2013 ANNUAL REPORT
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WATERSHED MANAGEMENT

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Acronyms

AK-CESL	Certified Erosion and Sediment Control Lead
ADEC	Alaska Department of Environmental Conservation
AMC	Anchorage Municipal Code
APDES	Alaska Pollutant Discharge Elimination System
ADOT&PF/DOT	Alaska Department of Transportation and Public Facilities
ARDSA	Anchorage Road and Drainage Service Area
AWC	Anchorages Waterways Council
BMP	Best Management Practice
CBERRRSA	Chugiak Birchwood Eagle River Rural Road Service Area
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
MEP	Maximum Extent Practicable
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
ROW	Municipal Rights of Way
SOP	Standard Operating Procedures
SWPPP	Storm Water Pollution Prevention Plan
SWTPRGM	Storm Water Treatment Plan Review Guidance Manual
WMS	Watershed Management Services

Introduction

The Municipality of Anchorage (MOA) 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 2013 Annual Meeting provided information to participants about the third term of the Municipal Separate Storm Sewer System (MS4) Permit. The meeting was held the morning of February 25th at the BP Energy Center and attended by over 100 people with an interest in stormwater management. It covered the activities of the third year of the Permit through presentations, a poster session, and a panel discussion. It also overviewed the upcoming year with focus on the requirement to evaluate the feasibility of incorporating runoff reduction techniques into road repair projects and the requirement to provide maintenance plans for permanent controls. The power point slides, agenda, program, and poster summary are available in Appendix A1.

1.2 Quarterly Meetings

Quarterly Meetings between the permittees and Alaska Department of Environmental Conservation (ADEC) continued through the third permit year to provide a forum of discussion regarding permit activities and issues. These meeting summaries are available in Appendix A2.

1.3 SWMP

The Storm Water Management Plan (SWMP) actions 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. In 2013 a Permit Modification was made to the SWMP to assist the Permittees to better meet the intent of the Permit. Changes were made to: Part II.B.2(a), Part II.B.c(iv), Part II.B.2(f)iii, and Part IV.A.9 as described in Appendix A3.

The compliance measures taken in 2013 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 third year Permit requirements were met on schedule.

Significant parts of this permit year were implemented by primary coordinating groups. They have provided 2013 MS4 Summaries for their areas of permit compliance. These are provided in Appendix A4.

The permittees have broken their program costs into two functional categories: Operations & Maintenance (O&M) and Program Management/Project Administration. The 2013 costs are presented in Table 1.

1: Table 1.3 – 2013 SWMP Program Costs

	ADOT&PF	Municipality	CBERRRSA	Total
Maintenance & Operations	$4.6M	$ 2.0M	$2.4M	$9.0M
Program Management/ Administration	$0.53M	$1.3M	-	$1.8M
	$5.1M	$3.3M	$2.4M	$10.8M

1.4 Storm Water Website

In 2013 the permittees provided access to their website found at www.AnchorageWatershed.com or www.AnchorageStormwater.com . This homepage, was updated in 2013 to ensure it contains all program information including project reports, data, map products, forms, permit applications, Storm Water Pollution Prevention Plan (SWPPP) guidance, and watershed plans. This site is accessible additionally through the municipal website: http://www.muni.org/Departments/works/project_management/WM/Pages/Default.aspx .

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 Watershed Management Services (WMS), U.S. Fish and Wildlife Service, and the Anchorage Waterways Council (AWC). The report is available on the WMS website.

In January 2011, AWC facilitated a newly established group of stakeholders who met to complete watershed planning updates in the Municipality. Several meetings were held over 2 years, 3 field trips were taken along Chester Creek, and there was careful review of an earlier Chester Creek watershed draft plan's goals from 2005. More recent documents were reviewed in order to update projects had been completed so they could be removed from the "needs" list, and other issues had taken place in the interim.

Participants in the latest revision included: the MOA Watershed Management Services, the MOA Planning Department, the MOA Parks and Recreation Department, the Alaska Department of Environmental Conservation, Joint Base Elmendorf-Richardson, the U.S. Fish and Wildlife Service, the Alaska Railroad, the Alaska Department of Fish and Game, Anchorage Waterways Council, HDR, Alaska Inc., the U.S. Army Corps of Engineers, National Oceanic and Atmospheric Administration, Anchorage Park Foundation,

Alaska Department of Transportation and Public Facilities, the Environmental Protection Agency, Alaska Department of Natural Resources, Bureau of Land Management, Alaska Pacific University, and KPB Architects.

The draft is currently over 60 pages exclusive of photos and the lists of priority projects. It was reviewed during November and December by the U.S. Fish and Wildlife Service (USFWS). Those edits are currently being incorporated, and the second draft will again be reviewed by the USFWS in late January. Our goal is to have final reviews by stakeholders and the public in early 2014 with the plan edited and ready to go to the Municipal Assembly for approval in spring 2014. All principles noted in the permit's requirements (Part 2.A.3.a-f) have been addressed in 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 projects through its Standard Specifications, updated in May 2013. These standards are contractually enforced. ADOT&PF provides guidance on contract administration to its project staff through Chapter 9.9 (updated in April 2012) of the Alaska Construction Manual which outlines procedures for implementing and monitoring construction SWPPPs. This document is available at http://www.dot.state.ak.us/stwddes/dcsconst/pop_constman.shtml.

Private Development. The Municipality regulates stormwater 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 stormwater 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. In 2012, MASS Section 20.02 was updated to incorporate requirements of Alaska's 2011 Construction General Permit. A link to the MASS is found at http://www.muni.org/Departments/works/project_management/Pages/MASS.aspx.

Construction Storm Water Manual

ADOT&PF Projects. ADOT&PF revised its Alaska SWPPP Guide in February 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 (SWTPRGM) 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/works/project_management/Pages/StormWaterTreatmentPlanReview.aspx

The manual is scheduled to be revised again for greater clarity and for the purposes of consolidating and streamlining the various Municipal regulatory documents related to construction and new development. It is currently planned as Volume 2 of the Anchorage Stormwater Manual currently under development as part of the design criteria rewrite.

