Manuals are being scanned and eventually will be entered into the database.

3.4.3 Inspection and Enforcement

This Permit requirement is due in 2012.

ADOT&PF and Municipal Storm Water Infrastructure See Section 5 for details on inspection and maintenance of ADOT&PF and Municipal storm water management controls and infrastructure.

Private Storm Water Management Controls Under the updated SWTPRGM the Municipality now requires as-built (record) drawings of all constructed storm water controls that were approved under a Municipal permit. This submittal serves as a means of inspection (to determine whether the plan was built as approved) and as part of the inventory and tracking of private stormwater controls described above. The Municipality is moving toward making stormwater controls part of the certificate of occupancy inspection required for the closure of permitted development projects. Ongoing inspection program options are still being considered.

3.5 Permanent Storm Water Controls Training

ADOT&PF ADOT&PF conducts quarterly design meetings for all design and environmental staff, including topics related to permanent storm water controls. In addition, ADOT&PF technology transfer staff (T2) set up annual training schedules with some courses specifically focused on storm water and drainage issues.

Municipality As part of an ongoing discussion about oil and grit separator design, installation, and maintenance the Municipality hosted a training session in June 2011 conducted by Stormceptor. The sign-in list is available in Appendix C1.

4 Industrial and Commercial Discharge Management

4.1 Inventory of Industrial and Commercial Facilities

An inventory and map of facilities discharging to the MS4 will be updated within three years of Permit inception. It will contain the industrial sectors currently tracked as well as all industrial sectors listed in 40 CFR 122.26(b)(14), and a number of commercial locations including vehicle or equipment wash systems and animal facilities with the potential of negatively impacting the MS4.

4.2 Snow Disposal Sites

Part II.B.3.b) requires permittees, within one year of the Permit effective date, to "...inventory and map locations of all permittee-owned and privately owned snow disposal sites that discharge directly to the MS4 or to receiving waters.." with mapping updates performed annually thereafter. In 2011, the permittees updated a map and list of all permittee-owned and all known privately-owned snow disposal sites (Appendix D1). Five additional snow disposal sites have been added to this year's inventory. Snow disposal sites are located primarily in the Anchorage Bowl, though several sites are located in the Chugiak/Eagle River area as well.

Based on this inventory and information collected over several past permit years a decision was made to place additional regulation on snow disposal sites as part of the Anchorage Municipal Code Title 21 revision of December 2010 and the larger Title 21 Land Use Code re-write expected to be adopted in 2012. This project, due in 2012, is ahead of the permit schedule. A paper summarizing the considerations and resulting regulatory updates is provided in Appendix D2.

4.3 Animal Facilities

The Municipality must evaluate whether to further regulate commercial animal facilities through ordinance or other regulatory mechanism to prevent animal waste from entering the MS4 and protect water quality. While this project is due in year three, the Municipality has completed it ahead of schedule. The report in Appendix D3 summarizes the decisions and actions taken by the Municipality to further regulate through performance standards the animal facilities in Anchorage.

5 Stormwater Infrastructure and Street Management

5.1 Storm Sewer System Inventory and Mapping

Under Permit part II.B.4.a) permittees "...must update current records to develop a comprehensive inventory and map of the MS4s.." within three years of the effective date of the Permit. Inventory and maps must cover the entire MS4 and provide location, attribute and spatial reference information at minimum for all of the following MS4 features:

- Pipe systems
- Inlets, catchbasins and outfalls
- Structural storm water treatment controls

- Receiving waters of the MS4
- Subbasin of each outfall
- MS4 roads and parking lots, and
- MS4 maintenance and storage facilities

The Permit requires that the mapping be sufficiently complete and connected to establish relative spatial relationships. For example, outfalls must be associated with receiving waters (requiring outfalls and receiving waters to be mapped and spatially referenced to each other). Similarly, drainage systems must be spatially related to outfalls and sufficiently complete (include enough connecting information, including pipes, ditches, and natural drainage features) to allow mapping the entire area (subbasin) that contributes to its associated outfall. Finally, the Permit also requires mapping of all MS4 permittee-owned roads and parking lots as they relate to the Anchorage MS4.

