

2021 ANNUAL REPORT

APDES Permit No. AKS-052558

Submitted by:
Municipality of Anchorage



Alaska Department of Transportation and Public Facilities



Prepared for:
Alaska Department of Environmental Conservation

Prepared by:
Watershed Management Services
Project Management and Engineering Department
Municipality of Anchorage



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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&PF	Alaska Department of Transportation and Public Facilities
ARDSA	Anchorage Road and Drainage Service Area
AWC	Anchorage Waterways Council
BMP	Best Management Practice
CBERRRSA	Chugiak Birchwood Eagle River Rural Road Service Area
CGP	Construction General Permit
CO	Certificate of Occupancy
DCM	Design Criteria Manual
EPA	Environmental Protection Agency
ESCP	Erosion Sediment Control Plan
FHWA	Federal Highway Administration
GIS	Geographic Information System
GPS	Global Positioning System
HMCP	Hazardous Material Control Plan
HGDB	Hydrogeodatabase
LID	Low Impact Development
M&O	DOT&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 (DOT&PF), submit this Report in fulfillment of the annual reporting requirements of Alaska Pollutant Discharge Elimination System (APDES) Permit No. AKS 05255-8, “*Authorization to Discharge Under the National Pollutant Discharge Elimination System*” (Permit), effective date August 1, 2020. This report satisfies the criteria set forth in Permit Section 4.4 and is organized by program to demonstrate compliance with the “*Storm Water Management Plan*” developed to meet the requirements laid out in Permit Section 2. 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 permittee’s organizations are laid out in their Program Coordination Plans.

Responsibilities for certain requirements have been shared with the Anchorage Waterways Council (AWC). The delegated activities are in the areas of Public Education for General Audiences located in Permit Part 3.6, and program evaluation of Animal Facilities, located in Part 3.3.3.

1. Program Organization

1.1 Storm Water Management Plan

The actions and activities of the Anchorage Municipal Separate Storm Sewer System (MS4) program have been documented in its Storm Water Management Plan (SWMP). The SWMP is intended to reduce the discharge of pollutants from the MS4 into receiving waters to the maximum extent practicable (MEP). The permittees have identified 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 addressing the Permit requirements as described in Sections 3 and 4 of the Permit.

The annual reports document the compliance measures taken during the year in fulfillment of the SWMP. Both documents are laid out consistent with Sections 3 and 4 of the Permit. Activities 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 SWMP has been updated for the fourth permit term and provided in the 2020 Annual Report. There are no programmatic updates in 2021. The associated Interjurisdictional Agreement between the ADOT&PF and the Municipality were provided in 2020.

Program Effectiveness

The reporting date for the 2021 Annual Report fell in the fifth month of the second year of the permit. It presents the work the Permittees accomplished in completion of the first half of the second year of the fourth term. The activities performed during the second half of the first year will be reported in the 2022 annual report.

Each of the monitoring program reports presented with this submittal provides a detailed presentation of results from the current monitoring year. These reports indicate what follow-up actions are indicated from the program findings.

The Quality Assurance Plan (QAP) was updated in 2020 to reflect changes in program activities.

Pollutant load allocations, in the form of total maximum daily loads (TMDL), are assigned by the state to several creeks and lakes in Anchorage based on the State’s *Primary Use* designation as drinking water sources. Dry and wet weather screening provide indicators of bacterial impacts from storm water to identified receiving systems. Wet weather bacteria continue to be occasionally high at some outfalls. To address the sources of most bacteria, the permittees are continuing to provide public education about pet waste management with the Scoop the Poop message. They are also continuing to participate in efforts to manage waterfowl population impacts.

Street sweeping assessment activities were continued annually to assist with improving sweeping operations. Real-time assessment provides qualitative feedback to help operators adjust practices for development of a visually clean standard.

The operations of the storm sewer system were implemented by primary coordinating groups. Coordination is managed through agreements between Municipal Watershed Management Services (WMS) and each of the participating MS4 operators; these plans are updated as operations change and for the new permit term. The M&O operators have provided 2021 MS4 Summaries for their areas of permit compliance. They are provided in Appendix A1.

Program Resources

The permittees have broken their program costs into two functional categories: Operations & Maintenance (O&M) and Program Management/Project Administration. The maintenance costs are summarized from the program breakdowns contained in the MS4 Summaries. The 2021 costs are presented in Table 1.1.

1: Table 1.1 – 2021 SWMP Program Costs

	DOT&PF	ARDSA	CBERRSA	GRSA	Total
Maintenance & Operations	\$3.0M	\$1.6M	\$0.21 M	\$0.045M	\$4.9M
Program Management/ Administration	\$0.40M	1.0M	-	-	\$1.4M
Total	\$3.4M	\$2.6M	\$0.21M	\$.045M	\$6.3M

1.2 Watershed Planning

The permittees have two existing watershed plans. The *Little Campbell Creek Watershed Plan* and the *Chester Creek Watershed Plan* were developed under the guidance of working groups 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.

The permittees completed a scoping document for a Campbell Creek watershed plan in the third term. The scoping document identified whether activities carried out in the watershed are beneficial in accomplishing site-based low impact development (LID) practices and recommended future actions to obtain identified goals. The scoping document will be used to construct a plan to be completed by the end of the fourth term.

A scoping document for an additional watershed must also be completed by the end of the fourth term.

2 Construction Site Management

2.1 Regulatory Mechanism and Standards

Ordinance and/or Regulatory Mechanism

DOT&PF Projects. The DOT&PF Statewide Design & Engineering Services' (D&ES) mission is to provide technical services to DOT&PF, and other state and federal agencies. They develop, publish, and manage standard construction contract specifications, standard modifications for highways and statewide special provisions for highways and airports, as well as coordinate with and advise others in the development and use of specifications for buildings, marine highways, and harbors. The DOT&PF Chief Engineer issues directives informing DOT&PF staff of new specifications, manuals, and other standards to administer DOT&PF projects. In 2021, the DOT&PF Chief Engineer issued three storm water related directives to the DOT&PF regions; two directives updated construction materials related to the issuance of the 2021 Alaska Construction General Permit (CGP), and one related to the COVID-19 pandemic.

- February 12, 2021 Chief Engineer's Directive: Alaska Construction Manual. This directive updates the Alaska Construction Manual. The modifications are minor altering terminology and job title information. Section 3: Preliminary Activities – 3.11 Stormwater Pollution & Prevention Plan; Section 9: Construction Administration in the Field – 9.9 SWPPP & HMCP Implementation & Monitoring, 9.17 Environmental Permits & Commitments.
- March 5, 2021 Chief Engineer's Directive: Special Notice to Bidders for Expired COVID Mandate. This directive announces the expiration of the Governor's emergency declaration and mandates relating to COVID-19 that were currently in effect on February 14, 2021. A Special Notice to Bidders was to be issued to all projects advertised after the date of this directive.
- September 27, 2021 Chief Engineer's Directive: Highway Standard Modifications. This directive updates the Alaska Standard Specifications for Highway Construction, 2020 Edition for projects advertised after December 31, 2021. Specifically, HSM20-38 replaces Specification 641 Erosion, Sediment and Pollution Control. This version of the 641 specification has been accepted by the FHWA and is revised to meet the requirements of the 2021 Alaska Construction General Permit.

DOT&PF regulates stormwater management of their highway, aviation, and public facility construction projects through its Statewide and Regional Standard Specifications:

- Section 641 Erosion, Sediment and Pollution Control for Highway Construction
- Item P-641 Erosion, Sediment and Pollution Control for Airport Construction
- Section 01 57 10 Erosion, Sediment and Pollution Control for Statewide Public Facilities Construction

DOT&PF updates these standard specifications every two years, and they are part of the biennial statewide standard specification re-publication. Regional special specification modifications are developed on a project specific basis. DOT&PF reviews the DOT&PF SWPPP construction forms each year and updates and/or modifies individual forms as necessary.

