

STATE OF NORTH CAROLINA

OFFICE OF THE STATE AUDITOR

BETH A. WOOD, CPA

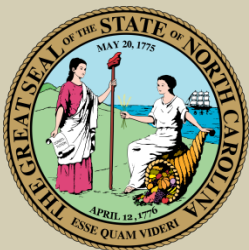


DEPARTMENT OF TRANSPORTATION

RALEIGH, NORTH CAROLINA

STATEWIDE FEDERAL COMPLIANCE AUDIT PROCEDURES

FOR THE YEAR ENDED JUNE 30, 2017



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STATE OF NORTH CAROLINA
Office of the State Auditor



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State Auditor

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AUDITOR'S TRANSMITTAL

The Honorable Roy Cooper, Governor
Members of the North Carolina General Assembly
James H. Trogdon, III, Secretary
Department of Transportation

As part of our audit of the State of North Carolina's compliance with requirements applicable to its major federal programs, we have completed certain audit procedures at the Department of Transportation for the year ended June 30, 2017. We conducted our audit in accordance with the auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. Code of Federal Regulations Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Our audit was performed by authority of Article 5A of Chapter 147 of the *North Carolina General Statutes*.

Our audit objective was to render an opinion on the State of North Carolina's major federal programs and not the Department's administration of major federal programs. However, the report included herein is in relation to our audit scope at the Department and not to the State of North Carolina as a whole. The State Auditor expresses an opinion on the State's compliance with requirements applicable to its major federal programs in the State's *Single Audit Report*.

The audit finding in this report is also evaluated to determine its impact on the State's internal control and the State's compliance with rules, regulations, contracts and grants. If determined necessary in accordance with *Government Auditing Standards*, the finding is reported in the State's *Single Audit Report*.

North Carolina General Statutes require the State Auditor to make audit reports available to the public. Copies of audit reports issued by the Office of the State Auditor may be obtained through one of the options listed in the back of this report.

A handwritten signature in cursive script that reads "Beth A. Wood".

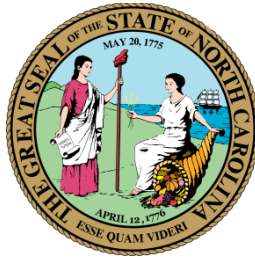
Beth A. Wood, CPA
State Auditor



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State Auditor

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INDEPENDENT AUDITOR'S REPORT

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**INDEPENDENT AUDITOR'S REPORT
ON COMPLIANCE WITH REQUIREMENTS THAT COULD
HAVE A DIRECT AND MATERIAL EFFECT ON EACH MAJOR PROGRAM AND
ON INTERNAL CONTROL OVER COMPLIANCE REQUIRED BY THE UNIFORM GUIDANCE**

James H. Trogdon, III, Secretary
and Management of the Department of Transportation

Report on Compliance for Each Major Federal Program

As part of our audit of the State of North Carolina's compliance with the types of requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on each of its major programs for the year ended June 30, 2017, we have performed audit procedures at the Department of Transportation. Our report on the State of North Carolina's compliance with requirements that could have a direct and material effect on each major program and on internal control over compliance in accordance with Title 2 U.S. Code of Federal Regulations Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) is included in the State's *Single Audit Report*. Our federal compliance audit scope at the Department of Transportation included the following:

- CFDA 20.205, 20.219, 20.224, and 23.003 Highway Planning and Construction Cluster

The audit results described below are in relation to our audit scope at the Department and not to the State of North Carolina as a whole.

Management's Responsibility

Management is responsible for compliance with federal statutes, regulation, and the terms and conditions of its federal awards applicable to its federal programs.

Auditor's Responsibility

Our responsibility is to express an opinion on compliance for each of the State of North Carolina's major federal programs based on our audit of the types of compliance requirements referred to above, which we issue in the State's *Single Audit Report*. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States and

the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion. However, our audit does not provide a legal determination of the Department's compliance with those requirements.

Opinion on Each Major Federal Program

As stated above, our opinion on compliance for each of the State of North Carolina's major federal programs is included in the State's *Single Audit Report*.

Other Matters

The results of our audit procedures at the Department of Transportation disclosed an instance of noncompliance that is required to be reported in accordance with the Uniform Guidance and which is described in the finding in the accompanying schedule of Findings, Recommendations, and Responses section of this report.

Report on Internal Control Over Compliance

Management is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered internal control over compliance with the types of requirements that could have a direct and material effect on a major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of internal control over compliance.

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of the internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all

deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies; and therefore, material weaknesses or significant deficiencies may exist that were not identified. However, we consider the deficiency described in the finding in the Findings, Recommendations, and Responses section of this report to be a material weakness in internal control over compliance.