2.2 Plan Review and Approval

ADOT&PF Projects. During 2013 ADOT&PF reviewed and approved SWPPPs for 19 projects, 5 of which were carried over from 2012, contracted and administered by ADOT&PF. A list is provided in Appendix B1. ADOT&PF is a co-operator on these projects with the Construction Contractor performing the work.

Private and Municipal Projects. The WMS of the MOA continues to review construction SWPPPs for projects conducting ground disturbance greater than 500 square feet. The types of projects reviewed include any work requiring a building permit, utility work, 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 407 Residential permits and 111 commercial buildings, and a number of commercial and government building additions. WMS also conducted Storm Water Pollution Prevention Plan reviews of 21 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 Permit. Refer to Section 3.4.3 of this report for information regarding these updates.

2.3 Construction Site Inspections and Enforcement

2.3.1 Inspection and Enforcement Tracking

A summary of inspection activities reveals that 140 commercial site inspections and 518 residential site inspections were conducted during 2013 including 28 construction related inspections from the illicit discharge reporting website located at: http://www.muni.org/Departments/OCPD/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 were 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 2013 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.dot.state.ak.us/stwddes/dcsconst/pop_constman.shtml.

Municipal. The Municipality updated its escalating enforcement policy during the second year of the Permit. It was provided with the second annual report.

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.dot.state.ak.us/stwddes/dcsconst/pop_constman.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. In 2013, MOA did not file any reports of non-compliance to the ADEC.

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 2012, the Memorandum of Understanding to establish Certified Erosion and Sediment Control Leads in Alaska (AK-CESCL) was updated 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 original agreement, training requirements, and course elements for the AK-CESCL program were provided in the 2010 Annual Report. The updated agreement (Appendix B2) made some minor revisions to clarify the procedures of the training program.

ADOT&PF. ADOT&PF participated in the following trainings (outlines and attendee lists in Appendix B3):

2013 Watershed Update/APDES Annual Meeting: 2-25-12. This half-day meeting reviewed the finding of monitoring, assessments, mapping, and new programs associated with the permit.

Low Impact Development Workshop 2-25/26-12. This two hour workshop laid out concepts and practical applications of the Municipality's Low Impact Development program being designed for Anchorage climate and soil conditions.

Environmental Expo: 4-18-13. This day-long information seminar incorporates a variety of speakers and topics related to all aspects of stormwater protection during construction.

AK CESCL: Alaska Certified Erosion and Sediment Control Lead 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.

Street Dirt: A Better Way of Measuring BMP Effectiveness, Forester University Webinar, 11-14-13

In-house Asset Management, Forester University Webinar, 3-14-13

Commercial Inspections MS4 Workshop, National Stormwater Center Webinar, 12-12-13

Illicit Discharge Detection and Elimination, National Stormwater Center Webinar, 9-19-13

Municipality. The Municipality participated in the following training:

2013 Watershed Update/APDES Annual Meeting: 2-25/26-12. This half-day meeting reviewed the finding of monitoring, assessments, mapping, and new programs associated with the permit.

Low Impact Development Workshop 2-25-12. This two hour workshop laid out concepts and practical applications of the Municipality's Low Impact Development program being designed for Anchorage climate and soil conditions.

AK CESCL: The Municipality ARDSA and CBERRRSA staff recertified its construction project staff through the AK CESCL training program as needed for three years. The course elements for this training were provided in the 2010 annual report.

Construction Inspector Training Academy 4-23-13

Stormwater Post-Construction BMPs, 11-21-13, for commercial project inspectors.

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 Alaska Highway Preconstruction Manual and Alaska Aviation Preconstruction Manual, which requires ADOT&PF to comply with local ordinances. Therefore, all projects within the Municipality of Anchorage follow the Municipal Design Criteria Manual (DCM).

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

Private Projects. The Municipality regulates permanent stormwater controls through the Anchorage Municipal Code Title 21, which refers to the DCM. This Permit requirement will be made by changes to Title 21 and the 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 continues to use the Alaska Highway Preconstruction Manual, Chapter 1120 (Elements of Design), Section 1120.5 (Drainage), and the Alaska Highway Drainage Manual as basic guidance documents. Central Region Design Division does not have the authority to update or modify Department-wide manuals. ADOT&PF's Division of Statewide Design & Engineering Services is responsible for and working on updating the Alaska Highway Drainage Manual to incorporate additional Storm Water Design Criteria. However, Central Region-specific modifications are made to standard specifications and design criteria as required to comply with the permit. The ADOT&PF Central Region Design Division is currently providing comments on proposed changes to Chapter 11 of the Alaska Highway Preconstruction Manual. Central Region Designers also use the Municipality's Drainage Design Guidelines, the Low Impact Development Design Guidance Manual, and the SWTPRGM as needed to supplement the Alaska Highway Drainage Manual to comply with the MS4 Design Criteria.

Private and Municipal Projects. The Municipality establishes design criteria for permanent stormwater 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 SWTPRGM. These manuals have all been updated between 2008 and 2010 to reflect current regulations and stormwater 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. An internal review draft of

the new DCM, and its companion the Anchorage Stormwater Manual, was completed in 2012. In 2013 the current and proposed DCM and accompanying draft Stormwater Manual are scheduled to be reviewed through a volunteer public review process to ensure the final product accommodates community needs to the maximum extent while also complying with the requirements and compliance schedule specified in the Permit.

