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## **Project Management and Engineering Department**

*Anchorage: Performance. Value. Results.*

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### Mission

To deliver public capital road and drainage improvement projects as good stewards to ensure the integrity of the municipality's transportation infrastructure (streets, roads, non-motorized facilities) network meets service performance levels.

To protect the quality of all Anchorage's streams and waterways in order to comply with federal and state regulations, specifically the Alaska Pollutant Discharge Elimination System (APDES).

### Core Services

- Manage the timely repair and replacement of aging roadway infrastructure by implementing a capital improvement program (CIP) that monitors the asphalt paving condition
- Delivering cost-effective capital project contracts that are procured through a competitive bidding process and are administered effectively to minimize change order costs
- Protect Anchorage's streams and waterways from pollutant sources by managing permit programs to meet stormwater discharge compliance with State and Federal permit requirements

### Accomplishment Goals

- Monitor road rideability grades to inform project selection and prioritization
- Minimize construction change order costs
- Investigate stormwater pollutant sources and respond to public inquiries

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**Engineering & Design (Project Technical Support) Division**  
**Project Management and Engineering**  
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**Purpose**

To provide engineering designs and technical support of roadway infrastructure projects to ensure the timely repair and replacement of aging infrastructure is accomplished within the CIP goals.

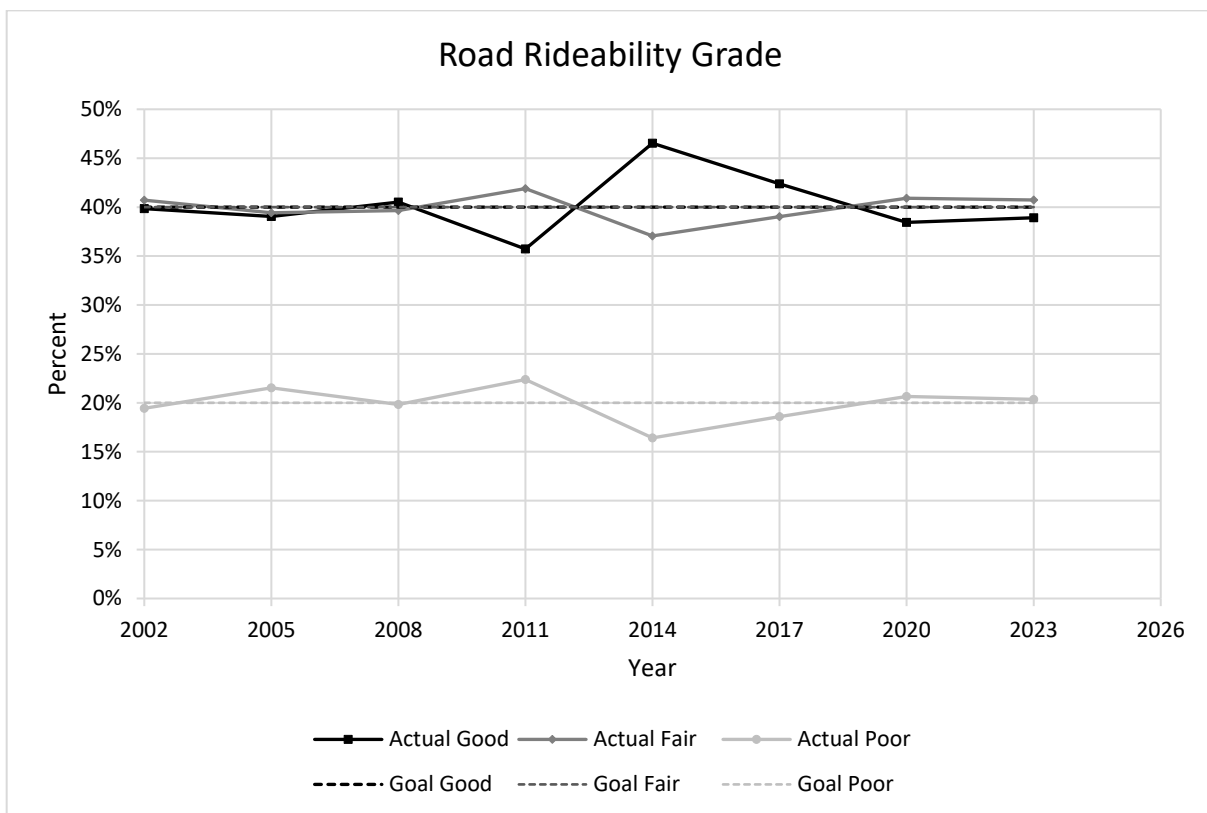
**Direct Services**

- Design specific projects and create the necessary documentation that provides a framework for constructing those projects.

