



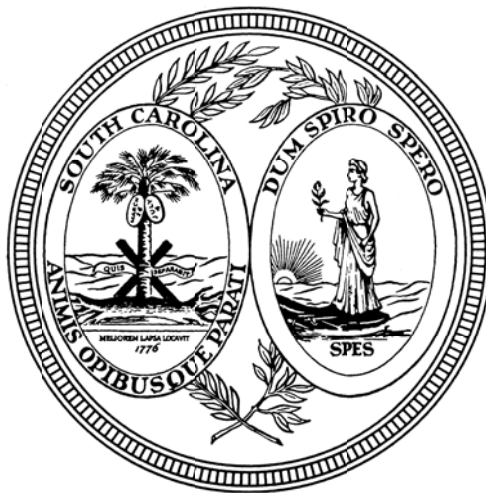
**L A C**

SOUTH CAROLINA GENERAL ASSEMBLY

# Legislative Audit Council

April 2016

## A REVIEW OF THE S.C. DEPARTMENT OF TRANSPORTATION



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# Legislative Audit Council

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## A REVIEW OF THE S.C. DEPARTMENT OF TRANSPORTATION

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# Introduction and Background

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## Audit Objectives

Members of the General Assembly asked the Legislative Audit Council to conduct an audit of the South Carolina Department of Transportation (SCDOT). Our requesters were members of both the Senate and House of Representatives, including the House Legislative Oversight Committee. The requesters' audit topics were provided to us in the audit request, as well as in subsequent discussions. Our objectives are listed below.

- Identify funding levels since FY 05-06 in the aggregate and by individual sources.
- Review expenditures since FY 05-06 with emphasis on irregularities and waste.
- Determine if the department has followed the provisions of Act 114 regarding prioritization.
- Review the department's contracting activities for fairness of awards, the percentage of contracts awarded to out-of-state entities (especially engineering contracts), and the percentage awarded to contractors employing former SCDOT employees.
- Determine if the department has either corrected problems or made acceptable progress toward correcting problems identified in the regular annual audits performed since the passage of Act 114 in 2007, pursuant to S.C. Code of Laws §57-1-490.
- Perform a follow-up review of the contracted 2010 MGT, Inc. audit recommendations (which followed up on the 2006 LAC audit recommendations).
- Review pavement resurfacing issues.
- Conduct a limited review of certain management-related topics.

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## Scope and Methodology

We reviewed the operations of SCDOT in the areas listed in the objectives, as they pertain to SCDOT's mission of building and maintaining roads and bridges. The period of our review was generally FY 05-06 – FY 14-15, and included earlier periods where relevant, such as with bond issuances and related debt-service. In some instances, we reviewed data from shorter periods when data was not available or as readily available as needed.

To conduct the audit, we used a variety of sources of evidence including those listed below:

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### SCDOT

- Accounting records.
- Human resources records.
- Vehicle records.
- Meeting records.
- IT systems' records and explanations.
- Contract records and explanations.
- Published reports (State of the Pavement, Maintenance Assessment Program Annual Report, etc.).
- Office of the Chief Internal Auditor audit reports.
- Commission records and minutes.
- Interviews with personnel.
- Interviews with and information and records from the SCDOT Commission.

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### OTHER

- Responses to surveys of SCDOT employees and CTC members.
- Interviews with employees of other state, local, and federal agencies, and private individuals.
- Prior external audits and consultant reports concerning SCDOT.
- Reports and information concerning transportation agencies in other states.
- Transportation industry white papers about transportation issues generally and SCDOT specifically.
- State and federal laws, acts, and regulations.

Criteria used to measure performance included state and federal laws and regulations, department policies, the practice of other states, principles of good business practice, the “Yellow Book” (United States Government Accountability Office’s Government Auditing Standards, 2011 Revision), financial management principles and best practices, and Institute for Internal Auditors’ standards. We used statistical and non-statistical samples, which are described in the audit report. We reviewed internal controls as related to our findings in several areas including SCDOT’s records and processes in the following areas: accounting, contracting, procurement, human resources, controls relating to Act 114 prioritization of projects, and the Office of the Chief Internal Auditor. Our findings are detailed in our report.

We contracted with Scott and Company LLC, certified public accountants, (hereinafter referred to as Scott and Company) to identify and assist with revenues, expenses, and other financial information. We have placed reliance on audit work performed by these specialists related to the objectives of the current audit. We will present the Scott and Company findings in the report to support portions of our report.

We obtained evidence of Scott and Company’s qualifications and independence and determined the scope, quality, and timing of the engagement to determine that work performed is adequate for reliance in the context of the current objective. This was completed in conformance with Field Work Standards in Performance Audits of the United States Government Accountability Office’s Government Auditing Standards, 2011 Revision.

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## Use of Automated Information

SCDOT has multiple automated information systems. We obtained a data set from the Site Manager system for the purpose of selecting a sample of contract files to test against criteria we developed to meet our objections. To that extent, we relied on the information system regarding the total population with which to sample. This process led us to the review of the contract files, which we discuss in our report.

We also reviewed some elements of the department’s Encroachment Permit Processing System (EPPS) — the system used to issue and monitor the timeliness of permits the department issues for the purpose of public and private access to the roadways. We reported the results listed in the reports and completed limited testing to confirm results.

We reviewed how the department uses its Bid Analysis Management System/Decision Support System (BAMS/DSS), an American Association of State Highway and Transportation Officials (AASHTO) product, which is used to assist in bid monitoring and evaluation, vendor and market analysis, item price estimation, and to provide indicators of possible collusion.

We reviewed the output of several other information systems as indicated throughout our report. We could not audit or verify all of the information obtained from these multiple reports, and we acknowledge that some of it may be unreliable. We have noted some problems in the *Data Issues* section in Chapter 2. However, we critically analyzed the information we received and compared it with other sources and known evidence. With the exception of figures taken from SCDOT's annual audited financial statements, readers of our report should assume that amounts and numbers used in this report describing SCDOT's activities and outcomes are attributed to SCDOT and are not audited figures. Overall, the use of unverified data was not central to our audit objectives, and we determined that the findings and conclusions in this report are valid.

---

## Scope Impairment

Generally accepted auditing standards require us to report significant constraints imposed upon the audit approach that limit our ability to address audit objectives. One of our audit objectives was to accumulate and audit expenditures for the last ten years. In doing so, it is our obligation to accumulate and report the data and our findings in a meaningful way to the General Assembly.

The department could not provide us with actual expenditures incurred for the preservation of roads and bridges, separate and apart from capacity expenditures, and those two categories, separate and apart from expenditures for routine maintenance, such as mowing grass near the roadways, signage, etc.

Preservation refers to resurfacing and other maintenance to preserve the roads and bridges. Capacity refers to additions of roads and new bridges that add "capacity" to the system (also known as new construction). This information is critical to report to the General Assembly for each of these categories. The use of road and bridge preservation spending trends provides a baseline of spending that can be used to assess future spending needs, given the trend of road and bridge conditions which have generally deteriorated in recent years. As a result of not having this information, we have employed methods to approximate spending in these areas. We have spent an inordinate amount of time trying to determine how we might obtain the data or devise other methods rather than being able to obtain direct and readily available financial reports and audit those expenditures.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Issues for Further Review

In the course of our review, we noted items, not in the scope of our review that, in our opinion, need further study. We have listed and provided some explanation of each of these issues.

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### Outsourcing

The department is unable to report precisely how much it has spent on outsourcing contracts, by functional areas, but has provided estimated expenditures. SCDOT needs this information to identify the skill sets needed and quantities of skill sets it lacks and develop cost systems that capture costs by outsource functional type.

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### South Carolina Transportation Infrastructure Bank (SCTIB)

The LAC is currently engaged in an audit of the South Carolina Transportation Infrastructure Bank (SCTIB). According to its website, the SCTIB's purpose is:

...to select and assist in financing major qualified projects (exceeding \$100 M [million]) by providing loans and other financial assistance ... for constructing and improving highway and transportation facilities necessary for public purposes including economic development.

The LAC's audit of SCTIB is scheduled to be released in Spring 2016.

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## FTE Needs

It is unclear if the department fully realizes its full-time equivalent (FTE) needs. The department conducted an internal manpower study and, as a result, issued and uses a document referred to as the manpower report. However, the methodology employed to determine the department's FTE needs included using employees in the division units to conduct surveys to determine its needs. The department needs a more objective methodology to determine its FTE needs.

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## Right-of-Way

We have been informed there could be excessive expenditures by SCDOT in acquiring rights-of-way for highway and bridge construction projects on the state highway system. The Office of the Chief Internal Auditor of the department conducted an audit of the Rights of Way Department (ROW) in 2010. However, that audit did not include in its scope, determination of the propriety of payments made for the rights-of-way.

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## Advertising

The advertising contract for certain interstate road signage is a 12-year contract, with payment based on a combination of a flat fee paid to SCDOT coupled with a percentage of the revenue generated. The competitiveness of the contract process and propriety of the length of the contract, as well as the payment arrangement, are questionable.

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## Background

The Department of Highways and Public Transportation became the Department of Transportation in 1993 as a result of the restructuring of state government by the General Assembly. At that time, the Motor Vehicle Division and Highway Patrol were separated from the department.

In 2005, the General Assembly enacted Act 176. This act established the State Non-Federal Aid Highway Fund as a fund separate from the preexisting State Highway Fund for SCDOT's use. It was funded by a portion of certain fines, taxes, user fees, driver's license fees and motor vehicle license and registration fees. In addition, Act 176 required SCDOT to transfer funds annually to the South Carolina Transportation Infrastructure Bank (SCTIB) from non-tax sources.

In 2007, the General Assembly passed Act 114. This act primarily restructured the governance of the S.C. Department of Transportation and created the Joint Transportation Review Committee and the Office of the Chief Internal Auditor. The act also required project prioritization using the following objective criteria:

(1) financial viability including a life cycle analysis of estimated maintenance and repair costs over the expected life of the project; (2) public safety; (3) potential for economic development; (4) traffic volume and congestion; (5) truck traffic; (6) the pavement quality index; (7) environmental impact; (8) alternative transportation solutions; and (9) consistency with local land use plans.

In 2013, the General Assembly passed Act 98. This act:

- Authorized local governments to transfer roads to SCDOT upon mutual consent.
- Allowed SCDOT to transfer roads to local governments, schools, governmental and non-governmental agencies, or individuals, upon the consent of both parties.
- Directed SCDOT to transfer \$50 million annually to SCTIB.
- Stated that 50% of the revenue from sales, use, and casual excise taxes on motor vehicle titles are to be credited to the State Non-Federal Aid Highway Fund and to be used exclusively for highway, road, and bridge maintenance, construction, and repair.
- Provided for a one-time allocation, not to exceed \$50 million, from surplus revenues at the close of FY 12-13 to SCDOT for bridge replacement and rehabilitation.

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## Vision

SCDOT's vision is:

...to deliver, operate, and maintain a world-class, 21<sup>st</sup> century, multimodal transportation system that enables the Palmetto State to continue to grow its economy, enhance communities, and improve the environment.

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## Mission

SCDOT's mission statement is:

SCDOT shall have as its functions and purposes the systematic planning, construction, maintenance, and operation of the state highway system and the development of a statewide intermodal and freight system... the goal of the Department is to provide adequate, safe, and efficient transportation services for the movement of people and goods.

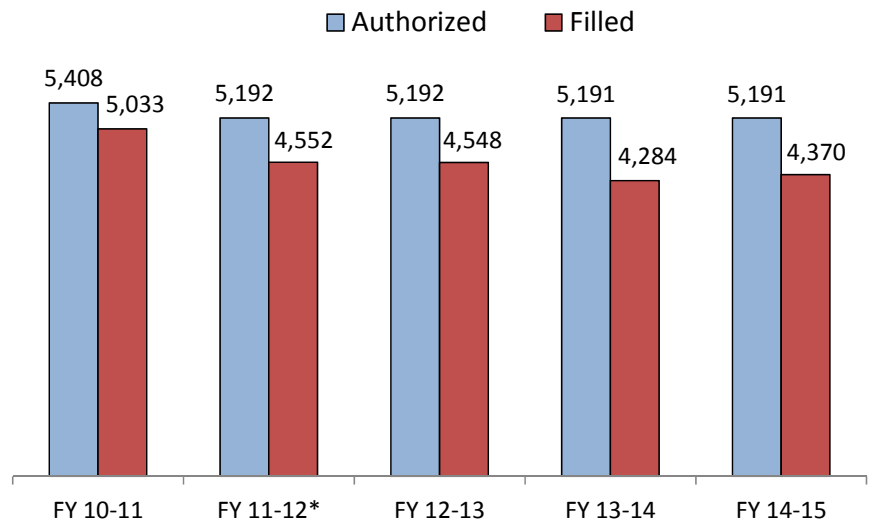
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## FTEs

Charts 1.1, 1.2, and 1.3 give an overview of SCDOT's workforce since 2010. Chart 1.2 shows that the total number of employees has been decreasing since January 2010, with the exception of January 2014 to January 2015. In 2010 there was a hiring freeze. According to an SCDOT official, the department has increased recruitment efforts, adjusted salaries for the trade specialist series to mitigate high turnover, and streamlined the hiring process. FY 14-15 was the first year since FY 08-09 in which SCDOT ended the fiscal year with more employees than it started with in the beginning of the fiscal year. The State Budget Office deleted 216 vacant full-time equivalent (FTE) positions in December 2011 because the positions were vacant for over 12 months.



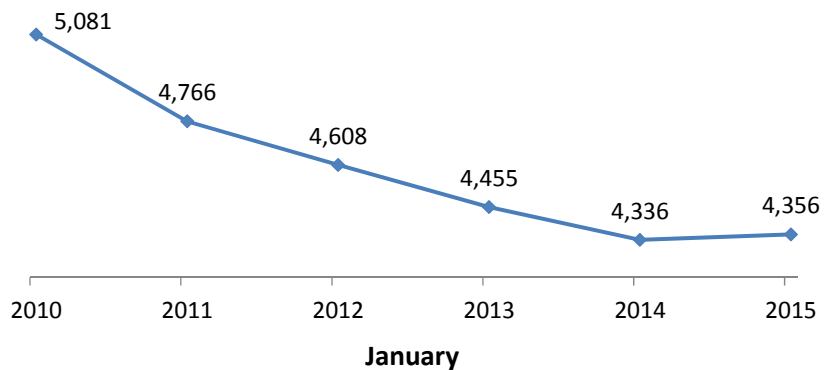
**Chart 1.1: Authorized and Filled FTEs as of September of Each Fiscal Year, FY 10-11 – FY 14-15**



\*The State Budget Office deleted 216 vacant FTEs in December 2011

Source: SCDOT and LAC

**Chart 1.2: Total Number of Employees\***

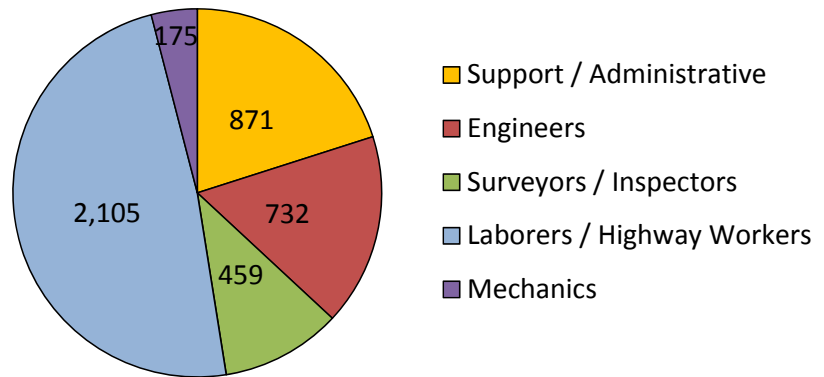


\*Total employees includes all employees, whether full-time, part-time, or temporary.

Source: SCDOT and LAC

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**Chart 1.3: Classification of FTEs**



Source: SCDOT and LAC

Based on January 2015 staffing data provided by SCDOT, there were 4,342 permanent filled FTEs at the department. The groupings were based on state job class titles.

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## Secretary of Transportation

According to S.C. Code §57-1-410, the Secretary of Transportation is appointed by the Governor of South Carolina with the advice and consent of the Senate. The first Secretary of Transportation was appointed in 2007. The responsibilities of the Secretary of Transportation are to:

- Execute the policies of the Commission.
- Administer the day-to-day affairs of the department.
- Direct the implementation of the Statewide Transportation Improvement Program and the Statewide Mass Transit Plan.
- Ensure the timely completion of all projects undertaken by the department, routine operation and maintenance requests, and emergency repairs.
- Represent the department in its dealings with other state agencies, local governments, special districts, and the federal government.
- Prepare an annual budget for the department.
- Appoint a director for each division of the department.

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## Commission

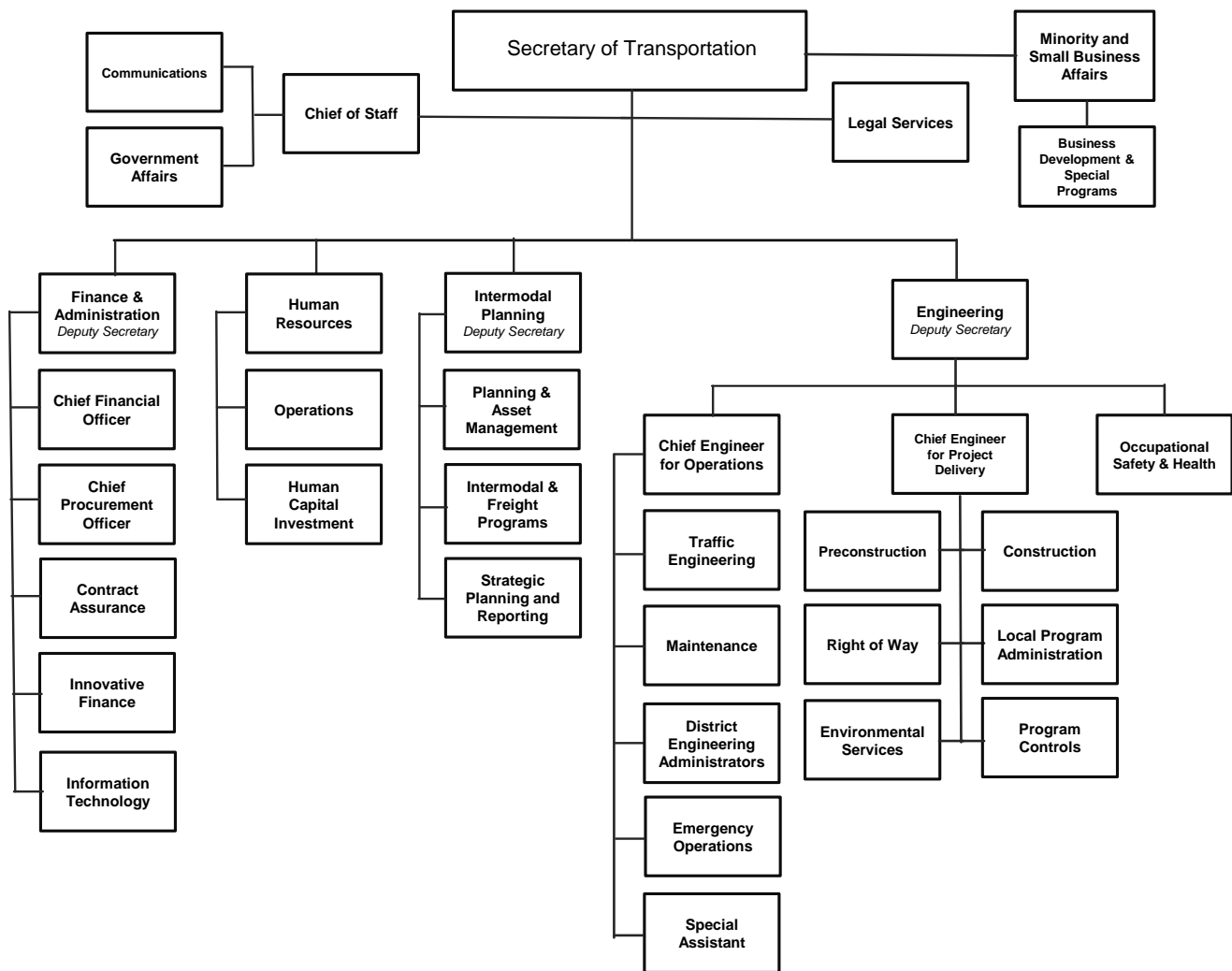
According to S.C. Code §57-1-310, the Commission is comprised of one member from each transportation district elected by the delegations of the congressional district and one at-large member appointed by the Governor. The elections and appointments are to represent all segments of the population of South Carolina.

The minimum qualifications of a commissioner are:

- A baccalaureate or more advanced degree from:
  - A recognized institution of higher learning requiring face-to-face contact between its students and instructors prior to completion of the academic program;
  - An institution of higher learning that has been accredited by a regional or national accrediting body; or
  - An institution of higher learning chartered before 1962; or
- A background of at least five years in any combination of the following fields of expertise: transportation, construction, finance, law, environmental issues, management, or engineering.

All commissioners serve four-year terms of office and the terms expire on February 15 of the appropriate year. Commissioners must remain on the Commission until their successors are elected and qualify. This hold-over period is not to exceed six months.

Chart 1.4: SCDOT Organization Chart

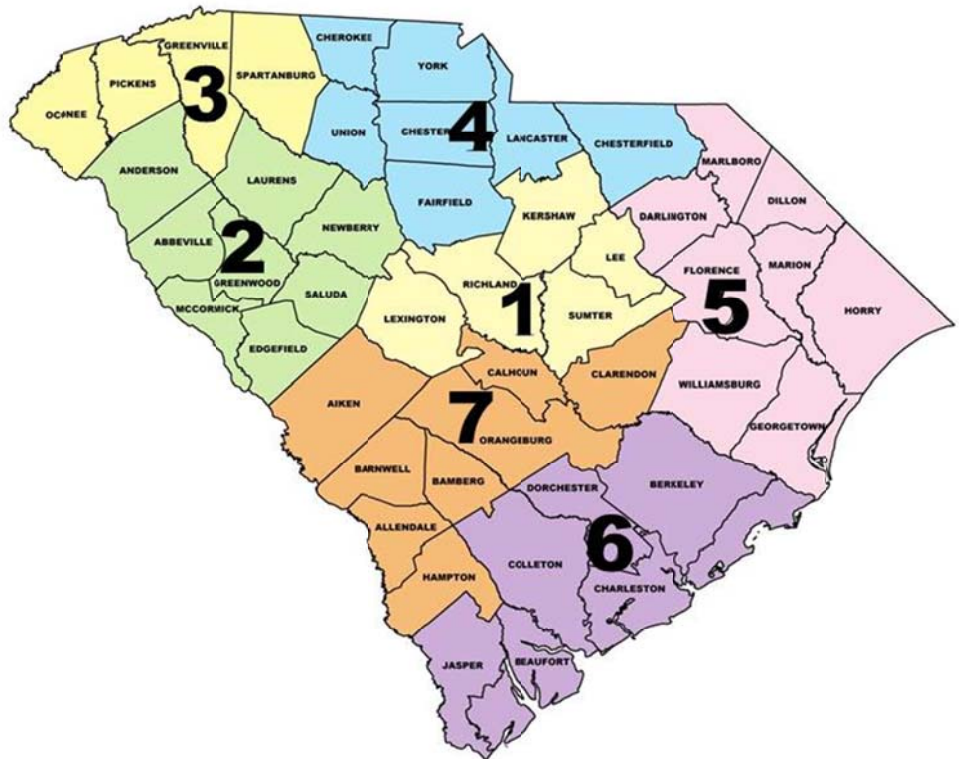


Source: SCDOT

SCDOT is organized into seven highway engineering districts as seen in Map 1.5. Each district is headed by a district engineering administrator who oversees maintenance and construction activities within the district.

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**Map 1.5: SCDOT Highway Engineering Districts**



Source: SCDOT

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## Federal Funding for Transportation

The U.S. government is a key source of transportation funding for all U.S. states. The most recent national data available indicate that federal funds account for over one-quarter of total revenues used by states for highways. In FY 14-15, federal funds were nearly half of SCDOT's revenues.

The Federal-Aid Highway Program, administered by FHWA, is actually a collection of programs through which money is distributed to states for various transportation purposes. In general, each state's share of this funding is determined through mathematical formulas that are detailed in the authorizing legislation. States are assigned an apportionment of funds for each program, and each state is also subject to an annual obligation limitation that caps the amount of funds that FHWA will commit to pay to the state in that year. As states complete qualifying projects, they receive reimbursement from FHWA for a certain percentage of the cost. The reimbursement percentage varies based on the characteristics of the project and the program through which it is being funded, but FHWA generally reimburses states for 90% of eligible projects on Interstates and 80% of other eligible projects.

On December 4, 2015, a new federal transportation funding law called the Fixing America's Surface Transportation (FAST) Act was signed. Although the specific ways in which this legislation will affect different aspects of transportation funding are not yet clear, it will broadly maintain the program structures and funding shares of the previous legislation while increasing funding by 11% over 5 years. The FAST Act's predecessor, the Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) Act, had been in place since 2012.

The largest four programs authorized by MAP-21, which accounted for an estimated 97% of total funding, were the following:

NATIONAL HIGHWAY PERFORMANCE PROGRAM

Provides funding to maintain and expand the National Highway System.

SURFACE TRANSPORTATION PROGRAM

Provides flexible funding to preserve or improve any federal-aid highway or any public bridge.

HIGHWAY SAFETY IMPROVEMENT PROGRAM

Provides funding to improve highway safety on all public roads.

CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM

Provides funding for transportation projects that help meet the requirements of the Clean Air Act.

The Highway Trust Fund is the main source of federal aid for highways and it has traditionally been maintained primarily by federal taxes on highway users. However, in recent years the fund has received billions of dollars in transfers from other federal funds. FHWA estimates the amount of federal taxes paid by highway users in each state, allowing a comparison between the amount of federal taxes paid to the Highway Trust Fund in each state and the federal aid apportioned to that state for highways.

The term “donor state” is used to refer to a state that contributes more to the fund than it receives in aid. There are two main methods of identifying donor states:

COMPARING THE ACTUAL DOLLAR AMOUNTS CONTRIBUTED AND RECEIVED.

The recent transfers to the Highway Trust Fund mean that states are apportioned more federal aid than the fund receives in federal taxes, so over the last ten years for which data are available (2005–2014), a majority of states have been “donees” using the dollar-to-dollar comparison: they were apportioned more federal aid than the total federal taxes they contributed to the fund. In five of the last ten years, no state was a donor by the dollar-to-dollar comparison. By this method, South Carolina was a donor state in only three of the last ten years — 2005, 2012, and 2014.

COMPARING THE SHARE (PERCENTAGE) OF TOTAL CONTRIBUTIONS MADE WITH THE SHARE OF TOTAL AID RECEIVED.

The share of contributions relative to other states, when compared with the share of apportioned federal aid, yields different results. A state may be deemed a donor by this measure even if it is not a donor in the dollar-to-dollar comparison. This is the case for South Carolina. In all of the last ten years, the state's share of total payments into the fund exceeded its share of that year's total federal aid apportionment. On average from 2005 through 2014, South Carolina's highway users paid an estimated 1.87% of total federal tax contributions to the Highway Trust Fund, and the state received an annual average of 1.58% of total apportioned federal funds.

As the amount of contributions made in South Carolina to the Highway Trust Fund is determined by the behavior of highway users and the amount of highway funding the state is apportioned is dictated by federal funding formulas, the state's status as a donor or donee cannot be directly controlled at the state level.



# Governance and Management

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## Chapter Summary

In this chapter, we discuss the structure of governance in place for the S.C. Department of Transportation, potential alternative models of governance, issues with the placement and management of the Office of Chief Internal Auditor, certain internal management issues, and SCDOT's planning and performance measurement processes. We found:

- It is unclear whether the Secretary of Transportation or the Commission is the ultimate governing authority of the department.
- We cannot determine how much value the Commission adds to SCDOT processes.
- The SCDOT internal auditing function is ineffective due to the impaired independence of the chief internal auditor.
- A number of employees do not meet the minimum qualifications for their job classifications and were not granted equivalencies by the Division of State Human Resources.
- The department does not adequately measure and report on key performance indicators that affect the public.
- Internal management policies have led to the questionable use of public resources.
- There is considerable room for improvement to SCDOT's strategic direction plan and performance measures.
- There are a number of instances in which the department has not appropriately collected, maintained, used, or shared data.

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## Governance

In this section, we discuss the current governance structure of SCDOT, structures of governance for other states' primary transportation agencies, and identify possible alternatives that the General Assembly may wish to consider.

We examined the governance structures of other states' transportation agencies and reviewed the roles of the SCDOT Commission and Secretary of Transportation. No governance model is ideal and all have their advantages and disadvantages. Some strengthen political accountability while others enhance administrative control. There is no formula for selecting the optimal model. Our research did not reveal any empirical evidence correlating transportation department governance structures with performance outcomes. Further, transportation agencies differ greatly from state to state in terms of structure, responsibilities, funding, and other characteristics.

Table 2.1 reflects the governance structures of the state highway and transportation agencies across the country. Represented are the methods of appointment of department heads and boards or commissions, if applicable. Models in the upper left corner promote clearer lines of accountability, more efficient decision making, and stronger executive control while models in the lower right corner promote broader oversight and representation, and stronger legislative control.

**Table 2.1: Governance Models Nationwide**

|                                  |   | NO BOARD<br>OR<br>COMMISSION   | SELECTION OF BOARD /<br>COMMISSION  |                        |
|----------------------------------|---|--|---|------------------------|
|                                  |   |  | GOVERNOR<br>SELECTS   | LEGISLATURE<br>SELECTS |
| SELECTION OF THE DEPARTMENT HEAD | Governor<br>Selects<br>(no legislative<br>approval)               | AL, IN, KY,<br>ND, NH*, TN   | MA, NC,<br>WY   |                        |
|                                  | Governor<br>Selects<br>(with legislative<br>approval)             | AK, CT, DE,<br>HI, IL, KS,<br>LA, ME, MN,<br>NJ, NY, OH,<br>RI, WV, WI | AZ, CA**,<br>CO, FL, IA,<br>MD, MI,<br>MT, NE,<br>NM, OR,<br>PA**, SD,<br>UT, VA**,<br>VT, WA | SC***                  |
|                                  | Board or<br>Commission<br>Selects<br>(no legislative<br>approval) |  | AR, ID, MO,<br>OK, TX,<br>NV**  | GA                     |

\* The New Hampshire Executive Council must approve the Governor's appointment of the department head.

\*\* The majority of seats on the board or commission are appointed by the Governor, though some seats are legislatively appointed (California and South Carolina) or designated for legislators or other state officials (Pennsylvania, Virginia, and Nevada).

\*\*\* The Governor appoints one at-large member of the SCDOT Commission.

Note: Mississippi is not represented in the table as it has a unique governance model. The 3-member Mississippi Highway Commission is elected directly by the public. The Commission then appoints the department head with consent of the State Senate.

Source: National Conference of State Legislatures and LAC

## Current Governance of SCDOT

SCDOT is currently governed by an eight-member Commission and managed by a Secretary of Transportation who is appointed by the Governor, with the advice and consent of the Senate. Our review found that the current governance structure leads to uncertainty as to whether the Secretary of Transportation or the Commission possesses ultimate governing authority.

S.C. Code §1-30-10 establishes the “departments of state government” within the executive branch, including the Department of Transportation, and establishes that: “The governing authority of a department is vested with the duty of overseeing, managing, and controlling the operation, administration, and organization of the department.”

S.C. Code §1-30-10(B)(1) states that:

The governing authority of each department shall be:  
(iv) in the case of the Department of Transportation,  
a seven member commission constituted in a manner  
provided by law, *and* [emphasis added] a Secretary of  
Transportation appointed by and serving at the  
pleasure of the Governor.

We identified no other departments with two entities designated as the governing authority.

While the language in S.C. Code §1-30-10 *et seq.* does not clearly establish who is ultimately responsible, S.C. Code §57-1-10 defines “Commission” as “the administrative and governing authority of the Department of Transportation” and defines “Secretary of Transportation” as “the Chief Administrative Officer of the Department of Transportation.”

As recently as March 2016, the General Assembly debated the method of appointment of the Secretary of Transportation. Section 6 of Act 114 of 2007 states:

Unless extended by subsequent act of the General Assembly, the Governor’s authority to appoint the Secretary of the Department of Transportation pursuant to Section 57-1-410 terminates and is devolved upon the Department of Transportation Commission effective July 1, 2015.

Proviso 84.18 of the FY 15-16 appropriations act suspended the sunset provision in Section 6 of Act 114 only for the duration of FY 15-16.

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## SCDOT Commission

An estimated \$447,355 in expenditures over the last three fiscal years was directly related to the Commission. This total includes the estimated salary and fringe benefits of the Commission's special assistant, office supplies, and Commissioners' travel expenses. Some expenditures, such as printing costs, cannot practically be separated from other department expenditures and therefore are not included. SCDOT estimated that department staff, including the Secretary and other top officials (but excluding the Commission's special assistant) spend up to 169 total hours preparing for and attending each of the Commission's regular meetings, which normally occur 11 times each year.

In the last three calendar years (December 2012 – November 2015), the Commission held 33 regular meetings, 6 special meetings, and at least 26 committee meetings. In the regular meetings, the Commission typically votes to approve recommendations that have been made by SCDOT staff. In 25 of the 33 regular meetings over the last three years, the Commission approved the staff recommendations as presented, without making changes. In 27 of the 33 regular meetings, every motion was approved unanimously.

While the regular Commission meetings are documented with published meeting minutes, other meetings are not. Communications may also occur outside of those meetings. These may well be within the bounds of propriety and might serve to resolve questions that Commission members have about department matters which might otherwise consume hours of discussion at monthly Commission workshops and meetings. However, those communications may lead to conciliation and accommodation between the department and the Commission, they occur beyond the realm of public scrutiny, and they may raise questions about transparency and accountability.

Having to seek Commission approval for planning, spending, and project selection appears to add time without necessarily adding value to project timeliness or delivery.

One of the primary roles of the Commission is the implementation of the prioritization process required by Act 114. It is responsible for advancing projects in priority order, but we were unable to determine if projects are being advanced properly due to poor processes and inadequate data retention. Therefore, we are unable to conclude that the Commission is adding value to the implementation of Act 114. Further, the technical nature of implementing the prioritization process necessitates a level of knowledge and experience in transportation, engineering, or construction. Commissioners who possess these qualities can potentially be perceived as having a direct or indirect interest in project selection or prioritization.

It is likely that oversight by legislative bodies, such as Senate and House oversight committees and subcommittees, and the LAC are a stronger and more independent method of ensuring compliance with Act 114 and holding the department accountable.

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## Alternative Governance Options

The presence of a Commission appointed by the General Assembly coupled with a department head appointed by the Governor creates confusion as to who governs the department and undermines the authority of both. The department has acknowledged that the “lack of clarity on this issue is detrimental to the performance and operation of the agency.” Further, the Commission has stated that the current situation is “odd” and recommended changing the structure to “provide a clear chain of command for the Secretary.”

The General Assembly may wish to consider changing the governance structure of SCDOT to establish clearer lines of authority and:

- Promote greater decision-making efficiency.
- Increase accountability.
- Strengthen oversight.
- Reduce the potential perception of undue influence in prioritization and project selection.
- Reduce the potential for Commissioners getting involved in the day-to-day operations of the department.

Alternatives that could be considered are presented in Table 2.2 below along with more detail in the narrative that follows.

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**Table 2.2: Alternative Governance Options**

| COMMISSION                       | SECRETARY OF<br>TRANSPORTATION                   | COMMISSION MEMBERS                               | COMMISSION DUTIES   |
|----------------------------------|--|--|---|
| ABOLISH                          | Selected by Governor<br>with legislative consent | None   | N/A (Secretary would have<br>governing authority)                     |
| CHANGE<br>APPOINTMENT<br>METHODS | Selected by Governor<br>with legislative consent | Selected by Governor<br>with legislative consent | No Change   |
|                                  | Selected by Commission                           | Selected by Governor<br>with legislative consent | No Change   |
| REDEFINE<br>ROLE                 | Selected by Governor<br>with legislative consent | Selected by Governor<br>with legislative consent | Limited policymaking and<br>strong oversight of Act 114<br>compliance |
|                                  | Selected by Commission                           | Selected by Governor<br>with legislative consent | Limited policymaking and<br>strong oversight of Act 114<br>compliance |

Source: LAC

**Amend S.C. Code §57-1-310 *et seq.* to abolish the Commission of the Department of Transportation and designate the Secretary of Transportation as the governing authority of the S.C. Department of Transportation.**

If this change were made, the General Assembly could require legislative screening and consent of gubernatorial nominations for the position of Secretary of Transportation.

**Change the method of appointment so that the Governor appoints members of the Transportation Commission.**

Of the 29 states with a board or commission, there are only two, Georgia and South Carolina, in which the majority of the body is appointed or elected by the Legislature. Of the 256 members of transportation boards or commissions across the country, only 23 (including 7 in South Carolina) are appointed or elected by legislative bodies, groups of legislators, or individual legislators. Gubernatorial appointments could be made with legislative screening and approval through the existing Joint Transportation Review Committee.

If this change were made, the General Assembly could allow either the Governor or the Commission to appoint the Secretary of Transportation. Selection of the Secretary of Transportation by a Commission appointed by the Governor would mirror the current governance models of the S.C. Department of Natural Resources and the S.C. Department of Health and Environmental Control.

**Redefine the role of the Commission as one of limited policy-making authority but very strong oversight.**

An explicit responsibility to provide oversight of SCDOT compliance with Act 114 prioritization, instead of direct Commission involvement in the process, could be a component of these changes.

The Florida Transportation Commission, for example, serves as “a citizen’s oversight board” for the Florida Department of Transportation. The commissioners represent the transportation needs of the state as a whole and “may not subordinate state needs to those of any particular area.” The Governor appoints the Secretary of Transportation from among three candidates nominated by the commission. The commission is prohibited by statute from involvement in day-to-day operations of the department and its primary functions include *reviewing* major transportation policy initiatives or revisions submitted by the department, *recommending* major transportation policy to the Governor and Legislature, and serving as an oversight group.

Prior to 2005-2006, the Washington State Transportation Commission was responsible for hiring the Secretary of the Washington Department of Transportation, providing detailed administrative oversight of the department, and approving the agency’s budget. However, the commission no longer has these responsibilities and is now tasked with adopting a comprehensive 20-year statewide transportation plan, *recommending* policy changes, setting tolls and ferry fees, *reviewing* additions and deletions to the state highway system, and naming transportation facilities.

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## Recommendation

1. The General Assembly should amend S.C. Code §1-30-10 to designate either the Secretary or the Commission, but not both, as the governing authority of the S.C. Department of Transportation.



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## Internal Audit Issues

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We reviewed the issues regarding the Office of the Chief Internal Auditor (OCIA). We found that the chief internal auditor's independence was impaired due to Commission interference. As a result, OCIA discontinued conducting risk assessments. This has led to an ineffective internal auditing function at SCDOT.

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## Independence of the Internal Auditor

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We reviewed the independence of the chief internal auditor and found that the department's chief internal auditor lacks sufficient autonomy and independence to adequately perform internal audit duties according to professional standards. SCDOT's internal audit charter states that the chief internal auditor should be free from any influence of SCDOT to preserve independence.

The Institute of Internal Auditors (IIA) is a recognized, international professional association with more than 180,000 members. The organization maintains standards and guidance for internal auditors. According to the IIA, the standards for an internal auditor emphasize the importance of maintaining independence and objectivity. The standards state: "Independence is the freedom from conditions that threaten the ability of the internal audit activity to carry out internal audit responsibilities in an unbiased manner."

The law creating OCIA at SCDOT may have contributed to Commission actions that compromised the independence of the chief internal auditor. S.C. Code §57-1-360(B)(3) states, "the Commission is vested with exclusive management and control of the chief internal auditor." This statement in the law may have resulted in the SCDOT Commission exerting its control over the chief internal auditor by taking several actions such as:

- Asking the state's Inspector General (IG) to mediate internal issues with regard to internal audit responsibilities.
- Changing the chief internal auditor's position description.
- Directing the chief internal auditor's audit plan that resulted in discontinuing risk assessments.
- Directing the chief internal auditor to conduct audits that department management wants, irrespective of the risk rating or unknown risks that other functions or operations of the department pose since these areas were not re-assessed.

These actions violate S.C. Code §57-1-360(B)(1) which states: “The chief internal auditor must establish, implement, and maintain the exclusive internal audit function of all departmental activities.” S.C. Code §57-1-360(B)(1) also states: “The chief internal auditor shall serve a term of four years and may be removed from office for malfeasance, misfeasance, incompetency...or incapacity.” This is further evidence the statute requires independence.

In May 2015, the IG received a confidential complaint that the SCDOT Commission had tabled an audit report, preventing it from being published and distributed, as required by statute. The IG followed-up on the complaint because of the sensitivity of the allegation. After an investigation, the IG did not find any wrongdoing with the audit being tabled. However, S.C. Code §57-1-360 (B)(2) does not require approval before a report is released.

In late August 2015, at the request of an SCDOT Commissioner, an SCDOT official contacted the IG to have an open discussion with the SCDOT Commission and OCIA. The discussion was focused on reviewing basic internal audit functions and the role of the chief internal auditor. The Commission wanted those duties restricted, as indicated by its actions in changing the chief internal auditor’s job description.

The law granting power to the IG is very broad. According to S.C. Code §1-6-30, the IG has the power to “provide advice to an agency on developing, implementing, and enforcing policies and procedures to prevent or reduce the risk of fraudulent or wrongful acts within the agency” and to “receive complaints from any individual, including those employed by any agency, alleging fraud, waste, abuse, mismanagement, misconduct, violations of state or federal law, and wrongdoing in an agency.” The breadth of this statute grants a considerable amount of reach for the IG to become involved within a department.

It is not the IG’s role to determine a chief internal auditor’s functions and responsibilities. The functions and responsibilities are outlined in the OCIA’s internal audit charter, which was adopted by the Commission in 2008 and is similar to the IIA model charter.

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## Changes to the Chief Internal Auditor's Position Description

The Audit Committee of the SCDOT Commission revised the position description of the chief internal auditor as of August 12, 2015. Three changes were made:

- An audit must now be approved by the Audit Committee to qualify an audit as final before it is disseminated to the legislative committee chairmen listed in S.C. Code §57-1-360. The statute does not require approval by the Audit Committee. This allows the Audit Committee to prevent any audit it chooses from being released to the public, including those that might be unfavorable to the department. This was demonstrated in the recent OCIA outsourcing audit that was tabled in 2015 by the Audit Committee (see *Outsourcing Studies* in Chapter 2).
- The chief internal auditor must report any possible fraudulent activity to the Audit Committee instead of investigating the fraudulent activity. The information is then forwarded to the Office of the IG. This could present a conflict of interest because the Audit Committee may be reluctant to report fraudulent activity to the IG. From 2011 – 2012, OCIA managed a fraud hotline. In January 2013, SCDOT's fraud hotline was discontinued and SCDOT began utilizing the IG's fraud hotline. The IG screens the tips and a majority of tips are forwarded to SCDOT because most of the complaints are not fraudulent in nature (see *Fraud Hotline* in Chapter 2).
- The chief internal auditor must consult with the SCDOT Commission on audit topics, timing of audits, and appointment of staff. Previously, the chief internal auditor had the discretion to determine topics, timing, and appointments. According to the IIA's standards, internal auditors should be free from any interference of audit scope, performing work, and communicating results. Also, internal auditors are responsible for audit timing and resource allocations. This change creates an element of undue influence on the chief internal auditor to perform his duties and is in direct conflict with OCIA's charter. It allows the SCDOT Commission to have more control over the audit process and effectively hinder its independence.

In order to protect the independence of the internal auditor, the General Assembly should consider amending S.C. Code §57-1-30 to eliminate the statement that the Commission has exclusive management and control of the chief internal auditor. Given that the activities and independence of the internal auditor are of public interest, changes regarding the duties and independence of the internal auditor should be handled through a regulatory process pursuant to S.C. Code §1-23-10 *et seq.*

This process would require that changes regarding the duties and independence of the internal auditor be promulgated as regulations by SCDOT, submitted for public comment, and approved by the General Assembly. Such a process could protect the internal auditor from having his independence compromised. Any such regulations should consider the criteria of the IIA.

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## Recommendations

2. The General Assembly should amend S.C. Code §57-1-360 to prohibit the S.C. Department of Transportation Commission from taking action that impairs the independence of the chief internal auditor or is in conflict with accepted standards as identified in the appropriate professional association pertaining to internal audit.
3. The Audit Committee of S.C. Department of Transportation should change the three revisions to the Chief Internal Auditor's position description back to the original wording.
4. The S.C. Department of Transportation Commission should require that interpretations of the statute creating and concerning the Office of the Internal Auditor be constructed and submitted through the regulatory process so that the regulations receive legislative approval.
5. The General Assembly should amend S.C. Code §57-1-360 to include the Chief Internal Auditor's duties.

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## Risk Assessments

We found that the chief internal auditor has not completed a department-wide risk assessment since July 2011. According to the IIA's International Standards for the Professional Practice of Internal Auditing (Standards), internal auditors are to select audit topics based on a documented risk-assessment. However, the timeline below shows senior management has guided the selection of audit topics since FY 12-13.

SCDOT's risk assessment from previous years was based on nine risk factors rated on a five point scale and was applied to department programs, processes, assets, and IT systems — all facets of the department that had an element of risk to the department. Each risk factor is weighted for significance. The internal auditor completing the risk assessment assigns a number on a scale from one to five based on his/her judgement. The scale has been structured so that the higher values represent the greatest risk.

Risk assessments involve qualitative and quantitative methodologies. Quantitative analysis is used when the data is available. Qualitative analysis can be used when data and expertise is not available. Available information is gathered and evaluated to select the best value for each risk factor.

OCIA should complete a department-wide risk assessment on an annual basis because risk can change rapidly. A clear example is the area of Research and Materials. From FY 10-11 – FY 12-13, an individual risk assessment was completed. The risk score was 84% in FY 10-11, 68.9% in FY 11-12, and 32% in FY 12-13. The higher risk scores represent a greater amount of risk. There are other areas with fluctuating risk scores from year to year.

According to an SCDOT department head, management has the best perspective to determine what is hindering SCDOT from achieving its objectives. The standards allow for the internal auditor to take into consideration the opinions of management and the Commission; however, ultimately the audit plan is to be created from a risk-based methodology. An audit plan based on a risk assessment contributes to the chief internal auditor's independence because it creates a systematic way of determining which areas of the department need to be evaluated for improvements. When a chief internal auditor only evaluates the risk of management's hand-picked areas, he/she may be missing key areas of the department that pose the greatest risk to the department since they will be scored for risk but will not be compared with other areas' risk scores.

#### **Key Information Related to the Office of the Chief Internal Auditor**

|          |  |
|----------|--|
| FY 07-08 | Act 114 established the Office of the Chief Internal Auditor. It became effective on June 27, 2007. OCIA's charter was created and approved in 2008.   |
| FY 08-09 | By November 2008, staff had been hired. The implementation of LAC's 2006 report recommendations and the Office of Human Resources were evaluated by the OCIA.  |
| FY 09-10 | The first department-wide risk assessment was started in April 2010 and ended June 2010. In this time period, a risk assessment on 59 risk areas was completed. At the end of this fiscal year, two individuals from management submitted what each believed to be the top five areas of risk to assist the OCIA. These areas were included in the FY 10-11 and FY 11-12 audit work plans. Four audits were completed in this fiscal year. |
| FY 10-11 | A department-wide risk assessment was completed again from June 2011 – July 2011. In this time period, a risk assessment on 58 risk areas was completed. Two audits were completed in this fiscal year.  |

|          |   |
|----------|---|
| FY 11-12 | The only audit published during this fiscal year was Road Data Services. This was an audit topic provided by the Deputy Secretary for Engineering. No new risk analysis was performed in this fiscal year.  |
| FY 12-13 | In November 2012, a risk assessment on eight risk areas was completed. The risk assessment on seven out of eight risk areas was based upon information provided by SCDOT management. OCIA continued with uncompleted audits and audits recommended by management. Four audits were published. |
| FY 13-14 | In August 2013, a risk assessment on five risk areas was completed. SCDOT management provided audit topics for the OCIA. No audits were published this fiscal year.   |
| FY 14-15 | OCIA did not provide any documented risk assessments. A memo dated May 20, 2014 by an SCDOT Commissioner was sent to OCIA. It lists three audit areas. This has been labeled as the audit work plan for FY 14-15. Four audits were published.   |
| FY 15-16 | On August 12, 2015, the Chief Internal Auditor's position description was revised by the Audit Committee to exert control over the Chief Internal Auditor.  |

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## Recommendation

6. The S.C. Department of Transportation Commission's Office of the Chief Internal Auditor should conduct annual department-wide risk assessments to determine which areas within the organization to audit.

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## Enterprise Risk Management

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The Committee of Sponsoring Organizations (COSO) is a committee of the Treadway Commission and is sponsored by five established accounting or auditing organizations. One of the subjects on which COSO focuses is enterprise risk management. COSO published *Enterprise Risk Management – Integrated Framework* to assist organizations in designing and implementing effective enterprise-wide approaches to risk management.

The program establishes a robust framework for internal control needs and a fuller risk management process. This program extends beyond the traditional risk assessment and includes seven other components. This program is a recognized and widely accepted resource for organizations across the world.

According to an SCDOT official, OCIA tested the program by forming focus groups to identify risks and develop the program for the future. However, it was not implemented at the department. Enterprise risk management would be a worthwhile resource that establishes and enhances SCDOT risk management framework.

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## Recommendation

7. The S.C. Department of Transportation Commission should consider incorporating the Committee of Sponsoring Organizations' enterprise risk management program at the department.

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## Outsourcing Studies

The issue of final report approval was demonstrated in the recent OCIA outsourcing audit that was tabled in 2015 by the Audit Committee. The OCIA's outsourcing audit was not the first review of outsourcing. In 2013, a temporary employee was hired to complete a study of outsourcing. The 2013 study resulted in an estimated number of FTEs associated with outsourcing, the list of tasks or activities outsourced, and concluded there was no methodology for determining when to outsource. The study was unable to determine the cost of outsourcing because of the structure of outsourcing contracts and lack of available cost data.

In 2013, OCIA had begun an outsourcing audit as a result of a budget proviso that ultimately was dropped. However, OCIA suspended its audit in 2013 because of the temporary employee being hired to complete a separate study. In 2014, OCIA continued with its outsourcing audit.

We were not provided formal documentation of OCIA's audit scope. At one point, potential areas of review were environmental, information technology, human resources, traffic engineering, maintenance, and legal. OCIA also considered addressing the difficulty in obtaining cost data for outsourcing expenditures. OCIA's report led to the same conclusion for cost data as the 2013 study.

According to SCDOT management, they have made progress in increasing cost data visibility for two areas of priority. SCDOT is in the process of commissioning a new outsourcing study. The final report is to include a cost-benefit analysis for outsourcing, a step-by-step method for determining when to outsource a job, and other resourceful information and techniques.

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## Fraud Hotline

We reviewed the management of the fraud hotline, the process for receiving and investigating tips received by the fraud hotline at the Office of Inspector General, and those complaints referred to or taken by the department's Office of Chief Counsel. We found that:

- Out of 64 tips in three years, the IG investigated 16%, 73% were redirected to SCDOT management, and 11% of cases were neither referred to SCDOT nor investigated by the IG.
- Tips referred from the IG to SCDOT are sent to management. The safeguards and appearance of independence are impaired when cases are referred back to department management.
- The Office of Chief Counsel refers tips/complaints to the appropriate deputy secretary of the area from which the complaint originated. This process leads to investigations that are not independent.
- Since the Office of Chief Counsel has managed the investigations, there has been no verification that complaints that led to recommendations were implemented or that the complaint was resolved.
- The IG accepts cases of waste of well over \$10,000 for investigation. This results in the majority of reported complaints of waste being referred to SCDOT.

In January 2013, the SCDOT fraud hotline, managed by OCIA, was discontinued and SCDOT began utilizing the IG's fraud hotline at the request of the Secretary of Transportation. According to SCDOT management, OCIA's investigations of tips from the hotline were becoming a distraction from internal audit duties.

Many agencies take advantage of the IG's fraud hotline because the IG has protocols in place to protect confidentiality. The IG investigates statewide issues, serious misconduct in senior-level management, major waste, and fraud. Anything that does not fall under these categories is forwarded to the department's point of contact, SCDOT's Chief of Staff. However, a vast majority of tips received via the hotline do not qualify as fraud, waste, or abuse. In our analysis of the SCDOT tips, we classified:

- 42% as employee misconduct or mismanagement.
- 17% as theft.
- 16% as other.
- 14% as contractor or contract related.
- 11% as supervisory issues.



The Office of Chief Counsel also receives complaints via e-mail or letter in addition to the tips from the fraud hotline at the IG's office. The Office of Chief Counsel refers the tips and complaints. If the complaint is from a specific department, such as engineering or procurement, then the complaint is referred to the appropriate deputy secretary for investigation. This prevents the investigation from being independent. The employee charged with investigating the alleged violation or misdeed will be selected from the department where the complaint or tip originated. The complaint may be about management or the nature of the complaint may reflect poorly on management. Since the incident occurred under management's responsibility, department heads may be reluctant to conduct aggressive investigations and find wrongdoing in their own departments.

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## Sampling of Complaints – Office of Chief Counsel

We selected a sample of complaints received by the Office of Chief Counsel to understand the process. Once an investigation is complete, a report is sent back to the Office of Chief Counsel. The report usually summarizes the steps taken to investigate the matter. If there was nothing found from the investigation that warrants action, the case is closed with no action required. Many of the cases in the sample resulted in no action needed for various reasons such as the complaint was not substantiated or the supervisor has already appropriately reprimanded the employee.

The report may also list recommendations. With one exception, there was no verification that the recommendations were implemented or the resolution to the complaint was completed.

- In one case, there were six recommendations made but no indication that any of these recommendations were being implemented.
- In another case, the director stated that he would remind all staff of qualifications for a specific service. However, there is no indication of a reminder sent to the employees in the form of a memorandum or other documented method.
- In the last example, changes to the drug testing procedure were recommended in the report, but there was no documentation that the procedure was changed.

By verifying that issues are being addressed, SCDOT can work to prevent similar complaints from arising in the future and improve current controls and procedures.

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## Management of the Fraud Hotline

While the fraud hotline cases are currently not being investigated by OCIA, the chief internal auditor should be aware of the complaints. According to the Model Internal Audit Activity Charter, investigation of complaints is not separately listed as an internal audit responsibility. However, the internal audit charter lists items that indicate internal audit should be involved in some of the complaints that have been reported. Those duties are:

- Evaluating the means of safeguarding assets.
- Evaluating the effectiveness and efficiency with which resources are employed.
- Reporting significant risk exposures.

The chief internal auditor has been characterized as becoming involved in areas that are not an internal auditor's concern. For example, some of the incidents involve stolen laptops and the cutting of trees by DOT crews on private property. Both of those instances involve protecting department assets and may point to larger systemic problems in the internal controls of the department. It is unclear if these issues had been reported to the IG or whether the cases would have been selected for further review. There is no set dollar parameter for the IG to screen cases, however; most waste cases that are investigated by the IG have a value much greater than \$10,000. Under the current process, these cases would not be seen by the chief internal auditor.

We reviewed a reported case of SCDOT bridge inspections on privately-owned bridges in Woodside Planation in Aiken (see *Inspection of Privately-Owned Bridges* in Chapter 2). It is unclear if this would have been reported to the IG. Under the current process, if this had been reported to the IG, and the IG did not consider it to be within the purview of the IG's parameters, then the case would have been forwarded to SCDOT. As indicated in the complaint log managed by Chief Counsel, we believe the tip would have been sent through the Office of Chief Counsel to the deputy secretary who made the decision to inspect the private bridges in the first place.

In the current process, the IG investigated very few cases. Out of 64 hotline tips, 16% were investigated by the IG, 73% were redirected to SCDOT management, and 11% of cases were neither investigated nor referred to SCDOT. Since the IG is not investigating many SCDOT cases, the placement of the hotline under OCIA may work better by eliminating delays and ensuring that all cases are investigated. If the hotline is reestablished under the management of OCIA, a compliance officer should be responsible for the investigation of these tips. Any tips relating to items under the IG's jurisdiction would be forwarded to the IG.

If the IG decides not to investigate the matter, the tip should be sent back to OCIA's compliance officer. Furthermore, all personnel complaints should be forwarded to SCDOT human resources for investigation.

According to an SCDOT official, the department is in the process of hiring an investigator to be assigned to the Office of Chief Counsel. As stated in the position description, the investigator will be responsible for the internal investigations of alleged violations of "laws, rules, regulation, fraud, waste, discrimination, unfair treatment, harassment, employee misconduct, and complaints received from the IG." However, we believe that the investigator should be designated as a compliance officer in OCIA and the hotline should be under management of OCIA. A compliance officer could also be responsible for facilitating training related to compliance and ethics along with providing assistance to other offices and units within the department with the development of policies, procedures, and directives.

At a minimum, if the hotline is not restored as an OCIA function, a compliance officer position should be established and the OCIA should be notified of all reports to ensure that it is aware of the issues. This would allow the chief internal auditor to identify any trends or systemic issues and help determine if any internal controls are weak or failing.

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## Recommendations

8. The S.C. Department of Transportation Commission should reinstall the hotline under the Office of the Chief Internal Auditor or ensure that the Office of the Chief Internal Auditor is aware of all complaints that are referred by the Inspector General if the hotline is not reestablished under the Office of the Chief Internal Auditor.
9. The S.C. Department of Transportation Commission should develop an investigator or compliance officer position within the Office of the Chief Internal Auditor.
10. The S.C. Department of Transportation should notify all employees that complaints should be directed to the Office of the Chief Internal Auditor's compliance officer or investigator.

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## IT Auditing

We inquired as to whether OCIA had conducted information technology (IT) audits or had plans to do so in the future. The OCIA completed two audits of IT systems (BAMS-DSS in 2014 and SiteManager in 2010) in the last five years and has no plans to audit another IT system. OCIA's plan is to acquire continuous auditing software to be used in conjunction with management to monitor certain activities both from an internal control perspective as well as reporting. No date was provided for acquisition and implementation and it is uncertain how effective the software will be for internal control purposes.

According to IIA's Model Internal Audit Activity Charter, an organization's internal audit function has the responsibility to evaluate the reliability and integrity of information and the means used to identify, measure, classify, and report such information. It is important to conduct audits of IT systems to determine if the major systems are adequately protected, provide reliable information to users, and are properly managed to achieve their intended benefits. An IT audit also assists in reducing risks of data tampering, data loss or leakage, service disruption, and poor management of IT systems. OCIA should evaluate the risks associated with the major IT systems at SCDOT.

The IT audits that were published were conducted without an auditor possessing special IT training or certification. While an auditor with IT expertise was hired February 2013, the employee has not audited an IT system that resulted in a published audit. The auditor has had previous experience in auditing IT systems and is in the process of obtaining his certification as an information systems auditor under the Information Systems Audit and Control Association. The auditor has been assigned to audits with IT components; however, the auditor has not completed an IT audit.

OCIA has not conducted follow-up audits for either of the published IT audits. OCIA is responsible for conducting appropriate follow-up audits on recommendations. The department's internal audit charter states:

Internal Auditing shall be responsible for appropriate follow-up on audit findings and recommendations. All significant findings will remain an open issues file until cleared by the Chief Internal Auditor...

OCIA should ensure that after a set time period, a request for status of implementation of recommendations is made to SCDOT management. The chief internal auditor has a responsibility to ensure that management has taken action to implement recommendations or accept the risk of having not taken action.

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## Recommendations

11. The Office of the Chief Internal Auditor should periodically conduct a risk assessment on major IT systems at the S.C. Department of Transportation to determine any vulnerable systems that need to be audited.
12. The Office of the Chief Internal Auditor should establish a follow-up process to monitor the implementation of audit recommendations.
13. The Office of the Chief Internal Auditor should conduct follow-up audits of its BAMS-DSS and SiteManager audits.

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## Human Resources

We reviewed credentials for a non-statistical sample of employees, turnover rates, and salaries over a period of time. We found a number of employees who did not meet the minimum qualifications of their job classifications and were not granted equivalencies approved by the Division of State Human Resources.

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### Employee Qualifications and Equivalency Requests

We found that SCDOT has assigned employees to job classifications for which they do not meet the minimum qualifications and have not been granted equivalency approvals by the Division of State Human Resources (State HR). We reviewed 716 SCDOT employees classified as “engineer/associate engineer I, II, III, or IV” and found that, as of January 2015, 196 (27%) of them did not possess at least a bachelor’s degree, a minimum requirement established by State HR for those classifications.

Regulation 19-702.03 (B)(7) allows for an equivalency to substitute for the minimum requirements if a department submits a written request to State HR for approval. While SCDOT provided equivalency approvals for many of the engineering services employees possessing less than a bachelor’s degree, department officials could not provide documentation that requests were submitted for 84 (43%) of them.

In the past, there were separate job classifications for degreed “engineers” and non-degreed “associate engineers.” SCDOT managers reported that there is support for separate classifications and acknowledged that they see a need to request the separation of the classifications. This change would prevent the need for equivalency requests being necessary for a large number of employees and clearly distinguish the education and experience requirements for each classification.

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## Recommendations

14. The S.C. Department of Transportation should seek equivalency approvals from the Division of State Human Resources for those employees who do not meet the minimum qualifications for their job class and for whom there is not an approval on file and reclassify those not approved.
15. The S.C. Department of Transportation should request a change of the state job classifications to separate the “engineer” and “associate engineer” positions into separate classifications with appropriate minimum education and experience requirements for each.

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## Staff Turnover

In our analysis of turnover, we discovered that employees classified as “trades specialist II” and employees with 0-5 years of service have the highest turnover rates. About half of the separations with 0-5 years of service are trades specialists. The other half of the separations are from the other state job titles of the department. SCDOT has made an effort to reduce turnover by increasing the minimum salaries for the trades specialist series and the salaries of current trades specialists in November 2014. For the salaries of current trades specialists:

- Employees at the minimum salary increased to the new minimum for their class. This minimum increase ranged from approximately \$1,000 to \$4,000.
- Employees earning more than the old minimum salary, but less than the new minimum salary, had their salaries increased to the new minimum plus an additional \$250–\$1,000. SCDOT determined the additional amount depending on how much more the employee was earning more than the old minimum salary.
- Employees above the new minimum salary received an extra \$1,000 to their annual salaries.

The turnover rate for 2015 has returned to the levels experienced in 2010 and 2011, before the significant increases experienced in years 2012–2014. It is not yet clear if the reduction in turnover is directly related to the salary increase, although it is likely. It is also unclear if the trend will continue and turnover decreases further, but the new trend is a positive development for the department.

The data provided by SCDOT, which we used to calculate the turnover rate, was by calendar year. SCDOT and the Division of State Human Resources calculate turnover by fiscal year. Therefore, the time periods in our comparison are not the same. Furthermore, SCDOT calculates turnover whenever an individual leaves the department. The statewide turnover rate only takes into account when an individual leaves state government and not when the individual moves from one state department to another.

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**Table 2.3: State Employees' Turnover Rate**

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| FISCAL YEAR | TURNOVER RATE |
|-------------|---------------|
| 10-11       | 12.75%        |
| 11-12       | 13.50%        |
| 12-13       | 12.12%        |
| 13-14       | 12.25%        |
| 14-15       | 13.39%        |

Source: Division of State Human Resources

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**Table 2.4: SCDOT Turnover Rates**

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| CALENDAR YEAR | DEPARTMENT RATE | TRADES SPECIALISTS RATE | TRADES SPECIALISTS II RATE | 0-5 YEARS OF SERVICE RATE |
|---------------|-----------------|-------------------------|----------------------------|---------------------------|
| 2010          | 10.56%          | 12.92%                  | 16.86%                     | 16.21%                    |
| 2011          | 9.52%           | 12.05%                  | 14.96%                     | 15.75%                    |
| 2012          | 12.81%          | 15.65%                  | 20.91%                     | 22.41%                    |
| 2013          | 13.27%          | 17.30%                  | 23.90%                     | 26.73%                    |
| 2014          | 14.17%          | 17.67%                  | 26.78%                     | 29.76%                    |
| 2015*         | 10.83%          | 12.24%                  | 15.83%                     | 18.93%                    |

\*Separation list as of September 22, 2015

Source: SCDOT and LAC

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## Executive Staff Changes

There has been a significant amount of instability among SCDOT executive staff in recent years. The department publishes an organizational chart that includes department leadership and all employees that report directly to each division director and includes about 45 positions. We analyzed the changes to this organizational chart over a period of 28 months and found the following:

- There were 35 instances in which the individual employee in a specific position was different from the employee in that position on the previous organizational chart.
- The Secretary of Transportation changed three times.
- On nine occasions, existing positions were moved to different places in the hierarchy.
- Nine positions were marked “vacant” for some period of time.
- Eleven positions were filled with an “interim” or “acting” employee for some period of time.

The frequency of turnover among the department’s leadership could lead to instability, loss of institutional knowledge, and inconsistency of internal practices.

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## Salaries

We reviewed department salaries from January 2010 – January 2015. We did not find any indication of unnecessary salary increases. We selected a statistically-significant sample of employees to further investigate their salary histories. There were only 4 of 93 employees who have experienced an unusually high increase in salary from January 2010 – January 2015.

We reviewed employees with an annual salary less than \$50,000 compared to employees with an annual salary of \$50,000 or greater. The percentage of employees earning less than \$50,000 has decreased slightly and, in turn, increased the percentage of employees earning \$50,000 or more. This trend could be indicative of an aging employee population and increased retention.

Another factor to take into consideration is the turnover rate. Table 2.5 shows the turnover rate for employees with an annual salary of less than \$50,000 is approximately double the turnover rate of employees with an annual salary of \$50,000 or greater.