3.2 Low Impact Development Strategy And Pilot Projects

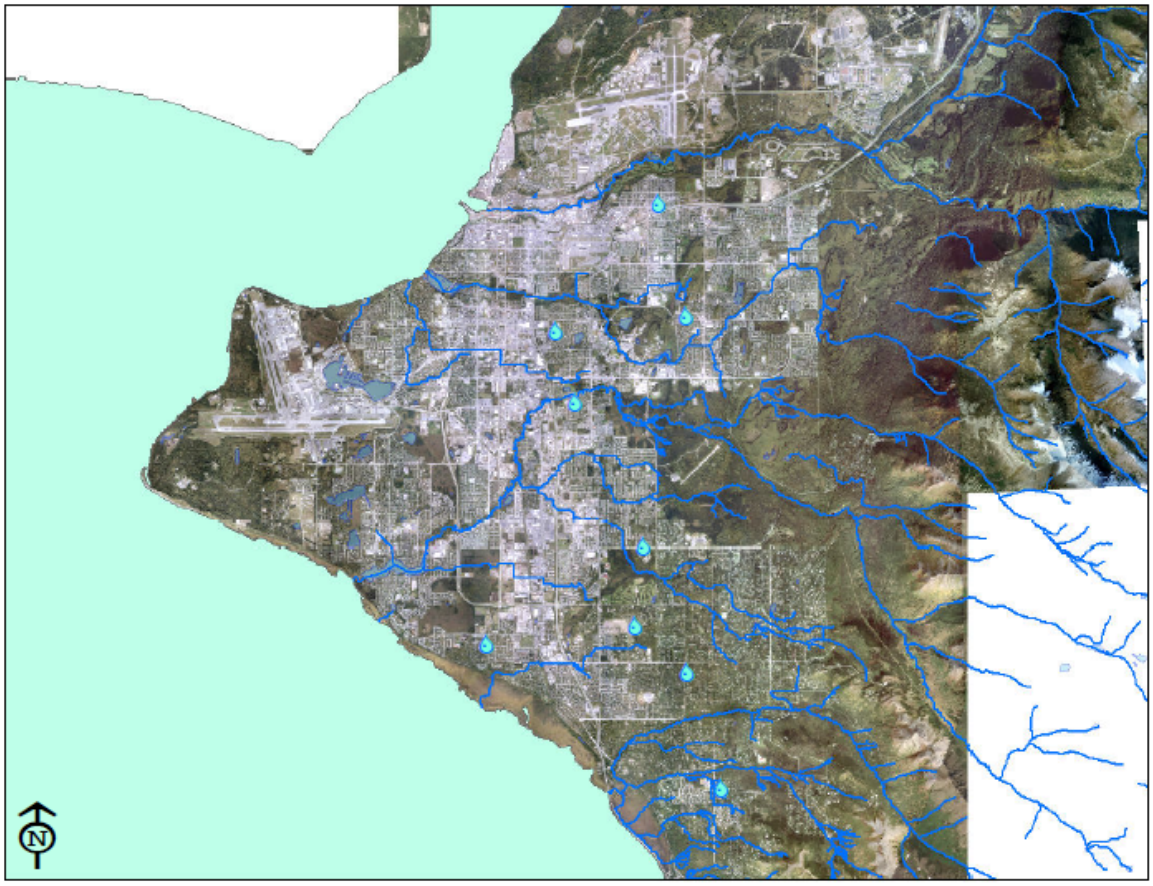
3.2.1 LID Strategy

The Municipality continues to sponsor an incentive program for rain gardens supported by a grant from the United States Fish and Wildlife Service. In 2013, this program continued to support 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 qualify for a reimbursement of up to $5,000. In 2013, the program supported the construction of 9 new 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.

The 3068 square feet of rain gardens constructed in 2013 capture and treat runoff from roughly 41,566 square feet of impervious surface. For a single half inch rain event, the rain gardens would collectively pool and infiltrate approximately 5,400 gallons of storm water throughout the Municipality, relieving a slight amount of pressure from the MS4. With 806 hours of in-kind labor, those who build rain gardens receive a good education on stormwater management and LID.

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 3.1: Map of Rain Gardens Constructed in 2013



2: Table 3.1 – Rain Gardens Incentivized in 2013

Type (Commercial, Residential)	Project Name	Impervious Contributing Area (sqft)	Final Garden Size (sqft)	In-kind Labor (hr)	Reimbursement	In-Kind Materials ($)	Total Garden Cost
R	Residential	1375	120	40	$750.00	$1,248.00	$1,998.00
R	Residential	703	200	0	$750.00	$828.00	$1,578.00
R	Residential	4500	300	40	$716.97	$716.98	$1,433.95
R	Residential	2700	216	60	$668.33	$668.34	$1,336.67
R	Residential	345	72	50	$509.83	$509.83	$1,019.66
R	Residential	830	90	316	$750.00	$876.05	$1,626.05
R	Residential	1125	250	100	$750.00	$1,005.65	$1,755.65
R	Residential	3000	80	40	$750.00	$787.52	$1,537.52
C	CIHA Park Place Village Parking	2800	1740	160	$1,400.00	$39,625.00	$41,025.00
Total	**9 Rain Gardens**	**17378**	**3068**	**806**	**$7,045.13**	**$46,265.37**	**$53,310.50**

3.2.2 Pilot projects

The ADOT&PF and the Municipality constructed five projects as required by Part II.B.2.c of the Permit for incorporation of LID. The Municipality conducted hydrologic performance evaluations for each completed project. Results of the evaluation may be used to revise the design criteria described in Section 3.2.

ADOT&PF Projects. ADOT&PF Central Region's three pilot projects include West Dowling Phase I and II, the Seward Highway Tudor to Dowling project, and the AMATS Muldoon Road pedestrian & landscaping, Phase III project. West Dowling Phase I and the Muldoon Road landscaping project are complete and monitoring was performed at these sites during the summer season of 2013. The Seward Highway Tudor to Dowling project is scheduled for completion mid-2014.

Municipal Projects. The Municipality constructed a Rain Garden at Taku Park, built in 2007 in anticipation of the new permit, consistent with the pilot project requirement, and in 2012 a monitoring station was set up to track its performance. Also in 2012, the Municipality designed and constructed a LID project at the Russian Jack Springs Park ballfield where site redevelopment was under way. The site parking lot incorporated a subsurface site runoff infiltration gallery as well as a cold climate trial of pervious asphalt over a portion of the parking surface.

Project descriptions for the LID pilot projects were provided in the 2012-13 annual reports. The LID Monitoring Report describing on-site control of water for the completed sites is available in Appendix C1. An additional monitoring report covering the remaining site(s) will be provided with the fifth year report.