In 2021, these Erosion, Sediment and Pollution Control specifications have been revised to reflect the regulatory changes brought forth by the reissuance of the ACGP in 2021. The final version of the 641 Specification for Highway Construction was accepted by the FHWA and made ready for use by the September 27, 2021 Chief Engineers Directive.

Item P-641 for Airport Construction and Section 01 57 10 for Public Facility Construction are in final draft form and awaiting final approvals.

Construction form 25D-100, SWPPP Construction Site Inspection report, was revised, and a set of standardized construction memorandums for reducing inspection frequency made available.

The Standard Specification Section 641, Item P-641, and Section 01 57 10 and the DOT&PF SWPPP construction forms are a construction contract requirement used to document permit compliance. DOT&PF personnel enforce the stormwater specifications on each construction project.

DOT&PF Central Region Construction provides guidance on contract stormwater administration to its project staff through three mechanisms:

- The Alaska Construction Manual, Chapter 3.11, 9.9, 9.10 and 9.17
- DOT&PF Chief Engineer's directives
- Having stormwater specialists dedicated solely to stormwater guidance and education

These three mechanisms are required to be used on all DOT&PF highway, aviation, and public facility construction projects; they outline the procedures for implementing and monitoring construction SWPPPs.

Minor modifications concerning storm water were made to the Alaska Construction Manual in February 2021 in sections 3.11 and 9.9. The latest edition of the Alaska Construction Manual became effective on December 1, 2020. The Alaska Construction Manual link is:

<http://www.dot.state.ak.us/stwddes/dcsconst/constructionmanual.shtml>

Highway Standard Modification for Section 641 for Highways Erosion, Sedimentation and Pollution Control (identified as Standard Modification HSM20-38) link is:

https://dot.alaska.gov/stwddes/dcspubs/assets/pdf/hwyspecs/stdmods/stdmods_eng_20.pdf

Links for draft Item P-641 for Airport Construction and draft Section 01 57 10 for Public Facility Construction are not currently available.

DOT&PF Construction SWPPP Forms link is:

<http://dot.alaska.gov/stwddes/dcsconst/index.shtml> (under the Forms Heading)

DOT&PF Chief Engineer's Directives link is:

<http://www.dot.alaska.gov/stwddes/dcspubs/directives.shtml>

Private Development. The Municipality regulates stormwater management at private construction sites through Anchorage Municipal Code (AMC) Title 21. It can be found in AMC 21.07.04.E. This code is available at:

https://www.municode.com/library/ak/anchorage/codes/code_of_ordinances?nodeId=TIT21LAUSPLNECOFFJA12014_CH21.07DEDESTNECOFFJA12014_21.07.040DRSTWATRERCOPRD

Municipal Projects. The Municipality regulates stormwater management during construction of its own (public) projects through Municipality of Anchorage Standard Specifications (MASS), Division 20 (MASS Section 20.02). These standard specifications are contractually enforced. A link to the MASS is found at http://www.muni.org/Departments/project_management/Pages/MASS.aspx

Construction Storm Water Manual

DOT&PF Projects. Use of the Alaska Storm Water Pollution Prevention Plan (SWPPP) Guide and other related materials is directed by the DOT&PF Chief Engineer. These materials are available for download on a dedicated Stormwater/Water Quality webpage managed and maintained by the DOT&PF Statewide Environmental Office.

DOT&PF revised its Alaska SWPPP Guide in March of 2021 to reflect changes made in the 2021 Alaska Construction general Permit. The Alaska Storm Water Pollution Prevention Plan Guide, 2017 Edition was made an official reference document and authorized for use on March 31, 2017 after receiving approval from the Federal Highway Administration (FHWA) and FAA.

DOT&PF Statewide Environmental Office Stormwater and Water Quality Website link is:

<https://dot.alaska.gov/stwddes/desenviron/resources/stormwater.shtml>

Alaska SWPPP Guide, 2021 Edition (entire guide with appendices) link is:

<https://dot.alaska.gov/stwddes/desenviron/resources/stormwater.shtml> (under the Construction Storm Water Resources Heading)

Private and Municipal Projects. The Municipality updated its Storm Water Plan Review and Treatment Guidance Manual (SWTPRGM) to reflect the current regulatory program based on the APDES permit and the current Alaska Construction General Permit. It is incorporated as Volume 2 of the Anchorage Stormwater Manual recently adopted by the Anchorage Assembly. It is available at

www.anchoragestormwater.com

2.2 Plan Review and Approval

DOT&PF Projects. Sometimes, DOT&PF takes two or more projects and combines them into a single Construction Contract. DOT&PF normally files one Notice of Intent (NOI) per Construction Contract unless the projects are disconnected from each other and have vastly different site conditions/SWPPP requirements. DOT&PF will report on the number of active or carry over Construction Contracts or NOIs filed with the Alaska Department of Environmental Conservation (ADEC). These DOT&PF contracts/NOIs are hereafter known as projects in this report.

Below is a list of DOT&PF Construction Contracts/NOIs reported above that have multiple projects:

DOT&PF 2020 Carry Over Construction Contracts with Multiple Projects and One NOI:

1. Project No. Z592300000 – ANC Runway 25R East Safety Improvements, and Project No. CFAPT00597 – ANC Security Fencing Improvements 2020
2. Project No. CFHWY00011 – Seward Hwy: MP 100-105 Improvements, and Project No. Z570880000 – HSIP: CR Traffic Safety Corridor Left Turn Lanes
3. Project No. CFHWY00106 – Minnesota Drive: Seward to Tudor Pavement Preservation, and Project No. CFHWY00257 – HSIP: Minnesota Drive Weaving Lane – International Airport to Raspberry

New DOT&PF 2021 Construction Contracts with Multiple Projects and One NOI:

1. Project No. CFAPT00498 – ANC Taxiways K, G1 and J Improvements, and Project No. CFAPT00450 – ANC FAA Taxilane Pavement Debilitation
2. Project No. CFHWY00213 – Seward Highway: MP 75-90 Road & Bridge Rehabilitation – Phase II Project No. CFWHY00308 – Portage Curve Multimodal Connector
3. Project No. CFHWY00378 – Old Glenn Highway MP 0.0-9.4 Pavement Preservation, and

Project No. CFAPT00322 – HSIP: Old Glenn Hwy and Knik Goose Bay Rd: Wider Lane Lines

Seven (7) projects (i.e., Construction Contracts) were carried over from the 2020 construction season in the Municipality of Anchorage MS4 permit area; all seven projects applied and received a reissued NOI for coverage under the 2021 ACGP. During 2021, DOT&PF reviewed and approved SWPPPs for ten (10) projects eligible to discharge construction stormwater under the requirements of the 2021 ACGP within the MS4 permit area. All ten projects filed for and received an NOI. All 17 projects were contracted and administered by DOT&PF. A list of these 17 projects is provided in Appendix B1.

Since 2011, DOT&PF Central Region (CR) has maintained a renewable term contract with STANTEC, Inc. to perform Quality Assurance (QA) document review for required Specification Section 641, Item P-641, and Specification Section 01 57 10 prior to project certification and field implementation. In 2016, DOT&PF Statewide Public Facilities began using the services provided by STANTEC Inc. QA review is performed by the Water and Wastewater group within STANTEC for all projects requesting the service. On average between 40 and 50 DOT&PF Central Region Construction and Statewide Public Facilities projects with an NOI take advantage of this service.