**Accomplishment Goals**

- Rehabilitate streets and roadways to maintain or improve service level conditions that existed in 2002, which were approximately 40% of the network in Good condition, 40% of the network in Fair condition, and 20% of the network in Poor condition.

**Performance Measure #1: Road Rideability Grade**



Comments:

The distribution of 870 roadway miles in the three categories (Good, Fair and Poor) have remained relatively constant over the last 21 years. Note that this data includes all roads throughout the Municipality of Anchorage, including roadways outside of the Anchorage Road and Drainage Service Area (ARDSA). The roadways evaluated do not include roads owned, operated and maintained by the State of Alaska Department of Transportation and Public Facilities.

*Explanatory Information:*

*In 2002, the MOA started using Governmental Accounting Standards Board (GASB) 34 accounting principles, which requires government entities use a method for accounting for infrastructure that recognizes a government's long-term commitment to provide service through maintenance and preservation of infrastructure at a specified condition level. The approach allows a government to recognize the amounts expended to maintain infrastructure assets in a specified condition as expense for cost of services instead of depreciating them.*

*GASB 34 requires that there be a current inventory of infrastructure assets and that an assessment of the assets' condition be performed and reported on using a scale of measurement at least every three years. The measurement scale selected in 2002 consists of measuring International Roughness Index (IRI) and rutting values for each pavement section within the network and converting the measured values into a letter grade.*

**Project Management Division**  
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**Purpose**

Provide project management services for delivering capital road and drainage improvement projects that are competitively bid and constructed by local contractors

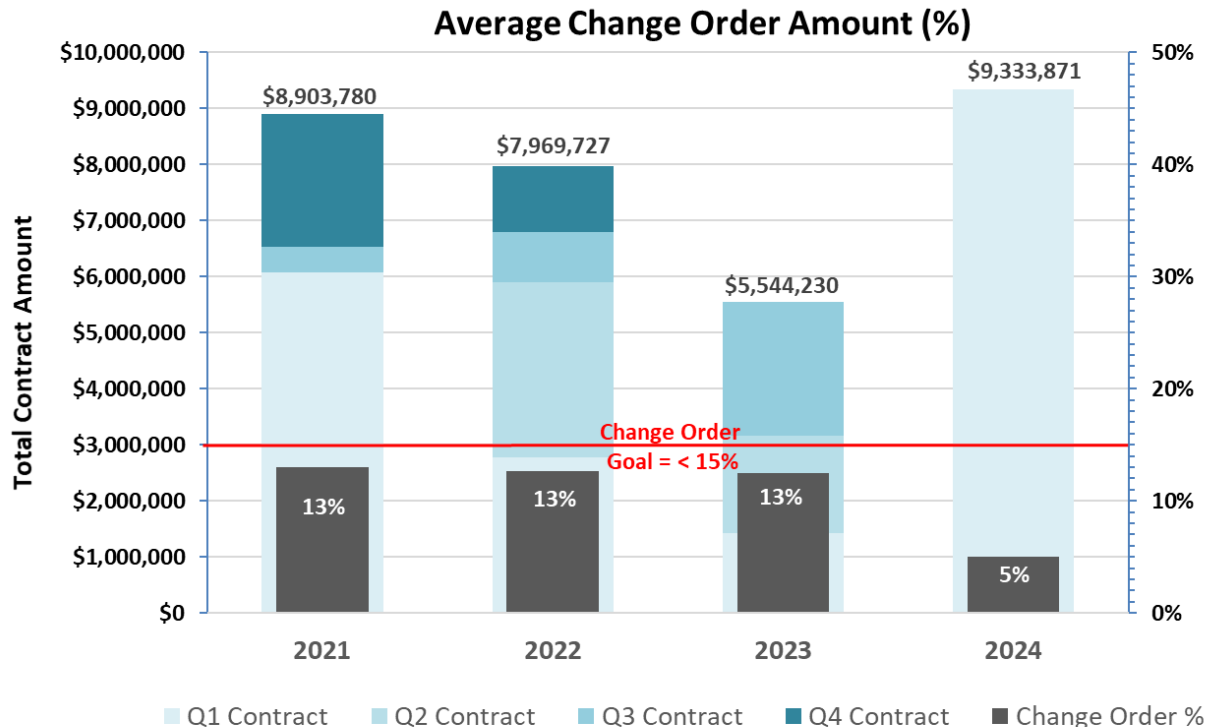
**Direct Services**

- Manage the design development process and construction contracts to reduce exposure to construction cost increases and ensure the greatest cost-effectiveness of capital funding spending

**Accomplishment Goals**

- Manage construction change order percentages to be within or below industry standard levels. A change order is the industry term for an amendment to a construction contract that changes the contractor’s scope of work. Change orders in construction are very common and occur in almost every commercial and public project. Circumstances that could necessitate change orders include: design errors; unforeseen issues; or elective change orders, which is additional work that the contractor is directed to perform.

