



Minnesota Department of Transportation

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**Memo**

**Office of Audit**  
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March 21, 2013

To: Charles A. Zelle, Commissioner  
Bernard J. Arseneau, Deputy Commissioner/Chief Engineer

From: Daniel E. Kahnke, CGFM  
Audit Director

A handwritten signature in cursive script that reads "Daniel E. Kahnke".

Subject: Audit of OMB Circular A-133  
Single Audit Compliance Requirements  
Fiscal Year 2012  
Audit Report No. 13-800-79  
(Responses Included)

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

This is being released in accordance with Financial Management Policy 84-3-G-2A, Audit Section Audit Follow-up. Requests for copies of the audit report will be responded to by furnishing this final version of the audit report.



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Subject: Audit of OMB Circular No. A-133
Single Audit Compliance Requirements
Fiscal Year 2012
Audit Report No. 13-800-79

As agreed upon with the Office of the Legislative Auditor, we have audited the Minnesota Department of Transportation's (Mn/DOT's) compliance with specific Single Audit Compliance Requirements for the following federal financial assistance programs for the year ended June 30, 2012.

Table with 4 columns: Program, CFDA, Amount (Millions), ARRA Amount (Millions). Rows include Highway Planning and Construction, and Airport Improvement Program.

The above amounts for the Highway Planning and Construction Program include federally funded trunk highway construction projects as well as federally funded city and county highway construction projects. This audit report describes the audit results for federally funded trunk highway construction projects as well as Airport Improvement. The audit results for federally funded city and county highway construction projects are described separately in another report.

In auditing compliance with regulations relating to federal award expenditures for the Highway Planning and Construction Program and the Airport Improvement Program, we conducted a financial audit as described in the Government Auditing Standards 1.22(b), published by the Comptroller General of the United States.

The management of the Mn/DOT is responsible for Mn/DOT's compliance with these requirements. The Mn/DOT Office of Audit is responsible to express an opinion on compliance with these requirements based on the audit results.

We audited the Single Audit Compliance Requirements for the Highway Planning and Construction and the Airport Improvement programs as outlined in the Office of Management and Budget (OMB) Circular No. A-133, Audits of States, Local Governments, and Non-Profit Organizations.

The audit was conducted per discussion and agreement with the Office of the Legislative Auditor. This included a review for compliance with the Letter of Agreement and Stewardship Plan between the Federal Highway Administration and Mn/DOT.

The requirements and principles of OMB Circular No. A-87 (Cost Principles for State, Local, and Indian Tribal Governments) and 49 CFR Part 18, the "Common Rule" were part of the audit. The audit of compliance with these requirements was conducted in accordance with generally accepted government auditing standards; the Government Auditing Standards; and OMB Circular No. A-133.

Those standards and OMB Circular No. A-133 Compliance Supplement require the planning and performance of the audit to obtain reasonable assurance about whether material noncompliance with the requirements referred to above occurred. ATTACHMENT III has more information on the OMB Circular No. A-133 Compliance Supplement. An audit includes examining, on a test basis, evidence about Mn/DOT's compliance with these requirements. We believe that our audit provides a reasonable basis for our opinion, and feel that our conclusions are applicable department wide for the federal programs audited.

The audit included an assessment of internal controls over the collection and use of federal funds related to the following areas: Construction and Contract Administration, Federal Aid, Right of Way, Aeronautics, and selected Mn/DOT district highway construction projects.

In planning and performing the audit, we evaluated Mn/DOT's internal controls over compliance with requirements for the two federal financial assistance programs. The Mn/DOT management is responsible for establishing and maintaining effective internal control over compliance with requirements of laws, regulations, contracts, and grants applicable to federal programs. In fulfilling this responsibility, estimates and judgments by management are required to assess the expected benefits and related costs of internal control structure policies and procedures.

A sound internal control structure should provide management with reasonable, but not absolute, assurance that OMB Circular No. A-133 Compliance Supplement requirements are met and Mn/DOT policies and procedures are followed. The internal control structure can become inadequate or ineffective because of either changes in operating conditions or deterioration of the effectiveness of the design or implementation of policies and procedures.

Our audit finding statements relate specifically to the OMB Circular No. A-133 Compliance Supplement. These findings, observations, and other audit results were discussed as applicable with project management and personnel from Mn/DOT districts.

We also discussed the findings, observations and other audit results as applicable with management and personnel from the following offices: Aeronautics, Construction and Innovative Contracting, Environmental Services, Finance, Land Management, Materials and Road Research, Technical Support, and the State Aid for Local Transportation Division.

### **Attachments and Exhibits**

EXHIBIT I provides a list of the construction projects reviewed during the audit; a total of 7 projects were audited. EXHIBIT II describes specific items included in the construction project material testing review portion of the audit.

ATTACHMENT I summarizes Other Internal Control Issues Discussed with Management. These issues were considered significant enough to include in the Single Audit Report, but not rising to the level of significance of a finding. If left uncorrected, these issues could rise to the level of significance of a finding in future Single Audit reports. Additional management input for these issues is available upon request.

We do not audit the same projects from the previous year's audit a second time when conducting follow-up on findings from the previous year's Single Audit. Instead, we audit different projects each year. If we identify the same findings, they are considered repeat findings at the Highway Planning and Construction Program and Airport Improvement Program level and may be applicable and of relevance to the entire Mn/DOT and state.

Concerns repeated from the Fiscal Year 2011 Single Audit Report No. 12-800-53 are noted within and at ATTACHMENT II - Audit Follow up of Prior Year's Findings. Note that the Grading and Base Materials Control finding is repeated from last year. Contractor Actions are also again discussed this year in OBSERVATION I. ATTACHMENT III describes the applicability of the A-133 Compliance Supplement to the Single Audit in general and Findings I and II for this year specifically.

