

Office of Audit, Mail Stop 190  
395 John Ireland Boulevard  
Saint Paul, MN 55155

## Memo

**Date:** April 12, 2019

**To:** Margaret Anderson Kelliher  
Commissioner

Susan M. Mulvihill,  
Deputy Commissioner & Chief Engineer

**From:** Daniel E. Kahnke, CGFM  
Audit Director



**RE:** Federally Funded Highway Construction Projects Audit  
Fiscal Year 2018  
Audit Report No. 19-800-11

Enclosed is the final audit report related to the subject indicated above. This includes the written responses, as applicable, from the appropriate division directors.

Requests for copies of the audit report will be responded to by furnishing this report.

**CC:** C.M. Gustafson  
J.L. Martinson  
N.T. Daubenberger  
M.J. Rasmussen  
T.A. Henkel  
J.L. Cherney  
K.M. Schroedl  
A.K. Jabr  
T.D. Ravn  
G.M. Engstrom  
K.L. Western  
J.P. Solberg  
C.M. Gross  
C.A. Calhoun  
W. Meyer, FHWA  
J. Nobles, OLA

Office of Audit, Mail Stop 190  
395 John Ireland Boulevard  
Saint Paul, MN 55155

## Memo

**Date:** April 12, 2019

**To:** Margaret Anderson Kelliher,  
Commissioner

Susan M. Mulvihill,  
Deputy Commissioner & Chief Engineer

**From:** Daniel E. Kahnke, CGFM  
Audit Director



**RE:** Federally Funded Highway Construction Projects Audit  
Fiscal Year 2018  
Audit Report No. 19-800-11

The Office of Audit has audited MnDOT's compliance with requirements for federally funded city/county and trunk highway construction projects for the fiscal year ending June 30, 2018.

This audit was conducted to verify the effectiveness of MnDOT's contract administration and compliance processes that ensure the proper use of federal funds for the Highway Planning and Construction Program. Based on financial records, Fiscal Year 2018 federal expenditures for city/county and trunk-highway projects totaled \$636 million.

This year, the Minnesota Office of Legislative Auditor informed MnDOT they would be performing the Single Audit themselves. Therefore, this year's audit will not be referred to as the "Single Audit." As a result, more focus was placed on the highway construction aspects of the program during this audit.

### **Highway Planning and Construction Program**

Various MnDOT Offices and Districts are involved in administering the Federal Highway Planning and Construction Program. The objectives of this federal program include:

- 1) Assisting States in planning and developing an integrated, interconnected transportation system important to interstate commerce and travel by constructing and rehabilitating the National Highway System, including interstate highways;
- 2) Providing aid for the repair of Federal-Aid highways following disasters;
- 3) Fostering safe highway design, replace or rehabilitate structurally deficient or functionally obsolete bridges;
- 4) Supporting community-level transportation infrastructure; and
- 5) Providing aid for other special purposes.

Margaret A. Kelliher  
Susan M. Muvihill  
April 12, 2019

### **Delegated Contract Process Program**

The MnDOT State-Aid Division administers city/county federally funded projects using the Delegated Contract Process (DCP) Program. MnDOT and each city/county have executed a State of Minnesota Agency Agreement for federally funded construction.

The MnDOT State Aid Division works with city and county engineers, providing technical expertise and identifying ways to improve the State's Highway System. City/county project activities include construction, contract administration, environmental compliance, right of way, and material testing.

### **Audit Scope and Objectives**

In accordance with the U.S. Government Accountability Office's (GAO's) Government Auditing Standards, this audit was a performance audit in nature. Construction projects were audited as outlined in 2 CFR Part 200, Subpart F (Audits of States, Local Governments, and Non-Profit Organizations), and its current Compliance Supplement.

MnDOT management is responsible for adherence to the Compliance Supplement requirements. Based on the audits performed, the MnDOT Office of Audit is issuing this report to express an opinion on compliance with applicable requirements.

ATTACHMENT I lists the 8 trunk highway and 9 city/county construction projects reviewed during this audit. ATTACHMENT II describes specific contract items reviewed in the "material testing" portion of the audits.

MnDOT's internal controls over compliance with requirements for the federal financial assistance program were evaluated. Specific internal controls and procedures in applicable MnDOT Offices and Districts were reviewed. The results are a factor in determining actual tests, assessments, and reviews conducted on the projects audited.

During the planning and performance of the audit, reasonable assurance was obtained regarding material noncompliance with requirements. This audit included examining, on a testing basis, evidence regarding MnDOT's compliance with these requirements. The effectiveness and efficiency of activities reviewed were also assessed. This audit provides a reasonable basis for opinions reached, and conclusions are applicable department wide for the federal program audited.