Before projects apply for an NOI, STANTEC reviews the initial SWPPP and provides comments for the project to incorporate, considering all pertinent environmental permits. During construction, STANTEC reviews the project-site inspection reports prior to certification, including all other documentation generated by the inspection, and provides comments to edit and correct documentation with the intent of preventing any permit non-compliance caused by paperwork errors. DOT&PF Central Region Construction and Statewide Public Facilities will continue using this QA contract for the foreseeable future and has no plans to terminate the service.

The DOT&PF Pre-Construction Manual requires Erosion and Sediment Control Plans (ESCP) to be developed for each project owned, designed, or administered by the DOT&PF. The DOT&PF assigns design and environmental staff, and the DOT&PF Central Region Stormwater Specialist to review the ESCP.

The review process for highway projects is:

- The ESCP writer creates a project-specific ESCP at the Pre-PS&E phase
- Individuals submit their written comments to the Design Project Manager or give the ESCP writer red-lined edits of the ESCP
- The ESCP writer can discuss comments or the red-lined edits with the individual who wrote the comments. DOT&PF enters a response to all comments
- The Design Project Manager checks and verifies the ESCP review comments are incorporated at the time bid documents receive FHWA project certification. FHWA requires DOT&PF certification stating that the PS&E is complete and has been developed in accordance with applicable design standards and the Title 23 USC responsibilities assumed by DOT&PF in the Stewardship and Oversight Agreement dated December 21, 2012.
- The Design Project Manager files the ESCP comments after certification

The review process for aviation projects is:

- The ESCP writer creates a project-specific ESCP at the Plans-in-Hand phase
- Individuals enter their review comments into the Design Review Comment web page or give the ESCP writer red-lined edits of the ESCP

- ESCP writer can discuss comments or the red-lined edits with the individual who wrote the comments. DOT&PF enters all comment responses in the comment web page
- Individuals review the Revised ESCP at the Pre-PS&E phase
- Individuals review the Pre-PS&E ESCP and follow the same process as the Plans-in-Hand ESCP
- The DOT&PF Design Project Manager checks and verifies the ESCP review comments are incorporated at the time bid documents receive FAA project certification. The FAA requires DOT&PF Certifications stating that they will comply/have complied with statutory and FAA-imposed administrative requirements.
- The Design Project Manager files the ESCP comments after certification

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

DOT&PF is a co-operator on projects with the Construction Contractor performing the work. After construction activities begin, most DOT&PF projects with an active NOI are subject to a documentation audit and field review performed by a Central Region Stormwater Specialist. This review is based on the EPA Appendix R NPDES Industrial Storm Water Investigation and Case Development Worksheet.

Private and Municipal Projects. The WMS continues to review construction SWPPPs for projects conducting ground disturbance greater than 10,000 square feet. The types of projects reviewed include any work requiring a building permit, utility work, new subdivisions and road projects.

In 2021, WMS reviewed and approved approximately 325 Residential permits and 82 commercial buildings, and a number of commercial and government building additions. WMS also conducted Storm Water Pollution Prevention Plan reviews of 25 Municipal Projects. The Municipal Development Services Division computer-based building permit administration system continues to track and document plan reviews and approvals in 2021. It also handles documentation for Construction Site Inspections and Enforcement.

2.2.1 Inspection and Enforcement Tracking

DOT&PF Projects. A summary of inspection activities shows that DOT&PF conducted 279 site inspections on 17 projects within the MS4 permit area. DOT&PF performed:

- 237 site inspections on fourteen (14) highway projects ranging from major highway realignment to repaving arterial roads, and permanent 2018 earthquake repairs
- 42 site inspections on three (3) aviation projects at the Ted Stevens Anchorage International Airport that includes major taxiway and taxi lane reconstruction and facility support projects

For each of these inspections, DOT&PF reviewed the SWPPP or other site documentation and performed a physical inspection of the site to confirm there were no illicit discharges or incidents of permit noncompliance. At the conclusion of the visit, DOT&PF prepared an inspection report and included the report in the SWPPP. Any required corrections were given to the site representative. In 2021, no stop work orders were given to any DOT&PF construction project within the MS4 permit area. The records for site inspections along with associated compliance follow-up are available for review at individual project offices.

Private and Municipal Projects: A summary of inspection activities reveals that 318 commercial site inspections and 476 residential site inspections were conducted during 2021 including 7 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 a stop work order is issued until compliance is achieved. In 2021 no stop work orders were given. The records for site inspections along with associated compliance follow-up are available for review at WMS.

2.2.2 Enforcement Response Policy

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

- Alaska Construction Manual, 2020 Edition, Chapter 9.9 SWPPP & HMCP Implementation and Monitoring, most current edition is dated February 16, 2021
- Standard Specification Item 641 Erosion, Sediment and Pollution Control for Highway Construction (identified as Standard Modification HSM20-38) most current edition is dated December 31, 2021
- Item P-641 for Erosion, Sediment and Pollution Control Airport Construction, most current edition is dated October 2020 (Updated version revised for 2021 ACGP waiting final approvals)
- Standard Specification Item 01 57 10 Erosion, Sediment and Pollution Control for Public Facilities Construction, most current edition is dated April 2016 (Updated version revised for 2021 ACGP waiting final approvals)

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

The Alaska Construction Manual spells out the inspector qualifications and duties, non-compliance reporting and monitoring paperwork. The standard specifications provide project and administration requirements relating to control of erosion, sedimentation, and discharge of pollutants. The work must follow applicable local, state, and federal requirements, including the ACGP and the MS4 Permit. DOT&PF personnel enforce the stormwater specifications on each construction project.

These specifications authorize DOT&PF personnel to verbally warn and provide written notices to the construction project after each inspection. The SWPPP Construction Inspection Report and the Corrective Action Log document the timely maintenance or corrective actions required.

DOT&PF revised Section 641 and Item P-641 Statewide and Regional Highway and Aviation Specifications in 2019, because of an initiative implemented by the DOT&PF Statewide Design and Engineering Services Office to review all DOT&PF manuals biennially and revise them as needed.

DOT&PF has revised Specification 641 and Item P-641, the Statewide and Regional Highway and Aviation Specifications respectively, to conform with the reissuance of the CGP in 2021. Specification 641 received final approval in September 2021. Item P-641 is awaiting final approval from the FAA but is expected soon.

Escalation enforcement measures include:

- Orally suspending the work if the suspension is to protect workers, the public or the environment from imminent harm
- Written suspension of work explaining the defects, reasons, corrective actions, and time allowed to complete the corrective actions
- Withhold monies from the construction contractor until corrective action is completed
- Assessing damages or equitable adjustments against the contract amount
- Employing others to perform the corrective action and deduct the costs from the contract amount
- Alaska Construction Manual link is:
<http://www.dot.state.ak.us/stwddes/dcsconst/constructionmanual.shtml>
- Highway Standard Modification for Section 641 for Highways Erosion, Sedimentation and Pollution Control (identified as Standard Modification HSM20-38) link is:
https://dot.alaska.gov/stwddes/dcspecs/assets/pdf/hwyspecs/stdmods/stdmods_eng_20.pdf
- Links for draft Item P-641 for Airport Construction and draft Section 01 57 10 for Public Facility Construction are not currently available.

Private and Municipal Projects. The Municipality updated its escalating enforcement policy for the fourth permit term. It was provided with the 2020 Annual Report.

2.2.3 Construction General Permit Violation Referrals

DOT&PF Projects: DOT&PF Erosion and Sediment Control Advisors provide guidance to project staff on reporting noncompliance in the Alaska Construction Manual, Chapter 9.9. In 2021, DOT&PF filed two (2) non-compliant stormwater discharge reports with the ADEC on their projects within the Municipality of Anchorage.