### **Summary**

In our opinion, except for the above concerns and the issues discussed in Findings I and II and Observations I and II, the Minnesota Department of Transportation substantially complied with the provisions referred to in the scope paragraphs and ATTACHMENT III. With respect to items not tested, nothing came to our attention that caused us to believe that the Minnesota Department of Transportation had not complied, in all material respects, with those provisions.

cc: T. L. Hatch  
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## EXHIBIT I

### Highway Construction Projects Audited Fiscal Year 2012

#### TRUNK HIGHWAY PROJECTS

<b>State Project Number</b>	<b>Federal Project Number</b>	<b>District</b>	<b>Project Location</b>	<b>Engineer</b>	<b>Contract Amount</b>	<b>Amount In FY 2012</b>	<b>Federal FY Authorized</b>
3612-21	STPX 3612(043)	1	TH 71	Kevin Adolfs	\$7,297,725	\$7,687,846	2011
6012-44	STPX 6012 (036)	2	TH 75	J.T. Anderson	\$3,038,270	\$2,856,402	2011
1410-15	STPX 1411 (080)	4	TH 9	Trudy Kordosky	\$6,094,108	\$4,971,590	2011
7401-34	IM-NH 0014 (319)	6	TH 14	Jim Roberts	\$51,823,568	\$20,914,802	2009
0711-26	STPX 8812 (031)	7	TH 83	Chad Fowlds	\$9,989,568	\$9,493,347	2010
1913-64	BRNH 09MN (003)	ME	TH 61	Steve Kordosky	\$119,830,890	\$41,992,410	2010
2776-03	STPX M265 (001)	MW	TH 169	Michael Beer	\$125,289,501	\$57,246,836	2010
<b>TOTALS</b>					<b>\$323,363,630</b>	<b>\$145,163,233</b>	

The above 7 highway construction projects were all field audited.

## EXHIBIT II

### Material Testing Items Audited By Project By Contract Item Fiscal Year 2012

State Project Number	Location	Value	Project Bid Items Reviewed
<b>TRUNK HIGHWAY PROJECTS</b>			
3612-21	TH 71	\$4,339,000	Type SP 12.5 Wearing Course Mixture
6012-44	TH 75	\$67,000	Aggregate Base Class 5
		\$2,117,000	Type SP 12.5 Wearing Course Mixture
		\$79,000	Aggregate Shouldering Class 1
1410-15	TH 9	\$60,000	Aggregate Base Class 5
		\$3,833,000	Type SP 12.5 Wearing Course Mixture
		\$183,000	Aggregate Shouldering Class 1
7401-34	TH 14	\$2,063,000	Aggregate Base Class 5
		\$10,000	Concrete Coring
		\$917,000	Dowel Bars
		\$4,636,000	Concrete Pavement 9.0"
		\$1,805,000	Concrete Pavement 11.5"
0711-26	TH 83	\$295,000	Bituminous Pavement Reclamation
		\$91,000	Aggregate Base Class 1
		\$1,965,000	Type 12.5 Wearing Course Mixture
		\$249,000	Aggregate Shouldering Class 1
1913-64	TH 61	\$11,222,000	Structural Concrete
		\$3,307,000	Structural Steel
		\$1,184,000	Stainless Steel Reinforcement Bars
		\$852,000	Post Tensioning Steel Strand
		\$821,000	Arch Hanger Cables
		\$407,000	Anti-Icing
2776-03	TH 169	\$6,442,000	Structural Concrete
		\$3,092,000	Structural Steel

The above items were reviewed for compliance with materials testing requirements. Concerns were discussed with the State Construction Engineer, Office of Materials and Road Research Director, and project personnel.

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## FINDINGS

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

### **FINDING I – COMPLIANCE WITH GRADING AND BASE MATERIALS CONTROL REQUIRES MANAGEMENT ATTENTION**

Additional attention and oversight in the future will aid the department in achieving compliance with requirements per the Standard Specifications for Construction; Grading and Base Manual; Schedule of Materials Control; and project proposal special provisions. The material testing functions as a significant internal control in helping to assure that grading and base construction items as well as bituminous and concrete pavement perform as designed. Project personnel will need to document the basis for accepting affected grading and base construction items on Materials Certification Exceptions Summaries.

This area was evaluated for 4 of the 7 total projects audited. Concerns were noted for 3 of the 4 projects.

#### **Quality Assurance (QA) Gradations**

For Mankato District State Project 0711-26, Aggregate Base Class 1 was not tested. This material was combined with crushed and stockpiled bituminous pavement to keep the pavement workable for later use by district maintenance personnel on shouldering and district parking lots. Project personnel agreed that the Aggregate Base Class 1 should have been tested with QA gradations.

Also for Mankato District State Project 0711-26 Aggregate Shouldering Class 1, a QA laboratory gradation was not done.

#### Response (Operations Division Mankato District)

SP 0711-26 was identified as not having completed Aggregate Base Class I gradation testing. This material was used to blend with RAP from the milling operations and was subsequently stockpiled for future use by Mn/DOT. Mn/DOT field staff did not realize that the Random Sampling Method applied to material that is blended with RAP. **In the future the district will be inserting language into the proposal that states material brought in to blend with RAP will be tested “as directed by the Engineer” instead of the Random Sampling Method.** The Class I material that was blended with the RAP was from the same stockpile that was placed on the roadway shoulders for the project. All gradation tests performed on the roadway shoulders had passing test results.