**Performance Measure #2: Construction Contract Change Orders**



#### Explanatory Information:

Change orders on roadway projects are often due to unforeseen below ground conditions and the potential of encountering unsuitable material in larger quantities than anticipated resulting in additional costs. Geotechnical exploration activities conducted during the design aim to characterize the below ground conditions but are limited to the sampled locations. The industry standard for change order percentages for construction projects typically range from 10 to 20 percent of the contract amount. Similar to economy of scale principals, larger, multi-million-dollar projects typically have lower change order percentages. While, smaller contracts are more susceptible to larger change order percentages upwards of 20 percent is not unreasonable for contracts that are less than one million dollars. A goal of 15 percent is used on this performance measure due to the capital program delivering a variety of small and large projects.

#### Comments:

The total contract amount of completed construction projects fluctuates annually since funding levels fluctuate and project timelines span over the course of several years depending on the complexity and cost of the project. Project closeout is not necessarily in the same year that the construction is completed. After a constructed project meets the final acceptance status, the one-year warranty begins, and contract percentages are withheld until the project is certified as complete. The completed project is recognized months or years later due to this contract administration process.

In 2023, the total contract amount of approximately \$5.5 million is lower than in past years. As explained above, the certified closeout is normally reflected beyond the actual construction year; and the low 2023 reporting period may be due to a low number of project closeouts occurring within the 2023 reporting period.

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**Watershed Management Services Division**  
**Project Management and Engineering**  
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**Purpose**

To oversee the discharge of the Municipal storm sewer system based on the Federally mandated Alaska Pollutant Discharge Elimination System (APDES) Permit which allows discharge from the Municipal storm sewer system into waters of the United States. Compliance with the APDES Permit is necessary to avoid penalties enforced by the Environmental Protection Agency in accordance with the Clean Water Act.

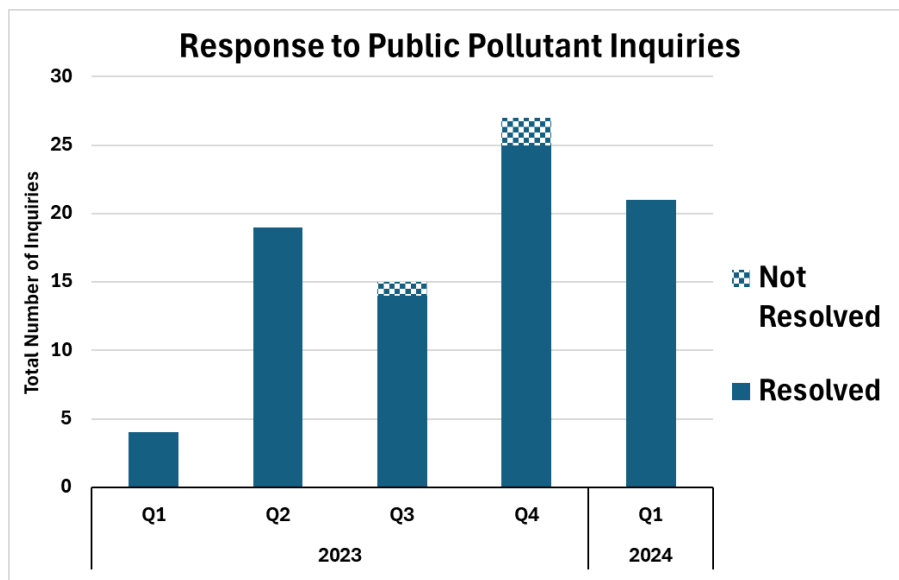
**Direct Services**

- Respond to drainage and pollutant concerns from the public.

**Accomplishment Goals**

- Respond to public inquiries and resolve to eliminate pollutants within one week of receipt.

**Performance Measure #3: Response to Public Pollutant Inquiries**



**Comments:**

The number of calls fluctuates based on seasonal conditions.

**Explanatory Information:**

A 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 in the MOA's Infor (Hansen) Complaint Management System and forwarded to the appropriate department for response. An online complaint portal #ANCWorks is available to community members on

the Muni.org website for complaints recording and tracking. Complaints are followed up within the required two working days and, when possible, resolved within a week.