Completion of these mapping and inventory tasks is not due until the third annual report. However the permittees have made substantial progress toward this goal. These include policy, administrative, and mapping efforts encompassing the following:

- Budgeting for mapping resources, including additional staffing, improved GIS software and GIS-based maintenance tracking tools, and software engineering across all permittee-involved agencies;
- Mapping including compilation and digitization of existing data from ADOT&PF and Municipality files, and field mapping including drainage and receiving water systems. In 2011 particularly, additional mapping partners including MOA and DOT Street maintenance operators and WMS contractors have been incorporated into the permittees' active mapping efforts. Although this represents a significant additional effort on the part of the permittees', it also is anticipated to significantly improve both the quality and extent of base mapping as well as opportunities for more timely base map updates. In 2011, this is particularly important given that DOT mapping information will be digitized for the first time, and will need to be integrated with MOA drainage mapping. 2011 work will then address mapping subbasins that will integrate the MS4 storm water systems across agencies, including mapping of natural drainages as necessary to establish whole networks draining to associated receiving waters.
- To support these cross-agency mapping efforts, the permittees' are continuing to develop their geospatial databases and supportive digital mapping tools, standard practices, administrative processes and metadata, including operations guidance. GIS and related database development and data population including continuing development and data editing of the existing HGDB, development of a new GIS-based MS4 GeoDataBase (MS4 GDB) to contain MS4 surface features and areas (e.g., streets and parking lots and associated maintenance areas) and spatially relate them to MS4 drainage features, and digitization of ADOT&PF pipe features including edge matching to Municipality MS4 drainage features. In 2011, digital tools are also being developed to help standardize and stabilize feature classifications and identities and to automate quality control procedures implemented at both intra- and interagency levels.

5.2 Catch Basin and Inlet Inspections and Maintenance

In compliance with Permit part II.B.4.b) the co-permittees must "...initiate an inspection program to inspect all permittee-owned or operated catch basins and inlets at least annually and take appropriate maintenance action based on these inspections.." within two years of the effective date of the Permit. All the principle

MS4 maintenance agencies of the co-permittees have taken preparatory steps in development of such an inspection and maintenance program and, in fact, began implementation of select inspections and maintenance activities in 2010 as part of those program development efforts.

Central Region Division's Maintenance & Operations (M&O), the maintenance arm for ADOT&PF's Anchorage MS4 jurisdiction, added staff to support mapping ADOT&PF pipe systems including associated inlets and catchbasins. This and continuing mapping efforts planned for 2011 will correct existing ADOT&PF pipe mapping as well as add a substantial number of pipe features not currently in maintenance mapping sets. In addition, in 2010 M&O secured new State funding specifically for a catchbasin inspection and maintenance program and was able to apply those funds that same year to inspection and cleaning under an existing contract. As a result, in 2010 over 3000 inspections were completed and 1230 structures and associated pipes cleaned using existing MS4 maintenance SOPs. ADOT&PF expects to expand the program this year (2011) as better pipe mapping information becomes available.

The Municipality's authorized MS4 maintenance agency for the Chugiak-Birchwood-Eagle River Rural Road Service Area (CBERRRSA) was also able to implement a comprehensive catch basin and inlet inspection and maintenance program in 2010. As a result 1,097 structures were inspected and 786 structures, including 5 oil-grit separators (OGS) were cleaned. Like M&O, CBERRRSA also improved pipe and structure mapping within its operational area in 2011.

The Municipality's ARDSA continued its ongoing OGS and catchbasin inspection and maintenance program. In total, 8,634 controls were inspected, and 221 OGS units and 1,813 catchbasins and inlets were cleaned. Upgrades to the tracking of these activities are being undertaken with the implementation of a geo-database in 2011.

5.3 Street and Road Maintenance

5.3.1 Standard operating procedures

Standard Operating Procedures have been updated in 2011 as needed for Municipal and ADOT&PF street maintenance agencies. These are included in Appendix E1. They represent current practices and will be updated as needed in future reports to reflect changes.