SP 0711-26 was also identified as not having completed a field/lab gradation for Aggregate Shouldering Class I. A sample was taken after the audit and tested by the District Lab. Test results passed and were within acceptable tolerances. All other field tests met requirements. District staff will inform field personnel of this issue at the spring construction meeting.



For Bemidji District State Project 6012-44 Aggregate Base Class 5, the following concerns were noted.

A \$19,004 deduction for #40 and #200 sieve gradations (15% for each gradation for a total of 30%) falling outside specification was reduced to \$9,502 by Change Order No. 3 because project personnel felt that the department did not run QA gradations in a timely manner.

Project personnel felt that the Contractor did not have enough time to correct the gradation results and indicated that this had been discussed with the Contractor. A review of gradation worksheet dates appeared to document that the Contractor had enough time to correct the gradation results.

Project personnel felt that gradation worksheet dates represented sample dates, explained that samples were tested later. They agreed that if sample and test dates differed, then both should be documented on gradation worksheets. Project personnel acknowledged that project files did not document any Contractor concerns regarding the amount of time available to correct the gradation results.

Project personnel indicated and project files documented that a QC/QA split sample gradation from the same source done afterwards “failed miserably” on the #40 and #200 sieves. Office of Materials and Road Research (OMRR) personnel felt that at least 30% deduction (15% for each gradation not meeting requirements) should have been taken. Project personnel did not request a recommended price reduction from OMRR personnel.

Project personnel suggested and OMRR personnel agreed that contractors should be required to take QC gradations from placed material at about the same time as QA gradations from placed material, allowing for a meaningful comparison. The QC gradations for this project, taken mainly in 2007, met requirements. OMRR personnel subsequently revised the Schedule of Materials Control to include a requirement for QC placement gradations.

#### Response (Operations Division Bemidji District)

The finding indicates the Office of Materials and Road Research felt that a price reduction of 30% should have been applied to the quantity of Class 5 not meeting the gradation requirements. However, project personnel indicated that the date shown on the gradation reports was the date the sample was taken and not the date the sample was run. As such, Mn/DOT did not meet the 8 hour time requirement for field gradations as per Specification 2211.3F2 and consequently resulted in the contractor not having sufficient time to correct the material. **This matter has since been resolved in that project personnel are required to show both sample date and the run date on gradation worksheet.**

Unfortunately, project records do not indicate the contractor raising concerns about not having time to correct the material. **The Thief River Falls Resident Office has resolved to improve documentation of these field conversations on future projects.**

The Thief River Falls Resident Office has been an advocate of requiring contractor testing of material as it is placed instead of relying on contractor stockpile gradations to ensure passing material. The Thief River Falls Resident Office is pleased to see the materials control schedule has been since changed to require contractor field gradations at the time of placement. Had this requirement been in place at the time this project was built, the contractor would have discovered the failing material at the time of placement.

The price reduction was discussed with the Office of Construction and Innovative Contracting (OCIC). **It was determined that the Engineer has the authority to determine the appropriate price reduction, particularly in settling a contract dispute.** During the discussion with OCIC, satisfactory performance and life cycle of pavement in affected areas was also discussed. The Thief River Falls Resident Office felt this material would perform satisfactorily based on compaction results and material performance during paving operations. Splitting the price reduction with the contractor was a satisfactory solution and prevented the contractor from furthering the claim.

For Detroit Lakes District State Project 1410-15 Aggregate Base Class 5 and Aggregate Shouldering Class 1, the Random Sampling Gradations Acceptance Method was not documented. Project personnel commented that they sampled using the same truck each day and in the future, they would spend more time on this matter. Proper sampling protects the contractor as well as the state.

#### Response (Operations Division Detroit Lakes District)

It is agreed that proper sampling protects the Contractor as well as the State. The variable quantities and locations of the Aggregate Base Class 5 (i.e. centerline pipe, box culverts, and turn lanes) made the randomness difficult to document. For the Aggregate Shouldering Class 1, a significant overrun made the randomness of the method chosen not effective. Following the audit exit interview which was held on April 11, 2012, the TH 9 Audit Findings were discussed at the District Construction Spring Kick-Off Meeting on April 19, 2012. At the meeting with all District 4 construction personnel, the different random sampling methodologies that could be utilized on construction projects were discussed. **The construction personnel were instructed to determine and to document the random sampling methodology used for each project to prevent this from happening on future projects.**

#### **QA and QC Moisture Content**

For Detroit Lakes District State Project 1410-15 Aggregate Shouldering Class 1, QA moisture content testing was not done.

#### Response (Operations Division Detroit Lakes District)

At the audit exit interview, moisture content testing was discussed. While water placement was not an issue in achieving compaction on this project, it was agreed that the moisture content tests are a good tool to reinforce the need for water on the project and to help with compaction efforts. **It was suggested the Special Provision for Aggregate Shouldering Class 1 be written to state that the moisture testing will be conducted “as directed by the Engineer”.**

Response (Operations Division Detroit Lakes District) (continued)

Therefore, this test would only be utilized when placement and compaction of the material are a concern that needs to be addressed. This recommendation will be discussed statewide with the Resident Engineer's and the Office of Grading & Base as part of a QA/QC improvement. Until a change is made, all District 4 construction personnel were instructed on April 19, 2012 to perform all moisture content testing as required on all future projects.

For Mankato District State Project 0711-26 Bituminous Pavement Reclamation, 16 of 75 (21%) QC pre compaction moisture content tests were not done. After completion of the audit, project personnel provided 8 additional tests. QC pre paving moisture content tests were not done. OMRR personnel felt that the pre compaction moisture content tests were significant, but felt that the pre paving moisture content tests were not significant.

