

# LEGISLATIVE AUDIT DIVISION

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## MEMORANDUM

**TO:** Legislative Audit Committee Members  
**FROM:** James Sutcliffe, Senior Performance Auditor  
**CC:** Mike Tooley, Director, Department of Transportation  
Jon Swartz, Administrator, Maintenance Division  
**DATE:** June 2019  
**RE:** Performance Audit Follow-Up (19SP-14): *An Examination of the Montana Department of Transportation's Maintenance Division* (orig. 17P-07)  
**ATTACHMENTS:** Original Performance Audit Summary

### Introduction

The Legislative Audit Division's *An Examination of the Montana Department of Transportation's Maintenance Division (17P-07)* performance audit report was issued to the Legislative Audit Committee in June 2018. The audit included eight recommendations to the Montana Department of Transportation (MDT). In May 2019, we conducted follow-up work to assess implementation of the report recommendations. This memorandum summarizes the results of our follow-up work.

### **Overview**

Our audit of MDT's Maintenance Division (division) recommended standardization and systemization of several business practices, including identifying underused equipment, conducting cost comparisons for contracted and in-house projects, and developing quality assurance processes for the program's performance and data. MDT has made significant progress addressing our recommendations, fully implementing six recommendations, with the other two in the process of being implemented; it is apparent that division staff approached the audit recommendations in good faith and made substantial and earnest efforts to implement them, including developing a systematic maintenance quality assurance program and creating policies and procedures to systematize business practices, ranging from identifying underused equipment to inventorying department assets.

### Background

MDT's Maintenance Division is a statewide program responsible for daily upkeep of transportation assets and some larger projects intended to extend the life of the state's roadways. Section 60-1-103(21), MCA, defines maintenance as the preservation of the entire highway, including surface, shoulders, roadsides, structures, and traffic-control devices necessary for the safe and efficient use of the highway. At the time of the audit, the division had 733.55 full-time equivalent (FTE) positions, including 61.55 seasonal FTE, and an additional 123 FTE in the Equipment Bureau. This represents over 40 percent of the MDT workforce. These employees are charged with maintaining 25,000 lane-miles of the state's interstate, primary and secondary highways, and frontage roads and the equipment used to do so. In fiscal year 2017, the division spent \$126.1 million, roughly \$8 million of which was federal funding. Geographically, the

division contains ten maintenance areas, two each in MDT's five administrative districts. Areas are administered by area chiefs, who report to district administrators, as well as indirectly to the Maintenance Division administrator in Helena. Structurally, the division is comprised of four bureaus and operations: Maintenance Operations, the Equipment Bureau, the Communications Bureau, and the Facilities Bureau. The 2017 Legislature passed HB 473 requiring a performance audit of MDT, to include consideration of whether certain elements of MDT's work might be performed at the same or better quality for lesser cost by private entities. Our audit of the MDT maintenance division, along with a concurrent audit entitled *Funding Montana's Highway Infrastructure (17P-06)*, both of which had been previously prioritized by the Legislative Audit Committee for fiscal year 2017, satisfied these requirements. Our audit objectives were to determine how the division makes its contracting decisions, in addition to determining how the division prioritizes, records, and assesses its work, and how it keeps track of its substantial statewide inventory. We found opportunities to improve efficiency and transparency by formalizing unofficial division practices related to all our objectives. Our recommendations covered project selection and contracting decisions, equipment replacement standards, integrity and use of management information, coordination with other MDT entities, and inventory management and facility security.

### **Audit Follow-up Results**

The following sections summarize the progress toward implementation of the report recommendations. To perform this follow-up, we interviewed division management, including the division administrator, operations manager, equipment bureau chief, facilities bureau chief, and financial operations manager. In addition, we travelled to a maintenance area headquarters to interview an area chief and inspect project files and facility security. We also obtained and reviewed copies of all newly implemented policies, procedures, reports, forms, and tools, and observed improvements made to the maintenance and equipment management system.