3.2.3 Rain Gardens

This Permit requirement is included in the LID Monitoring Report discussed in Section 3.2.2.

3.2.4 Riparian Zone Management

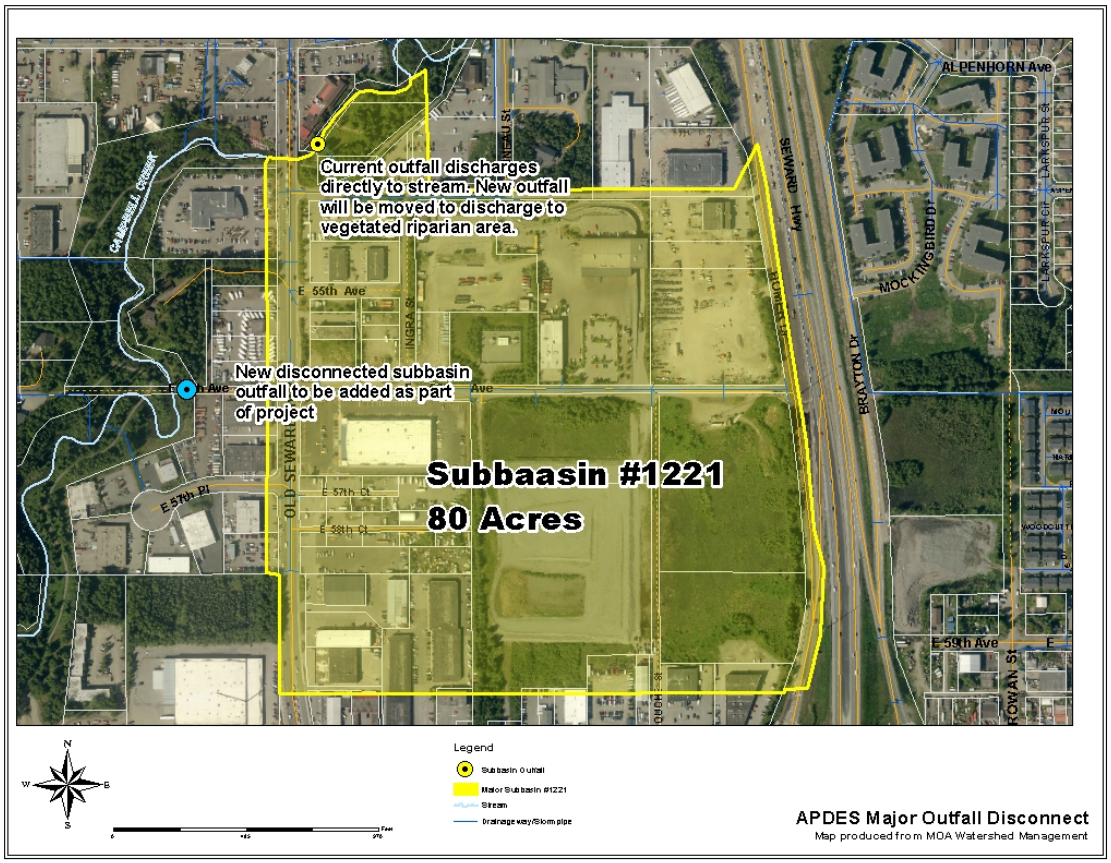
In 2013 the Municipality received a permit modification allowing two 24-inch outfalls instead of a single major (36 inch) outfall to qualify for meeting the requirement for outfall disconnection due to initial difficulties in locating a suitable outfall. Ultimately, the MOA was successful in locating a suitable major outfall. The outfall in question discharges stormwater directly from Subbasin 1221 to Campbell Creek. This outfall is located near the intersection of the Old Seward Highway and International Airport Road (Figure 3.2). The planned modification will ultimately result in two disconnected outfalls. A second outfall will be added in the 56th Avenue Right of Way, west of the Old Seward Highway (resulting in two new subbasins.). Both new outfalls will be set back from the creek so that storm flows discharge to vegetated riparian areas rather than directly to streams.

The Municipality of Anchorage also has plans to construct a third disconnected outfall along Chester Creek. This is a minor outfall but it does receive flows from a relatively urbanized basin, east of A Street in the area of Barrow Street. All three outfalls will be constructed during the 2014 construction season.

Riparian Area Protection

In 2014, the permittees are required to provide a list of riparian areas prioritized for protection or acquisition. The project is expected to be completed this year.

3: Table 3.2 – Major Outfall Disconnect



3.2.5 Parking Lot Retrofit

Parking lot retrofits are included in three pilot projects discussed in Section 3.2.2. The Taku Park and Russian Jack Park parking lot upgrades for the Municipality and the Dowling Road project for ADOT&PF are incorporated into the LID Monitoring Report in Appendix C1.

An additional parking lot upgrade is anticipated from ADOT&PF in 2014.

3.2.6 Street and Parking Lot Repair

ADOT&PF. In general the Department has few opportunities to repair or reconstruct parking areas. However, the ADOT&PF is implementing LID measures where possible in their projects. The Design sections are including LID practices into projects currently in design and also working to establish direction and guidelines on using LID on all projects where it is feasible.

Municipality. In 2013, the Municipality of Anchorage began evaluating the feasibility of incorporating rainfall runoff techniques in the repair and construction of public roads, streets, and parking lots. The Request for Proposal (RFP) documents that initiate these projects were modified to include the following language:

- *Evaluate the feasibility of incorporating Low Impact Development (LID) runoff reduction techniques. LID measures to be considered may include, but not be limited to: canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, rain gardens, infiltration trenches, extended filtration and/or evapotranspiration and/or any*

combination of these practices. Where such practices are found to feasible they should be incorporated in the project design.