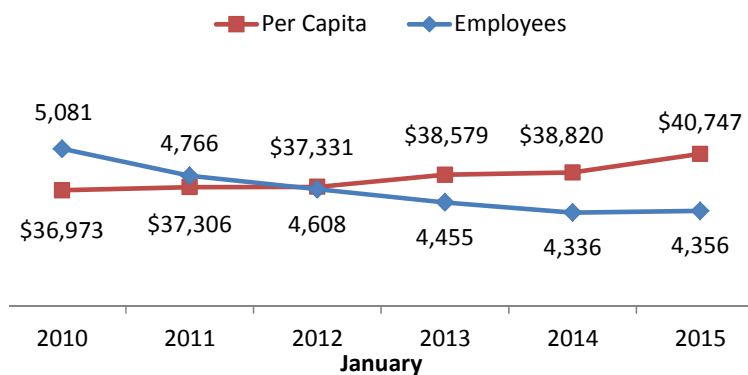
**Table 2.5: SCDOT Turnover Rates**

| CALENDAR YEAR | < \$50,000 | >=\$50,000 |
|---------------|------------|------------|
| 2010          | 11.59%     | 5.89%      |
| 2011          | 10.80%     | 3.91%      |
| 2012          | 14.46%     | 6.12%      |
| 2013          | 15.38%     | 5.37%      |
| 2014          | 16.34%     | 6.40%      |
| 2015          | 12.32%     | 5.72%      |

Source: SCDOT and LAC

Chart 2.6 shows that the overall average salary per employee for all SCDOT employees increased 10% from January 2010 – January 2015. The General Assembly provided for general salary increases totaling 5% during that period. In January 2013, the average increased over \$1,000 from January 2012. This can be partially explained by employees receiving a general increase of 3% effective in June 2012. The next major increase in the average is about \$2,000 in January 2015 from January 2014. The General Assembly passed another general increase of 2% effective in June 2014. Also, SCDOT increased the salary minimums and current salaries for the trades specialists series. This would result in the average salary for a large portion of the employees to increase and, in turn, increase the overall department average.

**Chart 2.6: Average Salary for Total Number of Employees**



Source: SCDOT and LAC

In 2014, the American Association of State Highway and Transportation Officials (AASHTO) conducted a salary survey comparing salaries of common positions in state transportation agencies across the country. AASHTO's report compared the average of each occupation to the average salary reported by each state transportation agency participating in the survey. We found 7 out of 15 key positions at SCDOT have an average salary that is approximately the same or greater than the average across the nation. The seven positions represented the higher-paid positions.

We reviewed salary information from the Bureau of Labor Statistics for additional SCDOT positions. The Bureau of Labor Statistics includes salary data from the public and the private sector. The SCDOT positions evaluated were accountants and auditors, trades specialists and trades managers, engineers, and administrative assistants and specialists. Every occupation that was evaluated was below the average salary of similar positions across the country.

We reviewed salary data of the total SCDOT population in eight mutually-exclusive categories.

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**Table 2.7: Salary Categories  
for SCDOT Employees**

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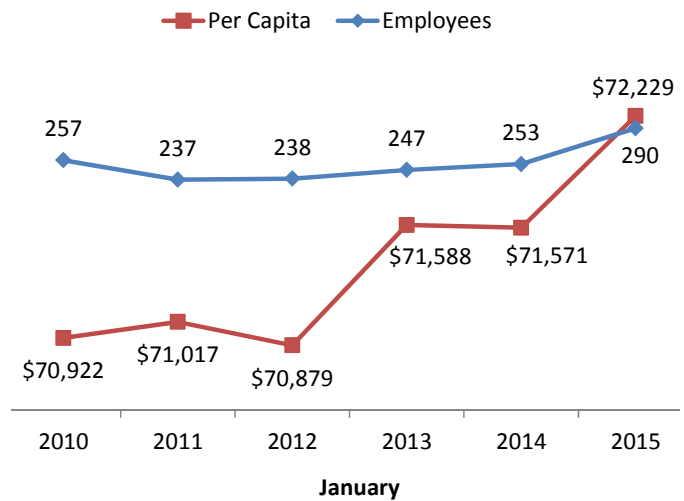
| SALARY                | NUMBER OF EMPLOYEES<br>JANUARY 2015 |
|-----------------------|-------------------------------------|
| \$19,999 and below    | 11                                  |
| \$20,000 – \$34,999   | 2,246                               |
| \$35,000 – \$49,999   | 1,120                               |
| \$50,000 – \$64,999   | 474                                 |
| \$65,000 – \$79,999   | 290                                 |
| \$80,000 – \$94,999   | 124                                 |
| \$95,000 – \$109,999  | 76                                  |
| \$110,000 and greater | 15                                  |
| TOTAL                 | 4,356                               |

Source: SCDOT and LAC

The result of our analysis revealed that the categories of \$65,000–\$79,999 and \$95,000–\$109,999 experienced the largest increases in total salary expense, not including fringe benefits, over time compared to other categories.

For the \$65,000–\$79,999 category, the average salary increased by 0.92% in 2014 even though there was a general increase of 2% that year. The average increase of less than 1% can be explained by employees entering this salary range while other employees near the top of the range moved up to the next salary range, as a result of the general increase.

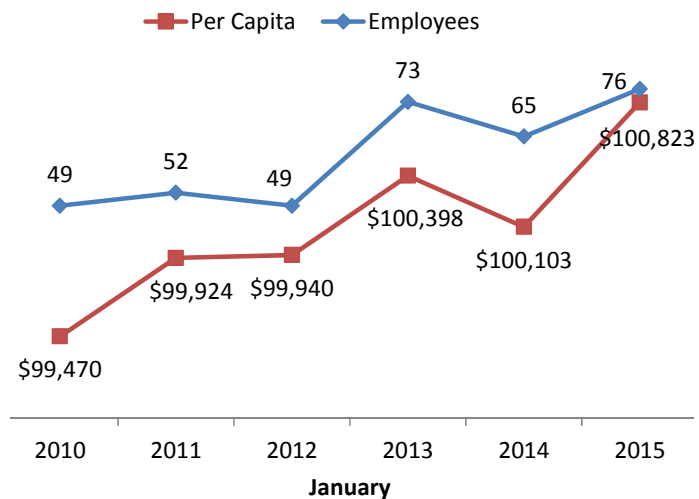
**Chart 2.8: Average Salary  
for Employees Earning  
\$65,000 – \$79,999 Annually**



Source: SCDOT and LAC

For the \$95,000–\$109,999 category, the number of employees and average salary has increased over the selected time period. In January 2010, this category represented about 2.6% of the employee population compared to 4.3% in January 2015.

**Chart 2.9: Average Salary  
for Employees Earning  
\$95,000 – \$109,999 Annually**



Source: SCDOT and LAC

To determine the reasons for the increases in these two categories, we selected a statistically-significant sample of employees for each category. The percentage of employees that did not receive a salary increase, aside from the general increases instituted by the General Assembly, was 36% for the \$65,000–\$79,999 category and 38% for the \$95,000–\$109,999 category. As seen in Charts 2.8 and 2.9, the average salary increase over the five-year period for the total number of employees in both categories was about \$1,300.

There were three employees from the \$65,000–\$79,999 category and one employee from the \$95,000–\$109,999 category that received a total salary increase of \$24,530 or more from January 2010 – January 2015. All four of these employees received multiple salary increases. Out of these four employees with an unusual total salary increase, two employees received salary increases with no justification listed.

- The first employee received two promotions, two raises due to additional skills, and one additional duties raise. The promotions led to a 10% increase and a 12.8% increase.
- The second employee received a promotion, reassignment, and a raise due to additional duties. These increases ranged from 5%–10%.

The other two employees had justifications written for each promotion. These two employees are both engineers that have progressed through the engineer/associate engineer series. Each promotion that these employees have received resulted in their salary being increased to the minimum salary level of the new classification.

According to SCDOT HR's pay guidelines, approval from the Division of State Human Resources is required for any pay increase exceeding 15%. In the sample, there were six instances of increases over 15%. The Division of State Human Resources has given SCDOT HR the authority to hire employees at the SCDOT internal salary minimum for the state classification. These six pay increases over 15% were to bring the employees to the minimum salary level of their new classifications.

In the samples, the salary increases were mainly due to additional duties, additional skills, reassignments, and promotions. The department was losing employees from FY 08-09 – FY 13-14 but FY 14-15 marked a turnaround in this trend. With the loss of employees, other employees must absorb more duties which could be an indication of raises due to additional duties. The additional skills raises are because an employee receives some kind of certification, such as Professional Engineer certification or Engineer in Training certification. There were very few performance raises. Reassignments are usually from new programs or filling a vacancy. Promotions are because an employee is moving up to the next state pay band.

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## Recommendation

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16. The S.C. Department of Transportation's Human Resources Department should ensure that all changes to salaries include a justification.

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## Internal Management

In this section, we discuss a number of issues that we examined as a part of our review of internal management practices and procedures. We found that:

- The department does not adequately measure and report on key performance indicators that affect the public.
- SCDOT employees and resources were used to inspect bridges in a private, gated community. At the time, no departmental directive was in place to prohibit the use of department resources on private property.
- SCDOT management initially made the decision to build a bridge that would cost an estimated \$22 million more than an alternative design without consulting the Commission.

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## Processing of Encroachment Permits and SCDOT Access and Roadside Management Standards (ARMS)

SCDOT uses an automated system to accept and process applications for encroachment permits. Encroachment permits allow builders, developers, and individuals to gain access to highways. The Encroachment Permit Processing System (EPPS) was fully implemented in July 2013. More than two years after full implementation of the system, an SCDOT information technology manager referred to the system as a “work-in-progress.” The EPPS application does not have adequate controls in place to prevent staff from manipulating decision dates or permit status.

Encroachment permits are required before any work can be conducted in or on SCDOT rights-of-way by any entity other than SCDOT. To establish uniformity for these encroachments on SCDOT roads and rights-of-way, the department developed a set of standards and guidelines known as Access and Roadside Management Standards (ARMS). We reviewed these standards and the encroachment permit issuance process and determined that SCDOT has complied with the Administrative Procedures Act in promulgating appropriate regulations dealing with encroachments.

An SCDOT official stated that the department established a goal to process 80% of permit applications within 30 days, but no related performance measure is included in the department’s annual accountability report. To track this goal internally, EPPS generates a performance report each week that is automatically e-mailed to 18 managers.

The system only considers time that the permit was pending or being processed by SCDOT and subtracts any time attributable to the department awaiting additional information from the applicant. As of the December 14, 2015 internal report generated by the system, the department was meeting its established goal and processing 91% of permits statewide within 30 days.

Due to the “snapshot” nature of these reports, it is difficult to recreate the exact dataset that was used. We performed a limited test of figures in the latest report using more current data from five counties and determined that the timeliness reported was either the same or very close to what we calculated. Those results are presented in Table 2.10.

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**Table 2.10: Test of Encroachment Permit Timeliness Report**

|           | AVERAGE DAYS TO DECISION |                 | % OF PERMITS COMPLETED IN < 30 DAYS |                 |
|-----------|--------------------------|-----------------|-------------------------------------|-----------------|
|           | SCDOT REPORT             | LAC CALCULATION | SCDOT REPORT                        | LAC CALCULATION |
| LEE       | 36                       | 37.56           | 68                                  | 68.52           |
| MCCORMICK | 7                        | 7.65            | 97                                  | 97.50           |
| CHESTER   | 6                        | 6.39            | 98                                  | 98.59           |
| MARLBORO  | 2                        | 2.40            | 100                                 | 100.00          |
| BAMBERG   | 17                       | 17.19           | 80                                  | 80.95           |

Source: SCDOT and LAC

Our review of permit records revealed at least 110 permits in the system with decision dates that preceded permit creation dates. A detailed review of 15 of those records found that in all cases the dates had been altered by SCDOT staff. This happened most frequently for permits issued in Horry County. In one instance, a permit record reflected a creation date of August 25, 2014, but showed that the permit decision was made on March 19, 2014. The decision date was changed by an SCDOT employee to one that was 159 days earlier than the date set by the system. Additionally, a December 2015 internal e-mail from an SCDOT official identified 47 permits in the system with an issue date, but no decision date. An SCDOT information technology manager confirmed that there are no controls in place to prevent staff from altering decision dates or permit status.

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## Recommendations

17. The S.C. Department of Transportation should add performance measures related to encroachment permit processing times to the annual accountability report and make the information available on the department website.
18. The S.C. Department of Transportation should add stronger controls to the encroachment permit processing system to prevent employees from altering dates or permit status after being set by the system.

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## Reporting on Timeliness of Maintenance Work Request Completion

SCDOT does not report current information about the timeliness of completing maintenance work requests submitted by the public. The most current information available publicly on the engineering dashboard located on the SCDOT internet site, as of January 2016, reports data from the fourth quarter of FY 13-14 (April 2014–June 2014). At that time, the data was more than 18 months old. The same website states that the department “recognizes the importance of reporting the current status of performance data to the citizens of South Carolina.”

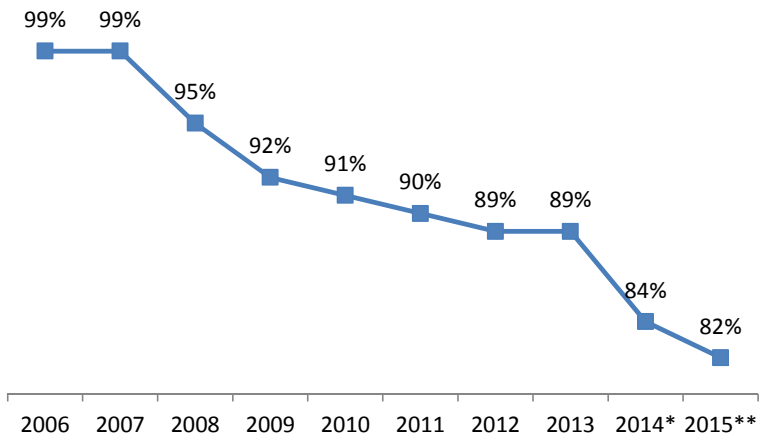
Further, SCDOT is not currently meeting its established goal of completing 85% of public work requests within 60 days, a goal that was already reduced from a previous goal of completing 95% of requests within 60 days. An SCDOT official stated that the goal was changed due to constraints on filling vacant maintenance positions. Management’s desire to make goals more attainable for the employees doing the work is understandable, but reducing the performance standard does not serve the public and is settling for substandard performance. The new standard, as it allows 10% more of the requests to take longer than 60 days to resolve, will likely have an impact on SCDOT’s response to the work requests and the public’s perception.

We found that SCDOT does not routinely measure and publicly report historical performance data related to work request completion. The highway maintenance management system (HMMS) can generate snapshot reports of how SCDOT is doing at a current point in time, but data in the system is written over as data changes. Historical data is not adequately captured and maintained for future review.

According to figures reported by SCDOT, the timeliness of work request completion has trended downward from 2007 – 2015. Graph 2.11 represents the percentage of work requests (submitted by the public) completed within 60 days for each of the last ten years.



**Graph 2.11: Work Request Completion Within 60 Days**



\* The figure reported for 2014 represents the fourth quarter of FY 13-14. This is the only data available for that year as SCDOT does not retain historical figures.

\*\* The figure reported for 2015 represents the most recent data reported on the internal maintenance dashboard. It represents November 2014 to November 2015.

Source: SCDOT

## Recommendations

19. The S.C. Department of Transportation should measure and report the timeliness of completing maintenance work requests submitted by the public on a quarterly basis on the department website.
20. The S.C. Department of Transportation should capture and retain work request completion timeliness data so that performance can be measured over time.
21. The S.C. Department of Transportation should require that any county maintenance office or district that is not meeting the target completion percentage file a plan with the Director of Maintenance to meet the goal within a defined period of time.

## Inspection of Privately-Owned Bridges

In August 2011, SCDOT staff inspected three privately-owned bridges in Woodside Plantation, a gated community in Aiken, at an estimated cost of \$1,400 to SCDOT. Using state resources for work on private property is, in effect, using taxpayer dollars for the enrichment of private citizens. Maintenance of privately-owned roads and bridges is the responsibility of property owners, not state government.

At the time of the inspections, there were no policies or directives in place to prohibit the use of departmental resources on private property. After SCDOT employees raised concerns, the OCIA investigated the circumstances surrounding the inspections. The report indicated that a former deputy secretary stated he was contacted by an Aiken city council member by e-mail to determine who was responsible for ensuring infrastructure safety and assumed that the City of Aiken was interested in taking over the roads. He stated that he considered the request for the bridge inspections as coming from a governmental entity. The OCIA found there had been no discussion of the city acquiring the roads. The report further found that SCDOT managers involved with this issue concluded the roads were “public” because they were used by school buses. The OCIA report noted that when it contacted Aiken County Public Schools, no bus drivers or citizens had complained about the bridges.

In January 2012, a few months after the inspections, a departmental directive (DD 49) was implemented to prohibit the use of departmental resources on private property, after having operated for years without such a directive. In August 2015, DD 49 was intended to be converted to an engineering directive and was removed from the index of departmental directives; however, it was never put into place as an engineering directive. An SCDOT official stated that the conversion “fell through the cracks.” From August 2015 – December 2015, the language of the directive was not accessible on the SCDOT intranet or internet sites.

While there is no state statute that explicitly prohibits the use of SCDOT personnel or equipment for the benefit or enrichment of private property owners, the Attorney General’s office has issued opinions stating that the use of public funds for private purposes is prohibited. The opinions have cited Article X, Section 5 of the Constitution of the State of South Carolina, which states that “Any tax which shall be levied shall distinctly state the public purpose to which the proceeds of the tax shall be applied.”

The Attorney General’s opinions have also stated that the Supreme Court has concluded that the determination of what constitutes a public purpose is a decision for the legislative branch. The South Carolina Supreme Court heard arguments in a case related to the inspection of the private bridges in Aiken during the course of our audit but the court’s opinion has not been issued as of the publication of this report.

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## Recommendations

22. The S.C. Department of Transportation should implement a policy to require that any request for assistance from a local government entity for work to be performed outside of the department's right-of-way be submitted in writing on official letterhead.
23. The S.C. Department of Transportation should reinstate Departmental Directive 49 addressing the prohibition of the use of departmental resources on private property and it should be applicable to all department employees, not just those in engineering units.
24. The General Assembly should add language to state statute prohibiting the use of S.C. Department of Transportation resources, including personnel and equipment, on private property unless there is a legitimate departmental purpose involved.

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## Replacement of S.C. Highway 41 Bridge over Wando River

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Construction is currently underway on a replacement for the S.C. Highway 41 bridge over the Wando River. There was some controversy over the way in which SCDOT managed this project.

The swing bridge that is being replaced has been rated both structurally deficient and functionally obsolete and mechanical problems have limited the ability to open the bridge to allow larger vessels to pass. In developing the replacement project, SCDOT had to consider two basic design alternatives:

- A fixed-span bridge, which would need to be higher than the existing bridge in order to allow boats to pass underneath.
- Another movable bridge, which would be more costly to build and maintain than a fixed-span bridge.

The department also needed to secure the approval of two key stakeholders with competing priorities:

- The Town of Mount Pleasant, which needed to approve the project because a portion of the work on the roadway approaching the bridge would be located within the town limits.
- The U.S. Coast Guard (USCG), which must provide a permit for construction of any bridge over a navigable waterway.

The following is a summary of the major events in the long history of this project.

### **S.C. 41 at Wando River Bridge Project Timeline**

|               |  |
|---------------|--|
| 1998/1999     | According to SCDOT, the bridge was identified for replacement due to poor condition and growth in surrounding areas.   |
| January 2005  | SCDOT proposed a 45-foot fixed-span bridge at a public information meeting. The majority of community comments were in favor of a lower bridge and in February, the Mount Pleasant Town Council voted in support of limiting the bridge height to 20–25 feet.  |
| April 2005    | SCDOT was informed by USCG that any bridge lower than 50 feet would need to be movable in order to receive a permit.   |
| August 2005   | SCDOT sent a letter to USCG outlining its desire to build a fixed-span bridge for cost reasons and the need to obtain the approval of the Town of Mount Pleasant. In September, USCG responded that a permit for any fixed bridge less than 35 feet would certainly be denied, while one for a bridge of at least 50 feet would be approved. |
| December 2005 | Representatives of SCDOT and USCG met with representatives of the Town of Mount Pleasant to discuss the bridge height, but no agreement was reached.   |
| January 2008  | The Mount Pleasant Town Council notified SCDOT that it would accept a maximum 35-foot bridge.  |
| August 2008   | SCDOT proposed a 35-foot fixed bridge to FHWA; USCG informed FHWA that a minimum of 55 feet of clearance would be required for any fixed bridge at this location.  |
| May 2010      | SCDOT submitted and received approval from FHWA for an Environmental Assessment proposing two alternatives — a 55-foot fixed bridge and a 14-foot movable bridge. Both of these options were presented at a public hearing, after which residents and the Town of Mount Pleasant continued to support a movable bridge.                      |
| December 2010 | FHWA approved the movable bridge option.   |
| January 2012  | A value engineering study completed as a normal part of the project development process indicated that building a fixed bridge instead of a movable bridge could result in a life cycle cost savings of \$22 million.  |

|                |  |
|----------------|--|
| February 2012  | In accordance with SCDOT Engineering Directive 34, the internal SCDOT Value Engineering Review Committee considered the value engineering study and rejected the recommendation to build a fixed bridge due to the community input already received.                                       |
| April 12, 2012 | The SCDOT Office of the Chief Internal Auditor released to the SCDOT Commission an internal report, triggered by SCDOT employee concerns, highlighting the cost savings that could be realized by building a fixed bridge.   |
| April 19, 2012 | The SCDOT Commission voted to suspend the movable bridge project while staff explored other design options.  |
| June 2012      | SCDOT Secretary and FHWA Division Administrator appealed to USCG to reconsider a 35-foot fixed bridge.   |
| September 2012 | At the urging of SCDOT staff, the Town of Mount Pleasant endorsed a bridge of up to 55 feet, with a preference for a 35-foot bridge if allowed by USCG. According to SCDOT, FHWA and USCG subsequently advised that a 55-foot bridge was the only feasible option for a fixed-span design. |
| February 2013  | The Mayor of Mount Pleasant signed a municipal agreement for the 55-foot bridge project.   |

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## Conclusion

The bridge that is now being built is the cheaper option, a 55-foot fixed-span bridge. We note that the SCDOT decision to reject the value engineering study, which recommended the fixed bridge and listed a savings of \$22 million, was made in February 2012. Approximately two months later, the Office of the Chief Internal Auditor released its report citing that value engineering study. A week after that, the SCDOT Commission voted to suspend the movable bridge. It is unclear what SCDOT's practice is regarding providing alternatives to the Commission. It appears that SCDOT management is making decisions to accept or reject alternatives that span cost curves of \$22 million without the approval of the Commission.

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## Recommendation

25. The S.C. Department of Transportation should revise Engineering Directive 34 to require that the decisions of the Value Engineering Review Committee and the alternatives considered be presented to the Secretary of Transportation and the SCDOT Commission.

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## Strategic Direction Plan and Performance Measures

The federal Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) created an increased emphasis on performance-based planning for statewide, metropolitan, and non-metropolitan transportation planning. An essential aspect of performance-based planning is developing a strategic direction plan to create a vision for the future. This involves formulating goals, objectives, and performance measures. However, the Federal Highway Administration's final rules for performance management are not complete yet. After reviewing SCDOT's strategic plan and performance measures, we identified ways that SCDOT should improve its goals, objectives, and performance measures. In our review we found:

- The four goals listed in the 2015–2017 Strategic Direction Plan (SDP) do not cover all necessary areas that appear to be critical to the department's success.
- SCDOT's objectives are not measurable and do not address specific time periods.
- Action steps are not included in the SDP and only some action steps are listed in the division plans or business plans of SCDOT's offices.
- Of the three divisions, only two have division plans. Only 27 out of 45 offices at SCDOT headquarters have a business plan.
- SCDOT may have too many critical performance measures, some of the measures are unclear, and some do not have target values. SCDOT also does not have a customer satisfaction measure.

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## Goals and Objectives

The 2015–2017 SDP is a two-page document listing goals, strategies, and objectives. According to the Federal Highway Administration (FHWA), a goal is “a broad statement that describes a desired end state,” and an objective is “a specific, measurable statement that supports achievement of a goal.”

MAP-21's national goals focus on the areas of safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays.

SCDOT's goals are:

- Improve safety.
- Preserve our transportation infrastructure.
- Optimize mobility.
- Enhance a strengthening economy.

These goals are self-explanatory, with the exception of the last goal: enhance a strengthening economy. According to the 2014–2015 SDP, this goal is important because “a well-functioning, efficient transportation system is essential to sustaining the manufacturing renaissance and to ensuring continued economic development opportunities in all areas of the state.” This goal not only targets interstates, ports, freight networks, and airports, but also gender and racial diversity among businesses that contract with SCDOT.

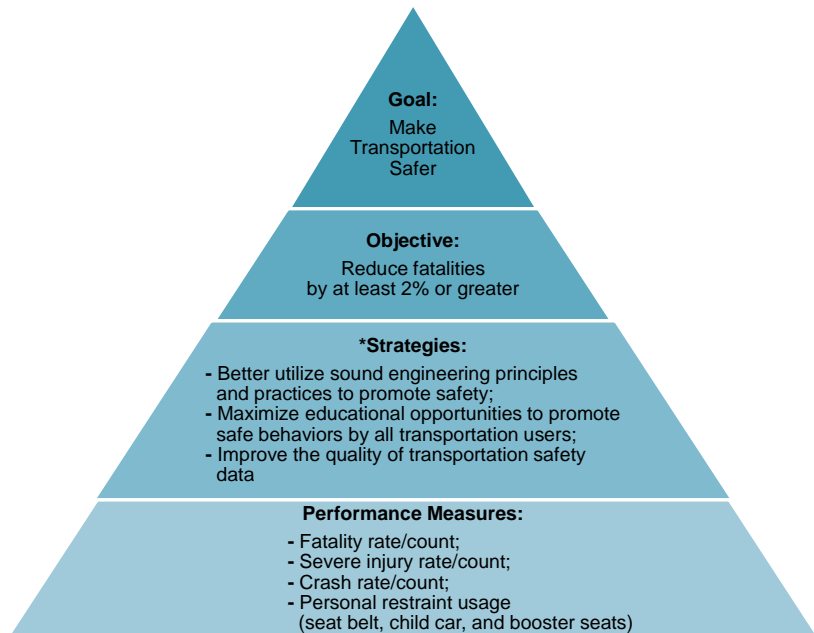
SCDOT's goals are in line with MAP-21's goals with the exception of environmental sustainability and reducing project delivery delays. These are not specifically addressed in any of the goals, strategies, or objectives. Project delivery was addressed in the areas of emphasis for management in the previous 2014–2015 SDP.

In addition, Georgia DOT, North Carolina DOT, California DOT, and USDOT all included a goal similar to organizational excellence or making the workplace a great environment. Workforce development and customer service are also addressed in the areas of emphasis for management in the previous 2014–2015 SDP.

Chart 2.12 is an example of one goal provided by the N.C. Department of Transportation's 2015–2017 SDP. Chart 2.13 is a similar example of one goal from SCDOT's current 2015–2017 SDP.

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**Chart 2.12: N.C. Department of  
Transportation 2015 – 2017  
Strategic Plan**



\* Only 3 of 5 strategies were listed due to space availability.

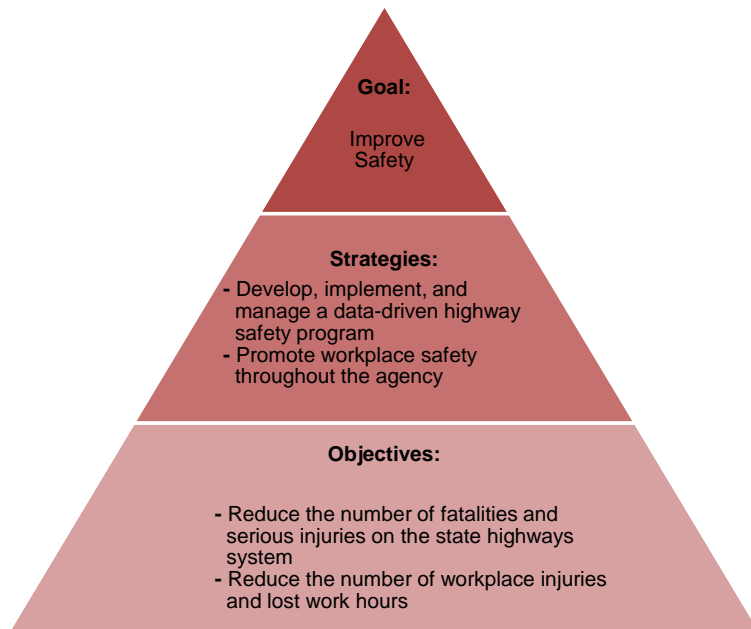
Source: N.C. Department of Transportation and LAC



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**Chart 2.13: S.C. Department of  
Transportation 2015 – 2017  
Strategic Plan**

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Source: SCDOT and LAC

Furthermore, SCDOT’s objectives are not measurable and time-bound. Objectives should be SMART (specific, measurable, agreed-upon, realistic, and time-bound). SMART objectives are important because they clearly demonstrate what needs to be achieved and a way to determine if it has been accomplished. FHWA defines measurable as “the objective facilitates quantitative evaluation, saying how many or how much should be accomplished” and time-bound as “the objective identifies a timeframe within which it will be achieved.” According to FHWA, developing SMART objectives is recognized as a best practice. The objective of reducing the number of fatalities and serious injuries on the state highway system should include a percentage of reduction and include a time frame. For example, “reduce the number of fatalities and serious injuries on the state highway system by 3% by 2018.” Creating SMART objectives leads to the development of performance measures that drive and support the decisions to achieve goals. SMART objectives would allow SCDOT to develop a measurable, performance-based approach to planning.

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## Recommendations

26. The S.C. Department of Transportation should incorporate environmental sustainability, project delivery, and organizational excellence into its current strategic plan.
  27. The S.C. Department of Transportation should include performance measures in its strategic direction plan.
  28. The S.C. Department of Transportation should evaluate objectives and write measurable and time-bound objectives.
- 

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## Division and Business Plans

There are no steps listed in the 2015–2017 SDP to accomplish SCDOT’s strategies or objectives. Without action steps, a strategic plan is no more than a statement of intent. The divisions and offices at headquarters, along with district offices and county offices, each have division or business plans. The division plans do list some actions steps but most statements in these plans are goals. Furthermore, some business plans include action steps, while others do not.

There are three divisions of SCDOT — Intermodal and Freight Programs, Construction Engineering and Planning, and Finance and Administration. These plans list specific goals each division and office should achieve to support the department’s strategic direction. The Finance and Administration division did not create a division plan. The Engineering and Intermodal divisions each created a division plan that falls in line with SCDOT’s previous 2014–2015 SDP. The current 2015–2017 SDP lists the same goals, objectives, and strategies found in the previous 2014–2015 SDP. However, the 2014–2015 SDP provides more detail of the department’s goals, includes performance measures, and lists four areas of emphasis for management. Performance measures are directly related to strategic planning. SCDOT should include performance measures in the 2015–2017 SDP and all future strategic plans.

There are multiple offices within each division. The director of each office is required to develop a business plan. The division plans define how the division supports the four goals and the four areas of emphasis. There are measurable objectives listed with targets, some of which are time-bound.

For example, in the engineering division's plan, one of the measurable objectives to support the goal of improving safety is to reduce employee injuries by 5%. The business plans include goals and anticipated results. According to SCDOT management, an office's business plan is available to the employees in the office. Only 27 out of 45 offices at headquarters have a business plan to support the four goals of the department.

SCDOT created business plan guidelines; however, only 12 of 27 business plans follow the minimum content requirements. The guidelines connect the business plan's goal to the strategic plan's goal or area of emphasis. It also explains how the business plan's goal supports the strategic plan's goal or area of emphasis. This format clearly describes how the office is contributing to the strategic plan so that all employees in the office understand the purpose of their work. All units should follow the business plan guidelines to create uniformity and ensure that all units are contributing to furtherance of the department's strategic plan.

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## Recommendations

29. The S.C. Department of Transportation should create and document action steps they plan on using to meet their objectives of the strategic plan.
30. The S.C. Department of Transportation should ensure that all units create business plans according to the guidelines.
31. The S.C. Department of Transportation should ensure that all divisions create division plans to support the department's strategic direction plan.

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## Performance Measures

We reviewed SCDOT critical performance measures and found that SCDOT may have too many critical performance measures, six performance measures do not have target values, and some performance measures are unclear.

SCDOT's current critical performance measures are listed in its FY 14-15 Accountability Report (see Appendix D). These same performance measures can be found in the previous SDP but not in the current SDP; however, the department still utilizes these performance measures. SCDOT's critical performance measures are linked to the goals, strategies, and objectives of the department.

These are the measurable attributes of performance that must improve in order to reach the goal. According to FHWA:

- Performance measures should be tracked over time to inform others on whether the state is moving toward the goals and objectives of the plan.
- A target should be set to clarify the level of performance that the state intends to achieve within a given timeframe in order to make progress towards the goals and objectives.

A target value has been set for all but six performance measures. SCDOT is awaiting completion of the Transportation Asset Management Plan (TAMP) or federal guidance before setting targets for the following performance measures:

- Percentage of road miles in good condition.
- Percentage of vehicle miles traveled (VMT) on good pavement.
- Annual hours of delay on interstates and strategic network.
- Interstate reliability index.
- Freight hours of delay.
- Freight reliability index.

These measures were originally incorporated in 2014 and no target values have been set for these measures. There are federal draft rules pertaining to performance measures by FHWA, but these rules have yet to be finalized. The federal guidance will be for safety, pavement and bridge performance, system performance (mobility), and transit. The current federal draft rules prescribe some measures and minimum condition targets for interstate pavement conditions and National Highway System (NHS) bridges. For proposed measures without minimum condition targets, FHWA will provide guidance to states and Metropolitan Planning Organizations to establish targets and the methodology to evaluate progress. When the federal rules are finalized, FHWA will define how the performance measures are measured, but each state will set its own targets.

It is unclear why SCDOT has not established targets while awaiting federal guidance since SCDOT will be required to set its own targets after the federal rules have been finalized. If necessary, the targets should be adjusted after federal guidance is received. These four measures are a part of SCDOT's purpose of maintaining and improving efficiency in transportation. SCDOT should not have waited on federal guidance to set standards of performance and improvement.

According to FHWA, there should be approximately 10-15 critical performance measures. SCDOT has 24 critical performance measures. For a complete list of the department's performance measures, see Appendix D. SCDOT should evaluate all performance measures to determine if each measure is critical to the department's goals. Furthermore, Washington State's Office of Financial Planning's *Performance Measure Guide* states that performance measures should be relevant, understandable, timely, comparable, reliable, and cost-effective, useful, influential, significant, and feasible. We reviewed SCDOT's critical performance measures for these characteristics. We found:

- The calculation of interstate reliability index and freight reliability index is unclear. Knowing the variables included in the measure could make the measure more understandable and useful.
- Nine performance measures state that the reporting frequency can be "as needed." This is unclear and leads to difficulty in comparing performance over time.
- It is unclear what "percentage of SCDOT-titled active duty public transit vehicles beyond defined useful life parameters" actually means.

The *Performance Measure Guide* also states that measures should avoid jargon or acronyms and not be worded as objectives. Performance measures should start with the unit of measure, for example "the number of," "the percentage of," or "the ratio of." Two of SCDOT's critical performance measures are phrased in the form of an objective. They are: reduce number of targeted posted bridges and reduce number of targeted closed bridges (see Appendix D). Posted bridges are bridges with weight restrictions due to design or condition. According to an SCDOT official, the department has developed a program that assigns risk to posted and closed bridges based on structural condition and user costs associated with detours. These bridges are prioritized and targeted based on the amount of risk associated with each bridge.

Performance measures related to percentage of work awarded/committed are related to the Disadvantaged Business Enterprise Program (DBE). This is not included in the performance measure, but only in the data source and availability column of the performance measure chart in SCDOT's FY 14-15 accountability report (see Appendix D). The acronym DBE is not explained in the performance measure chart.

One goal of performance measures should be to determine if customers are satisfied. Customer satisfaction used to be an SCDOT critical performance measure but it is no longer included. The current internal customer satisfaction measures in the division plans relate to customer service training.

According to the division plans, business plans should have a customer service goal but we were unable to determine what these goals were. The department should consider creating a customer satisfaction performance measure.

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## Recommendations

32. The S.C. Department of Transportation should set targets for all performance measures.
33. The S.C. Department of Transportation should review performance measures to ensure that all are relevant, understandable, timely, comparable, reliable, cost-effective, useful, influential, significant, and feasible.
34. The S.C. Department of Transportation should evaluate performance measures to ensure there are no acronyms and that measures are not written as objectives.
35. The S.C. Department of Transportation should consider creating a customer satisfaction performance measure.

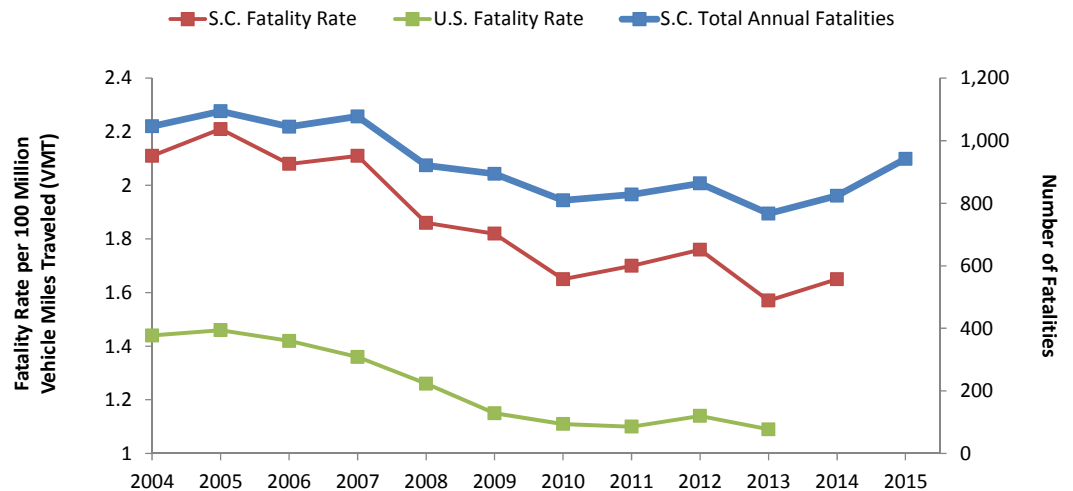
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## Safety Performance Measures

We reviewed SCDOT's safety performance measures and found the rate of traffic fatalities in South Carolina is significantly higher than the national average. We also found that the broad measures of number and rate of fatalities and injuries may not demonstrate the effects of the steps the department takes to reduce crashes. Other factors that are not related to the physical structure of roads or bridges, such as driving under the influence, also contribute to accident numbers and injuries.

Over the last ten years, the South Carolina fatality rate has consistently been about 50% higher than the national rate. Both the number and rate of traffic fatalities in South Carolina are lower than they were ten years ago, but the last two years saw increases in total fatalities. Notably, the preliminary total for 2015 is higher than it has been since 2007. However, the fatality rate for 2015, which would take into account any change in miles driven, is not yet available.

**Graph 2.14: S.C. and U.S. Traffic Fatalities, 2004 – 2015**



Source: National Highway Transportation Safety Agency, S.C. Department of Public Safety, SCDOT, and LAC

SCDOT is neither the only nor the primary state agency that works to improve traffic safety. The S.C. Department of Public Safety (SCDPS), specifically the Office of Highway Safety and Justice Programs, coordinates highway safety activities throughout the state and carries out the following major functions:

- Administration of highway safety grant funds from the National Highway Traffic Safety Administration.
- Statistical analysis of traffic collision data.
- Coordination of statewide highway safety campaigns.
- Support for the S.C. Law Enforcement Network, which works to coordinate traffic safety enforcement.
- Coordination of the development and implementation of the S.C. Strategic Highway Safety Plan.

SCDOT does not collect its own traffic safety data, but SCDPS provides crash data, including crash type and location. SCDOT analyzes this data to calculate the number and type of crashes at specific locations. Based on crash rates and severity at specific locations, the department identifies priority safety projects in three categories:

- Intersection improvements.
- Corridor/segment improvements.
- Interstate improvements.

The current list of prioritized safety projects includes 14 intersection improvements, 37 corridor/segment improvements, and 2 interstate improvements. These projects are in varying stages of completion, ranging from planning to design to construction. One is inactive and one is already complete. An example of an intersection improvement safety project the department completed is the realignment of the U.S. 221 and S-146 intersection. According to SCDOT's analysis, this project resulted in a crash rate reduction of 70% and a net annual benefit of over \$900,000.

Completed safety improvement projects are evaluated using cost-benefit analysis and data such as the reduction in the number of crashes, reduction in the rate of crashes, and reductions in fatalities and injuries. The cost-benefit analysis is the primary method of evaluating projects. To calculate the benefit of a project, SCDOT uses statistical monetary values of fatalities, injuries, and property damage to calculate the cost savings represented by the reduced number of crashes observed over a period of time after a project is complete. The department compares this cost savings with the cost of the project spread out over the remaining number of years the improvement is expected to last.

SCDOT receives federal funding for these safety projects through the Highway Safety Improvement Program. In FY 14-15, SCDOT spent \$1.85 million on safety projects. This was only a fraction of a percent of its total programming costs. The department is unable to provide the amount of expenditures on safety projects for prior years. The portion of capital outlay expenditures on South Carolina's major roads that is dedicated to safety improvements is similar to the national average.

As of 2015, SCDOT has quantitative performance targets for traffic safety measures such as number and rate of fatalities, number and rate of severe injuries, and number of fatal pedestrian and bicycle accidents. These targets are set in coordination with SCDPS using statistical analysis of five-year rolling averages and recent annual trends. Goals are based, in part, on continuation of trends, but may be adjusted to ensure feasibility.

Although most data for 2015 are not yet available, the preliminary fatality total for 2015 exceeded the target by more than 30%. The most recent five-year average available for all but one of the key performance measures exceeded the trend line calculated by SCDPS. Because SCDOT's safety projects are only one part of statewide highway safety efforts, broad measures such as number and rate of fatalities and injuries across the state may not demonstrate the effects of the department's efforts. Measures such as the reduction in crash rates where improvements have been completed and the benefit-cost ratio of completed projects may be a more accurate way to assess the impact of SCDOT safety projects.



SCDOT also sets goals for workplace safety, specifically the number of workplace injuries and number of lost work days due to injury. For 2015, the department set a goal of a 20% reduction in injuries and a 25% reduction in lost work days. Neither of those goals was reached in 2015.

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## Recommendations

36. The S.C. Department of Transportation should track and report annual safety expenditures by type of safety project or improvement.
37. The S.C. Department of Transportation should include in its Strategic Plan and Accountability Report performance targets for specific safety measures that reflect the department's role in statewide highway safety efforts more closely than the broad measures of statewide fatalities and injuries that are currently used.

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## Data Issues

During the course of our audit, we encountered multiple cases in which the department had not appropriately collected, maintained, used, or shared data related to its operations. This is symptomatic of some data mismanagement within the department. While these issues impeded our audit work, more significantly, they affect the department's ability to manage the agency effectively and execute its core functions.

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## Expenditures Breakdown

SCDOT could not provide expenditures for capacity-building projects, pavement maintenance projects, and routine maintenance in a useable format that was readily available from its accounting system. This impaired our ability to analyze trends in these major spending categories, to compare costs of different types of projects, and to provide the related information that legislators requested (see *Infrastructure Expenditures and Recommendation 41* in Chapter 3).

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## Road Condition Data

SCDOT's inability to filter road condition data for a particular segment from a contract impedes its ability to analyze the extent to which repairs improve road conditions, the additional service life that a repair adds to a road, and the relative effectiveness of different types of repairs (see *Road Condition Data and Recommendation 51* in Chapter 4).

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## C Program Administration Financial Data

SCDOT could not provide detailed information on expenditures related to administration of the C Program. The department also could not provide documentation that the C Program administrative fee structure has been reviewed or studied to determine if the fees are set to adequately recapture expenses incurred by SCDOT to administer the program (see *Accountability Issues and Recommendations 155-156* in Chapter 7).

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## Project Prioritization

The department's project prioritization process lacks transparency. Prioritization criteria are not fully outlined as required in regulation, the weighting of these criteria is often unclear, and the methodology for using data to measure the criteria is not always disclosed. In addition, the data on which the prioritization of interstate mainline capacity projects was based are not available, in part due to information not being archived by an employee who left the department. (See *Project Prioritization Process and Act 114 Compliance and Recommendations 68-71, 75, 77-80, 84, 89-91, 94-95, 99-102, 104-107, 109, and 110* in Chapter 5).

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## Project Timelines

We attempted to examine the time between Commission approval of a project and the letting of the contract; however, SCDOT does not track this. This information would be helpful in evaluating the efficiency of the project planning process.

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## Work Request and Encroachment Permit Processing Data

The department does not adequately capture or retain historical data related to timeliness of completing maintenance work requests (see *Reporting on Timeliness of Maintenance Work Request Completion* in Chapter 2). Additionally, SCDOT's encroachment permit processing system lacks adequate controls to prevent data alterations (see *Processing of Encroachment Permits and SCDOT Access and Roadside Management Standards (ARMS)* in Chapter 2). These are significant, customer-related performance indicators that should be effectively tracked and reported.

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## Outsourcing Data

We requested total outsourcing costs broken down by type of contract for the last five fiscal years. We received estimated outsourcing costs for FY 12-13 – FY 14-15. Availability of outsourcing cost data has been a persistent problem for the department as indicated in its 2013 outsourcing study by an SCDOT temporary employee and 2015 outsourcing audit by the Office of the Chief Internal Auditor (see *Outsourcing Studies* in Chapter 2). Transparency of outsourcing cost data is necessary to determine the cost-effectiveness of outsourcing. The department should ensure that its accounting systems are able to collect outsourcing cost data for analysis.

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## Decision-Making Analysis

We found that SCDOT could not provide documentation of analysis supporting the decision to implement the “27 in 7” Program (see *Debt Service and General Obligation Bonds* in Chapter 3).

Additionally, SCDOT could not provide documentation of in-depth analysis supporting the establishment of in-house paving crews in two districts to perform full-depth reclamation with Portland cement instead of contracting the work (see *Problems Resulting from SCDOT Full-Depth Reclamation (FDR) Process in District 2* in Chapter 4).

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## Multimodal Transportation Plan

SCDOT periodically publishes a statewide long-range transportation plan that reviews a broad range of transportation topics. The most recent plan, entitled Multimodal Transportation Plan, was published in December 2014, six years and seven months after the publication of the previous long-range plan. S.C. Regulation 63-10(B) requires that this plan be updated every five years, although it uses the title “State Comprehensive Plan.” The department is out of compliance with this regulation by failing to meet the five-year update schedule. As this is a public document intended to inform transportation investment decisions, failure to adhere to the prescribed update schedule could have a negative impact on the ability of transportation stakeholders, such as MPOs, COGs, municipalities, and counties, to make informed decisions. Publishing the plan under a title that differs from the one used in the regulation may confuse the public or other stakeholders who are less frequently engaged and make the plan less accessible.

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## Recommendations

38. The S.C. Department of Transportation should implement a procedure for updating the statewide, long-range transportation plan that will allow it to abide by the five-year schedule prescribed in S.C. Regulation 63-10(B).
39. The S.C. Department of Transportation should update S.C. Regulation 63-10(B) to reflect the title under which the statewide, long-range transportation plan will be published.

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## Statewide Transportation Improvement Program

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The S.C. Statewide Transportation Improvement Program (STIP) is a six-year transportation improvement program that includes all transportation projects and programs that receive federal funding, as well as other significant projects funded by state and local governments. The document is amended frequently. The STIP is currently prepared, maintained, and updated by manually entering data into a series of Excel spreadsheets. This process is very susceptible to human error.

To illustrate the frequency with which errors may occur during this process, we examined the summary tables that appear in each STIP document. In three versions of the STIP, we found a total of 14 discrepancies that likely resulted from either human error in transferring data or a failure to update the summary sheet when the STIP was amended. The most egregious discrepancies were found in the previous version of the STIP, originally approved in 2009, with the largest totaling \$98 million. However, even the program summary table of the most updated version of the current STIP contained five errors, indicating a continuing problem.

There is also a lack of clarity in the way that STIP data are presented. Some of the projects that are included in the summary tables are not listed individually in the document, and some of the projects included in the detailed listing are not included in the summary tables. This makes it difficult, if not impossible, for the reader to connect the list of projects with the summary tables that are presented, or to verify that the information provided in the summary tables is correct.

SCDOT is in the process of implementing an eSTIP system that will automate much of the STIP preparation and update process and is designed to help ensure consistency, accuracy, and availability of data. According to an SCDOT official, an electronic STIP preparation process was identified as a need as early as 2004, but it was deemed too costly at the time. No firm dates have been provided, but the department plans to implement the system in phases.

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## Recommendation

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40. The S.C. Department of Transportation should fully implement an electronic STIP preparation process and ensure that the new process provides accurate, timely, and understandable information to the public and other stakeholders.
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## Human Resources Data Issues and Availability

To review and analyze staffing at SCDOT, we requested complete rosters of all department employees, including detailed information such as title, hire date, and salary, at 11 points in time over five recent years. The lists that SCDOT initially provided contained hundreds of errors. Human Resources managers had to review and correct each of the nine spreadsheets containing errors before we could analyze the data.

We also asked for historical information on the number of maintenance positions that were filled and the number of authorized positions that were vacant for each year during a ten-year period. Human Resources managers reported that when the department transitioned to the South Carolina Enterprise Information System (SCEIS), it lost the ability to query personnel data from as recently as 2011 in sufficient detail to produce the information that we requested.

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## Manpower Management Report

The department completed a manpower study in 2012 that determined a total need of over 7,000 employees to achieve an overall “B” level of service, the equivalent of “good” road conditions. According to an SCDOT official, this overall total was removed from the report because it can be defeating to employees to know that the department does not have nearly that many people. Since SCDOT is considerably below 7,000 FTEs, it is unclear just how useful this report is to the department. According to an SCDOT official, some managers use the report and others do not. We could not determine how many SCDOT employees actually use the report.

The methodology used in conducting the study was not objective. Each department or office had a team that gathered data primarily through interviews with staff. Using personal judgement may not accurately reflect the required manpower needed to complete the tasks, and managers may tend to err on the side of too many FTEs due to self-interest.

The report does not list any analysis or conclusion. Therefore it does not provide insight into positions that could be re-purposed or the efficiency of outsourcing vs. insourcing, which were part of the intended scope of the report. While a manpower study can be an effective resource for organizations, it is questionable just how useful this report is to SCDOT.

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### Contact Information for District and County-Level SCDOT Management

SCDOT could not readily provide a complete list of e-mail addresses to be used in a survey of district and county-level SCDOT managers. The department initially provided an inaccurate list. After we raised questions about its accuracy, an SCDOT official confirmed that there were numerous errors and acknowledged that the quality control was weak. The official reviewed the list and indicated that only 86 of the 234 names originally provided should have been on the list.

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### Website Information

We found the following instances of conflicting or outdated information displayed on the department's website:

- SCDOT's planning webpage contains inaccurate information about the timespan of the STIP and the number of Transportation Management Areas (TMAs) in South Carolina, as well as outdated information about the funds received by TMAs.
- SCDOT presents an incomplete list of project prioritization criteria on its website. The following is the required criterion that is omitted on the website, but included in statute: "a life cycle analysis of estimated maintenance and repair costs over the expected life of the project."
- SCDOT states on its website that Act 114 of 2007 requires the department to issue directives describing its prioritization processes. This is actually required by S.C. Regulation 63-10, not Act 114 (see *Project Prioritization Process and Act 114 Compliance* in Chapter 5).
- SCDOT's website states that Act 114 requires SCDOT to take into consideration project prioritization criteria listed within the Act when establishing project prioritization lists. However, Act 114 requires that the Commission consider the criteria, not SCDOT (see *Project Prioritization Process and Act 114 Compliance* in Chapter 5).

# Revenues and Expenditures

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## Chapter Summary

We were asked to review SCDOT's funding sources and expenditures. The LAC contracted with Scott and Company to review various elements of revenues, expenditures, and other financial areas. In some instances, our staff performed additional or complementary audit analysis of the contractor work product and made editing and/or presentation changes. For this information, the word "we" may refer to Scott and Company, the LAC, or both. We found the following:

- The department's two largest sources of revenue are federal grants and state taxes, although some other funding sources, such as state general fund appropriations, have increased in recent years.
- Overall revenues are not keeping pace with inflation.
- The department is unable to isolate expenditures related to maintenance or capacity-building activities.
- SCDOT costs for road resurfacing and new construction are similar to the average estimated costs for those types of projects reported by three neighboring states.
- The department's cash balance is at its highest level in ten years.
- Some federal-aid eligible expenses were not reimbursed prior to November of 2013. The amount unreimbursed could not be identified. It is unclear how much of this has occurred since 2013.
- The department has no documentation to demonstrate the decision process used to incur the debt of the "27 in 7" Program (a program to complete 27 years' worth of projects in 7 years).
- From 2007 – 2015, bond obligations and debt owed to SCTIB, including interest payments, made anywhere from \$88 million to \$130 million unavailable to SCDOT for current road and bridge preservation maintenance needs as well as new construction "capacity" projects.

## Revenue Streams

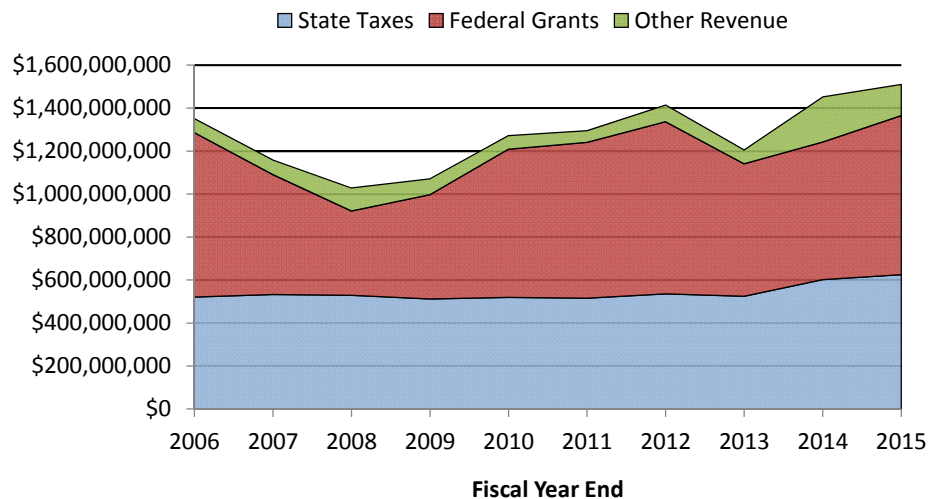
The department receives revenues and funding from a variety of sources, some of which carry restrictions on the types of expenditures on which the funds can be used. In this section, we summarize those revenue sources, any restrictions on their use, and recent trends in amount of revenue received from each source.

In our review, we found that revenue sources are not increasing enough to cover rising costs due to inflation. Chart 3.1 depicts SCDOT's total annual revenue for the last ten years, broken down into the following major categories:

- Federal grants.
- State taxes.
- Other revenue.

Other revenue sources include state appropriations, participation agreement and project revenues, interest and investment income, sales of goods and fees for services, revenue from other types of fees, fines, and permits, and miscellaneous revenues (see *Other Revenue Sources* in Chapter 3). Federal grants and state taxes are also discussed in further detail in the sections that follow.

**Chart 3.1: Total Annual Revenue,  
Fiscal Years Ending 2006 – 2015**



Source: Scott and Company



Total SCDOT revenues have increased approximately \$160 million over the last ten years, with some years showing a significant decrease due to swings in revenue sources caused primarily by the recession and underlying construction activity. Most of the \$160 million increase from FY 05-06 – FY 14-15 can be attributed to approximately \$111 million from the state generated by Act 98 funding (motor vehicle sales taxes and \$50 million state appropriation) and additional motor fuel user fee (gas tax) revenue due to the additional consumption of motor fuel over past years. Chart 3.2 shows the increase in revenues from these three sources from FY 05-06 – FY 14-15.

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**Chart 3.2: Increase in SCDOT Revenues, Selected Sources, FY 05-06 to FY 14-15**

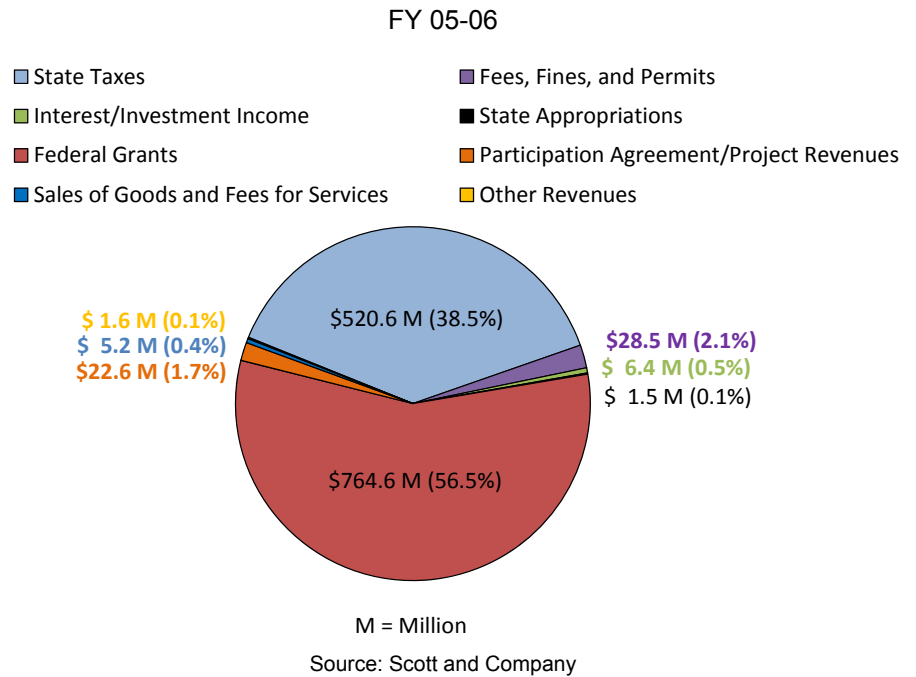
| REVENUE SOURCE                                | FY 05-06      | FY 14-15      | INCREASE      |
|---|---------------|---------------|---------------|
| Act 98 Appropriation                          | N/A           | \$50,000,000  | \$50,000,000  |
| Vehicle Sales Tax (provided by Act 98)        | \$0           | \$60,947,000  | \$60,947,000  |
| Motor Fuel User Fee (Gas Tax)                 | \$520,638,000 | \$559,228,000 | \$38,590,000  |
| TOTAL Increase in Revenues from these Sources |               |               | \$149,537,000 |

Source: Scott and Company and LAC

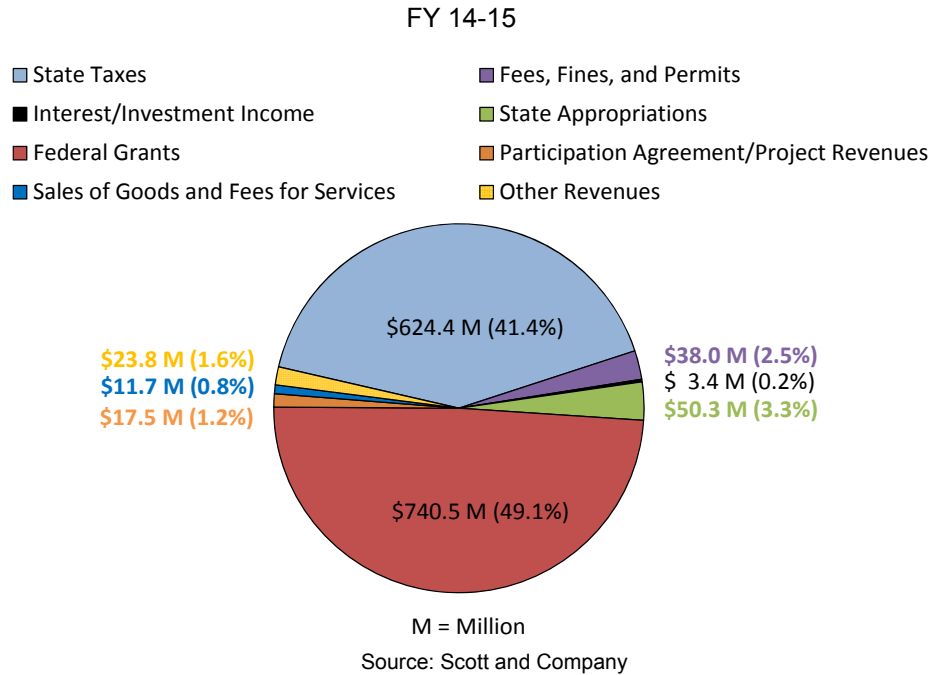
Total SCDOT revenue increased approximately 12% over ten years. Over the same period, the Consumer Price Index increased approximately 18% and the U.S. Bureau of Economic Analysis price index for state and local investment in structures, which may more closely represent changes in the costs SCDOT encounters, increased approximately 34%. This indicates that revenue sources are not growing at a pace to cover increasing costs due to inflation.

Charts 3.3 and 3.4 show a more detailed breakdown of revenues, by source, for FY 05-06 and FY 14-15, respectively.

**Chart 3.3: SCDOT Revenues, by  
Source, FY 05-06**



**Chart 3.4: SCDOT Revenues, by Source, FY 14-15**

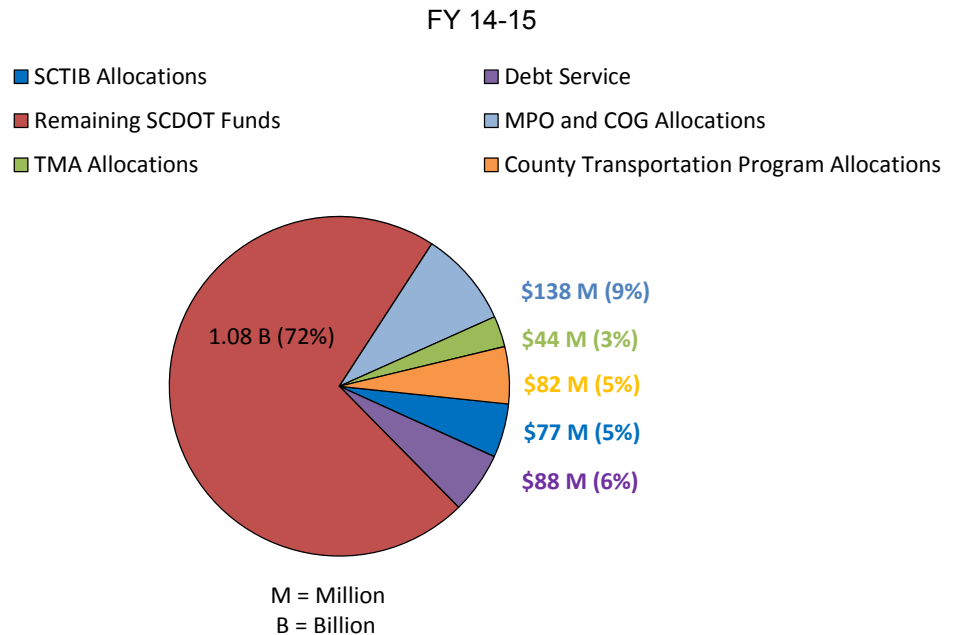


The revenue from sources other than state taxes and federal grants increased from \$65.8 million in FY 05-06 to \$144.8 million in FY 14-15 (see Graph 3.9).

Chart 3.5 shows that over one-quarter of SCDOT's total revenues in FY 14-15 were dedicated to debt service or allocated to other entities such as local and regional governments (MPOs, COGs, and CTCs) and the SCTIB.

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**Chart 3.5: Allocation of SCDOT Revenues, FY 14-15**



Note: MPO, COG, and TMA allocations are held by SCDOT; the totals shown for these allocations are preliminary totals for federal fiscal year 14-15, as of 9/25/15.

Source: Scott and Company and LAC

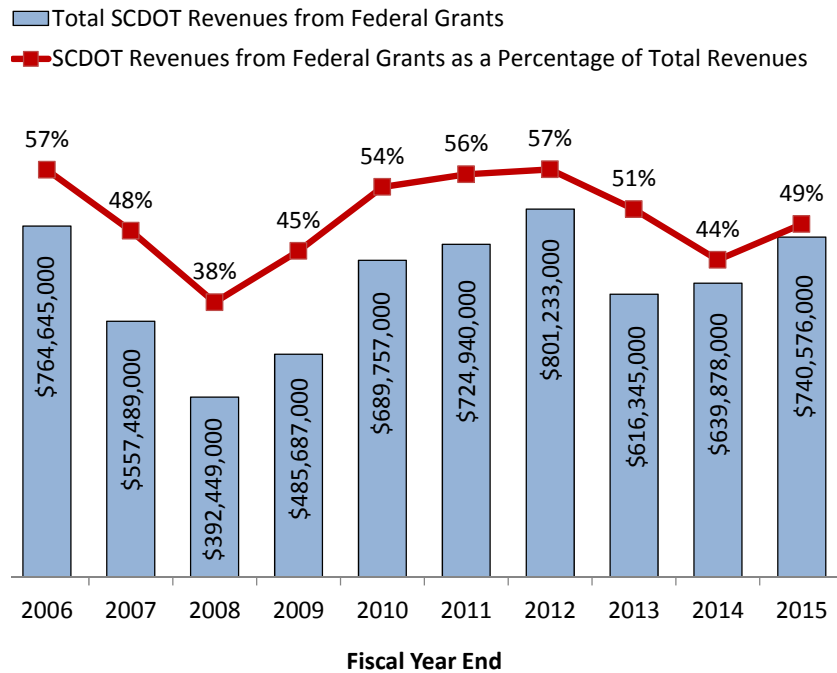
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## Federal Grant Revenue

The significant majority of the department's federal grant revenue is distributed under the Federal-aid Highway Program administered by the Federal Highway Administration. Under this program, SCDOT typically receives federal funds for 80% of a project's cost and pays the remaining 20% in matching state funds, but some types of projects are eligible for a higher percentage of federal funds. These funds are only disbursed on a reimbursement basis, after the department expends the funds on allowable costs under the grant program.