- Project No. CFHWY00213 – Seward Highway: MP 75-90 Road & Bridge Rehabilitation – Phase II / Project No. CFWHY00308 – Portage Curve Multimodal Connector. These projects had a non-allowable discharge on September 13, 2021, see Appendix B3 for a copy of the discharge report. The project Tracking No. is AKR10GM40.
- Project No. CFHWY00213 – Seward Highway: MP 75-90 Road & Bridge Rehabilitation – Phase II / Project No. CFWHY00308 – Portage Curve Multimodal Connector. These projects had a non-allowable discharge on November 2, 2021. See Appendix B3 for a copy of the discharge report. The project Tracking No. is AKR10GM40.

ADEC visited one (1) DOT&PF project located in the Anchorage MS4 permit area for ACGP compliance inspection in 2021. They performed a biennial compliance inspection for the Municipal Separate Storm Sewer System Individual Permit AKRS052558. The findings of these inspections resulted any notice of violation being issued to the DOT&PF. See appendix B4 for a copy of these reports.

- ADEC visited the Municipality of Anchorage and Central Region Department of Transportation and Public Facilities as part of their biennial compliance inspection of the Municipal Separate Storm Sewer System Individual Permit AKS052558 on the following dates: October 6, 7, 12, 13, and 27, 2021.

- Project No. CFHWY00213 – Seward Highway: MP 75-90 Road & Bridge Rehabilitation – Phase II / Project No. CFWHY00308 – Portage Curve Multimodal Connector were visited by ADEC for a compliance inspection on November 29, 2021. The project NOI Tracking No. is AKR10GM40.

Private and Municipal Projects. 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 2021, MOA did not file any reports of non-compliance to the ADEC.

2.3 Construction Program Education and Training

During the Permit's second term, an 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 ADEC, the Alaska Department of Natural Resources, DOT&PF, the Alaska Railroad Corporation, the Associated General Contractors, the Municipality, the US Army Corp of Engineers, and the Associated Builders and Contractors of Alaska. The original agreement, training requirements, and course elements for the AK-CESCL program were provided in the 2010 Annual Report. The updated agreement, provided in the 2013 Annual Report, made some minor revisions to clarify the procedures of the training program. In 2015, the Alaska Storm Water Steering Committee approved a one-day eight-hour Refresher Course to satisfy the AK-CESCL renewal requirements. In 2017 the agreement was updated to continue the program as laid out in the 2012 amendment. It was provided in the corresponding annual report.

The refresher course is a summary of the two-day initial AK-CESCL class. To be eligible to take this training, you must have an active AK-CESCL number and have taken the two-day (16-hour) class or refresher class within the last three years. It thoroughly examines erosion and sediment pollution control concepts and design procedures as they apply to construction projects. The refresher course is a training and certification program to comply with the Alaska CGP and the Municipality's SWTPRGM. The refresher course will stress risk management, review proper best management practices, and provides guidance. Upon passing the 8-hour refresher course, the applicant is granted an AK-CESCL certificate. Applicants not passing the (8-hour) refresher course will be required to retake the two-day (16-hour) class.

In 2020, due to COVID-19, current holders of CESCL cards were given a one-year extension, see Appendix B5, by the Steering Committee to accommodate the unavailability of in-person training. The group developed on-line training, and this training was made available starting in 2021.

For DOT&PF: DOT&PF participated in the following training:

- AK-CESCL and AK-CESCL Refresher Courses: The Central Region DOT&PF Construction section sponsored three (3) AK-CESCL classes and five (5) AK-CESCL Refresher training classes in 2021 using an on-line format in response to the COVID-19 public health emergency. The classes were taught by the DOT&PF Central Region Storm Water Specialist, Joshua James. AK-CESCL instruction sponsored by the DOT&PF is primarily for internal staff, but certification classes are also made available free of charge to all State of Alaska agency staff as well as federal, borough and local government staff as needed. A total of 177 certifications were issued from the 2021 classes; 148 certifications issued to DOT&PF staff and 29 certifications going to non-DOT&PF individuals.
- The Alaska Stormwater Steering Committee, an inter-agency group established to administer and monitor the AK-CESCL program sponsored an AK-CESCL Instructor Roundtable Training.

The Annual AK-CESCL Train the Trainer was held on November 16, 2020. The purpose of the meeting is to gather all current AK-CESCL instructors to familiarize them with program updates, and to gather instructor feedback on program material. Joshua James attended this meeting by Microsoft Teams.

- International Erosion Control Association 2021 Virtual Annual Conference and Expo (IECA 2021 AC&E): DOT&PF enrolled regional stormwater specialists Joshua James and Carina Perez in the IECA 2021 Virtual AC&E to further their knowledge and training as Stormwater Specialists. The event took place on-line February 22-25, 2021. The event is the largest stormwater event and exposition in the world and attracts participants from around the world. The four-day event has had over 220 technical and training sessions taught by industry experts.
- Spring Fling: DOT&PF Central Region Construction Section holds an annual 16-hour training event for their entire construction staff. This training includes updates on preferred BMPs, control measures, innovative approaches, regulation changes, permit updates, and policy or standards updates. DOT&PF held Spring Fling virtually in April 2021 on April 14-15 and April 21-22. The four-day event was held for four hours each day in place of the normal in-person 2-day eight hour a day event.

For the Municipality: The Municipality conducted or participated in the following training:

- 2021 Watershed Update/APDES Annual Meeting: February 24, 2021. This half-day meeting reviewed the findings of monitoring, assessments, mapping, and new programs associated with the permit. It was attended by members of MOA, ADOT, and the private sector.
- AK-CESCL Recertification Course, March 31, 2022, 8-hour course conducted by Creative Courses. It was attended by 30 Municipal staff. Other staff, not meeting qualification for recertification attended the full training course conducted by Alaska General Contractors.
- Storm Water Solutions, Storm Water Expo provides a variety of on-demand courses covering stormwater issues. Examples of topics WMS staff participated in were:
 - Stormwater Best Practices for Green Infrastructure Projects
 - From Grey to Green: Green Stormwater Infrastructure Complexities, Implementation and Myth-busters
 - Designing Naturally Vegetated & Hard-Armored Retaining Walls
 - Exploring Sediment Control During Inclement Weather Events
 - The City of Ottawa's Multi-purpose Wet Weather Management Solution: success with Integrated Planning from Concept through Design and Implementation
 - Incorporating Flood Resilience into Green Infrastructure Programs
 - Stormwater Management: Best Practices
 - The Economic benefits of Investing In Water Infrastructure: How a Failure to Act Would Affect the U.S. Economy Recovery
- Presto Geosystems, October 26, 2021. Building Stable Recreational Trails and Embankments.
- Bio Clean, April 14, 2021, Combining School Construction & Municipality LID Requirements.

- Society for Ecological Restoration Webinar, May 26, 2021, Invasive Japanese Knotweed and related knotweeds as catalysts for streambank erosion.
- WMS conducts weekly staff meetings to discuss projects, issues, and current events. These meetings provide opportunities to watch or share information on trainings and selected videos covering relevant topics related to stormwater management. They range from regulatory practice to updated technical practice and current events. A list of the videos is available on the MOA Stormwater YouTube Channel:
https://www.youtube.com/channel/UCdr0yQY12_mDVHTMaRVBFVw.

3 Storm Water Management for Areas of New and Redevelopment

3.1 Regulatory Mechanisms and Standards

3.1.1 Ordinance and/or Regulatory Mechanism

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

Alaska Highway Preconstruction Manual link:

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

Alaska Aviation Preconstruction Manual link:

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

Municipal Projects: The Municipality regulates permanent stormwater controls on its own projects through the Municipal Design Criteria Manual (DCM). The DCM has been updated by a committee of local of community experts to guide better drainage management and to reflect the goals of Permit Section 3.1.2.