Project personnel commented that this was their first project of this type and special provisions from other districts were used. Office of Materials and Road Research (OMRR) and project personnel stated that an addendum to the proposal may not have been the correct one to use, it was not standard, and they did not write it. This would primarily impact the pre paving moisture content test requirements, applicable to stabilized bituminous pavement reclamation, which was not used on this project.

A \$2,500 deduction was not applied for retesting required for 10 QA pre compaction moisture content tests falling outside requirements. Project personnel felt that the monetary deduction was a tool to be used as needed and recognized that it was required.

Also for Mankato District State Project 0711-26 Aggregate Shouldering Class 1, QA moisture content tests were not done.

Response (Operations Division Mankato District)

SP 0711-26 was also identified as not having completed moisture content tests for the Aggregate Shouldering Class I. The aggregate shouldering was placed with quality compaction. A water truck was used during placement and staff noted that compaction was being achieved. The District suggests that for quality compaction, moisture testing should be "as directed by the Engineer" since a test result would not be known until after the compaction is completed and construction crews are completed with the work. **District 7 will work with the Office of Materials and Road Research to make the appropriate changes to the testing requirements.** Early discussions indicate the proposed changes mentioned above will be incorporated into the new specifications.

**Dynamic Cone Penetration**

For Mankato District State Project 0711-26 Bituminous Pavement Reclamation, 11 of 148 (7%) Dynamic Cone Penetration (DCP) tests were not taken. This test serves to verify that desired compaction is achieved.

Response (Operations Division Mankato District)

SP 0711-26 was identified as not having supplied the correct number of agency Quality Assurance DCP tests. A review of the actual test results in the project file indicates that the missing DCP tests (11 of 148 required) were the contractor's Quality Control tests, not Mn/DOT Quality Assurance tests. Field staff was not aware that the contractor was delinquent in DCP testing until the ability to correct the deficiency was gone. The Agency Quality Assurance testing was performed in front of the paving operation by MnDOT and had passing results, which ensured project quality. **Resident Office staff will ensure that the contractor report Quality Control test results in real time so deficiencies are identified at a time when they can be corrected.**

**QC Aggregate Quality**

A QC Aggregate Quality test was missed for Detroit Lakes District State Project 1410-15 Aggregate Base Class 5. No test was provided during the audit.

Response (Operations Division Detroit Lakes District)

As discussed in the exit interview with the Auditor, this was a Contractor error due to a new requirement in the Materials Control Schedule. This issue was included in the pre-construction conference agendas beginning in the spring of 2012 to address the Contractor's responsibilities for Quality Control, as this was a change from the previous Materials Control Schedule.

**Recommendation**

Mn/DOT District Engineers evaluate their internal controls in their areas and determine needed improvements in the areas listed below. Consult with the Engineering Services and Policy, Safety & Strategic Initiatives Divisions.

Perform and document the following as required.

- a. Random Sampling Gradation Acceptance Method.
- b. Deductions required, considering input and recommendations from the Office of Materials and Road Research.
- c. QC gradations, percent crushing, aggregate quality, and moisture content tests.
- d. QA DCP tests; laboratory gradations; and moisture content tests.
- e. The correct versions of the requirements are included in project proposals for bituminous pavement reclamation.
- f. The basis for acceptance for exceptions to material testing requirements on the Materials Certification Exceptions Summary.

## **Responses to Recommendations**

### Operations Division Summary Response

The Operations Division Director has incorporated the responses received directly from each district in this response in order to better explain what finally transpired with the findings and how these districts are working with other districts, OCIC and OMMR to eliminate these findings in future projects. Further, the Operations Director and District Engineers recognize that Recommendations a. – f. constitute a recurring set of problems with “internal controls” on individual projects. The Operations Director and the District Engineers intend to address these recurring issues through Lean, Six Sigma, or Kaizen processes that better prepare our field staff members for the important role materials control plays in the project management process.

<b>FINDING II – CODE CONTRACT CHANGE COSTS CORRECTLY AS NON-PARTICIPATION IN FEDERAL FUNDING</b>
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For Metropolitan Division State Project 1913-64, Change Order No. 66A payments totaling \$1.4 million should have been cost coded on the federal bill (FBIL) as non-participating in federal funding but were coded as participating instead. Project personnel paid a total of \$1.4 million for the change order on Partial Estimate No. 36 of October 18, 2012 and Partial Estimate No. 37 of November 14, 2012.

The Federal Highway Administration (FHWA) chose not to allow federal funding for Change Order No. 66A because it involves additional work that could have been separately let for competitive bidding rather than included in State Project 1913-64. Project personnel described Change Order No. 66A costs, which total \$8.8 million, as non-participating, but change order encumbrance documentation showed the costs as participating.

The need for Change Order No. 66A costs to be coded non-participating in federal funding was discussed amongst project personnel and Financial Operations personnel prior to payment.

Partial Estimate No. 37 of November 14, 2012 documents \$1.4 million paid for the change order, all coded as participating in federal funding. After we discussed this matter with Financial Operations personnel, they corrected the encumbrance to non-participating.

In coding costs as participating or non-participating in federal funding, Office of Finance personnel rely on payment vouchers to specifically describe costs as participating or non-participating. The payment vouchers provided to the Office of Finance for State Project 1913-64 did not describe any costs as non-participating.

Federal aid funds shall not participate in any cost which is not incurred in conformity with applicable Federal and State Law, the regulations in 23 CFR, and policies and procedures prescribed by FHWA.

