

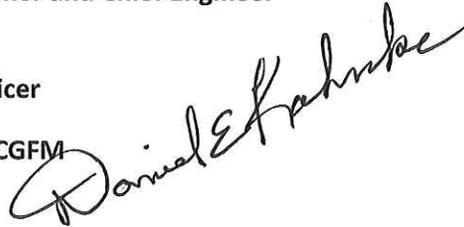
## Memo

To: Charlie Zelle,  
Commissioner

Sue Mulvihill,  
Deputy Commissioner and Chief Engineer

Kristin Schroedl,  
Chief Financial Officer

From: Daniel E. Kahnke, CGFM  
Audit Director



Date: April 26, 2018

**RE: Federally Funded Highway Construction Projects Audit  
Fiscal Year 2017  
Audit Report No. 18-800-07**

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This is the final audit of the above stated subject. This includes the final audit report and written responses, as applicable, from the appropriate division directors.

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

cc: A. Kocher, FHWA  
J. Nobles, OLA  
C.M. Gustafson  
J.L. Martinson  
N.T. Daubenberger  
M.J. Rasmussen  
T.A. Henkel  
S.D. Stein  
T.D. Ravn  
G.M. Engstrom  
L.P. Clarkowski  
D.K. Collins  
R.M. Sylvester  
C.M. Gross  
C.A. Calhoun

## Memo

To: Charles A. Zelle  
Commissioner

Susan M. Mulvihill  
Deputy Commissioner & Chief Engineer

Kristin Schroedl  
Chief Financial Officer

From: Daniel Kahnke, CGFM  
Audit Director



Date: March 28, 2018

### **RE: Federally Funded Highway Construction Projects Audit Fiscal Year 2017 Audit Report No. 18-800-07**

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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, 2017.

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 2017 federal expenditures for city/county and trunk highway projects totaled \$609 million.

This year, the Minnesota Office of Legislative Auditor informed MnDOT it was not required to do a Single Audit because the Highway Planning and Construction Program was considered low risk based on a lack of Findings in prior years. As a result, this year's audit will not be referred to as the "Single Audit," and the areas of Federal-Aid Billing, Right of Way, and Aeronautics were not included in the audit scope.

#### **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.

## Highway Planning and Construction Program

Various MnDOT offices and districts are involved in administering the 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.

### 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, and based on the audits performed, the MnDOT Office of Audit is responsible for expressing an opinion on compliance.

ATTACHMENT I lists the 8 trunk highway and 6 city/county construction projects reviewed during this audit. ATTACHMENT II describes specific contract items included 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. 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 assure that projects were properly administered, documented, authorized, and monitored; resulting in general compliance with applicable administrative requirements, rules, and regulations. The effectiveness and efficiency of activities reviewed were also assessed.

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.

## 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 significant enough to rise to the level of a Finding was related to project documentation not adequately maintained as required on a city/county project (see Exhibit A).
- Additionally, opportunities for improving MnDOT controls, practices, and processes for trunk highway and city/county projects audited were discussed (See Exhibit B).

As a result of this audit and the specific items tested, 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.

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Audited by:  
Ryan Sherman  
Dave Wolvert  
Dave Christensen

# ATTACHMENT I

## Highway Construction Projects Audited, Fiscal Year 2017

### Trunk-Highway Construction Projects

SP #	Fed. Proj. #	Dist.	Location	Engineer	Contract Amt.	Pmts during FY'17	Fed. Auth.
6918-86	NHPP0053(317)	D1	TH 53	A. Johnson	\$138,891,655	\$68,742,052	2016
4402-19	STPM4416(060)	D2	TH 200	T. Strassburg	\$5,545,706	\$6,039,643	2016
1810-92	NHPP0371(313)	D3	TH 371	M. Indihar	\$49,190,759	\$25,611,374	2015
1406-66	NHPP0075(102)	D4	TH 75	T. Kordosky	\$13,575,703	\$9,673,754	2015
5503-45	STPM8817(001)	D6	TH 14	J. Bunch	\$4,929,687	\$4,959,384	2016
5211-59	EDA06-79-05801	D7	TH 169	D. PirkI	\$29,711,598	\$16,587,244	2016
4103-10	STPM8816(106)	D8	TH 14	P. Rasmussen	\$2,087,727	\$496,765	2016
2771-37	HPPH...610(309)	Metro	TH 610	D. Penn	\$80,725,000	\$25,777,514	2014
<b>TOTALS</b>					<b>\$324,657,835</b>	<b>\$157,887,730</b>	