Federal grants have been SCDOT's largest source of revenue in most of the last ten years. Graph 3.6 shows the department's revenue from this source over the last ten years.

**Graph 3.6: Federal Grant Revenue,  
2006 – 2015**



Source: Scott and Company

As indicated by the close relationship between the amount of revenue and the percentage of total SCDOT revenues, the fluctuations in annual revenues are closely tied to the amount of federal grant revenue.

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## Tax Revenue

Tax revenues are divided among three primary categories:

- Motor fuel user fees.
- Motor vehicle sales taxes.
- Electric power taxes.

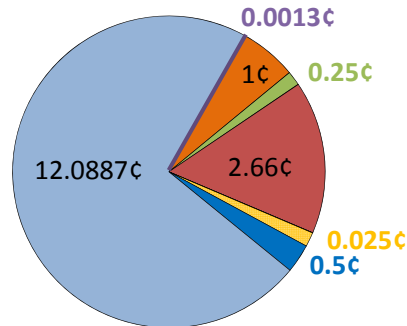
### Motor Fuel User Fees

S.C. Code §12-28-110 *et seq.* requires the distribution of gasoline and diesel user fees to the Department of Transportation and the general fund. This user fee is commonly known as the “gas tax.” A total fee of 16.75¢ is levied per gallon of gasoline, diesel fuel, or other motor fuel sold. This 16.75¢ per gallon is distributed as shown in Chart 3.7.

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**Chart 3.7: Distribution of Motor Fuel User Fee Revenue**

- Distributed by SCDOT to the S.C. Transportation Infrastructure Bank
- Distributed to SCDOT for use on mass transit
- Distributed by SCDOT to C Program
- Distributed to the S.C. Department of Natural Resources for the water recreational resources fund
- Inspection fee distributed to the S.C. Department of Agriculture
- Environmental impact fee distributed to the S.C. Department of Health and Environmental Control
- Distributed to SCDOT for general use



Sources: Scott and Company, S.C. Department of Revenue, S.C. Code of Laws, and LAC

The State Highway Fund is funded predominantly from the state motor fuel user fee. This fund is used for the operation of the department, including state matching funds required for federal grants, routine maintenance and resurfacing, administration, payroll/benefits, capital improvements, transit programs, debt service, transfers to the South Carolina Transportation Infrastructure Bank (SCTIB) and the County Transportation Fund (“C Fund”), and other operational activities. The SCDOT Commission controls the budget, which is administered under the direction of the Secretary of Transportation.

#### **Motor Vehicles Sales Taxes**

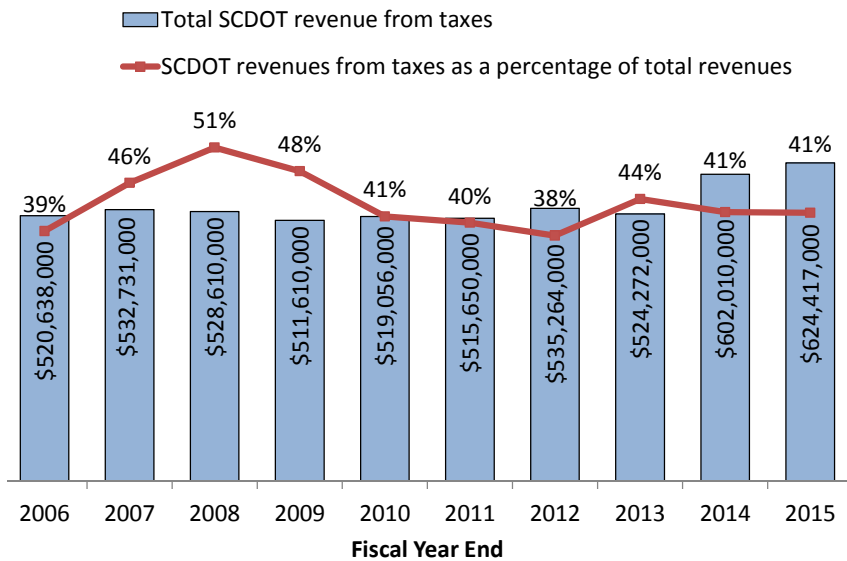
Under Act 98 of 2013, 50% of the revenues from the taxes on the sale, use, or titling of motor vehicles required to be licensed and registered by the Department of Motor Vehicles must be credited to SCDOT’s State Non-Federal Aid Highway Fund. The revenue collected must be used exclusively for highway, road, and bridge maintenance, construction, and repair (see *Non-Federal Aid Highway Fund* in Chapter 4).

#### **Electric Power Taxes**

S.C. Code §12-28-2915 requires that all electric power sales tax revenues in excess of \$20 million be distributed to SCDOT. Half of that amount must be distributed to the State Non-Federal Aid Highway Fund and SCDOT must also make an equal contribution to the S.C. Transportation Infrastructure Bank.

State taxes and fees were the department’s second largest source of revenue in most of the last ten years. Graph 3.8 shows the department’s revenue from state taxes over the last ten years.

**Graph 3.8: State Tax Revenue,  
2006 – 2015**



Source: Scott and Company

Tax revenues were relatively flat from FY 06-07 – FY 12-13. There was an increase from FY 05-06 – FY 06-07 due to both an increase in gas and diesel consumption as well as a reduction in the amount of motor fuel taxes that the department transferred to other agencies. The increase from FY 12-13 – FY 13-14 is due to an increase in consumption of motor fuels as well as approximately \$60 million in additional revenue due to the remission of auto sales taxes under Act 98 of 2013.

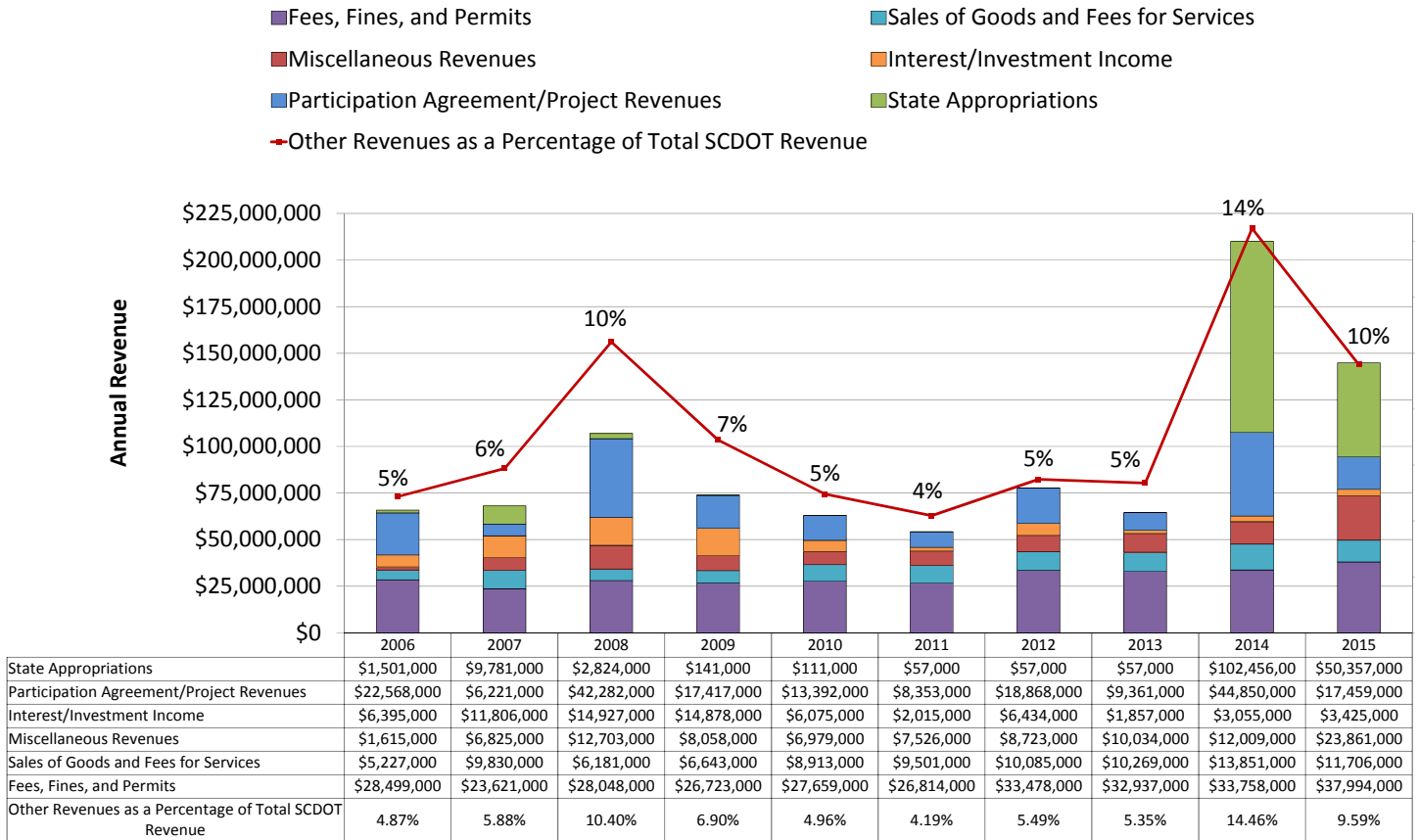
## Other Revenue Sources

SCDOT receives revenues from a number of sources other than federal grants and state taxes. When considered as a whole, these sources represent a significant amount of funding for the department. However, individually, they are not as significant as taxes and federal grants.

Graph 3.9 summarizes the other revenue streams discussed in this section over the last ten fiscal years.



**Graph 3.9: Other SCDOT Revenue, 2006 – 2015**



Source: Scott and Company

### State Appropriation Revenue

State appropriation revenue is determined through the state budgeting process each fiscal year. The state appropriates some general funds to the department, but those funds do not represent a primary funding source. State appropriations must be spent in accordance with the ratified budget, as amended. Prior to 2014, revenue from state appropriations to the department was nominal. Beginning in FY 13-14, Act 98 of 2013 provided a one-time appropriation of \$50 million along with \$50 million in recurring funding for future years. The one-time funding was required to be used as the state contribution to federal-aid bridge projects. An equivalent \$50 million must be transferred to the SCTIB each year to finance bridge replacements, rehabilitation projects, and expansion and improvement projects for existing mainline interstates.

A summary of Act 98-related funding in conjunction with other state appropriations is shown in Table 3.10.

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**Table 3.10: Act 98 Funding and  
Other State Appropriations,  
FY 13-14 and FY 14-15**

| FISCAL YEAR ENDED JUNE 30, 2014                |               |
|--|---------------|
| Act 98 Appropriation (SCTIB funding)           | \$50,000,000  |
| Act 98 Appropriation (One-time bridge funding) | 50,000,000    |
| Budget Provisos                                | 2,456,000     |
| TOTAL State Appropriations                     | \$102,456,000 |
| FISCAL YEAR ENDED JUNE 30, 2015                |               |
| Act 98 Appropriation (SCTIB funding)           | \$50,000,000  |
| Budget Provisos                                | 357,000       |
| TOTAL State Appropriations                     | \$50,357,000  |

Source: Scott and Company

### Fees, Fines, and Permit Revenue

The department receives revenue from a variety of fees, fines, and permits that are issued in South Carolina. Primarily, this revenue consists of fees for driver's licenses, driver's license reinstatements, beginner's permits, commercial driver's licenses, and ID cards. South Carolina law requires that these fees be remitted to the department's Non-Federal Aid Highway Fund. Additionally, Cross Island Parkway toll revenue is included within this category of revenues.

Revenue from fees, fines, and permits over the course of the last ten fiscal years is detailed in Table 3.11.

**Table 3.11: Revenue from Fees, Fines, and Permits, 2006-2015**

|                                      | FISCAL YEAR END     |                     |                     |                     |                     |                     |                     |                     |                     |                     |
|--------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                      | 2006                | 2007                | 2008                | 2009                | 2010                | 2011                | 2012                | 2013                | 2014                | 2015                |
| REGULAR DRIVER'S LICENSE             | \$1,533,464         | \$3,744,809         | \$4,526,257         | \$4,275,537         | \$4,513,316         | \$3,858,872         | \$9,347,904         | \$10,205,701        | \$9,560,266         | \$12,863,753        |
| GAS TAX INSPECTION FEES              | 2,868,914           | 7,179,182           | 8,142,752           | 7,079,224           | 7,112,978           | 7,930,531           | 8,637,997           | 7,993,029           | 8,158,789           | 9,199,672           |
| CROSS ISLAND TOLL REVENUE            | 5,886,348           | 5,901,551           | 6,655,104           | 6,909,083           | 7,194,225           | 7,016,886           | 7,061,882           | 7,151,773           | 7,566,978           | 7,813,837           |
| DRIVER'S LICENSE REINSTATEMENT       | 1,309,447           | 2,907,609           | 3,698,815           | 3,624,932           | 4,145,125           | 3,675,039           | 4,063,482           | 3,415,765           | 3,736,345           | 3,594,608           |
| OVERSIZE AND OVERWEIGHT VEHICLE FEE  | 0                   | 0                   | 2,911,938           | 2,726,319           | 2,575,636           | 2,477,015           | 3,086,420           | 2,833,217           | 3,210,418           | 3,112,646           |
| COMMERCIAL DRIVER'S LICENSE          | 256,209             | 530,375             | 637,586             | 627,846             | 541,260             | 534,420             | 728,333             | 663,345             | 782,594             | 687,318             |
| BEGINNER'S PERMITS AND RENEWALS      | 153,403             | 359,126             | 448,036             | 445,206             | 487,868             | 393,900             | 489,599             | 402,098             | 455,382             | 431,783             |
| ADMINISTRATIVE FEE (TOLL VIOLATIONS) | 104,850             | 62,482              | 77,788              | 169,783             | 193,188             | 161,851             | (60,652)            | 176,517             | 150,973             | 198,303             |
| ID CARDS AND RENEWALS                | 270,697             | 0                   | 886,782             | 807,770             | 845,592             | 717,783             | 75,618              | 46,560              | 63,355              | 63,450              |
| KEEP SC BEAUTIFUL                    | 60,570              | 59,177              | 62,975              | 56,989              | 49,435              | 47,989              | 48,135              | 59,809              | 43,116              | 27,448              |
| VEHICLE PERMITS                      | 2,675,756           | 2,877,280           | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| MOTOR VEHICLE FEES                   | 13,378,948          | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| <b>TOTAL</b>                         | <b>\$28,498,606</b> | <b>\$23,621,591</b> | <b>\$28,048,033</b> | <b>\$26,722,689</b> | <b>\$27,658,623</b> | <b>\$26,814,286</b> | <b>\$33,478,718</b> | <b>\$32,947,814</b> | <b>\$33,728,216</b> | <b>\$37,992,818</b> |

Source: Scott and Company

The motor vehicle fees and vehicle permit revenue in FY 05-06 and FY 06-07 was passed through the department to the SCTIB and does not represent a funding source for the department. The increase in gas tax inspection and license and permit fees from FY 05-06 – FY 07-08 was driven by state legislation that provided for the incremental increase in the fees received by the department over three years.

### **Interest and Investment Income**

Most state agencies, including SCDOT, participate in the state's internal cash management pool, administered by the state treasurer. The pool includes some long-term investments such as obligations of the United States and certain agencies of the United States, obligations of the state and some of its political subdivisions, certificates of deposit, collateralized repurchase agreements, and certain corporate bonds.

The amount of interest and investment income is driven by underlying interest rates, total cash balances, and market value fluctuations. The trends noted for interest and investment income are in line with the historical interest rates and market activity combined with the total cash balances of the department. There was not a specific event or strategic decision that directly affected this income. As noted previously, the state treasurer holds and invests all of the department's cash balances.

### **Participation Agreement Revenue**

The department's access to federal grant revenue and its planning and construction personnel are often utilized by local governments or county transportation programs under a participation agreement. Under these agreements, the department and local government will agree to a funding allocation that can maximize the use of federal grants or other resources for the benefit of the local infrastructure.

The department's participation percentage can vary dramatically and the local government sometimes pays the entire project cost. Under these agreements, the department requires that the local government pay its established percentage of the estimated project cost in installments or up front in full.

Participation agreement revenues vary based on the underlying project activity, much of which is not under the direction of the department. However, there were significant spikes in this revenue in FY 05-06, FY 07-08, and FY 13-14. In FY 05-06, there was a reformulation of the department's participation percentage for statewide projects that yielded an increase in revenue recorded under Generally Accepted Accounting Principles.

This was not the result of additional cash inflows to the department. In FY 07-08, participation agreement revenue increased due to county transportation and maintenance programs that were implemented in the previous two years. The maintenance programs generate higher expenditure totals in a shorter period of time, causing a need to recognize the revenue from the participants. In FY 13-14, the department completed a substantial amount of participation agreement-related projects that allowed it to realize the revenue that previously had been recorded as unearned.

It must be noted that these revenues are tied to the department's activity in conjunction with another agency or local government and do not represent a funding source. The department is being paid for work it is performing rather than being provided funding to be later expended at the department's discretion.

#### **Sales of Goods and Fees for Services**

The department generates revenue from providing services and selling maps, plans, and excess property. Revenue in this category is primarily generated from engineering, legal, and administrative services the department provides for local governments as well as the statewide signage program.

#### **Miscellaneous Revenues**

The department has a wide variety of miscellaneous revenue streams. The most significant sources are legal settlements, sale of salvage materials, and reimbursements from the C Program for billable costs incurred for the department's services.

Legal settlements typically represent amounts collected by the department related to the damage of roadway structures and cable barriers. Over the ten-year period, the amount of these settlements in total ranged from \$719,000 to \$4.1 million.

Sale of salvage materials generally does not represent a majority of this revenue stream. Amounts from FY 05-06 – FY 13-14 ranged from \$40,000 to \$2.5 million. However, in FY 14-15, the department recognized \$8.4 million in sales of salvage materials mostly due to sale of the debris material that was created by the prior year's ice storm.

Reimbursements from the C Program ranged from \$1.6 million to \$3.4 million over the ten-year period (see *C Program Accountability Issues* in Chapter 7).

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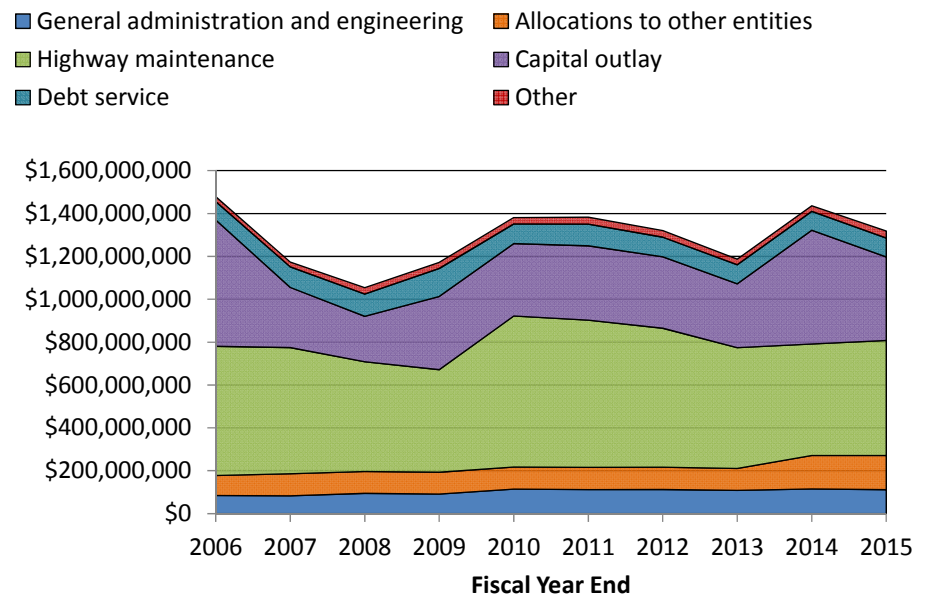
## Overview of Expenditures

SCDOT's expenditures have fluctuated over the last ten fiscal years, but were slightly lower at the end of the ten-year period than at the beginning. The rise in 2010 is due to American Recovery and Reinvestment Act spending. This act provided over \$200 million in additional funds from the federal government during FY 09-10 and was phased out over several years.

The largest category of expenditures reported on the department's annual audited financial statements is highway maintenance. This category is comprised of expenses that fall under the accounting definition of maintenance and includes the cost of the State-Funded Maintenance Program, equipment service costs, and infrastructure improvements (capacity projects) costing less than \$500,000. Expenditures on maintenance projects such as resurfacing that extend the useful life of an existing capital asset and cost more than \$500,000 are classified as capital outlay costs (see *Infrastructure Expenditures* in Chapter 3).

Chart 3.12 shows the department's total expenditures over the last ten fiscal years, as reported in the annual audited financial statements, itemized by major accounting category.

**Chart 3.12: SCDOT Annual Expenditures, by Accounting Category**

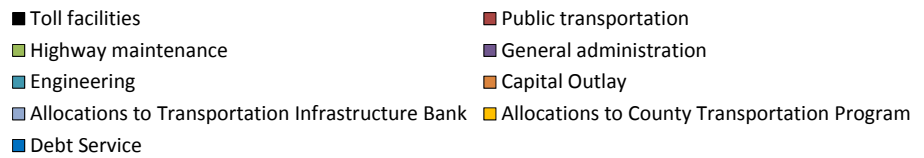


Note: Debt service expenditures for FY 09-10 were adjusted to account for transactions due to refunding of bonds.

Source: Scott and Company and LAC

Chart 3.13 shows a more detailed breakdown of the FY 14-15 expenditures as reported on the 2015 audited financial statements.

**Chart 3.13: FY 14-15 Expenditures, by Accounting Category**



M = Million

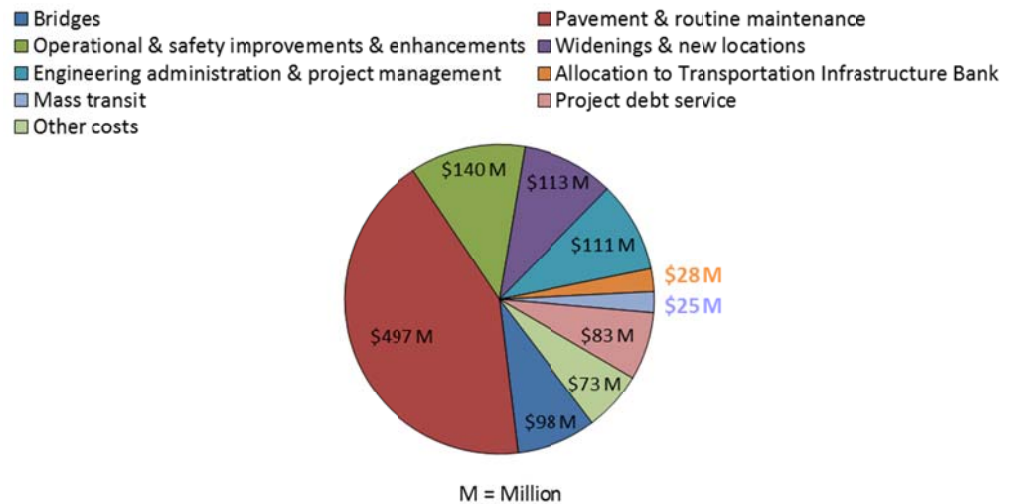
Source: Scott and Company and LAC

In addition to the expenditures information on the audited financial statements, SCDOT provided a report of FY 14-15 expenditures broken down by major programs and types of projects. These categories give a better picture than the accounting classifications of the types of activities on which the department spends money. However, the agency cannot provide a similar breakdown of expenditures for prior years. Because this expenditures report was prepared on a cash basis, the total amount of expenditures does not exactly match the amount on the audited financial statements, which are prepared on an accrual basis.

Chart 3.14 shows the agency's FY 14-15 expenditures by functional category.



**Chart 3.14: FY 14-15 Expenditures,  
by Functional Category**



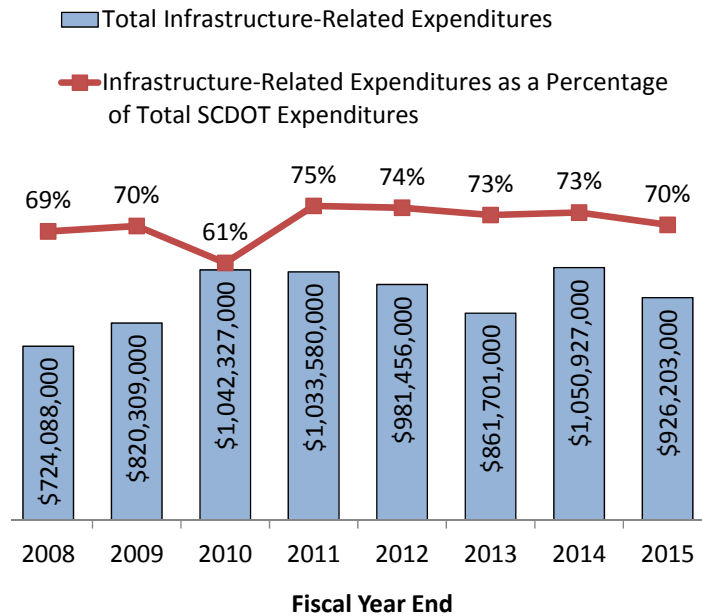
Note: The expenditures reflected here do not include the \$50 million in Transportation Infrastructure Bank funding authorized by Act 98 of 2013 or the approximately \$82 million in allocations to the county transportation program.

Source: SCDOT and LAC

## Infrastructure Expenditures

The significant majority of the department's annual expenditures are related to maintenance and capital outlay expenditures for roadway infrastructure. To estimate total infrastructure-related expenditures, we combined capital outlay and highway maintenance expenditures as listed in the audited financial statements. Capital outlay includes purchases of land, buildings, and equipment and infrastructure improvements costing more than \$500,000. Highway maintenance expenditures include the cost of the State-Funded Maintenance Program, equipment service costs, and infrastructure improvements costing less than \$500,000. It is important to note that although these expenditures are categorized as highway maintenance for accounting purposes, they do not accurately reflect all maintenance activities as defined for this audit. For example, a major road resurfacing project would be included under the broad definition of maintenance, but if it costs more than \$500,000, it would be classified as capital outlay on the audited financial statements. Graph 3.15 depicts SCDOT's combined capital outlay and highway maintenance expenditures, which can be broadly characterized as infrastructure-related expenditures, for the last eight fiscal years.

**Graph 3.15: Total Infrastructure-Related Expenditures, by Accounting Definition, 2008 – 2015**



Source: Scott and Company and LAC

The significant increase in expenditures starting in 2010 relates to additional funding received from the federal government under the American Reinvestment and Recovery Act which provided over \$200 million in additional funds during FY 09-10. The program was phased out over several years resulting in a declining amount of total expenditures through FY 14-15. There was a spike in capital outlay expenditures during FY 13-14 related to a significant amount of bridge replacement expenditures that have become a focus of the department in recent years.

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## Maintenance and Capacity Expenditures

We reviewed SCDOT expenditures related to maintenance, broadly defined as repair and upkeep that does not add lane miles to a road, and capacity-building projects, primarily construction of new roads or lanes. The department implemented a revised budget and expenditure categorization in 2014 which breaks down most expenditures by major programs and activities. However, some of the categories used include expenditures related to both maintenance and capacity-building and the department could not provide a similar breakdown of expenditures for earlier years. In order to provide some estimate of historical expenditures on maintenance and capacity-building projects, we performed the following analysis. This method does not provide a complete picture of SCDOT's maintenance and capacity expenditures, but is an effort to approximate some of the costs that the department has not tracked.

A listing of all infrastructure-related projects that were deemed substantially complete during the last eight fiscal years was obtained from the department. This does not necessarily represent when the project expenditures occurred, as the entire cost of each project was attributed to the year in which it was completed, but many projects span multiple years. It would generally be expected that a lag would occur from the time expenditures were incurred to the time the project was considered substantially complete. For example, the increase in actual expenditures in FY 09-10 is represented in subsequent fiscal years when examining substantially complete projects. However, the overall trend should be representative of the department's spending. Each of the 3,567 projects considered substantially complete over the eight-year period, with the exception of a few large projects representing debt service on projects already completed, was classified into one of the following four categories:

### CAPACITY-BUILDING

Road widenings, new roads, and other improvements that increase a road's capacity to carry traffic.

### PAVEMENT MAINTENANCE

Repair and upkeep of existing roadways, including preservation, rehabilitation, and reconstruction activities.

### BRIDGES

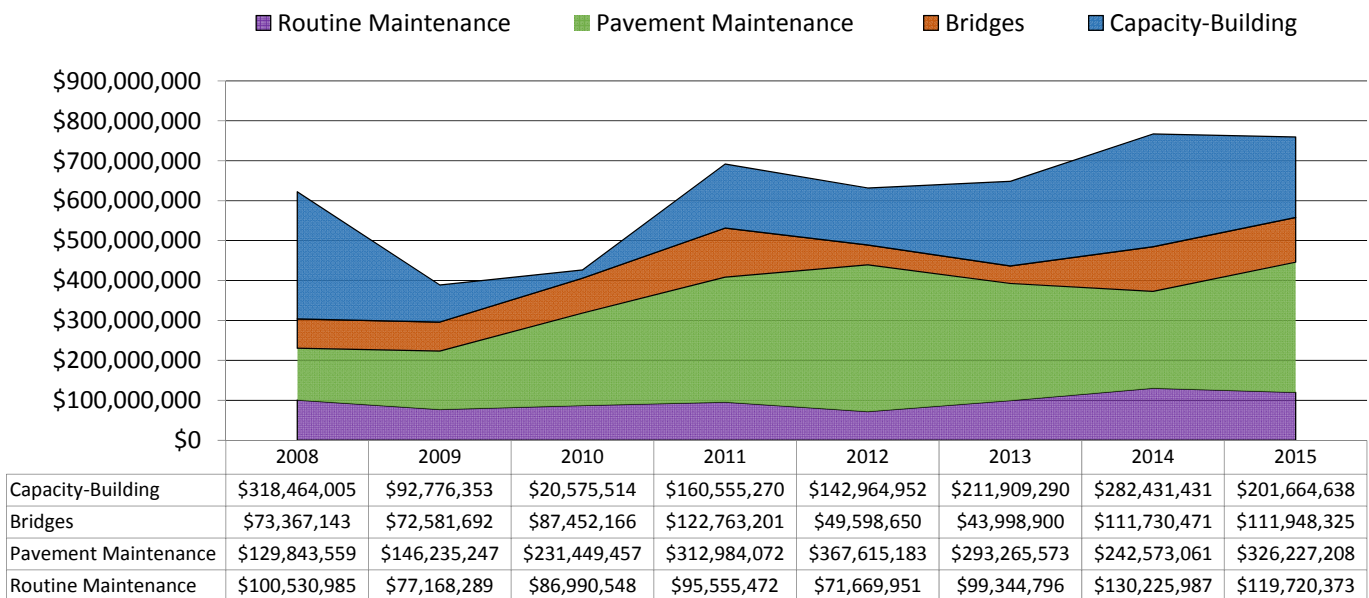
Maintenance and replacement of bridges.

### ROUTINE MAINTENANCE

Repair and upkeep of the existing transportation system that is not work directly on pavement, such as mowing, signage, safety projects, and lane striping.

Chart 3.16 displays the amount of contract costs that were attributed to projects in each of the four categories over the eight years.

**Chart 3.16: Cost of Substantially Complete Projects by Type, 2008 – 2015**



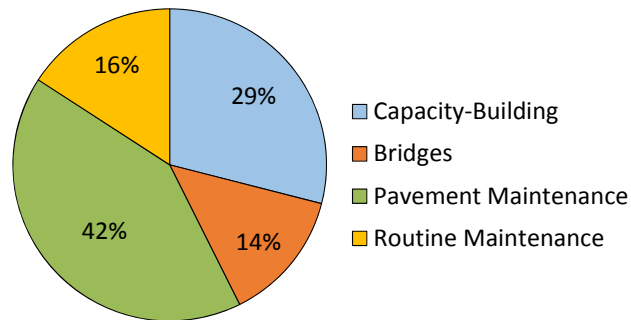
Source: Scott and Company and LAC

These data show that the cost of contracts for routine maintenance has stayed fairly stable over the eight-year period, while the cost of pavement maintenance contracts has increased substantially. The cost of bridge projects increased by 53% over the period due to the department's recent focus on bridge replacements. The cost of capacity-building projects fluctuated a great deal, but was lower at the end of the period than at the beginning.

Chart 3.17 shows the overall percentage of contract costs for each of the four categories for the entire eight-year period.

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**Chart 3.17: Percentage of Project Costs by Type, 2008 – 2015**



Note: Debt service projects were excluded from the total contract costs for the calculation of these percentages.

Source: Scott and Company and LAC

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## Recommendation

41. The S.C. Department of Transportation should track and report expenditures related to pavement maintenance and capacity-building activities separately in order to provide information crucial to long-term planning and decision-making.

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## Unit Costs

We analyzed SCDOT project costs, by type, and compared them to neighboring states' estimated costs for similar types of projects. This analysis showed that SCDOT's costs are similar to the average estimated costs reported by the departments of transportation in Florida, Georgia, and North Carolina.

In order to analyze the department's infrastructure expenditures, 665 projects over the past ten fiscal years were selected. Of the 665 projects, 495 were resurfacing projects, 87 were new construction projects, and 83 were bridge replacement projects. The projects selected had either been entirely closed out or were classified as substantially complete, at which stage final closeout procedures are underway and only insignificant costs may be added to the project.

In order to obtain comparable information for each of the projects, the original contract was obtained. This provided information regarding the length and width of the project, type of work to be performed, and in what counties the work would be performed. The “as built” data on these projects was also obtained to identify any modifications to the original contract. After obtaining this data, the total costs in the project were divided into a common unit, average cost per lane mile. (See Appendix A for the definition of lane mile.) The averages for all years were then converted to 2015 dollars using the U.S. Bureau of Economic Analysis price index for state and local investment in structures.

A summary of the data obtained, by fiscal year, is presented in Table 3.18.

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**Table 3.18: SCDOT Average  
Project Cost Per Lane Mile,  
by Type (2015 Dollars)  
2008 – 2015**

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| FISCAL<br>YEAR<br>END | RESURFACING | NEW ROAD<br>CONSTRUCTION | BRIDGE<br>CONSTRUCTION |
|-----------------------|-------------|--------------------------|------------------------|
| 2008                  | \$110,514   | \$2,056,389              | \$12,087,989           |
| 2009                  | 159,417     | 1,414,807                | 7,206,930              |
| 2010                  | 173,753     | 1,175,559                | 6,040,511              |
| 2011                  | 195,214     | 1,278,901                | 6,371,118              |
| 2012                  | 144,444     | 1,104,683                | 9,111,518              |
| 2013                  | 158,198     | 1,168,813                | 5,190,186              |
| 2014                  | 160,277     | 2,132,797                | 3,788,823              |
| 2015                  | 188,068     | 1,044,660                | 8,172,969              |
| AVERAGE               | \$161,236   | \$1,422,076              | \$7,246,256            |

Source: Scott and Company and LAC

After obtaining baseline data from SCDOT, we attempted to obtain similar data from the Georgia, North Carolina, and Florida departments of transportation (GDOT, NCDOT, and FDOT). However, the data provided by these states represented the most current cost model the state was using rather than a mathematical average of what had actually been paid out over previous years.

The cost estimates for resurfacing and new road construction provided by other states are presented in Table 3.19. NCDOT was unable to provide cost estimates for resurfacing. These estimates from other states do not include right-of-way purchases or utility right-of-way costs, whereas the costs for SCDOT do include right-of-way purchases. However, total right-of-way purchases have not exceeded \$25 million in any of the eight fiscal years, so the effect would be minimal on approximately \$1 billion in construction and maintenance expenditures each year.

Bridges are unique projects, are less common than resurfacing and new road construction, and still require a similar amount of initial costs, not dependent on the length of the bridge. These factors cause costs per lane mile to be skewed and less likely to be comparable to other states and also account for the wide amount of fluctuation in the cost per mile analysis shown in Table 3.18 for SCDOT. In addition, entirely new bridge construction is not as common as significant rehabilitation of existing bridge structures and a cost estimate cannot be provided for that type of work. Because of these difficulties, comparative data for bridge construction are not provided here.

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**Table 3.19: Comparison with Other States' Estimated Project Costs Per Lane Mile, 2015, by Type**

|                            | RESURFACING | NEW ROAD CONSTRUCTION |
|----------------------------|-------------|-----------------------|
| GDOT                       | \$76,167    | \$1,459,722           |
| FDOT                       | \$245,790   | \$1,088,791           |
| NCDOT                      | N/A         | \$1,509,830           |
| Average 2015 Cost Estimate | \$160,979   | \$1,352,781           |

|   |           |             |
|---|-----------|-------------|
| SCDOT<br>Average Cost 2008–2015<br>(2015 dollars) | \$161,236 | \$1,422,076 |
|---|-----------|-------------|

Source: Scott and Company and LAC

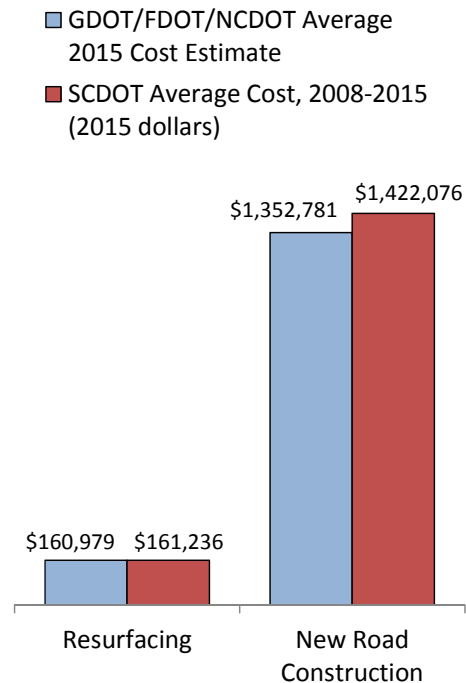
There is a large variance in the cost per lane mile for resurfacing reported by Georgia and Florida's departments of transportation and supporting data is not available for the costs presented. However, the use of an average of these two states' data can provide a useful comparison for costs incurred by SCDOT.

For new construction projects, Georgia and Florida provided a single level of cost estimates. However, North Carolina provided a base cost with set increases for various factors such as the presence of railroad crossings and the type of terrain. Therefore, assumptions had to be made about the average type of road construction project completed in South Carolina in order to calculate the single cost estimate for North Carolina shown in Table 3.19. Based on this analysis, the amounts the department is actually paying for both resurfacing and new roadway construction appear to be in line with what other states are paying for similar projects.

Graph 3.20 shows the average costs that were detailed in Table 3.19.

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**Graph 3.20: Average Cost per Lane Mile Comparison with Other States**



Note: The resurfacing average for GDOT/FDOT/NCDOT actually includes only data from GDOT and FDOT, as NCDOT did not provide data for resurfacing costs.

Source: Scott and Company and LAC

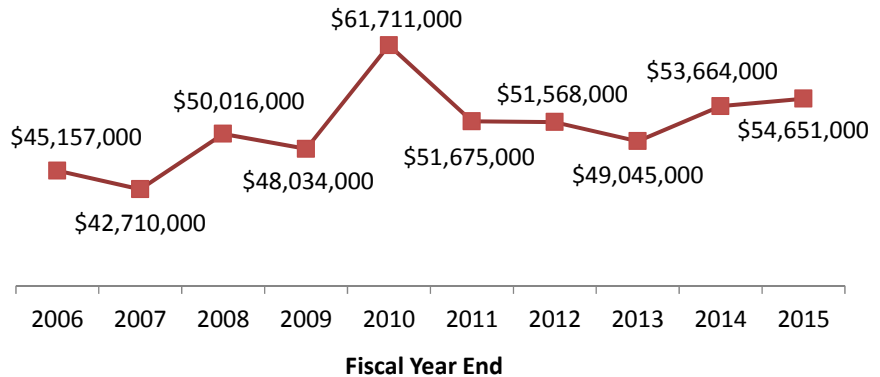


## Administrative Expenditures

We reviewed total administrative expenditures as reported in SCDOT's audited financial statements from FY 05-06 – FY 14-15 (see Graph 3.21). We found major fluctuations from FY 06-07 – FY 10-11. The indicators used to identify major fluctuations were changes in object codes recorded within the administrative category in excess of \$300,000 and 10% from year to year.

Administrative expenditures, as presented in the audited financial statements, contain a variety of different expenditure types that drive the overall change from year to year. Generally, fluctuations in this expenditure category have been outside the control of SCDOT, such as changes in retirement contributions, International Fuel Tax Agreement (IFTA) payments, and payments for state-implemented accounting systems. SCDOT has made discretionary expenditures for data processing equipment over the years, but, in total, these expenditures do not make up a significant portion of administrative expenditures.

**Graph 3.21: Total Administrative Expenditures, FY 05-06 – FY 14-15**



Source: Scott and Company

|                     |  |
|---------------------|--|
| FY 05-06 – FY 06-07 | Administrative expenditures decreased due primarily to a legal settlement in the amount of \$4.2 million paid to Charleston County during FY 05-06. Offsetting the decrease were increased expenditures for information technology and data processing purchases that were not considered capital expenditures.  |
| FY 06-07 – FY 07-08 | Administrative expenditures increased due to three primary factors. The first is due to \$4 million in additional payments under IFTA, which is a base state fuel tax agreement related to commercial vehicles operated in multiple states. The second cause was an increase in state-determined employment contributions for retirement and insurance benefits. This resulted in approximately \$600,000 in retirement contributions and \$500,000 in other post-employment benefit contributions. The third cause was a \$3 million increase in road and infrastructure-related studies that were not classified with maintenance or capital expenditures. |
| FY 07-08 – FY 08-09 | Administrative expenditures decreased primarily due to an approximately \$1.5 million decrease in payments under the IFTA agreement.   |
| FY 08-09 – FY 09-10 | The most significant increase was a \$7.4 million payment to the State Budget and Control Board for SCDOT's portion of the implementation of SCEIS (South Carolina Enterprise Information System). Other factors causing the increase were an increase in IFTA payments over the prior year as well as an increase in contribution rates under the state's retirement and other post-employment benefit programs. Lastly, \$1.2 million in additional expenditures were recognized in FY 09-10 to record amortization of prepaid insurance that was not recorded during FY 08-09.  |
| FY 09-10 – FY 10-11 | Administrative expenditures returned to a more consistent amount in FY 10-11. FY 09-10 represented a year of one-time payments rather than a trend.  |
| FY 10-11 – FY 14-15 | No significant events are noted in FY 10-11 – FY 14-15. The overall trend is an increasing expenditure amount primarily driven by an increase in salaries and related benefit payments over the time period to keep pace with increasing costs. Additionally, fluctuations in the IFTA payments affected the trend, but none of these payments were significantly different year over year.  |

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## Travel and Advertising Expenditures

### Travel Expenditures

We selected a sample of 250 travel-related expenditures. We found that FY 05-06 was the only year in which improper payment procedures were followed. Our sample included 25 expenditures from each fiscal year from FY 05-06 – FY 14-15, which were reviewed for supporting documentation, approval, and purpose of the disbursement. Of the 25 expenditures from FY 05-06, we found:

- Three disbursements had insufficient supporting documentation.
- Two disbursements reimbursed employees for what appeared to be excessive hotel costs.
- One disbursement had no approval for reimbursement, yet the disbursement was paid.

These issues were noted in the FY 05-06 financial audit. Additionally, we found three other instances in the entire sample of 250 where the hotel choice was questionable based on cost. However, either the stay was directly related to the hosting hotel for a department-approved function or the requesting employee's supervisor approved the charge in advance.

### Advertising Expenditures

Advertising campaigns undertaken by SCDOT are structured in different ways. The normal advertising campaign, similar to the ongoing campaign "Target Zero," utilizes traditional contracts and budgets for spending. During FY 05-06 – FY 14-15, only one significant contract was noted for advertising expenditures and that was related to the Target Zero campaign, which amounted to \$1.2 million. The others were much less significant and not substantial in quantity.

The other method SCDOT uses to pay for advertising-related costs is to contract with an entity to run a logo sign program. An example is the blue signs at each interstate exit detailing some of the businesses that can be found on that exit. In this case, SCDOT is not responsible for any of the costs related to the signage or running the program. SCDOT contracts with SC Logos, Inc., a subsidiary of Lamar Advertising Company, to build the signs to SCDOT's specifications and also to run the program. The contractor charges a fee to each of the advertising businesses and the contractor must remit the greater of a minimum payment specified in the contract or a percentage of the program revenues.

The advertising contractor SCDOT selected has arrangements with 23 states, including South Carolina. Like South Carolina, several states with arrangements with this contractor and their affiliates have a combination of flat fees paid to a transportation department coupled with a percentage of the participation fee amount. In response to a survey, Georgia responded that it receives an annual administrative fee of \$3,335,000 plus 65% of gross annual participation fee amounts for each contract year over \$5.2 million. Texas responded that its percentage of participation fee amounts depends on freeway traffic and that it receives a minimum of \$2.5 million per year.

In FY 14-15, SCDOT received approximately \$3.1 million in revenue from this program, which represented 60% of the total revenue generated. The contractor retained the other 40%, approximately \$2.1 million, in return for its services. The exposure to SCDOT under this type of agreement is the amount of revenue that SCDOT is giving up by not maintaining the program itself, which would take a substantial amount of time and personnel costs. Although the exact amount is not known, it is likely that it would cost the department less than \$2.1 million per year to manage the program in-house. A cursory cost analysis indicates there is significant profit in the revenue the contractor receives, which might be available to the department should it opt to administer the program itself.

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## Bike Lane Expenditures

SCDOT does not specifically track costs related to bike lanes. Construction or improvement of such features is usually built into larger roadway projects, and therefore isolating the related costs would require a detailed review of individual contracts.

However, a group that advocates for increased funding for bicycle and pedestrian facilities, Advocacy Advance, attempted to quantify each state's planned spending on these facilities in a 50-state analysis of Statewide Transportation Improvement Programs (STIPs).

The authors of this analysis searched for key words related to bicycle and pedestrian facilities in South Carolina's 2010–2015 STIP in order to identify projects that included such facilities. They found that 0.14% of the total cost of all the projects in the STIP (an average of \$1.2 million per year) was for bicycle facility projects that were not part of larger roadway projects, and another 0.92% of the total STIP cost (an average of \$7.9 million per year) was for roadway projects that included some type of bicycle facility. In their analysis, only one state, Mississippi, had a smaller percentage than South Carolina of total STIP costs that were dedicated to bicycle or pedestrian facilities that were not part of larger roadway projects.

Although federal funding requirements mandate the consideration of bicyclist and pedestrian needs during the transportation planning process, there is no federal requirement that any projects targeting these users actually be funded. It is difficult to determine whether bike lane projects in South Carolina tend to originate at the local or state level, as this would require an in-depth review of individual contracts.

The funding needs outlined in SCDOT's Multimodal Transportation Plan include an estimated \$42.2 million annually for bicycle facilities. This is less than 2% of the total estimated annual need of \$2.43 billion (see *Funding Needs* in Chapter 3). This estimate of need is considerably higher than the estimate of current spending. Need was estimated based on the projected cost of all bicycle facilities that were included in the long-range transportation plans of all MPOs and COGs in the state.

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## Cash Flow Management

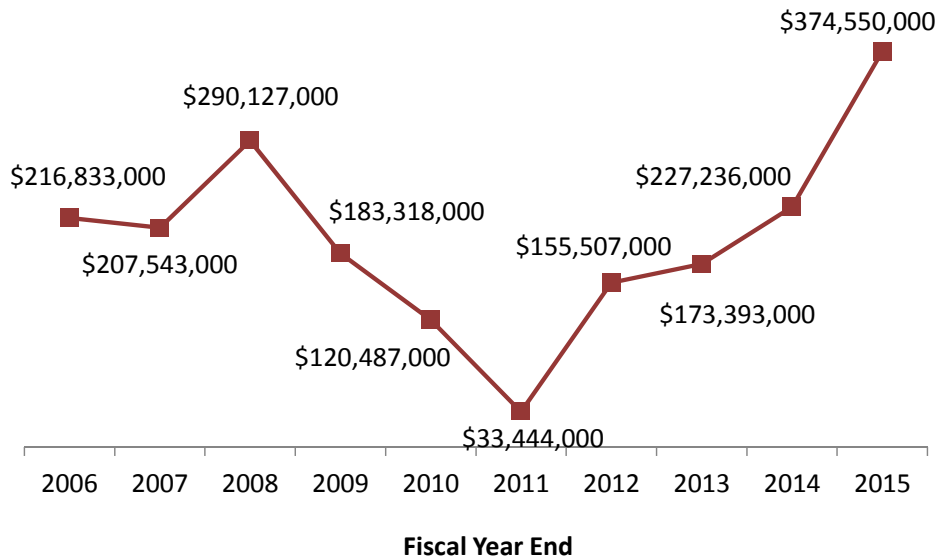
In 2011, SCDOT experienced a historically low cash balance of \$33.4 million. To prevent this from happening again, SCDOT has changed its cash management procedures to ensure that the department maintains a minimum cash balance to cover expenses. As of June 30, 2015, the cash balance was \$374.6 million.

SCDOT's primary revenue streams are federal grant revenue and state taxes and motor fuel user fees (see *Revenue Streams* in Chapter 3). The department plans its future cash flows based in part on estimates of annual expenditure reimbursements from the federal-aid program. However, this federal grant revenue is driven by underlying federal legislation and a new transportation funding act, the FAST Act, was signed into law in December 2015 (see *Federal Funding for Transportation* in Chapter 1). Additionally, the liquidity of the federal Highway Trust Fund, the source of funds for the department's federal grant revenue, directly affects the department. If the balance of this fund drops below safe levels, the U.S. Department of Transportation may implement cash management procedures that slow the reimbursement of SCDOT's federal aid eligible expenditures.

The department estimates that it needs approximately \$100 million to cover one month's expenditures to include contractor payments, payroll and benefit payments, and debt service amongst other expenditures. Current management has set a minimum cash goal of approximately \$200 million in order to allow for potential delays in federal funding if legislation is not passed or reimbursements are capped or delayed.

The estimated \$100 million in cash needed each month is significant for the department given its historical cash balances. Based on the audited financial statements of the department, its cash balances have ranged from approximately \$374.6 million at June 30, 2015 (its highest balance during the previous ten fiscal years) to approximately \$33.4 million at June 30, 2011 (its lowest balance). The 2011 cash balances were tied to a substantial amount of construction and maintenance-related expenditures during FY 09-10 as the department had received over \$200 million in additional federal funding under the American Recovery and Reinvestment Act. The expenditures related to this funding carried over into subsequent fiscal years and, with the addition of other significant projects, exceeded the additional federal funding, requiring the department to use more of its own funds.

**Graph 3.22: Total Cash Balances,  
2006 – 2015**



Source: Scott and Company

The current cash balance is primarily comprised of three cash accounts held by the State Treasurer's Office — the State Highway Fund, the Non-Federal Aid Fund, and the General Fund. The department does hold other cash accounts but they are either a very small percentage of the cash balance or represent funds held by the department on behalf of others that would not be available to be spent on the department's activities. The State Highway Fund is the largest of the three primary programs.

Current SCDOT management has a renewed focus on maintaining a healthy cash balance, so each day, the Secretary of Transportation and senior financial management personnel receive three reports:

REPORT 1

A cash summary of just the State Highway Fund. This report shows the prior day's balance and then all payments, transfers, and receipts for the current day's balance.

REPORT 2

A cash summary of the State Highway Fund and all of the department's accounts.

REPORT 3

A report that builds on the daily cash summary of all the department's accounts but also includes a three-month projection of expected payments and receipts. Items such as gas taxes, debt service, and payroll remain reasonably consistent for planning purposes. Federal grant revenue is included but valued only when the department has a reasonable estimate of the amount as it can vary widely. This report also includes the current balance of both contractor and inter-department payables that will need to be paid.

In addition to short-term (three-month) planning, long-term planning must be performed as infrastructure projects are multi-year, multi-million dollar projects. In 2011, the Program and Resource Analysis Meeting (PRAM) was established. Prior to that, the department did not have a recurring comprehensive planning and evaluation meeting. PRAM brought coordination between the Engineering, Intermodal Planning, Finance, Support Services, and Human Resources departments where previous coordination did not exist. Additionally, representatives from FHWA normally attend the monthly PRAM meeting.

At this time, the effect these planning measures will have is not clear. However, the department now has the information and statistics to make informed decisions which will be necessary for the financial stability of the department. Additionally, the \$200 million cash balance threshold will allow the department to weather some uncertainty as it relates to federal funding without disruption to employees and vendors.

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## Charge Codes

We reviewed the federal reimbursement process at SCDOT. We found that, prior to November 2013, SCDOT's reimbursement process led to delayed reimbursements and some project expenditures were not reimbursed by the federal government. According to an SCDOT official, the amount of expenditures that went unreimbursed is not quantifiable.

Each year, SCDOT is allocated an amount of funds for each federal program which are further broken down into various categories. The department then submits projects to FHWA for approval and will obligate funds based on the available charge codes under the current federal legislation. During the phases of approved projects, SCDOT obtains reimbursement of obligated funds. This process requires different types of expenditures to be coded to a specific group of charge codes that are delineated by the current legislation. In cases where the current legislation expires, continuing resolutions are passed by Congress. As the continuing resolution is approved, the ability to charge expenditures to that type of legislatively-provided funding source also changes. The incremental funding requires the addition of new charge codes that are for the additional funding.

As a result, SCDOT had an excessive amount of charge codes to which engineers could charge expenditures. This was due in part to the complexity of codes provided by the federal government, and in part to the lack of coordination between the engineering, construction, and finance departments. According to an SCDOT official, the department acknowledges that expenditures went unreimbursed before a new reconciliation process was put into place. These costs would have predominantly been SCDOT lab costs and internal payroll costs, rather than contractor invoices.



In November 2013, the department established the Program Controls Division. The division encompasses the Obligations Management group, which manages the federal billing obligations, and created the Project Fund Management Group. The purpose of the Project Fund Management Group is to monitor and report on the financial life cycle of all engineering and special program projects to include maximizing the amount of Federal reimbursement. The primary tasks of the Project Fund Management Group include:

- Reviewing invoices to ensure that the charge code is correct.
- During the close out process, determining if there were any nonparticipating (or not reimbursable) costs charged to the project, calculating financial agreement refunds to local entities, and utilizing any lapsing federal funds.
- Ensuring that expenditures exceeding project agreement charge codes are reimbursed.
- Ensuring that all financial participation agreement guidelines are adhered to in accordance with the original contractual agreement and any modifications.

Since the Project Fund Management Group was created, the charge codes provided to engineers in the field have been greatly reduced. Currently, engineers generally have one charge code to use based on the type of work being performed. The Project Fund Management Group also has the ability, through its project management system (P2S), to turn charge codes off and on so that only available charge codes are used by engineers. Once engineers code an invoice, the invoice is received by the Project Fund Management Group and reviewed to determine which charge code is correct and any necessary adjustments are made. This causes less confusion in the field for engineers and also allows each invoice to be reviewed and coded properly.

It is evident that the Project Fund Management Group has decreased the amount of delayed reimbursements significantly. However, it is unclear if all expenditures eligible for reimbursement are being reimbursed. Therefore, the Project Fund Management Group process should be added to the risk assessment analysis completed by the OCIA.

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## Recommendation

42. The S.C. Department of Transportation Commission should add the federal charge code reimbursement (Project Fund Management Group) process to the OCIA's list of risk areas to be subject to risk assessment analysis.
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## Vendor Payments

We reviewed SCDOT's compliance with Generally Accepted Accounting Principles regarding expenditures and accounts payable over the last ten years by conducting two tests. One test searched for unrecorded liabilities and another test directly confirmed the amounts payable by SCDOT to top vendors. In conducting these tests, we found only one material variance. For FY 05-06, approximately \$6.3 million was not properly recorded as accounts payable at fiscal year-end. In this case, the expenditure was also not recorded and adjusting entries were required as a result of the audit testing to correct the amounts reported in the financial statements.

Additionally, we tested whether SCDOT properly recorded expenditures and accounts payable and analyzed time that elapsed from invoice dates to payment dates in order to determine whether the department was foregoing interest earned by paying too soon or incurring penalties for paying too late. We concluded that SCDOT's payment methods did not cause additional expenditures related to late payment penalties and its potential earnings losses were minimal when considering the overall size of the department's operations.

## Debt Service and General Obligation Bonds

As of June 30, 2015, SCDOT's general obligation (GO) bond debt and amounts owed to SCTIB, pursuant to intergovernmental agreements, were approximately \$525 million. Table 3.23 summarizes these obligations.

**Table 3.23: Bond and Intergovernmental Debts as of June 30, 2015**

| ENDED<br>JUNE 30 | "27 IN 7"<br>GO BONDS | OWED TO<br>SCTIB | OTHER<br>GO BONDS | TOTAL         |
|------------------|-----------------------|------------------|-------------------|---------------|
| 2015             | \$273,840,000         | \$250,115,000*   | \$750,000         | \$524,705,000 |

\* The \$250,115,000 payable to the SCTIB as of June 30, 2015, includes \$121,938,000 related to the "27 in 7" Program.

Note: Figures do not reflect interest.

Source: Scott and Company

The current debt reflects a decrease of approximately \$621 million from June 30, 2006, when it was \$1.005 billion. Additional debt of approximately \$141 million owed to SCTIB relates to additional projects that were incurred during the ten-year period.

Of the amounts paid:

- Approximately \$353 million was for SCDOT's "27 in 7" Acceleration Program.
- Approximately \$197 million was paid for SCTIB intergovernmental agreement debt service, of which \$142 million related to the "27 in 7" Program.
- Approximately \$71 million was paid for other debt-service.

In addition, approximately \$288 million was made in interest payments for all of the above categories of debt service.

Our 2006 audit of SCDOT reviewed the “27 in 7” Program, which was undertaken to avoid future increases in construction costs related to inflation. This statewide effort aimed to complete 27 years’ worth of projects in 7 years, actually taking place from 1999 to 2008. The program accelerated the implementation of 200 highway improvement projects across the state worth more than \$5 billion. After federal reimbursements, estimated funding, by source, was:

- Approximately \$3,055,870,000 federally-funded.
- Approximately \$763,967,000 state-funded.
- Approximately \$1,180,163,000 locally-funded.

The program generally consisted of construction, reconstruction, and improvement of highways and bridges on the state highway system or certain county road systems. A list of the major projects completed under this program is included in Appendix E of this report.

SCDOT hired two companies, referred to as construction and resource management (CRM) firms, to manage the projects completed under “27 in 7,” at a cost of approximately \$253 million, as of April 2006. Our prior review found:

- Having fixed fees for program and financial management resulted in the contractors being paid approximately \$8.7 million for projects that were eliminated from the contracts.
- Evidence indicated that the program and financial management fees were set too high, costing SCDOT approximately \$32 million.

During our current audit, we asked SCDOT for documents showing decision or cost-benefit analysis related to initiation of the “27 in 7” Program and inquired as to whether such an analysis took into consideration future road and bridge preservation needs of the state. We found that there is no documentation of any analysis. We also asked whether there was any interim or post-construction analysis evaluating the avoidance of inflation-related construction costs and found there is no documentation of such analysis. Records relating to large financial decisions should be retained until the debt is paid, particularly those that obligate the department for long-term debt.

From 2007 – 2015, bond obligations and debt owed to SCTIB, including interest payments, made anywhere from \$88 million to \$130 million unavailable to SCDOT for current road and bridge preservation maintenance needs as well as new construction “capacity” projects.

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## Recommendations

43. The S.C. Department of Transportation should complete proper decision analysis, including cost-benefit analysis, for large multi-million dollar projects requiring bond issuance.
  44. The S.C. Department of Transportation should keep all decision analysis documents related to projects paid for with bonds until the debt-service is paid.
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## Intergovernmental Agreements with SCTIB

SCDOT, SCTIB, and the Federal Highway Administration (FHWA) entered into an agreement for SCTIB to fund a portion of the projects under the “27 in 7” Program. One portion of this funding was considered an intergovernmental loan to SCDOT requiring repayment, while the remaining portion was a contribution for project expenditures. This agreement allowed for expenditures funded with SCTIB contributions to SCDOT to be eligible for federal reimbursement to SCDOT. If this agreement had not been in place, the SCTIB-funded expenditures would not have been federally reimbursable and the department would not have received the funding it desired to implement the “27 in 7” Program. SCTIB funded its contributions through the issuance of revenue and general obligation bonds.

Tables 3.24 and 3.25 show the amounts of principal and interest paid and scheduled to be paid for each category of debt service. For clarity, we have segregated amounts due to SCTIB under intergovernmental agreements from the “27 in 7” bond debt. Through June 30, 2037, of the total amounts payable to SCTIB, \$121,938,000 in principal and \$16,477,000 in interest is related to the “27 in 7” Program.

**Table 3.24: Bond and SCTIB Debt Payments, 2007 – 2015**

| ENDED<br>JUNE 30 | "27 IN 7" GO BONDS |               | OWED TO SCTIB |              | OTHER GO BONDS |              | TOTAL         |               |
|------------------|--------------------|---------------|---------------|--------------|----------------|--------------|---------------|---------------|
|                  | PRINCIPAL          | INTEREST      | PRINCIPAL     | INTEREST     | PRINCIPAL      | INTEREST     | PRINCIPAL     | INTEREST      |
| 2007             | \$29,045,000       | \$27,753,000  | \$22,119,000  | \$5,808,000  | \$7,035,000    | \$3,904,000  | \$58,199,000  | \$37,465,000  |
| 2008             | 33,920,000         | 26,309,000    | 24,422,000    | 7,530,000    | 7,510,000      | 3,667,000    | 65,852,000    | 37,506,000    |
| 2009             | 35,825,000         | 24,797,000    | 17,929,000    | 10,236,000   | *38,035,000    | 3,368,000    | 91,789,000    | 38,401,000    |
| 2010             | 55,350,000         | 20,238,000    | 22,729,000    | 6,367,000    | 4,040,000      | 4,237,000    | 82,119,000    | 30,842,000    |
| 2011             | 35,075,000         | 33,101,000    | 20,991,000    | 7,734,000    | 2,925,000      | 1,365,000    | 58,991,000    | 42,200,000    |
| 2012             | 36,630,000         | 17,922,000    | 22,542,000    | 10,172,000   | 3,005,000      | 1,274,000    | 62,177,000    | 29,368,000    |
| 2013             | 37,855,000         | 16,113,000    | 21,366,000    | 9,213,000    | 3,060,000      | 1,361,000    | 62,281,000    | 26,687,000    |
| 2014             | 46,275,000         | 14,734,000    | 22,028,000    | 8,552,000    | 5,675,000      | 586,000      | 73,978,000    | 23,872,000    |
| 2015             | 43,005,000         | 14,157,000    | 22,720,000    | 7,859,000    | 170,000        | 33,000       | 65,895,000    | 22,049,000    |
| TOTAL            | \$352,980,000      | \$195,124,000 | \$196,846,000 | \$73,471,000 | \$71,455,000   | \$19,795,000 | \$621,281,000 | \$288,390,000 |
|                  | \$548,104,000      |               | \$270,317,000 |              | \$91,250,000   |              | \$909,671,000 |               |

\* SCDOT paid an additional \$30,090,000 of principal ahead of schedule.

Note: The total debt service per this schedule does not include approximately \$738,000 in capital lease and note payable payments that are unrelated to the department's infrastructure related funding. In FY 08-09, SCDOT paid interest of approximately \$3.3 million that had accrued through 2008. This accounts for less being applied to principal.

Source: Scott and Company

**Table 3.25: Outstanding Debt Schedule**

| ENDED<br>JUNE 30 | "27 IN 7" GO BONDS |              | OWED TO SCTIB |              | OTHER GO BONDS |          | TOTAL         |               |
|------------------|--------------------|--------------|---------------|--------------|----------------|----------|---------------|---------------|
|                  | PRINCIPAL          | INTEREST     | PRINCIPAL     | INTEREST     | PRINCIPAL      | INTEREST | PRINCIPAL     | INTEREST      |
| 2016             | \$43,500,000       | \$12,832,000 | \$23,446,000  | \$9,951,000  | \$175,000      | \$26,000 | \$67,121,000  | \$22,809,000  |
| 2017             | 43,435,000         | 11,011,000   | 24,208,000    | 8,976,000    | 180,000        | 19,000   | 67,823,000    | 20,006,000    |
| 2018             | 44,880,000         | 8,828,000    | 25,010,000    | 7,915,000    | 195,000        | 12,000   | 70,085,000    | 16,755,000    |
| 2019             | 46,395,000         | 6,572,000    | 25,394,000    | 6,789,000    | 200,000        | 4,000    | 71,989,000    | 13,365,000    |
| 2020             | 35,125,000         | 4,239,000    | 19,130,000    | 5,619,000    | —              | —        | 54,255,000    | 9,858,000     |
| 2021             | 36,985,000         | 2,466,000    | 19,689,000    | 4,402,000    | —              | —        | 56,674,000    | 6,868,000     |
| 2022             | 13,050,000         | 850,000      | 19,441,000    | 3,137,000    | —              | —        | 32,491,000    | 3,987,000     |
| 2023             | 10,470,000         | 262,000      | 10,614,000    | 2,365,000    | —              | —        | 21,084,000    | 2,627,000     |
| 2024             | —                  | —            | 10,733,000    | 2,247,000    | —              | —        | 10,733,000    | 2,247,000     |
| 2025             | —                  | —            | 10,857,000    | 2,123,000    | —              | —        | 10,857,000    | 2,123,000     |
| 2026             | —                  | —            | 10,986,000    | 1,994,000    | —              | —        | 10,986,000    | 1,994,000     |
| 2027             | —                  | —            | 10,454,000    | 1,858,000    | —              | —        | 10,454,000    | 1,858,000     |
| 2028             | —                  | —            | 3,263,000     | 1,717,000    | —              | —        | 3,263,000     | 1,717,000     |
| 2029             | —                  | —            | 3,411,000     | 1,569,000    | —              | —        | 3,411,000     | 1,569,000     |
| 2030             | —                  | —            | 3,565,000     | 1,415,000    | —              | —        | 3,565,000     | 1,415,000     |
| 2031             | —                  | —            | 3,727,000     | 1,253,000    | —              | —        | 3,727,000     | 1,253,000     |
| 2032             | —                  | —            | 3,896,000     | 1,084,000    | —              | —        | 3,896,000     | 1,084,000     |
| 2033             | —                  | —            | 4,072,000     | 908,000      | —              | —        | 4,072,000     | 908,000       |
| 2034             | —                  | —            | 4,257,000     | 723,000      | —              | —        | 4,257,000     | 723,000       |
| 2035             | —                  | —            | 4,450,000     | 530,000      | —              | —        | 4,450,000     | 530,000       |
| 2036             | —                  | —            | 4,651,000     | 329,000      | —              | —        | 4,651,000     | 329,000       |
| 2037             | —                  | —            | 4,861,000     | 119,000      | —              | —        | 4,861,000     | 119,000       |
| TOTAL            | \$273,840,000      | \$47,060,000 | \$250,115,000 | \$67,023,000 | \$750,000      | \$61,000 | \$524,705,000 | \$114,144,000 |
|                  | \$320,900,000      |              | \$317,138,000 |              | \$811,000      |          | \$638,849,000 |               |

Source: Scott and Company

## General Obligation Bonds

At the close of FY 05-06:

- Total general obligation bonds outstanding representing liabilities of the department were approximately \$699,025,000.
- Interest paid during FY 05-06 for general obligation bonds was \$31,775,000.