5.3.2 Inventory of materials

Part II.B.4.c)(ii) of the Permit requires permittees to "...maintain an inventory of street/road maintenance material, including use of sand and salt.." and report the inventory in the annual report. Road maintenance materials used by all Anchorage MS4 operators include primarily winter traction enhancing materials. The types of materials used vary somewhat from agency to agency and from street to street but mostly include application of traction-enhancing sands and a variety of deicers and anti-icers. The bulk of deicers are added to the sand prior to its application to the road surface to maintain sand fluidity in sanding vehicles and to help embed the sand particles in road ice. Sand gradations vary by agency with ADOT&PF operators typically using a somewhat finer gradation for their mostly higher speed roads than Municipal operators both for safety reasons and to improve stability of the sand on the road surface. Inventory tables of these materials are summarized in Table 6.1 below.

Table 5.1: Anchorage MS4 Street Materials Inventory, 2011

Item	Type	Units	Conc.	Amt. Stored 1/1/2010	Amt. Stored 12/31/2010	Amt. Ordered 2011	Amt. Used 2010	Storage Location
AkDOT-M&O								
Sand	M&O spec.	ton				25,004		Anchorage
Sand	M&O spec.	ton				5,980		Birchwood
Sand	M&O spec.	ton				8,011		Girdwood
NaCl	granular	ton				1,610		Anchorage
NaCl	granular	ton				403		Birchwood
NaCl	granular	ton				801		Girdwood
MOA-CBERRRSA								
Sand	ARDSA spec.	ton			12,000	0	4,312	Hiland
NaCl	granular	ton			300	0	250	Hiland
MgCl ²	brine	gal.			6,500	20,000	17,249	Hiland
MOA-ARDSA								
Sand	ARDSA spec.	ton				9,000		Anchorage
MgCl ²	brine	gal.				20,100		Anchorage

5.3.3 Covered Sand Storage

Part II.B.4.c)(iii) of the Permit requires permittees to “.build covered storage facilities [‘sand sheds’] at each of their primary materials storage locations..” within four years of the effective date of the Permit. All principle Anchorage MS4 operators have made substantive progress toward this goal, with one operator already having met this goal.

ADOT&PF Design has been completed for three sand storage facilities using an initial appropriation of \$1,041,000. Funding for construction in the amount of \$12.5 Million has not been approved for the Birchwood, Anchorage and Girdwood sand storage areas.

MOA-CBERRRSA Design for sand storage buildings is complete. Funding through State appropriations has been requested for construction of one building in 2012 and the other in 2013.

MOA-ARDSA ARDSA completed design of its heated sand shed in 2005 and completed construction at its main Kloop Station in late 2006. The facility has been fully operational since that time and features conveyor truck loading and automated liquid deicer application, reducing total salt loading on winter sand by about a factor of 5. This operational structure brings MOA-ARDSA into full compliance with this Permit requirement.

5.4 Street and Road Sweeping

5.4.1 Sweeping Assessment

Part II.B.4.d)(v) requires the permittees to “.perform annual assessments of street sweeping effectiveness to minimize pollutant discharges to storm drains and creeks..” on the basis of the performance factors to be reported under the Permit. To help in this assessment the permittees completed additional sampling of street sweeping activities in 2011 and reviewed sampling efforts and studies performed under earlier Anchorage MS4 permit terms, in addition to reviewing report elements required under the Permit. The WMS document “Anchorage MS4 Street Sweeping Performance and Assessment Report”, Appendix E2, presents a full discussion of these efforts and includes maps of operational areas, streets designated for sweeping, and detailed sweeping records as required at Part II.B.4.d)(v). Excerpts from this report are provided in Table 5.2 summarizing permittees’s sweeping performance and effectiveness, below.

Table 5.2: Anchorage 2011 MS4 Sweeping Summary for Spring, Summer and Fall

Spring 2011						
	EPA Category	Drainage Type	Street Miles	Curb/PickUp Miles	Total Volume* (cyds)	Unit Volume* (cyds/mile)
DOT	Arterial	OC	10.8	15.9	228	14.3
		CG	37.1	99.1	3355	33.9
		Mixed	44.1	120.1	1881	15.7
	Residential	OC	44.3	93.5	556	5.9 ²
		CG	3.4	8.8	146	16.6 ²
		Mixed	27.3	61.0	592	9.7 ²
ARDSA	Arterial	OC	0.0			
		CG	40.8	131.8	4897.2	37.2
	Residential	OC	112.5		50.0	
		CG	464.7	837.7	1058.4	13.1 ¹
		Mixed			9932.9	
	CBERRRSA	Residential	OC	167.0	37.9	46
CG			26.0	51.9	107	2.1
Mixed			3.6	7.2	9	1.3