#### **RECOMMENDATION #1**

**We recommend the Montana Department of Transportation develop formal standards for annual equipment usage to better identify equipment no longer needed during its equipment review process.**

#### **Implementation Status – Implemented**

Prior to our audit, division staff attempted to identify unnecessary and underused equipment on a regular basis, but did so without any formal process or guidelines. Instead, staff relied on subjective assessments of appropriate use. We found other states maintain formal standards for vehicle usage to systematically and comprehensively identify underused equipment. After concurring with this recommendation, department staff surveyed all fifty states to determine best practices for equipment usage standards that would align with MDT's current operations. More than twenty states responded, and staff used the responses, along with reports generated from the equipment management system, to generate usage standards for equipment in both mileage and days of use. These standards have been incorporated in a query that MDT staff run to generate a report that lists all equipment failing either standard. The report will be integrated into the equipment management system and will be run by management at least annually. Ownership of equipment that does not meet established thresholds must be justified by its users in the field to division management. Field staff, who pay rental rates for the equipment, are encouraged to consider whether renting equipment or pursuing other solutions would be a viable and more cost-effective alternative.

#### **RECOMMENDATION #2**

**We recommend the Montana Department of Transportation institute a formal, quantitative cost comparison between contracted and in-house maintenance pavement preservation projects to improve its decision-making on when to use contracts or Maintenance Division staff for road maintenance projects.**

### **Implementation Status – Implemented**

Area maintenance chiefs have historically considered and weighed the relative costs and benefits of contracting large pavement projects for which MDT is equipped against doing them in-house. However, the division did not have a formal process to compare projected costs of these projects, which include chip seals (covering the road with a layer of gravel and asphalt) and crack seals (filling in cracks in the road's surface). MDT has since created a region-specific cost comparison tool. This tool calculates average contract costs based on projects of similar type and size for the last three years (plus contract oversight costs) and compares these costs to total projected costs of performing the project in-house (costs consisting of labor, materials, and equipment). For pavement projects performed with either form of labor, area maintenance chiefs are required to use this tool to help inform contracting decisions and to document the results. Printed copies of completed forms are kept in their respective project files. These now-formal comparisons should better inform contracting decisions, but they are not prescriptive. For example, projects may require more labor hours or faster timelines than MDT can itself achieve, and must therefore be contracted.

### **RECOMMENDATION #3**

**We recommend the Montana Department of Transportation develop procedures for and document its pavement project selection process to consistently optimize and ensure accountability for these decisions.**

### **Implementation Status – Implemented**

Our audit determined work undertaken by the division did not always align with pavement management system recommendations for work to be performed. This could be due to several reasons, including the lag between when measurements are taken and when the data is available, or data experienced staff believed to be incorrect. To implement this recommendation, MDT updated the Maintenance Manual with new guidelines for project selection. To provide additional oversight and documentation of the project selection process, a nomination form must be completed by the maintenance area chief and submitted to Helena for review before any project can go forward. Required fields include date of last maintenance/construction work on that section of road and indication of whether the proposed project aligns with pavement management system recommendations. If it does not, justification for why the project needs to be undertaken must be provided. Photographs of the road's condition must also be included when there are not pavement management system recommendations. Such requirements ensure that decisions made by field staff throughout the state are more consistent and more transparent.

### **RECOMMENDATION #4**

**We recommend the Montana Department of Transportation develop formal lines of communication between its Maintenance and its Highway and Engineering divisions to minimize the risk of project duplication and overlap, and to present a consistent message to its stakeholders and the general public.**

### **Implementation Status – Implemented**

MDT has strengthened and put an increased emphasis on agency- and state-wide communication. Our audit uncovered several instances of inefficient planning and unnecessary expenditures or duplication of work. These breakdowns occurred because of the many different entities within MDT responsible for making decisions regarding work to be done on state roads. This last year, maintenance staff attended the Tentative Construction Program's (a scheduling process for road construction projects planned over the next five years) annual project meeting to ensure coordination. MDT also developed an online geographic information system map tool displaying every planned MDT project, by every division, statewide, in the next five years. This tool is intended to help coordination, and may eventually be public-facing to increase public awareness of future road work. Using this interactive map, MDT identified striping projects slated

to occur on a road scheduled for rumble-strip installation. This is an example of a time when it may be more cost-effective to delay striping, because roads need to be restriped anyway after rumble-strips are installed. In this case, because the installation is not expected to occur for more than a year, the division decided to go forward with striping as planned. Nonetheless, this illustrates how MDT may better coordinate and communicate its plans department-wide via this map, which should provide a user-friendly and comprehensive way to communicate plans and ensure projects are planned efficiently.