Due to the life cycle of these types of projects, the overwhelming majority of projects initiated in 2013 are still in the design phase and will not be constructed until 2014 and beyond. The Municipality of Anchorage was able to incorporate LID/Rainfall Runoff Techniques into two parking lot expansions during 2013. The first project was the expansion of the parking lot for the Kincaid Park Chalet. The new parking area will drain to a vegetated area where parking lot runoff will be infiltrated. The second project is the parking lot and access road expansion for the Campbell Lake Estuary. Parking lot and road drainage has been directed to vegetated swales where it will be infiltrated.

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 stormwater runoff practices. Issuance of a building or stormwater permit will serve as written approval as specified by the APDES MS4 Permit.

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 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 projects meet the ADEC waste water regulations.

3.4 Permanent Storm Water Management Controls Tracking and Enforcement

3.4.1 Inventory and Tracking

Private Storm Water Controls. In 2010, WMS began developing a database schema for the required information. As of 2013 this effort has reached approximately 50% completion. As-built drawings of private stormwater controls, certified by a Professional Engineer, are required prior to closing a Municipal Building Permit for new and redeveloped properties. These as-builts are scanned and recorded into the database.

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 stormwater controls. In 2011-12, the Street Maintenance Division mapped stormwater controls using GPS instruments and populating the asset management database. This inventory and tracking database will allow Street Maintenance to access information about the condition and maintenance requirements of the stormwater controls owned by the permittees.

In 2011, as part of its review and approval process described in the SWTPRGM, the Municipality began requiring submittal of an Operations and Maintenance (O&M) Manual for private stormwater controls. This was a first step toward alerting property owners of their responsibilities in maintaining stormwater controls.

3.4.2 O&M Agreements

Beginning in 2015, WMS will require a legally enforceable and transferable O&M agreement for private stormwater controls on new and redeveloped properties to generate regular maintenance on private stormwater controls and demonstrate it to the Municipality. These O&M agreements will be scanned and entered into the tracking database. Some private controls may generate a separate Municipal inspection. See the discussion in the following section for further details.

3.4.3 Inspection and Enforcement

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

Private Storm Water Management Controls. Under the updated SWTPRGM, and as part of a Permit requirement described in an earlier section, the Municipality now requires as-built (record) drawings of all constructed stormwater controls that were approved under a Municipal permit. As-builts is scanned and entered into the tracking database described above

In 2013 the Municipality of Anchorage continued to make progress in the inspection and enforcement of permanent stormwater controls. Section II.B.2(f) of the 2013 permit modification initiated a change so that all components of the program will commence at the same time. Previously, inspection and enforcement began before there was a binding maintenance requirement.

In 2014, changes to the municipal building permitting system will be finalized that will require: 1) the receipt of a surveyed as-built of permanent stormwater controls, 2) a final inspection of stormwater controls, and 3) the recording of a maintenance agreement with the Municipality for the upkeep of these controls prior to the issuance of a Certificate of Occupancy (CO)

A draft of the recorded maintenance agreement the Municipality intends to use is currently under review by the municipal legal department and has been included with this report as Appendix C2. The Municipality intends to treat installed permanent stormwater controls as a "use permit" similar to elevators and will require annual re-certification and periodic inspections. Maintenance records will be required from the owner/operator prior to annual renewal. High priority sites, requiring, annual inspection, will be identified and prioritized using Checklist #3 of Building Safety Handout AG 21.

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 stormwater 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. Commercial project inspectors received training on Stormwater Post-Construction BMPs, 11-21-13 through an on-line training webinar.

4 Industrial and Commercial Discharge Management

4.1 Inventory of Industrial and Commercial Facilities

An inventory and map of facilities discharging to the MS4 has been updated. It contains 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. The inventory and map are provided in Appendix D1.

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 2012, the permittees have no changes to the map and list of all permittee-owned and all known privately-owned snow disposal sites submitted in the 2011 annual report.

Based on the 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 February of 2013. This project summary of considerations and resulting regulatory updates was submitted in 2011. Upon final adoption of the Anchorage Municipal Code Title 21 the regulatory updates will be reconfirmed.

4.3 Animal Facilities

The Municipality evaluated 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 completed it ahead of schedule. The report, submitted in the 2011 annual report summarizes the decisions and actions taken by the Municipality to further regulate through performance standards the animal facilities in Anchorage. An updated list for 2013 is included in Appendix D1.

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 stormwater 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.

These maps showing the combined ADOT&PF and MOA infrastructure, are updated and available at: http://www.anchoragestor+mwater.com/maps.html

5.2 Catch Basin and Inlet Inspections and Maintenance

In compliance with Permit part II.B.4.b) the permittees were required to "..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 principle MS4 maintenance agencies of the 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, is continuing mapping efforts to correct existing ADOT&PF pipe mapping as well as capture new pipe features for inclusion in maintenance mapping sets. In 2013, ADOT&PF inspected 3328 structures and cleaned 1288 catchbasins. In addition, they inspected and cleaned 48 OGS. In all, they removed approximately 424 cubic yards of material from the MS4 system.

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. Like M&O, CBERRRSA improved pipe and structure mapping within its operational area in 2011. In 2013, 1,025 structures were inspected, and 1023 catchbasins including 11oil & grit separators (OGS) were cleaned.

The Municipality's Anchorage Road and Drainage Service Area (ARDSA) comprising most roads in Anchorage not maintained by road service areas or owned by ADOT&PF continued its ongoing OGS and catchbasin inspection and maintenance program. During 2013, all controls were inspected, priority sites identified in 2012 were cleaned and re-inspected, and 3,344 catchbasins and inlets were cleaned.

5.3 Street and Road Maintenance

5.3.1 Standard operating procedures

Standard Operating Procedures were reviewed in 2013 for Municipal and ADOT&PF street maintenance agencies. No changes were made. Existing practices 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 5.1 below.