### **Recommendations**

1. The Operations Division Director instruct District Engineers to work with district construction personnel to ensure that payment vouchers correctly document for federal participation.
2. The Director of the Office of Construction and Innovative Contracting and the Chief Financial Officer work together to develop internal controls to improve contract change cost coding procedures so that compliance requirements are met.

## **Responses to Recommendations**

### Recommendation 1

#### Operations Division Metropolitan District

The Hastings Project Manager pursued adding work (ultimately added via Change Order 66A) to the Hastings Project. This pursuit included extensive coordination with the FHWA a full year before the Change Order was executed. The FHWA conveyed clearly in the coordination to the Hastings Project Manager that the FHWA would not participate in the cost. When the Project Manager wrote the Change Order, he inadvertently did not write on the Change Order that it was non-federal participating.

#### Operations Division Summary Response

The Operations Division looks forward to making use of internal controls that will prevent the reoccurrence of Federal participating funds being used when the Federal funds should not be used.

### Recommendation 2

#### Office of Construction and Innovative Contracting and Office of Finance

The current process relies on a verbal discussion as to whether federal participation is anticipated. OCIC submits the encumbrance request to Finance and indicates non-participation after it has been communicated by the district or FHWA. In this instance, the non-participation was not indicated to OCIC. The default, for SAs that are not related to the state govt. shutdown or previously communicated items that are non-participating, has been participating.

As part of resolution to prevent this from happening in the future:

OCIC met with representatives from Mn/DOT Finance and Mn/DOT Audit to discuss Federal billing process for Supplemental Agreements on January 7, 2013. As action items, OCIC staff will meet with FHWA on Feb 19, 2013 to discuss proper procedure and changes needed. OCIC proposes to modify contract changes forms to include a federal funding participation indicator check box for field staff to indicate previous funding discussions with FHWA. After discussion and concurrence with FHWA, Mn/DOT will revise the Contract Administration Manual (CAM) to clarify discrepancies between the CAM and the Stewardship Agreement.

Office of Construction and Innovative Contracting and Office of Finance (continued)

In addition OCIC will create a simple “one-pager” giving guidance to field personnel regarding involvement of FHWA in the Contract change process. OCIC will also direct project personnel to involve FHWA earlier in the Contract Change process on projects/changes for which FHWA wants advance approval. OCIC will update Construction Tools – Contract Changes website to address information regarding FHWA concerns.

Office of Financial Management Supplemental Response

For supplemental agreements of significant dollar value, the Office of Financial Management will have two staff review the agreement in order to ensure proper assignment of federal participation or non-participation.



## 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.

### **OBSERVATION I – OPPORTUNITY TO CONTINUE MONITORING CONTRACTOR ACTIONS**

#### **Background**

In November-December 2010, we conducted a review of bituminous mixture material testing data at the request of the Office of Construction and Innovative Contracting (OCIC) and the Bemidji District. We identified and confirmed widespread falsification of bituminous mix design material testing data.

During the Fiscal Year 2011 Single Audit, additional concerns regarding contractor actions were identified. They included intentional noncompliance with requirements and failure to follow the instructions and advice of the Engineer related to Aggregate Base Class 6; material passing the No. 200 sieve for coarse aggregates for concrete mixes; and erosion control.

#### **Ongoing Concerns**

In May 2011, the same personnel of the contractor had attempted to reuse a bituminous mix design for the 2011 construction season. It was based on testing data duplicated from another mix design. Also, similar circumstances were noted during a previous review of bituminous mixture material testing data.

Bemidji District personnel then prevented the contractor from reusing the bituminous mix design data. They are maintaining a continuous record of contractor bituminous trial mix testing data. This aids them to identify and prevent the contractor from reusing the mix design in question.

During this year's audits of the Mankato District State Project 0711-26 and of the Detroit Lakes District State Project 1410-15, we determined that district personnel had analyzed contractor bituminous trial mix data immediately subsequent to the review, but had not continued to do so. Both districts supported the idea of maintaining a continuous record of the data.

District materials personnel felt that a standardized format for contractor trial mix data submittal would facilitate analysis of that data. OMRR personnel indicated that a standardized electronic trial mix submittal format would be needed to accomplish this. OMRR personnel indicated that they were handling multiple issues, including workmanship concerns, and would be willing to consider a department wide analysis of contractor trial mix data.

#### **Recommendations**

1. Operations Division Director advise District Engineers to maintain a continuous record of contractor bituminous trial mix data.
2. Policy, Safety & Strategic Initiatives Division Director consider the following actions:
  - a. Standardize the format for contractor trial mix data submittal using an electronic format.
  - b. Compile and analyze contractor bituminous trial mix data department wide.

## **Responses to Recommendations**

### Operations Division

#### Recommendation 1

The Operations Division Director affirms that all District Materials Offices now have a “continuous record of contractor bituminous trial mix data.” Most of them were using their “record” to track trial mixes during the calendar year 2012 construction season. Each district will continue to develop and use an ad hoc record until a more convenient and comprehensive record can be developed.

### Policy, Safety & Strategic Initiatives Division

#### Recommendation 2.a.

An electronic submittal system would most likely utilize web-based concepts. This would provide the most accurate and efficient system under today’s technology. The Department is working towards implementing several AASHTOware products including the replacement of the Lab Information Management System (LIMS). The AASHTOware products are web-based. Exact timelines for implementation of each system are not currently available. It may be that the Mn/DOT LIMS system will be replaced the next 18-36 months and may include a web-based system for the submittal of contractor mix designs.