Private Projects: The Municipality regulates permanent stormwater controls through the Anchorage Municipal Code Title 21, which refers to the DCM for policy and technical details. The DCM is discussed in the following section.

3.1.2 Storm Water Design Criteria Manual

DOT&PF Projects: Effective August 1, 2016, it is the policy of DOT&PF Central Region to apply the guidance contained within the latest approved version of the Municipality of Anchorage, Anchorage Stormwater Manual to projects located within the boundaries of the Municipality of Anchorage. This policy was revised May 9, 2018 to include relevant information specific to Central Region DOT&PF. The latest version of this policy, effective August 28, 2018, applies the guidance contained within version 1.0 of the Municipality of Anchorage, Anchorage Stormwater Manual, Volume, 1 dated December 2017 to projects located within the boundaries of the Municipality of Anchorage, with several exceptions laid out in the policy provided in the 2018 annual report.

Private and Municipal Projects: The Municipality establishes design criteria for permanent stormwater controls through Chapter 2 of its Design Criteria Manual (DCM), which is referenced from AMC Title 21. *Volume I, Management and Design Criteria*, of the manual provides guidance for new development. This

manual has been updated to reflect current regulations and stormwater management practices; it may be found on the WMS website, www.anchoragestormwater.com.

The DCM was revised in Term III to incorporate current Permit requirements. The manual is now in full force for all development.

3.2 Green Infrastructure/LID Strategy and Demonstration Projects

3.2.1 LID Incentives Strategy

Incentives for use of LID are established for Anchorage by the DCM and Stormwater Manuals. They include:

- **20% Area Allowance:** This provision allows runoff from up to 20% of a site to be untreated provided an equivalent volume of water is treated from somewhere else on the site using Green Infrastructure techniques. This provision is helpful for areas with unique grading challenges or roadway projects with super-elevated curves.
- **Utilizing Landscape:** Provisions and design criteria are provided for incorporating stormwater treatment facilities into site landscaping and grading. This helps maximize utilization of space on a site.
- **Detention and Downstream Analysis Modification:** The detention and downstream analysis requirements have been modified to allow more flexibility in designing on-site stormwater controls. Designers can now choose from two options to meet these requirements. The first option remains the same as what was in the old criteria, where designers provide on-site detention and ensure that there is adequate capacity in the receiving system. The second option offers a pathway for increased on-site detention with no analysis of downstream capacity.
- **Local Criteria for Stormwater Controls:** The new DCM offers detailed design criteria for a menu of stormwater “tools” that have been tailored to Anchorage’s site-specific development challenges. These criteria demonstrate how to incorporate green infrastructure efficiently, even on challenging sites.
- **Streamlined Reporting Requirements:** The new DCM has streamlined and simplified drainage reporting requirements. For small and mid-size projects, full drainage reports have been replaced with drainage certification forms to help guide the designer through necessary considerations. For large projects, the report format has been updated and simplified.
- **Alternative Compliance:** The new DCM offers a pathway forward for projects that may have a difficult time incorporating Green Infrastructure based on other conflicting municipal requirements. The Alternative Compliance route may waive conflicting requirements to encourage the use of Green Infrastructure at the discretion of the MOA.

Additionally, the Municipality continues to encourage residential rain gardens and LID projects. This program encourages all types of vegetated LID techniques. Incentive support includes, but is not limited to, technical guidance, manuals, brochures, websites, tours, hands-on workshops, private consultations, ongoing classroom support for school projects, and ongoing maintenance for public rain gardens.

3.2.2 LID/Green Infrastructure Projects

The DOT&PF and the Municipality must construct four projects or evaluate existing projects as required by Part 3.2.3 of the Permit for incorporation of LID.

DOT&PF Projects: Central Region DOT&PF Design Section has identified two potential projects currently in the construction phase for future LID evaluations: 1) AMATS: O'Malley Rd Reconstruction: Phase II, Livingston-Hillside; 2) Dowling Rd/Seward Hwy Interchange Reconstruction.

Municipal Projects: The Municipality of Anchorage implemented three GI projects in 2021. On the 4th Avenue Project, a modified soil specification, design to enhanced infiltration, was used in the landscaped tree cells that were installed as part of the project. Projects at the Anchorage Golf Course and the parking lot expansion at University Lake Park were designed so that stormwater runoff would be directed to existing vegetation for treatment. The MOA continues to find itself in the situation where the majority of programmed roadway projects are limited in scope, with few new road or roadway expansion projects. One large project where biotreatment will be used to treat stormwater is planned for 2022.

During the past year, several subdivisions also incorporated LID/Green Infrastructure measures in road and drainage infrastructure to reduce stormwater runoff. These include:

- River Hills Estates – Bioswales and Infiltration Trench
- Spenard East – Curb Cut to Retention Basin, Bioswale
- Sonoma Glenn Phase 3 – Soakaway Pits
- Overlook Estates Addition 3 – Bioswales
- Skylark IPP – Enhanced Roadway Ditch
- Blue Beary Phase 2 – Enhanced Roadway Ditch
- Palaterra Subdivision Phase 2 – Bioswale and Infiltration Trench
- Whisperhill Subdivision – Bioswale and Infiltration Trench
- Eagle Bluff – Vegetated Stormwater Outfall
- Jasmine Subdivision - Bioswale, Infiltration Galleries, Drywells
- 142nd Avenue – Bioswale, Vegetated Stormwater Outfall

3.2.2.1 LID Evaluation

The Permittees are required to quantitatively evaluate the effectiveness of select LID by the fourth year of the Permit. This requirement will be met through evaluating new projects or revisiting projects constructed in the second and third terms of the permit. Criteria for LID application will be revised based on the findings of the evaluation by the end of the fifth year.

3.3 Permanent Storm Water Controls Plan Review and Approval

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

- Local Review (approximately 30 to 50 percent complete)
- Plans-In-Hand Review (approximately 75 percent complete)

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

The Central Region Hydrologist reviews permanent drainage and erosion control features for projects at all three design phases for conformance to design criteria stated in Section 3.1.2.

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

3.4 Permanent Storm Water Management Controls Tracking and Enforcement

3.4.1 Inventory and Tracking

The Municipal Street Maintenance Division uses an asset management database to inventory and track municipal- and state-owned stormwater controls. This inventory and tracking database allows Street Maintenance to access information about the condition and maintenance requirements of the stormwater controls owned by the permittees.

The DOT&PF and CBERRSA worked with WMS to capture information about state-owned and area-wide controls. They make regular updates to incorporate MS4 public improvements as well as new information from construction record drawings.

Private Storm Water Controls. During the second term of the permit WMS developed a database for new and existing stormwater controls and, has since, updated it annually to include new development. As-built drawings of private stormwater controls are required prior to closing a Municipal Building Permit for new and redeveloped properties. These as-builts are scanned and recorded into the database. The Municipality also requires submittal of an Operations and Maintenance (O&M) agreement for private stormwater controls. During 2020, WMS continued to improve on the functionality and accessibility of this database using web-based GIS functionality. The goal is to try and better integrate data input, data recall and site inspection.

3.4.2 O&M Agreements

WMS requires commercial development projects to provide a legally enforceable and transferable O&M agreement for private stormwater controls on new and redeveloped properties to document regular maintenance on private stormwater controls and demonstrate it to the Municipality. The location and other relevant property information for the O&M agreements are entered into a municipal database created to assist tracking and inspection of the permanent controls. Copies of the recorded agreements are kept on file by the MOA.

In 2021 the MOA received 29 legally recorded O&M agreements.

3.4.3 Inspection and Enforcement

The Permittees must ensure proper long-term operation and maintenance of permanent storm water management practices through an inspection program.

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

Private Storm Water Management Controls: Under the updated SWTPRGM, the Municipality now requires as-built (record) drawings of all constructed stormwater controls that were approved under a Municipal permit for projects 10,000 sf and larger. The drawings are scanned into a tracking database.