4: Table 5.1 – Anchorage MS4 Street Materials Inventory, 2013

Item	Type	Units	Amt. Stored 12/31/2013	Amt. Ordered 2013	Amt. Used 2013	Storage Location
ADOT&PF						
Sand	M&O spec.	ton	20,000	0	16,000	Anchorage
Sand	M&O spec.	ton	5,000	0	5,000	Birchwood
Sand	M&O spec.	ton	1,000	10,042	9,000	Girdwood
NaCl	granular	ton	0	400	2,008	Anchorage
NaCl	granular	ton	0	0	401	Birchwood
NaCl	granular	ton	0	301	1,016	Girdwood
MOA-CBERRRSA						
Sand	ARDSA spec.	ton	18,000	8,000	5,922	Hiland
NaCl	granular	ton	1	0	434	Hiland
MgCl^2	brine	gal.	5,700	an	23,690	Hiland
MOA-ARDSA						
Sand	ARDSA spec.	ton		10,000		Anchorage
MgCl^2	brine	gal.		10,000		Anchorage

an = as needed

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 five years (per permit modification in appendix A3) 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. Construction was completed at a cost of $2.2Million for the Girdwood sand storage facility, and the facility is in operation for the 2013 winter snow season. Construction of the Anchorage facility began during the 2013 fall with site preparation and will be completed in 2014. The Birchwood facility is funded and scheduled to be constructed in 2014.

MOA-CBERRRSA. Design for sand storage buildings is complete. In 2013, funding through State appropriations was received for construction in 2014 for two covered storage units located at CBERRRSA's Eagle River, Highland Rd. and Chugiak facilities.

MOA-ARDSA. ARDSA completed design of its heated sand shed in 2005 and completed construction at its main Kloep 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 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 permit defined performance factors.. The permittees have provided the 2013 summary of street sweeping activities in Appendix E1. Excerpts from this report are provided in Table 5.2 summarizing permittees' sweeping performance and effectiveness,

In the fourth year of the permit term permittees are required to update the *Anchorage Street Sweeping and Storm Water Controls: 2013 Performance Evaluation*, previously submitted in 2002. The permittees performed an assessment of control practices and reviewed sampling efforts and studies performed under earlier Anchorage MS4 permit terms. The results of this effort are provided in Appendix E2.

5: Table 5.2 – Anchorage MS4 Sweeping Summary, 2013

Spring 2013

	EPA Category	Drainage Type	Street Miles	PickUp Miles	Total Volume* (cyds)	Unit Volume* (cyds/mile)
ADOT&PF	**Arterial**	OC	8.3	10.7	128.0	11.9
		CG	39.0	102.5	3695.0	36.0
		Mixed	43.2	118.1	3229.0	27.3
	Residential	OC	52.3	104.6	654.0	6.3
		CG	4.1	12.0	220.0	18.4
		Mixed	28.4	59.0	507.0	8.6
ARDSA	**Arterial**	OC	0.0			
		CG	40.8	131.8	3689.7	28.0
		Mixed			462.5	
	Residential	OC	112.5		24.3	
		CG	464.7	837.6	1295.0	16.3 [1]
		Mixed			7377.4	
CBERRRSA	**Residential**	OC	154.1	77.6	309	4.0
		CG	30.0	60.0	546	9.1
		Mixed	14.6	29.1	57	2.0

Summer 2013

	EPA Category	Drainage Type	Street Miles	PickUp Miles	Total Volume* (cyds)	Unit Volume* (cyds/mile)
ADOT&PF	**Arterial**	OC	8.3	10.7	29.0	2.7
		CG	39.0	102.5	465.0	4.5
		Mixed	43.2	118.1	582.0	4.9
	Residential	OC	52.3	104.6	290.0	2.8
		CG	4.1	12.0	63.0	5.3
		Mixed	28.4	59.0	245.0	4.2
ARDSA	**Arterial**	OC	0.0			
		CG	40.8	131.8	488.2	3.7
		Mixed			60.6	
	Residential	OC	112.5		15.9	
		CG	464.7	837.7	96.5	1.4 [1]
		Mixed			2954.1	
CBERRRSA	**Residential**	OC	154.1	77.6	No data reported	
		CG	30.0	60.0	No data reported	
		Mixed	14.6	29.1	No data reported	

Fall 2013

	EPA Category	Drainage Type	Street Miles	PickUp Miles	Total Volume* (cyds)	Unit Volume* (cyds/mile)
ADOT&PF	Arterial	OC	8.3	10.7	37.0	3.5
		CG	39.0	102.5	806.0	7.9
		Mixed	43.2	118.1	712.0	6.0
	Residential	OC	52.3	104.6	347.0	3.3
		CG	4.1	12.0	73.0	6.1
		Mixed	28.4	59.0	255.0	4.3
ARDSA	Arterial	OC	0.0			
		CG	40.8	131.8	223.2	1.7
		Mixed			17.3	
	Residential	OC	112.5		1.9	
		CG	464.7	837.7	297.3	3.7 [1]
		Mixed			2579.8	
CBERRRSA	Residential	OC	130.3	31.0	27	0.9
		CG	8.9	17.8	27	1.5
		Mixed	59.6	119.7	69	0.6

1..Inferred results: All ARDSA data reported in mixed drainage format. <10% data suitable for drainage type inference and analysis.

* Volumes represent only swept materials collected along reported/estimated Curb/PickUp Miles

OC = Open Channel Drainage

CG = Curb and Gutter Drainage

ADOT&PF reported 100% completeness for all road segments and operational areas for the spring, summer, and fall sweep periods. ADOT&PF did report that, due to late spring snowfall, the spring sweeps did not begin until early May and were not completed until the 10th of June, 10 days beyond the permit prescribed spring sweep period (though all ADOT&PF roads did receive the required number of sweeps for the 2013 reporting period). CBERRRSA reported 100% completeness for the spring and fall sweep periods with no reported road segments or operational areas falling below permit requirements. For the 2013 summer sweep period CBERRRSA reported that roads were swept 'as needed' (as prescribed in the Street Sweeping Management Plan) and did not report any volumes of swept materials. This suggests that only open channel type roads swept with kick broom type sweepers were swept in the summer period. ARDSA reported a sweeping completeness of 100% for designated streets within its administrative authority for the spring and fall sweep periods. For the summer sweep period, ARDSA reported sweeping all of its arterial and collector classified roads, and reported sweeping its residential roads 'as needed'.