At the close of FY 14-15:

- Total general obligation bonds outstanding representing liabilities of the department were approximately \$274,590,000.
- Interest paid during FY 14-15 for general obligation bonds was \$14,190,000.

During the years ended June 30, 2006 to June 30, 2015, the department had a series of outstanding general obligation bonds which are guaranteed by the full taxing powers of the department and the state. Generally, debt-service for these bonds is paid from taxes paid into the state's general fund.

During the fiscal year ended June 30, 2009, the department expended additional cash on hand to reduce general obligation bond principal balances in excess of scheduled amortization to generate future interest savings. This was the only time during the ten-fiscal-year period that cash on hand was used to pay additional principal ahead of schedule.

All of the bonds listed in Table 3.26 were originally issued to build roads and bridges in the state.

**Table 3.26: Original Bond Issuance Terms**

| SERIES | ISSUE DATE | ORIGINAL FACE AMOUNT | MATURITY DATE | INTEREST RATE | RETIRED (JUNE 30) |
|--------|------------|----------------------|---------------|---------------|-------------------|
| 1995   | 08/01/95   | \$20,000,000         | 08/01/10      | 3.500–5.400%  | 2009              |
| 1996A  | 01/01/96   | \$30,000,000         | 04/01/11      | 4.125–5.000%  | 2009              |
| 1996B  | 07/01/96   | \$45,000,000         | 07/01/21      | 5.625–5.650%  | 2007              |
| 1997A  | 10/01/97   | \$30,000,000         | 10/01/12      | 4.500–5.000%  | 2009              |
| 1998A  | 04/01/98   | \$17,500,000         | 04/01/23      | 4.500–6.500%  | 2009              |
| 2001A  | 01/01/01   | \$2,000,000          | 01/01/21      | 4.500–6.000%  | 2011              |
| 2003A  | 10/01/03   | \$2,200,000          | 10/01/18      | 5.000%        | Outstanding       |

Source: Scott and Company



Table 3.27 reflects bonds issued to assist in implementing the “27 in 7” Program. The 1999A and the 2001B bonds were refunded by the 2010A bonds, as reflected in Table 3.28. The 2005A bonds were issued for advanced refunding of the 1995 series bonds and to raise \$140 million for specific projects involved with the “27 in 7” Program.

We reviewed the cost effectiveness of SCDOT bond refundings which were mostly initiated in order to obtain better interest rates and lower interest payments. The department has had considerable total savings on the refundings. This is reflected in Table 3.28.

**Table 3.27: Bond Issuances Related to “27 in 7” Program**

| SERIES   | ISSUE DATE | ORIGINAL FACE AMOUNT | MATURITY DATE | INTEREST RATE | RETIRED (JUNE 30) | COST EFFECTIVENESS OF REFUNDING |                          |                     |
|--|------------|----------------------|---------------|---------------|-------------------|---------------------------------|--------------------------|---------------------|
|  |            |                      |               |               |                   | TOTAL SAVINGS                   | PRESENT VALUE OF SAVINGS | BOND ISSUANCE COSTS |
| 1999A  | 03/01/99   | \$200,000,000        | 05/01/19      | 4.500–4.600%  | 2010              | -                               | -                        | -                   |
| 2001B  | 04/01/01   | \$350,000,000        | 04/01/21      | 4.750–5.500%  | 2012              | -                               | -                        | -                   |
| 2005A  | 04/01/05   | \$146,495,000        | 08/01/22      | 3.000–5.000%  | Outstanding       | \$272,000                       | \$255,000                | \$464,500*          |
| REFUNDING PURPOSE: \$140 million to further the "27 in 7" Program. \$6.495 million to advance refund \$6.5 million of the Series 1995 Bonds. |            |                      |               |               |                   |                                 |                          |                     |

\* Portion applicable to the refunding proceeds is approximately \$21,000.

Source: Scott and Company

**Table 3.28: Other General Obligation Bond Refunding Effectiveness**

| SERIES   | ISSUE DATE | ORIGINAL FACE AMOUNT | MATURITY DATE | INTEREST RATE | RETIRED (JUNE 30) | COST EFFECTIVENESS OF REFUNDING |                          |                     |
|--|------------|----------------------|---------------|---------------|-------------------|---------------------------------|--------------------------|---------------------|
|  |            |                      |               |               |                   | TOTAL SAVINGS                   | PRESENT VALUE OF SAVINGS | BOND ISSUANCE COSTS |
| 2003B*   | 06/01/03   | \$46,080,000         | 07/01/21      | 2.000–4.000%  | 2014              | \$2,550,000                     | \$2,230,000              | \$396,729           |
| REFUNDING PURPOSE: For advance refunding of \$39.675 million of the Series 1996B bonds.  |            |                      |               |               |                   |                                 |                          |                     |
| 2010A*   | 04/01/10   | \$299,860,000        | 06/01/21      | 3.000–5.000%  | Outstanding       | \$31,134,000                    | \$28,827,000             | \$1,441,800         |
| REFUNDING PURPOSE: For advance refunding of \$124 million of the Series 1999A bonds, \$1.285 million of the Series 2001A bonds, and \$194.490 million of the Series 2001B bonds. |            |                      |               |               |                   |                                 |                          |                     |
| 2013A*   | 12/01/13   | \$23,165,000         | 07/01/21      | 2.000–5.000%  | Outstanding       | \$2,634,000                     | \$2,488,000              | \$175,200           |
| REFUNDING PURPOSE: For advance refunding of \$25.7 million of the Series 2003B bonds.  |            |                      |               |               |                   |                                 |                          |                     |
| 2014A*   | 06/01/14   | \$63,410,000         | 10/01/22      | 5.000%        | Outstanding       | \$4,351,000                     | \$4,224,000              | \$256,800           |
| REFUNDING PURPOSE: For advance refunding of \$70.9 million of the Series 2005A bonds.  |            |                      |               |               |                   |                                 |                          |                     |
| TOTAL COST SAVINGS   |            |                      |               |               |                   | \$40,669,000                    | \$37,769,000             | \$2,270,529         |

\* Refunded solely to obtain a better interest rate.

Source: Scott and Company

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## SCDOT Debt Service Limit

As of June 30, 2015, the legal debt service margin for general obligation highway bonds was approximately \$39,710,000, which represents additional bond capacity for the department. The legal debt service margin is established by Article X, Section 13 of the Constitution of the State of South Carolina. This section states that highway bonds may be issued if such bonds are additionally secured by a pledge of revenues designated by the General Assembly for state highway purposes from taxes or licenses imposed for using the public highways of the state. The maximum annual debt service on all highway bonds shall not exceed 15% of the proceeds received from the designated revenues for the preceding fiscal year. According to the Secretary of Transportation, it has been the practice of the department to utilize only 80-85% of legal debt service capacity in order to leave some bonding capacity in reserve. In this case, 80% would be approximately \$31,700,000.

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## Expense Disbursements

The disbursement process that was in place prior to the implementation of SCEIS in FY 09-10 allowed SCDOT to manipulate the coding of disbursements. We reviewed a sample of 100 expense disbursements for FY 05-06 – FY 08-09. SCDOT's internal records of the disbursements were compared to data provided by the Comptroller General to ensure that the classification in both parties' general ledgers was the same. The test did not yield any instances of classification being different between the department and Comptroller General. Given the SCEIS implementation, it was not necessary to test the disbursements for FY 09-10 – FY 14-15, as the implementation of SCEIS requires that both parties' records be in alignment.

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## Funding Needs

SCDOT has produced a variety of estimates of funding needs for different levels of road system improvement. Although we have gathered information on these estimates, we were unable to fully audit the assumptions and calculations on which they are based due to audit time constraints and the very technical nature of the task. The following is a summary and brief analysis of the major estimates of funding needs that have recently been produced.

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## Multimodal Transportation Plan Forecast

The current statewide long-range transportation plan, called the Multimodal Transportation Plan, was published in December 2014. It was prepared by CDM Smith, an engineering and construction firm that has been awarded over \$9.8 million worth of contracts with SCDOT since 2010. An executive committee composed of staff from SCDOT, FHWA, and other stakeholder agencies provided guidance and agreement on key components of the plan such as goals and objectives, funding needs, revenue forecasts, and investment allocation scenarios. The plan includes an estimate of the department's total funding needs to the year 2040. CDM Smith then divided up this multi-year total evenly into annual need and calculated the gap between annual need and forecasted annual funding. These annual needs and total annual funding gap are reflected in Table 3.29.

**Table 3.29: Estimated Annual  
SCDOT Funding Needs,  
2011 – 2040**

|   | INTERSTATE<br>SYSTEM | OTHER<br>PRIMARY<br>ROADS | SECONDARY ROADS         |                                | TOTAL           |
|---|----------------------|---------------------------|-------------------------|--------------------------------|-----------------|
|   |                      |                           | FEDERAL-AID<br>ELIGIBLE | NON<br>FEDERAL-AID<br>ELIGIBLE |                 |
| Highway Expansion                                 | \$445M               | \$270M                    | \$26M                   | \$0                            | \$741M          |
| Highway Maintenance                               |                      |                           |                         |                                |                 |
| Preservation                                      | \$88M                | \$356M                    | \$227M                  | \$124M                         | \$795M          |
| Modernization                                     | 92M                  | 145M                      | 44M                     | 71M                            | 352M            |
| Routine Maintenance                               | 26M                  | 45M                       | 36M                     | 66M                            | 172M            |
| Subtotal  | \$206M               | \$546M                    | \$307M                  | \$261M                         | \$1.32B         |
| Bridges   |                      |                           |                         |                                |                 |
| Maintenance                                       |                      |                           |                         |                                | \$44M           |
| Modernization                                     |                      |                           |                         |                                | 1M              |
| Replacement                                       |                      |                           |                         |                                | 139M            |
| Culverts  |                      |                           |                         |                                | 3M              |
| Subtotal  |                      |                           |                         |                                | \$188M          |
| Mass Transit, Premium Transit, and Passenger Rail |                      |                           |                         |                                | \$181M          |
| <b>TOTAL NEEDS</b>                                |                      |                           |                         |                                | <b>\$2.429B</b> |
| <b>ESTIMATED REVENUE</b>                          |                      |                           |                         |                                | <b>\$953M</b>   |
| <b>TOTAL FUNDING GAP</b>                          |                      |                           |                         |                                | <b>\$1.476B</b> |

M = Million  
B = Billion

Source: SCDOT

The following issues should be considered regarding the above estimates of funding needs:

#### Revenue Forecasts

The value for “Estimated Revenue” listed in Table 3.29, as well as the funding gap, should be questioned knowing it includes a large number of assumptions, some of which have become less accurate in the time since the estimate was made. The revenue forecast was made for the entire 29-year period ending in 2040, and then divided by 29 to yield an annual estimate.

The estimates were adjusted to reflect constant 2011 dollars in order to account for inflation. They were also intended to reflect only those revenues that can be used on the needs listed, so revenue that SCDOT expects to use on operating expenses and debt service, or federal aid revenue that is specifically designated for other costs, such as planning and research, was not included. Further, although the Multimodal Transportation Plan was published in late 2014, the revenue forecasts were made for a period beginning in 2011. Therefore, recent changes in SCDOT revenues may not have been taken into account in the revenue forecasts.

#### **Assumptions for Estimates of Needs**

SCDOT and FHWA analytical tools and databases were used to produce some of the data needed to estimate funding needs. These tools require SCDOT staff to provide a significant amount of information that is then used in the calculations. These are often estimates or generalizations that introduce the possibility of inaccuracies or bias in the final values. For example, the systems used to calculate roadway and bridge needs required the following types of inputs from SCDOT staff:

- Level of road and bridge conditions that would merit consideration of improvements.
- Design standards for improvements.
- Unit costs for each type of roadway improvement, based on historical costs.

Also, the calculations assume that SCDOT will have the same needs and revenues each year. If the estimate of total need for the 29-year period is correct, the annual need is actually increasing with each year that SCDOT does not receive the additional funding called for in the plan.

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## **Breakdown of Multimodal Transportation Plan Needs**

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In January 2016, SCDOT published an updated and itemized funding gap using the estimates of needs in the Multimodal Transportation Plan and SCDOT staff estimates of current funding levels for each area. This resulted in the information presented in Table 3.30.

**Table 3.30: SCDOT Estimate of Current Annual Funding Gap**

|   | INTERSTATE<br>SYSTEM | OTHER<br>PRIMARY<br>ROADS | SECONDARY ROADS         |                                | TOTAL            |
|---|----------------------|---------------------------|-------------------------|--------------------------------|------------------|
|   |                      |                           | FEDERAL-AID<br>ELIGIBLE | NON<br>FEDERAL-AID<br>ELIGIBLE |                  |
| Highway Expansion (ECF \$390M)                                  |                      |                           |                         |                                |                  |
| Widenings   | \$128.6M             | \$28.8M                   | \$12.6M                 | \$0                            | \$170.0M         |
| New Roads   | 82.8M                | 99.2M                     | \$0M                    | \$0                            | 182.0M           |
| Subtotal  | \$211.4M             | \$128.0M                  | \$12.6M                 | \$0                            | \$352.0M         |
| Highway Maintenance   |                      |                           |                         |                                |                  |
| Preservation (ECF \$232M)                                       | \$62.8M              | \$253.0M                  | \$161.3M                | \$87.9M                        | \$565.0M         |
| Modernization & Routine Mnt (ECF 127M)                          | 89.1M                | 144.0M                    | 60.2M                   | 103.6M                         | 397.0M           |
| Subtotal  | \$152.0M             | \$397.0M                  | \$221.5M                | \$191.5M                       | \$962.0M         |
| Bridges (ECF \$115M)  |                      |                           |                         |                                | \$71.0M          |
| Mass Transit, Premium Transit, and Passenger Rail (ECF \$86.5M) |                      |                           |                         |                                | \$94.5M          |
| <b>TOTAL FUNDING GAP</b>  |                      |                           |                         |                                | <b>\$1.4795B</b> |

M = Million  
B = Billion  
ECF = Estimated Current Funding

Source: SCDOT

The values above are based on the following assumptions:

- That the annual funding needs published in the Multimodal Transportation Plan are still valid.
- That the distribution of roadway improvement needs among each type of road (interstate, primary, and secondary) remains the same as the estimates in the Multimodal Transportation Plan.

The calculations also depend on SCDOT estimates of current annual funding for each type of improvement. It is important to note that the department is unable to produce actual expenditures broken down into these categories, so the basis of the estimates is unclear. The current funding estimates were initially made in late 2014, and only two of the five were adjusted for these calculations.

When these estimates were initially provided to us, there were errors in the calculations. They were corrected after we inquired about the methodology. The table that included the errors was posted on the department's website as part of the 2016 "State of the SCDOT" presentation.

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## Transportation Asset Management Plan (TAMP)

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SCDOT is currently finalizing a new Transportation Asset Management Plan (TAMP). This document is being developed in anticipation of a new FHWA rule requiring each state to develop a plan for improving or preserving the condition and performance of the National Highway System. The department used information from the following systems to develop a number of investment scenarios for the TAMP:

### HIGHWAY PAVEMENT MANAGEMENT SYSTEM

Software designed for SCDOT that provides predictive analysis of pavement performance and life cycle as well as estimates of funding requirements.

### BRIDGE MANAGEMENT SYSTEM

Software developed by the American Association of State Highway and Transportation Officials (AASHTO) to store bridge condition data.

Although the TAMP is not yet published, SCDOT reports that it will provide a ten-year investment strategy that focuses on the performance of the department's pavements and bridges and will also include comprehensive investment scenarios incorporating other factors such as congestion mitigation.

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## Comparison with Other States

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FHWA annually publishes a large amount of data on the nation's roads. Although much of this data is self-reported, it allows broad comparisons to be made with other states.

Of all states, South Carolina dedicates the smallest amount of revenue to state roads relative to the size of the system (measured in lane miles) and the amount of traffic it carries. The characteristics and conditions of state road systems vary greatly among states. However, we have found no unique characteristic of South Carolina's state road system that would warrant such a low level of investment. Even in a comparison with seven other Southeastern states, South Carolina's investment per lane mile is 66% lower than the regional average, and its investment adjusted for amount of traffic is 44% lower than the regional average.



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## Revenue Alternatives

SCDOT is heavily reliant on revenues from both the state motor fuel user fee, also known as the gas tax, and federal transportation funding. SCDOT's reliance on per-gallon fuel taxes can be problematic for the following reasons:

- They do not self-adjust for inflation unless they are indexed to fuel prices or other economic indicators.
- Decreased fuel consumption due to the development of more fuel-efficient cars has put downward pressure on gas tax revenues.
- Like most consumption taxes, gas taxes are regressive, meaning that they have a disproportionate impact on low-income consumers.

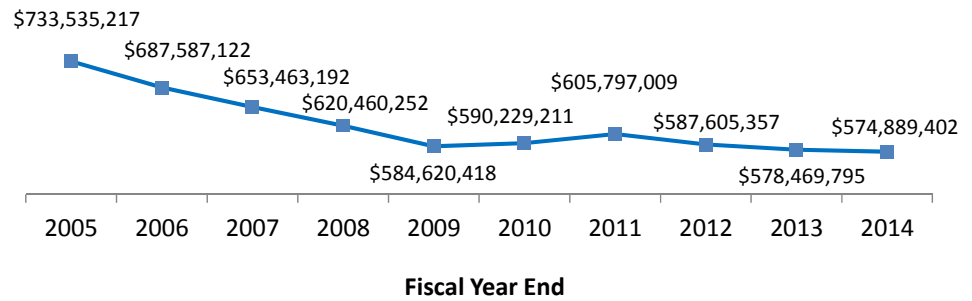
We propose alternative funding sources to diversify the revenue available for South Carolina roads.

Taxes and fees paid by drivers — the most significant of which is the gas tax — now make up the smallest share of total highway funding nationally since 1957. Gas taxes account for 18% of all revenues that states use for highways, and 24% of non-federal revenues. In contrast, the state motor fuel tax accounted for 37% of total SCDOT revenue in FY 14-15 and 73% of SCDOT's non-federal revenue.

South Carolina is more dependent on both federal funding and motor fuel taxes than the national average. It is important to note that this is not because the state receives an unusually high amount of federal funding (see *Federal Funding for Transportation* in Chapter 1) or because it has a high gas tax. At the beginning of 2016, South Carolina had the third lowest gas tax rate in the nation. The reason that other states are, on average, less dependent on these two funding sources is that they get more transportation funding than SCDOT does from tolls, general funds, state taxes other than the gas tax, bond proceeds, and other sources.

South Carolina's gas tax rate has not been raised since 1987. It is levied on a per-gallon basis and is not tied to any economic indicators, so it does not adjust in response to inflation or changing gas prices. Graph 3.31 shows the state's total annual motor fuel tax collections, adjusted for inflation using the U.S. Bureau of Economic Analysis price index for state and local investment in structures. It demonstrates the decline in the real value of these revenues over the last decade.

**Graph 3.31: S.C. Motor Fuel Tax Collections (2015 Dollars) 2005 – 2014**



Sources: S.C. Department of Revenue, U.S. Bureau of Economic Analysis, and LAC

South Carolina is not alone in facing this difficulty with gas tax revenue. Some states are responding by passing legislation to change their gas tax rates. From 2013 – 2015, 13 states enacted legislation that increased state gas taxes. In five of those states, the gas tax is tied, to some degree, to economic measures such as inflation or the price of fuel; four additional states and the District of Columbia implemented similar indexing of their gas tax rates without an immediate rate increase.

There are numerous alternative revenue sources the S.C. General Assembly could consider in order to diversify or expand the state's sources of transportation funding. Given the multi-year timeframe of most transportation projects, it is important that any transportation revenue sources be dedicated outside of the annual appropriations process to allow SCDOT to plan for future revenues. SCDOT currently receives some funding from the following sources, but its share could be increased:

- Driver's license fees.
- Motor vehicle fees.
- Electric power tax.
- Tolls.
- Vehicle sales tax.
- General fund revenues.

The following sources are not currently used for transportation revenue in South Carolina, but could be considered:

- Insurance premium safety surcharge.
- Encroachment permit fee.
- Alternative fuel or electric vehicle user fees.
- Rental car fees.
- Fees on vehicle miles traveled.
- Severance taxes on the extraction of non-renewable resources.

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## Recommendations

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45. The General Assembly should index the state motor fuel user fee to fuel prices or another economic indicator in order to offset the decline in realized revenue from this fee.
  46. The General Assembly should diversify the sources of state transportation funding in order to minimize the effect of increasing fuel economy.



# Road Conditions

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## Chapter Summary

In this chapter, we discuss road conditions over time, the types of treatments used for maintenance preservation, and the cost of those options. We found that:

- The department does not accumulate and analyze data with enough frequency in order to determine the best time to apply the least expensive preservation treatment for non-interstate roads.
- The department does not have a system in place to annually identify the roads in need of specific preservation treatments. Thus, the public, the Commission, and the General Assembly are not informed of the location and number of roadways that could be treated on a timely basis with the least expensive preservation methods before more expensive remedies are required.
- The percentage of centerline miles of primary and secondary roads rated in poor condition has increased from a range of 31-33% in 2008 to a range of 46-54% in 2014.
- Poor road conditions result in heavy costs to drivers in the form of increased auto repair and maintenance costs.
- Since 2004, there has been an increase of 760 lane miles in the state road system that SCDOT is required to maintain.
- The department does not evaluate its performance of accepted ideal industry resurfacing cycle time, which calls for resurfacing all primary roads every 12 years and secondary roads every 15 years. Therefore, it may be more difficult to determine if the department is resurfacing the same roads more frequently than needed.

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## Background

SCDOT divides its roads into four types:

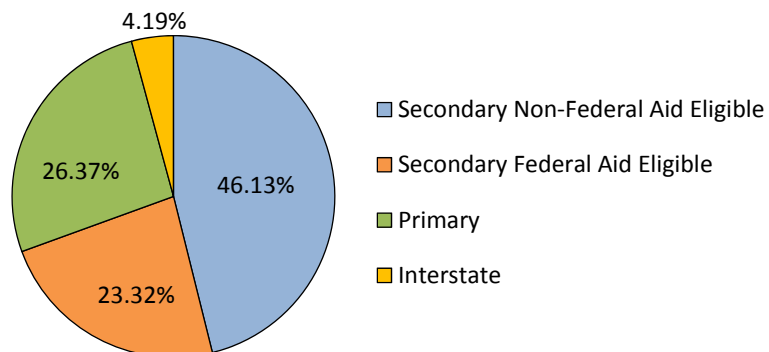
- Interstates.
- Primary Roads.
- Secondary Federal Aid Eligible.
- Secondary Non-Federal Aid Eligible.

Federal dollars may be used on interstates, primary roads, and roads classified as secondary federal aid eligible. Yet conditions attached to some federal program dollars may prohibit their use on certain types of roads that are, otherwise, eligible for federal funding.

Chart 4.1 shows the percentage of state lane miles by road type.

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**Chart 4.1: Percentage of State Lane Miles in Each Road Type**



Note: The numbers were taken from the 2014 State of the Pavement Report but the data were not dated.

Source: SCDOT

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**Table 4.2: State-Maintained System**

|                                    | LANE MILES    | CENTER LINE MILES | PERCENT OF TRAFFIC (VMT) | ELIGIBLE FOR FEDERAL AID* |
|------------------------------------|---------------|-------------------|--------------------------|---------------------------|
| Interstate                         | 3,796         | 851               | 29%                      | Yes                       |
| Primary Roads                      | 23,869        | 9,471             | 47%                      | Yes                       |
| Secondary Federal Aid Eligible     | 21,108        | 10,271            | 17%                      | Yes                       |
| Secondary Non-Federal Aid Eligible | 41,758        | 20,828            | 7%                       | No                        |
| <b>TOTAL</b>                       | <b>90,531</b> | <b>41,421</b>     | <b>100%</b>              |                           |

VMT = Vehicle Miles Traveled

\* Federal funding programs may have specific requirements that limit their usage on roads that are classified as eligible for federal aid. (See *Federal Funding Requirements* in Chapter 5.)

Note: The number of lane miles was taken from the 2014 State of the Pavement Report but the data were not dated. The centerline miles are from December 2013.

Source: SCDOT

Centerline mileage is the total length of the road. Lane mileage is the total length of the road multiplied by the number of road lanes.

Aside from the SCDOT categories shown in Table 4.2, each road has a federal classification that determines its eligibility for federal aid. States assign and maintain the federal classifications of all their public roads based on Federal Highway Administration (FHWA) guidelines. The FHWA division office has final approval of any changes. SCDOT maps of functional classifications can be found on the geographic information system (GIS) mapping site maintained by SCDOT.

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## National Highway System

The National Highway System (NHS) is a federally-designated road system defined as:

Interconnected urban and rural principal arterials and highways (including toll facilities) which serve major population centers, international border crossings, ports, airports, public transportation facilities, other intermodal transportation facilities and other major travel destinations; meet national defense requirements; and serve interstate and interregional travel.

All interstates and a portion of the primary system are included in the NHS. The 3,603 centerline miles (12,984 lane miles) of NHS roads in South Carolina carry 54% of all vehicle miles traveled. Any additions to the NHS must be approved by FHWA headquarters. The roads on the NHS are eligible for National Highway Performance Program (NHPP) funding. This is the largest federal highway aid program. Maps of the South Carolina NHS can be found on FHWA's website.

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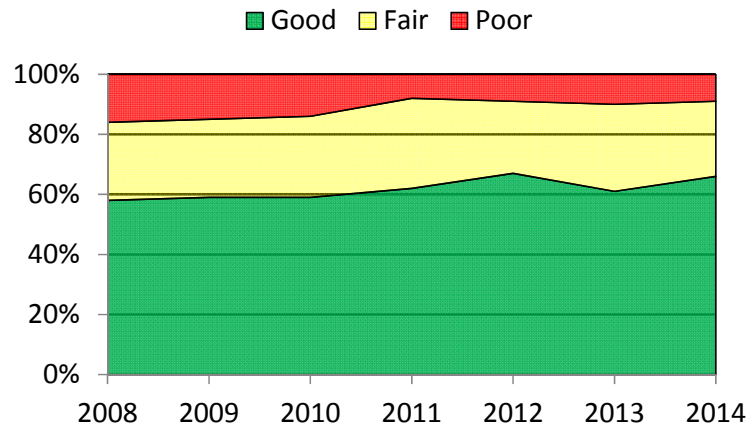
## Road Conditions

SCDOT determines pavement condition of all the roads it maintains based on road roughness and observed pavement distresses such as cracks and potholes (see *How SCDOT Establishes Road Conditions* in Chapter 4). The trend in road conditions along South Carolina's interstate system is represented in Chart 4.3. The percentage of roads in good condition has been increasing since 2008. In 2014, approximately two-thirds of the interstates were in good condition. The percentage of roads in fair condition has remained around 25% since 2008, while the percentage of roads in poor condition has slowly decreased since 2008.



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**Chart 4.3: Interstate Road  
Conditions, 2008 – 2014**

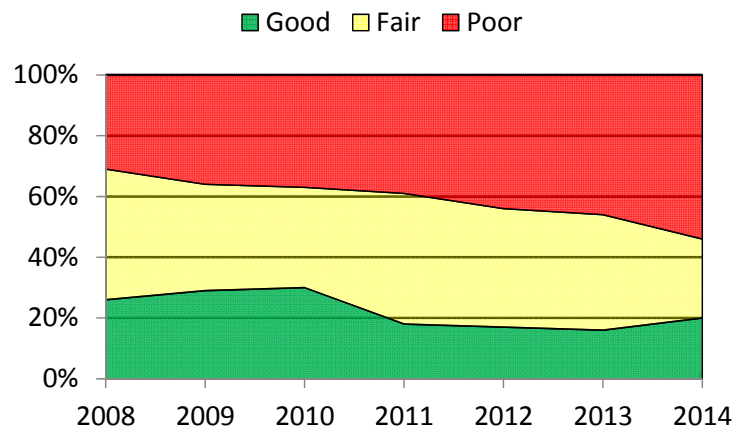


Source: SCDOT and LAC

For primary roads, as reflected in Chart 4.4, the good condition category decreased from 2010–2013. However, there is a slight increase in this category in 2014. The poor condition category increased from 31% in 2008 to 54% in 2014. Since 2012, the fair condition category has decreased as some roads fell into poor condition and others improved to good condition.

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**Chart 4.4: Primary Road  
Conditions, 2008 – 2014**

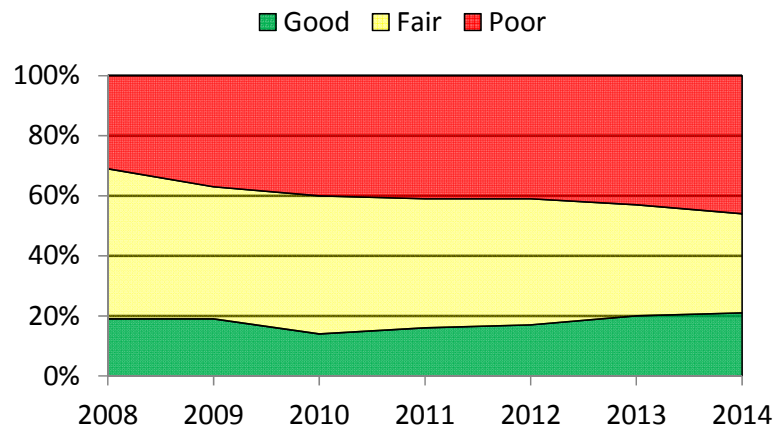


Source: SCDOT and LAC

Charts 4.5 and 4.6 reflect the trends in road conditions along the state's secondary system, both federal aid eligible and non-federal aid eligible. For both types of secondary roads, the poor condition category has increased since 2008. The percentage of federal aid eligible secondary roads in poor condition increased from 31% in 2008 to 46% in 2014. The percentage of non-federal aid eligible secondary roads in poor condition increased from 33% in 2008 to 54% in 2014. For secondary roads that are federal aid eligible, the good condition category remained around 20% from 2008–2014, aside from the dip in 2010. For secondary roads that are non-federal aid eligible, the good condition category remained around 13% from 2008–2014.

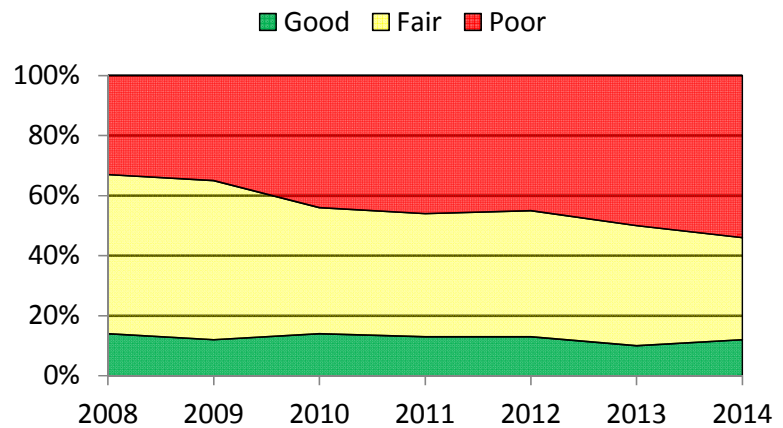
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**Chart 4.5: Secondary, Federal Aid Eligible, 2008 – 2014**



Source: SCDOT and LAC

**Chart 4.6: Secondary, Non-Federal Aid Eligible, 2008 – 2014**

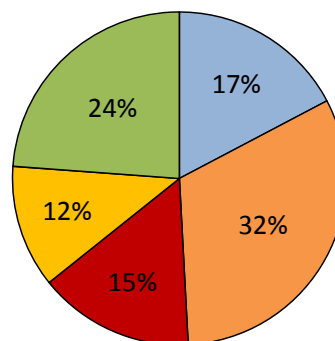


Source: SCDOT and LAC

Chart 4.7 shows the percentage of SCDOT's major funded program expenditures that were spent on each type of road from July 1, 2014 to January 31, 2016.

**Chart 4.7: SCDOT Major Funded Program Expenditures, by Road Type, July 2014 – January 2016**

Interstate      Primary  
Federal Aid Secondary      Non-Federal Aid Secondary  
No Road Type Designated



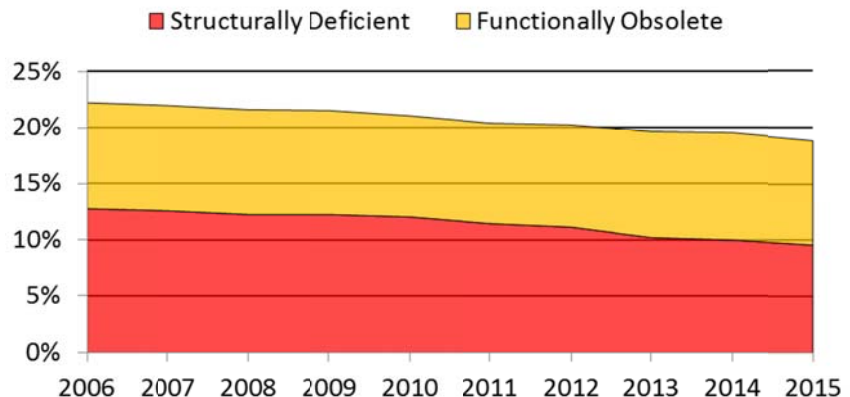
Source: SCDOT and LAC

## Bridge Conditions

FHWA maintains a database of structurally deficient and functionally obsolete bridges for every state. Together, the terms “structurally deficient” and “functionally obsolete” describe deficient bridges. A structurally deficient bridge is one that has significantly deteriorated or damaged load-carrying elements, or an extremely inadequate opening for the waterway. A functionally obsolete bridge is one that does not meet current design standards for load carrying capacity, clearance, alignment of the approaching roadway, or bridge roadway width.

As of January 1, 2016, SCDOT maintains 8,436 bridges. As represented in Chart 4.8, the total number of deficient bridges decreased from 1,857 (22.2%) in 2006 to 1,593 (18.9%) as of January 1, 2016. SCDOT reported \$115.9 million in expenditures on bridges in FY 14-15, which was approximately 8.8% of total expenditures for that year. The department reports that, as of January 1, 2016, there are 804 structurally deficient and 789 functionally obsolete bridges in the state, which comprise 18.9% of total bridges in the state.

**Chart 4.8: SCDOT Deficient Bridges, 2006 – 2015**



Note: 2006-2014 data are from December of each year. The 2015 number is as of 1/1/16.

Source: FHWA, SCDOT, and LAC

## Pavement Maintenance Categories and Treatments

Prior to Act 114, SCDOT used the term “resurfacing” to identify federal and non-federal aid pavement maintenance programs. SCDOT management thought that the word “resurfacing” was too general, so it adopted the current program designations of pavement improvement and preservation. “Resurfacing” is a general term used to describe the placement of any volume of hot mix asphalt on an existing paved road. Though they may not be officially defined as such, some of the processes (or components thereof) explained below could be described informally as resurfacing by individuals inside and outside of the department.

As shown in Table 4.9, the improvement portion of the program refers to rehabilitation and reconstruction, since these elements of the program improve the structural capacity of the pavement. The preservation element includes a group of lower-cost treatments that extend pavement service life, but do not add any structural capacity to the pavement. The three categories of maintenance treatments are described below. The average costs were reported by SCDOT.

**Table 4.9: Pavement Maintenance Categories and Treatments**

| PAVEMENT PRESERVATION   | PAVEMENT IMPROVEMENT                                 |   |
|---|--|---|
| Approx. \$21,900 per lane mile  | REHABILITATION<br>Approx. \$124,300 per lane mile    | RECONSTRUCTION<br>Approx. \$188,000 per lane mile |
| Low-cost treatments that extend service life but do not add structural capacity | Processes to improve structural capacity of pavement |   |
| Ultra-Thin Overlay (HMA* Thin Lift)   | HMA Structural Overlays                              | Full-Depth Reclamation                            |
| Microsurfacing  |  |   |
| Chip Seal   |  |   |
| Crack Seal  |  |   |
| Full-Depth Patching   |  |   |

HMA = Hot Mix Asphalt

Source: SCDOT

### **Preservation**

Preservation treatments are applied to pavements in relatively good condition with the goal of preserving the structural integrity and extending the useful life of the pavement. They do not provide significant structural capacity but may seal the surface against the infiltration of storm water, provide a new wear course, or delay further oxidation and raveling (surface wear). The average cost of preservation treatments is approximately \$21,900 per lane mile.

Examples of preservation treatments include:

#### **ULTRA-THIN ASPHALT OVERLAY**

A thin application of hot mix asphalt material.

#### **MICROSURFACING**

Spreading a mix of asphalt material, aggregate (see Appendix A), water, and other additives on a paved roadway at a specified thickness. As the water evaporates, the surface cures providing a skid-resistant surface and sealing small cracks to prevent water from penetrating into the road base.

#### **CHIP SEAL**

Spraying a liquid asphalt mixture on the road, applying a layer of aggregate over the asphalt and then rolling over it with a rubber tire roller to set the aggregate.

#### **CRACK SEAL**

Filling moderately-sized cracks with hot liquid rubberized asphalt material to seal the cracks and reduce the amount of moisture entering subsurface layers.

#### **FULL-DEPTH PATCH**

Patching asphalt pavement, typically six inches deep, where the pavement has failed due to a problem with the base or subgrade.

### **Rehabilitation**

Rehabilitation projects extend the life of existing pavement structures either by restoring existing structural capacity through the removal and replacement of deteriorated pavement surface or by increasing pavement thickness to strengthen existing pavement sections to accommodate existing or projected traffic loading conditions. Rehabilitation techniques include restoration treatments and structural overlays. Rehabilitation treatments are very effective for pavements that are deteriorated, but not to the point that a reconstruction treatment is required. At approximately \$124,300 per lane mile, rehabilitation treatments are much more expensive than preventive maintenance treatments.

### **Reconstruction**

Reconstruction is the replacement of the entire existing pavement structure to a level required for long-term performance. Reconstruction may utilize either new or recycled materials incorporated into the materials used for the reconstruction of the complete pavement section. Reconstruction is appropriate when a pavement has structurally failed and can no longer support the traffic demand. At approximately \$188,000 per lane mile, reconstruction techniques are the most expensive option for pavement repair.

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## **Non-Federal Aid Highway Fund**

We found that SCDOT limits its use of state revenue deposited into the Non-Federal Aid Highway Fund to a minority of roads that carry less than 10% of the state's traffic.

The State Non-Federal Aid Highway Fund was established in 2005. Some state revenues that SCDOT receives, such as fines, fees, permits, and taxes, are dedicated by statute to this account. The fund received an estimated \$83 million in FY 14-15. The department has indicated that the Non-Federal Aid Highway Fund is limited to usage on the 46% of state roads that are not eligible for federal aid, which carry only 7% of the state's traffic. These roads represent approximately two-thirds of the state secondary system, and they are not eligible for federal aid due to their federal classification (see *Background* in Chapter 4). Because state law does not specify the permissible uses of the fund, SCDOT has assumed that the Non-Federal Aid Highway Fund may only be used on the roads that are not eligible for any federal aid.

SCDOT asserts that the restriction on the use of the Non-Federal Aid Highway Fund hampers the department's ability to address the roads with the most need. Of particular concern are the primary and secondary roads that are not eligible for all types of federal aid because they are not part of the National Highway System (NHS). The largest federal aid funding program, the National Highway Performance Program, must be used almost exclusively to fund projects on the NHS (see *Federal Funding Requirements* in Chapter 5). The NHS makes up only 14% of the state's total road lane miles. It includes all interstates and a portion of the primary system and carries over half of the state's traffic.

Even though all primary roads and about one-third of secondary roads qualify for some federal funding, most of them are not on the NHS and therefore do not qualify for the largest category of federal funds. As of 2014, approximately half of these roads were in poor condition (see *Background* in Chapter 4). SCDOT argues that it needs the flexibility to use money from the Non-Federal Aid Highway Fund on these roads.

The department has proposed a change in legislation to explicitly allow the use of funds from the Non-Federal Aid Highway Fund on primary and secondary roads that are eligible for federal funds. As the existing legislation is not specific, it is unclear whether the Non-Federal Aid Highway Fund can be used on roads that are eligible for federal aid.

We reviewed a sample of 30 deposits and 30 disbursements from FY 09-10 – FY 14-15 related to the Non-Federal Aid Highway Fund. All of the deposits tested were deposited correctly and none of the disbursements tested were used for federal-aid eligible roads or administrative expenditures.

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## Recommendation

47. The S.C. Department of Transportation should seek clarification from the General Assembly on the permitted or intended uses of the Non-Federal Aid Highway Fund under current state law.

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## Preservation of SCDOT's Roads

We reviewed how the S.C. Department of Transportation assesses and rates road conditions and how it determines when pavement preservation or repair treatments are applied. We also reviewed the size of the SCDOT-maintained system and how it affects the department's maintenance backlog.

We found that the department does not accumulate and analyze road condition data with adequate frequency to determine the best times to apply more cost-effective preservation treatments for non-interstate roads. We also found that poor road conditions result in significant costs to drivers in the form of increased auto repair and maintenance costs.



## How SCDOT Establishes Road Conditions

SCDOT uses technology to measure ruts and roughness in the roadway. At the same time, cracking, potholes, and patches, as well as general surface wear on the roadway, are visually identified and measured based on their severity. These values are entered into a formula which determines the grade for a section of road, called the pavement quality index (PQI). PQI has two components: one measures rutting and roughness; the other measures pavement distress which includes cracking or raveling.

All roads maintained by SCDOT are assessed, but on different schedules depending on the priority of the route. Interstates are assessed annually while primary routes are assessed every three years with one-third of the primary roads assessed each year. Primary routes on the national highway system are partially assessed every year to meet FHWA requirements but the full assessment occurs every three years. Secondary routes with an average annual daily traffic (AADT) count of 400 or higher are assessed every three years (one-third annually). Secondary routes with an average annual daily traffic (AADT) count of less than 400 are assessed every six years (one-sixth annually).

A summary of road condition for each category of road in the state system is presented in Table 4.10. For convenience, SCDOT converts road condition data into categories such as good, fair, and poor based on the PQI range.

**Table 4.10: Percentage of Roads in Good, Fair, and Poor Condition by Road System as of 2014**

| ROAD SYSTEM                           | NUMBER OF CENTERLINE MILES | FEDERAL AID ELIGIBLE | ROAD QUALITY             |                          |                          |
|---------------------------------------|----------------------------|----------------------|--------------------------|--------------------------|--------------------------|
|                                       |                            |                      | GOOD<br>(PQI of 3.4-5.0) | FAIR<br>(PQI of 2.7-3.3) | POOR<br>(PQI of 0.0-2.6) |
| Interstate                            | 851                        | Yes                  | 66%                      | 25%                      | 9%                       |
| Primary                               | 9,471                      | Yes                  | 20%                      | 26%                      | 54%                      |
| Secondary<br>Federal Aid Eligible     | 10,413                     | Yes                  | 21%                      | 33%                      | 46%                      |
| Secondary<br>Non-Federal Aid Eligible | 20,657                     | No                   | 12%                      | 34%                      | 54%                      |

Source: SCDOT

The pavement management section of SCDOT uses the data generated by the road rating with other information, including anticipated budgets, to identify roads for possible rehabilitation.

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## Neglecting Pavement Preservation Increases Repair Costs

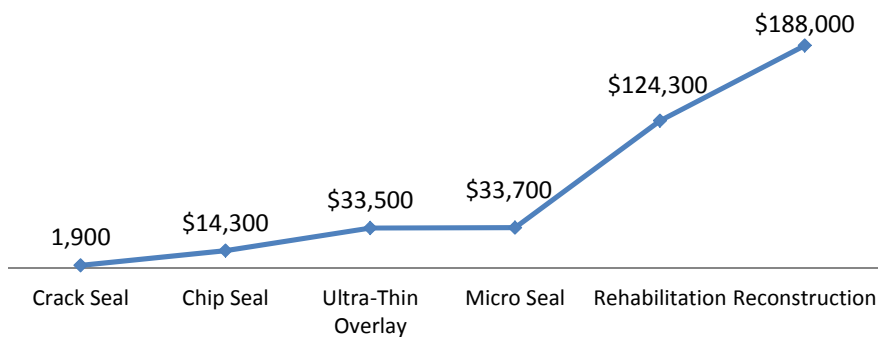
SCDOT does not calculate the cost of allowing South Carolina roadway systems to deteriorate due to a lack of maintenance and does not monitor roads in a manner that allows for the prediction and identification of roads in need of specific preservation treatments. SCDOT also does not rank preservation projects, leading to missed opportunities to preserve roads and prevent the need for more costly maintenance treatments in the future.

Preservation treatments are time sensitive, and it is critical that they are performed at the right time and that the right treatment is used. There is a marked increase in costs depending on which type of treatment a road needs; and, of course, the longer a roadway is neglected, the more expensive it is to repair.

Chart 4.11 illustrates the average cost of four types of preservation treatments (crack seal, chip seal, ultra-thin overlay, and micro seal), rehabilitation, and reconstruction. While the lowest-cost method of preservation, “crack seal” seals cracks in the pavement surface, “reconstruction” projects replace the entire existing pavement structure by the placement of the equivalent or increased pavement structure. Preservation treatments in between are dependent on the level of deterioration of the road.

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**Chart 4.11: Average Cost of Preservation Treatment Per Lane Mile in 2014**



Note: The average cost of preservation treatments is approximately \$21,900 per lane mile. This includes chip seal, micro-surface, ultra-thin asphalt overlay, crack seal, and full-depth patch.

Source: SCDOT

SCDOT has a schedule for monitoring road conditions. The department monitors interstates annually. Secondary routes with less than 400 average annual daily traffic (AADT) are monitored on a six-year cycle and all other routes are on a three-year cycle. SCDOT officials stress that the right preservation treatments must be performed on the right roads at the right times in order to be the most effective. The intervals of time between assessments of road conditions may contribute to difficulties in applying preservation treatments at the right place at the right time on non-interstate roads.

Missing opportunities to apply low-cost preservation treatments will lead to more expensive treatments. However, the department has not demonstrated it has an effective process by which to identify the proper treatment timing, with precision. The Department also does not publicly disseminate projections, including cost estimates, on how much pavement will annually deteriorate into the next most expensive treatment category. For example, the average cost per lane mile to preserve a road is \$21,900 while the cost to rehabilitate the same mile would average \$124,300.

As summarized in Table 4.12, delays in road repair accompanied by worsening road conditions results in more expensive treatment options. Failure to preserve a road in good condition and allowing its condition to deteriorate to fair, will result in an average increase in repair costs of 468%. If that same section of road is neglected and allowed to deteriorate to poor condition, the cost of reconstructing it increases an average of 758% beyond what it could have cost to simply preserve the road in good condition. If a road is allowed to deteriorate from fair to poor condition, the impact on costs is an average of 51%. Failure to monitor road conditions according to a regular schedule and address those sections of roadway most likely to deteriorate from good to fair condition or from fair to poor will likely result in unnecessary costs in maintenance expenditures and traffic flow interruptions as road sections are closed for longer periods of time to rehabilitate or reconstruct.

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**Table 4.12: Average Treatment Cost per Lane Mile by Treatment Type**

|                         | ROAD CONDITION |                |                |
|-------------------------|----------------|----------------|----------------|
|                         | GOOD           | FAIR           | POOR           |
| Treatment Type          | Preservation   | Rehabilitation | Reconstruction |
| Avg. Cost Per Lane Mile | \$21,900       | \$124,300      | \$188,000      |

Source: SCDOT

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## Recommendations

48. SCDOT should develop a process for identifying the proper treatment timing for roads so that opportunities for preservation treatments are not missed and the pavement does not deteriorate into the next most expensive treatment category.
49. SCDOT should annually provide to the Commission information on the location of pavement that is about to deteriorate into the next most expensive treatment category. This information should also be disseminated to the public, the General Assembly, and other stakeholders.

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### SCDOT's Maintenance Assessment Program

SCDOT produces an annual report entitled "Maintenance Assessment Program," or MAP, which highlights the fact that the lack of maintenance funding has consequently led to a decrease in maintenance activities and the negative effects this has had on South Carolina's infrastructure. This is an informative document; however, it is not publicly disseminated on the SCDOT website.

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## Recommendation

50. The S.C. Department of Transportation should publicly disseminate its Maintenance Assessment Program report on its website and continue to produce this report on an annual basis.

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## Pavement Ratings

SCDOT discusses how it rates roadway pavement on a scale of five levels of service (LOS) in its Maintenance Assessment Program report. These levels of service are “A,” “B,” “C,” “D,” and “F”; an LOS of “A” would be the most desirable and “F” would be the least. The report notes that it would be impractical to achieve an LOS of “A” with current funding for all of South Carolina’s roads. The report strongly recommends that an LOS of “C” be considered the minimum acceptable level of service. In this same report, SCDOT estimates that it is currently delivering a LOS of “D” for all day-to-day maintenance operations statewide. Here is SCDOT’s explanation of each level of service:

### **Level of Service A (best)**

This is a very high level of service in which the associated features are in excellent condition. Very few deficiencies are present, all systems are operational, and the overall appearance is pleasing. Preventive maintenance is a high priority in all maintenance activities.

### **Level of Service B (good)**

This is a high level of service in which the associated features are in good condition. Very few deficiencies are present in safety and investment protection, but moderate deficiencies may exist in other areas. All systems are operational. Preventive maintenance is a high priority for safety-related activities, but is deferred for other areas, resulting in additional corrective maintenance activities.

### **Level of Service C (fair)**

This is a fair maintenance service level in which the associated features are in fair condition. Very few deficiencies are present in safety-related activities, but moderate deficiencies exist for investment protection and significant aesthetic-related deficiencies. Preventive maintenance is deferred for many activities except safety-related work. Corrective maintenance is routinely practiced for all activities. A backlog of deficiencies begins to build up that will have to be dealt with eventually, at a higher cost. Some roadway structural problems begin to appear due to long-term deterioration of the system.

**Level of Service D (poor)**

This is a low maintenance service level in which the associated features are in generally poor condition. Moderate deficiencies are present in safety-related activities and significant deficiencies for all other activities. Very little preventive maintenance is accomplished; maintenance becomes very reactionary and places emphasis on correcting problems as they occur. A backlog of deficiencies exists. Safety problems begin to appear that increase risk and liability, and significant structural deficiencies exist that accelerate the long-term deterioration of the system. The overall appearance of the system is poor.

**Level of Service F (worst)**

This is the lowest service level in which the associated features are in poor and failing condition. Significant deficiencies are present in all maintenance activities. The overall appearance is not aesthetically pleasing. Preventive maintenance is not practiced for any maintenance activities. Maintenance is totally reactive and places emphasis on correcting problems as they occur. Significant backlogs of maintenance deficiencies exist. Excessive safety problems occur or may occur.

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**Pavement Quality Index  
and its Relation to  
Pavement Service Life**

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SCDOT uses PQI to determine the condition of the pavement, its suitability for preservation treatments, and its remaining service life. PQI ranges from 0.0 to 5.0 with 5.0 being the best. These ratings relate to the level of service (LOS) of the pavement condition. Preservation treatments are performed on roads that typically have a PQI greater than 3. Table 4.13 shows how SCDOT determines the condition of its roads in the primary and secondary systems based upon PQI.

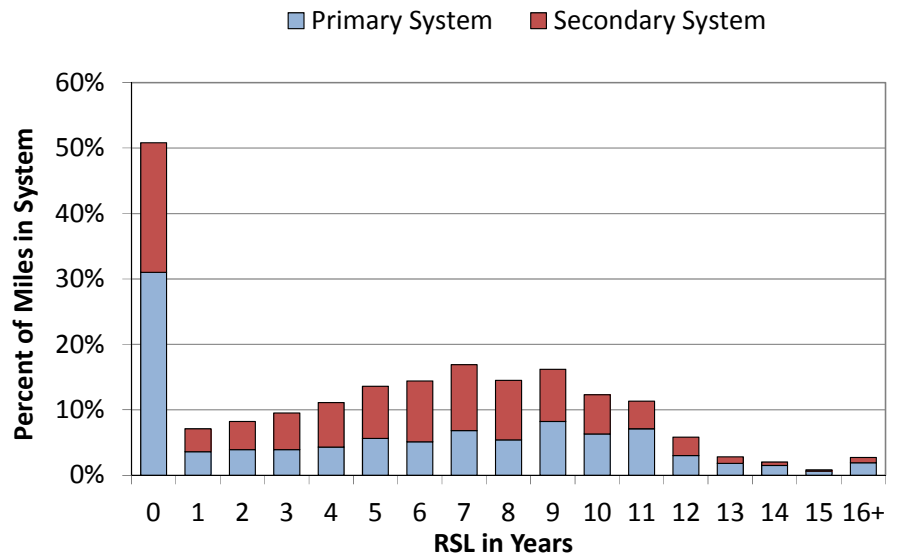
**Table 4.13: PQI to RSL\* Correlation**

| CONDITION | PQI                    |                  | RSL*                   |                  |
|-----------|------------------------|------------------|------------------------|------------------|
|           | PRIMARY SYSTEM (US SC) | SECONDARY SYSTEM | PRIMARY SYSTEM (US SC) | SECONDARY SYSTEM |
| LOS "F"   | 0 – 2.4                | 0 – 2.2          | 0                      | 0                |
| LOS "D"   | 2.5 – 2.7              | 2.3 – 2.6        | 1 – 4                  | 1 – 4            |
| LOS "C"   | 2.8 – 3.2              | 2.7 – 3.1        | 5 – 9                  | 5 – 9            |
| LOS "B"   | 3.3 – 4.0              | 3.2 – 3.7        | 10 – 14                | 10 – 14          |
| LOS "A"   | 4.1 – 5.0              | 3.8 – 5.0        | 15 - 20                | 15 - 20          |

\*RSL = Remaining Service Life; shown in years.

Source: SCDOT MAP Report

**Chart 4.14: Primary and Secondary System RSL\* Distribution as of 2013**

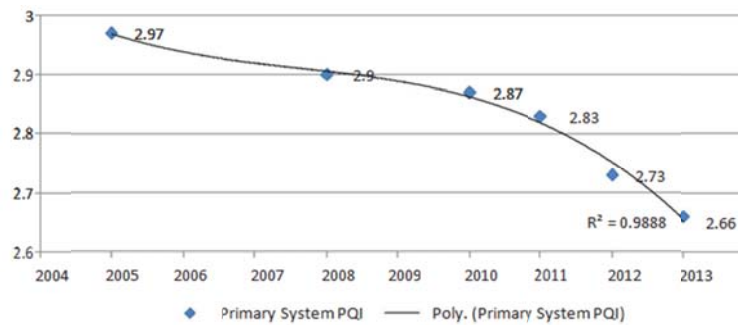


\*RSL = Remaining Service Life

Source: SCDOT

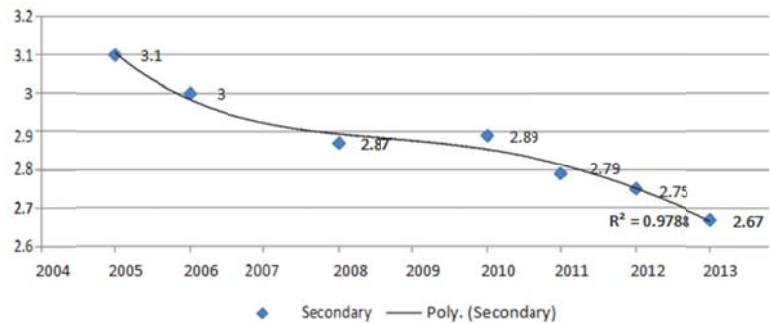
The following two charts show that the primary and secondary highway systems in South Carolina are trending at lower Pavement Quality Indices (PQI) scores overall year to year.

**Chart 4.15: Primary System PQI  
2005 – 2013**



Source: SCDOT

**Chart 4.16: Secondary System PQI  
2005 – 2013**

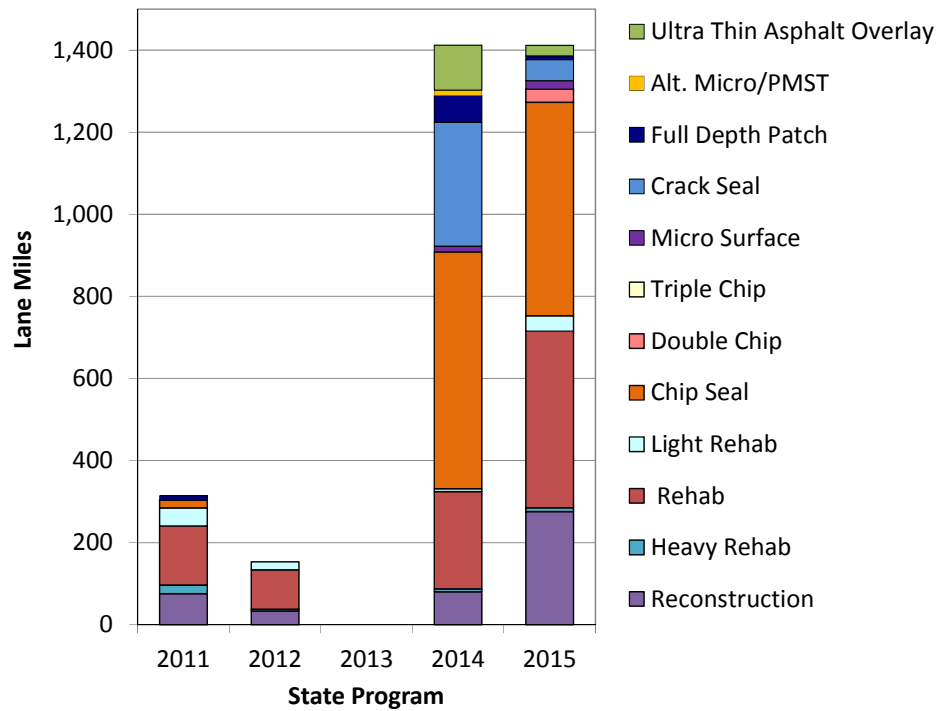


Source: SCDOT

Charts 4.17 and 4.18 illustrate the amount of preservation treatments by type that have been performed from 2011 to 2015 on each infrastructure system in South Carolina.



**Chart 4.17: Treatments Applied to Non-Federal Aid Eligible Highway System Lane Miles in the State Program**

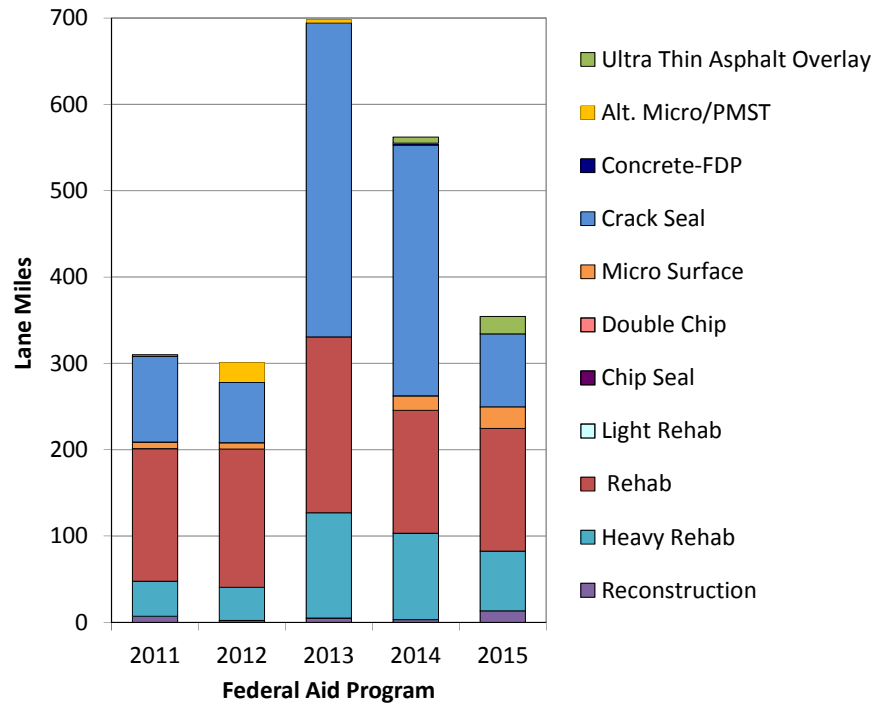


Note: There were no treatments applied in 2013.

Source: SCDOT

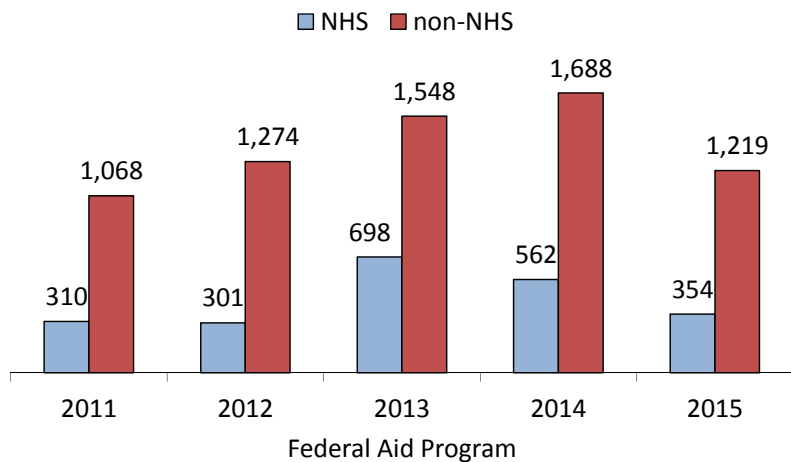
In 2015, approximately 2.5 lane miles of the National Highway System received maintenance treatments under the State Program. In 2011–2014, no maintenance was completed on the National Highway System under the State Program.

**Chart 4.18: Treatments Applied to National Highway System Lane Miles in the Federal Program**



Source: SCDOT

**Chart 4.19: Total Lane Miles Treated, Federal Aid Program**



Source: SCDOT

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## Road Condition Data

SCDOT cannot readily link pavement maintenance projects to the road condition data for that road segment because it cannot filter road description data from a contract or a letting document to derive mile points or segment lengths. This is a serious impediment to any analysis of the extent to which repairs improve road conditions, the additional service life that a repair adds to a road, and the relative effectiveness of different types of repairs.

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## Recommendation

51. The S.C. Department of Transportation should ensure that its information systems allow users to easily access road condition data from road maintenance contract information.
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## Fixing the Worst Roads First

SCDOT has had a long-standing policy of fixing the worst roads first. “Worst first” is a practice in which roadways are constructed and left unattended until they begin to show major signs of distress and then reactive maintenance is performed to keep them in service. However, this practice can lead to neglecting preservation needs that would prevent deteriorating roads in the future and preserve South Carolina’s assets. SCDOT states that it has implemented programs to transition away from the “worst first” mentality. According to SCDOT:

There is just not enough funding available to continue the “worst first” way of doing things. Following the “worst first” approach, the backlog of roads that need major rehabilitation and reconstruction continues to grow. The only way to get out from under the avalanche of deteriorating pavements is to stop the rate of deterioration through the application of less costly preventive maintenance treatments. That is, by implementing a preservation program. Research has shown that for every dollar spent on preservation, we save six to ten dollars that would have to be spent on rehabilitation or reconstruction down the road.

While SCDOT seems to be aware of the problems of the “worst first” approach, we found that some of SCDOT’s district offices still employ a “fix the worst first” approach when it comes to repairing roads in their areas. This could be attributed to SCDOT allowing local and district engineers to select which road projects they want to initiate in their areas, instead of SCDOT. Allowing local engineers to determine which roads need repair without having to follow a statewide ranking increases the opportunity for other entities to influence decisions regarding the order in which roads get fixed.

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## Recommendations

52. The S.C. Department of Transportation should periodically monitor its preservation activities to determine its effectiveness level.
53. The S.C. Department of Transportation should periodically monitor preservation activities to ensure that the “worst first” policy is not continuing.

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## Road Resurfacing Projects

With limited funding being allotted to resurfacing roads, SCDOT should be doing more to ensure that projects of the greatest importance are being selected and thus provide all relevant data regarding the road sections. SCDOT ranks federal and non-federal aid eligible road resurfacing projects using the following criteria:

- Pavement condition including the percentage of pavement that has been patched.
- Average daily traffic volume per day including trucks.
- Average daily truck traffic, which is the percentage of average daily traffic that is truck traffic converted to volume.