Projects falling under this new requirement must request a permanent control inspection to obtain a conditional certificate of occupancy. As part of this process, projects must provide a surveyed as-built of permanent stormwater controls and a recorded maintenance agreement with the Municipality for the upkeep of these controls. The Municipality manages installed permanent stormwater controls as a “use permit” similar to elevators and will require periodic re-certification and inspections based on site sensitivity and past compliance. Maintenance records will be required from the owner/operator prior to renewal. High priority sites, requiring annual inspections, will be identified based on Checklist #3 of Building Safety Handout AG 21.

In 2021, 13 as-builts were received through the permanent controls process, and inspections were performed on the associated sites.

3.5 Permanent Storm Water Controls Training

DOT&PF: DOT&PF conducts quarterly design meetings for all design and environmental staff, including topics related to permanent stormwater controls. In addition, DOT&PF technology transfer (T2) staff set up annual training schedules with some courses specifically focused on storm water and drainage issues. Following are relevant topics presented at the October 2021 quarterly design meeting:

- “Storm Water Solutions”, October 2021
- “Cured-in-place pipe (CIPP)”, October 2021

Storm Water Solutions, Storm Water Expo provided a variety of courses covering stormwater issues in April and October of 2021. Central Region DOT&PF Hydrology staff participated in both events. Examples of topics covered were:

- Natural and Historic Patterns of Landscape and Hydrology for Planning and Green Infrastructure
- Stormwater and Green Infrastructure Funding – A Real Need
- State EPA Session on NPDES Stormwater Permitting
- Stormwater Purification: Evolving Stormwater Best Practices for Green Infrastructure Projects
- Tackling More Rain During Intense Storms: What Cities and NOAA Can Do About It
- Tapping Technology to Build Resilience and Mitigate Risk in Extreme Weather Events

Municipality. The Municipality conducted and/or participated in the following training:

- 2021 Watershed Update/APDES Annual Meeting: February 24, 2021. This half-day meeting reviewed the findings of monitoring, assessments, mapping, and new programs associated with the permit. It was attended by members of MOA, ADOT, and the private sector.
- Storm Water Solutions, Storm Water Expo provides a variety of on-demand courses covering stormwater issues. Examples of topics WMS staff participated in were:
 - Stormwater Best Practices for Green Infrastructure Projects
 - From Grey to Green: Green Stormwater Infrastructure Complexities, Implementation and Myth-busters

- Designing Naturally Vegetated & Hard-Armored Retaining Walls
 - Exploring Sediment Control During Inclement Weather Events
 - The City of Ottawa's Multi-purpose Wet Weather Management Solution: success with Integrated Planning from Concept through Design and Implementation
 - Incorporating Flood Resilience into Green Infrastructure Programs
 - Stormwater Management: Best Practices
 - The Economic benefits of Investing In Water Infrastructure: How a Failure to Act Would Affect the U.S. Economy Recovery
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- Presto Geosystems, October 26, 2021. Building Stable Recreational Trails and Embankments.
 - Bio Clean, April 14, 2021, Combining School Construction & Municipality LID Requirements.
 - Society for Ecological Restoration Webinar, May 26, 2021, Invasive Japanese Knotweed and related knotweeds as catalysts for streambank erosion.
 - WMS conducts weekly staff meetings to discuss projects, issues, and current events. These meetings provide opportunities to watch or share information on trainings and selected videos covering relevant topics related to stormwater management. They range from regulatory practice to updated technical practice and current events. A list of the videos is available on the MOA Stormwater YouTube Channel:
https://www.youtube.com/channel/UCdr0yQY12_mDVHTMaRVBFVw.

4 Industrial and Commercial Discharge Management

4.1 Inventory of Industrial and Commercial Facilities

An inventory and map of facilities discharging to the MS4 must be updated during the second and fourth years of the Permit. It must include industrial sectors listed in 40 CFR 122.26(b)(14), facilities subject to Section 313 of the Emergency Planning and community Right to Know Act, 42 U.S.C. 11023, municipal landfills, maintenance yards and facilities, hazardous waste recovery, treatment, storage, and disposal facilities; private and public snow disposal sites; large commercial parking lots (two acres and larger) that use deicer chemicals; vehicle or equipment wash systems; animal facilities as discussed in Part 3.3.3, and any other industrial or commercial facility with the potential to negatively impact the MS4. The Industrial Inventory Map is provided in D1.

4.1.1 Performance Standards

4.1.2 Permit part 3.3.1.3 requires the permittees to identify a storm water discharge that is not adequately addressed and develop performance standards for the activity. This requirement is due by the end of the permit term. The permittees have not yet identified an activity to be the focus of this requirement during the fourth term.

4.2 Snow Disposal Sites

Part 3.3.2 requires permittees within four years to "update the inventory and map locations of all permittee-owned and privately-owned snow disposal sites that discharge directly to the MS4 or to receiving waters." This inventory is included in Section 4.1, Inventory of Industrial and Commercial Facilities and Activities.

During the fourth year of the permit term the permittees “must evaluate whether the current snow disposal ordinance and design criteria protect surface water quality be explicitly regulating the operation of private snow disposal sites within the MOA.” A report is due with the corresponding annual report.

4.3 Animal Facilities

The Municipality of Anchorage continues to track animal control facilities under the current program, based on Permit Part 3.3.3. An evaluation of the animal facilities program is due with the third-year annual report. This will address the areas indicated by the permit, including “kennels, pens, recreational facilities, stables, show facilities, or other commercial animal facilities currently regulated by the MOA, dog parks, and the zoo.”

5 Storm Water Infrastructure and Street Management

5.1 Storm Sewer System Inventory and Mapping

The Municipality and DOT&PF annually update their MS4 inventory from construction record drawings as required under Permit part 3.4.1. This inventory includes:

- Pipe systems
- Inlets, catch basins 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 and snow disposal sites.
- MS4 maintenance and storage facilities and snow disposal sites.

These maps showing the combined DOT&PF and MOA infrastructure, are updated regularly and are available at: <http://www.anchoragestormwater.com/maps.html> .

5.2 Catch Basin and Inlet Inspections and Maintenance

In compliance with Permit part 3.4.2 the permittees are required to maintain a program to evaluate all permittee-owned or operated catch basins and inlets at least annually and take appropriate maintenance action based on these inspections.

Central Region Division’s Maintenance & Operations (M&O), the maintenance arm for DOT&PF’s Anchorage MS4 jurisdiction, is continuing mapping efforts to correct existing DOT&PF pipe mapping as well as capture new pipe features for inclusion in maintenance mapping sets. In 2021, DOT&PF inspected 3,212 structures and cleaned 2,013 catch basins. In addition, they inspected and cleaned 31 OGS.

The Municipality’s authorized MS4 maintenance agency for the Chugiak-Birchwood-Eagle River Rural Road Service Area (CBERRRSA) continued implementing a comprehensive catch basin and inlet inspection and maintenance program for their service area. In 2021, 13 OGS and 1,076 catch basin/manhole and other drainage management structures were inspected and cleaned.

The Municipality’s authorized MS4 maintenance agency for the Girdwood Road Service Area (GRSA) implemented a comprehensive catch basin and inlet inspection and maintenance program for their service area. The 45 catch basin and manhole structures are on a bi-annual cleaning schedule based on fill rates, they will be cleaned in 2022.

The Municipality’s Anchorage Road and Drainage Service Area (ARDSA), comprising most of the roads in Anchorage not maintained by road service areas or owned by DOT&PF, continued its ongoing OGS and catch basin inspection and maintenance program. During 2021, 9983 controls were inspected, and 272 OGS units and 4,022 catch basins were cleaned.