Department of Transportation's Response to Findings

The Department's response to the finding identified in our audit is included in the Findings, Recommendations, and Responses section of this report. The Department's response was not subjected to the auditing procedures applied in the audit of compliance, and accordingly, we express no opinion on the response.

Purpose of Report on Internal Control Over Compliance

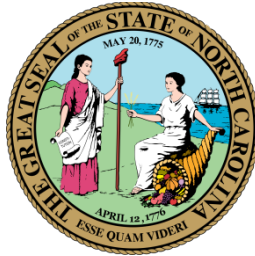
The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.



Beth A. Wood, CPA
State Auditor

Raleigh, North Carolina

March 19, 2018



FINDINGS, RECOMMENDATIONS, AND RESPONSES

Matters Related to Federal Compliance Audit Objectives

HIGHWAY QUALITY POTENTIALLY AT RISK DUE TO INSUFFICIENT TESTING

The Department did not ensure the required minimum tests were performed for aggregate materials¹ and asphalt materials used in highways and other construction projects funded by Highway Planning and Construction grants.

For aggregate materials compliance, auditors sampled 17 of 82 contracts that required density acceptance testing. The following errors were identified:

- 6 of 17 (35%) contracts that required density acceptance tests did not receive sufficient testing.

For asphalt materials compliance, auditors sampled 60 of 825 asphalt mix formulas and 60 of 826 contracts that required asphalt density testing. The following errors were identified:

- 3 of 60 (5%) asphalt mix formulas did not receive sufficient quality assurance and/or verification testing.
- 3 of 60 (5%) contracts requiring asphalt density testing did not receive sufficient quality control testing.

The Department's failure to meet minimum testing standards could result in the use of lower quality materials. Materials that do not meet quality standards could result in roads with shorter lifespans and increased highway maintenance cost. Quality assurance programs are the principal way the State verifies construction, material, and product quality meets safety and durability standards set for highway projects.

The aggregate materials errors and the asphalt materials errors occurred for different reasons.

The six aggregate materials errors occurred because of insufficient training, according to Department management. Although staff was aware of the required sampling procedures for aggregate materials, the procedures were inconsistently applied.

The three asphalt mix errors occurred because of inadequate monitoring and the production of small quantities of mix.

- For two of the three asphalt mix errors, staff failed to take corrective action when the spreadsheets used to monitor testing indicated that an insufficient number of quality assurance tests had been performed.
- For one of the three asphalt mix errors, samples could not be taken before production was completed because of the small quantities of the mix produced, according to Department management. However, the Department did not have a policy for testing small quantities of asphalt mix formulas.

¹ Hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel.

The three asphalt density errors occurred as a result of unfamiliarity with the procedures by new employees and inadequate monitoring, according to Department management. Although staff received training on the required sampling procedures for asphalt materials, the procedures were inconsistently applied.

For all the errors, Department management stated that additional training was needed to reinforce Department policies.

Per 23 CFR 637.207(a)(1)(i)(A), each state transportation department's quality assurance program shall include frequency schedules for verification sampling and testing. The Department's federally approved Minimum Sampling Guide details the minimum testing and interval at which samples must be taken for asphalt and aggregate materials to ensure the quality of materials used in North Carolina highway construction projects.

Significant aspects of this finding were reported in the fiscal year 2016 Statewide Single Audit as finding # 2016-005.

Federal Award Information: CFDA 20.205 Highway Planning and Construction Cluster 2017

Recommendation: Due to the variety of factors involved in testing materials, Department management should perform analysis to specifically identify why required testing was not completed and take appropriate action to resolve and prevent in the future.

Department management should implement an approved policy for testing small quantity asphalt mix productions.

Agency Response: See pages 6-8 for the Department of Transportation's response to this finding.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

March 8, 2018

The Honorable Beth A. Wood, State Auditor
Office of the State Auditor
2 South Salisbury Street
20601 Mail Service Center
Raleigh, North Carolina 27699-0601

Dear Auditor Wood,

We have reviewed the audit findings from the federal compliance portion of the audit for the year ended June 30, 2017. We are providing the following responses and corrective actions to alleviate the issues identified.

1. HIGHWAY QUALITY POTENTIALLY AT RISK DUE TO INSUFFICIENT TESTING

Audit Response: The Department agrees with the finding and is taking the below corrective actions.