Summer 2011						
	EPA Category	Drainage Type	Street Miles	Curb/PickUp Miles	Total Volume* (cyds)	Unit Volume* (cyds/mile)
DOT	Arterial	OC	12.0	18.2	69	3.8
		CG	36.2	95.3	288	3.0
		Mixed	44.1	120.1	432	3.6
	Residential	OC	55.5	115.6	263	2.3 ²
		CG	3.1	8.3	32	3.9
		Mixed	30.0	66.9	244	3.6 ²
ARDSA	Arterial	OC	0.0			
		CG	40.8	131.8	794.6	6.0
	Residential	OC	112.5		12.5	
		CG	464.7	837.7	238.3	3.0 ¹
		Mixed			2260.8	
	CBERRRSA	Residential	OC	159.9	23.4	2
CG			11.4	22.8	15	0.7
Mixed			25.4	50.7	8	0.2

Fall 2011						
	EPA Category	Drainage Type	Street Miles	Curb/PickUp Miles	Total Volume* (cyds)	Unit Volume* (cyds/mile)
DOT	Arterial	OC	10.8	15.9	43	2.7
		CG	36.2	95.3	366	3.8
		Mixed	44.1	120.1	257	2.1
	Residential	OC	40.2	85.1	116	1.4 ²
		CG	3.1	8.3	31	3.7 ²
		Mixed	27.3	61.0	98	1.6 ²
ARDSA	Arterial	OC	0.0			
		CG	40.8	131.8	247.2	1.9
	Residential	OC	112.5		1.2	
		CG	464.7	837.7	228.6	2.9 ¹
		Mixed			2198.7	
	CBERRRSA	Residential	OC	159.9	23.4	7
CG			21.2	42.3	11	0.3
Mixed			15.6	31.2	5	0.2

Notes: ² DOT Residential Unit Volume #'s are considered suspect because unit volumes reported for each sweep period varied between Areas A and B (Area A unit reported unit volumes that were 2 to 6 times larger than Area B)

1. Inferred results: values shown are based on analysis of reported data values.

2. Conditional results: values shown are based on assumed data relationships and character not otherwise reported.

* Volumes represent only swept materials collected along reported/estimated curb/pick-up miles. Estimated volumes will sum to less than reported 'mixed' volume.

5.5 Pesticide, Herbicide, and Fertilizer Applications

The Municipal pesticide code is located in Title 15.75, available at <http://www.muni.org>. It has been updated to strengthen application restrictions, notifications, and certification requirements. These code requirements are enforced at Municipal facilities and an applications log is maintained.

5.6 Storm Water Pollution Prevention Plans

Stormwater Pollution Prevention Plans for certain permittee-owned activities are required within three years of the Permit effective date. Permittees will develop plans for their material storage facilities, maintenance yards, and snow disposal sites on schedule with the Permit.

5.7 Training

The Municipality and ADOT&PF met regularly during 2011 to coordinate their respective activities and discuss operational issues. Municipal and ADOT&PF Maintenance crews were given information regarding APDES Permit requirements in a variety of presentations and staff meetings during 2011 to assist their

understanding, decisions, and record-keeping about activities associated with Permit compliance. Attendance sheets for Municipal training meetings are provided in Appendix E3. ADOT&PF training activities are summarized in Section 2.4.

Spill prevention and response: The Municipality updated crews on proper response to spills and discharges. They also participated in development of the agency agreement discussed in Section 6.4.

Sweeping Practices and Protocols: the Municipality prepared sweeping crews to implement the seasons sweeping practices and OGS cleaning activities.

6 Illicit Discharge Management

6.1 Illicit Discharge Regulatory Strategy

The Municipal regulatory authority for water pollution control is founded on Title 21.67, <http://www.muni.org>. This code provides the basis for managing discharges to the storm sewer and waters of the U.S. It was updated effective January 2011 to conform to the latest MS4 Permit requirements, provide a stormwater permit for discharges not covered under building permits, and accommodate Alaska Construction Permit (CGP) review authorities.