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## Performance Measure Methodology Sheet

### Engineering & Design (Project Technical Support) Division Project Management and Engineering Department

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#### Measure #1: Road Rideability Grade

##### Type

Performance

##### Accomplishment Goal Supported

Provides framework for determining if a sufficient volume of projects is being undertaken to meet CIP targets and Governmental Accounting Standards Board (GASB) 34 requirements.

##### Definition

Use pavement profile measurements to determine International Roughness Index (IRI) and rutting values for every pavement section. Convert the values into an overall condition 'grade score', ranging from "A – Excellent" to "F – Serious". For more general comparison purposes, the six grade scores can be consolidated into rankings of Good, Fair, or Poor

##### Data Collection Method

Data are collected using a Dynatest Model 5051 Mark III Road Surface Profilometer (RSP) outfitted with 5 lasers and 2 accelerometers, to measure the pavement profile in both the left and right wheel paths, as well as 5-point transverse profile elevations for rutting calculations. The RSP system is also equipped with a precise Distance Measurement Instrument (DMI) and a GPS antenna capable of collecting GPS data with sub-meter accuracy. Additionally, a small camera is included to capture representative Right of Way (ROW) images. All paved roads in the MOA are surveyed.

The pavement profile measurements are analyzed to determine numerical International Roughness Index (IRI) and rutting values for each pavement section. To make the data more relatable, the values are converted into an overall condition grade score. The grading considers varying levels of IRI and rutting and is dependent on the functional classification of the roadway. The data are stored in an Access database, but most recent data are available in GIS.

##### Frequency

The roadway infrastructure is surveyed once every three years as a component of preparing financial statements in accordance with GASB Statement 34 requirements.

##### Measured By

Because of the specialized equipment involved, and expertise needed, an independent contractor is retained to collect and analyze pavement profile



measurements. Staff can search the data to identify road segments in greatest distress and incorporate that information into the CIP and rehabilitation schedule.

### **Reporting**

One deliverable of the tri-annual survey is a report summarizing the status of the road network. Individual road segment condition data can be retrieved from GIS. Road condition data are used to inform the CIP.

### **Used By**

The information is used by staff during CIP development, by Project Technical Staff and Project Management staff in scheduling and prioritizing individual projects.

There is the potential for the data to be used by Street Maintenance in scheduling and prioritizing individual projects, and in selecting appropriate pavement preservation techniques.

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**Performance Measure Methodology Sheet**

**Project Management Division**  
**Project Management and Engineering Department**

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**Measure #2: Construction Change Orders**

**Type**

Effectiveness

**Accomplishment Goal Supported**

Minimize construction costs of capital projects

**Definition**

This measure reports the construction contract change order amount as a percentage of the original contract value. The change order amount includes elective change orders.

**Data Collection Method**

Data is collected from the contractor's final invoice. The change order percentage is an average of total change orders divided by total original contract value across all projects completed in the reporting year.

**Frequency**

Quarterly

**Measured By**

The original contract and the cumulative amounts of the contract change orders are documented within contractor final invoices and tracked in an Excel spreadsheet

**Reporting**

Public Works Administration staff generate the data that is displayed numerically and graphically in quarterly reports.

**Used By**

Project Management & Engineering Director uses this data to assess the adequacy of the designs meeting the standard level of care; the thoroughness of the review process; the implementation of quality control measures; administration of the construction contract in accordance with plans, specifications, and standards; and staffing levels.

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## Performance Measure Methodology Sheet

### Watershed Management Services Division Project Management and Engineering Department

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<b>Measure #3: Response to Public Pollutant Inquiries</b>
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**Type**

Performance

**Accomplishment Goal Supported**

To meet our Municipal Separate Storm Sewer System (MS4) Permit requirements to manage runoff pollution and ensure compliance with state and local laws and improve water quality for Anchorage residents.

**Definition**

Measures the timely response to public pollution reports and inquiries.

**Data Collection Method**

Public inquiries are received by Watershed Management Services staff who then contact the caller to begin follow-up. The response and resolution are recorded in the database and become part of the permanent record. Staff can compare dates of receipt and dates of follow-up to provide the information presented in the graph.

**Frequency**

Quarterly

**Measured By**

Watershed Management Services staff will tabulate and graph the information from our database of complaints received through the MOA web portal and call hotlines.

**Reporting**

Watershed Management Services staff generate the data that is displayed numerically and graphically in quarterly reports.

**Used By**

Watershed Management Services Manager to determine whether permit compliance and public response are performed efficiently and effectively and perform training and workload reassignment as needed.