These three criteria form the basis on which resurfacing project scores are determined. SCDOT divides up the roads into “sections” and scores them based on data collected from SCDOT staff that travel the state roads and make observations on conditions. These sections of road are termed “candidates.” SCDOT headquarters then sends an un-prioritized list of these candidates, without complete data, to SCDOT district and local engineers.

These engineers then prioritize these sections of road using the criteria of:

- Pavement maintenance cost.
- Local significance.

SCDOT's process of not including data used to establish a "pool" of projects is deficient in that this additional data may assist its district and local engineers in making more informed decisions about which roads to resurface; especially if there are prioritized projects that score very close to one another. By not including this data, SCDOT makes it difficult to hold engineers accountable for poor decisions regarding the selection of projects from this candidate pool.

Additionally, the two criteria these engineers use to prioritize projects can precipitate a "worst first" mentality. For example, the criterion of "local significance" is not further defined in Directive 50. These engineers may interpret this criterion to mean that local pressure to select a particular road would indicate its significance and proceed with that project over other roads which would rank higher. By leaving these criteria open to general interpretation, SCDOT may be creating a situation that allows the "worst first" policy to continue, not only in just road resurfacing projects, but in other project types as well.

The accepted ideal industry cycle time for resurfacing all primary roads is every 12 years and secondary roads every 15 years. However, SCDOT does not document its performance in meeting this standard. Without this data, it may be difficult to determine if SCDOT is resurfacing the same roads more frequently than needed.

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## Recommendation

54. The S.C. Department of Transportation should analyze and document its performance in meeting ideal industry cycle times for resurfacing roads.

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## Backlog of Maintenance Projects

According to the 2014 MAP report, the backlog of maintenance is the direct result of years of insufficient funding, consistent growth in roadway lane miles, increased use, and a reduction in the number of employees that perform maintenance. The report goes on to state that, once the backlog of maintenance work is cleared, the cost of maintenance would decrease and then stabilize.

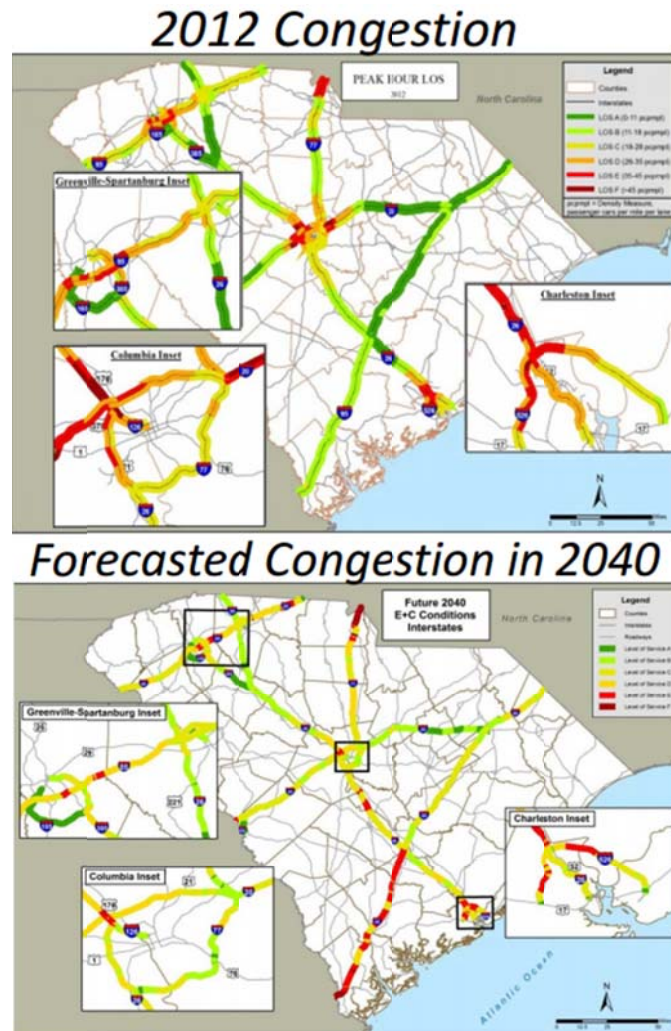
SCDOT anticipates that based on the existing number of known lane miles and committed and existing interstate improvement projects, 62% (1,056 lane miles) of the state's 528 centerline miles of interstate will be operating at an LOS of "C" or worse by 2040. The agency's 2016 State of SCDOT report notes that in the next ten years, pavement in good condition is forecasted to decline as follows — interstates to approximately 50%, primary roads to approximately 10%, and secondary roads to approximately 15%.

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## Roadway Capacity Expansion Projects

While SCDOT plans to expend a large portion, approximately 29% or \$472 million of its FY 15-16 budget, on capacity and operational improvement projects that add lane miles to existing infrastructure and construct new roads, the agency notes in its long-range Multimodal Transportation Plan (MTP) that "data on congestion is rapidly becoming more sophisticated, but estimating needs based on this data and linking investment strategies to congestion outcomes remains a challenge." Despite this, SCDOT prominently features forecasted congestion models for interstate routes in its State of SCDOT report shown in Chart 4.20. Additionally, the department claims that congestion is forecasted to double; however, its report does not specify when.

**Chart 4.20: Road Congestion,  
2012 Conditions and 2040  
Forecast**



Source: SCDOT

With rapid advances in vehicular technology, including the advent of self-driving cars, it may not be the best use of state funds to direct so much of the state's infrastructure budget toward congestion-related projects. Studies have shown that with the addition of new lane miles comes a corresponding increase in vehicles traveling them. This effectively negates the inclusion of more lane miles since more drivers who otherwise would use secondary roads to avoid interstates may now use the interstates due to more lanes and the anticipated reduction in congestion. This is referred to as "induced demand."

A policy brief from the National Center for Sustainable Transportation, a consortium of leading universities in the United States, was published in October 2015 and highlights the following findings on roadway capacity expansion:

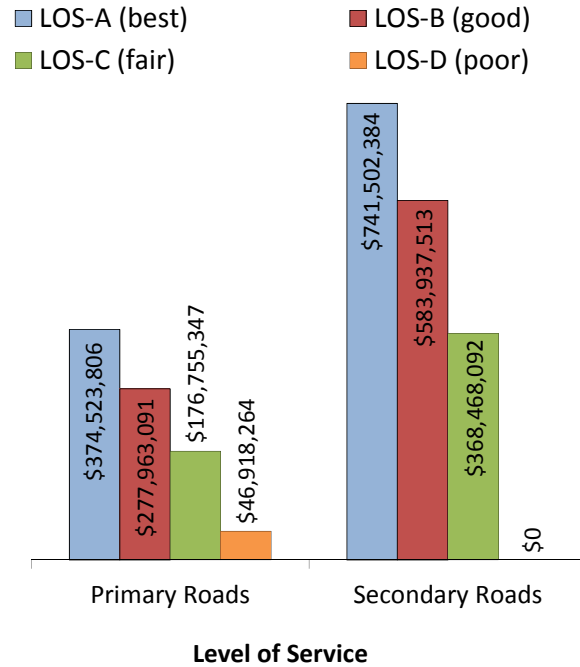
- Evidence shows that highway capacity expansion leads to an increase in the volume of vehicle miles traveled on the road.
- Increased roadway capacity induces additional roadway vehicle miles traveled on the road in the short-term and a further increase in the long-term.
- Roadway capacity expansion leads to a net increase in vehicle miles traveled; not simply a shifting of vehicle miles traveled from one roadway to another.
- Increases in greenhouse gas emissions attributable to roadway expansion projects are extensive.
- Capacity expansion does not increase employment or other economic activity.
- Reductions in roadway capacity tend to produce social and economic benefits without worsening traffic congestion.

One of the reasons highlighted by SCDOT for initiating roadway capacity projects is safety. However, SCDOT emphasizes that it “maintains extensive data on safety; however, even state-of-the-art planning practices often cannot connect investment scenarios with safety outcomes.”

Chart 4.21 shows the estimated costs to bring each road system up to a given level of service. However, these estimates do not take into account extra labor needed to achieve these service levels. They do, however, include costs associated with widening roads that are of substandard width.

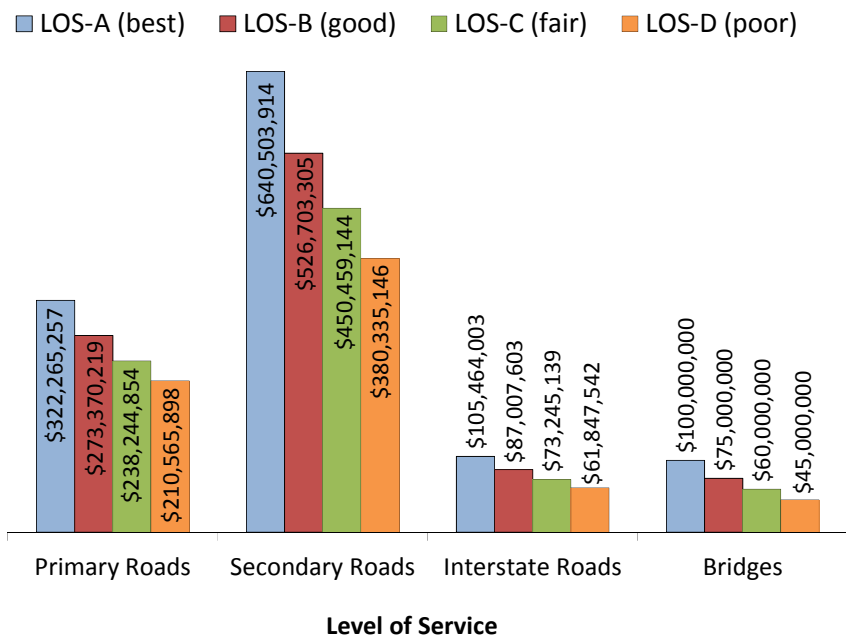


**Chart 4.21: Total Maintenance Assessment Program Summary Costs to Achieve Desired Pavement LOS as of 2013**



Source: SCDOT

**Chart 4.22: Projected Summary Costs to Maintain Pavement LOS as of 2013**



Source: SCDOT

In South Carolina, SCDOT expends approximately \$32,299 per mile on state-maintained roads, which SCDOT's report notes is the lowest in the nation. In contrast, the report notes that the national average is \$145,127 per mile. SCDOT disburses \$8,164 in maintenance costs per lane mile for the maintenance of state roads, which the report notes is the third-lowest expenditure in the nation. According to SCDOT's calculations, if South Carolina funded the maintenance of state roads in keeping with the national average, SCDOT's maintenance budget would be over \$900 million.

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## Poor Road Conditions

Poor road conditions are not only costing the state money in increased repair costs; they are also costing South Carolina's drivers. According to a recently published report by national research group "TRIP," drivers are paying more money in annual vehicle operating costs than they would otherwise due to these poor road conditions. Table 4.23 shows what average drivers pay in vehicle-related damage annually by city.

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**Table 4.23: Average Annual Extra Vehicle Operating Costs from Poor Road Conditions**

| CITY       | COST  |
|------------|-------|
| CHARLESTON | \$294 |
| COLUMBIA   | \$362 |
| GREENVILLE | \$405 |

Source: SCDOT

In South Carolina, motorists can file damage claims against SCDOT if they believe the agency contributed in some way to injury or property damage. According to SCDOT, if the claim involves personal injury or property damage greater than \$2,500, SCDOT forwards the claim to the Insurance Reserve Fund (IRF) for payment. For claims under \$2,500, payment is made from SCDOT funds. The IRF is a state agency that provides various types of insurance to governmental entities, including SCDOT.

Most of these claims relate to property damage from roadway pavement maintenance problems, such as potholes, but encompass other items, most of which are still primarily related to the maintenance of assets for which SCDOT is responsible.

From July 1, 2005, through September 28, 2015, the S.C. Insurance Reserve Fund (IRF) paid out approximately \$40.5 million to claimants who filed damage and injury claims against SCDOT. This total is comprised of approximately \$39.3 million paid in tort claims and \$1.2 million paid in property damage claims. SCDOT has paid out approximately \$3.4 million in claims filed against the agency in this same time frame.

An October 2011 Clemson study entitled “The Relationship of SCDOT Damage Claims and Lawsuits to Roadway Engineering Safety Issues” states that:

Much time, effort, and resources are spent by SCDOT employees and legal staff, the Insurance Revenue Fund, private attorneys on contract to represent SCDOT, independent engineering experts and employees from other state agencies researching, processing, and defending these claims and lawsuits.

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### Addition of Lane Miles to SCDOT's State-Maintained System

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Per S.C. Code §57-1-370(F), roads are added to or removed from the state highway system only by prior approval of the Commission. SCDOT has ownership and thereby the responsibility to maintain these state-owned roads. SCDOT policy detailed in its Maintenance Manual states that:

...if the Commission has added a road to the State Highway System that does not currently meet minimum SCDOT design criteria, the first priority is to refurbish the road to the current criteria prior to opening it up to traffic and maintaining it.

The Commission has established a policy whereby local governments can accept the transfer of roads from the state highway system into their respective local road systems for ownership and ongoing maintenance in lieu of a cash contribution on projects where the local government would be required to provide matching funds for federally-funded projects. SCDOT establishes a credit value for the roads it transfers in this manner according to an engineering methodology, which takes into account but is not limited to: present pavement condition, expected pavement life, number of lanes, and average annual daily traffic (AADT).

S.C. Code §57-5-80 allows SCDOT to transfer roads in the state secondary highway system under its jurisdiction to the following parties provided that both parties agree to the transfer:

- A county or municipality.
- A school.
- A governmental agency.
- A nongovernmental entity.
- A person.

Maintenance responsibilities for these roads would also transfer to the party to which the road is transferred or a local or municipal government provided that these parties are in agreement with providing this service.

Since 2004, there has been an increase of 760 lane miles in the state road system that SCDOT is required to maintain. Table 4.24 shows the balance of roads in the state system from year to year. Having more lane miles added to SCDOT's maintenance log further compounds the backlog of maintenance. These lane miles can be the result of capacity projects that add extra lanes to existing roads but can also be the result of newly-constructed roads.

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**Table 4.24: Change in  
State-Maintained Lane Miles**

| YEAR | STATE-MAINTAINED<br>LANE MILES | CHANGE IN<br>LANE MILES |
|------|--------------------------------|-------------------------|
| 2004 | 89,846                         | -                       |
| 2005 | 89,834                         | -12                     |
| 2006 | 89,930                         | +96                     |
| 2007 | 90,053                         | +123                    |
| 2008 | 90,185                         | +132                    |
| 2009 | 90,421                         | +236                    |
| 2010 | 90,461                         | +40                     |
| 2011 | 90,434                         | -27                     |
| 2012 | 90,444                         | +10                     |
| 2013 | 90,531                         | +87                     |
| 2014 | 90,514                         | -17                     |
| 2015 | 90,606                         | +92                     |

Source: SCDOT & LAC

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## Recommendations

55. The S.C. Department of Transportation should employ strategies to reduce the number of lane miles under its responsibility and consider alternatives to projects that add lane miles.
  56. The S.C. Department of Transportation Commission should prioritize funding infrastructure preservation and maintenance.
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### The Effect of Overweight Trucks on S.C.'s Infrastructure

An SCDOT-commissioned study found that current overweight truck permit fees do not offset the damage these vehicles do to the infrastructure. SCDOT commissioned a study by Clemson University to determine the rate of deterioration of bridges and pavements as affected by trucks. Table 4.25 indicates the additional amount of damage caused by an overweight truck, per mile, according to its load.

The study states that “there is some stakeholder concern that construction standards should be improved to reduce long-term maintenance and overall life-cycle cost...pavement models showed overweight trucks reduce pavement service life significantly, and current SCDOT pavement design standards do not include these heavy loads. Besides charging overweight trucks for associated damage, it might be economical to include heavy loads in pavement design to minimize premature pavement maintenance or rehabilitation.” SCDOT has stated that they have not implemented the recommendation to review their design standards.

**Table 4.25: Additional Damage Costs for Overweight Trucks Allowed by Typical S.C. Overweight Permits\***

| TRUCK TYPE                        | DAMAGE COST PER MILE<br>(2012 U.S. DOLLARS) |
|-----------------------------------|---|
| 2-axle, 35-40 kips                | \$0.32                                      |
| 3-axle, single unit, 46-50 kips   | \$0.15                                      |
| 3-axle, combination, 50-55 kips   | \$0.30                                      |
| 4-axle, single unit, 63.5-65 kips | \$0.10                                      |
| 4-axle, combination, 65-70 kips   | \$0.34                                      |
| 5-axle, 80-90 kips                | \$0.38                                      |
| 6-axle, 80-90 kips                | \$0.18                                      |
| 6-axle, 90-100 kips               | \$0.42                                      |
| 6-axle, 100-110 kips              | \$0.75                                      |
| 7-axle, 80-90 kips                | \$0.11                                      |
| 7-axle, 90-100 kips               | \$0.25                                      |
| 7-axle, 100-110 kips              | \$0.45                                      |
| 7-axle, 110-120 kips              | \$0.70                                      |
| 7-axle, 120-130 kips              | \$1.03                                      |
| 8-axle, 80-90 kips                | \$0.09                                      |
| 8-axle, 90-100 kips               | \$0.19                                      |
| 8-axle, 100-110 kips              | \$0.35                                      |
| 8-axle, 110-120 kips              | \$0.54                                      |
| 8-axle, 120-130 kips              | \$0.79                                      |

1 kip is equivalent to 1,000 pounds

\* Damage costs due to additional weight (i.e., from the legal weight limit to the maximum weight limit).

Source: Clemson University

The heaviest loads on South Carolina's infrastructure disproportionately inflict the greatest amount of damage on roads and bridges. In South Carolina, overweight truck fees are set by the General Assembly. According to the Clemson report, in order to recover the additional costs of damage caused by overweight trucks for loads in excess of the legal weight limit, permit fees would have to be set at between \$24 and \$175 per trip for different overweight truck types. A flat fee structure would charge all overweight trucks \$65 per trip (including a \$10 administrative permit processing fee). South Carolina currently sets a single trip permit fee of \$30 and an annual permit fee of \$100 which is equivalent to 3.33 single trips. However, a study from the Department of Transportation in Ohio found that on average, 24.8 trips were made by an overweight truck with an annual permit.

According to an official with the S.C. Department of Public Safety, it is not illegal for trucks to use alternate roads for the purpose of avoiding weigh stations. Weigh stations determine if trucks have the required permits.

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## Recommendations

57. The S.C. Department of Transportation should review and consider increasing their design standards to include heavy loads in order to minimize premature pavement maintenance.
58. The S.C. Department of Transportation should seek legislation to amend the fees charged to overweight trucks to offset the damage they cause.
59. The General Assembly should review the fees charged to overweight trucks.
60. The General Assembly should review the ability of trucks to use alternate routes to bypass weigh stations.

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## Road Problems

We reviewed problems reported to us related to the repaving of Interstate 85 in Spartanburg County and problems resulting from work completed by an in-house SCDOT full-depth reclamation crew in Greenwood County. We found:

- SCDOT's initial investigation of the problems on I-85 did not answer several pertinent questions regarding the project failure.
- The department had to spend \$1,683,238 to repair three roads in Greenwood County after inadequate oversight of SCDOT maintenance employees led to pavement problems.

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## I-85 Paving

In March 2015, SCDOT terminated a \$44 million contract to repave approximately ten miles of the northbound and southbound lanes of I-85 in Spartanburg County. This termination occurred after the contractor began work and discovered issues with the underlying pavement. According to an SCDOT official, the initial contractor was not at fault for the problems that arose during the paving. He added that the initial contractor was paid \$6,226,694, including termination costs. The contract to complete this project was rebid in September 2015 and a different contractor won that bid for \$56,556,364.

Although SCDOT conducted a review of some of the problems with this paving project, it should investigate other issues not examined in its initial review.

According to an SCDOT official, the original contractor began encountering problems within one week of the milling work that commenced on September 2, 2014. SCDOT and the contractor worked together and used the remedies of milling deeper and increased sweeping of the road. By September 14, 2014, SCDOT determined that this method improved the situation but only delayed future failure of the existing pavement. Thus, SCDOT instructed the contractor to cease milling and to repave the milled areas which contained failing pavement. Due to the pavement failure, none of the initial project was completely rehabilitated. The contractor was able to patch and pave to keep the road serviceable for the public.

In May 2015, SCDOT released an internal review of the circumstances regarding the condition of the relevant portion of I-85. This testing was done for the entire project limits in the right lane. SCDOT collected 31 core samples in order to investigate the failure of the original project. Twenty-two core samples were collected on the southbound side of the interstate at regular intervals of ½ mile. Four of those cores were cut from the shoulder and the other 18 were cut from or near the right wheel path of the right lane.

SCDOT determined that 16 of the 18 southbound core samples encountered failures within the upper five inches. These samples "...varied from showing signs of relatively poor mixes (high void contents), weak bonds or debonded layers with stripping, and top down cracking." The study determined that the surface conditions of the locations where the distress was limited to the upper five inches was relatively good to fair, with minimal to no longitudinal wheel path cracking and no fatigue of the cracks throughout the wheel path.

Nine of the 18 southbound core samples had failures going to a depth of eight inches. The surface conditions of the locations where distress extended to eight inches deep was fair to poor with "well-defined longitudinal wheel path cracking, often including multiple wandering cracks, lateral cracks spurring off and general fatigue cracking developing along the wheel path."

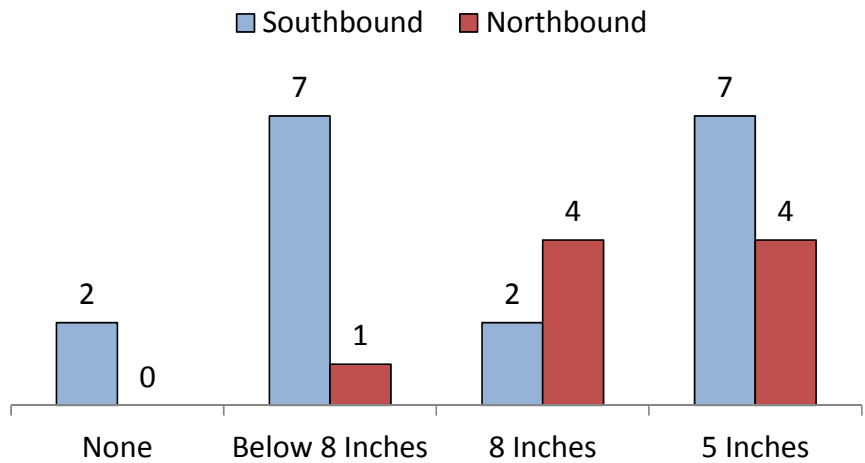
Seven of the 18 southbound core samples exhibited cracking and distress below eight inches to full-depth cracking and deterioration. Three of the cores were cracked and deteriorated to full depth.



SCDOT sampled nine core samples on a wider interval on the northbound side of I-85. All nine of those core samples had distresses in the upper five inches. Five of nine samples encountered distress extending eight inches, and one sample found full-depth cracking and deterioration.

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**Chart 4.26: I-85 Core Samples**



Source: SCDOT

The study concluded that:

- The asphalt layer in the section of the interstate that failed during the initial construction project was found throughout the project and was related to distress encountered within the upper five inches.
- The majority of the wheel path cracking and distress was located in the right lane but that the left and center lanes will likely exhibit similar failures in the future if the upper five inches is not rehabilitated.
- Fully rehabilitating the upper five inches would take reconstruction.
- If eight to ten inch full depth patching is performed on a majority of the lane, all but 15% of the lane should be repaired.

The current project began on December 5, 2015. The current project's goal is to mill and remove five to ten inches of existing asphalt.

According to SCDOT, two to three inspectors were onsite during all of the initial work on I-85. At that time, visual inspection of the surface condition was the standard practice. Due to the experience with the initial I-85 project, SCDOT has changed its practices on all interstate projects. All upcoming interstate projects will include a core sample. Additionally, an SCDOT official stated that the I-85 situation has stressed the necessity for a timely, reoccurring preservation program.

Although the SCDOT investigation found some important information regarding the failure of the I-85 project, it did not report on several other important aspects of the project, such as:

- Why adjacent pavement on the project did not fail.
- Why the contractor took several weeks to identify a problem.
- What role the inspectors had in identifying the problem.
- Why a core sample was not immediately taken.

In their response to our audit's preliminary draft, SCDOT provided the following responses to the above questions, respectively:

Pavement failure was experienced on all three lanes of travel in the northbound direction. The contractor did not perform milling operations on the southbound lanes and as such did not experience pavement failure.

The pavement did not begin to unravel or show significant signs of distress until the milled surface was exposed for several days to traffic. The traffic loading on the milled surface exposed the issue that resulted in the re-letting.

The inspector's role in construction projects is to ensure that the contractor is complying with the contract specifications and provisions as well as tracking quantities installed and schedule progression. This includes taking material samples and performing on-site tests to ensure the quality of materials being installed. In the case of I-85, the contractor was performing the milling operation in compliance with the contract provisions and both the inspector and contractor observed the unravelling of the milled surface after several days of traffic loading.

The first action taken to try and resolve the unravelling issue was to mill an additional depth. Once this operation of additional milling depth did not perform, the district directed the contractor to cover the mill areas with an asphalt binder coarse to provide an acceptable riding surface for the traveling public. At this time, SCDOT began taking cores to determine the cause to the unraveling associated with the milled surface.

This information should have been included in an SCDOT report on the I-85 problem. In future investigations, SCDOT should comprehensively investigate and publish the reasons for such construction failures. Given the scale of the I-85 project and the cost of its initial failure, such inquiries could prevent future project failures.

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## Recommendation

61. When investigating project failures, the S.C. Department of Transportation should ensure that its reports timely and comprehensively address all major problems and recommend appropriate corrective actions.

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### Problems Resulting from SCDOT Full-Depth Reclamation (FDR) Process in District 2

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We reviewed an incident involving an SCDOT FDR crew that cost the department more than \$1.6 million to resolve pavement problems. We found that there are no written procedures or policies to guide the process, nor is there any formal training required for the crews who perform the work. Also, SCDOT could not provide in-depth cost analysis to show it was less expensive to perform a special pavement process with two in-house paving crews rather than to contract the process.

An SCDOT full-depth reclamation crew performed poor work on three roads in Greenwood County in the fall of 2013 that resulted in surface and cosmetic performance problems. The problems resulted from the crew's failure to follow best practices and local SCDOT management's failure to provide adequate oversight and inspection of their work.

Full-depth reclamation with Portland cement is a pavement rehabilitation technique used when the existing pavement requires more than 15% full-depth patching prior to resurfacing. The reclamation process used by SCDOT is explained by the Portland Cement Association as follows:

Existing pavement and some depth of underlying soil is pulverized ... to a maximum size of two inches, mixed with water and cement, shaped and graded, then compacted. The compacted surface is then sprayed with a liquid asphalt emulsion and coated with rock chips. This coating is referred to as a single bituminous surfacing or single treatment. At a later date, the road may be recoated with two more layers of emulsion and rock chips. This is referred to as a double bituminous surfacing or double treatment. Alternatively, the single treatment may be followed by 1-1/4 to 4 inches of hot-mix asphalt.

SCDOT currently has two in-house FDR crews. SCDOT management reported that crews have only been established in two districts because of their geological and geographic qualities. The clay-like soils in these districts benefit from full-depth reclamation, and their rural location and limited asphalt companies to perform work make them prime candidates for in-house reclamation. The department owns and operates two reclaimer machines that are used by these crews.

The first in-house SCDOT reclamation crew, based in District 4 (Chester), began working on small sections of road in August 2010 to test the process and work out problems. In September 2010, they began steady production. Subsequently, management in District 2 requested and received permission from the deputy secretary for engineering to procure equipment and establish an FDR crew based in Greenwood. SCDOT claimed that the first crew showed that they could reclaim a mile of road for less than contractors but could not provide data to support that statement.

The District 2 crew received informal training from the District 4 crew and then worked all of the 2012 season (early spring to early fall), completing 11.7 miles of reclamation with some minor issues later in the season that required repairs. Local SCDOT management attributed these issues to a push for production which led the crew to rush. The crew's second full season of work, in 2013, included 8.2 miles of reclamation on three roads (Morgan, Shirley, and Sam Hodges Roads) in Greenwood County that required repairs. The FDR problems did not come to the attention of local SCDOT management until contacted by residents along the roads after the work was completed.

SCDOT requested that the Portland Cement Association (PCA) review the issues on these roads and make recommendations for repairs. Its report, issued in May 2015, stated:

- 1) The crew did not maintain adequate control of the cement during the mixing process. This caused significant amounts of cement to be lost outside the area being reclaimed, most prominently to the shoulders and ditches, as well as the adjacent lane.
- 2) The crew did not adequately overlap the mixing process at the centerline. This created an unstable area at the center of the pavement that was not adequately compacted and sound near the surface.
- 3) The grading operation did not adequately control the surface profile, resulting in poor rideability with high roughness.
- 4) The surface was not clean prior to the chip seal process. This resulted in the chip seal adhering to the debris rather than the underlying pavement, making the surface unstable in places.

In addition to the problems identified in the PCA review, local SCDOT management acknowledged that on-site and overall engineering-level oversight of these projects was limited. This is concerning in that this was a relatively new crew, with little experience performing a new process with specialized equipment.

SCDOT completed the repairs recommended by PCA at a reported cost of \$1,683,238. The PCA report authors observed and reviewed more recent work by the crew, which was replaced entirely, and noted many improvements. Four of the ten former crew members, including the crew foreman, were investigated for indirectly related policy violations resulting in two resignations and two separations.

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## Recommendations

62. The S.C. Department of Transportation should develop a formal training program for employees assigned to the in-house full-depth reclamation crews.
63. The S.C. Department of Transportation should develop a set of written procedures, implementing best practices, to guide the process of full-depth reclamation.
64. The S.C. Department of Transportation should ensure that the work of full-depth reclamation crews is regularly inspected by engineering-level management to ensure best practices are being followed.
65. The S.C. Department of Transportation should conduct a comprehensive study of the costs associated with in-house full-depth reclamation crews and contracted full-depth reclamation work to determine whether cost savings are being realized.

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## Visual Evidence of Pavement Problems

During our audit, we reviewed videos and photographs of road pavement problems (rough pavement, seams in the pavement, pitting, etc.) along sections of roads repaved within the past few years. We provided the locations of the road segments that showed pavement problems and solicited the assistance of experts and requested department management review and comment on the material. One expert we contacted preferred to inspect the roads onsite before determining the cause of the problems. Another commented on the difficulty of offering an opinion based on photos. However, in one case, he suggested that the problem might have been caused by uneven surfaces' having been scraped by snow plows. Another problem might have resulted from heavier traffic volume and loading. We received no response from SCDOT.

The department should initially have independent road pavement experts determine how these pavement problems are occurring on fairly newly-paved portions of roads. After that initial assessment, the department should consider development of a focus group of in-house experts to develop and implement a plan to monitor pavement quality and address pavement issues contributing to shortened pavement life.

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## Recommendations

66. The S.C. Department of Transportation should have an independent expert analyze fairly newly-paved roads exhibiting roughness, seams, and pitting, etc. to determine the cause and take corrective action as necessary.
67. The S.C. Department of Transportation should consider development of a focus group of in-house experts to develop and implement a plan to monitor pavement quality and address pavement issues contributing to shortened pavement life.





# Prioritization

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## Chapter Summary

We were asked to audit the S.C. Department of Transportation's prioritization processes and evaluate its compliance with the requirements of Act 114 of 2007. We reviewed SCDOT's project prioritization processes, priority lists of projects, criteria, engineering directives, project scoring calculations, Statewide Transportation Improvement Program (STIP), SCDOT's promulgated regulation, and conducted interviews with federal and state officials.

We found the department does not have a detailed written process of how it prioritizes its road, bridge and other state and federal projects. No one person could explain how each type of project was ranked considering each stage of the process. SCDOT prioritizes each project type differently and by different departments within SCDOT. We also found:

- The prioritization process is not transparent to the public, department personnel, the Commission, and other stakeholders.
- Certain components are not compliant with Act 114, including the lack of a single priority list, rationale for not considering certain criteria, and a lack of prioritizing applicable projects.
- Prioritization scores leading to the development of the ranking of projects cannot be replicated and validated.
- We cannot validate the raw data nor replicate the calculations of the scores using instructions and methodologies conveyed to us from key department personnel tasked with producing the project rankings.
- The department has not provided its rationale for its use of differing methodologies for data collection, normalization of data, and weightings for the majority of the process.
- Act 114 determines the criteria that must be considered; however, SCDOT determines how the criteria are measured. The criteria measurements are approved by SCDOT staff without Commission or Secretary approval. Therefore there is no oversight of the use of these measurements.
- SCDOT changed the method it uses to determine the score of the financial viability criterion, which violates Act 114.
- SCDOT's prioritization process could allow for low-priority projects to be advanced over high-priority projects.
- SCDOT does not have a mechanism in place for communicating a very complex and non-standardized process.

Act 114 requires that SCDOT promulgate a regulation detailing how it prioritizes projects. We found that SCDOT's regulation, S.C. Regulation 63-10, was not specific and omitted instruction regarding how to calculate the scores for all project criteria and how to weight all criteria. There is no instruction or description of the scoring process.

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## Project Prioritization Process and Act 114 Compliance

In this section, we review the responsibilities of the Commission, and implementation by the department, regarding the transportation project prioritization process contained in Act 114. We found that:

- SCDOT has interpreted Act 114 such that it does not have to *use* all nine criteria when establishing a project's priority ranking. Rather, the SCDOT staff reviews all the criteria, selects which of the nine criteria it considers relevant, and recommends to the commission which criteria should be used in ranking projects.
- We examined SCDOT's criteria for ranking projects on the interstate capacity list. We could not replicate project ranking because, in many instances, source data was not available from SCDOT. Therefore, we were unable to determine if the individual criteria scores were accurate and if the projects had been properly ranked.
- We reviewed SCDOT's priority lists and found that some have not been evaluated or updated since they were originally ranked and approved by the Commission. Therefore, the relevancy of these project rankings is questionable.
- SCDOT has failed to comply with Act 114 by not maintaining a single list of priority projects established by the Commission. A benefit of a single priority list is that the highest-ranked projects, from a statewide perspective, are more likely to be funded than lower-ranked projects. SCDOT has created no fewer than 15 separate project category lists and 157 transportation project priority lists.
- We found that SCDOT has not been transparent in its project prioritization processes. Most of SCDOT's engineering directives list weights for each criterion in the form of points or percentages that add up to 100. The data that make up these weighted criteria, the source(s) of the data, and how this is calculated is not included.

- We reviewed SCDOT's current FFY 2014 – 2019 Statewide Transportation Improvement Program and found that projects listed as preservation projects for primary and secondary state roads did not have a rank associated with them. SCDOT informed the LAC that it does not generally rank preservation projects. Additionally, SCDOT stated that Act 114 provides an exemption to prioritizing preservation and maintenance projects. We reviewed Act 114 and found that no exemption is provided for in statute.
- We found that the Commission has not provided written justification for situations in which it overrides rankings of projects in the order in which they appear in the STIP. We also found instances where projects were included on the STIP but had no ranking and no explanation was provided.
- Officials with SCDOT stated that data regarding SCDOT's prioritization calculations is not provided to the Commission when it votes to approve the priority lists. Inclusion of this data in the lists could further inform the Commissioners and could allow them to make more informed decisions.

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## Act 114 Project Prioritization Criteria

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Act 114 of 2007 sets the parameters for determining how projects are to be prioritized.

Projects Covered by Act 114 include:

- Projects that are included in the STIP.
- Metropolitan Planning Organization (MPO) Transportation Improvement Program (TIP) projects that involve selection or consultation by the Commission.
- State highway projects supported solely by state funds (which do not appear in the STIP).

Projects not subject to Act 114 are:

- South Carolina Infrastructure Bank (SCTIB) projects.
- C-funded projects.
- Locally-funded projects.

The statute does not require projects funded solely by state funds to be put on a list but does require that the criteria in statute be considered.

S.C. Code §57-1-370(B)(8) states that:

...the commission shall establish a priority list of projects to the extent permitted by federal laws or regulations, taking into consideration at least the following criteria:

- (a) financial viability including a life cycle analysis of estimated maintenance and repair costs over the expected life of the project
- (b) public safety
- (c) potential for economic development
- (d) traffic volume and congestion
- (e) truck traffic
- (f) the pavement quality index
- (g) environmental impact
- (h) alternative transportation solutions
- (i) consistency with local land use plans

Act 114 of 2007 also requires that the department “...promulgate, by regulation, procedures not inconsistent with federal laws for applying the criteria contained in subsection (B)(8) for prioritizing projects.”

S.C. Regulation 63-10 directs the state highway engineer to:

Develop a ranking process for applying uniform and objective criteria applicable to each project category included in the priority list. The ranking process will be described in an engineering directive issued prior to the development of the priority list...

### **Engineering Directives**

The methodologies, criteria, and weights accorded to each criterion are outlined in documents referred to as “engineering directives”, or “directives.” SCDOT prioritizes projects using the following seven directives:

- 50 — Federal Aid, Non-Federal Aid, and State Program Resurfacing
- 51 — Federal Aid, Non-Federal Aid, and State Program Bridge Replacement
- 52 — Interstate Pavement Rehabilitation
- 54 — Safety
- 56 — Interstate Capacity and Interchanges
- 60 — Statewide MPO and COG Widening
- 61 — CMAQ (Congestion Mitigation & Air Quality)

We found that SCDOT staff selects which Act 114 criteria to consider for each project type. Department staff determine the relevancy of these criteria and if they will be considered. SCDOT staff makes a recommendation to the Commission for approval of their selected criteria.

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## Application of Act 114

As noted above, state law says that, "...the commission shall establish a priority list of projects *taking into consideration at least* [emphasis added] the following (nine) criteria..." SCDOT has interpreted Act 114 such that it does not have to *use* all nine criteria when establishing a project's priority ranking. Rather, the SCDOT staff reviews all the criteria, selects which of the nine criteria it considers relevant, and recommends to the commission which criteria should be used to rank projects. SCDOT has stated that the reason that Act 114 criteria are excluded is that not all of the criteria are relevant to each type of project. Additionally, the law allows SCDOT the discretion to use criteria other than the nine listed in Act 114.

SCDOT does not publicly provide its rationale for excluding or including Act 114 criteria or any of the additional criteria it determines are relevant. This prevents the public and stakeholders from being informed about the department's rationale for including additional criteria and excluding other criteria listed in Act 114.

SCDOT states that all *relevant* Act 114 criteria are included when prioritizing projects. We reviewed S.C. Regulation 63-10 and found it states that only relevant criteria will be used to prioritize projects. S.C. Regulation 63-10 does not provide guidelines for how the relevancy of Act 114 criteria should be determined. We reviewed the prioritization of transportation projects and found:

- For one category of project, Congestion Mitigation and Air Quality, none of the nine criteria included in the law were used when prioritizing projects. Engineering Directive 61 states that CMAQ projects are ranked using an air quality benefits analysis. The directive does not show that SCDOT considered Act 114 criteria or why none of the criteria were used in ranking the projects.

- When prioritizing roadway capacity, widening, or new location projects, SCDOT did not believe that including "...a life cycle analysis of estimated maintenance and repair costs..." was relevant when determining the financial viability of the projects, even though the law specifically states that a life cycle analysis is to be done when using the criterion. This criterion is relevant because these projects add additional pavement to an existing roadway or by the construction of a new one. The addition of paved surface area has a corresponding maintenance and repair cost over its life cycle for which SCDOT would be responsible for roads it owns. SCDOT confirmed that it does not perform lifecycle costing in the manner prescribed by Act 114 for these projects.
- SCDOT's Directive 54, which is used to prioritize safety projects, states that "due to limited resources, projects are prioritized based on cost of the project, its expected effectiveness, and expected service life." Thus, SCDOT may have excluded relevant criteria due to limited funding.
- We found that SCDOT is also using criteria that have not been approved by the Commission. Directive 56 uses the criterion Truck Vehicle Distance, which is not found in Act 114, to prioritize interstate interchange projects. We reviewed the Commission action which approved interstate interchange project prioritization criteria, dated October 18, 2007, and found that it does not list Truck Vehicle Distance as an approved criterion.
- SCDOT also establishes weights applied to the criteria for determining the ranking of the projects and recommends their approval by the Commission. Table 5.1 illustrates how SCDOT excludes two of the nine criteria that must be considered. These criteria are not given any weight in determining a project's prioritization rank.

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**Table 5.1: Departmental Directive 60 Criteria**

| DIRECTIVE 60 CRITERIA<br>(COG & MPO WIDENING CRITERIA) | CRITERION<br>WEIGHT |
|--|---------------------|
| Traffic Volume and Congestion                          | 35%                 |
| Located on a Priority Network                          | 25%                 |
| Public Safety  | 10%                 |
| Economic Development                                   | 10%                 |
| Truck Traffic  | 10%                 |
| Financial Viability                                    | 5%                  |
| Pavement Quality Index                                 | 3%                  |
| Environmental Impact                                   | 2%                  |
| (Yes/No) Alternative Transportation Solutions          | 0%                  |
| (Yes/No) Consistency with Local Land Use Plans         | 0%                  |

Source: SCDOT

SCDOT needs to document its rationale for excluding any of the criteria and also the rationale for using additional criteria not found in the law. Also, while the current law may only require *consideration* of the nine criteria, the law may need to be reviewed to clarify whether the intent is to *use* all the criteria when creating project priority lists or whether all nine criteria are only to be *considered* when ranking projects, with only the relevant criteria being used for ranking purposes.

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## Recommendations

68. The General Assembly should amend S.C. Code §57-1-370(B)(8) to specify whether all nine criteria listed in the section are to be used when ranking projects.
69. The S.C. Department of Transportation should document its consideration of Act 114 criteria for each project category.
70. The S.C. Department of Transportation should document in S.C. Regulation 63-10 and in its engineering directives the rationale for any criteria that it determines are not relevant, as well as, for any additional criteria it uses and update these documents whenever modifications are made.

71. The S.C. Department of Transportation should update S.C. Regulation 63-10 and its engineering directives to reflect its complete prioritization methodologies and update them whenever modifications are made.
72. The S.C. Department of Transportation should only use criteria to prioritize projects that have been approved by the Commission.
73. The S.C. Department of Transportation should perform lifecycle cost analyses on all roadway new location, widening, and capacity projects and that this criterion be incorporated into the ranking process in accordance with Act 114.

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## Issuance of Engineering Directives

We found that SCDOT has not complied with S.C. Regulation 63-10 with regard to issuing an engineering directive prior to the development of a priority list. According to S.C. Regulation 63-10, “The ranking process will be described in an engineering directive issued prior to the development of the priority list.” We found that SCDOT developed an “Interstate Preservation” priority list, which was not listed on SCDOT’s website. The department stated that it used the same engineering directive it uses for interstate rehabilitation, Directive 52, to produce this list.

Directive 52 applies to resurfacing projects and does not mention preservation. The directive does not list the various types of preservation treatments. Therefore, it is not clear how this directive could be used to rank preservation projects.

We also found other instances where priority lists were developed before engineering directives were approved. The “Off System Bridge Replacement” list dates to 2008; the “Statewide MPO & COG Widening,” “Interstate Capacity,” and “Interstate Interchange” lists all date to 2007. SCDOT has claimed that these lists were ranked using directives that were created in 2009. SCDOT later said that projects were ranked with criteria that had been used prior to the development of the relevant engineering directives. SCDOT later stated that the *Interstate Capacity List* was approved in 2008 and not in 2007 as documented on the list.



We reviewed SCDOT's directives related to prioritizing projects and found that six of the seven directives were approved by individuals who are no longer employed with SCDOT. Additionally, only Directives 52, 54, 60, and 61 document which employees submitted these directives for approval. We found that the employees who submitted Directives 52 and 61 are no longer employed by SCDOT.

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**Table 5.2: SCDOT Priority List Approval Date as Compared to the Effective Date of the Corresponding Directive**

| PRIORITY LIST IN USE BY SCDOT      | DATE OF APPROVAL STATED ON THE LIST | RELATED DIRECTIVE | EFFECTIVE DATE OF DIRECTIVE | DIRECTIVE APPROVED BY FORMER EMPLOYEE |
|------------------------------------|-------------------------------------|-------------------|-----------------------------|---------------------------------------|
| Non-Interstate Road Resurfacing    | 2015                                | 50                | 2/14/2011                   | <input checked="" type="checkbox"/>   |
| Non-Federal Aid Bridge Replacement | 2008                                | 51                | 1/12/2009                   | <input checked="" type="checkbox"/>   |
| Interstate Rehabilitation          | 2015                                | 52                | 1/13/2009                   | <input checked="" type="checkbox"/>   |
| Safety                             | 2014                                | 54                | 2/18/2011                   |                                       |
| Interstate Capacity & Interchange  | 2007                                | 56                | 1/14/2009                   | <input checked="" type="checkbox"/>   |
| Statewide MPO & COG Widening       | 2007                                | 60                | 1/14/2009                   | <input checked="" type="checkbox"/>   |
| CMAQ                               | <i>Not stated</i>                   | 61                | 1/14/2009                   | <input checked="" type="checkbox"/>   |

Source: SCDOT

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## Recommendations

74. The S.C. Department of Transportation should comply with S.C. Regulation 63-10 and defer the development of any future priority lists until an engineering directive has been issued.
75. The S.C. Department of Transportation should place all Commission-approved priority lists on its website.
76. The S.C. Department of Transportation should mandate that its engineering directives are reviewed and approved by the current Deputy Secretary of Engineering and the Commission or other responsible authority.

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## Verification of Project Rankings and Project Scoring

We were unable to verify the process by which some of the project lists were ranked. SCDOT could not provide raw data, scores, normalization of the data, etc. regarding the prioritization ranking for the *Non-Federal Aid Eligible Bridge List*.

We reviewed SCDOT's documentation of project scoring. SCDOT could not provide complete data on the interstate interchange prioritization ranking process as performed by the Interactive Interchange Management System (IIMS). The department provided the LAC with a computer-generated report which had data that corresponded to the prioritization criteria listed. However, the report was incomplete and excluded multiple criteria and corresponding data used to prioritize these projects. SCDOT stated that it was archived by way of scanning a document and there was no way to retrieve the missing data from the IIMS system.

We reviewed S.C. Regulation 63-10 and found that IIMS is not discussed. In response to our inquiry for an explanation on how the data was used by IIMS, SCDOT sent the LAC the manual for the software program. Additionally, SCDOT could not provide documentation of how each criterion was weighted by IIMS when these projects were prioritized. Therefore, we were unable to verify the scores and subsequent rankings of the 271 interstate interchange projects listed.

We found that SCDOT does not archive data on how the value for each criterion was determined. For example, for the *Interstate Capacity List*, SCDOT could not provide any justification for the economic or environmental scores used in the ranking of the 38 projects listed. Also, SCDOT could not provide complete data on how the criterion of financial viability was calculated in the project rankings.

We found that SCDOT's approved records retention schedule from the S.C. Department of Archives and History states that special reports for the Commission have a records retention schedule of ten years after preparing the report. However, SCDOT could not provide prioritization data on projects prioritized in 2007 and later.

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## Recommendations

77. The S.C. Department of Transportation should specify in its S.C. Regulation 63-10 and directives which software systems are used in prioritizing projects and how the data is inputted and used by those systems in calculating project rankings.
78. The S.C. Department of Transportation should ensure that it archives all data and information relevant to justifying prioritization rankings of projects.
79. The S.C. Department of Transportation should ensure that it complies with the S.C. Department of Archives and History's records retention schedule of ten years for retaining data related to the prioritization of projects.

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## Examination of Prioritization Ranking Criteria

We examined SCDOT's criteria for ranking projects on the interstate capacity list. We could not replicate project rankings because, in many instances, source data was not available from SCDOT. We were unable to determine if the individual criterion scores were accurate and if the projects had been properly ranked. In addition, an SCDOT official stated that the office responsible for calculating project scores makes no attempt to validate data it receives from other areas of the department. The interstate capacity project rankings are used to determine which segments of interstate receive new and expanded vehicle capacity. See Appendix G for the current interstate capacity project prioritization list.

The following criteria and their percentage weights are used to determine prioritization for interstate capacity calculations.

- Traffic volume to capacity (30%).
- Safety (20%).
- Pavement quality index (10%).
- Financial viability (10%).
- Economic development (10%).
- Environmental (10%).
- Truck Traffic (10%).

The traffic volume to capacity score (V/C) attempts to determine which roads have the most traffic relative to their ability to effectively accommodate the traffic. Interstate route AADT values are calculated using an FHWA approved "ramp method". This involves using AADT from the permanent count stations along the interstate which counts traffic 24 hours a day 7 days a week. Also short duration counts are done on all ramps entering and exiting the interstates.

Average capacity measures the amount of traffic a stretch of road is designed to carry. According to the department, the average capacity is derived from raw data from 2000.

The safety score is calculated by applying the crash rate of a particular stretch of road to a scale that ranks the safety of the road from 1 to 5, with 5 having the highest crash rate. Although SCDOT provided us with the formula used to calculate the crash rates of given stretches of road, it does not have the original data that was used to make those calculations. Therefore, we were unable to verify the validity of those calculations.

The pavement quality index (PQI) is calculated with a formula that takes into account two other variables, the pavement distress index (PDI) and the pavement serviceability index (PSI). We found that, unlike other criteria, the PQI is not normalized.

The financial viability score attempts to determine how fundable a project is. It is calculated based on a 5-point scale. If a project is 75% or less of a 3-year budget of \$225 million, it is assigned a 5. If a project is 75% to 100% of the \$225 million, it receives a 3. If a project costs over 100% of the \$225 million, it receives a financial viability score of 1. SCDOT was unable to find a final version of the spreadsheet used to calculate the financial viability for the capacity list. A previous engineering directive from 2009 describes how financial viability is calculated, which differs from the current directive from 2010. It is not known why SCDOT changed this or which methodology was used to calculate the previous and current rankings. Using the fundability of a project as a method for prioritizing projects is questionable considering that projects are funded from State Programs which the Commission restricts funding to. Since a lack of funding could be a Commission-imposed limitation, higher ranked projects that have higher funding needs may not ever be initiated due to scoring low.

Due to the way SCDOT calculates financial viability by determining the fundability of the project based on available funds, SCDOT may be constrained by the amount of funding the Commission has allocated to that program type. Since the Commission allocates funding to multiple programs, using the criterion in this manner prejudices larger projects which may be of a higher priority but may not be advanced due to SCDOT allocating money to other programs.

The economic development score is a qualitative score calculated by the S.C. Department of Commerce by examining proximity of proposed interstate projects to industrial sites, waters, sewers, and railways. SCDOT does not have the criteria for calculating the economic development score.

The environmental score is a qualitative score that attempts to measure the environmental impact of specific projects. SCDOT did not have any raw data available as to how this score was calculated. According to SCDOT officials, these scores were calculated at a meeting of various interested parties. However, minutes of this meeting were not kept and it is unclear how the 1–5 numerical values for environmental impact numbers were derived. When re-ranking the list in 2010, SCDOT used the same economic development and environmental scores that were used in 2008.

The truck traffic score is based on historical truck classification data that is expressed as a percentage which is calculated by dividing the total number of trucks by the total number of vehicles. The resulting product is then applied to a 1-5 scale for normalization. SCDOT informed the LAC that they did not archive all of the data necessary to re-create the truck traffic scores. Also, SCDOT states it uses a “functional classification” for the road which was not provided. Therefore, we were unable to verify the validity of those calculations.

We asked SCDOT for information on the interstate interchange priority list. On this list, there are four criteria listed in the governing engineering directive for which SCDOT does not have data because it did not archive it. As a result, it is not possible to verify that the prioritization methods used by SCDOT are correct. This results in an inability by SCDOT, the Commission, and the general public to adequately assess the importance of funding these projects. The lack of documentation leaves open the possibility for the inappropriate manipulation of these factors, resulting in a skewing of the prioritization. If SCDOT is to properly prioritize projects, it must be able to verify that all data used in all of the prioritization variables is accurate and easily traceable.

Table 5.3 is an illustration of the impact of an incremental change in a single criterion. We reviewed the top two ranked projects on the interstate capacity priority list and kept all criterion scores the same except for the economic development score (weighted at 10%), which we changed to zero. This resulted in the top-ranked project falling to number two on the list.

**Table 5.3: Illustration Showing How Modifying One Criterion Weighted at 10% Can Change the Project's Rank**

| PROJECT NAME   | V/C   | TRUCK | SAFETY | PQI   | FINANCIAL VIABILITY | ECON DEV | ENVIRON | CURRENT TOTAL SCORE | ORIGINAL RANK | NEW RANK |
|--|-------|-------|--------|-------|---------------------|----------|---------|---------------------|---------------|----------|
| <b>SCDOT Original Ranking</b>                                      |       |       |        |       |                     |          |         |                     |               |          |
| US 52 to I-526   | 1.500 | 0.300 | 1.000  | 0.163 | 0.500               | 0.500    | 0.100   | 4.063               | 1             |          |
| N of S-272 to I-85   | 1.159 | 0.300 | 1.000  | 0.187 | 0.500               | 0.200    | 0.300   | 3.646               | 2             |          |
| <b>LAC Ranking With Modification of Economic Development Score</b> |       |       |        |       |                     |          |         |                     |               |          |
| US 52 to I-526   | 1.500 | 0.300 | 1.000  | 0.163 | 0.500               | 0.000*   | 0.100   | 3.563               | 1             | 2        |
| N of S-272 to I-85   | 1.159 | 0.300 | 1.000  | 0.187 | 0.500               | 0.200    | 0.300   | 3.646               | 2             | 1        |

\* Economic development criterion changed by 0.5 for illustrative purposes.

Source: SCDOT and LAC

The example in Table 5.3 demonstrates the effect of a change in score for a single criterion of 0.5. We also reviewed a re-ranking of projects done in 2010 which used updated data for some, but not all, of the criteria. The use of updated data resulted in significant changes in the priority rankings of the interstate capacity list. For example:

- The I-526 widening from Long Point Road to US 17 in Charleston County moved from a ranking of 17 to 8. This was primarily the result of a large increase in the safety score and a minor increase in the financial viability score.
- The former number 8 project, the I-26 widening from I-126 to US 321 in Lexington/Richland county dropped to number 14. This was primarily the result of a drop in the volume to capacity score.

While none of the top six projects changed, the order in which these projects were ranked did change. It is important to note that these changes in ranking occurred with only some of the data for the criteria being updated. If the most current data had been used for the projects, it is likely that there would have been an even greater change in the project rankings.

Apart from the first and fourth ranked projects, the other 36 projects are separated by approximately .100 or less. This means that a change in ranking would be created simply by changing the financial viability, economic impact, or environmental impact scores by a factor of one. For example, changing the environmental score from a three to a two would produce a change in ranking. We also found that by using the highest values for economic impact and environmental development, we were able to change the rank for the thirty-second ranked project to now be the fifteenth ranked project.

We followed SCDOT's instructions for calculating volume to capacity which involves dividing average annual daily traffic (AADT) by average capacity. We found that by following SCDOT's instructions, we did not compute the same result as SCDOT for all of its calculations.

We contacted SCDOT to attempt to determine the reasons for the different scores. SCDOT stated that they had provided the LAC with incorrect instruction on how to calculate V/C and provided a different methodology. We were informed by SCDOT that some projects comprise more than one segment. Each segment has its own V/C score calculated. In addition, each segment receives a weight and then each segment's weighted score is used to calculate a V/C score for the entire project. SCDOT did not identify which projects had segments, and how these segments were weighted until March 2016. Therefore, we did not have sufficient time to test SCDOT's scoring calculation and could not confirm the accuracy of the projects' rank.

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## Normalization of Prioritization Criteria and Calculation Issues

We reviewed SCDOT's process of normalizing the data values on a 1–5 scale. We found that SCDOT does not normalize the PQI score on a 1–5 scale, which is unlike the rest of the criteria. This results in PQI having less impact on the overall project ranking. In addition, we found multiple projects with the same values for the highest-weighted criteria. For example, we found that the scores for volume to capacity and the scores for safety were the same for seven projects. These two criteria combined account for 50% of the project's total score. Therefore, the ranking of these projects will be determined by criteria which are not intended to drive project selection. We found that the values of environmental impact and economic development are qualitative scores. However, SCDOT did not supply data on how these scores were normalized.

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## Lack of Detail in Engineering Directives

The engineering directives do not all state that the prioritization criteria are inputted into formulae and calculated. Directive 50 states that a formula is used to determine a project score, which ultimately determines the project's overall priority rank. This formula is referenced in the directive but is not detailed. It could not be determined, without further explanation from SCDOT staff, how criteria in the directives are used to prioritize projects. For example, Directive 56 states that the following criteria account for 80% of the total weighted scoring for interstate interchange prioritization rankings:

- Passenger Vehicle Travel Time.
- Truck Vehicle Travel Time.
- Passenger Vehicle Delay.
- Truck Vehicle Delay.
- Passenger Vehicle Distance.
- Truck Vehicle Distance (not approved by the Commission).
- Truck Vehicle Time.
- Truck Detour Distance.
- Design-Related Fatal Crashes.
- Design-Related Personal Injury Crashes.
- Design-Related Property Damage Crashes.
- Other Fatal Crashes.
- Other Personal Injury Crashes.
- Other Property Damage Crashes.

However, the directive does not provide the specific percentage for each criterion. Therefore, it is not possible to determine which criteria are the most important.

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## Recommendations

80. The S.C. Department of Transportation should test the validity of all data it uses to calculate prioritization scores.
81. The S.C. Department of Transportation should ensure that all raw data and formulae for prioritization lists are properly archived so that prioritization scores can be tested and verified for accuracy.
82. The S.C. Department of Transportation should review its normalization of prioritization criteria to ensure the process results in the appropriate score for the criteria.



83. The S.C. Department of Transportation should examine its financial viability prioritization scoring to account for the possibility of funding larger projects.
84. The S.C. Department of Transportation should ensure that its engineering directives specifically detail how each prioritization criteria is used to generate prioritization lists.

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## SCDOT Does Not Re-Rank Projects

We reviewed SCDOT's priority lists and found that some have not been evaluated or updated since they were originally ranked and approved by the Commission. Without periodically verifying the validity of project rankings, SCDOT risks advancing a project that was a priority in the past and may no longer be a priority in the present. The *Statewide MPO and COG Widening List* and the *Interstate Interchange List* were approved in 2007, but were not re-ranked.

Data used to establish the original project rankings, including traffic data, road conditions and usage, among others, may have changed over time, such that previously highly-ranked projects may now rank lower if more current data is used. SCDOT stated that it is not re-evaluating these projects to determine if more pressing needs exist in these areas nor is it evaluating previously-ranked projects to determine if the previous rankings are still valid or need re-ranking.

SCDOT delays the identification of new priority projects until all of the projects on the lists are programmed into the STIP or more funding becomes available to advance additional projects. Without identifying new needs on the priority lists for approval, the Commission would not necessarily be made aware of projects other than those contained on the lists, since SCDOT controls the production of these lists.

SCDOT has stated that it does not re-rank its prioritization lists. We reviewed S.C. Regulation 63-10 and found it states that once a project is given a priority rank, it retains it unless specifically changed by the Commission. This means that newly-identified projects would not compete against existing ranked projects if they were added to a list. This presents a problem if a directive was updated that changed the project prioritization process, such as the weighting of criteria, or the introduction or removal of prioritization criteria. SCDOT would not be able to provide the Commission a fair comparison between projects ranked using the old process and projects using the new process.

We received documentation of project prioritization scoring from SCDOT. We found that although SCDOT stated that it does not re-rank projects, the *Interstate Capacity List* was re-ranked in 2010. However, SCDOT's list states it was approved in 2007. Department officials did not respond to an LAC request to provide the reason this list was re-ranked in 2010. Officials stated that they believe that some of the data initially used to rank these projects was from 2005; however, they were unable to confirm this.

The most current data available to re-rank these projects in 2010 was from 2008; SCDOT staff stated this was the most current data they had access to in 2010. Table 5.4 illustrates how the updated data changed the project rankings with only a three-year update in data.

**Chart 5.4: Changes in Interstate Capacity Project Rankings with the Utilization of Updated Data**

| PROJECT NAME               | ORIGINAL RANK<br>IN 2008 | CURRENT RANK<br>(RE-RANK IN 2010) | COUNTY                      |
|----------------------------|--------------------------|-----------------------------------|-----------------------------|
| US 52 Conn. to I-526       | 1                        | 1                                 | Charleston                  |
| US 25 to SC 129            | 2                        | 5                                 | Greenville /<br>Spartanburg |
| SC 7 to S-97               | 3                        | 6                                 | Charleston /<br>Berkeley    |
| US 176 to S-36             | 4                        | 4                                 | Lexington /<br>Richland     |
| I-77 to S-53               | 5                        | 3                                 | Richland                    |
| N of S-272 to I-85         | 6                        | 2                                 | Greenville                  |
| S-204 to US 378            | 7                        | 9                                 | Lexington                   |
| I-126 to US 321            | 8                        | 14                                | Lexington /<br>Richland     |
| GA State Line to US 25     | 9                        | 20                                | Aiken                       |
| SC 85 to I-85 Bus Loop     | 10                       | 10                                | Spartanburg                 |
| SC 153 to US 25            | 11                       | 11                                | Anderson /<br>Greenville    |
| US 321 to S-31             | 12                       | 7                                 | Lexington /<br>Calhoun      |
| I-526 to Heriot St.        | 13                       | 12                                | Charleston                  |
| US 378 to I-77             | 14                       | 13                                | Lexington /<br>Richland     |
| US 221 to NC<br>State Line | 15                       | 18                                | Spartanburg /<br>Cherokee   |
| I-85 to SC 291             | 16                       | 23                                | Greenville                  |
| S-97 to US 17              | 17                       | 8                                 | Charleston                  |

Source: SCDOT

We reviewed Directive 56, which is used to rank interstate capacity projects, and found that the directive states that only segments of interstate having a minimum level of service “C” will be included in the priority list. Level of service is used to denote the level of congestion on the road, which can change over time.

The directive states that the list will include the top 75 segments of interstate. We reviewed SCDOT’s list and found that it included only the top 38 segments. Since the pavement data was not updated since these projects were originally ranked, there may be other segments of interstate that were not included in the list and may now be higher priorities.

We reviewed Commission actions and were not able to locate official approvals of priority lists submitted by SCDOT to the Commission. For example, SCDOT was not able to provide documentation of Commission approval for the initial *Interstate Capacity List* from 2010. According to staff, the 2010 re-ranking was not formally approved by the Commission.

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## Recommendations

85. The S.C. Department of Transportation should calculate new priority list scores when criteria, weightings, and related data changes; if this results in a change in ranking, the list should be submitted to the Commission for approval.
86. The S.C. Department of Transportation should comply with Engineering Directive 56 and include the top ranked 75 segments on its interstate capacity priority list.
87. The S.C. Department of Transportation should acquire approval from the Commission or other designated authority for all priority lists as required by Act 114.
88. The S.C. Department of Transportation should clearly identify when criteria and weights have been approved by the Commission in a centralized location on its website with its priority lists by including the Commission action approving the change(s) and the relevant page number(s). We further recommend that when changes have been made to the prioritization process, SCDOT should clearly reference both the old and new Commission actions for comparison so that the public can determine what changed.

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## Act 114 Compliance with Single List Requirement

SCDOT has failed to comply with Act 114 by not maintaining a single list of priority projects established by the Commission. A benefit of a single priority list is that the highest-ranked projects, from a statewide perspective, are more likely to be funded than lower-ranked priority projects.

SCDOT has created no fewer than 15 separate project category lists. These lists are created and ranked by department staff, not the Commission. These ranked lists are then presented to the Commission for approval at Commission meetings. The Commission generally approves SCDOT's lists exactly as they are presented.

### **SCDOT Prioritization Lists**

#### **SAFETY**

Comprised of three lists, one for intersection routes, one for corridor/section improvements, and one for interstate improvement projects.

#### **INTERSTATE PAVEMENT REHABILITATION**

Includes interstate pavement reconstruction projects, resurfacing, drainage, and bridge clearance.

#### **INTERSTATE PAVEMENT PRESERVATION (Not publicly disclosed on SCDOT's website.)**

Includes interstate pavement preservation projects.

#### **INTERSTATE CAPACITY**

Includes interstate lane widening and increased vehicle capacity projects.

#### **INTERSTATE INTERCHANGES**

Includes interstate interchange reconstruction and capacity projects.

#### **FEDERAL AID BRIDGE REPLACEMENT**

Includes state-maintained major collector and arterial roadways and interstate projects.

#### **NON-FEDERAL AID BRIDGE REPLACEMENT**

Includes bridge replacement projects on state-maintained minor collector and local roads.

#### **BRIDGE REHABILITATION**

Includes bridges needing rehabilitation as opposed to replacement.

FEDERAL AID RESURFACING

Includes resurfacing and pavement reconstruction projects from major collector and arterial roads. (Comprised of 46 lists – 1 for each county.)

NON-FEDERAL AID RESURFACING

Includes pavement reconstruction and resurfacing projects on state-maintained minor collector and local roads. (Comprised of 46 lists – 1 for each county.)

STATE PROGRAM

Includes state-funded road and bridge maintenance/replacement; routine, extraordinary maintenance and support activities, equipment replacement, and rest area and welcome center maintenance. (Comprised of 53 lists – 1 for each county (46) and 1 for each of the 7 districts for bridges.)

STATEWIDE MPO AND COG WIDENING

Includes roadway widening priorities identified in MPO and COG long-range plans.

CONGESTION MANAGEMENT/ AIR QUALITY

Includes projects related to air quality in the non-attainment area of York County.

SCDOT develops priorities for each list and the Commission approves funding for each of these project types. Since these projects types have individually allocated funding from the Commission, the top priorities of one list will not compete with another project on a different priority list. Also, the Commission assigns funding to each county in South Carolina. SCDOT staff then develops priority lists for each county for road projects.