The Office of Materials no longer has internal Information Technology resources to deploy for the development of a web-based mix design submittal program. If such resources were made available, such an effort would prove to be obsolete upon the implementation of the AASHTOware products

#### Recommendation 2.b.

The Bituminous Unit has requested a sample of data from each District Lab to perform a similar analysis that was done in 2010. The data from 2010 indicated that this was an isolated incident.

## **OBSERVATION II – OPPORTUNITY TO STRENGTHEN CONTRACT LANGUAGE FOR MASS CONCRETE MATERIALS CONTROL**

During the audit of Metropolitan District State Project 1913-64, we noted that the contract did not provide a specific price reduction schedule to address temperature differential requirements for Mass Concrete. Providing such a schedule could clarify contract requirements, improve contract enforceability, and reduce time spent negotiating and following up with contractors.

Project personnel felt that such a clarification would enhance their ability to administer contracts and supervise contractors. Office of Materials and Road Research personnel explained that temperature differential requirements included a safety margin, and indicated that they would be willing to consider a price reduction schedule also.

A number of future projects will involve significant amounts of Mass Concrete.

### **Recommendation**

The Policy, Safety, and Strategic Initiatives and Engineering Services Division Director, in consultation with Operations Division Director, consider including a price reduction schedule to address noncompliance with temperature differential requirements for Mass Concrete.

### **Response to Recommendation**

#### Policy, Safety, and Strategic Initiatives and Engineering Services Division

Such a schedule exists and has been deployed on most projects involving mass concrete pours. It is uncertain as to why the referenced project did not include this standard language. This was most likely a simple oversight.

A copy is provided in the attached pdf file.

#### Operations Division Metropolitan District

Design-Bid-Build special provisions include a specification that assesses deducts to the contractor for failing to stay within the temperature guidelines of the Mass Concrete special provision. Because Design-Build is a lump sum contract, the special provisions for those contracts do not contain method of measurement or cost provisions. The penalty portion of the Mass Concrete specification was in advertently deleted from the Hastings Design-Build special provision, as it involved cost. The Hastings Project Manager acknowledges **that the penalty portion of the Mass Concrete special provision, as well as all penalty provisions, should be included in Design Build Special Provisions for ease of Contract Administration.**

#### Operations Division Summary Response

The Operations Division recognizes that as Design-Build matures even though the contracts are lump sum there will be a need to pair these specifications with appropriate materials control schedules and penalty schedules for poor performing materials.

## ATTACHMENT I

### OTHER INTERNAL CONTROL ISSUES DISCUSSED WITH MANAGEMENT

#### **Supplement Agreement Execution and Payment**

For Mankato District State Project 0711-26, project personnel paid \$72,000 for Supplemental Agreement No. 5 on Partial Payment No. 6 dated November 15, 2011 using a backsheet adjustment. Supplemental Agreement No. 5 was not executed until November 29, 2011.

Minnesota Statute 16C.05 requires an executed contract prior to creating an obligation. Project personnel explained that they wanted to pay for all work done once a month at regular intervals as required, and were concerned that this would not be accomplished by waiting until November 29, 2011.

We noted a 5 week gap between the Contractor's approval of the supplemental agreement on October 12, 2011 and the District's approval of the supplemental agreement on November 18, 2011. Project personnel felt that a missed communication led to the payment of the supplemental agreement prior to execution.

#### **Quality Control (QC) Gradations**

For Mankato District State Project 0711-26, 25 of 38 (66%) QC gradations were not done. After completion of the audit, project personnel provided 47 additional QC gradations. Project personnel indicated that they saw contractor personnel performing the QC gradations and paid the contractor as the work was done.

Also, for Detroit Lakes District State Project 1410-15 Aggregate Base Class 5, 5 of 7 (71%) QC gradations were missed.

#### **Air Content Testing**

For Metropolitan District State Project 2776-03 Structural Concrete, 52 of 162 (32%) required Quality Assurance air content tests were not done. The mix design for the Type 1 concrete used for bridge piers includes an air content requirement.

The Schedule of Materials Control, which calls for air content testing for each concrete mix type, needs clarification. Office of Materials and Road Research (OMRR) personnel should review the Schedule of Materials Control for design build projects to clarify this requirement.

OMRR personnel stated they did not expect air content tests to be performed on Type 1 concrete. OMRR personnel explained that air is entrained in Type 1 concrete for heat reduction and workability. OMRR personnel also stated that air content is specified on mix designs because the total volume of the concrete includes air.

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### OTHER INTERNAL CONTROL ISSUES DISCUSSED WITH MANAGEMENT

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#### **Conformity with Plans and Specifications**

For Metropolitan District State Project 2776-03 concrete aggregate gradations, multiple sieves were not in the middle portion of the tolerance range as required by Specification 1503. Better communication between Central Inspection and project personnel would help to address this circumstance.

#### **Environmental Risk Assessment**

Including a risk assessment for such items as buried regulated waste during right of way acquisition would decrease the risks of added costs once construction begins. Office of Environmental Services personnel indicated they planned to focus on higher risk contractors and interview experienced construction inspectors to improve existing practices.

#### **Environmental Compliance**

For State Project 1410-15, project files did not include a Notification of Intent to Perform a Bridge Demolition for 1 of 3 bridge demolitions. Also, withholding for erodible acres was not taken for this project.

For Rochester District State Project 7401-34, the Notification of Intent to Perform a Demolition was not done as required. Also, recycling certificates for lead plates were not on file.