6.2 Illicit Discharge Reporting and Response

The Pollution Hotline, 343-4141, continues to operate with staff taking calls during regular business hours and retrieving messages from callers with complaints during non-business times. These hotline complaints are recorded into the Municipality's Hansen Complaint Management System and forwarded to the appropriate department for response.

The Hansen System is also available to community members on the Municipal Development Services Building Safety Land Use Code Enforcement website at <http://www.muni.org/Departments/development/BSD/Pages/CodeEnforcement.aspx> for on-line complaint recording and tracking.

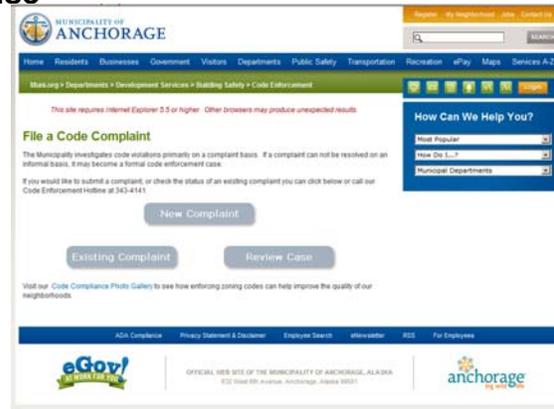


Table 6.1 (below) contains complaints recorded through the on-line tracking system. Complaints were followed up within two working days, with two exceptions, and resolved within a week. Stormwater – construction type complaints were handled with the inspections in the Construction Site Management Program. Prohibited discharges type complaints were handled as illicit discharge complaints.

Table 6.1: Service Requests by Complaint Type, 2011

Department	Complaint Type	Number of Requests	Number Resolved
WMS	Storm water – Construction	15	15
WMS	Prohibited Discharges – Private property	6	6
ROW	Prohibited Discharges – ROW and Public Property	7	7

6.2.1 Illicit Discharge mapping

Appendix F1 contains a map of 2011 Anchorage prohibited discharge complaints. Inspectors visited all sites and, where appropriate, initiated clean-up. There were no recurrences associated with any of the discharges.

6.3 Dry Weather Screening

6.3.1 Dry weather monitoring

The permittees updated the dry weather screening program to identify and respond to recurring illicit discharges to the MS4 within two years of the Permit inception. During 2011 the permittees implemented the re-designed dry weather screening program in compliance with new Permit requirements. The 2011 report is provided in Appendix F2. It includes a recommendation to make a change to a field test kit providing a higher resolution for total copper due to the field crew's inability to demonstrate very low copper levels. Also, a change to the phenol test was recommended due to matrix interference with one of the testing reagents. These will be considered for the 2012 field season and addressed in a QAP amendment if appropriate.

6.3.2 Follow-up

Upon receipt of the Dry Weather Screening results the permittees investigated one recurring illicit discharge found during field screening and began follow-up within fifteen days of detection. The appropriate action was taken and results are included in the 2011 Dry Weather Screening Report.

6.4 Spill Prevention and Response

Within two years of the Permit effective date the permittees must prevent, respond to, contain and clean up all sewage and other spills that may discharge into the MS4. To meet this requirement the permittees convened a group of interested participants and mapped out current Anchorage response. The information that came from these discussions was drafted into two documents. The Intra-agency and Inter-agency Agreements for the Enforcement of Spill Response are provided in Appendix F3. The working group will continue to coordinate the spill response program with periodic reviews and updates of the documents and discussions about the related activities.

In 2011 the Municipality responded to a report of a recreational vehicle spilling black water onto the street in a residential neighborhood. The vehicle owner was required to recover the water and clean the street and catch basin.

In 2011 the ADOT&PF had no spills on their rights of way to report.

6.5 Used Oil and Toxic Materials

The permittees have an ongoing program for accepting hazardous materials including used oil and toxic waste at the Anchorage Regional Landfill and Central Transfer Station. Those locations will accept up to five gallons of household hazardous waste for free. Information and public education materials for this program are found on the Municipal Solid Waste Services homepage at <http://www.muni.org/departments/sws/pages/default.aspx>

6.6 Training

Training for identifying and eliminating illicit discharges, spills, and illicit connections to the MS4 was performed with the implementation of the Dry Weather Screening Monitoring as outlined in the Monitoring Plan.

Street Maintenance crews were trained as described in Section 5.7 regarding how they are to handle hazardous materials and spills.