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## Standardization of SCDOT's Prioritization Process

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We found that SCDOT has failed to comply with S.C. Regulation 63-10 in producing a statewide list of projects. Regulation 63-10 states that the "Commission shall establish statewide project priority lists for all federal-aid program projects proposed to be included in the STIP and State non-federal aid program projects."

We reviewed SCDOT's prioritization lists and found that SCDOT is not prioritizing all projects on a statewide basis. Some project categories are prioritized on an individual county basis while others are prioritized on a statewide basis.

For example:

- SCDOT prioritizes federal aid-eligible roads on a county basis, resulting in 46 separate lists.
- SCDOT also prioritizes non-federal aid eligible roads on a county basis, resulting in 46 separate lists.
- Projects in the *Federal Aid* and *Non-Federal Aid Bridge Replacement Lists* are done on a statewide basis.
- The State Program is comprised of at least 53 lists, one for each county for roads and one for each of the seven districts for bridges.

Based on our review, we identified 157 transportation project priority lists. Therefore, each county will produce number one priorities which are not further evaluated at the statewide level. SCDOT does not know what its most important needs are from a statewide perspective.

Each county's priority list does not compete with other counties' priority lists because funding is already apportioned to each county and this guarantees funding will be available to advance these projects. Therefore, there are 46 priority lists of projects, each with their number one priority. This ensures that each county's top priorities will advance to construction as long as the Commission makes funding available, in spite of overarching statewide needs, which SCDOT's process does not identify. For example, low-ranked projects on county "A"'s list may rank higher on a statewide priority list than the top-ranked projects on county "B"'s list. However, the top projects from both lists will advance due to appropriated funding, meaning that, from a statewide perspective, low priorities will be initiated before higher priorities.

By not prioritizing needs on a statewide basis, SCDOT may be sending funding to counties or districts that do not have the most pressing needs, while diverting funding from those areas of South Carolina that may have greater needs. Evidence of how this could occur is found in Engineering Directive 50, which states that 75% of available funding for resurfacing roads will be divided among all of South Carolina's 46 counties based upon their respective lane miles and daily vehicle miles traveled; while the remaining 25% will be allocated based upon each county's needs.

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## Presentation of Priority Lists

We reviewed SCDOT's *Safety List* and found that it comprises three independently-ranked groups of projects that are ranked separately and not ranked against each other. It is not clear from viewing the list that there are three separately-ranked groups of projects within the list. This is an example of the confusing and non-uniform manner in which SCDOT presents its project priority lists.

Additionally, we found that some of the priority lists contain inaccurate information. For example, throughout our audit, SCDOT staff and its website referred to what is presently known as the "off-system bridge" list, as the *Non-Federal Aid Bridge Replacement List*. Late into our audit, SCDOT staff informed the LAC that there is no "non-federal aid bridge replacement" program but rather it has an "off-system bridge" program and then changed its website to reflect this. However, the list itself still displays the heading "non-federal aid bridge replacement." This is one example of a lack of uniform nomenclature when discussing information with different SCDOT staff, which has made interpreting and validating these documents difficult.

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## Recommendations

89. The S.C. Department of Transportation should comply with Act 114 and establish a single priority list of projects that addresses all Act 114 criteria and informs stakeholders of the paramount needs of South Carolina's infrastructure.
90. The S.C. Department of Transportation should make its project prioritization process fully transparent and easily understandable for the public.
91. The S.C. Department of Transportation should review its project priority lists and its website to determine if errors are present and update information accordingly.

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## Missing Prioritization Lists

We reviewed the federal programs listed in Table 5.5 and found that SCDOT is not producing a list for all of the projects under these programs, as required by S.C. Regulation 63-10. S.C. Regulation 63-10 specifically states that the "Commission shall establish statewide project priority lists for all federal aid program projects proposed to be included in the STIP and State non-federal aid program projects."

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**Table 5.5: Federal Transportation Programs**

| FEDERAL FUNDING PROGRAMS                                     |
|--|
| National Highway Performance Program                         |
| Surface Transportation Program                               |
| Safety — Highway Safety Improvement Program                  |
| Congestion Mitigation/Air Quality                            |
| Federal Transit Administration Programs                      |
| Planning (State Planning & Research & Metropolitan Planning) |
| Transportation Alternatives                                  |
| Railway-Highway Crossing Program                             |

Source: SCDOT

Table 5.5 shows the federal programs by which federal funds are apportioned to the states. SCDOT has taken the federal program categories and created its own State Program categories, that “emphasize system priorities” of South Carolina as shown in Table 5.6.

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**Table 5.6: State Transportation Programs**

| STATE FUNDING PROGRAMS                |
|---------------------------------------|
| Interstate Program                    |
| Federal Aid Resurfacing               |
| Safety                                |
| Congestion Mitigation and Air Quality |
| Transportation Alternatives           |
| Bridge Program                        |
| Mass Transit                          |
| Recreational Trails                   |
| State Infrastructure Bank             |
| System Upgrade                        |

Source: SCDOT

S.C. Regulation 63-10 does not discuss this breakdown of federal programs into State Programs. However, it does state that a priority list must be established for all federal program projects and non-federal aid program projects.



We requested all of SCDOT's prioritization lists. We found that SCDOT did not prioritize projects according to Act 114 and S.C. Regulation 63-10, for the following federal and State Program categories:

- Mass Transit.
- Recreational Trails.
- Transportation Alternatives.
- Rail Crossings.
- Federal and state earmark projects.

Also, earmarked projects are specifically required to be prioritized according to S.C. Regulation 63-10 section (C)(1).

Congressional earmark projects and projects individually funded by the General Assembly will be prioritized prior to commission action approving those projects for inclusion in the STIP or State Program if the project falls within a project category on the priority list.

SCDOT stated that it would be too difficult to establish a priority ranking for these projects. We reviewed the STIP and found that these projects are included; however, they are presented without a ranking.

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## Recommendation

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92. The S.C. Department of Transportation should comply with Act 114 and S.C. Regulation 63-10 and prioritize all federal and non-federal aid projects under the scope of Act 114 and include their rankings in the STIP.
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### SCDOT Does Not Prioritize or Rank Preservation Projects According to Act 114

According to SCDOT, it considers pavement preservation as all treatments with thicknesses less than 1.25 inches. We reviewed SCDOT's current FFY 2014 – 2019 STIP and found that projects listed as preservation projects for primary and secondary state roads did not have a rank associated with them. SCDOT informed the LAC that it does not generally rank preservation projects. Additionally, SCDOT stated that Act 114 provided an exemption to prioritizing preservation and maintenance projects. We reviewed Act 114 and found that no exemption is provided for in statute.

We reviewed SCDOT’s policies and procedures, and industry best practices, and found that by not prioritizing these projects under Act 114, SCDOT may be missing opportunities to preserve roads, thus failing to protect infrastructure investments. Also, neglecting preservation needs leads to a cycle of deteriorating road pavement conditions which costs drivers and the state money from property damage and lawsuits.

We reviewed SCDOT’s prioritization lists, one of which, the *Federal Aid Resurfacing List* appears in Table 5.7. We found that the list contains projects identified as “preservation” projects, but they are not ranked in comparison to the other projects on the list. Instead of a project rank, these projects have “NA” for *not applicable*. We reviewed the STIP and confirmed that there were no rankings included for the projects identified as “preservation.” However, the list does have rankings for projects classified as “reconstruction” and “rehabilitation.”

**Table 5.7: SCDOT 2016 Federal Aid Resurfacing List**

| COUNTY       | PROJECT RANK | ROUTE TYPE | ROAD NUMBER | ROAD NAME           | TOTAL MILES | WORK TYPE              |
|--------------|--------------|------------|-------------|---------------------|-------------|------------------------|
| AIKEN        | NA           | US         | 1           | Columbia Hwy        | 0.71        | Preservation           |
|              | NA           | S          | 75          | Camp Rawls Rd       | 10.39       | Preservation           |
|              | NA           | S          | 104         | Chalk Bed Rd        | 0.07        | Preservation           |
|              | NA           | US         | 1           | Jefferson Davis Hwy | 0.04        | Preservation           |
|              | NA           | US         | 1           | Jefferson Davis Hwy | 0.03        | Preservation           |
|              | NA           | US         | 1           | Jefferson Davis Hwy | 0.11        | Preservation           |
|              | NA           | US         | 1           | Jefferson Davis Hwy | 0.02        | Preservation           |
|              | NA           | US         | 1           | Columbia Hwy        | 0.42        | Preservation           |
|              | 1            | S          | 29          | Hampton Ave. NE     | 1.29        | Rehabilitation         |
| CHESTERFIELD | 1            | SC         | 9           | Highway 9           | 1.00        | 1 (Full Depth Asphalt) |
| LEXINGTON    | 4            | US         | 378         | Hwy 378             | 3.37        | Heavy Rehab            |
| GREENVILLE   | 4            | SC         | 288         | Pumpkintown Rd      | 5.13        | Reconstruction         |

Source: SCDOT and LAC

SCDOT states that S.C. Code §57-1-460 exempts preservation projects from Act 114's prioritization requirements. That law states that routine operation and maintenance requests for roads not included in the STIP shall be evaluated and approved by the secretary of transportation.

This delegation of authority does not constitute an exemption from the Act 114 prioritization process relating to preservation. Also, we do not believe that this law includes "preservation" under its purview.

SCDOT has established a prioritization list for interstate "preservation" projects. According to SCDOT staff, this list was established in order to prioritize maintenance needs that were being neglected and leading to the deterioration of the interstate roads at an undesirable rate. Although the SCDOT Commission approved this list in December of 2015, it is not on SCDOT's website.

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## Recommendation

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93. The S.C. Department of Transportation should comply with Act 114 and prioritize maintenance projects related to preservation of roads.
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## Lack of Transparency

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We found that SCDOT has not been transparent in its project prioritization processes. Most of SCDOT's directives list weights for each criterion in the form of points or percentages that add up to 100. The data that make up these weighted criteria, the source(s) of the data, and how this is calculated is not included.

SCDOT has not complied with S.C. Regulation 63-10 which requires that directives "...include a methodology for applying the criteria and the weight to be accorded each criterion where applicable." We reviewed SCDOT's directives and found that Directives 50, 54, and 56 do not include weights for each criterion listed. We contacted SCDOT staff and they responded by e-mail with weights for the criteria as shown in Table 5.8.

**Table 5.8: Prioritization Criteria  
Weights Omitted from Directive 50**

| DIRECTIVE 50   |  |
|--|--|
| CRITERIA   | WEIGHTS<br>NOT DISCLOSED<br>IN DIRECTIVE |
| Pavement Condition   | 65%                                      |
| Average Daily Traffic (ADT)                                  | 15%                                      |
| Location and Significance to the<br>Community Local Business | 10%                                      |
| Average Daily Truck Traffic (ADTT)                           | 5%                                       |
| Pavement Maintenance Costs                                   | 5%                                       |

Source: SCDOT

## Lack of Information in SCDOT's Directives Regarding the Prioritization Process

Tables 5.8 and 5.9 detail the weights and the criteria used to establish prioritization rankings for road resurfacing projects. We reviewed Directives 50 and 52 and found that they lacked all necessary elements as required by S.C. Regulation 63-10. We found that:

- Weights were not provided for each criterion in the directive as required by S.C. Regulation 63-10.
- The directives do not list the full methodologies used for ranking projects, to include formulae.
- The directives do not discuss the role of software programs in the prioritization process.

**Table 5.9: SCDOT Prioritization  
Directive 52**

| SCDOT DIRECTIVE 52  |                         |
|---|-------------------------|
| CRITERIA USED TO ESTABLISH<br>A PROJECT RANK                | CORRESPONDING<br>WEIGHT |
| Pavement Condition  | 65%                     |
| Average Daily Traffic                                       | 10%                     |
| Average Daily Truck Traffic                                 | 10%                     |
| Pavement Maintenance Costs                                  | 10%                     |
| Location & Significance to the<br>Community/ Local Business | 5%                      |

Source: SCDOT

SCDOT does not state which internal or external third party systems are providing data for a given criterion. For example, Directive 52 lists the weight (percentage) of the pavement condition criterion but not how the data from these systems are used to develop a value that then accounts for 65% of the score. The directive does not state how data from these systems is processed to produce a value which is then weighted and inputted into a formula. Table 5.10 shows that several systems provide data on pavement condition.

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**Table 5.10: SCDOT Software Systems that Provide Data on Pavement Condition Used to Prioritize Projects**

| SCDOT DIRECTIVE 52                      |  |
|---|--|
| CRITERIA USED TO ESTABLISH PROJECT RANK | SCDOT SYSTEMS PROVIDING DATA FOR THIS CRITERION    |
| Pavement Condition (65%)                | (ITMS) Integrated Transportation Management System |
|   | (RIMS) Road Inventory Management System            |
|   | (HPMA) Highway Pavement Management Application     |
|   | (MMS) Maintenance Management System                |

Source: SCDOT

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## Recommendations

94. The S.C. Department of Transportation should comply with S.C. Regulation 63-10 and provide the full methodologies for ranking projects in its directives, ensuring this is done in a manner that is easily comprehended by the public.
95. The S.C. Department of Transportation should comply with Regulation 63-10 and include the applicable weights for each criterion in its engineering directives.

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## Changes to the Weighting of Prioritization Criteria

In May of 2015, SCDOT proposed changes to the weights and methodologies contained in its engineering directives and recommended their approval by the Commission. The Commission subsequently approved these changes. We found that five of the seven directives' criteria and weights were changed. New Act 114 criteria were added to the directives that were previously not considered relevant. For example, Directive 56 added the Act 114 criteria of *alternative transportation solutions* and *consistency with local land use plans* which were not previously used to rank projects. However, these criteria are not given weights. Therefore, it remains unclear if these criteria influence the project score. An example of the differences in weights is shown in Table 5.11. SCDOT could not provide evidence to show justification for these changes.

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**Table 5.11: SCDOT Prioritization Directive 60 Changes in Criteria Weighting**

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| DIRECTIVE 60 (MPO/ COG WIDENING CRITERIA)       |   |
|---|---|
| PREVIOUS WEIGHTS AND CRITERIA                   | CURRENT WEIGHTS AND CRITERIA AS OF MAY 2015   |
| 35% Traffic Volume and Congestion               | 35% Traffic Volume and Congestion   |
| 15% Public Safety                               | 10% Public Safety   |
| 10% Financial Viability                         | 5% Financial Viability  |
| 10% Economic Development                        | 10% Economic Development  |
| 10% Truck Traffic                               | 10% Truck Traffic   |
| 10% Pavement Quality Index                      | 3% Pavement Quality Index   |
| 10% Environmental Impact                        | 2% Environmental Impact   |
| (Yes/No) Alternative Transportation Solutions*  | (Yes/No) Alternative Transportation Solutions*  |
| (Yes/No) Consistency with Local Land Use Plans* | (Yes/No) Consistency with Local Land Use Plans*   |
| No Relatable Criterion                          | 25% Located on a Priority Network<br>(National highway system freight, and strategic corridors) |

\*These criteria are not ranked.

Source: SCDOT

In reviewing SCDOT's engineering directives, we found that most had not been revised since 2011 or earlier. Periodically, analyzing the criteria and weights used to prioritize projects could help SCDOT determine if the prioritization process was effective in accomplishing SCDOT's strategic direction or in determining the most important statewide needs. It remains unclear why the weightings were changed.

SCDOT was not able to provide performance measures related to establishing the success or failure of projects in accomplishing a goal; nor could it provide related policies and procedures. Without adequate performance measures, it is impossible to determine how successful projects are in achieving their goals.

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## Recommendations

96. The S.C. Department of Transportation should seek to develop performance measures to test all criteria and weights of each criterion that are used to prioritize projects to ensure projects are being selected that will meet SCDOT's goals.
97. The S.C. Department of Transportation should develop goals for all non-federally funded projects and include this information in the State Program.
98. The S.C. Department of Transportation should develop performance measures to test how successful projects were in achieving goals and provide this information to the public and the Commission.

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## Difficulty in Acquiring Information

SCDOT provided incomplete information on its prioritization processes on its website. Documentation listed only four types of projects relating to Act 114. As a result, it was difficult to establish what projects SCDOT was prioritizing and how many lists existed. Subsequently, we were informed there was additional information that had not been disclosed on the website. This information listed the other project types of SCDOT priorities that had not been provided.

We encountered additional difficulty due to a lack of transparency with SCDOT's prioritization processes, inaccurate information, and the inability of SCDOT staff to produce information as requested, which resulted in numerous additional requests.

Also, in October 2015, SCDOT created a page on its website that provided its project priority lists and corresponding engineering directives along with information on how often the lists were produced and what types of projects were included in each respective category.

The North Carolina Department of Transportation has established a Strategic Planning Office of Transportation (SPOT) to launch and manage the prioritization program. SPOT reviews and calculates quantitative scores for projects under the latest prioritization criteria, formulas, and weights. This includes review of all data, cost, and input from MPOs, Regional Planning Offices, and the NCDOT division, and NCDOT staff.

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## Recommendations

99. The S.C. Department of Transportation should make its project prioritization process fully transparent and easily understandable for the public.
100. The S.C. Department of Transportation should establish a point of contact for any questions related to its prioritization of projects.
101. The S.C. Department of Transportation should place all of its related project prioritization documentation in a centralized location on its website for public dissemination.
102. The S.C. Department of Transportation should consider establishing a centralized office for prioritization.

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## Project Priority List Rank as Compared to Order of Project Initiation in the STIP

We found that the Commission has not provided written justification for situations in which it overrides rankings of projects in the order in which they appear in the state transportation improvement program (STIP). SCDOT's promulgated regulation allows the SCDOT Commission to override the Act 114 project priority list rankings.



Regulation 63-10 states that:

The order in which projects appear in the priority list is the order in which those projects will be placed in the STIP unless the commission provides a written justification based upon circumstances that warrant a deviation from the established order on the list. The circumstances upon which the commission may deviate from the list are significant financial or engineering considerations, delayed permitting, *force majeure*, pending legal actions directly related to the proposed project that is bypassed, federal law or regulation, or economic growth.

This effectively allows the SCDOT Commission to override Act 114 rankings for any of the aforementioned reasons provided there is a written justification. Regulation 63-10 is not clear as to whom the written justification would need to be provided, or approved by, nor does it state that this must be made public record.

We reviewed SCDOT's STIP and project priority lists and found that projects are not always inputted into the STIP in the order in which they appear on the priority lists and no written justification has been made available to explain these deviations in initiating lower-ranked projects ahead of higher-ranked projects. For example, the "Interstate Interchange" lists documents that projects "5," "6," "7," "7" [duplication intended], "9," "11," "12" have been placed into the STIP; however, projects "4" and "10" have not been entered into the STIP. There is no written explanation or justification provided by the Commission as to why these lower-priority projects moved ahead of higher-priority projects by being placed into the STIP.

We reviewed SCDOT's *Federal Aid Bridge List* and found that project "34" was initiated ahead of projects "31" through "33" and project "61" was initiated ahead of projects "35" through "60". There is no written explanation or justification provided by the Commission as to why these lower priority projects were placed into the STIP ahead of higher priority projects.

In contrast, the Commission approved the advancement of three bridges in 2014 ahead of other projects with higher priority. The Commission's rationale for approving these three bridges was due to having to pay back approximately \$1,827,878 in federal funds and \$456,969 in state funds if these bridges were not advanced within 10 years of the fiscal year in which initial design federal authorization took place (2004). SCDOT estimates the cost to complete these bridges at \$17,226,000.

Another example is the *Statewide MPO and COG Widening List* presented on SCDOT's website which states: "The Statewide MPO and COG Widening list provides a comparative ranking; however, project programming is based on the local MPO and COG priorities." This means that although SCDOT provides its ranking of projects it identifies, MPOs and COGs identify their own projects and determine which projects they want to rank and advance, despite SCDOT's priority ranking. This list includes many lower ranked projects that have been initiated over higher-ranked projects. There is no written explanation or justification provided by the Commission as to why these lower-priority projects were placed into the STIP ahead of higher-priority projects.

Additionally, nine projects that appear on this list are not ranked according to Act 114. Instead, they display "N/A" for "Not Applicable" in the area for the project rank. No explanation is provided on the list for why these projects are not ranked.

The presentation of the project rankings in the STIP is done in a confusing manner. Some of the COG and MPO projects are not listed in their sequentially-ranked order. This can be seen in the Table 5.12 regarding the Grand Strand MPO's Grand Strand Area Transportation Study's (GSATS)'s project rankings for Georgetown County. This makes it more difficult to determine if projects have been inputted in their order of rank.

**Table 5.12: Georgetown County  
Grand Strand MPO Project  
Rankings**

| PROJECT DESCRIPTION                            |                              | PROJECT RANK | MPO/COG | STIP CATEGORY  |
|--|------------------------------|--------------|---------|----------------|
| Section/Corridor Improvements                  | S-57 (State Highway 57)      |              | GSATS*  | Safety         |
|  | S-42 (Pennyroyal Rd)         |              | GSATS   |                |
| Intersection Improvements                      | US 17 & US 701 & US 521      | GSATS-27     | GSATS   | System Upgrade |
|  | Intersection Improvements    | GSATS-28     |         |                |
|  | Martin Luther King & Petrigu | GSATS-32     |         |                |
| US 17 Median Consolidation (N Causeway to MLK) |                              | GSATS-22     | GSATS   | System Upgrade |

\*Grand Strand Area Transportation Study

Source: SCDOT

SCDOT does not publicly provide any of the numerical scores or raw data from its calculations to justify the rankings for the projects. The engineering directives themselves mention scores and data; however, none of this is publicly available. Without this data, when SCDOT solicits public input on priority lists, it would be difficult for the public to interpret, confirm, or dispute SCDOT's ranking and subsequent Commission approval because the public would not have sufficient information regarding how and why the project was given a particular prioritization rank.

Some of the project priority lists provide a project status while some do not. However, for the lists that provide this information, it is unclear how often the statuses of the projects are updated on the lists, since this is not indicated anywhere on SCDOT's website. We found that even on lists that provide project status information, not all of the projects have a status listed. There is no explanation on the lists or on SCDOT's website as to why that is the case. Also, it cannot be determined from reviewing the lists whether or not projects have been placed into the STIP.

Officials with SCDOT stated that data regarding SCDOT's prioritization calculations is not provided to the Commission when it votes to approve the priority lists. Inclusion of this data in the lists could further inform the Commissioners and could allow them to make more informed decisions.

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## Recommendations

103. The S.C. Department of Transportation should provide the final project scores on the priority lists and submit them to the Commission.
104. The S.C. Department of Transportation should provide all of its data and project-ranking calculations publicly on its website and when soliciting public comment on its priority lists and in a manner that allows for easy interpretation of the methodologies and resulting scores.
105. The Commission should provide written justification for any and all deviations from the project priority ranking list and the specific circumstances under S.C. Regulation 63-10 under which the deviation was justified. Also, these justifications should be clearly referenced on the project priority list and in the Statewide Transportation Improvement Program.
106. The S.C. Department of Transportation should modify its project priority ranking lists to standardize its formats and the information contained thereon.

107. The S.C. Department of Transportation should provide the status of the projects contained on the project priority lists for all of the lists and include a timeframe on the list for when the statuses of the projects are updated.
108. The General Assembly may wish to evaluate the specifics of the ability of the S.C. Transportation Commission to override Act 114 prioritization requirements.
109. The S.C. Department of Transportation should identify and date projects that have been programmed into the STIP.

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## Identification of Projects in the STIP from Referencing Project Priority Lists

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We could not positively identify projects on the priority lists with projects in the STIP without assistance from SCDOT personnel. This was due to the fact that SCDOT refers to projects differently in the STIP and on the project priority lists. This would also make it difficult for the public to identify projects in the STIP which had been advanced from the prioritization lists.

For example, safety projects in the STIP do not have their corresponding rank listed from the priority list. Additionally, a project from the *Safety List* may be undertaken by a COG or MPO, in which case the COG or MPO ranking would be listed instead of SCDOT's *Safety List* ranking.

Additionally some project rankings do not correspond to projects on any publicly available SCDOT priority list. For example, the STIP has numerical rankings preceded by *BRH*. The STIP defines the acronym *BRH* as relating to bridge rehabilitation. We reviewed SCDOT's publicly available prioritization lists and found that there is no corresponding list for bridge rehabilitation.

We reviewed SCDOT's prioritization lists and found that different projects are listed with the same prioritization rank on the same list. For example, Table 5.13 shows SCDOT's *Federal-Aid Eligible Bridge Replacement* list which includes different projects with the same ranking. It is unclear from reviewing the priority list which project would advance first in this situation. S.C. Regulation 63-10 does not address what would occur if two different projects received the exact same prioritization score.

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**Table 5.13: SCDOT's Federal Aid Bridge Replacement Priority List Showing Projects with the Same Priority Rank**

| RANK | ROUTE    | CROSSING            | COUNTY     | APPROVAL   | STATUS   |
|------|----------|---------------------|------------|------------|----------|
| 22   | US 76    | Wateree River SWP-2 | Sumter     | 06/19/2008 | Underway |
| 22   | S 12 CON | Jefferies Creek     | Florence   | 12/06/2012 | Underway |
| 22   | US 701   | Six Mile Creek      | Georgetown | 04/17/2014 | Design   |
| 23   | US 78    | S.C.L. RR & S-39    | Charleston | 06/19/2008 | Underway |
| 23   | US 21    | Harbor River        | Beaufort   | 12/06/2012 | Design   |
| 23   | US 21    | Congaree Creek      | Lexington  | 04/17/2014 | Design   |

Source: SCDOT

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## Recommendation

110. The S.C. Department of Transportation should not use the same priority rank for different projects on its lists.

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## Federal Funding Requirements

Federal funding is a key source of revenue for SCDOT. Both SCDOT and FHWA strive to maximize the amount of federal funds that SCDOT is able to use each year. SCDOT and its transportation partners, such as MPOs, have used all of the FHWA transportation funds available to South Carolina in each of the last ten years. In order to receive these funds, SCDOT must work closely with the local FHWA division office to ensure that federal requirements are met. However, it is important to note that FHWA's role in the project selection process is limited to verifying that projects meet the eligibility requirements outlined for each funding program. Within those guidelines, SCDOT is free to choose which projects to fund according to the state's priorities.

Concerns have been expressed that federal funds cannot be used for road maintenance. While it is true that federal funds generally cannot be used for *routine* maintenance activities such as mowing, filling potholes, or removing graffiti, this does not mean that pavement maintenance may not be funded with federal money. In fact, the following types of pavement maintenance are eligible for federal funding as long as other eligibility requirements are met:

- Preventive maintenance such as joint repair, seal coats, and shoulder repair.
- Preservation treatments such as crack sealing and full-depth patch that preserve the structural integrity and extend useful life.
- Rehabilitation treatments that either remove and replace deteriorated pavement surface or increase pavement thickness.
- Reconstruction, in which the entire existing pavement structure is replaced.

(See *Pavement Maintenance Categories and Treatments* in Chapter 4 for more information on these types of pavement maintenance.)

To illustrate the trends in how South Carolina spends its federal transportation funds, federally-funded projects can be broken down into a few major categories:

MAINTENANCE

Includes both pavement maintenance and bridge repair and replacement.

CAPACITY

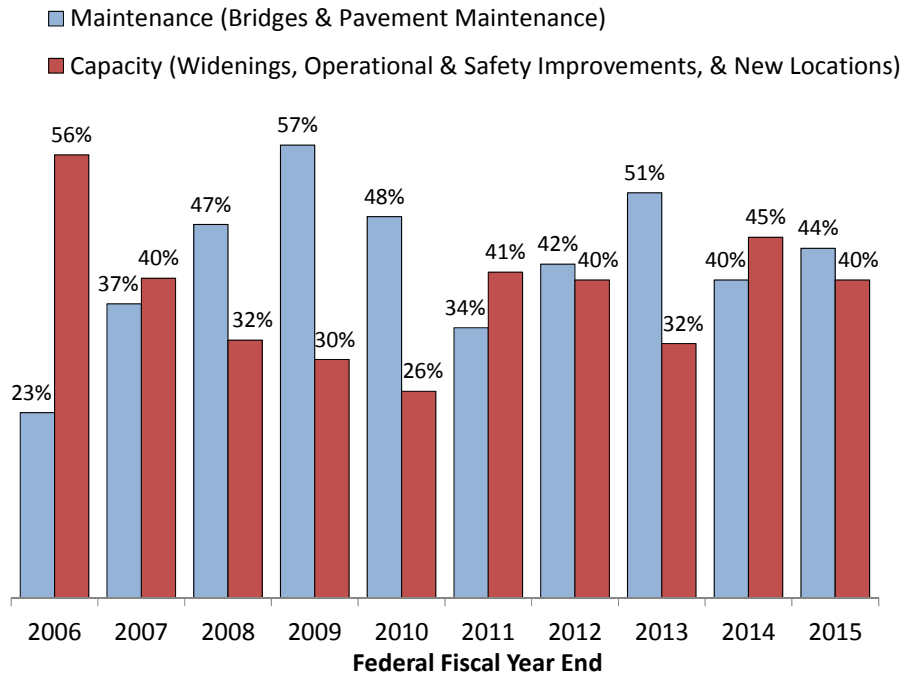
Broadly refers to projects that increase the capacity of the system, such as road widenings, operational and safety improvements, and construction of new roads.

OTHER

Includes debt service and planning funds.

Although SCDOT was unable to provide a breakdown of actual expenditures of federal funds into the above categories, Graph 5.14 reflects the percentage of the federal program (which includes both federal funds and the portion that the state is required to contribute) that it planned to spend in the Maintenance and Capacity categories for each of the last ten federal fiscal years.

**Graph 5.14: Planned Maintenance vs. Capacity Distribution of the Federal Aid Program**



Source: SCDOT

Over ten years, 45% of the federal program was planned for maintenance projects, whereas only 37% was planned for capacity improvements.

The most significant restriction on the use of federal funds is not *which activities* are eligible, but on *which roads* those eligible activities may take place. With some exceptions, federal funds are limited to use on “federal-aid eligible” roads, which make up just over half of all the lane miles of road that SCDOT maintains, but carry an estimated 90% of the state’s traffic.

Some funds, however, are more restricted. For example, the largest federal funding program in FFY 13-14 and FFY 14-15 was the National Highway Performance Program, which made up 57% of South Carolina’s total FHWA funding in those years. With few exceptions, these funds can only be used on the National Highway System, which makes up only 14% of total state-maintained lane miles but is estimated to carry over half of the state’s traffic.

Despite these restrictions, there is a significant amount of flexibility built into the federal aid program. States may transfer up to 50% of the funds available in each of the main funding programs to another program. As an example, this would allow SCDOT to transfer up to half of the funds available through the National Highway Performance Program (which must be spent on a fairly small portion of South Carolina roads) to the more flexible Surface Transportation Program in order to have more money available for the greater portion of roads that are eligible under that program. The way in which the federal government authorizes states to use federal transportation funds also gives them some additional discretion in choosing on which funding programs to focus.

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## Statewide Transportation Improvement Program Development Process

We reviewed the process for inputting projects into the Statewide Transportation Improvement Program (STIP). We found that:

- SCDOT does not have formal, documented process for moving projects on the priority lists into the STIP.
- The STIP is presented in a manner that may not be accessible to the general public.
- The STIP omits certain pertinent information such as priority list rankings, explanations of federal funding sources, and the purpose and need of the projects.

According to the STIP, projects are initiated by SCDOT, Councils of Governments (COGs), and Metropolitan Planning Organizations (MPOs). These projects generally originate from COG and MPO Transportation Improvement Programs (TIPs), which serve as their priority lists, and SCDOT's priority lists.

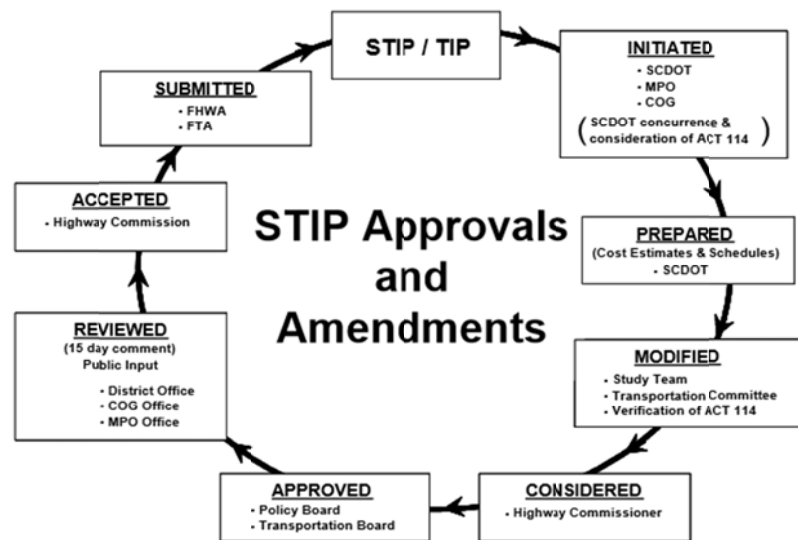
In addition, we found that projects in the STIP may also be initiated by:

- The SCDOT Commission.
- Congress.
- The General Assembly.
- The South Carolina Transportation Infrastructure Bank (SCTIB).
- Local governments.



We found that SCDOT does not have a formalized process for selecting projects to go into its STIP. Therefore, we were unable to test this process. The STIP states that projects are included in the STIP based upon their prioritization rank, funding availability, and status. The addition of projects into the STIP occurs at meetings involving SCDOT staff. At these meetings, some of the projects from SCDOT's priority lists are put into the STIP. The process for selecting projects to go into the STIP at these meetings is not clear. A document provided to us by SCDOT, called the STIP administration and coordination process, does not include information on the process by which projects are selected from the priority lists into the STIP. Chart 5.15 shows the process for the STIP project approvals.

**Chart 5.15: Illustration of STIP Project Approvals and Amendments**



Source: SCDOT

A draft of the STIP is submitted to the SCDOT Commission, which is required to approve it pursuant to Act 114. It is important to note that by approving the STIP, the SCDOT Commission is directing money in SCDOT's budget towards these projects over the next six years. This effectively allocates appropriated funding to the state categories and projects.

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## Project Advancement Within the STIP

SCDOT describes its STIP as a project scheduling and funding program document; it is not a plan. Therefore, projects in the STIP may not advance in the order they were added. For example, a project added to the STIP in FY 13-14 may not receive funding until FY 18-19. According to SCDOT, projects are added in anticipation of receiving federal funds and only projects that are added into the STIP will receive federal funding. The Commission can also change the order that projects receive funding in the STIP at any time by doing STIP amendments which are typically approved on a monthly basis. Projects are also added by amendment, as funding becomes available.

The priority rank of a project on a list does not necessarily determine when or if a project will be added to the STIP. Generally, federal aid eligible projects that are not included in the STIP will not receive any federal funding. We reviewed the STIP and found that it does not identify projects that have not been included in their ranked order. The STIP does not indicate when projects are not initiated in their order of rank.

S.C. Regulation 63-10 states that the Commission may initiate projects in the STIP without regard for their priority rank for “significant financial or engineering considerations, delayed permitting, *force majeure* [unforeseeable circumstance], pending legal actions directly related to the proposed project that is bypassed, federal law or regulation, or economic growth.” Lower-ranked projects may be initiated by SCDOT in these circumstances. When the Commission approves the STIP, it is allocating appropriated federal and state funding to finance these projects.

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## Federal Oversight

Every state is required by federal statute to develop a STIP, which is to be fiscally constrained. According to SCDOT, the STIP demonstrates its fiscal constraint by showing a balance between anticipated revenues and planned expenditures. This means that SCDOT can only include projects in the STIP that have committed funding available.

The current STIP covers FY 13-14 through FY 18-19. The federal government requires that the STIP cover a period of no less than four years and be updated every four years. SCDOT chooses to include projects over a six-year period and update its STIP every three years. FHWA and the Federal Transportation Authority (FTA) consider anything outside of this four-year window to be “informational” and therefore not subject to any oversight by them. In addition to the SCDOT Commission, the STIP must be approved by FHWA. FHWA and FTA may jointly:

- Approve the entire STIP.
- Approve the STIP subject to certain corrective actions being taken by SCDOT.
- Under special circumstances, approve a partial STIP covering only a portion of the State.

The STIP must include an overall determination, called the planning finding, which states whether federal requirements are being met. While the Massachusetts DOT and the Virginia DOT provide their planning findings from FHWA and FTA on their websites, SCDOT does not. It would be of great public and stakeholder interest to know the approval status of the STIP. Additionally, public transparency of this documentation of federal oversight could help to instill trust in SCDOT's processes.

States such as Georgia, Maryland, and Texas require gubernatorial approval of their respective STIPs. Additionally, in Maryland, the STIP must be approved by the General Assembly. In South Carolina, however, neither the Governor's Office nor the General Assembly performs a role in approving the STIP.

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## Federal Funding

SCDOT states in its STIP that it plans its budget based on the total annual federal appropriations it receives from Congress. These appropriations are divided among federal program categories. These amounts are then used for projects in the federal program categories as shown in Table 5.6. SCDOT may receive supplementary federal funding through discretionary programs or from programs not included in the core federal appropriations. Once these funds are received, the STIP states that the Commission allocates federal funding among the ten state categories (see Table 5.7) that it believes emphasize the priorities of South Carolina.

The STIP includes all projects that receive federal funding including SCDOT, COG, and MPO projects; SCTIB funded projects; and locally-significant projects that do not receive federal funding, such as those funded through local sales tax initiatives. Projects that qualify to receive federal funding must be included in the STIP in order to receive it.

Additionally, federal law requires that MPO TIPs be included directly or be referenced in the STIP. SCDOT does not include the TIPs in the STIP. Instead, SCDOT references them by including website addresses in the STIP which provide direct links to most of the MPOs' TIPs. However, SCDOT does not provide a direct link to the TIPs produced for three of the ten MPOs. SCDOT only provides a link to the MPO's main website where users must then search for and attempt to locate its TIP.

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## Recommendations

111. The S.C. Department of Transportation should develop, formalize, and make public its process for determining which projects from its priority lists are programmed into the State Transportation Improvement Program.
112. The S.C. Department of Transportation should include documentation of FHWA's and FTA's approvals, referred to as the *planning finding*, in the STIP on its website.
113. The S.C. Department of Transportation should provide direct links to all of the MPO TIPs on its website.

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## STIP Project Sponsors

We reviewed the STIP and found that it neither indicates who is sponsoring the projects nor the specific sources of project funding. Also, projects are not grouped by sponsor. By reviewing the STIP, the public may come to the conclusion that SCDOT sponsors all of the projects in the STIP; however, projects could have been initiated by a number of different sponsors.

Projects are grouped in the STIP by federal program categories but are not further grouped into the State Program categories identified in the STIP. As the Commission has identified these state categories as those that emphasize the needs of South Carolina, the STIP should list projects for each of these categories to show which of these projects fall under which category so the public can understand which projects relate to these needs.

We reviewed the STIP and found that there are acronyms used in the document under "STIP Category" that are not defined. For example, several projects have a STIP program referred to as ARC. A review of the STIP reveals that there is no definition or further explanation of what ARC represents. We confirmed with department officials that ARC is not one of the categories listed in the STIP and that there is no definition provided. In response to our inquiry, SCDOT told us the ARC stands for Appalachian Regional Commission.

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## Recommendations

114. The S.C. Department of Transportation should indicate who sponsors projects in the State Transportation Improvement Program and specify the sources of project funding.
115. The S.C. Department of Transportation should define all acronyms in the STIP.
116. The S.C. Department of Transportation should provide detailed explanation in the STIP regarding how other entities can request additional funding and how it is used.
117. The S.C. Department of Transportation should list the specific source(s) of local funding.

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## How STIP Project Schedules Can Change

Starting with the current fiscal year, the first four years of the STIP are considered by the FHWA to be a sliding window. This means that SCDOT can delay or advance the phases of a project in those four years without having to do an amendment that requires Commission, FHWA, and FTA approval. This can be performed instead by administrative modification, which does not require these approvals.

As a project is developed, the project schedule, scope, and cost estimate may be changed, or if the project is no longer viable, the project may be eliminated entirely. Changes of this type may be subject to approval by the sponsor of the project. Projects may also be changed in response to input received during the public comment process. Lower ranked projects may then advance over higher ranked projects in these circumstances.

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## Project Funding Information in the STIP

The STIP notes that if additional funding becomes available, new projects may be included in the STIP. SCDOT staff add projects into the STIP by the fiscal year(s) in which SCDOT anticipates receiving federal funds to finance them.

The federal government does not mandate the inclusion of a financial plan in the STIP but it is suggested under 23 U.S.C. 135(f)(5). While some states, such as Michigan, include a financial plan, SCDOT has not done so with its STIP according to FHWA. Per federal regulations, having a financial plan:

- Demonstrates how the adopted statewide transportation plan can be implemented.
- Indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan.
- Recommends any additional financing strategies for needed projects and programs.
- For illustrative purposes, shows additional projects that would be included in the adopted statewide transportation plan if reasonable additional resources, beyond those identified in the financial plan, were available.

Chart 5.16 shows how project information is displayed in SCDOT's FY 13-14 – FY 18-19 STIP.

**Chart 5.16: Illustration of Project Information Displayed in SCDOT's FY 13-14 – FY 18-19 STIP**

| Project  |        |          | MPO/<br>COG | STIP<br>Category  | Federal<br>Program | FY 2014<br>Planned | FY 2015<br>Planned | FY 2016<br>Planned | FY 2017<br>Planned | FY 2018<br>Planned | FY 2019<br>Planned | Total<br>Project<br>Cost | Remaining<br>Cost |
|--|--------|----------|-------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------------|-------------------|
| Description  | Length | Rank     |             |                   |                    |                    |                    |                    |                    |                    |                    |                          |                   |
| US 17 Bypass<br>(Shetland to Backgate)<br>(Widen to 6 lanes) |        | GSATS-24 | GSATS       | System<br>Upgrade | STP                |                    |                    | 500 P              | 500 R              | 3,000 C            |                    |                          |                   |

Identifies the improvement with a project name, project description, project length and project rank

Project priority based on Program Category

Identifies the state program to develop/complete the project

Identifies the fiscal year a phase of work will be planned

Identifies the total (federal portion plus match) amount of funds it will take to complete the project

Identifies what region of the state the improvement is located. MPOs are located in urban portions of the state while the COG regions encompass the regions outside the MPO boundaries

Identifies the federal program to develop/complete the project

Cost in \$1,000s

Phase of Work

Identifies the amount of funds it will take to complete the project after the six-year plan

P – Engineering design and environmental analysis  
R – Right-of-Way acquisition  
C – Construction  
STP – Surface Transportation Program

Source: SCDOT

Including a financial plan in the STIP would allow the public and other stakeholders to get a clearer understanding of how state and federal funds are being expended on projects. Additionally, it could be a further demonstration of fiscal constraint.

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## Display of Project Information in the STIP

The STIP does not break down funding by state and federal dollars for each project and does not show the source of the state funds used to fund them. We reviewed the STIP and found that projects do not identify specific sources of funding. Project information is presented as a combined amount of federal and state dollars for each phase of the project; however, the STIP does not explain that these amounts are combined. While the combined funds do not show the breakdown of federal vs. state dollars on a per project basis, the non-reimbursable state match is typically around 20% of the entire project cost.

In addition, the STIP redirects the public to another area of the report for funding information which may be confusing and cumbersome when trying to view projects in specific counties. An example of this redirection is shown in Table 5.17.

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**Table 5.17: Redirection to Other Areas of the STIP Funding Information**

| PROJECT DESCRIPTION            | PROJECT RANK | MPO/COG        | STIP CATEGORY | FEDERAL PROGRAM | FY 13-14 – FY 18-19 PLANNED  |
|--------------------------------|--------------|----------------|---------------|-----------------|--|
| US 321<br>S EDISTO RIVER SWAMP | BRH-38       | Lower Savannah | Bridge        | NHPP            | Funding information can be found in the Bridge portion of the Commission Approved Categories section |

Source: SCDOT

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## Recommendations

118. The S.C. Department of Transportation should incorporate a financial plan into the Statewide Transportation Improvement Program.
119. The S.C. Department of Transportation should break down STIP project funding between federal and state dollars when listing the sources of these funds for each phase of the projects.

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## Public Accessibility of the STIP

SCDOT's presentation of the STIP on its website is confusing. As other states have done, SCDOT makes its STIP available electronically. SCDOT's website lists the preceding STIP with the current STIP without identifying which one is relevant. A website visitor could easily click on the link for the outdated 2010–2015 STIP, while unknowingly bypassing the current FY 13-14 – FY 18-19 STIP, since dates are not provided in the website link for the current document and nothing on the website indicates which link relates to the current version.

SCDOT only provides its STIP in English. The state of Georgia has chosen to publish their STIP in English and Spanish.

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## Recommendations

120. The S.C. Department of Transportation should update its website to differentiate between its current and outdated Statewide Transportation Improvement Program to prevent confusion.
121. The S.C. Department of Transportation should consider providing the Statewide Transportation Improvement Program in Spanish.

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## Public and Stakeholder Involvement

SCDOT only provides a 15-day period for soliciting and accepting public comments for projects it proposes. Federal regulation does not mandate a minimum time period for soliciting public comments; it only requires that SCDOT develop a Public Participation Plan (PPP) for engaging the public in statewide and nonmetropolitan transportation planning. SCDOT is required to communicate the development of the STIP and to actively seek public input. Other Southeastern states including North Carolina, Virginia, and Tennessee provide for a 30-day comment period on transportation decisions.

This longer public comment period could increase public involvement in the PPP which could lead to valuable feedback and help SCDOT make more informed decisions.

Additionally, SCDOT's PPP states that there are no public meetings held regarding the STIP. However, the state of Georgia provides public meetings on their STIPs. Public meetings could allow for the opportunity for dialogue between SCDOT and the public which could help to improve SCDOT's presentation of the STIP.



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## Presentation of Information in the STIP

We found that the STIP includes ranks for project categories. However, the STIP does not specifically identify its project lists nor does it indicate that there is more than one priority list used in prioritizing projects in these categories.

Also, SCDOT does not include the project rankings from their priority lists for all projects prioritized under Act 114 that are included in the STIP. We reviewed the STIP and found that the following project categories do not include the rank found on the corresponding priority list:

- Federal Aid Resurfacing
- Safety
- COG and MPO

We found that without the project rank, it was difficult to verify that projects have been added to the STIP in the order of their prioritization list rank. It also makes locating the project in the STIP difficult, especially if there are several projects of the same type on the same road. If a project does not include the rank, the public would have to search through the STIP and look at the project road names to try to determine if it is the same project as the one from a priority list. Without the priority list rank, there may be no way to positively identify the projects in the STIP from the priority lists.

Descriptions of the projects contained in the STIP are minimal. There is no information in the STIP regarding the goal(s) of the project or what problem(s) it intends to solve. This would make it difficult to question a project's necessity or comment on it effectively. This incomplete presentation could also contribute to a lack of public involvement in the PPP. Delaware and Maryland include a narrative regarding their projects which details the purpose and need for each project.

The FHWA requires a "Purpose and Need" statement on some projects in order for them to receive environmental approval under the National Environmental Policy Act. However, SCDOT does not make these statements publicly available on its website. These statements would provide more insight into the purposes and need for financing them.

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## Interpreting Information in the STIP

The STIP does not provide assistive tools for interpreting the information it contains. The state of Oregon provides timelines and flowcharts directly in the STIP to assist the public with understanding its processes and provides information regarding how projects in the STIP are approved. SCDOT has no such assistive tools in its STIP or on its website, which makes it difficult to interpret the document and understand how the projects were selected and included. North Carolina provides helpful PDF documents which explain its processes in-depth. It also provides a map of its state to allow users to click on a specific project to identify project rankings and other helpful information. SCDOT provides a map of projects; however, visitors to the department's website can only view individual county projects as opposed to being able to view all of the projects at once for the entire state. Users also cannot view the project ranking information using this feature.

We reviewed the STIP and found that some projects and funding have been highlighted in yellow. There is no information provided regarding why they have been highlighted, nor was there any obvious reason for it. According to an SCDOT official, the highlighting designates that an amendment, such as a project cost increase, has been made to the STIP. However, no description of the amendment is included in the STIP and no information is provided on where to find specific information about the amendment and when it was done. Additionally, there is no information provided in the STIP regarding how to contact SCDOT with questions regarding the STIP or the projects contained therein. Since SCDOT places the STIP in the COGs for public comment, it would be advisable to include this information for the public to contact the department with questions.

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## Recommendations

122. The S.C. Department of Transportation should consider implementing a longer comment period to allow the public and stakeholders more time to comment on proposed Commission actions.
123. The S.C. Department of Transportation should conduct public meetings regarding its State Transportation Improvement Program
124. The S.C. Department of Transportation should provide all Act 114 project rankings in the State Transportation Improvement Program.
125. The S.C. Department of Transportation should include narratives in the STIP for each project that include, at a minimum, the purpose and need for each project.

126. The S.C. Department of Transportation should include information in the STIP on how to contact the department with questions.
127. The S.C. Department of Transportation should make National Environmental Policy Act “Purpose and Need” statements publicly available in a centralized location on its website in a manner that allows for easy project identification.
128. The S.C. Department of Transportation should continue to improve the presentation of the information in its STIP so as to be more informative to the public and stakeholders.
129. The S.C. Department of Transportation should include in the STIP more assistive tools for interpreting the information it contains.
130. The S.C. Department of Transportation should identify in the STIP anything that is not defined, such as highlighting of project information.
131. The S.C. Department of Transportation should include information related to the project priority ranks on the map on its website.

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## **Metropolitan Planning Organizations and Councils of Governments**

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The SCDOT Commission has provided, and continues to provide, non-required funding to COGs and MPOs. In 2015, approximately \$182 million of SCDOT’s budget was provided to COGs and MPOs. The SCDOT Commission has approved the allocation of these funds, known as “Guideshares,” to COGs and MPOs to enable them to select and fund projects in their areas.

Of the \$182 million, approximately \$36 million, called the minimum attributable amount, is required by federal law to be provided and only to Transportation Management Area MPOs which have the authority under federal law to select their own projects. The 10 COGs and 11 MPOs each choose which projects to initiate by using criteria they select. By allocating more funding than required, SCDOT is allowing COGs and MPOs to select projects that may not coincide with SCDOT’s statewide priorities.

Based on the trend lines of the deteriorating conditions of the roads shown in Charts 4.4, 4.5, and 4.6, the short-term objective of SCDOT should be to fix and preserve the roads it is responsible for instead of expending funds on COG and MPO projects that add more lane miles of road. These projects increase SCDOT’s future maintenance costs while neglecting current needs.

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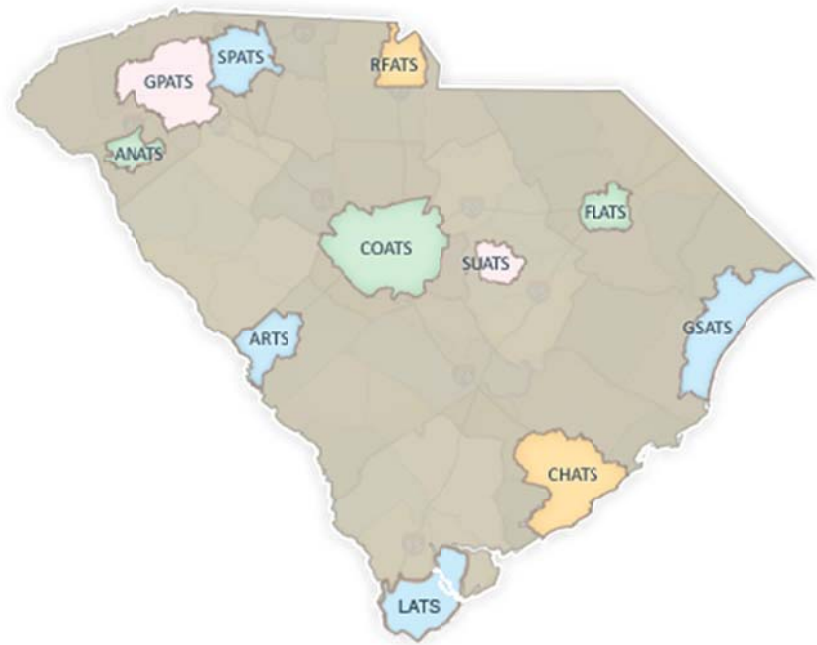
## Metropolitan Planning Organizations (MPOs)

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COGs and MPOs are tasked with regional transportation planning. Both perform coordination roles in the planning and programming of funds for projects and administration. In addition to COGs and MPOs, local transportation providers are required to be involved in the planning process.

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**Map 5.18: MPO Boundaries in South Carolina**



Source: SCDOT

An urbanized area is an area with a population of more than 50,000 people. Urbanized areas are required to have an MPO. As seen on Map 5.19, MPOs are defined by boundaries which are agreed upon by the MPO and the Governor. An MPO board may include local elected officials, including SCDOT Commissioners. Representatives from local governments and transportation agencies also serve on MPO boards.

Recent federal legislation has made MPOs responsible for approving significant expenditures of federal funds in their areas. Projects are identified by an MPO and placed into their long-range transportation plan known as the Metropolitan Transportation Plan (MTP) which covers a twenty year period. From this plan, projects are selected and placed into the MPO's Transportation Improvement Program (TIP), which is required to be fiscally constrained and cover a four-year period. Additionally, MPOs develop a Public Participation Plan (PPP).

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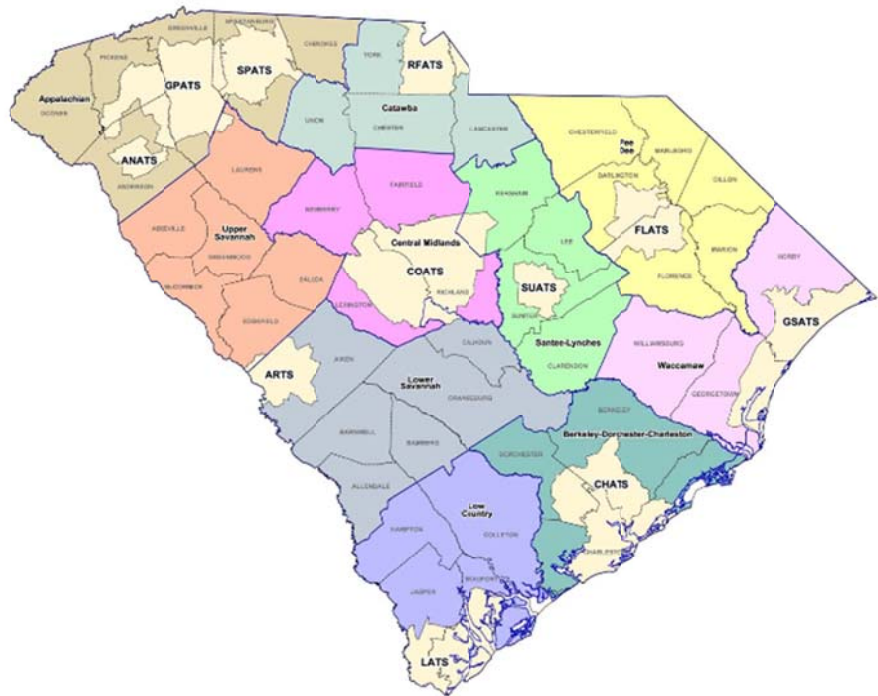
## Councils of Governments (COGs)

In 1962, the General Assembly gave authority to the governing bodies of South Carolina's 46 counties to create COGs. This authority is pursuant to S.C. Code §6-7-110 and subject to the approval of the Governor. COGs operate, in purpose and function, similarly to MPOs with one important difference: they do not have the same transportation planning authorities and requirements expressed in federal statute. Unlike MPOs which focus solely on transportation planning, COGs are responsible for many different types of planning that have nothing to do with transportation, such as aging and disability services, economic and community development, resource management, and workforce development.

SCDOT began coordinating with South Carolina's ten COGs in 1997 in order to plan road improvements in rural areas. The COGs submit their five-year programs, which are similar to the MPOs' TIPs, to the SCDOT Commission for approval and subsequent inclusion into SCDOT's Statewide Transportation Improvement Program (STIP).

As seen on Map 5.19, COGs may encompass an MPO and, therefore, work closely with one another on transportation planning. However, they operate independently of one another.

**Map 5.19: COG and MPO  
Boundaries**

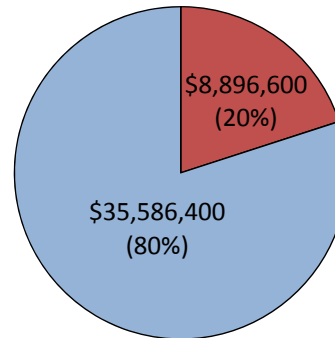


Source: SCDOT

Federal law 23 U.S.C. 133(d)(3) mandates that SCDOT apportion federal funding, called minimum attributable amounts, to South Carolina's MPOs having a census population exceeding 200,000 persons. These MPOs are classified as Transportation Management Areas (TMAs). Because of federal requirements for 2015, SCDOT was only required to apportion \$35,586,400 in federal funds to its six TMAs. Additionally, TMA MPOs divide up \$8,896,600 in state funds which are provided by SCDOT as a supplement to the minimum attributable amount.

**Chart 5.20: Breakdown of the  
Minimum Attributable Amount  
(\$44,483,000)**

■ State Funded ■ Federally Funded



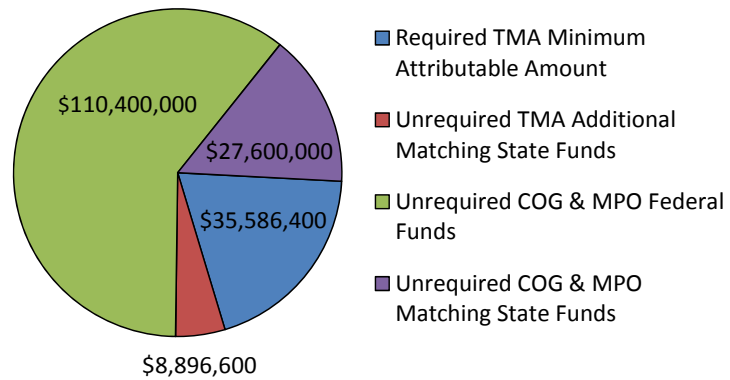
Source: SCDOT (includes 20% state-sourced funds)

SCDOT currently provides an additional \$138 million in unrequired funding to COGs and MPOs. The Commission made the decision to set aside additional federal and state funds for COG and MPO-selected projects in 1998. These unrequired funds and minimum attributable funds are collectively termed “guideshares.”

Guideshare funding is comprised of:

- \$35,586,400 in required federal funds allocated to TMAs.
- \$8,896,600 in unrequired state funds allocated to TMAs.
- \$110,400,000 in unrequired federal funds allocated to COGs & MPOs.
- \$27,600,000 in unrequired state funds allocated to COGs & MPOs.

**Graph 5.21: Breakdown of  
“Guideshare” Funding**

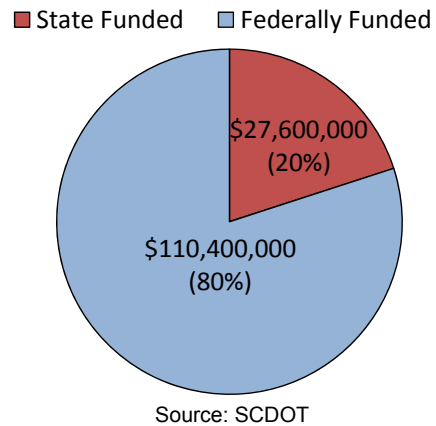


Source: SCDOT

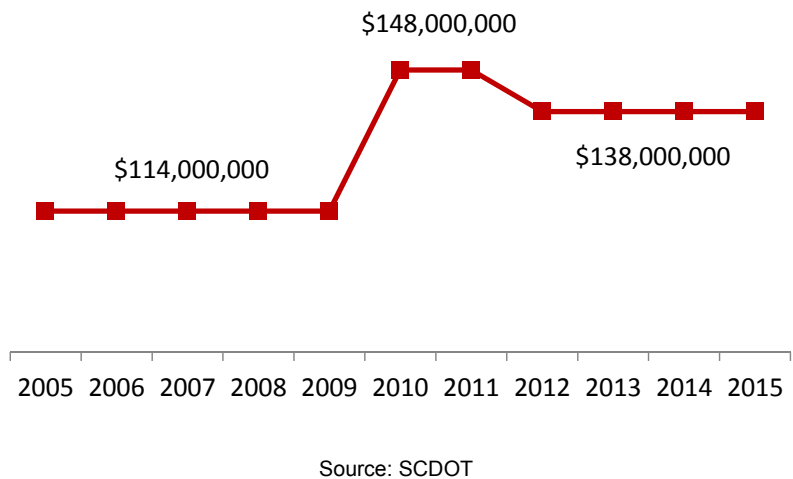
When the Commission decided to provide additional funding to COGs and MPOs above the minimum attributable amount, it originally set aside \$114 million in unrequired funding for COGs and MPOs. SCDOT currently provides \$138 million in unrequired funding of which \$93 million is divided among all of the MPOs according to their share of urbanized area and urban cluster populations. The remaining \$45 million is divided among all of the COGs based on their relative share the population in their planning area.



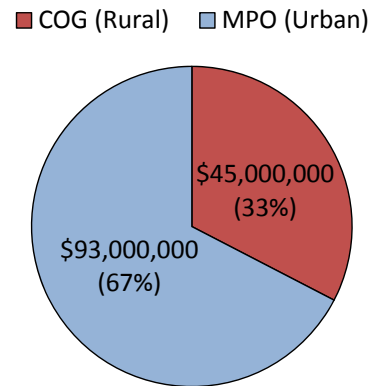
**Table 5.22: 2015 Breakdown of Unrequired “Guideshare” Allocation (\$138,000,000) by State and Federal Funds**



**Chart 5.23: Unrequired “Guideshares” Funding 2005 – 2015**



**Chart 5.24: Breakdown of  
Unrequired “Guideshare” Funding  
by COG and MPO**



Source: SCDOT

These guideshare funds form the budgets that COGs and MPOs use to select and program their projects from year to year. If guideshares are not expended by the COG or MPO on a given year they are received, the guideshares will carry over into their available budget the following year in perpetuity. This would allow COGs and MPOs to stockpile these funds and thus enable them to select large-scale construction projects.

MPOs and COGs typically neither own nor operate the transportation systems they serve. Therefore, SCDOT is tasked with implementing the transportation projects and expending funds since COGs and MPOs lack the necessary resources and experience to plan and execute these projects.

We reviewed documentation from SCDOT and found that the top ranked projects of COGs and MPOs generally relate to capacity projects. As such, COGs and MPOs are responsible for initiating most of these new construction projects. Thus, it is rare that guideshare funds are spent on maintenance of the existing infrastructure. Many of the roadways that COGs and MPOs perform projects on belong to SCDOT. SCDOT must perform maintenance on roads that it owns. Therefore, the increased maintenance costs associated with widening and capacity projects would become the responsibility of SCDOT. These projects can have the effect of giving SCDOT unfunded liabilities in the form of increased future maintenance costs.

MPOs and COGs select projects from their Long-Range Transportation Plans (LRTPs) which serve as planning documents that identify projects that serve their needs. COGs and MPOs can choose to select projects from SCDOT's statewide list or they can select projects which they identify that do not appear on this list. COGs and MPOs may choose to select none of SCDOT's statewide priorities to include in their transportation planning. Therefore, they can control the pool of projects that are prioritized. For example, if a COG or MPO only wanted to do capacity projects, the COG or MPO could choose to include only those projects in its LRTP. Thus their priority list would only have top capacity projects for which they would select to put into their TIPs.

We reviewed SCDOT's statewide priority lists of COG and MPO projects. We found examples of top-ranked COG and MPO projects that ranked low on the statewide list as can be seen in Table 5.25.

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**Table 5.25: #1 MPO and COG Project Rankings Compared to SCDOT Statewide Rankings**

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| MPO/COG<br>#1 RANKED PRIORITY          | STATEWIDE<br>RANKING |
|--|----------------------|
| Florence Area Transportation Study MPO | 32                   |
| Berkeley Charleston Dorchester COG     | 90                   |
| Lower Savannah COG                     | 105                  |
| Santee-Lynches COG                     | 124                  |

Source: SCDOT

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## Recommendations

132. The S.C. Department of Transportation Commission should discontinue providing non-required funding to metropolitan planning organizations and councils of governments.
133. The S.C. Department of Transportation Commission should discontinue providing state funds to transportation management areas.
134. The S.C. Department of Transportation Commission should consider strategies to transfer future maintenance costs of projects to the entities that sponsor the projects.

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## COG and MPO Prioritization Processes

COGs and MPOs select and prioritize their projects, although most of them use SCDOT's process. Four MPOs and two COGs have chosen to develop their own unique project prioritization criteria that emphasize their needs. In some cases, these criteria differ significantly from SCDOT's. These different methodologies have all been ratified by the SCDOT Commission. Table 5.26 illustrates these differences between the Grand Strand Area Transportation Study (GSATS) MPO prioritization criteria and SCDOT's.

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**Table 5.26: GSATS MPO's Prioritization Criteria as Compared to SCDOT's for  
Prioritizing Capacity Projects on Existing Roads**

| GSATS**  | SCDOT<br>(Directive 60)   |
|--|---|
| Calculate percent reduction in vehicle-hours of travel on the project link(s) compared to 2030 E+C conditions* | 35% Traffic Volume and Congestion   |
| Percent reduction normalized to a score of between 0 and 5   | 25% Located on Priority Network<br>(National highway system freight, and strategic corridors) |
| Score set to zero if Level of Service (LOS) in 2030 E+C* network is D or better                                | 10% Public Safety   |
|  | 10% Economic Development  |
|  | 10% Truck Traffic   |
|  | 5% Financial Viability  |
|  | 3% Pavement Quality Index (PQI)   |
|  | 2% Environmental Impacts  |
|  | (not ranked) Alternative Transportation Solutions   |
|  | (not ranked) Consistency with Local Land Use Plans  |

\*E+C = "Existing system," plus the project improvements "committed" in their TIP.