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

SP #	Fed. Proj. #	Dist.	Location	Engineer	Contract Amt.	Pmts during FY'17	Fed. Auth.
031-649-011	STPF3117(052)	D1	CSAH 49	K. Grandia	\$2,117,636	\$2,008,573	2016
030-609-009	STPF3016(223)	D3	CSAH 9	R. Heilman	\$2,792,101	\$2,766,132	2016
003-618-001	STPF0316(201)	D4	CSAH 18	J. Olson	\$1,824,177	\$1,596,426	2016
065-611-046	STPM6515(243)	D8	CSAH 11	J. Marlowe	\$2,635,416	\$1,359,486	2016
194-010-011	STPX1011(146)	Metro	TH 101	P. Oehme	\$7,434,403	\$0	2013
173-010-007	STPM1914(084)	Metro	TH 952A	R. Beckwith	\$23,061,745	\$4,907,691	2014
<b>TOTALS</b>					<b>\$39,865,478</b>	<b>\$12,638,308</b>	

**Audited Totals    \$364,523,313    \$170,526,038**

## ATTACHMENT II

### Highway Construction Projects Audited, Fiscal Year 2017

#### Truck Highway Construction Projects

S.P. #	Location	Value	Contract Items Reviewed
6918-86	TH 53	\$32,834,000	Structural Steel
		\$10,160,000	Structural Concrete
		\$5,011,000	Stainless Steel and Epoxy Coated Reinforcement Bars
4402-19	TH 200	\$3,717,000	Type SP 12.5 Wear Course Mixture
		\$266,000	Aggregate Base Class 5
1810-92	TH 371	\$10,465,000	Bituminous Pavement
		\$1,226,000	Aggregate Base Class 6
1406-66	TH 75	\$554,000	Type SP 12.5 Wear Course Mixture
		\$2,907,000	Concrete Pavement
5503-45	TH 14	\$3,075,000	Type SP 12.5 Wear Course Mixture
5211-59	TH 169	\$7,461,000	Structural Concrete
		\$3,434,000	Place Concrete Pavement
		\$928,000	Dowel Bars
		\$1,015,000	Aggregate Base Class 5
4103-10	TH 19	\$1,021,000	Type SP 12.5 Wear Course Mixtures
		\$8,000	Aggregate Base Class 5
2771-37	TH 610	\$4,750,000	TH 610 Roadway
		\$19,625,000	Bridges

#### City/County Highway Construction Projects

S.P. #	Location	Value	Contract Items Reviewed
031-649-011	CSAH 49	\$267,000	Aggregate Surfacing Class 1
		\$1,168,000	Type SP 12.5 and 9.5 Wear Course Mixtures
030-609-009	CSAH 9	\$966,000	Type SP 12.5 and 9.5 Wear Course Mixtures
		\$561,000	Aggregate Base Class 5
003-618-001	CSAH 18	\$127,000	Stabilized Full Depth Reclamation
		\$712,000	Type SP 12.5 Wear Course Mixture
		\$528,000	Type SP 9.5 Wear Course Mixture
065-611-046	CSAH 11	\$196,000	Full Depth Reclamation
		\$476,000	Aggregate Base Class 5
194-010-011	Great Plains Blvd.	\$1,069,000	Type SP 12.5 Wear, Non-Wear Course Mixtures
		\$450,000	Aggregate Base Class 5
173-010-007	Robert Street	\$2,030,000	Type SP 12.5 Wear Course Mixtures
		\$1,233,000	Type SP 19.0 Non Wear Course Mixtures
		\$1,768,000	Aggregate Base Class 6

\*The field audits included an evaluation of compliance with material testing requirements for the contract items listed. Concerns were discussed with various personnel as they came up, as well as during close-out exit conferences.