7 Public Education and Involvement

Education and training for the public and for permittee staff is discussed in this section. For Permit requirements addressing the webpage and annual and quarterly meetings, see Section 1 of this Annual Report.

7.1 Ongoing Education and Public Involvement

The Municipality, on behalf of the permittees, entered into an agreement with the Anchorage Waterways Council (AWC) to conduct the ongoing public education required by the Permit. A copy of the scope of work for this sole-source agreement was provided in the 2010 Annual Report. A full account of education activities for 2011 is provided in Appendix G1 and summarized below.

In 2011, AWC worked with schools, neighborhoods, property managers, residents, and the general public to educate and improve environmental stewardship in the community. The Scoop the Poop committee is a special group addressing fecal coliform issues in the waterways. Creeks as Classrooms is a program AWC brings to the Anchorage School District in the spring for students to learn about the science of life in the creeks. A target neighborhood receives a stormwater newsletter and is observed for measurable positive changes in behavior. Through Scoop the Poop, Creeks as Classrooms, target neighborhood observations, publications, and events, AWC continues to further stormwater education in the Municipality of Anchorage.

- Scoop the Poop held four clean up days at off-leash dog parks, distributed 4,000 door hangers around the community, collected 229 signed responsible pet owner pledges, installed prevention signs along the local trails, and distributed brochures to twenty five local pet services. Scoop the Poop deliverables are in a labeled folder in appendix G1
- Garden runoff, car washing, and hazardous fluid management were addressed through a multitude of tabling events, with an estimated 12,000 visits to the tables this year.

- Safe car washing information was mailed to 200 local churches, schools and clubs.
- Invasive plant education was highlighted at the AWC annual meeting in November.
- The annual Creek Clean-Up Day in the spring was well attended. The general public clears the creeks of debris; there are educational tables and food provided for participants.
- A bus advertisement for cleaner creeks was displayed for four weeks in the fall.
- AWC has chosen a residential neighborhood with about 100 homes adjacent to Campbell Creek for target testing of the educational material. Weekly "windshield surveys", suggested by the EPA water.epa.gov/type/rsll/monitoring/vms32.cfm, help AWC observe the results of the various educational materials. The residents receive a seasonal newsletter on stormwater education. The first newsletter included a survey on outdoor and stormwater related behaviors. While the survey response rate was low, 10%, AWC observed behavior changes throughout the neighborhood post-survey.

For the coming year AWC plans to continue Scoop the Poop, Creeks and Classrooms, target neighborhood observations, and tabling events. Last year's materials will be re-evaluated and improved, tabling will continue at the same and new events, and the education effort will continue and grow.

7.2 Targeted Education and Training

See the following sections of this Annual Report regarding targeted training for permittee staff:

- Construction - Section 2.4
- New and Redevelopment - Section 3.6
- Stormwater Infrastructure - Section 5.7
- Illicit Discharge - Section 6.6

8 Monitoring and Assessment

8.1 Discharges to Water Quality Impaired Waters

As listed in the Permit, pollutants of concern in Anchorage receiving waters include fecal coliform, petroleum products, and, for one lake, dissolved oxygen. The Municipality, acting on behalf of the permittees, will measure and evaluate the effectiveness of activities to control these pollutants of concern through the following means:

- Stormwater outfall monitoring
- Structural controls effectiveness monitoring
- Dry weather screening and follow-up
- Public education and involvement program

8.2 Monitoring Plan

In January, 2011, the Municipality, on behalf of the permittees, finalized the "Quality Assurance Project Plan - Municipality of Anchorage Monitoring Program for APDES Permit Number AKS-052558," which was

included in the 2010 Annual Report. In 2011 and subsequent years, the Municipality, on behalf of the permittees, conducts monitoring for various purposes as summarized in Table 8.1.

Table 8.1: Storm and Surface Water Monitoring Program Schedule

Monitoring Program Component	Proposed Sampling Dates			
	2011	2012	2013	2014
Pesticide Screening	June-Aug	None	June-Aug	none
Dry Weather Screening	May-July	May-July	May-July	May-July
Structural Controls*	April-Dec	April-Dec	April-Dec	April-Dec
Snow Storage Site Retrofits	None	Mar-May	none	none
Stormwater Outfalls	Apr-Oct	Apr-Oct	Apr-Oct	Apr-Oct
LID Monitoring	None	None	None	May-Oct

*Structural Controls include sediment basins and- oil and grit separator devices

8.2.1 Pesticide Screening

This sampling program was conducted in 2011. The results are included in the Appendix H1.