### **Results**

Based on reviews of MnDOT's management process and internal control structure for the Highway Planning and Construction Program, MnDOT has developed and implemented a well-designed procedural and internal control process for carrying out its mission, objectives, and requirements.

For the projects audited, necessary controls were in place to reasonably ensure that projects were properly administered, documented, authorized, and monitored; resulting in general compliance with applicable administrative requirements, rules, and regulations.

Of the various areas reviewed, controls over Disadvantaged Business Enterprise (DBE) requirements, item record accounts, contract time charges, change orders, and material on hand requirements were quite effective; with no significant material concerns noted.

Margaret A. Kelliher  
Susan M. Muvihill  
April 12, 2019

## Conclusion

The results of this audit were addressed with various MnDOT management and personnel at both the project-level and specialty office exit conferences:

- One issue discussed that was significant enough to rise to the level of a Finding was related to Quality Control (QC) and Quality Assurance (QA) activities performed for concrete ready-mix contract items (see Exhibit A).
- Opportunities for improving MnDOT controls, practices, and processes for projects audited were also discussed (See Exhibit B).

As a result of this audit and the specific items tested, it is our opinion that MnDOT's Highway Construction Program has generally complied with applicable laws, regulations, and administrative requirements. With respect to the untested items, nothing came to our attention that the Minnesota Department of Transportation had not complied, in all material respects, with applicable provisions.

Management and personnel's feedback and responses indicated their level of attention and willingness to address the pertinent issues.

CC: C.M. Gustafson  
J.L. Martinson  
N.T. Daubenberger  
M.J. Rasmussen  
T.A. Henkel  
J.L. Cherney  
K.M. Schroedl  
A.K. Jabr  
T.D. Ravn  
G.M. Engstrom  
K.L. Western  
J.P. Solberg  
C.M. Gross  
C.A. Calhoun  
W. Meyer, FHWA  
J. Nobles, OLA

Audited by:  
Ryan Sherman  
Dave Wolvert  
Dave Christensen

**ATTACHMENT I**  
**Highway Construction Projects Audited, Fiscal Year 2018**

**Trunk-Highway Construction Projects**

SP #	Fed. Proj. #	Dist.	Location	Engineer	Contract Amt.	Pmts during FY'18	Fed. Auth.
6947-50	STPF6918(003)	D1	TH 37	J. Tillman	\$4,243,817	\$5,098,053	2017
2906-18	NHPP0071(321)	D2	TH 71	T. Strassburg	\$2,257,157	\$2,408,118	2017
0508-13	STPF8817(066)	D3	TH 25	A. Hughes	\$5,249,417	\$5,794,924	2017
1481-9066B	NHPP1940(024)	D4	TH 94	D. Kuhn	\$784,622	\$726,652	2017
2515-21	NHPP0063(306)	D6	TH 61	M. Anderson	\$63,436,184	\$27,241,035	2017
6780-105	NHPP1900(124)	D7	TH 90	K. Bloomgren	\$6,791,565	\$5,363,760	2017
1206-90	NHPP0029(003)	D8	TH 29	K. Brunkhorst	\$1,719,898	\$1,540,670	2017
2783-175	NHPP135W(008)	Metro	TH 35	D. Penn	\$693,693	\$664,443	2017
<b>TOTALS</b>					<b>\$85,176,353</b>	<b>\$48,837,655</b>	

**City/County (DCP) Highway Construction Projects**

SP #	Fed. Proj. #	Dist.	Location	Engineer	Contract Amt.	Pmts during FY'18	Fed. Auth.
069-710-026	STP6917(159)	D1	CSAH 110	J. Foldesi	\$2,992,537	\$1,806,937	2017
029-628-002	NHPP0071(319)	D2	CSAH 28	J. Nordin	\$2,089,706	\$1,257,238	2016
232-090-001	STPF7117(067)	D3	CSAH 5	L. Otteson	\$2,168,021	\$181,565	2016
078-070-003	HSIP7817(211)	D4	CSAH 3	L. Haukos	\$2,043,536	\$2,028,947	2017
020-621-004	STPF2017(184)	D6	CSAH 21	G. Kohlnhofer	\$1,812,459	\$2,089,324	2017
032-629-045	STPF3217(191)	D7	CSAH 29	T. Stahl	\$1,596,942	\$1,553,736	2017
059-602-025	STPF5917(186)	D8	CSAH 2	D. Halbersma	\$3,233,435	\$3,108,894	2017
059-030-009	TA5917(188)	D8	County	D. Halbersma	\$422,603	\$424,418	2017
107-090-009	FLAP020	Metro	Bike Trail	S. Hanson	\$4,215,399	\$2,544,698	2017
<b>TOTALS</b>					<b>\$20,574,638</b>	<b>\$14,995,757</b>	
<b>Audited Totals</b>					<b>\$105,750,991</b>	<b>\$63,833,412</b>	