5.5 Pesticide, Herbicide, and Fertilizer Applications

The Municipal pesticide code is located in Title 15.75, available at: http://library.municode.com/index.aspx?clientId=12717. 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 were developed in the third year of the Permit term. Permittees developed plans for their material storage facilities, maintenance yards, and snow disposal sites on schedule with the Permit. They are available at the italicized facilities for each owner in Table 5.3 and where practical at each facility site.

Inspection

In 2013 inspections indicated by Stormwater Pollution Prevention Plans were performed at the facilities indicated in Table 5.3. Corrections were made as needed. The inspection reports are on file at each of the facility offices.

6: Table 5.3 – MS4 Facilities with Storm Water Pollution Prevention Plans

Facility	Location	Activities
ADOT&PF		
Birchwood Maintenance	20651 Birchwood Spur Rd., Birchwood	Equipment & Materials Storage
Girdwood Maintenance	MP 90 Seward Hwy., Girdwood	Equipment & Materials Storage, Maintenance
Anchorage Maintenance	5300 E. Tudor Rd., Anchorage	Equipment & Materials Storage, Maintenance
O'Malley Snow Disposal	O'Malley & O Seward Hwy, Anchorage	Snow Storage
Tudor Snow Disposal	Tudor Road, Anchorage	Snow Storage (operating under ARDSA SWPPP)
Hiland Road Snow Disposal	Hiland Road, Eagle River	Snow Storage
CBERRRSA		
Eagle River Maintenance	8501 Hesterberg Ln, Eagle River	Equipment & Materials Storage
Chugiak Maintenance Facility	19200 Kerbow Ln., Chugiak	Equipment & Materials Storage
ARDSA		
Kloep Maintenance Facility	5701 Northwood Drive, Anchorage	Equipment Maintenance, Materials Storage & Snow Storage
Muldoon Maintenance & Storage Facility	7909 Boundary Ave., Anchorage	Equipment Maintenance & Materials Storage
Native Heritage Snow Disposal	8902 Heritage Center Drive, Anchorage	Snow Storage
Northwood Snow Disposal Site	Northwood Drive, Anchorage	Snow Storage
Commercial Dr. Snow Disposal	Commercial Drive, Anchorage	Snow Storage
Mountain View Snow Disposal	Mountain View Drive, Anchorage	Snow Storage
Sitka Street Snow Disposal	Sitka Street, Anchorage	Snow Storage
Tudor Snow Disposal	Tudor Road, Anchorage	Snow Storage
C Street Snow Disposal	C Street, Anchorage	Snow Storage
Dowling Snow Disposal Site	Dowling Road, Anchorage	Snow Storage

5.7 Training

The Municipality and ADOT&PF met regularly during 2013 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 to assist their understanding, decisions, and record-keeping about activities associated with Permit compliance. A summary of ADOT&PF and Municipal training meetings are summarized in Section 2.4.

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://library.municode.com/index.aspx?clientId=12717. 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 http://www.muni.org/Departments/OCPD/development/BSD/Pages/CodeEnforcement.aspx for on-line complaint recording and tracking.

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

7: Table 6.1 – Service Requests by Complaint Type, 2013

Department	Complaint Type	Number of Requests	Number Resolved
WMS	Stormwater – Construction	28	28
WMS	Prohibited Discharges – Private property	15	15
ROW	Prohibited Discharges – ROW	20	20

Among the issues the permittees responded to during the fourth year was a discharge at 15th Avenue and Sitka, on the south side of the Merrill Landfill. An investigation revealed water was discharging from the landfill at a site unassociated with the landfill's leachate collection system and traveling in the road swale and gutter to a storm pipe discharging to the Sitka wetland. Communication with Solid Waste Services confirmed a contractor was actively engaged in capturing the discharge and permanently directing it to the collection system through the installation of finger drains. The success of the work is being monitored, with oversight from ADEC.

Illicit Discharge mapping

Appendix F1 contains a location map of 2013 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

The permittees continued to implement the re-designed dry weather screening program in compliance with new Permit requirements. The 2013 report is provided in Appendix F2.

Dry Weather Screening results prompted follow-up for one parameter on an outfall at Campbell Creek. Fecal Coliform was retested at an outfall with an in-line sediment basin and at up-gradient points - the outfalls of the storm sewer system flowing into the basin. The storm sewer outfall points were eliminated as the source. The sediment basin outfall exceedence will be addressed through periodic controls assessment. The details of the monitoring are included in the discussion of the 2013 Dry Weather Screening Report.

6.4 Spill Prevention and Response

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 were provided in the 2011 annual report. The working group continues to coordinate the spill response program and will update it, as needed, during the permit term..

2013 Spill Response

In 2013 the ADOT&PF Maintenance and Operations (M&O) responded to two spills. The first was a spill of Magnesium Chloride, 3000-3500 gallons, at the Girdwood Sand Storage facility. This spill cleanup is being coordinated with ADEC. The second spill was diesel fuel, 25 gallons, from a damaged piece of state

owned equipment at an Alyeska Resort parking lot. ADOT&PF cleaned up the spill and transported contaminated soils to AIMM Technologies in Soldotna Alaska for disposal.

In 2013 the Municipality of Anchorage responded to two spills. The first was a spill of approximately 20-30 gallons of diesel fuel from a leaky fuel tank in the bed of a pick up truck. The spill occurred in a parking lot on 3rd Ave., between E St. and C St in Anchorage. The truck owner and the Anchorage Fire Department (AFD) handled initial site containment and cleanup, while ADEC and MOA inspected manholes and catch basins 'downstream' of the spill to assess how much of the storm drain system had been contaminated. Environmental Compliance Consultants Inc. (ECC) cleaned the necessary storm drain structures and disposed of the contaminated materials. The second spill was a 55 gallon drum of non-toxic orange dye for wood mulch that occurred on 68th Ave. just east of Brayton Dr. in Anchorage. AFD responded to the spill, investigated the substance, and coordinated the cleanup. MOA investigated downstream portions of Little Campbell creek looking for fish kills and other deleterious effects that could be related to the spill, but observed none.