As indicated in the schedule the pesticide sampling will be conducted again in 2013.

8.2.2 Existing Structural Controls - OGS and Sedimentation Basin Evaluation

The APDES storm water discharge permit AKS-052558 for the Anchorage MS4 requires evaluation of OGS and sedimentation basins relative to their effectiveness in treating select parameters as follows:

‘..select and evaluate the effectiveness’ of four oil and grit separators and three sedimentation basins in the treatment of water quality parameters described in Table IVA..’ (IV.A.8., p. 39)

Work was begun in 2011 and will continue through 2012 to perform these effectiveness studies. The permittees intend the work to be performed so as to meet APDES permit requirements as specified above. However it also has developed a work approach that will provide practical guidance in selection, design, and use in the broadest possible applications of these types of controls across the Anchorage MS4, particularly to the extent that they effectively treat for the pollutants implied by the parameters listed at Table IV.A of the permit.

Specifically, assessments will include collection and analysis of weather and street sediment loading data for the Municipality, instrumentation and automated and on-site collection of weather, water quality and geometric data at three sedimentation basins, field and bench-top assessments of select OGS, and analysis of these and other data (using statistical, model, and design formulation approaches) to develop this guidance. In 2011 field sampling locations were instrumented and prepared for sampling and measurements to take place in 2012. In addition, weather and past Anchorage MS4 studies data were compiled and analyzed, and select street sediment samples were collected and tested as basic project data. In 2012, additional field data, including waste and water quality sampling and geometric conditions

and performance data, will be collected and analysis completed to support guidance to be submitted as the primary project deliverable at the end of that year.

8.2.3 Snow Storage Site Retrofits

The APDES storm water discharge permit AKS-052558 for the Anchorage MS4 requires retrofit and evaluation of at least two public snow storage sites relative to criteria already developed and published by the MOA-Watershed Management Section regarding siting, design and operation of these types of facilities. Specifically:

'..The permittees are responsible for retrofitting at least one site within two years of the permit effective date [February 1, 2012]; the second retrofit must be completed no later than three years of the permit effective date [February 1, 2013]. The permittees must quantitatively assess the effectiveness of their retrofits by measuring changes in chloride and turbidity in melt water and must document results in a final project report to be submitted in the corresponding Annual Report.' (IV.A.9., p. 39, [text] inserted)

The permittees completed one retrofit at the Tudor Road Municipal snow disposal site prior to February 1, 2012, and currently this site is in operation. A second design for the Spruce Street Municipal snow disposal site is complete and scheduled for construction in the spring of 2012. The second site (Spruce Street) will be put into operation in fall 2012 and will have been operated for one full winter in spring, 2013. The Tudor Road site will have operated throughout the winter of 2011-12 and will be tested for water quality performance in spring, 2012, with results reported in the 2012 annual report. The Spruce Street site will have operated throughout the winter of 2012-13 and will be tested for water quality performance in spring, 2013, with results reported in the 2013 annual report.

Approach for sampling at the Tudor snow disposal site was developed in 2011, including site reconnaissance and planning for installation of spring 2012 snowmelt sampling equipment. Generally, initial testing will include development of mass balance data including measurement of total snow mass present on site at the end of the winter season in 2012 and sampling for density and particulate and chloride concentrations of in-place snow. In addition, during the 2012 spring melt period, water quality measurements will be made at representative points of discharge from the snow storage pad and the measurements used to estimate total seasonal particulate and chloride load released.

8.2.4 Storm Water Outfall Monitoring

The Storm Water Outfall Monitoring Plan was implemented after ADEC review and approval during the summer of 2011. The first year results are provided in the 2011 Stormwater Outfall Monitoring Report in Appendix H2.

8.2.5 Quality Assurance Plan

The Quality Assurance Plan (QAP) for specified permit monitoring activities was completed in 2010, and revised and finalized after review by the ADEC. The currently applicable QAP is provided in Appendix H3.