# 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 – Project documentation not adequately maintained as required.**

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

On city/county project SP 173-010-007 in the Metro District in West St. Paul, there were multiple concerns regarding project documentation related to bituminous materials. This did not allow for validation of the quality of the materials placed or verification of the contractor's performance as required. The following concerns were noted:

- Project documentation was not maintained as required. As a result, costs were not adequately documented and no assurances could be provided. Instances included:
  - Test Summary Sheets not on file with the project consultant, did not have all Quality Control (QC) / Quality Assurance (QA) verification tests included, only had QC gradations and some Coarse Angular Angularity (CAA) tests included, did not include all of the Agency's tests, did not disclose the applicable project (S.P.) numbers, and could not be verified by our auditor.
  - Bituminous plant production reports were not on file with the project consultant at the time of the audit. Although eventually obtained, the reports did not account for 39% of the Wear and 29% of the Non-Wear materials placed.
  - Bituminous tickets on file did not reconcile with project documentation.
  - LIMS documentation and required cores were not made available in a timely manner for auditor verification.

#### **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:

#### MnDOT Construction Specifications, Section 2360.2.G8

"Maintain documentation, including test summary sheets and control charts, on an ongoing basis."

#### 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."

#### 2 CFR Part 635.105 – Supervising Agency

- "The STD [State Transportation Department] has responsibility for the construction of all Federal-aid projects, and is not relieved of such responsibility by authorizing performance of the work by a local public agency."
- "Although the STD may employ a consultant to provide construction engineering services, such as inspection or survey work on a project, the STD shall provide a full-time employed State engineer to be in responsible charge of the project."

## Recommendations

It is MnDOT's responsibility for maintaining adequate documentation on Federal-Aid Projects. Additionally, the following should be considered moving forward:

- The project consultant on this job:
  - Perform reconciliations of required documentation (Test Summary Sheets, Plant Production Reports, Bituminous Tickets) to ensure accuracy and compliance with requirements; and
  - Address plant production and documentation concerns in real-time either directly with the plant and / or the Department.
- Project personnel should document bituminous ticket reconciliations.
- Project documentation should be made available to auditors to allow for verification of compliance with project requirements.
- The MnDOT State-Aid Division should consider implementing an evaluation program that assesses the performance of project engineering consultants to ensure adequate monitoring and oversight is provided on a real-time and on-going basis.
- The MnDOT Office of Materials and Road Research (OMRR) should:
  - Perform additional oversight activities on this project's documentation, specifically plant documentation, to verify requirements have been met; and
  - In regards to bituminous plant and consultant concerns that came up on this project, consider employee de-certifications on projects in the future.

## Auditee Response(s)

In response to the Finding, State Aid offers the following:

1. Project documentation for cost accounting purposes:
  - a. The project consultant performed an independent check to reconcile the bituminous tickets in the project files with the quantities that were paid. See the attached Bituminous Summary on page 1, and the Ticket Summary on pages 2 & 3 for details.
  - b. Item Record Accounts were maintained by the consultant on a regular basis throughout the duration of the project and clearly identify which tickets were used for a particular quantity paid. A reference to the tickets' location in separate binders were included in the IRA.
  - c. Any differences, whether they be noted as deltas or incidental values on the Bituminous Summary, can be attributed to other items that included bituminous material as incidental, or to partial loads used. Examples of differences from tickets are the bituminous strip adjacent to curb for ADA compliant ramps, temporary paving, driveways, and partial loads.
  - d. The independent check substantially validates the quantities paid with the quantities delivered and placed.