**ATTACHMENT II**  
**Contract Items Audited for Compliance with Material Testing Requirements, FY '18**

<b>S.P. #</b>	<b>Location</b>	<b>Value</b>	<b>Contract Items Reviewed</b>
<b>Trunk Highway Construction Projects</b>			
6947-50	TH 37	\$2,602,000	Type SP 9.5 Wear Course Mixture
2906-18	TH 71	\$1,720,000 \$141,000	Type SP 12.5 Wear Course Mixture Full Depth Reclamation
0508-13	TH 25	\$3,731,000	Types SP 9.5, 12.5 Wear Course Mixtures
1481-9066B	TH 94	\$254,000	Organic Rich Zinc Paint System (Old)
2515-21	TH 61	\$1,486,000 \$6,364,000 \$444,000 \$278,000	Structural Concrete Structural Steel Reinforcement Bars Technique Shaft
6780-105	TH 90	\$170,000 \$116,000 \$492,000	Structural Concrete Concrete Wearing Course Type SP 12.5 Wear Course Mixture
1206-90	TH 29	\$344,000 \$204,000	Structural Concrete Bridge Slab Concrete
2783-175	TH 35	\$574,000	Lighting System
<b>City County Highway Construction Projects</b>			
069-710-026	CSAH 110	\$1,465,000	Type SP 9.5 Wear Course Mixture
029-628-002	CSAH 28	\$1,073,000 \$418,000	Types SP 12.5, 9.5 Wear Course Mixtures Aggregate Base Class 5
232-090-001	CSAH 5	\$241,000 \$97,000 \$188,000	Types SP 12.5, 9.5 Wear Course Mixtures Type SP 12.5 Non Wear Course Mixture Aggregate Base Class 5
078-070-003	CSAH 3	\$1,758,000 \$89,000	Type SP 12.5 Non-Wear, Wear Course Mixtures Aggregate Surfacing Class 1
020-621-004	CSAH 21	\$1,290,000 \$137,000	Concrete Pavement 8" Dowel Bars
032-629-045	CSAH 29	\$553,000 \$314,000	Type SP 12.5 Non Wear Course Mixture Type SP 9.5 Wear Course Mixture
059-602-025	CSAH 2	\$1,016,000	Type SP 9.5 Wear Course Mixture
059-030-009	County	\$163,000	Concrete Walk
107-090-009	City	\$548,000 \$336,000 \$214,000 \$130,000	Soldier Pile Wall Dowel Laminated Deck Panels Structural Steel Cast-In-Place Concrete Piling 12"

The field audits included an evaluation of compliance with materials testing requirements for the contract items listed. Concerns were discussed with the State Aid Engineer, State Construction Engineer, Office of Materials and Road Research Director, and project personnel. QC Workbook Concrete Batching Reports and Certificates of Compliance for State Project 232-090-001 were surveyed as well.

## EXHIBIT A

### Findings, Recommendations, and Responses

The following Finding is considered financial and / or compliance in nature. Findings are intended to assess financial operations; if financial data is presented fairly; and if all applicable laws, regulations, and administrative requirements are followed.

#### **FINDING – Concrete Ready-Mix Plant Inspections: Quality Control (QC) and Quality Assurance (QA) Activities**

##### **Description of the Finding**

Concerns were identified on 2 of the projects audited (SPs 1206-90 and 6780-105) regarding the Quality Control (QC) and Quality Assurance (QA) activities performed for concrete ready-mix contract items.

QC concerns included:

- QC Workbooks were not provided to the Engineer on a timely basis (SP 6780-105);
- Over 50% of Total Moisture Factor (TMF) values from fine and coarse aggregate moisture tests appeared to be duplicated (SP 1206-90);
- Concrete Batching Reports (used to document QC Aggregate Moisture tests) did not consistently document a Time Scale Set (SP 1206-90);
- TMF values from Batching Reports did not always match moisture factors documented on Certificates of Compliance (concrete tickets; SP 1206-90); and
- Water-to-Cement (W/C) Ratios in the Structural Concrete could not be assessed as a result of QC Workbook concerns (specifically the moisture values).