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.

Staff training was supported by seminars on tree risk management, underground stormwater detention, GPS training, and emergency operations training.

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 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 2013 is provided in Appendix G1 and summarized below.

In 2013, AWC continued to work with schools, neighborhoods, property managers, residents, businesses, and local citizens to educate and improve environmental stewardship of waterways in the community by way of several different programs. The Scoop the Poop committee is a special group formed from a variety of stakeholders who solely focus on reducing fecal coliform in local waterways. A new assessment of "poop waste stations" throughout the Municipality was undertaken in July on behalf of the Alaska

Department of Environmental Conservation's Water Quality Division to review location, condition, and usage of the stations in order to assess their usefulness for reducing fecal coliform in creeks. "Creeks as Classrooms" is a program that AWC brings to students and teachers in the Anchorage School District and other youth groups year-round for them to learn about creek stewardship, water quality monitoring, recycling, and the science of life in the creeks. Each of the past 4 years has seen a remarkable increase in the number involved—we are reaching out to over 5,000 K-University young people annually. A new 2012-2013 funded project called "Creek Report Card" pulled in over 70 volunteers who walked approximately 125 Anchorage creek miles with a 9-page questionnaire that addressed physical, biological, and social issues along the creeks. The complied results were provided to residents, Community Councils, and other interested groups and are posted on the AWC website. Lastly, an effort to eradicate Reed Canarygrass on upper Chester Creek (by tarping the invasive vegetation) also provided an opportunity for outreach about creek health and invasive plants to residents in the adjacent area. Through these programs, publications, and events, AWC continues to further stormwater education in the Municipality of Anchorage.

- This year, the Scoop the Poop (STP) committee held 3 clean up events at off-leash dog parks (University Lake and Connors Bog) and at BLM trailheads, and distributed another 200 STP door hangers at residences. A new flier titled "How to Live with a Creek" is being strategically placed at residences and businesses along creeks—to date, over 400 fliers have been put out. Approximately 100 fliers on invasive plans and waterways were placed at Grass Creek Village (Debarr and Muldoon) where the Reed Canarygrass tarping project is taking place between 2012 and 2014. At 6 STP tablings over 50 signed responsible pet owner pledges were received bringing the total to nearly 500. Scoop the Poop brochures are being replenished in many of the original twenty five local pet services, and the STP committee is working on some professional outreach ideas for next year. Scoop the Poop bus signage was placed on the rear of five Anchorage buses in early fall for sixteen weeks, an increase of seven weeks over 2012. Scoop the Poop deliverables are in a labeled folder in Appendix G1.
- Garden runoff, car washing, invasive plants, and hazardous fluid management were addressed again through a variety of garden tabling and educational events, with over 1,900 participants.
- The annual Creek Clean-Up Day in May was, despite the snow, well attended. Approximately 200 volunteers cleared tons of debris from creeks that day and many did so later in the week. After the Saturday event there was a celebration with educational information from a variety of groups.
- Stormwater medallions were permanently placed on 16 new storm drain locations.
- Interaction with Anchorage School District students totaled approximately 5,000 from a variety of programs, camps, and schools.
- An additional 200 cards with tips for businesses that rent equipment to residents that will guide their customers with some "do's" and "don'ts" to help protect waterways were given out this summer.
- Four TV newstories were aired on KTUU and KTVA this past year that covered water issues, and ADEC's Tim Stevens shared a microphone with Cherie Northon at KAKM for Hometown Alaska with Kathleen McCoy discussing "How healthy is the water in Anchorage creeks, streams and lakes?" on May 15.

For the coming year AWC will continue Scoop the Poop, Creeks as Classrooms, a variety of tabling events, mailouts, and PSAs. Materials are evaluated every year for improvement or change based on past experience. The variety of education efforts will continue to expand, especially due to grants from other

entities, such as ConocoPhillips, who are generously supporting outreach to students of all ages (K-university).

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, submitted the "Quality Assurance Project Plan - Municipality of Anchorage Monitoring Program for APDES Permit Number AKS-052558". The permittees updated the Quality Assurance Plan in January, 2012 to reflect final project site selection and monitoring details. The Municipality, on behalf of the permittees, conducts monitoring for various purposes as summarized in Table 8.1.

8: 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	Mar-May	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, conducted in 2011 and again in 2013 focused on two pesticides believed to be most likely present in Anchorage water bodies. For the first time in the history of this fifteen year sampling program MOA found the herbicide 2-4D in one of the lakes monitored. Details of the findings are included in the 2013 Pesticide Screening Report in Appendix H1

The permittees believe the longer warm season experienced during the summer of 2013 was the primary reason Anchorage experienced a positive result in this monitoring. Residents likely spent more time creating and caring for green lawns, thus contributing chemical runoff to receiving systems. The MOA will respond in 2014 with a focused education project alerting lake homeowners to the results of the 2013 screening and encouraging them to find alternative methods to pesticides.

8.2.2 Existing Structural Controls - OGS and Sedimentation Basin Evaluation

The MOA and DOT are required under their joint APDES stormwater permit to evaluate the performance of OGS and sedimentation basins within the Anchorage municipal separate storm sewer system (MS4) and to report results in the third year of the permit term (IV.A.8., p. 39). The report was provided as requested in the 2012 annual report.

8.2.3 Snow Storage Site Retrofits

The APDES stormwater 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.

The permittees completed one retrofit at the Tudor Road Municipal snow disposal site prior to February 1, 2012, and repaired a weak point in the runoff channel during the summer/fall of 2012. Currently this site is in operation. A second design for the Spruce Street Municipal snow disposal site was constructed in the spring of 2012. The second site was put into operation in fall 2012 and will have been operating for one full winter by spring, 2013. Both sites were tested for water quality performance in spring, 2013, with results reported in Appendix H2.

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 third year results are provided in the 2013 Stormwater Outfall Monitoring Report in Appendix H3.

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. An updated version was provided in the 2012 annual report.