\*\*For projects reflected in GSATS Long Range Transportation Plan regional model.

Source: SCDOT

SCDOT does not review COGs' or MPOs' compliance with either their own ratified methodologies nor with SCDOT's ranking process. The SCDOT Commission relies on the COGs and MPOs to be truthful and accurate in their project rankings. COGs and MPOs produce their own project rankings for projects that are approved by the Commission and then appear in the STIP.

Additionally, COG and MPO-generated rankings appear in the STIP. These rankings are calculated by the COGs and MPOs themselves and represent their priority order in their TIPs. Although SCDOT produced a statewide COG and MPO widening list in 2007, this list has not been updated with new projects and the rankings in the STIP do not correspond to SCDOT's list. This causes confusion when trying to corroborate these rankings with the statewide priority list. SCDOT does not state in the STIP that these rankings are not produced by SCDOT.

While the STIP references a website link to MPO TIPS, it does not reference the COG TIPS from which rankings are derived. While SCDOT provides MPO TIPS on its website, COG TIPS are not available, nor linked. SCDOT does publish a statewide ranking list of MPO and COG projects; however, this list is for informational purposes only and the rankings shown are not included in the STIP. Therefore, the public would not be able to reference the TIPS from SCDOT's website or the STIP to see if projects were initiated in their order of rank.

For example, a road resurfacing project is programmed for FFY 16 –17 in the STIP. The rank is indicated as PD-08. The acronym "PD" is defined in the STIP as "Pee Dee COG". There is no information to inform the public what this rank is supposed to denote or if it was raked by the COG or by SCDOT.

However, some of the links for the MPO TIPS do not link directly to the documents, while others do. The links that do not link directly to the document instead link the user to the MPO's main website. The user then must navigate the website and attempt to locate the TIP. Federal requirements state that the MPO TIPS must be included either directly or by reference in the STIP.

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## Recommendations

135. The S.C. Department of Transportation should periodically audit the application of COGs' and MPOs' prioritization processes to ensure proper applications.
136. The S.C. Department of Transportation should mandate that all COGs and MPOs use the statewide ranking criteria specified under Act 114 if receiving non-required funding from SCDOT.
137. The S.C. Department of Transportation should provide links to COG TIPs or provide the documents themselves in a centralized location on its website for easy accessibility.
138. The S.C. Department of Transportation should update the links on its website to provide all of the MPO TIPs and to periodically review and update the links as necessary to ensure the public has easy access to these documents.

# Contracting

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## Chapter Summary

We were asked to audit issues related to contract procedures at the S.C. Department of Transportation. We reviewed the procedures for low-bid, design-build, and qualifications-based consulting contracts. We also reviewed procedures for qualifying vendors and minimizing risks to the integrity of the contracting process, whether for new construction, maintenance, or consulting services. We reviewed the percentage of contracts awarded to in-state and out-of-state firms. We reviewed the contract negotiation process and the change order process for construction and maintenance contracts. We also reviewed the research on the design-build approach to project delivery and identified the projects undertaken by SCDOT using that approach, and the process by which contract awards are made.

We found responsibility for contracting is scattered throughout the department. Construction engineering and maintenance are primarily responsible for low-bid contracts awarded for new construction and road maintenance. The Office of Procurement Services handles qualification-based contracts where the winning bid depends, not necessarily on who bids the lowest, but who is best qualified to provide the service. The Office of Contract Assurance is responsible for certifying vendors who want to do business with SCDOT.

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## **Debarred Contractor**

We found that SCDOT should promulgate regulations to allow the agency to make prequalification determinations that would allow for the avoidance of appearances of impropriety. In 2014, Boggs Paving, Inc. (Boggs), a North Carolina-based contractor, and its president pled guilty to federal charges in North Carolina. The guilty pleas involved a conspiracy to defraud the federal Disadvantaged Business Enterprises Program. Boggs used a shell disadvantaged business as a “pass through” entity to obtain the appearance of a disadvantaged business even though most of the funds that were represented as having been paid to the disadvantaged business were actually paid to Boggs. Due to the guilty pleas of Boggs, its president, and some of its officers, Boggs was debarred from doing business with SCDOT.

Following the guilty pleas, Lynches River Contracting (Lynches) filed for incorporation in South Carolina in September 2014. Lynches was 45% owned by the David C. Boggs Family Dynasty Trust and 45% owned by the Lynches River Trust. The trusts were established by individuals who had pled guilty in the North Carolina case for the benefit of their children. The assets of the debarred companies in North Carolina were sold to the trusts and independent trustees were named to manage the assets of the trusts for the benefit of the children.

Lynches was prequalified by SCDOT to conduct business in South Carolina in December 2014. Lynches was initially prequalified in December 2014 because SCDOT determined that its president and vice president were not under indictment and were not involved in the Boggs scheme. Both the president and vice president were former employees of Boggs.

However, the prequalification was revoked in January 2015 when SCDOT learned that Lynches’ application to conduct business in North Carolina was signed by a debarred individual and that the president and vice president still owned interest in the debarred Boggs company. SCDOT sent a letter on January 8, 2015 to inform Lynches that its prequalification was revoked. The letter noted that the revocation was due to new information “...concerning management discrepancies as well as dual employee issues with a suspended contractor, Boggs Paving.”



A temporary restraining order against SCDOT was granted by the Administrative Law Court on February 10, 2015. This order allowed Lynches to bid on contracts that very same day. SCDOT conducted further investigation into Lynches. SCDOT's outside counsel determined that Lynches was not an affiliate of Boggs and that Lynches' president and vice president were not "key employees" of Boggs. The outside counsel also concluded that the debarred parties did not have a management, ownership, or controlling position in Lynches. SCDOT granted prequalification to Lynches in April 2015.

Both the outside counsel hired by SCDOT as well as in-house counsel at SCDOT concluded that the relationship between the trusts and Lynches did not warrant the debarment of Lynches. It was held that, pursuant to S.C. Regulation 63-306, Lynches was not an "affiliate" of any business entity which is "controlled directly or indirectly by any person who has been disqualified."

We agree that Lynches' ownership by the trusts did not make Lynches an "affiliate" of the debarred parties. The letter of the relevant laws and regulations do not require the debarment of a contractor owned by a trust that may benefit the family of the debarred individual. Although legal, this arrangement could be viewed as having an appearance of impropriety.

SCDOT may consider revising its regulations in order to allow SCDOT to determine whether such arrangements should result in a denial of prequalification. Such a regulation would allow SCDOT to make prequalification determinations that would allow for the avoidance of appearances of impropriety. An SCDOT official stated that the department will monitor Lynches to ensure that its operations do not result in the debarred parties engaging in unauthorized activities in South Carolina. Close monitoring of the activities of such businesses will be crucial to ensuring that debarred individuals and contractors do not utilize trusts in order to operate in an unauthorized manner.

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## Recommendations

139. The S.C. Department of Transportation should consider revising its regulations to allow it to determine whether a business affiliated with a trust that benefits a close family member of a debarred party should be denied prequalification.
140. The S.C. Department of Transportation should monitor prequalified businesses that are affiliated with trusts that benefit close family members of debarred parties to ensure that debarred parties do not engage in unauthorized activities in South Carolina.

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## Documentation for Prequalification Revocation

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In granting a temporary restraining order to Lynches on February 10, 2015, the Administrative Law Court noted that the January 8, 2015 revocation of Lynches' prequalification:

....did not specify the basis for the revocation or any findings supporting the revocation and did not avail LRC of any rights to an administrative hearing or otherwise.

In order to ensure that revocations of prequalification certificates are properly administered and documented, SCDOT should state the basis for the revocations and findings supporting the revocations in its notification letters to the affected businesses. Additionally, SCDOT should inform affected businesses of any rights to an administrative hearing or other recourse. Such information would allow the affected businesses an opportunity to plan to address any potential misunderstandings or miscommunications with SCDOT. This information would also provide SCDOT with a trail of documentation in the event of any legal action.

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## Recommendation

141. In its notices of revocation of prequalification to businesses, the S.C. Department of Transportation should state the basis for its revocations, include findings supporting the revocations, and inform affected businesses of any rights to an administrative hearing or other recourse.

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## Prequalification Process

In order to bid for contracts for SCDOT projects, contractors must go through a prequalification process. This process is meant to evaluate a contractor and determine whether the firm is qualified to bid on SCDOT highway construction projects and, if awarded a contract, whether it can successfully complete the work.

The prequalification process is outlined by S.C. Regulations 63-300 through 63-307. SCDOT uses a policy and procedures manual for prequalification of prime contractors. This document was last revised in July 2014. The construction contracts administration office (CCA) of SCDOT is responsible for prequalifying contractors.

A first-time applicant must submit a long-form application. CCA conducts a preliminary review of the application to ensure, among other things, that affidavits have been properly executed, that responses are complete, and that required documents have been included. CCA will contact an applicant if there are deficiencies in the application.

Following the preliminary review, the contract administration engineer (CAE) performs the final review and evaluation of the application. The CAE examines, among other criteria, the following:

- The company and its officers, principals, or managers must not be affiliated or otherwise connected to an individual currently serving a criminal sentence or to an individual or legal entity with an outstanding civil judgment for commission of a crime or act reflecting a lack of business integrity and honesty with respect to performance of a public contract.
- The company has demonstrated successful experience in highway or highway-related type of work.
- The company has sufficient and appropriate personnel to perform at least 30% of the work on a highway project on which it would be likely to bid.
- The company has sufficient and appropriate equipment to perform at least 30% of the work on a highway project on which it would be likely to bid.
- The company must not have the same ownership, similar management, or principal employees as a company currently in disqualification, suspension, or debarment.

If the CAE determines that the application has failed to satisfy one or more of the criteria, he must prepare a form stating the reason for the denial. This denial must be agreed to by the director of construction. If the CAE determines that the company has satisfied all criteria for prequalification and the director of construction has no comments or objections, the contractor receives a prequalification certificate. The prequalification certificate must be renewed annually.

In certain circumstances, a prequalification certificate may be revoked. Automatic revocation of a contractor's prequalification occurs if:

- The Federal Highway Administration suspends or disqualifies a currently prequalified contractor from bidding on federal projects.
- SCDOT places a currently prequalified contractor in a default or delinquency status.

Additionally, any persons or contractors involved in criminal and/or unethical activity may be disqualified or suspended. Other instances in which a disqualification may occur include failure to carry a contract to completion, failure to maintain suitable progress on a contract, and acts or omissions reflecting a lack of business integrity.

A disqualified or suspended contractor may apply for reinstatement upon completion of all conditions imposed by SCDOT. Additionally, contractors may seek relief from disqualifications or suspensions by requesting a contested hearing before the Administrative Law Court.

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## Prequalification File Review

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We reviewed a sample of prequalification application files. We randomly selected 75 prequalification application files from 2007 – 2015. Seventy-two of the files contained proper documentation. However, we found that the prequalification process does not include verification of experience and equipment, as required by regulation. Additionally, three files included reversals of the initial decision of the contract administration engineer without documentation to explain why the decision was reversed.

The prequalification application requires contractors applying to become prime contractors to answer numerous questions regarding their ability to fulfill their potential contractual obligations successfully. Contractors are also required to state how many vehicles they own or lease and disclose how much experience they have as contractors. Although the contractors are required to sign an affidavit stating that their representations are truthful, SCDOT does not independently verify the veracity of the answers.

S.C. Regulation 63-301 states that prequalification is based on a “verified” showing of experience, responsibility record, and available equipment.

According to an SCDOT official, there are not enough resources available to conduct on-site verifications regarding the veracity of prequalification application answers. However, SCDOT may consider other options to verify prequalification answers that would not require on-site visitation. In order to verify experience, the contract administration engineer could check SCDOT’s records regarding contractors with in-state experience. For out-of-state contractors, SCDOT could obtain references from other states’ departments. Some of SCDOT’s prequalification files contained such references. To verify equipment, SCDOT could require applicants to include receipts for the equipment or an audited statement of assets.

A contractor only needs to satisfy the requirements of the prequalification process in order to place bids on projects. By verifying statements contractors make in their applications regarding experience and equipment, SCDOT can help ensure that these companies have the ability to complete the projects on which they bid.

Some of the applications we examined were initially not approved by the contract administration engineer only to have that decision reversed. In those cases, we found that there was insufficient documentation or explanation as to why the initial decision was reversed. Any decisions to reverse the initial decision of the contract administration engineer should be adequately documented to ensure that there is proper rationale for the reversal. This will help ensure that contractors who are prequalified to bid on SCDOT contracts are sufficiently qualified. It remains unclear if the applications initially rejected are properly qualified. This could erode stakeholder and public confidence in the prequalification process if unqualified bidders are allowed to participate.

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## Recommendations

142. The S.C. Department of Transportation should consider options to verify, independently, the answers provided by contractors in their prequalification applications.
143. The S.C. Department of Transportation should ensure that the reason for any reversals of the contract administration engineer’s initial decisions regarding the prequalification of contractors is sufficiently documented.

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## Contract Negotiations

We randomly selected a judgmental sample of professional services' contracts to determine whether the negotiation process for these contracts is adequately documented. Our sample included professional service contracts let by SCDOT from January 2010 through June 2015. In our review, we determined that SCDOT adequately documents its negotiation process.

Each file we reviewed contained a document entitled the "record of negotiation." This document contained a record of the proposed cost summaries put forth by SCDOT and the vendor. The record of negotiation shows the proposed costs and the date when those costs were proposed. The record also shows the date and amount of the proposed costs until the final cost is reached.

In addition to the record of negotiation document, the files we examined contained other documents relating to the negotiation process, including detailed internal cost estimates from SCDOT and the vendors. Internal memoranda between SCDOT employees discussed potential changes to cost estimates. Additionally, records of meetings and correspondence between SCDOT and vendors were included in the files. This correspondence addressed, among other things, revisions in contract costs and changes in contract scope.

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## Lack of Bids

According to SCDOT, from calendar years 2010 – 2015, seven contract proposals did not receive bids. A brief summary of the proposals that did not receive a bid follows. Each of these proposals had a bid review summary that outlined reasons for a lack of bids.

- A 2015 proposal to place a multi-use path in Greenville County received no bids. That proposal required bidders to be certified as a "small business enterprise." Due to the lack of bids for this proposal, SCDOT removed the small business enterprise requirement in order to increase the number of potential bidders.
- A November 2015 proposal with a July 2016 completion date had an addendum issued six days prior to the bid date that added a major utility relocation provision to the proposal. This provision coupled with a short completion time potentially deterred bidders from this proposal.

- A March 2013 proposal was meant to replace open-graded friction course (OGFC) pavement on .21 miles on the southbound and northbound routes of I-85 in Anderson County. SCDOT determined that the short length of the project and the difficulty of placing the OGFC on that stretch of road deterred bidders.
- Another March 2013 proposal was also let to replace OGFC on I-85 in Anderson County. This proposal deterred bidders because of difficulty using the OGFC material at that time of year due to temperature and weather issues.
- One proposal was let in September 2012 and again in February 2013. This proposal was to produce and install “wayfaring” signs in the town of Traveler’s Rest designed to direct visitors. This proposal possibly received no bids due to the specific type of sign required and a lack of qualified contractors to do the work.
- A February 2011 proposal required the contractor to work on-call to repair or replace overlays on maintenance bridges in SCDOT District 6 (Beaufort, Berkeley, Charleston, Colleton, Dorchester, and Jasper Counties). Potential reasons for no bids on this project included the widespread area of District 6, difficulty for a single vendor to control the contract, and the on-call nature of the contract.

According to an SCDOT official, he has not been made aware of upfront costs that serve as barriers to bidding. Also, that official stated that contractors are not given preference on future work based on past work; the only criteria for receiving a bid is being the lowest responsible bidder. We did not find evidence of any agreement between SCDOT and vendors of any guarantee of future work in exchange for taking on work for which SCDOT received no bids. However, it is unlikely any such agreement would be in writing.

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## Contractor Evaluations

In January 2005, SCDOT launched a contract performance evaluation system. After collecting data for one year, SCDOT issued contractor performance scores in January 2006. S.C. Regulation 63-307 allows SCDOT to use the contractor evaluation system to determine how SCDOT could set a minimum required contractor performance score for certain projects. The contractor performance score is based on the following criteria in Table 6.1.

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**Table 6.1: Contract Evaluation Scoring Categories**

| SCORING CATEGORY                             | MAXIMUM POINT VALUE |
|--|---------------------|
| Safety                                       | 15                  |
| On-Budget                                    | 15                  |
| On-Time                                      | 20                  |
| Quality Management Team                      | 20                  |
| Claims Denied                                | 10                  |
| Assessment by Resident Construction Engineer | 20                  |
| TOTAL  | 100                 |

Source: SCDOT

The safety score is measured by using the contractor's workers' compensation experience modification ratio, which is based on the number of workers' compensation claims filed by the contractor annually. The on-budget score is calculated by factoring in the amount a contractor has been paid versus the original bid amount on a project. The amount paid includes extension work beyond the original scope of the project, as well as liquidated damages levied against the contractor.

The on-time category is a ratio calculated by taking into account the substantial work complete date, the notice to proceed date, and the completion date of the project.

The quality management team category is calculated through the quality management team's site visits to a contract site. The team visits a contract site, conducts an audit of the contractor's adherence to procedures, and examines the contractor's work and field conditions. If the team's audit results in a substandard score, the team conducts a follow-up visit.



The claims denied category takes into account unsuccessful attempts by contractors in filing claims before SCDOT's dispute review board. According to SCDOT, this score is meant to encourage contractors to resolve potential claims before the claims go before the dispute review board.

The resident construction engineer score is calculated by the engineer completing a questionnaire regarding his opinion of the contractor's work.

After a contractor's project data is calculated, the contractor receives a contractor performance score and will receive a quarterly score thereafter. Contractors may request a review with SCDOT regarding their scores and have a right to appeal.

SCDOT calculates a contractor performance threshold below which performance of a contractor is judged to be substandard. If a score falls below the threshold, the contractor will be prohibited from bidding on projects with a minimum required score because the minimum scores are never set below the threshold. Additionally, contractors who score below the threshold must schedule and participate in a review meeting with the director of construction. The intent of this meeting is to provide the contractor with knowledge of the scoring system, determine the causes of its substandard score, and determine ways to improve its scores.

Some projects require a minimum contractor performance score in order for a contractor to bid. The minimum contractor performance score threshold is set by evaluating a particular project using the following ten categories:

- Complexity of engineering design.
- Critical time constraints that must be met.
- Environmental sensitivity of the project.
- High profile project.
- Complex traffic control.
- High level of interaction between subcontractors and/or utilities.
- Highly-specialized equipment required.
- Located in a densely-populated area, or surrounding properties and businesses will be severely impacted.
- Average daily traffic greater than 10,000 vehicles per day.
- Engineer's estimate greater than \$1,000,000.

If a project qualifies between 0 and 2 of the above categories, the project will not require a minimum required contractor performance score. The more categories a given project qualifies for, the higher the minimum contractor performance score.

Contracts with SCDOT also include provisions for liquidated damages. If a contractor is deficient or delinquent in its work, SCDOT contacts the bonding company, which must then complete the delinquent contractor's work. According to an SCDOT official, a bonding company completes a delinquent contractor's work approximately once a year.

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## **Bid Review and Contract Administration**

We were asked to review the department's contracting procedures to ensure that contracts are awarded fairly and honestly without the appearance of impropriety. We found that SCDOT relies on a historical approach to bid item cost estimation and that as many as 50 SCDOT employees may have access to confidential cost estimates, thereby increasing the risk of a confidentiality breach. While we found no evidence that these or other estimates have been compromised, the risk of disclosure is increased and the ability to trace the source made more problematic as the number of people privy to confidential information increases. We also found that the department conducts analyses of bids but that the information system on which it relies is capable of providing more analyses than currently utilized. We found no evidence that the department failed to comply with its policy governing authorization for change orders.

We requested from SCDOT a list of all contracts let from 2010 – 2015. We identified 1,576 and generated a random sample of 111 contracts. We retrieved change order data, information on the prime and subcontractors, and payment data. In addition, the department provided the engineers' estimates for each contract in our sample along with bid summary reports which show a summary of the bid analyses performed on each contract let by SCDOT. We linked that data with bid tabulation reports to determine the actual number of bidders from each letting, the bid amounts, and the lowest bidder.

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## Project Estimate

We reviewed the estimates for 111 contracts in our sample and found that SCDOT's estimates were in-line with the bids received. Low bids ranged from 63% to 123% of the engineer's estimate. The estimate is used to budget for the project and to analyze bids and make contract awards.

FHWA guidelines on project estimation define three approaches to cost estimation:

- Actual cost approach considers current costs for labor, equipment, and materials; production rates; and reasonable rates for overhead and profit.
- Historic data approach relies on historical cost data.
- Combination approach combines historical and actual cost approaches.

SCDOT uses historical data in preparing the engineer's estimate. The historic approach is viewed as cost-effective but, according to FHWA guidelines, may be potentially inappropriate when the data is based on a noncompetitive environment. According to FHWA guidelines, unbalanced bids, bid practices, and non-competitive bidding are least recognizable using the historic data approach to estimation.

In 2014, the SCDOT chief internal auditor found that engineers had problems estimating items for which there was no bid history. The chief internal auditor recommended that the department implement a cost-based approach to estimation for items for which there is no cost history and periodically check the current prices of items to determine the reasonableness of historical data. SCDOT adjusts the unit prices for materials according to such factors as project location, project size, project risks, quantities, and general market conditions. SCDOT monitors the prices of liquid asphalt binder and fuel on a monthly basis, and SCDOT maintains a bid history database which is updated monthly after each bid letting. Historical price data is maintained for up to 18 months.

Liquid asphalt binder and fuel are two commodities for which prices can vary during the life of a contract. Therefore, the department relies on price indexing. On the first day of every month, indexes are determined and released on the SCDOT "Doing Business" webpage. Indexes are included in a spreadsheet that allows users to enter the base index and the current index and compute the per unit adjustments for items of work that are eligible for indexing. SCDOT gets price quotes for liquid asphalt binder from qualified vendors. The State Fiscal Accountability Authority supplies the daily fuel prices from which SCDOT derives the fuel indexes and publishes the indexed prices on its website.

Once the estimate is complete, the estimate is loaded in the AASHTO transport computer system for electronic bidding approximately six weeks prior to letting.

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## Confidentiality of the Engineers' Estimate

A 2002 SCDOT policy memorandum requires that engineers' estimates be held in confidence. We requested that SCDOT provide us with the steps taken to ensure the confidentiality of the estimate. Estimates are not released before an award, and the department will not release the estimate after an award unless required to do so pursuant to a Freedom of Information (FOIA) request. Access to the estimate is limited to employees on a need-to-know basis. When a project receives an engineer's estimate, it is sent to the project manager who, in turn, will coordinate with the SCDOT project team members and supervisors. There are no other controls. The actual number of persons reviewing an engineer's estimate can vary. We received an example of an e-mail communication informing recipients of the engineers' estimates for 21 projects. There were 51 names on the distribution list. There is no evidence that these or other estimates have been compromised, but the risk of disclosure is increased and the ability to trace the source made more problematic as the number of people privy to confidential information increases.

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## Bid Review and Analysis

We found that SCDOT reviewed the bids submitted in response to each letting in our sample. Bid review is the process whereby multiple committees comprised of SCDOT staff from diverse disciplines evaluate the results of bid lettings. SCDOT relies on various software programs to produce reports using the data found in bid proposals which were submitted online. One tool is the Bid Analysis Management System. (BAMS) / Decision Support System (DSS). BAMS/DSS allows SCDOT to capture the data in bid submissions and perform analyses aimed at analyzing vendors, their bids including itemized bids for materials and other itemized expenses, collusion detection, and market analysis. The results of this statistical analysis, coupled with supporting documents, project location maps and line-item profiles, are provided to the bid review committee (BRC) and letting review committee (LRC).

The BRC evaluates the apparent low bid against the engineer's estimate for reasonable pricing and against other competitors' bids for evidence of front-loading or unbalanced bids. The committee determines if the apparent low bid is within FHWA guidelines and includes the necessary funding to complete the project. SCDOT should select the lowest responsive bid. The BRC is primarily comprised of the construction data support engineer, construction staff engineer, and the letting preparation engineer.

If no bids are received or bids are rejected for being outside guidelines for award, the bid review committee tries to determine the reasons that firms failed to bid and suggest improvements for future lettings. The committee also recommends whether SCDOT should proceed with an award.

The letting review committee reviews the recommendations of the BRC. The LRC includes the director of construction, the state construction engineer, the FHWA director of engineering and operations, the contract administrator, construction data support engineer, and the construction staff engineer.

According to FHWA guidelines, market competition should be considered excellent when there are 6 or more bids within 20% of the low bid, including the low bid. Fewer competitive bids should be reviewed to determine whether competition was adequate and whether additional competition or better prices can be solicited. FHWA guidelines, adopted and used by SCDOT, and found in Table 6.2, suggest that as the number of bidders increases, competition may be considered adequate when the low bid does not exceed an increasingly higher percentage of the engineer's estimate, not to exceed 120% of the engineer's estimate.

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**Table 6.2: Analyzing Market Competitiveness**

| NUMBER OF COMPETITIVE BIDS | COMPETITION MAY BE CONSIDERED ADEQUATE WHEN THE LOW BID DOES NOT EXCEED |
|----------------------------|---|
| 5                          | 120% of the engineer's estimate   |
| 4                          | 115% of the engineer's estimate   |
| 3                          | 110% of the engineer's estimate   |
| 2                          | 105% of the engineer's estimate   |
| 1                          | the engineer's estimate   |

Source: SCDOT, Guidelines on Preparing Engineer's Estimate, Bid Reviews and Evaluation, January 20, 2004

We reviewed a random sample of 170 contracts from 2010, 2012, and 2015 to determine whether sufficient competition existed for each contract, given the number of qualified bidders and the range of the bids received. FHWA recommends that state transportation agencies identify projects where competition has been historically poor and when the prospects of improved competition are not apparent.

We found 71 cases in which, according to FHWA guidelines, the number of bidders and the amount of the bids did not indicate sufficient competition. SCDOT has the option of not awarding a contract and reletting the bid. FHWA guidelines, while not prohibiting awards in a less than competitive environment, advise that rarely is there urgency in making an award. We confirmed that SCDOT awarded the contract to the lowest responsive bidder. We counted 15 contracts for which there was only a single bidder. Findings are presented in Table 6.3.

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**Table 6.3: Bid Analysis**

| YEAR  | NO. OF CONTRACTS | ONLY 1 BIDDER | LETTINGS WITH INSUFFICIENT COMPETITION* |
|-------|------------------|---------------|---|
| 2010  | 62               | 2             | **28                                    |
| 2012  | 48               | 1             | 15                                      |
| 2015  | 60               | 12            | ***28                                   |
| TOTAL | 170              | 15<br>(8.8%)  | 71<br>(41.8%)                           |

\* Using FHWA guidelines, SCDOT analyzes the lowest bid against the engineer's estimate, relative to the number of bids. Competition is considered excellent when there are 6 or more bids within 20% of the lowest bid.

\*\* Notwithstanding the fact that, according to FHWA guidelines, competition was less than excellent, in 22 of those 28 cases, the low bids were below the engineer's estimate. This could indicate a problem with estimation.

\*\*\* Notwithstanding the fact that, according to FHWA guidelines, competition was less than excellent, in 11 of those 28 cases, the low bids were below the engineer's estimate. This could indicate a problem with estimation.

Source: SCDOT, Bid Tabulation Reports and Bid Review Summary Reports

We found 15 instances in which SCDOT received only 1 bid, but in 8 of those cases, the bid was less than the engineer's estimate; in 7, the bid award was higher than the estimate. A summary of those seven, including the percent difference and the amount of each is provided in Table 6.4. Differences ranged from less than 1% to 18.43%. Two of the seven had previously been out for bid. In four other cases the review committee concluded that adjustments to one or more the itemized prices in the bid brought the bid within a reasonable range within which to recommend an award. In one other case the review committee decided that one of the items in its own estimate was too low.

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**Table 6.4: Analysis of Bids  
Exceeding Engineer's Estimate**

| ENGINEER'S<br>ESTIMATE          | LOW BID<br>AMOUNT | PERCENT<br>DIFFERENCE | AMOUNT<br>EXCEEDING<br>ESTIMATE |
|---------------------------------|-------------------|-----------------------|---------------------------------|
| \$2,214,891                     | \$2,270,426       | 2.51%                 | \$55,535                        |
| \$2,562,659                     | \$2,580,787       | 0.71%                 | \$18,128                        |
| \$2,776,899                     | \$2,917,521       | 5.06%                 | \$140,622                       |
| \$3,502,656                     | \$3,686,148       | 5.24%                 | \$183,492                       |
| \$194,092                       | \$229,863         | 18.43%                | \$35,771                        |
| \$4,726,702                     | \$5,055,687       | 6.96%                 | \$328,985                       |
| \$3,574,128                     | \$3,749,423       | 4.90%                 | \$175,295                       |
| TOTAL AMOUNT EXCEEDING ESTIMATE |                   |                       | \$937,829                       |

Source: SCDOT

We asked SCDOT about steps it has taken to foster competition. SCDOT meets regularly with its agency partners to include the Association of General Contractors, the S.C. Asphalt Paving Association, and the Concrete Paving Association. These meetings include a variety of topics to include specification, volume of work, partnerships, and resolution of potential issues. SCDOT believes its most challenging problem with regard to fostering competition is in the resurfacing/paving program. These projects require that the asphalt plants are generally within 50 miles of the area or roadway to which the asphalt is applied. SCDOT states that it has tried to increase the competition in this market by grouping resurfacing projects from different counties and districts. As of November 2015, SCDOT had a list of 51 plants which included 5 located in North Carolina and 2 in Georgia. Another specification driven factor is the introduction of warm mix asphalt that allows for longer hauls.

Repaving and resurfacing projects generally require a hot mix asphalt plant to be located within 50 miles of the job site. An additive or foaming system is used at the plant to allow it to be produced at a relatively cooler mix temperature than normal (250 degrees F vs. 325 degrees F). Using warm mix is at the contractor's discretion and may allow the contractor to have a somewhat longer haul distance. Warm mix technology is not permitted in all department mixtures because the department is still evaluating its long-term performance.

We identified nine reports that are able to be generated using BAMS/DSS, but which are, according to a SCDOT official, not used. Of those nine, SCDOT identified two that might be useful in the bid review process: the cost data book-index and average unit prices and the bid evaluation analysis. The cost data book examines indexed and average unit bid prices. The bid evaluation analysis identifies contracts and items in contracts that require further review because of excessive deviation of the item bid prices from the engineer's estimate. The report displays items with large deviations. According to SCDOT, the information available through each of those is partially, though not completely, available using other reports currently generated.

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## Change Order Authorization

Authority to approve change orders is found in SCDOT's construction manual. SCDOT provides for different levels of authorization depending on the financial impact of the change order. If a change order adjusts the contract estimate by less than \$25,000, the RCE in the county may authorize the change. If the change order results in a cost adjustment from \$25,000–\$50,000, the district engineer administrator (DEA) must authorize the change order; and if the impact exceeds \$50,000, the director of construction must authorize.

We received a report from SCDOT of all change orders from which to review a random sample of 303 contracts covering the period from 2010 – 2015. We identified 1,173 change orders which were initiated and approved. We found 41 cases where no change orders were initiated. We also reviewed the description of every change order, the financial impact of the change order, and the impact on the number of project days. We found no evidence of any issues with the change order process.

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## Recommendations

144. The S.C. Department of Transportation should review its policies and procedures for maintaining the confidentiality of engineers' estimates and other confidential information periodically, but at least annually.
145. The S.C. Department of Transportation should evaluate the performance of warm mixed asphalt technology and require its use where its use is effective and will allow for greater competition among asphalt producers.



146. The S.C. Department of Transportation should maximize its use of analysis to detect bid rigging and collusion and expand opportunities for competition in the letting process.
147. The S.C. Department of Transportation should expand its efforts to broaden participation in its lettings so as to increase the level of competition in the marketplace.

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## Design–Build

We reviewed the design-build process and found that SCDOT has yet to produce a design-build policy manual and implement online bid submission for design-build projects. Therefore, the department's ability to manage these projects is hampered and its ability to review and analyze bids is weakened.

Design-build is just one of several approaches to project delivery, approaches that are alternatives to traditional design-bid-build. In design-bid-build, the contracting department either designs the project in-house or negotiates a contract with a consultant for design services. The department then contracts for construction services through a competitive bid process. A design-build approach means that the contracting department works under a single contract with one entity, the design-build team, which provides project design and construction services.

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## Sloan Case and Aftermath

In July 2005, the South Carolina Supreme Court handed down its decision in *Sloan v. Department of Transportation*. The Court held that SCDOT had no legal authority to use the design-build approach to project delivery. S.C. Code §57-5-1625, enacted in 2006, has since authorized SCDOT to award highway construction contracts using a design-build procedure. Since 2010, SCDOT has completed eight design-build projects; ten are under construction, one awaits contract execution, and ten are in development.

We found no valid criteria that can be used in all cases to determine whether a department should proceed with a design-build approach to project delivery or some alternative. SCDOT focuses on project characteristics such as the size, scope, and desire for innovation in a project to decide whether to proceed with design-build. We asked SCDOT for the criteria the department applies in order to determine whether the department should proceed with a project using design-build or design-bid-build.

SCDOT responded that design-build is a good option for projects that provide opportunity for multiple solutions, innovative design construction techniques, expedited delivery, and/or situations where special skills are needed for design/construction. A department official responded that the criteria will vary by project.

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## No Policy Manual

In April 2014, the Acting Secretary of the Department of Transportation commissioned a design-build policy committee to develop a department plan for using design-build to include a policy document and processes for using design-build. SCDOT implemented a schedule template which lists the steps to be completed in delivering a design-build project. According to the department, a design-build manual is scheduled for completion by Summer 2016.

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## Bidding Process for Design–Build

Selection of the winning proposal in a design-build project is a two-stage process. The first stage is a request for qualifications (RFQ); the second, a request for proposal (RFP). SCDOT reviews the responses to the RFQ before selecting a shortlist of design-build teams to advance to the RFP stage. Only those on the shortlist receive the RFP. The proposals for design-build submissions have two components: a technical proposal, submitted online, in which responders explain how they propose to address the project requirements, and a cost proposal, submitted in a sealed envelope on the date and time indicated on the RFP.

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## Reviewing the Proposals

SCDOT reviews the technical component of each proposal for responsiveness. This could include, but is not limited to, failure to provide all information requested, failure to conform to the material requirements of the RFP, conflicts of interest, conditional proposals, failure to provide complete and honest information, failure to complete the Cost Proposal Bid Form correctly, or failure to submit requested certifications. Responsive proposals are evaluated and scored by an evaluation committee using criteria that are defined in the original RFP.

Cost proposals on design-build projects are lump sum bids; and, in contrast to the proposals for design-bid-build proposals, have no line items to review and analyze. The cost proposals on a design-build submission are reviewed according to SCDOT's "Bid Review Policies and Procedures."

SCDOT only reviews the cost proposal to analyze whether it is competitive according to FHWA guidelines. For example, if there are two bids, then the bids are assumed to be competitive if they are within 105% of the engineer's estimate; if three bids are submitted, then the bids are assumed to be competitive if they are within 100% of the estimate, and so on.

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### Uncertainty Surrounding the Future of Online Submission

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We were told that the department is moving toward electronic submittals of design-build bids. However, the department offered no information on steps taken thus far and a timetable for completion. Subsequently, in response to yet more questions about the design-build process, SCDOT explained that we had been misinformed, that the SCDOT official who had responded to our previous questions had been mistaken; and the department has no plans, whatsoever, to move on electronic submission of design-build cost proposals. The department finds that submission of the cost proposals on a design-build bid, in sealed envelope, is a "proven and effective" method of submission.

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### When to Opt for Design-Build

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SCDOT evaluates the project scope, potential for innovative design and/or construction techniques, availability of competition, permit requirements, schedule restraints, unmanageable or undefined risk, and expected cost of the project. Any one of these areas may be more important than others based on the specific project. As an example, SCDOT chose to use the design-build approach for the ACT 98 interstate projects where funding was approved by the General Assembly to expedite the project schedule, as well as provide for innovation. Another example is the Ravenel Bridge where innovation and special design and construction considerations were the driving criteria behind the decision to use the design-build procurement method.

The deputy secretary of engineering makes the decision to proceed with a design-build approach to project delivery, based on recommendations from the directors of preconstruction and construction.

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## Evaluating the Benefits of Design-Build

We asked SCDOT for documentary evidence that its use of design-build has resulted in optimizing its resources or resulted in a “better outcome” than if it had pursued a design-bid-build approach. In response the department expressed confidence “that the innovations available through design-build have saved on overall project delivery time, produced a product of equal value to bid-build, and is competitive in relation to overall cost to bid-build.” The department cited the I-385 widening project in Greenville County as an example of innovation saving on project delivery time and improving safety to the contracting team and the public. The contractor constructed a median ramp to an overpass bridge to move trucks and materials onto the project site, reducing traffic control cost, reducing traffic delays, and expediting project delivery.

Although the department referenced “many studies,” including a 2006 Design-Build Effectiveness Study prepared by FHWA, it did not provide any of its own. We reviewed the FHWA study and seven others. Although design-build has its strengths, it is not without its shortcomings. The advantages and disadvantages are:

### **Advantages**

- Time savings that result from eliminating separate steps for project design and construction, enabling engineering considerations that would surface later in the construction phase to be incorporated into the design phase, and having design and construction for different segments of the project overlap with one another.
- Cost savings from efficiencies in communications among team members, reduced construction engineering and inspection (CE&I) costs to the contracting department when these activities are shifted to the design-builder, fewer changes and work orders, reduced potential for claims and litigation as issues are resolved by the design-build team, and an abbreviated project timeline minimizing department staff time devoted to project oversight and reduced motorist inconvenience, as the time for lane closures is shortened.
- Improved quality through greater focus on quality control through continuous involvement by the design-build team throughout the project and project innovations that are tailored to specific project needs and contractor capabilities.

### **Disadvantages**

- Reduces competition by excluding smaller firms unable to lead large projects which are most amenable to the design-build approach.
- Favors larger firms in competing for larger projects.
- Provides opportunities for favoritism in the contract award process by including non-price factors among the selection criteria.
- Undermines the inherent checks and balances between design and construction teams in the traditional delivery system since the design team and the construction team are one and the same.
- Elimination of low-bid selection criteria increases project costs.

Other research questions the higher quality that purports to come from design build. A study of more than 325 projects found that the quality resulting from design-build was lower than that of traditional procurement approaches. Another comparative study of design-build and design-bid-build found that costs were higher for design-build but that projects were completed more quickly and fewer change orders were required in design-build projects.

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## **Highway 17-ACE Basin Project**

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We reviewed the files for the Highway 17-ACE Basin Project — a design-build project. We also reviewed the minutes of every SCDOT Commission meeting from 2006 – 2009 to identify any item that dealt with this project. We reviewed the project files and Commission minutes to determine savings resulting from a re-bid of the contract for the second segment. We found nothing in the project files or Commission minutes to document that. To aid in understanding the events surrounding this project, we prepared the following timeline.

|                   |   |
|-------------------|---|
| October 10, 2005  | SCDOT applies to S.C. Transportation Infrastructure Bank (SCTIB) for funding.   |
| December 5, 2006  | SCDOT Commission unanimously declines the then-current design-build proposal on the U.S. Highway 17 project in Beaufort and Colleton Counties and authorizes staff to acquire rights-of-way on entire project using available budget and directs staff to develop options for completing the project.   |
| December 19, 2006 | SCDOT Commission votes to authorize the department to enter into a contract with the low bidder for the design-build proposal for the U.S. Highway 17 project in Beaufort and Colleton Counties, specifically the southern segment, known as Phase 1 of the project from Gardens Corner to the Combahee Bridge, contingent on receiving SCTIB funding. Also directed staff to pursue design and right-of-way acquisition on Phase II and III. |
| January 18, 2007  | SCDOT Commission unanimously passes motion authorizing the department to seek qualified firms to provide project management and CE&I services for Phase I in Beaufort County.   |
| April 18, 2007    | SCDOT enters into agreement with SCTIB for up to \$93 million for US-17 project in Beaufort County.   |
| July 1, 2007      | SCDOT receives disbursement of \$53 million.  |
| July 1, 2008      | SCDOT receives disbursement of \$29 million.  |
| February 19, 2009 | SCDOT Commission approves motion authorizing the department to seek qualified firms to provide project management and CE&I services for Phase II.   |
| July 16, 2009     | SCDOT Commission unanimously approves motion to initiate a public comment process to allow for future Commission consideration for inclusion in the 2007-2012 STIP for funding the last phase of the U.S. Highway 17 project in Colleton County from near Lightsey Plantation Drive, north to SC 64 in Jacksboro, S.C.  |
| July 16, 2009     | SCDOT Commission unanimously passes motion authorizing SCDOT to advertise, select, and negotiate for professional CE&I services associated with the U.S. (ACE Basin) improvements in Colleton County.   |

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## Recommendations

148. The S.C. Department of Transportation should complete work on a design-build manual.
149. The S.C. Department of Transportation should implement a system to allow for online bid submissions for design-build projects.
150. The S.C. Department of Transportation should implement a system for analyzing bids on design-build projects to detect collusion, bid rigging, and other activity that undermines the integrity of the bidding process.
151. The S.C. Department of Transportation should complete a valid comparative evaluation of the design-build approach to project delivery and the design-bid-build approach to determine its impact on cost and quality when compared to the design-bid-build approach to project delivery.

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## Post-Employment Restrictions

We found that SCDOT has implemented a system to identify former employees who left the department for employment as consultants. We found that SCDOT identified a case in which two former employees who had recently left the department were included in a proposal submission. As a result, SCDOT disqualified that proposal. We reviewed SCDOT's policy on post-SCDOT employment. Effective August 13, 2015, consulting firms who present proposals that include any employee who has been employed by SCDOT within 365 days of the proposal submission date are disqualified from consideration. This rule applies to any department-administered procurement for which the selection is qualifications-based, including design-build projects. In such cases, SCDOT considers the credentials of the firms, including the name, experience, and resume of key individuals as part of the evaluation and award process. It does not apply to a contractual situation where the award is made solely to the lowest qualified bidder.

The rule applies to primary contractors and to subcontractors. The policy applies to all SCDOT employees regardless of position and applies to firms whether they are the prime proposer or a sub-proposer. Employees were first notified of this policy in a memorandum from the Acting Secretary of Transportation in August 2015. It has since been incorporated into the department's departmental directive on employee code of conduct, departmental directive 45. Its purpose is to strengthen the code of conduct so that there is no unfair advantage, undue influence, or conflict of interest.

Directive 45 establishes an SCDOT employee code of conduct. It governs gifts to employees, conflicts of interest, financial disclosure, use of state resources, confidentiality, nondiscrimination, post-employment restrictions, reporting requirements, and whistleblower protections. It reiterates a prohibition that appears in S.C. Code of Laws §8-13-760 which states:

Except as is permitted by regulations of the State Ethics Commission, it is a breach of ethical standards for a public official, public member, or public employee who is participating directly in procurement, as defined in Section 11-35-310 (22), to resign or accept employment with a person contracting with a governmental body if the contract falls or could fall under the public official's, public member's, or public employee's official responsibilities.

However, there is no definition of "participating directly in procurement" in S.C. Code §11-35-310(22). Therefore, the statutory definition of what it means to participate directly in procurement is unclear.

SCDOT policy does not limit which employees are covered by this new rule. The post-employment review applies to all SCDOT employees regardless of position. When SCDOT solicits proposals, it includes a statement directed to potential proposers about the post-employment restriction. In every proposal, firms must submit the names of key employees who are to work on the project for which the proposal is being submitted. The proposal contains language that states that any proposal that names, identifies, or includes in any way a current or former SCDOT employee who was employed by SCDOT within 365 days of submittal will be disqualified.

SCDOT's Office of Human Resources provides the department's professional services contracting office a list of employees who have left the department in the past 12 months. The list is updated monthly.

We identified four solicitations for proposals since the new policy became effective. We found that they included the new policy within the advertisement. We identified two other solicitations, first advertised in July 2015 and one advertised August 5, 2015 for which SCDOT amended the original solicitations to prospective firms and notified all potential proposers of the 365-day restriction. We found that SCDOT received 56 proposals in response to all 7 solicitations.



We identified two former SCDOT employees whose names were included in one proposal. Because that proposal was submitted within 365 days of their respective separation dates, SCDOT, having also identified the violation, disqualified the proposal from further consideration. We also identified the name of one individual whose separation date pre-dates the implementation of the new policy. The separation date for this individual is more than one year before the respective proposal date. Therefore, in this case, we found no violation of policy.

In some cases, proposals include nicknames or initials. Therefore, if someone's name appears on the list of separated employees but appears on the proposal as a nickname or in some other format that is not easily confirmed, matching the name is more problematic and may not be identified as a match.

We asked SCDOT whether the department has procedures in place to comply with S.C. Code §8-13-760 in the case of employees whose work involves low-bid contracts. Bidders attest that they will disclose conflicts of interest or that they enjoy an unfair competitive advantage in their proposals. Low-bid contracts procured through SCDOT's Office of Construction do not contain similar provisions in their solicitation documents.

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## Recommendations

152. The S.C. Department of Transportation should revise its Notice to All Consulting Firms to require that the names of individuals who will work on the project be submitted as the individual's formal name, including the full first, middle, and last name and maiden name, if appropriate.
153. The S.C. General Assembly should address the potential confusion in S.C. Code §11-35-310(22) which is referenced in S.C. Code §8-13-760 regarding the definition of "participating directly in procurement."

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## Professional Services Contracts

Out of 254 total professional services contracts let by SCDOT from calendar year 2010 – 2015, South Carolina firms received 63 contracts (25%) and out-of-state firms received 191 (75%). For the purposes of this analysis, we counted firms that had headquarters outside of South Carolina as “out-of-state.” The total contract amounts for the South Carolina firms totaled \$49,815,140 (31%). For the out-of-state firms, the total contract amounts totaled \$111,827,590 (69%).

We also did an analysis to determine how many contracts were awarded to firms with a presence in South Carolina. Although a high percentage of the firms awarded contracts had out-of-state headquarters, 82% of the contracts awarded to out-of-state firms went to firms that have offices in South Carolina. Table 6.5 shows the results of these analyses.

We randomly sampled 25 contracts out of the total 254 professional services contracts. Using the criteria of out-of-state firms having headquarters outside of South Carolina, of 24 contracts, 214 out-of-state firms applied along with 81 in-state firms. Of the out-of-state firms that applied, 30% were awarded a contract or were placed “on-call” for future contracts. Of the in-state firms that applied, 33% were awarded a contract or placed “on-call” for future contracts. Of the 25 we examined, one contract was a solicitation for all firms interested in small environmental services contracts in which any qualifying firm was placed on a list to be potentially chosen for the contracts.

We also examined the criteria used by SCDOT in the contracts that we sampled. With some variations, criteria used by SCDOT when evaluating personal services RFPs include:

- Experience, qualifications, and technical competence of the staff proposed for the type of work required.
- Past performance on similar type projects and/or ability to perform all aspects of service.
- Familiarity of proposed staff with SCDOT practices and procedures.
- Availability of key staff and the ability to mobilize quickly and meet project schedules.

**Table 6.5: Number of Contracts and Total Expenditures Paid to In-State and Out-of-State Contractors for Professional Services Contracts and Out-of-State Firms with South Carolina Offices**

| IN-STATE                  | OUT-OF-STATE           | TOTAL *       |
|---------------------------|------------------------|---------------|
| 63<br>(25%)               | 191<br>(75%)           | 254           |
| \$49,815,140<br>(31%)     | \$111,827,590<br>(69%) | \$161,642,730 |
| OFFICES IN SOUTH CAROLINA |                        |               |
| 156<br>(82%)              | 35<br>(18%)            | 191           |

\* SCDOT puts out "on-call" contracts for professional services in which firms are placed on a rotating list for contracts. If a firm won a chance to be "on-call" but has not yet been awarded a contract, it does not appear in this chart.

Source: SCDOT

## In-State vs. Out-of-State Contractors

From 2010 to 2015, using SCDOT's construction management system, we identified 1,576 contracts awarded by SCDOT. We selected a random sample of 303 contracts. We found that 202 contracts were awarded to South Carolina firms; another 101 were awarded to out-of-state firms. From 2010–2015, we calculated total contract awards of \$706,244,889. Table 6.6 shows the number of contracts from our sample awarded during this period to in-state and out-of-state firms and the total awarded amounts for each.

**Table 6.6: Number of Contracts and Total Awarded to In-State and Out-of-State Contractors**

| IN-STATE                 | OUT-OF-STATE             | TOTAL *       |
|--------------------------|--------------------------|---------------|
| 202<br>(66.7%)           | 101<br>(33.3%)           | 303           |
| \$470,577,530<br>(66.6%) | \$235,667,359<br>(33.4%) | \$706,244,889 |

\* Figures are from our random sample of 303 of 1,576 total contracts awarded between 2010 and 2015.

Source: SCDOT

SCDOT's procurement policies and procedures manual provides for preferential treatment to South Carolina vendors and products pursuant to S.C. Code §11-35-1524. When evaluating pricing for the purposes of making an award determination, the procurement officer is required to provide a 7% preference for a South Carolina product. SCDOT also gives a 2% preference to United States vendors and products. However, the United States preference does not apply in cases in which a South Carolina firm has already received the 7% preference. The State Fiscal Accountability Authority publishes a memorandum on the impact of the preference. For July 1, 2015 to September 30, 2015, the expense to the state dictated by the preference was \$2,923.

# The C Program

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## Chapter Summary

We were asked to review administration of the local transportation funding mechanism known as the C Program. Our review found that:

- There are no specific guidelines for the selection and appointment of county transportation committee members, no prescribed size for these bodies, and no statutorily-prescribed terms of office.
- SCDOT could not provide detailed C Program administration-related expenditure information for the last five fiscal years.
- SCDOT could not provide documentation that the C Program administrative fee structure has been reviewed or studied to determine if fees are set to adequately recapture actual costs or if they are overcharging the county transportation committees.
- C Program managers do not track project duration from programming to completion and there are no established targets or goals related to project timeliness.
- A county transportation committee approved spending \$68,966 of C Program funds to pave a parking lot at a facility owned by The University of South Carolina. It is unclear if this project falls outside of the intended purpose of these funds.
- Countywide transportation plans often do not provide specific project prioritizations.

Table 7.1 represents total C Program funding disbursed by SCDOT to county transportation committees for the period FY 09-10 – FY 14-15.

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**Table 7.1: C Program Funding Disbursements**

| FISCAL YEAR | TOTAL         |
|-------------|---------------|
| FY 09-10    | \$ 77,083,000 |
| FY 10-11    | \$ 68,097,000 |
| FY 11-12    | \$ 78,164,000 |
| FY 12-13    | \$ 78,114,000 |
| FY 13-14    | \$ 79,373,000 |
| FY 14-15    | \$ 81,770,000 |

Source: Scott and Company

Pursuant to the FY 15-16 supplemental appropriations act, an additional \$216 million in nonrecurring funds were directed to the county transportation committees to be used for “paving, rehabilitation, resurfacing, and/or reconstruction, and bridge repair, replacement, or reconstruction” solely on the state-owned secondary road system.

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## Background

The origins of the C Program can be traced to 1946 with the designation of funding to pave dirt “farm to market” roads on the state secondary system. The program got its name from a 1951 listing of state highway construction funds. The state secondary program was designated as “Program C” and over time, this has evolved, in name and form, into the “C Program.” The program is now a partnership between SCDOT and the 46 counties of South Carolina to fund improvements and transportation projects on state and local roads.

Funding for the C Program comes from 2.66¢ per gallon of the user fee on gasoline. These revenues are referred to as “C funds” and are allocated by the following formula prescribed in S.C. Code §12-28-2740 (the C Fund law):

- (1) one-third distributed in the ratio which the land area of the county bears to the total land area of the State;
- (2) one-third distributed in the ratio which the population of the county bears to the total population of the State as shown by the latest official decennial census;
- (3) one-third distributed in the ratio which the mileage of all rural roads in the county bears to the total rural road mileage in the State as shown by the latest official records of the Department of Transportation.

In addition, each county receives interest on its funds and may receive a donor county bonus. A donor county is one in which the 2.66¢ per gallon of the motor fuel user fee collected exceeds the amount that the county receives according to the allocation formula. This bonus is allocated based on the same formula prescribed by the C Fund law and is currently set at \$9.5 million annually from the state highway fund.

The C Fund law prescribes the following stipulations on the use of C funds:

- Funds must be used in furtherance of a countywide transportation plan.
- No more than \$2,000 can be used for administrative expenses such as copying, mailings, public notices, correspondence, and recordkeeping.
- At least a biennial average of 25% of the county's apportionment of C funds must be expended for construction, improvements, or maintenance on the state highway system.
- Up to 75% of the county's apportionment of C funds may be expended on paving and improvement projects on county and local roads including street and traffic signs, and other road and bridge projects.
- The balance of uncommitted funds carried forward from one fiscal year into the next may not exceed 300% of the county's total apportionment for the most recent year.

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## County Transportation Committees

County Transportation Committees (CTCs), despite being public bodies with the power to allocate millions of dollars in transportation funding, have no prescribed size, no statutorily-determined terms of office, and in most cases, serve at the pleasure of the county legislative delegations. We found that there are no specific guidelines for the selection and appointment of committee members, nor are there any requirements that CTC members have transportation planning, engineering, financial, or other related experience.

Each county is required to establish a CTC with the role of approving projects to be funded by the county's C Fund apportionment and to develop county transportation plans. Most of the CTC's are appointed by, and serve at the pleasure of, each county's legislative delegation. By law, CTC membership is to reflect fair representation from both municipalities and unincorporated areas of the county.

Legislative delegations have transferred the powers and duties of the CTC to "the governing body of the county" in seven counties — Abbeville, Cherokee, Chester, Clarendon, Jasper, Lexington, and York. Legislative delegations have devolved the power to *appoint* CTC members to the governing body of five counties — Allendale, Barnwell, Beaufort, Berkeley, and Dorchester.

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## Recommendation

154. The General Assembly should amend S.C. Code §12-28-2740 to establish terms of office and minimum qualifications for members of county transportation committees.

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## SCDOT Administration vs. Self-Administration

Each CTC must decide whether to administer the C Program itself or request that SCDOT administer its program. Currently, 19 counties have chosen to be self-administered. A CTC electing to administer its own C Program receives a monthly allocation of funds from the county transportation fund. The funds are held and managed by the CTC for the payment of qualified and eligible costs of engineering and construction for its projects. At the end of each fiscal year, the self-administered counties are required to submit an annual report that includes their C Program revenues, expenditures, and balances. The expenditures must include information for each project in progress or completed. The individual reports are compiled into an annual statewide report for the General Assembly.



The 27 CTCs currently electing SCDOT administration of the county's C Program enter into an agreement with the department that outlines the relationship between the CTC and SCDOT, the responsibilities and authority of each party, and the administrative costs that will be involved. With SCDOT administration, funds are held by the state treasurer until required for the payment of obligations. Services provided by SCDOT in the administration of a county C Program include overall program management, payment of obligations, financial accounting, and retention of project records. SCDOT provides a monthly report to the CTC detailing program balances, obligations, and expenditures. Additionally, for projects on the state highway system funded by the CTC, SCDOT provides evaluation and cost estimates, project management, engineering, right-of-way acquisition, and construction services.

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## C Program Financial Compliance

For the 19 counties that self-administer their C Programs, we reviewed compliance with financial requirements stipulated in S.C. Code §12-28-2740 (see *Background* in Chapter 7). We found no instances of noncompliance with the C Fund law.

Table 7.2 represents total C Program funding disbursed by SCDOT, by county, for the period FY 09-10 – FY 14-15. County-specific data prior to FY 09-10 was not available from SCDOT.

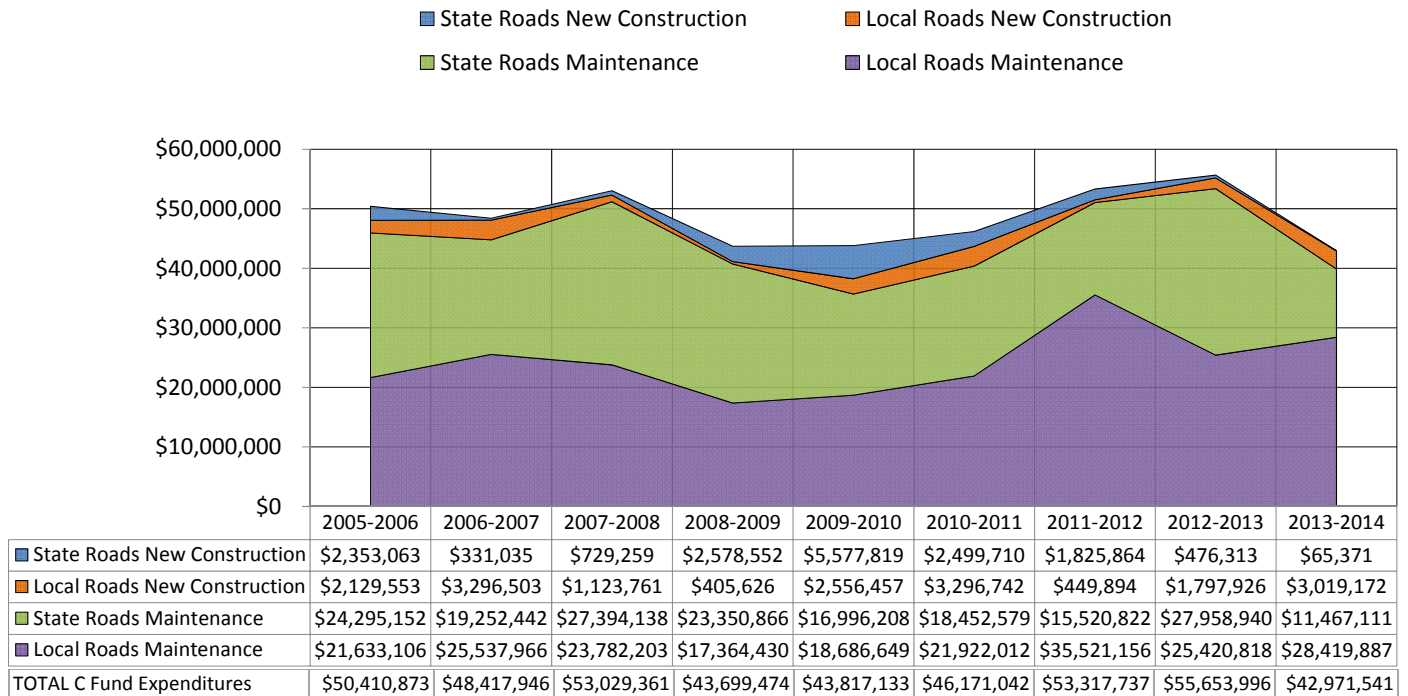
**Table 7.2: C Program Funding Disbursements**

|              | FY 09-10             | FY 10-11             | FY 11-12             | FY 12-13             | FY 13-14             | FY 14-15             |
|--------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Abbeville    | \$886,000            | \$892,000            | \$900,000            | \$878,000            | \$894,000            | \$866,000            |
| Aiken        | 2,520,000            | 2,417,000            | 2,550,000            | 2,482,000            | 2,637,000            | 2,687,000            |
| Allendale    | 581,000              | 586,000              | 591,000              | 576,000              | 587,000              | 567,000              |
| Anderson     | 2,735,000            | 2,445,000            | 2,682,000            | 2,701,000            | 2,814,000            | 2,892,000            |
| Bamberg      | 656,000              | 661,000              | 659,000              | 646,000              | 657,000              | 640,000              |
| Barnwell     | 791,000              | 797,000              | 803,000              | 782,000              | 797,000              | 784,000              |
| Beaufort     | 1,663,000            | 1,410,000            | 1,602,000            | 1,796,000            | 1,922,000            | 2,289,000            |
| Berkeley     | 2,305,000            | 2,322,000            | 2,348,000            | 2,408,000            | 2,453,000            | 2,570,000            |
| Calhoun      | 608,000              | 613,000              | 618,000              | 604,000              | 615,000              | 643,000              |
| Charleston   | 4,231,000            | 2,901,000            | 4,303,000            | 4,389,000            | 4,321,000            | 4,324,000            |
| Cherokee     | 1,200,000            | 981,000              | 1,180,000            | 1,205,000            | 1,214,000            | 1,214,000            |
| Chester      | 994,000              | 1,001,000            | 1,009,000            | 981,000              | 999,000              | 987,000              |
| Chesterfield | 1,494,000            | 1,505,000            | 1,524,000            | 1,509,000            | 1,537,000            | 1,464,000            |
| Clarendon    | 1,061,000            | 1,069,000            | 1,078,000            | 1,070,000            | 1,090,000            | 1,108,000            |
| Colleton     | 1,487,000            | 1,498,000            | 1,518,000            | 1,488,000            | 1,516,000            | 1,575,000            |
| Darlington   | 1,244,000            | 1,247,000            | 1,263,000            | 1,214,000            | 1,237,000            | 1,279,000            |
| Dillon       | 797,000              | 803,000              | 822,000              | 789,000              | 847,000              | 829,000              |
| Dorchester   | 1,521,000            | 1,355,000            | 1,526,000            | 1,647,000            | 1,656,000            | 1,731,000            |
| Edgefield    | 852,000              | 858,000              | 865,000              | 858,000              | 873,000              | 844,000              |
| Fairfield    | 1,001,000            | 1,008,000            | 1,016,000            | 1,002,000            | 1,020,000            | 1,029,000            |
| Florence     | 2,314,000            | 1,934,000            | 2,164,000            | 2,038,000            | 2,043,000            | 2,024,000            |
| Georgetown   | 1,244,000            | 1,253,000            | 1,263,000            | 1,242,000            | 1,265,000            | 1,434,000            |
| Greenville   | 5,366,000            | 3,806,000            | 5,277,000            | 5,386,000            | 5,231,000            | 5,500,000            |
| Greenwood    | 1,075,000            | 1,083,000            | 1,099,000            | 1,063,000            | 1,083,000            | 1,094,000            |
| Hampton      | 804,000              | 810,000              | 817,000              | 803,000              | 818,000              | 813,000              |
| Horry        | 3,914,000            | 2,799,000            | 3,839,000            | 4,127,000            | 4,243,000            | 4,550,000            |
| Jasper       | 852,000              | 858,000              | 858,000              | 865,000              | 935,000              | 884,000              |
| Kershaw      | 1,379,000            | 1,389,000            | 1,401,000            | 1,407,000            | 1,432,000            | 1,435,000            |
| Lancaster    | 1,203,000            | 1,212,000            | 1,246,000            | 1,286,000            | 1,297,000            | 1,342,000            |
| Laurens      | 1,447,000            | 1,457,000            | 1,463,000            | 1,400,000            | 1,425,000            | 1,468,000            |
| Lee          | 696,000              | 701,000              | 707,000              | 686,000              | 699,000              | 690,000              |
| Lexington    | 3,884,000            | 2,615,000            | 3,967,000            | 3,974,000            | 4,131,000            | 4,050,000            |
| McCormick    | 642,000              | 647,000              | 652,000              | 645,000              | 657,000              | 600,000              |
| Marion       | 899,000              | 906,000              | 913,000              | 878,000              | 894,000              | 892,000              |
| Marlboro     | 879,000              | 885,000              | 893,000              | 871,000              | 887,000              | 872,000              |
| Newberry     | 1,109,000            | 1,117,000            | 1,133,000            | 1,111,000            | 1,132,000            | 1,131,000            |
| Oconee       | 1,393,000            | 1,403,000            | 1,415,000            | 1,400,000            | 1,425,000            | 1,620,000            |
| Orangeburg   | 2,224,000            | 2,240,000            | 2,252,000            | 2,189,000            | 2,229,000            | 2,305,000            |
| Pickens      | 1,460,000            | 1,471,000            | 1,483,000            | 1,441,000            | 1,467,000            | 1,623,000            |
| Richland     | 3,655,000            | 3,330,000            | 4,158,000            | 3,996,000            | 3,943,000            | 3,794,000            |
| Saluda       | 832,000              | 838,000              | 851,000              | 837,000              | 852,000              | 829,000              |
| Spartanburg  | 4,067,000            | 3,064,000            | 4,212,000            | 3,966,000            | 3,981,000            | 4,300,000            |
| Sumter       | 1,602,000            | 1,614,000            | 1,634,000            | 1,564,000            | 1,593,000            | 1,694,000            |
| Union        | 846,000              | 857,000              | 865,000              | 837,000              | 852,000              | 835,000              |
| Williamsburg | 1,399,000            | 1,410,000            | 1,421,000            | 1,372,000            | 1,398,000            | 1,399,000            |
| York         | 3,291,000            | 2,029,000            | 3,324,000            | 3,705,000            | 3,775,000            | 4,270,000            |
| <b>TOTAL</b> | <b>\$ 77,103,000</b> | <b>\$ 68,097,000</b> | <b>\$ 78,164,000</b> | <b>\$ 78,114,000</b> | <b>\$ 79,373,000</b> | <b>\$ 81,770,000</b> |

Source: Scott and Company

A summary of the state and local expenditures by self-administered C Programs is broken down by type of expenditure (maintenance as compared to new construction or capacity-related projects) in Chart 7.3.

**Chart 7.3: Self-Administered CTC Spending by Type**



Source: Scott and Company and LAC

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## Accountability Issues

We requested C Program administration-related expenditure information for the last five fiscal years from SCDOT. At the time of our request, a department official could only provide an estimate of “approximately \$1.5M” for one year, FY 14-15, and stated that the department began a study of C Program administrative costs during our audit. After receiving the first draft of our report, SCDOT did provide a copy of a completed study that covered FY 14-15.

Table 7.4 represents the fee structure established by SCDOT to recover administrative costs incurred by the department for administering the 27 SCDOT-administered county programs and for programming, designing, and/or completing C-funded projects on the state highway system.