**Response to Audit Report No. 18-800-07**

**Finding: Project Documentation**

**SP 173-010-007 TH 952A S. Robert St., City of West St. Paul**

2. Project Documentation for Contractor Performance and Validation of the Quality of the Material Placed:
  - a. The consultant performed an independent review of the QC and QA data, provided by the MNDOT Office of Materials and Road Research (OMRR) Specialist, and as itemized in the attached spreadsheet Metro Inspection Mix Testing, pages 4 & 5, and as summarized in the Robert Street-Mixture Testing Summary, also attached and on page1.
  - b. A SALT Lab Testing and Plant Inspection Services Request was made to MNDOT Metro Materials Plant Inspection, amongst others, to perform, the Bituminous Plant Inspection for the project. MNDOT Materials performed 34 of 38 tests based on quantity and mix type as Owner QA, and the bituminous supplier, McNamara, performed 60 Contractor QC tests for the bit producer based on quantity and mix type, which is 3 tests above and beyond the required 57 tests for the project.
  - c. According to the Metro Materials Engineering Specialist, the consultant would have received all the results from the verification (sample) tests that they turned in to the MNDOT Maplewood Lab and all exception letters associated with SP 1908-84. Since there were 4 QA tests not accounted for, and the Specialist could not find any notes of explanation or exception for the missing tests, it is assumed that the verification samples were not turned in by the consultant. But there were 4 corresponding QC tests noted in the summary. So the material acceptance and exception summary process will vet the acceptability of the material.
  - d. There were two different Project Engineers/Managers throughout the life of the project. Metro Materials has confirmed that they had them listed on file as the contacts. If there had been any issues with quality, schedule, or changes at the plant that could not be resolved between MNDOT Metro Plant Inspection and the Contractor QA for the producer, or that needed the Project Engineer's or Manager's input, decision, or approval, they would have been contacted immediately. Short of that scenario, the status quo for this project was that if there was no contact made, then there were no issues with the material at the plant.
  - e. Bituminous Plant Production Reports would typically have been sent to the Project Engineers. The fact that they were not in the file indicates that they were likely not shared with the field staff. But the reports did not include detrimental results. Ultimately the results had been produced at the appropriate time, and were obtained posthumously.
  
3. In discussions with the MNDOT Metro Materials office personnel, it appears that the final determination of bituminous materials will likely be accepted. Exceptions they found were due to out of tolerance but within spec test values.

**As evidenced above, the bituminous materials have been substantially accounted for, and all materials substantially meet quality requirements. The root cause of the Finding appears to be an issue of timeliness in creating a centralized project file producible by the consultant for the purposes of transparency.**

## Response to Audit Report No. 18-800-07

### Finding: Project Documentation

SP 173-010-007 TH 952A S. Robert St., City of West St. Paul

#### Recommendation Comments:

1. The project consultant did perform reconciliations of required documentation received from the MNDOT Metro Materials Plant Inspection and Bituminous Office Specialist, from their own records, and from production plant tickets, for the purposes of ensuring accuracy and compliance with requirements;
2. The project consultant did address plant production and documentation concerns in real-time either directly with the plant or with MNDOT. There were no substantial issues, therefore no additional contact was made by MNDOT Metro Materials Plant Inspection to the consultant during bituminous placements. There are 8 exceptions noted by the Metro Materials Bituminous Specialist indicating that certain companion material was out of tolerance, but within specifications. There were no major exceptions or non-compliances that required direct communication between MNDOT and the project engineers to resolve.
3. Project personnel have documented bituminous ticket reconciliations.
4. Project documentation is available to auditors to allow for verification of compliance with project requirements.
5. MNDOT State Aid currently assesses the skills, knowledge, and abilities of project consultants and determines how much assistance and guidance to provide on a project by project basis.
6. The MNDOT Office of Materials and Road Research (OMRR), namely the Bituminous Specialist, has performed additional oversight on this project's documentation, to verify requirements have been met.
7. The MNDOT Metro Materials Office have assisted in providing requested information to answer this audit finding. They will review and, if determined, accept, the Materials Summary of Exceptions in order to final this project.
8. OMRR's Technical Certification Unit and others designated will follow the Technical Certification Handbook FY 2018, specifically, the Revocation of Certification section, where and when applicable.