The Permittees collected fill rate data for their catch basins during the third permit term, and they have updated their respective cleaning schedules considering both effectiveness and efficiency and will be implementing them for the 2021 cleaning season. The cleaning schedules for DOT&PF and ARDSA were provided in 2020 annual report. The remaining operators, CBERRRSA and GRSA are continuing to inspect and clean their systems annually.

5.3 Street and Road Maintenance

5.3.1 Standard operating procedures

The Permittees must update and submit the Street Maintenance Standard Operating Procedures within four years of the effective date of the Permit. SOPs are reviewed annually by Municipal and DOT&PF street maintenance agencies. Updates, when they are made, are submitted with the corresponding annual report. For 2021, there are no changes to SOPs. The fourth-year report will contain the full set.

5.3.2 Inventory of materials

Part 3.4.3.2 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. Deicers are added by MOA operators 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. The DOT applies liquid deicer directly to road surfaces. Sand gradations vary by agency with DOT&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.

2: Table 5.1 – Anchorage MS4 Street Materials Inventory, 2021

Item	Type	Units	Amt. Stored	Amt. Ordered	Amt. Used	Storage Location
DOT&PF						
Sand	M&O spec.	ton	6,000	10,000	12,000	Anchorage
Sand	M&O spec.	ton	2,500	5,000	3,500	Birchwood
Sand	M&O spec.	ton	2,000	3,500	3,000	Girdwood
NaCl	granular	ton	500	2,980	1,600	Anchorage
NaCl	granular	ton	0	400	-	Birchwood

NaCl	granular	ton	0	400	-	Girdwood
MgCl ₂	brine	gal	-	-	-	Girdwood
CaCl ₂	brine	tons			-	Anchorage
MOA-CBERRSA						
Sand	ARDSA spec.	ton	11,190	8000	6366	Hiland
NaCl	granular	ton	75	75	97	Hiland
MgCl ₂	brine	gal	4750	As needed	180	Hiland
MOA-ARDSA						
Sand	ARDSA spec.	ton	10,000		8,000	Anchorage
NaCl	Granular	Ton	300		200	Anchorage
MgCl ₂	brine	gal	30,000		10,000	Anchorage
MOA-GRSA						
Sand	E-chips	Ton	0	1,000	1,000	Girdwood
NaCl	Granular	Ton	0	60	60	Girdwood
MgCl ₂	brine	gal	0	0	0	Girdwood

5.4 Street and Road Sweeping

5.4.1 Sweeping Management Plan

The permittees updated their Street Sweeping Management Plans based on the Visually Clean Standard. The permittees each developed individual sweeping plans, as required by Permit Part 3.4.4., to accommodate differences in their respective sweeping operations. These were provided in the 2020 annual report.

A list of roads where sweeping is technically infeasible was provided in the plans, and it includes alternative control measures as required by Permit Part 3.4.4.3. A visual inspection is performed to identify trash or other pollutant issues, and these are addressed and documented in the form of ditch cleaning and catch basin cleaning. Additional measures may be identified for these roads as needed.

5.4.2 Sweeping Assessment

Permit Part 3.4.4.4 requires the permittees to "...perform annual assessments of street sweeping effectiveness to minimize pollutant discharges to storm drains and creeks..." following permit defined performance factors. The permittees have provided their 2021 summaries of street sweeping activities in their sweeping reports provided in Appendices E1 and E2.

5.5 Pesticide, Herbicide, and Fertilizer Applications

The Municipal pesticide code is located in Title 15.75, available at:

https://library.municode.com/ak/anchorage/codes/code_of_ordinances?nodet=CH15.75PEC
[O](#)

The pesticide code was updated during the second term to strengthen application restrictions, notifications, and certification requirements. These code requirements are enforced at Municipal facilities and an application log is maintained.

During 2021, permittees used pesticides in the MOA greenhouses and for the control of wasps in several Anchorage parks. Herbicides were used to control the spread of invasive bird cherries in the MOA greenbelts. The application logs are presented in Appendix E3.

5.6 Storm Water Pollution Prevention Plans

Stormwater Pollution Prevention Plans for certain permittee-owned activities are required by on Part 3.4.6 of the Permit. Permittees have existing plans for their material storage facilities, maintenance yards, and snow disposal sites. They are updated regularly and available at the italicized facilities for each owner in Table 5.3 and where practical at each facility site.

Inspection

In 2021 inspections indicated by Stormwater Pollution Prevention Plans were performed at the facilities indicated in Table 5.2. Corrections were made as needed. The inspection reports are on file at each of the facility offices and provided in Appendix E4.

5.7 Training

The Municipality and DOT&PF coordinated monthly during 2021 to discuss their respective activities and operational issues. Street managers from DOT&PF and MOA participated in the 2021 Annual Meeting held on February 26th.

DOT&PF crew members and Municipal Maintenance crews participated in regular staff meetings, are 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. The following training was conducted:

- 02/24/2021 - APDES Annual Meeting
- MOA-ARDSA has 14 AK-CESCL staff that recertified in 2021.
- Held a training session, conducted by PTS, to familiarize all staff on construction and facility SWPPP requirements.
- The MOA maintains a YouTube channel for training, MOA Stormwater: https://www.youtube.com/channel/UCdr0yQY12_mDVHTMaRVBFVw. Playlists are available for various training topics: Cold Weather/Climate, LID, Stormwater Management, Stormwater Construction Practices, Illicit Discharges, Inspection, Maintenance, Rain Gardens.

3: Table 5.2 – MS4 Facilities with Storm Water Pollution Prevention Plans

Facility	Location	Activities
DOT&PF		
Birchwood Maintenance	20651 Birchwood Spur Rd., Birchwood	Equipment & Materials Storage
Girdwood Maintenance	MP 90 Seward Hwy./ 888 Toad Stool Drive, Girdwood	Equipment & Materials Storage, Maintenance
<i>Anchorage Maintenance</i>	5300 E. Tudor Rd., Anchorage	Equipment & Materials Storage, Maintenance
O'Malley Snow Disposal	10675 Old Seward Hwy, Anchorage	Snow Storage
Tudor Snow Disposal	6110 Tudor Road, Anchorage	Snow Storage (operating under ARDSA SWPPP)

Hiland Road Snow Disposal	8500 Hiland Road, Eagle River	Snow Storage
CBERRRSA		
<i>Eagle River Maintenance</i>	8501 Hesterberg Ln, Eagle River	Equipment & Materials Storage
Chugiak Maintenance Facility	19200 Kerbow Ln., Chugiak	Equipment & Materials Storage
ARDSA		
<i>Kloop Maintenance Facility</i>	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
Commercial Dr. Snow Disposal	2941 Commercial Drive, Anchorage	Snow Storage
Mountain View Snow Disposal	5100 Mountain View Drive, Anchorage	Snow Storage
Sitka Street Snow Disposal	1525 Sitka Street, Anchorage	Snow Storage
Tudor Snow Disposal	5300 Tudor Road, Anchorage	Snow Storage
C Street Snow Disposal	395 W 100 th Avenue, Anchorage	Snow Storage
Dowling Snow Disposal Site	6531 Spruce Street, Anchorage	Snow Storage

6 Illicit Discharge Management

6.1 Illicit Discharge Regulatory Strategy

The Municipal regulatory authority for stormwater pollution control is found in Title 21.07.040, <http://library.municode.com/index.aspx?clientId=12717>. This code provides the basis for managing discharges to the storm sewer system and to waters of the U.S. It conforms to Permit requirements consistent with Part 3.5.1.1, provides a stormwater permit for discharges not covered under building permits, and accommodates CGP review authorities. It can be found in Title 21.07.04. It is up to date for current permit requirements.