QA concerns included:

- We were unable to obtain reasonable assurance that the consultant hired to serve as the QA plant inspector reviewed the QC workbooks for correctness and subsequently forwarded them onto the District as required (SP 6780-105);
- QA diaries did not document the QC workbook reviews for accuracy (SP 6780-105);
- Completed QC workbooks were not on file at the time of the audit (SP 6780-105);
- Certificates of Compliance and QC Workbooks were not verified for accuracy (SP 1206-90); and
- Sampling and testing for QC Aggregate Moistures were not observed (SP 1206-90).

##### **Criteria**

MnDOT employees and operations adhere to policies and procedures while performing daily activities. These can be found within a various number of sources, ranging from departmental procedures to federal requirements. The policies and procedures applicable to this Finding include, but are not limited to, the following:

2016 MnDOT Construction Specifications, Section 2461.2.F. These specifications address specific requirements related to the QC/QA concerns identified.

##### 2 CFR 200.403.G – Factors affecting allowability of costs

*“Costs must meet the following general criteria in order to be allowable under Federal awards: Be adequately documented.”*

### **Recommendation(s)**

Management should appoint personnel from the applicable MnDOT Specialty Offices (Materials and Road Research and Construction and Innovative Contracting) to develop an action plan that addresses these concerns in a collective manner and adequately mitigates the associated risks to the Department. Items to consider for this action plan include, but are not limited to:

- Emphasizing the importance and proper completion of the processes surrounding Concrete QC Workbooks;
- Considering additional reviews / investigations (Statewide; other projects) of concrete suppliers to determine the reason and extent for repeated TMF values, mismatches between TMF and moisture values, and any other concerns related to QC testing throughout the State;
- Considering additional controls and / or requirements in regards to QC and QA procedures over ready-mix concrete moistures and aggregates; and
- Performing QA plant inspections as required

### **Auditee's Response(s)**

- The Office of Materials and Road Research is in the process of hiring two Engineering Specialist (ES) Positions in the Pavement Sections' Concrete Unit. One ES will shadow a current soon-to-retain Concrete Unit ES to develop an understanding of the Mix Design Specialist's activities. The second new position, will be tasked with traveling the state, developing a rapport with the District Plant Monitors, providing guidance on the proper means to administer the contract, and participating in the annual Plant Monitor training for Concrete and Asphalt Plants. The Mix Design Specialist position will perform similar functions within the Metro area. The positions are anticipated to be filled by the end of April, 2019.
- These two positions will create a direct link from the specification creators to the Plant Monitors. Gaps in understanding or possible improvements to the current systems of QC and QA will be more readily identified and dealt with in a timely manner.
- The Office of Construction and Innovative Contracting Director and Staff have also been raising the awareness of this issue at all of their winter training meetings with District construction personnel, including the Inspector Workshop, Resident Engineers, and Project Engineer/Supervisors. They have been asking the Districts to pay special attention to concrete plant monitoring, and look at specific testing and quality requirements to make sure the producers are performing the required testing and incorporating their results into the production process.

## **EXHIBIT B**

### **Observations**

The following Observations are considered performance/operational in nature. Observations are intended to assess the economy and efficiency of an audited entity's operations, and the extent to which program objectives are being attained.

These items were considered significant enough to address in the audit report. Although no responses are required, these items could rise to the level of a Finding in future engagements if left unattended.

#### **OBSERVATION I – Bituminous Aggregates: Additional Quality Assurance (QA) Procedures**

At the time of their respective project audits, 7 of 8 MnDOT Districts and all of the cities/counties were not actively performing recommended Quality Assurance (QA) procedures (random belt sampling and testing) to verify compliance with bituminous aggregate spall requirements.

This was an additional control recommended to provide assurance on compliance with construction specification requirements (e.g., MnDOT Construction Spec. No. 3139: Graded Aggregate for Bituminous Mixtures). This recommendation was made by both: (a) the MnDOT State Bituminous Engineer; and (b) an independent consultant hired by the Department to look into relative issues.

Continuing communication should take place statewide and at the city/county levels that reminds the appropriate personnel of these recommendations, and also emphasizes the importance of these QA procedures.

#### **OBSERVATION II – Bridge Painting Requirements**

Numerous exceptions to requirements were identified during the audit of S.P. 1481-9066B. Discussions with the MnDOT Bridge Office indicated the potential for a special committee to address concerns regarding bridge painting work statewide.

Along with this potential special committee, an action plan could also be taken into consideration by the MnDOT Bridge Office that addresses the concerns and potential risks brought to light as a result of this audit. Items to consider for this action plan to address include, but are not limited to:

- Reassessing contract language requirements and required contractor documentation;
- Increasing the Bridge Office's oversight and monitoring activities on Statewide bridge paint work;
- Consider increasing the reliance on and usage of consultants performing QA activities; and
- Emphasizing the importance and proper completion of paint disposal documents.