#### Opportunities for process improvement:

One risk for a major issue on Federal Projects is Consultant Inspection/Project Management. While it isn't a widespread issue, it does seem to pop up more than it should. We believe this is referenced in the fourth bullet in page 8 of the draft audit report;

*The MnDOT State-Aid Division should consider implementing an evaluation program that assesses the performance of project engineering consultants to ensure adequate monitoring and oversight is provided on a real-time and on-going basis.*

Currently, the assessment and monitoring of the consultants by State Aid falls mostly to the State Aid Construction crew who try to accomplish this by the following the same protocol as non-consultant projects;

- Attending Preconstruction conferences and providing guidance
- Visiting Projects and talking with project inspectors
- Providing resources and guidelines on our website
- Being a resource when questions come up

**Response to Audit Report No. 18-800-07**

**Finding: Project Documentation**

**SP 173-010-007 TH 952A S. Robert St., City of West St. Paul**

This seems to be an efficient process for most projects, but doesn't necessarily uncover documentation and/or materials issues if the folks don't raise any red flags in our discussions. That leaves the question of how can Federal Projects be better monitored? We will be implementing a two prong approach.

In looking at the DCP process, at the very beginning the City/County Engineer signs the DCP 01. SALT approves LGU project oversight on this document, and then no further communication exists between State Aid and the LGU on who will manage and inspect the project and what their qualifications are.

The Agency Agreement referenced on DCP 01 has language that the City/County must still have a "publicly employed licensed engineer, Project Engineer, to be in responsible charge of the Project". In actuality when a Consultant is hired for Project Management, most cities/counties assume the consultant is capable of meeting requirements. This is where we may have the best opportunity to ensure adequate monitoring.

The first prong will include updating the DCP process/checklist *before* construction that will have the LGU to identify the LGU *Project Manager*, and gives them a reminder of their important role in the Contract Administration phase of the project.

This would identify the Project Manager before NTP is given, and put a single person who may be different from the designated County or City Engineer, responsible for Project Management during the construction phase. Theoretically, having this person sign a submittal to SALT would put them on notice that they are the responsible person for this project, and keep them more engaged. In addition, we will develop a list of expectations for the LGU project manager to review with the consultant before construction begins.

The second prong will consist of a consultant performance evaluation (similar to MnDOT's form) by the local agency at the end of the construction project to give meaningful feedback to the consultant and provide valuable information to the project owner for future projects. In addition, the evaluations may provide improvements to the pre-construction expectation list for future use

## **Exhibit B**

### **Other Matters to Be Considered**

The following items were discussed with MnDOT management and project personnel during exit conferences. Although these items were significant enough to disclose in the Audit Report, they do not rise to the level of Findings or Observations and no responses are required from the auditee(s).

#### **Monthly field compliance reviews not completed as required**

On 2 of the 14 projects audited (S.P. 5503-45; 065-611-046), the monthly field compliance reviews were not completed. These reviews, as required in Part 5-591.320, Section XIV of the MnDOT Contract Administration Manual, are to be performed as an independent verification activity to ensure payroll information submitted by the contractor reflects what employees are actually being paid.

#### **Improper applications of bituminous test failure deductions**

For S.P. 4402-19, project documentation did not show corrections to an 8/12/16 failing bituminous test [asphalt binder Multiple Stress Creep Recovery (MSCR) test] until 8/30/16. As a result, coverage on over 50,000 tons of bituminous materials placed at the beginning of the project, specifically between the 1<sup>st</sup> test failure and the subsequent passing test, was not observed. Based on the unknown conditions of that portion of materials placed, subsequent deductions totaling \$212,000 appeared to have been applicable. However, \$30,711 was actually taken.

The MnDOT Office of Materials and Road Research (OMRR) personnel indicated that they could obtain documentation to show that the asphalt binder met requirements.

#### **Opportunity to improve internal controls - CM/GC contracting process.**

On trunk-highway project SP 6918-86 in District 1 in Virginia, MN, a few of the project cost areas were questioned for reasonableness, including:

- Prime Contractor Kiewit increased the liquidated damages with subcontractors and suppliers from the agreed upon \$25,000 to \$50,000; and
- Inflated field office lease costs.

Additional time during the preliminary CM/GC contracting process could be considered to avoid project costs being questioned for reasonableness in the future.

#### **Opportunity to improve internal controls – stabilized full depth reclamations**

As a result of an absent “boilerplate” special provision, exceptions were encountered on S.P. 003-618-001. In collaboration with the MnDOT Office of Materials and Road Research (OMRR), a special “boilerplate” provision for stabilized full depth reclamation projects at the State-Aid level could be considered as an opportunity to improve controls.