6.2 Illicit Discharge Reporting and Response

The Pollution Hotline, (907)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 Infor (Hansen) Complaint Management System and forwarded to the appropriate department for response.

The Infor Public Sector System (a new version of the Hansen System software, implemented in 2015) is also available to community members on the Municipal Development Services Building Safety Land Use Code Enforcement website

<http://www.muni.org/anchorageworks/CRM/ServiceRequest/ServiceRequestCategory> for on-line complaint recording and tracking.

Table 6.1 tallies complaints recorded through the on-line tracking system. Complaints were followed up within the required two working days and, when possible, 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.

4: Table 6.1 – Service Requests by Complaint Type, 2021

Department	Complaint Type	Number of Requests		Number Resolved
WMS	Stormwater – Construction	7		7
WMS	Prohibited Discharges – Private property	8		8
WMS	Prohibited Discharges – ROW/Public Property	6		6

Illicit Discharge mapping

Appendix F1 contains a location map of 2021 Anchorage prohibited discharge complaints. Inspectors visited all sites and, where appropriate, initiated clean-up. There were no recurrences associated with any of the other discharges.

6.3 Dry Weather Screening

The permittees continued to implement the dry weather screening program in compliance with Permit requirements. The 2021 report is provided in Appendix F2. In 2021, none of the outfalls chosen for screening exceeded thresholds for program parameters.

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. The Spill Response Plan Update is provided in Appendix F3.

2021 Spill Response

Spills that enter the MOA MS4 or receiving waters are reported to and archived by MOA staff via Infor computer software. Spills that WMS staff responded to that were contained and isolated to ground surfaces, but did not enter the storm drain system, are not included.

In 2021 WMS Staff responded to one spill. On September 2, 2021 WMS received a call from a member of the public stating that he had observed what appeared to be paint staining on a storm drain curb inlet at the corner of Foxhall Dr. and Banbury Dr. in Anchorage. At approximately 3:30pm on September 2, 2021, WMS staff responded to the site and confirmed that there was what appeared to be grey paint or paint wash water on the curb inlet lid. It appeared that the storm drain inlet had been used to dispose of a small amount of paint or paint bucket wash water. WMS staff noticed that a house nearby at 2240 Foxhall Dr. appeared to have recently been painted grey, knocked on the door, and upon receiving no response, left an

inspection report detailing the observations and asking the homeowner to contact WMS. WMS staff then proceeded to pull the curb inlet lid and manhole lid next in line with the curb inlet to check for contaminants. WMS staff did not observe any contamination in the stormwater or sediment contained in either the curb inlet or manhole catch basins. WMS staff then checked the storm drain outfall to Chester Creek located nearby and did not find any staining or contamination on the outfall pipe or creek. On September 3, 2021 WMS staff received a call from Tim Brandt stating that he lived at 2240 Foxhall Dr. and that the painting was done under his direction. He stated it was possible that a bucket of paint wash water may have been disposed of in the storm drain. WMS explained that disposing of any material besides stormwater in a Municipal storm drain is a violation of AMC Title 21, as well as the nature of the connection between the storm drain and Chester Creek. The resident apologized for the spill and stated his understanding of the codes that were explained to him and that it would not happen again. As there was no material remaining in the storm drain system, no clean up or further action was deemed necessary.

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:

- 2021 Watershed Update/APDES Annual Meeting: February 24, 2021. This half-day meeting reviewed the findings of monitoring, assessments, mapping, and new programs associated with the permit. It was attended by members of MOA, DOT&PF, and the private sector.
- Storm Water Solutions- Storm Water Expo: provided a variety of on-demand courses covering stormwater issues.
- WMS meets for regular staff meetings where members share information about watershed activities and discuss relevant topics and videos covering related to stormwater management. They include illicit discharge identification, cleanup, and education. A list of the videos on WMS's YouTube Training Channel: https://www.youtube.com/channel/UCdr0yQY12_mDVHTMaRVBFVw

7 Public Education and Involvement

7.1 Public Education and 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 full account of education activities for 2021 is provided in Appendix G1.

In addition to the AWC activities, the Municipality conducted these additional activities:

- Scoop the Poop Day, April 24, 2021: After helping host a DIY Scoop the Poop day in 2020, 2021 saw a return to the traditional in person Scoop the Poop day on April 24th. AWC in conjunction with MOA WMS hosted in person Scoop the Poop Day events at the University Lake and Connors Bog dog parks as well as encouraging other DIY events. WMS staffed one of the University Lake tables and assisted in handing out trash bags, trowels, shovels, other equipment, and snacks and dog treats to members of the public in order to facilitate dog poop clean up. Overall the event was very successful, with over 100 volunteers participating.
- During 2019, WMS continued a new stormdrain program with the South Central Chapter of Trout Unlimited. Due to COVID-19, A small number of drains were marked in 2020. The project is anticipated to resume with a larger number of stormdrains stenciled in 2022.

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 3.5
- Stormwater Infrastructure - Section 4.10
- Illicit Discharge - Section 5.6

7.3 Annual Meeting

The 2021 Annual Meeting provided information to participants about the activities related to the MS4 Permit. The meeting was held the morning of February 24th via MSTeams and attended by over 50 people with an interest in stormwater management. Information was presented about relevant topics including a proposed stormwater utility, watershed mapping, illicit discharge, monitoring, and storm sewer master planning. A description of the planned 2022 activities was provided. MOA, DOT&PF staff and contractors participated in the meeting and answered questions from attendees. Presentation slides, program agenda, and poster summary are available in Appendix G2.

7.4 Bi-Annual Meetings

Bi-annual meetings between the permittees and ADEC were conducted in 2021 to provide a forum of discussion regarding permit activities and issues. These meeting summaries are available in Appendix G3.

7.5 Storm Water Website

In 2021 the permittees provided access to their website found at anchoragewatershed.com or anchoragestormwater.com

This home-page, contains all program information including draft and final project reports, data, map products, forms, permit applications, Storm Water Pollution Prevention Plan (SWPPP) guidance, and watershed plans.

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
- Controls effectiveness monitoring
- Dry weather screening and follow-up
- Public education and involvement program

8.2 Monitoring Plan

The Municipality, on behalf of the permittees, updated the “Quality Assurance Project Plan” containing the monitoring program plan for fourth term activities. The Municipality, on behalf of the permittees, conducts monitoring for various purposes as summarized in Table 8.1. The Updated QAP was presented in the 2020 Annual Report.

5: Table 7.1 – Storm and Surface Water Monitoring Program Schedule

Monitoring Program Component	Proposed Sampling Dates				
	2021	2022	2023	2024	2025
Pesticide Screening	None	Aug-Sept	none	Aug-Sept	None
Dry Weather Screening	Jun-Aug	Jun-Aug	Jun-Aug	Jun-Aug	Jun-Aug
Control Measure Effectiveness	April-Nov	April-Nov	April-Nov	April-Nov	April-Nov
Stormwater Outfalls	Apr-Nov	Apr-Nov	Apr-Nov	Apr-Nov	Apr-Nov
LID Monitoring	May-Oct	May-Oct	May-Oct	May-Oct	May-Oct

8.2.1 Pesticide Screening

This sampling program is a continuation of the program started in the first permit term. Sampling is to be conducted in the second and fourth years of the permit term.

8.2.2 Storm Water Outfall Monitoring

Storm Water Outfall Monitoring was continued in 2021 according to the plan approved for the fourth term. Results are provided in Appendix H2.

8.2.2.1 Storm Water Outfall Monitoring Evaluation

An evaluation of monitoring results is required in year four of the Permit term with results provided with the applicable annual report. The evaluation will discuss the effectiveness of street sweeping to reduce turbidity and fecal coliform in the outfall and public education to reduce fecal coliform bacteria and other relevant control measures.