For aggregate materials compliance, the corrective actions are as follows:

- The Materials and Tests Unit staff will present findings and corrective action plans at upcoming Asphalt Summits and Technical Workshops where contractors and Division personnel statewide will be in attendance. These presentations have already been conducted at two of the three joint NCDOT/Contractor Technical Workshops. The third will be held on March 13, 2018 where the presentation will also be given. The material has been presented at six of the fourteen Division Asphalt Summits (Divisions 1-6). It will also be presented at the remaining eight Division Asphalt Summits (Divisions 8-14) held in February and March 2018.
- Materials and Tests staff will continue to emphasize proper sampling procedures for density acceptance testing in current certification classes and as part of the annual assessments conducted on actively testing technicians. Materials and Tests personnel verify technician's understanding of test section length criteria through the current assessment program. This emphasis will continue throughout 2018 and beyond as necessary.
- Materials and Tests staff will create and distribute an electronic presentation to project personnel responsible for sampling and testing aggregate materials that will contain:

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Location:
1 S. WILMINGTON ST.
RALEIGH, NC 27601

Website: www.ncdot.gov

- A clear statement of the audit finding.
 - The proper testing and sampling procedures and where they can be found within the specifications and associated manuals.
 - Example(s) of how to calculate proper test sections.
 - Web links to the presentation, the technical bulletin distributed in 2017 and the associated sampling and testing manuals.
- A position within the Quality Systems Group of Materials and Tests will be tasked with mirroring the same auditing process used by OSA to periodically audit the process of aggregate base course density testing to determine if the process is in compliance in project offices across the state to determine where additional training and guidance may be needed. This position will utilize queries of data inputs to identify shortages and exceptions to sampling and testing requirements and follow up with project and Materials and Tests personnel to ensure that corrective actions are taken. We anticipate this position being filled by May 2018. The queries are already being conducted.
- Materials and Tests staff has identified the sections of roadway where the insufficient testing occurred and is conducting further evaluation of the sections to determine if additional testing is needed. This will be completed by May 2018.

For asphalt materials compliance, the corrective actions are as follows:

- Materials and Tests staff has identified the sections of roadway where the insufficient testing occurred and is conducting further evaluation of the sections to determine if additional testing is needed. This will be completed by May 2018.
- A position within the Quality Systems Group of Materials and Tests will be tasked with mirroring the same auditing process used by OSA to periodically audit the process of asphalt mix testing to determine if the process is in compliance at each asphalt plant. This position will utilize queries of data inputs to identify shortages and exceptions to sampling and testing requirements and follow up with project and Materials and Tests personnel to ensure that corrective actions are taken. We anticipate this position being filled by May 2018. The queries are already being conducted.

Additionally for asphalt mix formula compliance:

- Issues have occurred when asphalt producers produce small quantities of a particular mix and then cease production of these mixes before samples are obtained or produce sporadically over several months. Materials and Tests staff is developing a process for randomizing selection of the specific QC testing increment where verification sampling will occur. This process will detail the sampling increments for the calendar year so that technicians will know how to schedule their plant visits according to tonnage of a certain asphalt mix formula produced.
- Additional training will be conducted for all Materials and Tests personnel involved in asphalt mix testing to ensure staff fully understands sampling and testing parameters. Notification of preliminary findings has been sent to all pertinent staff. Proper procedures will continue to be emphasized in periodic meetings with Materials and Tests personnel for the duration of 2018 and beyond as necessary.

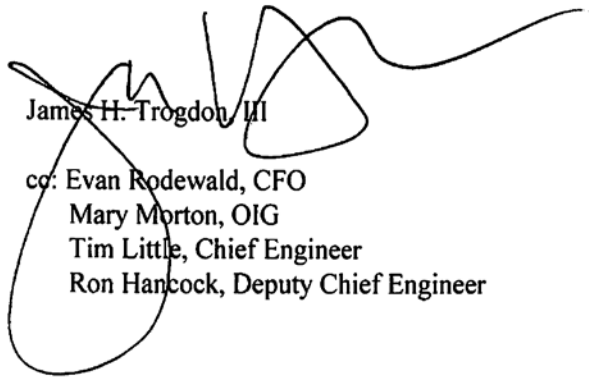
Additionally for asphalt density testing compliance:

- The Materials and Tests Unit staff will present findings and corrective action plans at upcoming Asphalt Summits and Technical Workshops where contractors and Division personnel statewide will be in attendance. These presentations have already been conducted at two of the three joint NCDOT/Contractor Technical Workshops. The third

will be held on March 13, 2018 where the presentation will also be given. The material has been presented at six of the fourteen Division Asphalt Summits (Divisions 1-6). It will also be presented at the remaining eight Division Asphalt Summits (Divisions 8-14) held in February and March 2018.

- Materials and Tests staff will continue to emphasize proper sampling procedures for density acceptance testing in current certification classes. This emphasis will continue throughout 2018 and beyond as necessary.

Sincerely,



James H. Trogdon, III

cc: Evan Rodewald, CFO
Mary Morton, OIG
Tim Little, Chief Engineer
Ron Hancock, Deputy Chief Engineer

ORDERING INFORMATION

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