#### **RECOMMENDATION #5**

**We recommend the Montana Department of Transportation develop maintenance performance measures and goals to better enable the department to assess performance statewide and at the division and section levels.**

#### **Implementation Status – Being Implemented**

The audit found the maintenance division's approach to assessing its own performance to be largely based on direct supervision, professional experience, and public complaint. It was not possible to use management data to determine how the program was performing at state or local levels. In response to our recommendation to develop performance measures, MDT sent staff to a national conference on transportation performance management, and subsequently hired a contractor to develop a maintenance quality assurance program. This program consists of a process whereby road assets (e.g. signs, culverts) are graded on an A-F scale (statewide and by maintenance area) according to the percent that are in a deficient condition. The quality assurance instrument enables estimates of cost requirements to improve grades. To develop grades, statistical random samples of maintenance assets are inspected and rated for deficiencies. Because costs to move from one grade to the next will be calculable, division staff will be able to determine best values for expending division resources. The first phase of the program, which will review assets MDT already inspects annually (signs, culverts, road striping, and bike paths), will be implemented in the division's maintenance management system by the end of June 2019. This means that, at a glance, division management will be able to assess the quality of asset conditions statewide. There are plans to expand the use of this grading system to other department assets in the future. This is a significant undertaking involving ongoing adjustments and expansions, so it should not be expected to be fully accomplished within one year. While MDT concurred with this recommendation, some staff in management were initially skeptical of the value of expending resources to measure performance. They have since embraced the undertaking, and expect it to provide value to the division, as evidenced by both their statements and their actions. MDT's work implementing this recommendation will provide better statewide oversight and give division management more information about where and how to best expend resources.

#### **RECOMMENDATION #6**

**We recommend the Montana Department of Transportation develop and implement a formal quality assurance process for maintenance management system data integrity to ensure management decisions are based on accurate information.**

#### **Implementation Status – Implemented**

We found a significant amount of the data in the division's legacy maintenance management system to be missing or incorrect, hampering the ability to use important management data. Erroneous and missing data had not been discovered by division staff, who lacked formal quality assurance tools. In response, the division created several data quality queries. These queries are run at regular intervals by management and reviewers in Helena, who review the reports to flag data entries they suspect may be incorrect. Flagged items are sent to maintenance area chiefs and superintendents for follow-up. Chiefs and superintendents also run their own reports, and refer any issues to the appropriate maintenance section for correction. In conjunction with benefits gained from the new maintenance management system, reviewing these reports to correct data entry errors improves the accuracy of the division's data, ensuring decisions are made using sound information.

**RECOMMENDATION #7**

**We recommend the Montana Department of Transportation develop and implement inventory standards and practices for high-risk tools and equipment.**

**Implementation Status – Implemented**

Nonconsumable MDT assets, such as power tools and other items potentially susceptible to theft or abuse, used to be informally and inconsistently tracked. The division created a policy and a procedure to track all items valued over \$500 and, at the discretion of the area maintenance chiefs, any other items sensitive to theft or misuse. All such items are inventoried in the maintenance management system, and owners of these items are required to reconcile their inventory monthly. Division staff have also made efforts to label items as belonging to MDT. Such practices should improve oversight of high-risk items statewide.

**RECOMMENDATION #8**

**We recommend the Montana Department of Transportation develop a statewide policy for proactive asset security and theft reporting that includes implementing consistent standards for securing department resources and responding to instances of theft.**

**Implementation Status – Being Implemented**

During the audit, there was no department-wide policy for responding to theft of department assets, and that physical security and theft reporting practices were inconsistent throughout the state. MDT has since created policies and procedures for asset security and for theft reporting. The theft reporting procedure, which aligns with state law and rule, has been used to respond to potential instances of theft in 2019. Division staff are also required to assess facility security regularly, and to rate every facility in the state according to a formal security scoring document. This score is entered in the maintenance management system to track security concerns with every maintenance facility and stockpile over time. During follow-up, we observed one of the unsecured locations we identified during the audit remained unsecured, with heavy equipment still publicly accessible. According to department staff, the facilities in that maintenance area were scheduled to be secured in the following weeks. While management has strengthened its approach to statewide security, it should continue to emphasize its importance to institutionalize best practices and mitigate risk.