For State Project 6012-44, project personnel did not ensure that National Pollutant Discharge Elimination System (NPDES) permit coverage was obtained. Project personnel felt that the 1 acre threshold requiring permit coverage should be interpreted as continuous. Minnesota Pollution Control Agency (MPCA) field enforcement personnel clarified that the 1 acre threshold meant total disturbed areas that were not necessarily continuous.

Office of Environmental Services (OES) personnel felt that NPDES permit coverage is not required when more than ¼ mile separated culvert work for projects exceeding the 1 acre threshold. After the audit was completed, OES personnel obtained written agreement from MPCA stating that NPDES permit coverage was not required this type of project.

#### **Title to Bridge Steel**

During the audit of Metropolitan District State 2776-03, we determined that improvements in contract language would clarify when title to bridge steel passes to the Department. Current contract language does not address what happens in case of a State shutdown. Contract Management personnel felt that requiring the Contractor to have a firm contract with the fabricator needs to be part of the conditions of award to the construction project contract.

## **ATTACHMENT I**

### **OTHER INTERNAL CONTROL ISSUES DISCUSSED WITH MANAGEMENT**

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#### **Stainless Steel Reinforcement Bars**

Metropolitan District State Project 1913-64 Stainless Steel Reinforcement Bars are rated at 68 kilopounds per square inch (ksi), compared to the required 75 ksi. The reinforcement bars were used in the bridge constructed as part of the project. We discussed this matter with project personnel, who agreed that it should be and would be addressed.

Office of Materials and Road Research personnel explained that in the future, the department will use 60 ksi stainless steel reinforcement bars and design will account for that by using more bars or thicker bars.

#### **Post Tensioning Steel Strand**

Not all Post Tensioning Steel Strand certifications were received for Metropolitan District State Project 1913-64. The strand is used in the bridge constructed as part of the project. Not all of the strand had been procured or placed into the work. Project personnel felt that once all of the strand was procured and placed into the work, all certifications should be on file.

#### **Contract Language Enhancements**

For Metropolitan District State Project 1913-64, we noted and project personnel agreed that there were several opportunities to address items referenced in the contract language. These included the following:

1. American Association of State Highway and Transportation Officials (AASHTO) requirements were not available to project personnel
2. Certifications received referenced American Society for Testing and Materials (ASTM) requirements which were not detailed in the contract
3. Some material testing clauses were not needed

#### **Aeronautics Equipment and Real Property Management**

Office of Aeronautics personnel indicated that they had documented 20% of sponsor airport equipment. Office of Aeronautics personnel explained that they were in the process of improving equipment inventory efforts.

#### **Consultant Charges**

We were unable to verify the appropriateness of charges for Aeronautics consultant contracts. Some invoices did not include needed detail such as the overhead rate charged and acceptable costs included. More detail on the invoices is needed.

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### OTHER INTERNAL CONTROL ISSUES DISCUSSED WITH MANAGEMENT

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#### Significance of Uniformity for Base Materials

During the audit of Bemidji District Beltrami County State Projects 04-608-09 and 04-626-05, and Detroit Lakes District Swift County State Project, we identified concerns with Specification 1503 compliance as illustrated in the following tables:

#### State Project 04-608-09 Aggregate Shouldering Class 1

Size Passing	Gradation Requirement	Number of QC Gradations	QC Gradations Outside Requirement	QC Average	QA Average (4 individual gradations)
3/8"	65-95%	8	2	94%	93%
#4	40-85%	8	3	83%	82%
#10	25-70%	8	4	70%	67%
#40	10-45%	8	2	41%	35%

#### State Project 04-626-05 Aggregate Shouldering Class 1

Sieve Size Passing	Gradation Requirement	Number of QC Gradations	QC Gradations Outside Requirement	QC Average	QA Average (4 individual gradations)
#10	25-70%	12	4	68%	67%
#200	8.0-15.0%	12	5	8.6%	8.7%

For Detroit Lakes Swift County State Project 76-633-28 Aggregate Base and Shouldering Class 5, 11 of 63 (17%) Quality Control (QC) #10 sieve gradations ranged from 66-68% passing, with an overall average of 62%. The Contractor submitted QC gradations for the aggregate base and shouldering combined. The #10 sieve gradation requirement for the Aggregate Base Class 5 was 20-65%. The special provisions modified the #10 sieve gradation requirement for the Aggregate Shouldering Class 5 to 20-70%.

For Bemidji District State Project 6012-44 Aggregate Shouldering Class 1, the #200 sieve Quality Assurance (QA) average of 4 was 14.5%, compared to required gradations of 8.0-15.0%.

Historically, the department has enforced compliance with gradation requirements for grading and base using the Aggregate Base Payment Schedules in Specification 2211. These requirements allow price reductions only if gradation tolerance range requirements are exceeded.

OMRR personnel indicated that uniformity in base material gradations would impact the pavement above. Specifically, OMRR personnel explained that if the gradation was uniformly fine or coarse, any expansion or contraction resulting from the freeze thaw cycle would more likely affect the pavement above uniformly. OMRR personnel indicated if some of the gradation was fine and some was coarse, then the pavement above might not be affected uniformly.

## ATTACHMENT I

### OTHER INTERNAL CONTROL ISSUES DISCUSSED WITH MANAGEMENT

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#### **Significance of Uniformity for Base Materials (Continued)**

Specification 1503, Conformity with Plans and Specifications, requires conformance to the middle portion of the tolerance range. OMRR personnel indicated that as higher quality aggregates were expended, contractors would tend to use lesser quality aggregates with gradations trending away from the middle portion of the tolerance range.

To ensure compliance with gradation requirements for base materials, Office of Materials and Road Research (OMRR) personnel agreed that the applicability of Specification 1503 to grading and base could be clarified. Office of Construction and Innovative Contracting personnel indicated that incentives and reduced testing rates for uniformity were being considered.



**ATTACHMENT II**  
**AUDIT FOLLOW UP**  
**OF PRIOR YEAR'S FINDINGS**

<b>Identified Concern in Fiscal Year 2011</b> <b><u>Single Audit Report No. 12-800-53</u></b>	<b>Status</b>	
	<b><u>Code</u></b>	<b><u>Notes</u></b>
Grading and Base Materials Control	2	A
Paving Concrete Materials Control	1	
Contractor Actions	2	B

**Notes**

- A. Grading and Base Materials Control is discussed this year in Single Audit Report No. 13-800-79, Finding I.
- B. Contractor Actions are discussed this year in Single Audit Report No. 13-800-79, Observation I.

**Explanation of Status Codes**

- 1. Findings have been fully corrected.
- 2. Findings not corrected or only partially corrected; discussed in this year's Single Audit Report.
- 3. Findings not corrected or only partially corrected; discussed verbally with management.
- 4. Findings are no longer valid or do not warrant further action.

## **ATTACHMENT III**

### **A-133 COMPLIANCE SUPPLEMENT**

#### **A-133 Compliance Supplement Part 1**

The A-133 Compliance Supplement Part 1 indicates that the audit should recognize that there may be provisions of contract and grant agreements that are not specified in law or regulation and, therefore, the specifics of such are not included in the Compliance Supplement. Accordingly, the audit includes reasonable procedures to ensure that compliance requirements are current and to determine whether there are any additional provisions of contract and grant agreements that should be covered by the audit. Reasonable procedures consist of discussion with Mn/DOT personnel and review of contract and grant agreements and compliance with the associated requirements.

A-133 Compliance Supplement suggested audit procedures apply to many different federal programs and are necessarily general in nature. We are expected to exercise judgment to determine whether the Compliance Supplement suggested audit procedures are sufficient, or whether additional or alternative audit procedures are needed. The Compliance Supplement can only be considered “safe harbor” if additional provisions of contract and grant agreements are identified and considered as part of the audit.

A-133 Compliance Supplement Part 1 also states that we have responsibility under Generally Accepted Government Auditing Standards (GAGAS) for other requirements when specific information comes to our attention that provides evidence concerning the existence of possible noncompliance that could materially affect Mn/DOT’s major programs. American Institute of Certified Public Accountants (AICPA) Audit Guide - Government Auditing Standards and Circular A-133 Audits as well as the OMB Circular A-133, require us to include in the findings and questioned costs material noncompliance (greater than \$10,000) with laws, regulations, and contracts related to the Highway Planning and Construction, Airport Improvement, and Federal Transit Investment Grants programs.

#### **A-133 Compliance Supplement Part 3**

The A-133 Compliance Supplement Part 3 reiterates that suggested audit procedures are provided to assist auditors in planning and performing the audit, and advises us to exercise judgment to determine if additional or alternative audit procedures are needed.

#### **A-133 Compliance Supplement Part 3 A. Activities Allowed or Unallowed**

The A-133 Compliance Supplement Part 3, A. Activities Allowed or Unallowed requires the audit to identify the types of activities which are either specifically allowed or prohibited by the laws, regulations, and the provisions of contract or grant agreements pertaining to the program. On this basis, the conditions cited in all of the Findings are considered to be activities unallowed.

## ATTACHMENT III

### A-133 COMPLIANCE SUPPLEMENT

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#### **A-133 Compliance Supplement Part 3 B. Allowable Costs/Cost Principles**

The A-133 Compliance Supplement Part 3 B. Allowable Costs/Cost Principles, through OMB Circular A-87, requires us to evaluate if costs are reasonable and necessary; conforming to any limitations or exclusions set forth in the circulars, Federal laws, State or local laws, sponsored agreements, or other governing regulations such as Generally Accepted Accounting Principles (GAAP); and adequately documented. We assess this requirement for all audit findings.

#### **A-133 Compliance Supplement Part 3 M. Subrecipient Monitoring**

The A-133 Compliance Supplement Part 3 M. Subrecipient Monitoring requires the monitoring of subrecipient activities to provide reasonable assurance that subrecipients of federal funding (airports, cities, and counties) administer Federal awards in compliance with requirements. This requirement is addressed in a separate report.

#### **A-133 Compliance Supplement Part 3 N. Special Tests and Provisions**

The A-133 Compliance Supplement Part 3 N. Special Tests and Provisions states that specific requirements unique to each Federal program are found in the laws, regulations, and the provisions of contract or grant agreements pertaining to the program.

Part 3 N. Special Tests and Provisions requires us to identify any additional compliance requirements which could be material, and indicates that reasonable procedures to identify such compliance requirements would be inquiry of non-Federal entity management and review of the contract and grant agreements pertaining to the program. Any such requirements which may have a direct and material effect on a major program shall be included in the audit.

The A-133 Compliance Supplement Part 3 N. Special Tests and Provisions also refers to the A-133 Compliance Supplement Part 4, Agency Program Requirements, for specific compliance requirements, audit objectives, and suggested audit procedures.

The A-133 Compliance Supplement Part 4 requires Mn/DOT to have a have a sampling and testing program for construction projects to ensure that materials and workmanship generally conform to approved plans and specifications. The Part 4 also requires an evaluation of the sampling and testing program. Finding I as well as Observations I and II fall under this part of the Compliance Supplement.

We also considered whether the department was managing or utilizing its resources in an economical and efficient manner and whether the department was effective in achieving its program objectives.