**Table 7.4: C Program Administration Fee Structure**

|                         |              |                                       | DOT-ADMINISTERED CTCs                     |   | SELF-ADMINISTERED CTCs                      |   |
|-------------------------|--------------|---------------------------------------|---|---|---|---|
| Administrative Fee      |              |                                       | 3% of Annual C-Fund Apportionment         |   | None  |   |
| STATE ROAD PROJECTS     | Resurfacing  |                                       | 1%<br>Engineering<br>“Design” Fee*        | 6%<br>Construction,<br>Engineering,<br>Inspection (CEI)<br>Fee**  | 1%<br>Engineering<br>“Design”<br>Fee*       | 6%<br>Construction,<br>Engineering,<br>Inspection (CEI)<br>Fee**  |
|                         | CONSTRUCTION | > \$200,000                           | 12%<br>Preliminary<br>Engineering<br>Fee* | 14%<br>Construction,<br>Engineering,<br>Inspection (CEI)<br>Fee** | 18%<br>Preliminary<br>Engineering<br>Fee*   | 21%<br>Construction,<br>Engineering,<br>Inspection (CEI)<br>Fee** |
|                         |              | Between<br>\$100,000 and<br>\$200,000 | 13%<br>Preliminary<br>Engineering<br>Fee* | 14%<br>Construction,<br>Engineering,<br>Inspection (CEI)<br>Fee** | 19.5%<br>Preliminary<br>Engineering<br>Fee* | 21%<br>Construction,<br>Engineering,<br>Inspection (CEI)<br>Fee** |
|                         |              | < \$100,000                           | 14%<br>Preliminary<br>Engineering<br>Fee* | 14%<br>Construction,<br>Engineering,<br>Inspection (CEI)<br>Fee** | 21%<br>Preliminary<br>Engineering<br>Fee*   | 21%<br>Construction,<br>Engineering,<br>Inspection (CEI)<br>Fee** |
| NON-STATE ROAD PROJECTS |              |                                       | None                                      |   | None  |   |

\* Preliminary engineering includes project management, engineering, plan preparation, right-of-way acquisition (excluding legal costs for condemnation, settlements, and judgments), and other costs necessary to develop a project to the point of receiving bids. The price quoted shall be full payment for SCDOT's services in developing the project. Should the cost of preliminary engineering be less than the lump sum price, no return or refund will be made to the CTC. Should the cost of preliminary engineering exceed the lump sum price, the overrun will be at SCDOT's expense. Should major changes be required in a project due to unforeseen circumstances or CTC action, an additional lump sum amount shall be requested from the CTC.

\*\* CEI includes construction management and inspection services. The price quoted shall be full payment for SCDOT's services in constructing the project. Should the cost of contract field management be less than the lump sum price, no return or refund will be made to the CTC. Should the cost of contract field management exceed the lump sum price, the overrun will be at SCDOT's expense. Should major changes be required in a project due to unforeseen circumstances or CTC action, an additional lump sum amount shall be requested from the CTC.

Source: SCDOT

SCDOT could not provide documentation that the C Program administrative fee structure has been reviewed or studied to determine if the fees are set to adequately recapture actual expenses incurred by SCDOT to administer the program or if they are overcharging the CTCs. An SCDOT official claimed the resurfacing project expense fees (1% and 6%) were studied in 2011, but could not provide documentation.

Table 7.5 represents revenues produced from each type of fee for the last five fiscal years, as reported by SCDOT. Revenues are detailed by county in Appendix F.

**Table 7.5: C Program Administration Revenues\* FY 10-11 – FY 14-15**

|                     |              | DOT-ADMINISTERED CTCs        |  | SELF-ADMINISTERED CTCs       |  |
|---------------------|--------------|------------------------------|--|------------------------------|--|
|                     |              | Administrative Fees          |  | Administrative Fees          |  |
|                     |              | \$6,038,036.23               |  | None                         |  |
| STATE ROAD PROJECTS | Resurfacing  | Preliminary Engineering Fees | Construction, Engineering, Inspection (CEI) Fees | Preliminary Engineering Fees | Construction, Engineering, Inspection (CEI) Fees |
|                     |              | \$476,229.27**               | \$2,708,752.51**                                 | \$194,608.01**               | \$1,116,367.02**                                 |
|                     | Construction | Preliminary Engineering Fees | Construction, Engineering, Inspection (CEI) Fees | Preliminary Engineering Fees | Construction, Engineering, Inspection (CEI) Fees |
|                     |              | \$1,066,948.42               | \$507,481.05                                     | \$510,276.93                 | \$39,127.19                                      |

\* All figures reported by SCDOT Local Program Administration.

\*\* Figure represents only FY11-12 – FY14-15.

Source: SCDOT

There are a number of offices and individuals at SCDOT involved in C Program-related duties. The C Program administration staff is housed in the local program administration (LPA) office. Their responsibilities include overall C Program administration including financial oversight and ensuring compliance with the C Fund law.

There are four “C Program managers” within the regional production groups of the preconstruction division of the department. These engineers coordinate all of the planning, engineering, contracting, and other facets of C project delivery. Time spent by the “C Program managers” on non-project specific C Program-related duties is not captured or measured by SCDOT. Further, C Program managers do not track project duration from programming to completion and there are no established targets or goals related to timeliness of project completion.

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## Recommendations

155. The S.C. Department of Transportation should regularly review the fee structure to ensure that fees collected reflect actual costs incurred in the administration of the C Program and its findings should be reviewed by an outside entity.
156. The S.C. Department of Transportation should implement a process to track time spent by employees on C Program-related duties to properly capture associated costs.

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## Intended Purpose of C Program Funds

In November 2013, per approval and request of the Allendale County CTC, SCDOT allocated \$68,966 from Allendale County’s C Program apportionment to the Western Carolina Higher Education Commission to pave a parking lot at the Carolina Theater in Allendale, a facility owned by the University of South Carolina. The C Program manual states, “eligible local paving expenditures include paving or improving county roads or streets, traffic signs, and for other road and bridge projects, as stated in Section 12-28-2740.” This project was approved and could be considered a local transportation project under current statute. It is unclear if this project falls outside of the *intended* purpose of these funds.

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## Recommendation

157. The General Assembly should amend S.C. Code §12-28-2740 to specify the types of projects that are ineligible to receive C Funds such as parking lots and other non-road or non-bridge improvements that are not related to traffic or safety improvements.
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## Countywide Transportation Plans

We determined that countywide transportation plans and annual reports need additional information to strengthen the accountability and transparency of CTCs.

According to S.C. Code §12-28-2740, “The funds expended must be approved by and used in furtherance of a countywide transportation plan adopted by a county transportation committee.” The law requires that the plans be reviewed and approved by SCDOT. It does not provide any other requirements for the countywide transportation plans. We reviewed eight countywide transportation plans that represented a diverse group of counties across the state, including both rural and urban counties. The plans range from very detailed to very broad descriptions of planned activities. Half of the plans provided generalized information and no specific guidance as to how C Program funds are to be expended. Only one countywide transportation plan that we reviewed had a priority list that ranked different types of transportation projects. C Program funding averages approximately \$70 million each fiscal year. In FY 15-16, the General Assembly approved an additional \$216 million for the C Program to be distributed to the 46 CTCs. The expenditure of these funds should be based on more descriptive plans with prioritized project lists that ensure that the greatest needs of the county are addressed first.

The current plans are not required to be updated periodically. In 2010, each CTC was requested to either update its plan or state that the established plan was accurate and did not need any updates. Therefore, there are five-year old plans that are still guiding the expenditure of the C funds. Many of the current plans are so broad that updating the plan is not necessary. However, since C Program funds are to be expended in furtherance of this plan, the CTCs should develop a detailed list of the county’s transportation needs for the upcoming time period. The plans should be forecasting projects for, at a minimum, the next two years. This time period will give the public adequate time to submit input and it is a reasonable period of forward planning for CTCs.



The plan should include prioritization of specific projects in the county that are to be completed in the time period covered by the plan. CTCs know about how much funds they will receive each year, based on data from prior years. Therefore, the CTC can project exactly what types of projects and how many projects could be funded. If the countywide transportation plan is changed to include prioritization of specific projects, then the public will better understand which transportation needs are being addressed.

There are currently no requirements in S.C. Code §12-28-2740 regarding advertisement of CTC meetings. However, S.C. Code §30-4-80, more commonly known as the Freedom of Information Act (FOIA), requires that all public bodies must give written notice of their regular meetings at the beginning of each calendar year. Furthermore, public bodies are required to notify organizations, local news media, or other new media of all public meetings and post the meeting agenda on a bulletin board in a public place and on the entity's website no later than 24 hours prior to the meeting. According to an SCDOT official, CTCs usually follow these procedures for advertising meetings. In our review, we found that some counties, such as Lexington, Charleston, Saluda, and Beaufort had CTC meetings posted online, but some counties did not, such as Orangeburg, Georgetown, and Lancaster. CTCs can have a regularly-set meeting schedule, whether it is monthly or quarterly. CTCs should ensure that regularly-scheduled meetings are advertised on their county's websites at the beginning of each calendar year. CTCs should consider other methods of advertising meetings to increase public awareness.

The countywide transportation plans are not available on SCDOT's website. By having a centralized location for these plans, the public will have an easier time accessing their county's plan to understand more about the CTC. We also searched some county websites and found no county that had the CTC's countywide transportation plan located on their websites. The counties should post their CTC's countywide transportation plan on the county's website. These new requirements and improved access would increase transparency.

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## Recommendations

158. The General Assembly should amend S.C. Code §12-28-2740 to require the County Transportation Committees to provide details of the projects in their plans and prioritize the projects for the countywide transportation plan.
159. The General Assembly should amend S.C. Code §12-28-2740 to require the County Transportation Committees to develop, at a minimum, a two-year transportation plan and make the plan conspicuous to the public.
160. The General Assembly should amend S.C. Code §12-28-2740 to require the County Transportation Committees to advertise meetings on their county websites at the beginning of each calendar year.
161. The General Assembly should amend S.C. Code §12-28-2740 to require any county receiving C Program funds to have a transportation plan posted on its website.
162. The S.C. Department of Transportation should provide the countywide transportation plans on its website.

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## Annual C Program Reports

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S.C. Code §12-28-2740 requires self-administered CTCs to submit an annual report documenting expenditures on a per-project basis. The individual reports are to be compiled into an annual statewide report that is submitted to the General Assembly by January of each year.

For the CTCs administered by SCDOT, we were unable to document expenditures on a per-project basis for each fiscal year. The SCDOT system managing C Fund projects does not allow for the information to be compiled in a timely manner. LPA has maintained a list of projects for each county since 2009. The lists do not provide the information needed for determining what types of projects are being completed each fiscal year, analyzing the data for cost trends, or comparing efficiency with different CTCs. LPA also provided an example of the monthly statements sent to the CTCs. These monthly statements could be used to compile a year-end report similar to the self-administered annual reports. The annual reports provide the accountability and transparency of C funds that are necessary for all 46 CTCs.

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## Recommendations

163. The General Assembly should amend S.C. Code §12-28-2740 to require an annual report for all 46 County Transportation Committees to be prepared and compiled into an annual statewide report submitted to the General Assembly.
164. The S.C. Department of Transportation should document C Program Fund expenditures on a per-project basis in a report for all County Transportation Committees that are administered by the S.C. Department of Transportation.

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## CTC vs. SCDOT Project Cost Comparison

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We reviewed records provided by SCDOT to compare costs of road resurfacing projects completed by SCDOT and county governments using C Funds. We conducted a limited analysis of paving projects using two methods and did not find clear evidence that either SCDOT or county governments can complete similar work for lower costs.

We determined that SCDOT does not utilize cost information to compare its project costs with those of counties conducting similar work. CTCs are not required to report mileage or specific road segments on programming requests, resulting in SCDOT records lacking specific project details. Further, invoices reviewed and approved for payment are not required to be detailed.

For the first method of comparison, local project data was obtained from the five largest CTC programs for the past ten fiscal years (Berkeley, Charleston, Lexington, Greenville, and Spartanburg). Resurfacing, new construction (capacity related), and bridge project information was obtained to the extent that these CTCs completed these types of projects. For each type of project, a cost per lane mile was calculated. Because there were only three local bridge projects noted (all in Spartanburg County), these projects are not included in the data below. These costs were compared to statewide (SCDOT) average costs calculated from 495 resurfacing projects and 87 new construction projects. The results of this cost comparison are presented in Table 7.6.

**Table 7.6: Per Lane Mile Cost Comparison – First Method**

| YEAR     | PER LANE MILE COST |           |                  |           |
|----------|--------------------|-----------|------------------|-----------|
|          | RESURFACING        |           | NEW CONSTRUCTION |           |
|          | SCDOT              | CTC       | SCDOT            | CTC       |
| FY 07-08 | \$95,116           | \$48,461  | \$1,769,877      | NA*       |
| FY 08-09 | \$140,364          | \$132,846 | \$1,245,714      | NA*       |
| FY 09-10 | \$153,576          | \$170,009 | \$1,039,045      | \$463,252 |
| FY 10-11 | \$178,588          | \$250,175 | \$1,169,978      | \$366,343 |
| FY 11-12 | \$137,173          | \$137,453 | \$1,049,076      | NA*       |
| FY 12-13 | \$153,636          | \$194,515 | \$1,135,109      | \$122,810 |
| FY 13-14 | \$159,633          | \$122,205 | \$2,124,234      | \$182,045 |
| FY 14-15 | \$188,068          | NA**      | \$1,044,660      | NA**      |
| AVERAGE  | \$150,769          | \$150,809 | \$1,322,212      | \$283,612 |

\* No new construction projects were included in the data for these years.

\*\* Data for FY14-15 was not yet available for the CTCs.

Source: Scott and Company

The specific type of resurfacing performed by the CTC was not available in the data provided; however, there is less diversity in this type of project as compared to new road construction or capacity-related improvements. The resurfacing projects yield a very similar average cost per lane mile to the projects undertaken by the department. There were a minimal amount of new construction or capacity-related projects and bridge projects in the five counties' data. Additionally, it was noted that these projects were generally less extensive or complicated than projects the department would manage.

As seen in Table 7.2, CTC funding during the last six fiscal years has ranged from \$567,000 in Allendale County to \$5.5 million in Greenville County. These funding amounts, paired with the requirement that no more than 300% of the prior year's apportionment be carried over uncommitted, necessitate the smaller scale of projects being completed by the CTCs.

Due to the relatively small size of the local CTC programs, the amount of overhead and administrative expenditures needed on a project-by-project basis is substantially less than that of the department. That must be a consideration if it were determined that the CTC programs should receive more funding and discretion in the projects let. It is likely that the overall costs of projects would increase as project load increases due to the addition of employees needed to manage a larger infrastructure program.

There is no “one size fits all” resurfacing project. Although the resulting road surfaces appear quite similar to the motoring public, the scope of projects and the materials used can vary greatly. The number of potential variables makes cost comparison very difficult.

For the second method of comparison, we reviewed project records for comparable resurfacing projects completed by SCDOT and county governments in three counties. We reduced costs to that of hot mix asphalt and liquid asphalt binder to determine comparable per lane mile pricing. These basic materials and associated costs were components of all resurfacing projects that we reviewed. Processes such as milling, full-depth patching, reclamation, lane striping, shoulder base work, excavation and lump sum mobilization cost (some definitions are listed below) would skew the overall cost per lane mile of the projects and make for a less accurate comparison. Findings for each county comparison using the second method are presented in Table 7.7.

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**Table 7.7: Per Lane Mile Cost Comparison – Second Method**

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|         | RESURFACING - PER LANE MILE COST |             |
|---------|----------------------------------|-------------|
|         | SCDOT                            | CTC         |
| UNION   | \$54,967.06                      | \$46,394.05 |
| KERSHAW | \$36,956.74                      | \$89,921.44 |
| JASPER  | \$70,077.53                      | \$57,918.22 |

Source: LAC

### **Union County**

Union County achieved a lower per lane mile cost to resurface 8.67 miles of road compared to a SCDOT resurfacing of 4.86 miles of road completed after a full depth reclamation process. The asphalt types and application depths were comparable. On the county project, 0.56 miles received a thicker application of asphalt which would slightly inflate the average per lane mile cost for the county projects. The average application of asphalt (pounds per square yard) was 2.09% lower in the SCDOT work than the CTC work. Adjusting the county per lane mile cost down by 2.09% would result in a cost of \$45,423 per lane mile.

### **Kershaw County**

Kershaw County's per lane mile cost to resurface 2.49 lane miles of road was much higher than the SCDOT per lane mile cost to resurface 10.78 miles of road. The county's asphalt cost (comparable to the type used by SCDOT) was \$18.64 per ton more than SCDOT's. Notably, approximately 39% more asphalt per lane mile was used on the county projects, but the per lane mile cost was 120.72% higher.

### **Jasper County**

While the resurfacing projects we compared in Jasper County would seem similar in final appearance to the public, they demonstrate the difficulty in comparing project costs due to different types of asphalt being utilized. SCDOT used surface course type "B," a more expensive asphalt designed for higher traffic volume, whereas Jasper County used surface course type "C." With that difference in mind, the county had a lower per lane mile cost to resurface 0.78 lane miles of road compared to a SCDOT resurfacing of 3.62 lane miles.

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## **Difficulties in Comparing Projects**

Some of the limitations of project comparison are explained in more detail below.

### **Data and Detailed Project Information**

Projects are often grouped in contracts. Individual roads and sections of road, with varying treatments/conditions on each, are grouped together into one contract and material costs are not broken down by section of road, but are reported in totals. SCDOT C Program administration does not have detailed project information for all C-funded projects. The programming requests submitted by CTCs do not require details such as mileage, lane widths, or specific road segments. Many of the invoices reviewed and approved by C Program administration lack detailed information. For example, one listed only "asphalt" without specifying the type of asphalt or application thickness. SCDOT project records list asphalt quantities in tons, while county projects are sometimes reported in square yardage.

### **Road Widths**

Resurfacing "one mile of road" can mean many different things. Road and lane widths vary, meaning "lane mileage" (the total area paved per mile) cannot be readily determined from the "centerline mileage," which is the road length measured down the middle. One mile of road could be a one mile length based on any number of lane widths. SCDOT reported that it normally adds a two-foot paved shoulder to either side of the road when resurfaced for safety reasons whereas counties typically do not.

### **Scopes of Work**

SCDOT appears to complete more full-depth patching, milling, and other work prior to the application of a final riding surface. An SCDOT official acknowledged, “counties don’t typically resurface to the same standards as SCDOT.” We spoke with a county engineer who agreed that SCDOT projects often involve more work than county projects which are typically simpler resurfacing.

Additional materials or work, such as sodding, culvert replacement, muck excavation, traffic control, etc. might be included in a contract. These factors would all affect the per lane mile cost if *total* project costs were used for comparison.

### **Milling and Full-Depth Patching**

Full-depth patching (FDP) is measured by square yardage. A one mile stretch of road could have anywhere from one square yard to one thousand square yards of FDP. Contracts do not reflect the depth of the patching, only the area. Price per square yard of FDP on one project might differ from another simply due to different depths of the patching. Similarly, milling can be performed to varied depths (in different places along a stretch of road), or a set depth. The process is reflected on invoices as a price per square yard, making project-to-project comparison difficult as differences in unit price could be attributed to varying depths.

### **Types of Asphalt**

There are at least six types of hot mix asphalt used for surface (riding) courses, all with varying aggregate criteria, binder requirements, and other characteristics. Asphalt layers are applied at varying thicknesses, typically expressed as pounds per square yard. For the projects we examined, thickness varied from 125 pounds per square yard (125#/SY) to 200 pounds per square yard (200#/SY).

### **Mobilization Costs**

Reported in lump sum, mobilization costs are based on travel time and distance required for a contractor to move equipment and resources for a project. These costs obviously vary due to geography.

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## Recommendations

165. The S.C. Department of Transportation should collect and use data to compare resurfacing project costs with those incurred by county governments to determine if cost savings could be realized by either the department or county governments to complete transportation projects.
166. The General Assembly should amend S.C. Code §12-28-2740 to require that county transportation committees submit detailed project invoices before payments are approved by the S.C. Department of Transportation C Program administration office.
167. The General Assembly should amend S.C. Code §12-28-2740 to require that programming requests submitted to the S.C. Department of Transportation by county transportation committees include specific project details such as road segments and mileages.



# Audited Financial Statements and Grant Compliance

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## Chapter Summary

We were asked to review regular annual audits performed pursuant to S.C. Code §57-1-490 since the passage of Act 114. Pursuant to our request, we examined SCDOT's exemption from the S.C. Consolidated Procurement Code and audits regarding SCDOT's exemption that were conducted by the Materials Management Office. We also reviewed SCDOT's audited financial statements that have been released since FY 09-10. Finally, we reviewed SCDOT's compliance with federal grants under the regulations established by Office of Management and Budget Circular A-133.

We found that SCDOT's exemption from the procurement code results in several accountability issues, including a lack of oversight from state government. Additionally, we found that bidders, offerors, contractors, and subcontractors have no administrative recourse to an independent third party for any protest they make regarding exempt procurements and that SCDOT does not have a written policy for processing these protests.

We also found that SCDOT's audited financial statements have expressed unqualified opinions regarding SCDOT's financial statements, i.e. that SCDOT's financial statements are fairly and appropriately presented in accordance with Generally Accepted Accounting Principles (GAAP). Finally, we found that SCDOT has taken corrective action to satisfy all federal grant compliance audit findings and that there have been no federal grant compliance audit findings in FY 13-14 and FY 14-15.

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## Audited Financial Statements

S.C. Code §57-1-490 states that SCDOT shall be audited by a certified public accountant once each year. The accountant must issue audited financial statements in accordance with GAAP. We reviewed the audited financial statements that have been released since FY 09-10 and found that the agency has received unqualified opinions. These reports are made available to the General Assembly. An unqualified opinion reflects an independent auditor's conclusion that an entity's financial statements are fairly presented in accordance with GAAP.

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## Grant Compliance

We reviewed SCDOT's compliance with federal grants under the regulations established in Office of Management and Budget (OMB) Circular A-133. As a part of OMB Circular A-133, a single audit is to be performed to ensure that SCDOT is abiding by all direct and material federal grant requirements for its major federal programs. Audit findings from FY 05-06 – FY 14-15 included significant deficiencies in six different years, material weaknesses in two different years, and questioned costs in FY 05-06. Definitions of the finding types are included later in this report section. There were no findings in the last two years reviewed, FY 13-14 and FY 14-15. We found that SCDOT has taken corrective action to satisfy all audit findings.

SCDOT receives federal funding through a variety of federal programs and generally, the United States Department of Transportation is the Federal Grantor. The largest federal program for SCDOT is Catalog of Federal Domestic Assistance ("CFDA") Number 20.505, "Highway Planning and Construction." Historically, SCDOT's expenditures under this Federal program have been approximately 95% of total federal expenditures with exceptions for years that had significant disaster events where substantial Federal Emergency Management Agency funds were used. During FY 05-06 – FY 14-15, the single (federal) audits performed as required under OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*, covered the significant majority of federal grant expenditures.

A single audit is an audit under OMB Circular A-133 which covers the compliance requirements with federal grants. Before the Single Audit Act, audits were performed by the federal program and could have different requirements. With the passage of the Single Audit Act, nearly all federal programs were put under one circular with common requirements. The federal grant expenditures covered by the single audits for the ten-year period is summarized in Table 8.1.

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**Table 8.1: Single Audit Testing  
of Federal Expenditures –  
FY 05-06 – FY 14-15**

| FISCAL YEAR<br>ENDING JUNE 30 | TOTAL<br>FEDERAL<br>EXPENDITURES | AMOUNT<br>DIRECTLY<br>TESTED IN<br>SINGLE AUDIT | SINGLE<br>AUDIT<br>COVERAGE |
|-------------------------------|----------------------------------|---|-----------------------------|
| 2006                          | \$ 764,645,000                   | \$ 758,398,000                                  | 99.18%                      |
| 2007                          | 557,488,734                      | 551,557,108                                     | 98.94%                      |
| 2008                          | 392,448,875                      | 389,065,857                                     | 99.14%                      |
| 2009                          | 485,687,738                      | 481,376,303                                     | 99.11%                      |
| 2010                          | 689,757,393                      | 668,660,503                                     | 96.94%                      |
| 2011                          | 724,940,758                      | 719,918,889                                     | 99.31%                      |
| 2012                          | 801,232,644                      | 793,784,359                                     | 99.07%                      |
| 2013                          | 616,345,302                      | 612,656,345                                     | 99.40%                      |
| 2014                          | 643,275,412                      | 631,149,473                                     | 98.11%                      |
| 2015                          | 740,576,471                      | 725,726,052                                     | 97.99%                      |
| TOTAL                         | \$6,416,398,327                  | \$6,332,292,889                                 | 98.69%                      |

Source: Scott and Company

To further breakdown the federal expenditures, Table 8.2 represents the federal program and total expenditures under that program by fiscal year.

**Table 8.2: Expenditures of Federal Awards**

| DESCRIPTION  | FY 05-06             | FY 06-07             | FY 07-08             | FY 08-09             | FY 09-10             | FY 10-11             | FY 11-12             | FY 12-13             | FY 13-14             | FY 14-15             |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Highway Planning and Construction                  | \$752,739,000        | \$542,384,000        | \$371,197,000        | \$467,253,000        | \$668,661,000        | \$703,226,000        | \$780,207,000        | \$599,624,000        | \$622,935,000        | \$602,149,000        |
| Federal Transit - Capital Investment               | \$3,718,000          | \$2,928,000          | \$9,177,000          | \$4,287,000          | \$7,218,000          | \$1,754,000          | \$4,273,000          | \$199,000            | \$2,804,000          | \$2,000,000          |
| Federal Transit - Planning and Research            | \$446,000            | \$491,000            | \$483,000            | \$104,000            | \$205,000            | \$160,000            | \$236,000            | \$185,000            | \$169,000            | \$569,000            |
| Formula Grants for Rural Areas                     | \$5,659,000          | \$9,173,000          | \$8,962,000          | \$10,816,000         | \$10,229,000         | \$16,693,000         | \$12,864,000         | \$13,033,000         | \$8,479,000          | \$9,624,000          |
| Enhanced Mobility For Seniors                      | \$1,500,000          | \$1,944,000          | \$1,908,000          | \$2,097,000          | \$1,758,000          | \$1,770,000          | \$2,133,000          | \$1,655,000          | \$1,084,000          | \$1,759,000          |
| State Planning and Research                        | -                    | \$79,000             | \$1,000              | -                    | -                    | -                    | -                    | -                    | -                    | -                    |
| Job Access and Reverse Commute Program             | -                    | -                    | -                    | \$785,000            | \$854,000            | \$750,000            | \$700,000            | \$803,000            | \$1,228,000          | \$1,225,000          |
| New Freedom Program                                | -                    | -                    | -                    | \$346,000            | \$681,000            | \$488,000            | \$782,000            | \$769,000            | \$981,000            | \$961,000            |
| Public Transportation Research                     | -                    | -                    | -                    | -                    | -                    | -                    | -                    | -                    | \$101,000            | \$24,000             |
| Alternative Analysis                               | -                    | -                    | -                    | -                    | \$132,000            | \$99,000             | \$36,000             | \$78,000             | \$85,000             | -                    |
| Capital Assistance For Reducing Energy Consumption | -                    | -                    | -                    | -                    | -                    | -                    | -                    | -                    | \$2,014,000          | \$2,633,000          |
| Emergency Preparedness (FEMA)                      | \$583,000            | \$490,000            | \$720,000            | -                    | \$21,000             | -                    | -                    | -                    | -                    | -                    |
| Disaster Grant (FEMA)                              | -                    | -                    | -                    | -                    | -                    | -                    | -                    | -                    | \$3,397,000          | \$119,632,000        |
| <b>TOTAL</b>                                       | <b>\$764,645,000</b> | <b>\$557,489,000</b> | <b>\$392,448,000</b> | <b>\$485,688,000</b> | <b>\$689,759,000</b> | <b>\$724,940,000</b> | <b>\$801,231,000</b> | <b>\$616,346,000</b> | <b>\$643,277,000</b> | <b>\$740,576,000</b> |
| Grant funds passed through to subrecipients        | \$10,615,000         | \$13,737,000         | \$35,587,000         | \$29,080,000         | \$22,187,000         | \$23,322,000         | \$20,105,000         | \$16,809,000         | \$18,493,000         | \$38,109,000         |
| Net Department Expenditures                        | <u>\$754,030,000</u> | <u>\$543,752,000</u> | <u>\$356,861,000</u> | <u>\$456,608,000</u> | <u>\$667,572,000</u> | <u>\$701,618,000</u> | <u>\$781,126,000</u> | <u>\$599,537,000</u> | <u>\$624,784,000</u> | <u>\$702,467,000</u> |

Source: Scott and Company

Grant funds that have been passed through to subrecipients are expended at the discretion of the subrecipient based on the terms of the grant agreement. Examples of department subrecipients would be cities and towns, regional councils of governments, universities, and other departments of the state. SCDOT has a responsibility to monitor the subrecipients' compliance with federal guidelines as described under the compliance requirements for Subrecipient Monitoring in OMB Circular A-133. Amongst these monitoring requirements, procedures such as verifying that a subrecipient receives a single audit (if required), reviewing documentation to ascertain if the entity is using federal awards for authorized purposes, verifying that corrective actions are taken for audit deficiencies, and ensuring that mandatory federal program information is communicated to the subrecipient.

OMB Circular A-133 requires that the auditor compile and report significant deficiencies, material weaknesses in internal controls over compliance, and questioned costs.

- 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 significant deficiency in internal control over compliance is a deficiency, or a 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 (the SCDOT Commission).
- A material weakness in internal control over compliance is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is 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 questioned cost is a cost that is questioned by the auditor because of an audit finding:
  - Which resulted from a violation or possible violation of a provision of a law, regulation, contract, grant, cooperative agreement, or other agreement or document governing the use of Federal funds, including funds used to match Federal funds;
  - Where the costs, at the time of the audit, are not supported by adequate documentation; or
  - Where the costs incurred appear unreasonable and do not reflect the actions a prudent person would take in the circumstances.

SCDOT passes through approximately 5% of federal grant money to subrecipients. Therefore, SCDOT is responsible for monitoring how this money is spent by the subrecipients. As shown in Table 8.3, virtually all of the findings reported as a result of SCDOT's annual single audit relate to the monitoring of subrecipients. Some of SCDOT's monitoring requirements are related to subrecipient audits, subrecipient eligibility, and award expenditure. There have been no findings over the last 10 years relating to the remaining 95% of federal funds expenditures, which is the vast majority of SCDOT's federal funding.

A summary of auditor findings related to internal control over compliance or questioned costs for each of the fiscal years in the ten year period is in Table 8.3. We found that adequate corrective action was taken for all findings identified in the prior year's report with two exceptions. The single audit identified a repeat finding related to subrecipient monitoring in FY 07-08 and award identification in FY 08-09. The findings were resolved the next fiscal year.

**Table 8.3: Single Audit Findings**

| Fiscal Year | FINDINGS   | SIGNIFICANT DEFICIENCIES            | MATERIAL WEAKNESSES                 | QUESTIONED COSTS                    |
|-------------|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 05-06       | The Waccamaw Regional Transit Authority encountered fraud involving the misappropriation of funds and unallowable costs. There had been no audit reports for Waccamaw Regional Transit Authority for FY 03-04 and FY 04-05.                              |                                     |                                     | <input checked="" type="checkbox"/> |
| 06-07       | SCDOT incorrectly completed Federal Form SF 269 and consequently overstated amounts by \$12,157.80; SCDOT was unable to provide a report detailing the disposition of equipment purchased with federal funds.  | <input checked="" type="checkbox"/> |                                     |                                     |
|             | SCDOT did not meet the following governing requirements in a timely manner: <ul style="list-style-type: none"> <li>Award Identification</li> <li>Subrecipient Audits</li> <li>During-the-Award Monitoring</li> <li>Pass-Through Entity Impact</li> </ul> |                                     | <input checked="" type="checkbox"/> |                                     |
| 07-08       | To monitor the progress of the DBE program, the recipient is required to submit semi-annual reports based on a recordkeeping system per federal guidelines. SCDOT did not timely submit the reports due December 1, 2007, and June 1, 2008.              | <input checked="" type="checkbox"/> |                                     |                                     |
|             | SCDOT did not meet the following governing requirements in a timely manner: <ul style="list-style-type: none"> <li>Award Identification</li> <li>Subrecipient Audits</li> <li>During-the-Award Monitoring</li> <li>Pass-Through Entity Impact</li> </ul> |                                     | <input checked="" type="checkbox"/> |                                     |
| 08-09       | SCDOT did not meet the following governing requirement in a timely manner: <ul style="list-style-type: none"> <li>Award Identification</li> </ul>  | <input checked="" type="checkbox"/> |                                     |                                     |
| 09-10       | SCDOT did not meet the following governing requirements: <ul style="list-style-type: none"> <li>During-the-Award Monitoring</li> <li>Central Contractor Registration</li> </ul>  | <input checked="" type="checkbox"/> |                                     |                                     |
| 10-11       | No findings noted in the single audit for the current year.  |                                     |                                     |                                     |
| 11-12       | SCDOT did not meet the following governing requirement: <ul style="list-style-type: none"> <li>Subrecipient Audit</li> </ul>   | <input checked="" type="checkbox"/> |                                     |                                     |
| 12-13       | SCDOT did not meet the following governing requirement: <ul style="list-style-type: none"> <li>Determining Subrecipient Eligibility</li> </ul>   | <input checked="" type="checkbox"/> |                                     |                                     |
| 13-14       | No findings noted in the single audit for the current year.  |                                     |                                     |                                     |
| 14-15       | No findings noted in the single audit for the current year.  |                                     |                                     |                                     |

Source: Scott and Company

Some of the OMB Circular A-133 requirements for SCDOT that were listed in Table 8.3 are further explained below.

**AWARD IDENTIFICATION**

At the time of the award, identifying to the subrecipient the federal award information (e.g., CFDA title and number, award name, name of federal agency) and applicable compliance requirements.

**DURING-THE-AWARD MONITORING**

Monitoring the subrecipient's use of federal awards through reporting, site visits, regular contact, or other means to provide reasonable assurance that the subrecipient administers federal awards in compliance with laws, regulations, and the provisions of contracts or grant agreements and that performance goals are achieved.

**SUBRECIPIENT AUDITS**

(1) Ensuring that subrecipients expending \$500,000 or more in federal awards during the subrecipient's fiscal year for fiscal years ending after December 31, 2003 (or \$300,000 prior to that date) as provided in OMB Circular A-133 have met the audit requirements of OMB Circular A-133 and that the required audits are completed within 9 months of the end of the subrecipient's audit period; (2) issuing a management decision on audit findings within 6 months after receipt of the subrecipient's audit report; and (3) ensuring that the subrecipient takes timely and appropriate corrective action on all audit findings. In cases of continued inability or unwillingness of a subrecipient to have the required audits, the pass-through entity shall take appropriate action using sanctions.

**PASS-THROUGH ENTITY IMPACT**

Evaluating the impact of subrecipient activities on the pass-through entity's ability to comply with applicable federal regulations.

**CENTRAL CONTRACTOR REGISTRATION**

Identifying to first-tier subrecipients the requirement to register in the Central Contractor Registration, including obtaining a Dun and Bradstreet Data Universal Numbering System (DUNS) number, and maintain the currency of that information (Section 1512(h) of American Recovery and Reinvestment Act (ARRA), and 2 CFR 176.50(c)).

**DETERMINING SUB-RECIPIENT ELIGIBILITY**

In addition to any programmatic eligibility criteria under E, "Eligibility for Sub-recipients," for sub-awards made on or after October 1, 2010, determining whether an applicant for a non-ARRA subaward has provided a DUNS number as part of its subaward application or, if not, before award (2 CFR 25.110 and Appendix A to 2 CFR 25).



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## **SCDOT's Exemption from the S.C. Consolidated Procurement Code**

We reviewed issues involving SCDOT's exemptions from the procurement code. We did so by reviewing Materials Management Office (MMO) audits, interviewing MMO and SCDOT officials, and reviewing state law. The MMO is an office that provides procurement services for agencies covered by the S.C. Consolidated Procurement Code. We found problems with the exemptions that we address below.

S.C. Code §11-35-710(1) lists purchases exempt from the S.C. Consolidated Procurement Code for SCDOT:

(1) the construction, maintenance, and repair of bridges, highways, and roads; vehicle and road equipment maintenance and repair; and other emergency type parts or equipment utilized by the Department of Transportation or the Department of Public Safety....

In our review of the SCDOT procurement code exemption issue we found:

- Exempted procurements do not pass through MMO's Chief Procurement Officer for approval or review.
- State-funded projects with procurements that fall under the exemption have no oversight from state government.
- Bidders, offerors, contractors, or subcontractors have no administrative recourse to an independent third party for any protests they may have relating to procurements classified by SCDOT as "exempt". Normal procurements (non-exempt) can be protested pursuant to S.C. Code §11-35-4210.
- SCDOT does not have a written policy for processing protests from bidders, offerors, contractors, or subcontractors.
- MMO officials express that the exemptions should be repealed.

A review of the 2008 MMO exemption audit and discussions with MMO officials reveal the reasons MMO has for their recommendation the exemptions be repealed.

- SCDOT's exemption is inconsistent with South Carolina's sound approach to uniform and centralized public procurement policy and authority.
- Historical assumptions about the need for the exemption are flawed.
- Federal laws that govern federally funded highway contracts expressly contemplate that state procurement laws will apply.
- Applying the procurement code to SCDOT does not endanger the State's grants of federal highway funds.
- A substantial number of SCDOT procurements are not governed by any significant, enforceable laws as to how SCDOT awards those public contracts.

SCDOT classifies its own procurements as exempt or non-exempt pursuant to the procurement code. State law does not make clear that misclassifying procurements as "exempt" when in fact they are non-exempt is a violation of state law. Since MMO investigates whether SCDOT properly classified its exempted procurements, it remains unclear if SCDOT would become liable for penalties under state law if MMO deemed that SCDOT erred in its classification. If MMO finds that SCDOT improperly classified procurement(s) as exempt, it identifies these violations in its audit reports. However, these reports do not stay or reverse the procurement process. Although MMO has identified violations in its reports, they have never imposed an administrative penalty against SCDOT. S.C. Code §57-1-490(B) does not specify the amount of administrative penalties to impose on SCDOT for violations found during audits regarding their exemption, nor does it establish how MMO should establish penalties and under what laws these penalties should be enforced.

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## Materials Management Office Exemption Audits

We reviewed audit reports from MMO regarding SCDOT's compliance with procurement code exemptions. Although the most recent MMO review found that SCDOT acted properly with regard to its exemptions, SCDOT has yet to implement a recommendation from a 2008 MMO review. In that review, MMO recommended that SCDOT revise its internal policies and procedures by adding guidance to SCDOT staff as to which procurements are subject to the Consolidated Procurement Code and which are exempt.

The MMO reviews are made pursuant to S.C. Code §57-1-490 in order "...to ensure that the department has acted properly with regard to the department's exemptions contained in S.C. Code §11-35-710." The latest MMO audit of SCDOT's compliance with procurement code exemptions was published in October 2014. The audit reviewed:

- Road construction contracts.
- Consultant and design-related professional services.
- Non-professional service contracts.
- SCDOT expenditure files.
- SCDOT capital improvements.

In that review, MMO concluded that SCDOT acted properly with regard to its exemptions in all material respects. MMO had similar conclusions in its 2011, 2012, and 2013 reviews.

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## Necessity of Exemption Audits

We discussed MMO's reviews of the SCDOT procurement code exemption with an MMO official. MMO has not found material problems regarding SCDOT's compliance with the procurement code exemption laws in its last four audits. According to an MMO official, the exemption audits as they currently exist are unnecessary and the exemption audits could be rolled into other audits that MMO conducts of SCDOT. Should the General Assembly decide to retain the exemption and given the lack of findings over several audits, the General Assembly should consider modifying the requirement that MMO annually review SCDOT's procurement code exemption. A possible alternative to an annual review would be to review the exemption as part of other MMO audits of SCDOT.

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## Recommendations

168. The General Assembly should repeal the S.C. Department of Transportation's exemption from the S.C. Consolidated Procurement Code.

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***IF THE GENERAL ASSEMBLY DOES NOT REPEAL THE  
S.C. DEPARTMENT OF TRANSPORTATION'S  
PROCUREMENT CODE EXEMPTION,  
THEN THE FOLLOWING RECOMMENDATIONS  
SHOULD BE IMPLEMENTED OR CONSIDERED.***

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169. The S.C. Department of Transportation should implement a written policy to receive and investigate protests made regarding its exemption from the S.C. Consolidated Procurement Code.
170. The General Assembly should amend state law to authorize an independent authority to investigate protests related to the S.C. Department of Transportation's exempted procurements.
171. The General Assembly should amend state law to specify who administers penalties against the S.C. Department of Transportation for violations pertaining to its exemption from the S.C. Consolidated Procurement Code and under which section of law(s) they are to be administered.
172. The General Assembly should amend S.C. Code §57-1-490 such that Materials Management Office's reviews of the S.C. Department of Transportation's exemption from the S.C. Procurement Code be conducted every five years, but discontinued after ten years if those reviews are without significant findings.

# Follow-Up

## Implementation of Recommendations in Previous SCDOT Audits

In this chapter we address the most recent history of the follow up of the audits of the South Carolina Department of Transportation conducted or contracted by the S.C. Legislative Audit Council:

A MANAGEMENT REVIEW OF THE  
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION (2006)

RESULTS OF A PERFORMANCE AUDIT OF THE  
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION (2010)  
BY MGT OF AMERICA, INC.

Our 2006 audit report resulted in 44 recommendations to the S.C. Department of Transportation and the General Assembly. In 2010, we contracted with MGT of America, Inc. to complete a follow-up review of our 2006 audit. MGT found that of the 44 recommendations appearing in our 2006 audit report, SCDOT implemented 31 recommendations, partially implemented 12 recommendations, and did not implement 1 recommendation.

MGT formulated 16 recommendations to address the 12 partially implemented recommendations and the single recommendation not implemented in the 2006 audit. MGT's review also created 30 additional recommendations.

Of the 46 recommendations from the 2010 MGT audit, 44 were directed to the department and 2 were directed to the General Assembly. Of the 44 recommendations directed to SCDOT, the department implemented 24, partially implemented 7, did not implement 10, and 3 recommendations were no longer applicable.

| MGT RECOMMENDATIONS   |           |
|-----------------------|-----------|
| Implemented           | 24        |
| Partially Implemented | 7         |
| Not Implemented       | 10        |
| Not Applicable        | 3         |
| <b>TOTAL</b>          | <b>44</b> |

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**MGT Recommendation 1-1**

**The SCDOT should seek approval from the Commission to reduce the number of times it has to seek Commission approval.**

**IMPLEMENTED**

The recommendation was to give the agency the authority to advertise, select, and negotiate consultant services for projects already approved by the Commission for the STIP or annually approved State Program. On January 21, 2010, the Commission approved this authority and reduced the number of times Commission approval is required.

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**MGT Recommendation 1-2**

**The SCDOT should continue to work on refining its negotiation process for consultant contracts.**

**IMPLEMENTED**

In October 2011, the Federal Highway Administration (FHWA) and the Secretary of Transportation approved a revised departmental directive and manual. In response to new directives issued by FHWA in 2015, SCDOT is updating its department directive.

Additionally, the Secretary is in the process of consolidating procurement processes into one area of SCDOT with the director of procurement reporting directly to the deputy secretary for finance and administration. SCDOT has also increased its use of work order contracts which can be issued in two days. SCDOT has initiated a pilot program with its small purchase program to purchase environmental services less than \$75,000; these contracts can be executed in less than 35 days. From December 15, 2013 to December 15, 2015, SCDOT has issued 33 small purchase contracts for \$516,692 and 121 work orders for \$8,858,438.

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**MGT Recommendation 1-3**

**The SCDOT should continue its efforts to improve the documentation process for consultant contract negotiations.**

**IMPLEMENTED**

We examined a sample of files of negotiations for consultant contracts (see *Contract Negotiations* in Chapter 6). In our review, we found sufficient documentation of the process for consultant contract negotiations.

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**MGT Recommendation 1-4**

**The SCDOT should consider providing additional training or assistance to the consultant contract negotiation staff.**

**IMPLEMENTED**

SCDOT's professional services group has sought training for SCDOT's negotiation staff. SCDOT provided us with documentation of webinars, in-person seminars, and conferences that provide training on procurement negotiations.

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**MGT Recommendation 1-5**

**The SCDOT should audit indirect cost rates as required by federal law and best practice guidelines.**

**IMPLEMENTED**

SCDOT does not audit indirect cost rates because current federal law and regulation do not require it and because the department lacks the resources to do so. We confirmed that current federal law and regulation do not require audits of indirect cost rates for design and engineering services contracts. FHWA rules state that contracting agencies, such as SCDOT, shall accept a consultant's or sub-consultant's indirect cost rates when they have been audited by an independent accounting firm or another state's transportation agency, and the costs have been certified as compliant with Federal Acquisition Regulation (FAR) cost principles. The contracting agency may use a risk assessment to determine if the indirect cost rates are developed in accordance with FAR cost principles.

SCDOT's Office of Contract Assurance (OCA) reports that it completes a risk assessment on every firm required to have an approved indirect cost rate. OCA then informs the SCDOT professional services contracting office of all firms that have undergone the annual review process which involves a review of audits or other documentation of the firm's indirect cost rates. We received copies of risk assessment forms but, due to time constraints and more important topics in the audit scope, we did not test OCA's risk assessment process.

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**MGT Recommendation 1-6**

**The SCDOT should ensure that it has updated the Contract Assurance policies and procedures to reflect changes in state law and departmental directives, and to ensure that these policies and procedures align with federal requirements and best practice guidelines.**

**IMPLEMENTED**

According to SCDOT management, the policy and procedure manual for the Office of Contract Assurance was updated in May 2013 and is in compliance with federal laws and regulations.

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**MGT Recommendation 1-7**

**The SCDOT should examine its preaward audit processes to ensure that these processes are adding value to the contracting process.**

**IMPLEMENTED**

SCDOT approved Department Directive 41 in October 2011, which includes an outline of pre-award audits. The directive requires that pre-award audits of cost proposals be requested by the director of contract services on an as-needed basis, taking into consideration the complexity of the project, proposed costs of the project, and significant findings in prior audits. This directive was most recently updated in September 2015.

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**MGT Recommendation 1-8**

**The SCDOT should consider adopting procedures to perform preaward audits simultaneously with contract negotiations.**

**IMPLEMENTED**

According to SCDOT management, pre-award audits are performed simultaneously with contract negotiations. Department Directive 41 places the pre-award audits in the negotiation process. Due to time constraints and more important topics in the audit scope, we did not test for implementation of these new procedures.

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**MGT Recommendation 1-9**

**The SCDOT should comply with HR Regulation 19-700 and not allow temporary employees to work more than one year without a break in service.**

**PARTIALLY IMPLEMENTED**

We evaluated the use of temporary employees for compliance with the Division of State Human Resources' Regulation 19-700. Since 2010, there have been 15 instances of a temporary employee being employed for longer than one year. Twelve of the fifteen violations occurred from 2010 through 2013. In the MGT 2010 Report, the audit team found nine temporary employees that had been employed for longer than one year. According to an SCDOT official, SCEIS delivers a notice 90, 60, and 30 days before the end of the 365 day period. This helps SCDOT avoid retaining a temporary employee for more than one year.

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**MGT Recommendation 1-10**

**The SCDOT should address (with specific units in the department) when it identifies instances of employees being rapidly terminated and rehired in quick succession to determine if there are opportunities to seek additional full-time equivalent positions or to analyze the cause of these units' decisions.**

**PARTIALLY IMPLEMENTED**

In our review of temporary employees since 2010, we found 14 occasions where employees were terminated and rehired in 15 days or less and 15 occasions where employees were terminated and rehired in 16-30 days. We reviewed all 14 occasions of a termination and rapid rehire in 15 days or less and found that 13 rehires had justifications.

According to an SCDOT official, usually a rehire is requested because the project is not finished yet or the summer intern is being rehired to work the fall semester. A justification is required to rehire a temporary employee but there is no analysis done to determine if the individual should be rehired in a full-time position.

We also reviewed the position descriptions and pay for the 15 current temporary employees as of December 21, 2015. From the position descriptions, we were able to determine that two temporary employees had been rehired at least four times since 2012. Both temporary employees had been rehired in the same state job title series as the previous temporary employment. Both temporary employees make above the average salary for FTEs with the same state job title. These employees would be candidates for FTE positions. We also found that 6 out of 15 current temporary employees were making less than the average for FTEs with the same state job title.



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**MGT Recommendation 1-11**

**The SCDOT should work with the State Budget and Control Board to seek additional full-time equivalent positions when warranted or to identify ways to meet the workload needs of SCDOT without incurring additional costs from hiring consultants.**

**IMPLEMENTED**

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An SCDOT official stated, “due to the high number [of] vacant full-time positions, SCDOT will not seek additional positions.” SCDOT does have a number of vacant positions open compared to funded levels. See *Background* in Chapter 1 for funded levels versus filled positions. See *Issues for Further Study* in Chapter 1 and *Outsourcing Studies* in Chapter 2 for more information on costs related to consultants.

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**MGT Recommendation 1-12**

**The SCDOT should create mechanisms for procurement staff in various district or county offices to share information.**

**IMPLEMENTED**

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Since SCEIS was implemented for procurement, the previous system is no longer in use. According to SCDOT management, SCEIS allows all training, information, sharing, updates, processes, and procedures to be handled at the state level. We were provided evidence of procurement training for every district in 2015 and procurement training for the whole department on a quarterly basis. The training provides opportunities for communication. SCDOT officials have discussed establishing on-line procurement classes. Also, SCDOT maintains an internal link in SharePoint software that contains materials for procurement training for any department employee.

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**MGT Recommendation 2-1**

**The SCDOT should consider increasing the weight given to local district engineer’s project evaluations and input.**

**NOT IMPLEMENTED**

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Currently, Engineering Directive 50 is the only directive that lists local input of the district engineer as part of prioritizing projects in the counties in their district. This directive is used for the “Non-Interstate Road Resurfacing Project Selection Process.” An SCDOT official stated that the department has given district engineers “complete control over the selection of secondary roads for preservation projects.” However, our review of Engineering Directive 50 indicates that it does not have weights. Therefore, it is unclear how the department has given the engineers complete control. SCDOT did not provide documentation of analyses for increasing the weight given to the local district engineers’ evaluations.

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**MGT Recommendation 2-2**

**The SCDOT should continue its efforts to update its process for grouping roadway segments into projects that can take into effect economies of scale.**

**IMPLEMENTED**

SCDOT has designated 15% of each county's federal aid allotment as "flexible funding" that can be utilized for the purpose of funding roadway corridors to take advantage of economies of scale. The flexible funding takes advantage of local engineers' knowledge to maximize efficiency. According to SCDOT officials, "SCDOT has developed business rules for grouping road segments together to develop road projects." SCDOT further states:

In addition, road projects are grouped by counties and counties are grouped together establishing contracts in an effort to take advantage of economies of scale. Spreadsheets containing project lettings for program years 2007 to date have been previously submitted that show road and county groupings into contracts.

We reviewed project lettings and SCDOT's business practices and found that SCDOT appears to be in compliance with this recommendation.

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**MGT Recommendation 2-3**

**The SCDOT should provide a report to the Commission of all material change orders—those that exceed a set dollar or percentage value.**

**IMPLEMENTED**

We confirmed that SCDOT has implemented a change order authorization process with graduated levels of approval based on the financial impact of the change order and is complying with that process (see *Bid Review and Contract Administration* in Chapter 6). SCDOT reports that change orders with an impact greater than \$250,000 are reported monthly to the Commission.

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**MGT Recommendation 2-4**

**The SCDOT should review contract expenditures to ensure that staff are seeking change orders when they request additional work or materials from contractors due to scope, schedule, or project changes.**

**IMPLEMENTED**

SCDOT procedures require that change orders be approved. The level of authority to approve a change order varies with the amount of the change order. We also confirmed that other factors such as a change in the price of fuel or asphalt or incentives or liquidated damages may result in a contractor's being paid an amount different from the original bid amount, and these would not be subject to change orders. We tested a sample of contracts and found compliance with the department's policy on change order approvals (see *Change Order Authorization* in Chapter 6).

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**MGT Recommendation 2-5**

**The JTRC or General Assembly should consider adding a step to reconcile Commission members' annual disclosure statements with original statements and documents provided during the appointment and election process.**

**NOT IMPLEMENTED**

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We reviewed proposed legislation, applicable law, and applicable policies regarding this recommendation and have determined that it has not been implemented.

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**MGT Recommendation 2-6**

**The SCDOT should seek legislation to amend state law requirements related to smaller project review and approval by the Commission.**

**NOT IMPLEMENTED**

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Senate Bill 222 was introduced in 2009 and would have allowed the Secretary rather than the Commission to certify that work was approved based upon objective and quantifiable factors; however, it did not pass. SCDOT's November 2015 status indicates it foresees an opportunity to pursue more legislation in the future.

---

**MGT Recommendation 2-7**

**The General Assembly should consider modifying existing state laws to ensure that the Commission and SCDOT are able to concentrate on the higher-risk or higher-dollar items rather than on items that are low risk, low dollar, or already completed.**

**NOT IMPLEMENTED**

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Legislation was introduced in 2009 and 2012 to satisfy this recommendation; however, the legislation did not pass. SCDOT's November 2015 status indicates it foresees an opportunity to pursue more legislation in the future.

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**MGT Recommendation 2-8**

**The SCDOT should continue to use and refine its Life Cycle Cost Analysis model and pavement selection criteria.**

**PARTIALLY IMPLEMENTED**

SCDOT does not perform Life Cycle Cost Analysis (LCCA) on all new location and reconstruction projects. On new location or reconstruction projects, Engineering Directive 15 advises the pavement design engineer to use the pavement with the lowest initial cost. This may result in higher overall costs to the department because they are not taking into consideration life cycle costs of the pavement based on the Life Cycle Cost Analysis. Directive 15 says the engineer can deviate from using the initial cost if it is in the best interest of SCDOT. This is vague and the directive does not clarify or provide criteria by which the engineer is to determine this.

According to the directive, if an alternative pavement structure is desirable, it is reviewed by the Pavement Advisory Committee and approved by the Directors of Construction and Preconstruction. If there is any deviation from picking the lowest cost based on the Life Cycle Cost Analysis that decision must go before the Pavement Advisory Committee.

We recommend that SCDOT delete the requirement in Engineering Directive 15 to use the lowest initial cost alternative and add language requiring that Life Cycle Cost Analysis be used on all reconstruction and new location projects. We further recommend adding language to require that if after completing a Life Cycle Cost Analysis the decision calls for selecting an alternative other than the initial cost alternative, then that decision shall go before the Pavement Advisory Committee.

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**MGT Recommendation 3-1**

**The chief internal auditor should continue to develop and employ an independent, risk-based methodology for audit planning based on established internal auditing best practices.**

**NOT IMPLEMENTED**

The Office of the Chief Internal Auditor (OCIA) currently does not conduct risk assessments to develop a risk-based audit plan. See *Risk Assessments* in Chapter 2 for more information.

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**MGT Recommendation 3-2**

**The Commission and the chief internal auditor should continue to establish and refine internal processes for audit planning and develop and monitor audit performance measures.**

**NOT IMPLEMENTED**

There are no performance measures for the OCIA nor does OCIA track work hours. Tracking hours would assist in performance measures for the OCIA. When SCDOT began using SCEIS in 2011, time sheets were discarded. It was seen as a duplication of effort. However, SCEIS records working time and leave. It does not differentiate between administrative and audit time. Also, there are no budgeted hours or actual hours recorded for each audit. Recording audit hours provides information for analysis of time usage. It is used for audit plan development regarding budgeting hours allocated to audits. Also, it is a tool for measuring the staff's performance, efficiency, and effectiveness.

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**MGT Recommendation 3-3**

**The Commission, SCDOT, and chief internal auditor should work together to establish a collaborative relationship, including establishment of a mechanism for management to request consulting services.**

**NOT IMPLEMENTED**

There was no policy statement created specifically addressing consulting services and the charter was never amended to include consulting services. According to SCDOT management, Departmental Directive 13 should have addressed this issue. Departmental Directive 13 was combined with Departmental Directive 41. We did not find any information addressing consulting services for OCIA in the directive. According to an SCDOT official, the charter has never been amended. The charter does not include any information about consulting services.

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**MGT Recommendation 3-4**

**The Secretary should ensure that SCDOT staff provides the internal audit staff with appropriate access to information and records needed to complete audit objectives, and that it asserts the authority provided by the law.**

**NOT IMPLEMENTED**

Aside from the charter, there is no policy statement created to enforce compliance or escalation procedure to handle the issue. According to SCDOT management, Departmental Directive 6 and a resolution passed in 2009 addressed the issue. However, the departmental directive and resolution are not relevant to the issue. Departmental Directive 6 was recently updated in 2015. It now states that all fraudulent behavior and unethical behavior be reported to the chief counsel or the inspector general (IG). The resolution passed in 2009 stated that fraudulent and ethical behavior be reported to the internal auditor's office. However, since then, the fraud hotline has been moved to the IG's office and the chief internal auditor's position description was changed so that he is required to report fraudulent activity to the Chairman of the Audit Committee and the information is turned over to the IG.

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**MGT Recommendation 3-5**

**The Commission and chief internal auditor should ensure that, should SCDOT staff not provide appropriate access to records or information that the internal auditor asserts the authority provided to him by the law.**

**NOT IMPLEMENTED**

*See MGT Recommendation 3-4.*

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**MGT Recommendation 3-6**

**The SCDOT should consider establishing in-house expertise in information systems auditing.**

**IMPLEMENTED**

There is currently an internal auditor in the OCIA with expertise in information systems auditing. He is in the process of obtaining his certification as an information systems auditor from the Information Systems Audit and Control Association (ISACA). See *IT Auditing* in Chapter 2 for more information.

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**MGT Recommendation 3-7**

**The SCDOT and the Commission should consider incorporating the contract compliance function and unit, including responsibility for performing contract compliance reviews and audits, into the internal audit function.**

**NOT IMPLEMENTED**

OCIA and the Office of Contract Assurance (OCA) still remain as two separate areas. According to SCDOT's response in 2010, the department was concerned with confidentiality of cost and rate data and stated that OCA is required to be a separate function in order to utilize federal funds. However, releasing an audit report based on a review of confidential data is legal (without releasing the confidential data). Also, the chief internal auditor has exclusive control over the internal audit function for all departmental activities. Therefore, SCDOT cannot have a separate audit function in the department. The core functions of OCA are not being covered by OCIA. By joining the two offices, all audit functions will be under one office.

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**MGT Recommendation 3-8**

**The SCDOT should increase procurement coordination and planning efforts.**

**PARTIALLY IMPLEMENTED**

We received information from SCDOT the department is converting contracts that were formerly county or district procurement contracts, to district and statewide contracts. In 2015, in response to our follow-up, SCDOT officials reported that the department upgraded a procurement position and hired a procurement manager. Procurements greater than \$10,000 are handled by the central office where purchases can be coordinated, and not at the county or district level. Requests for goods and services that are proposed to extend beyond one year are also handled exclusively by headquarters.

SCDOT provided information on four contracts that were converted to district or statewide contracts: on-call herbicide application (9/24/15); vegetation grinding for all districts (10/30/15); district three on call dump trucks-one solicitation with each county identified as a separate lot. Award was made by lot (10/23/15); and concrete and flowable fill-district three (12/8/15). We have not sampled contracts. Procurement directors and procurement managers meet quarterly with district engineers to share information on procurement processes and bid solicitations.

The 2010 MGT report cited the SCDOT procurement page on the department's site as being underutilized to coordinate procurement decisions. At that time, MGT reported that the SCDOT procurement director was in the process of updating the office's Intranet website to include a Frequently Asked Questions (FAQ) page with information for district buyers regarding procurement tools, support training, and communication of procurement best practices. We reviewed the FAQ page and did not find that information. The training page has a link to the course description for procurement training and a procurement manual.

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**MGT Recommendation 3-9**

**The SCDOT should revise procurement card review processes and procedures to include detailed procedures for identifying transactions and selecting areas for review.**

**NOT IMPLEMENTED**

We reviewed SCDOT's procurement card review process and found that it does not contain detailed procedures for identifying and selecting transactions or areas for review. The agency's process simply states that a statistical or 100% sample may be used by staff when conducting reviews.

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**MGT Recommendation 3-10**

**The SCDOT should continue its efforts to control fuel costs.**

**IMPLEMENTED**

SCDOT provided documentation of recommendations implemented to reduce fuel consumption, including reducing equipment idle time, taking more efficient routes, using vehicles and equipment only when necessary, and combining trips whenever possible. The agency also reported that it continues to look for vehicles, equipment, and methods that are more fuel efficient.

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**MGT Recommendation 3-11**

**The SCDOT should perform fleet allocation reviews more often and at least semi-annually.**

**IMPLEMENTED**

SCDOT provided copies of fleet allocation and utilization reviews dated March and September for each year, beginning in 2010 and continuing through 2015.

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**MGT Recommendation 3-12**

**The SCDOT should review all vehicles with low utilization rates.**

**IMPLEMENTED**

SCDOT provided copies of fleet utilization reviews dated March and September for each year, beginning in 2010 through 2015. These reports, prepared by the supply and equipment office to identify vehicles and equipment with low utilization rates, are sent to the director of maintenance office for review. The director of maintenance office then requires that each district provide a justification for each item and determines whether that justification is legitimate and sufficient to retain the vehicle or equipment item. If justification is not sufficient, the items are reassigned to other units or turned in for disposal. As of November 2015, the utilization report stated that the agency had 244 vehicles or pieces of equipment with less than 50% utilization out of a total inventory of 8,604 items.

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**MGT Recommendation 3-13**

**The SCDOT should track the implementation of the wireless interface system.**

**NOT IMPLEMENTED**

The agency has not implemented the system or continued to track its implementation by other agencies. The agency stated that tracking reports were not prepared as the system was immediately recognized as not cost effective and that it continues to not be cost effective. No cost data or cost-benefit analysis was provided.



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**MGT Recommendation 3-14**

**The SCDOT should take advantage of controls to prevent exceptional transactions before they occur.**

**PARTIALLY IMPLEMENTED**

SCDOT reported that controls are in place to decline a purchase at the point of sale if the user has an invalid PIN, but the agency has elected not to have the fuel system decline other types of exceptional purchases flagged by the system, such as those made after normal business hours or on weekends. A number of SCDOT units regularly work nights and weekends and need the ability to fuel vehicles and equipment during these times.

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**MGT Recommendation 3-15**

**The SCDOT should continue to track monthly exception reports and monitor the fuel card program.**

**IMPLEMENTED**

SCDOT provided monthly fuel exception reports for the last six months for each engineering district. A cursory review of the reports indicates that managers are running the reports and reviewing flagged purchases. Audit time constraints and other more material audit priorities prohibited a thorough review or test of the controls of the system. There is some inconsistency in the format of notating the disposition of each flagged purchase on the reports. The department might consider implementing a standard method of noting dispositions.

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**MGT Recommendation 3-16**

**The SCDOT should publish all performance measures in one location.**

**IMPLEMENTED**

SCDOT's critical performance measures are located in its FY 14-15 accountability report.

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**MGT Recommendation 3-17**

**The SCDOT should revise unclear performance measures. (To ensure that all objectives in the 2008-2010 Strategic Plan and future plans are clear, SCDOT should develop charts that present a clear picture of SCDOT goals and its status for achieving them. The SCDOT should develop appropriate time constraints for each of its performance measures.)**

**PARTIALLY IMPLEMENTED**

In SCDOT's FY 14-15 accountability report, SCDOT's performance measures are presented clearly in a chart. However, some of SCDOT's performance measures still remain unclear. See *Performance Measures* in Chapter 2 for more information.

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**MGT Recommendation 3-18**

**The SCDOT should list a primary performance measure for each strategic goal and subobjective within SCDOT's strategic plans.**

**IMPLEMENTED**

Each performance measure is linked to a goal, strategy, or objective in SCDOT's FY 14-15 accountability report.

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**MGT Recommendation 3-19**

**The SCDOT should produce performance measurement "dashboards" that conform to industry best practices.**

**PARTIALLY IMPLEMENTED**

SCDOT maintains an internal and external dashboard. SCDOT's internal dashboard measures timeliness of work requests and encroachment permits statewide, by district, and by county. SCDOT's external dashboard is not timely. The current external dashboard is dated for the fourth quarter of FY 13-14. The information provided does not show progress over time and there are no benchmarks to indicate desired performance. According to SCDOT, a new dashboard will be implemented on July 1, 2016. This dashboard will be used to manage performance measures in line with the goals of the strategic plan and the focus areas of the Secretary of Transportation.

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**MGT Recommendation 3-20**

**The SCDOT should perform a review to determine whether the financial system meets SCDOT's needs.**

**NOT APPLICABLE**

We reviewed the conditions that led to MGT's recommendations related to SCDOT's financial systems. These concerns resulted from SCDOT's continued reliance on in-house legacy accounting and budgeting systems that were used prior to the department converting to SCEIS, the statewide financial system, in late 2011. Recommendations 3-20, 3-21, and 3-22 were primarily predicated on the possibility of SCDOT receiving an exemption from SCEIS implementation and/or continuing to operate with legacy systems. We believe that implementation of SCEIS finance modules has addressed most of the conditions that led to these recommendations.

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**MGT Recommendation 3-21**

**The SCDOT should create better budgeting and expenditure tools.**

**NOT APPLICABLE**

This recommendation was based on MGT's finding that SCDOT was using time-consuming, manual processes and multiple systems to track budgets and expenditures. Budgeting is a component of the SCEIS finance module which SCDOT has implemented, but expenditure tracking is still not adequate as evidenced by SCDOT's inability to provide expenditures for capacity-building projects, pavement maintenance projects, and routine maintenance in a useable format that was readily available from its systems. See *Infrastructure Expenditures* in Chapter 3.

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**MGT Recommendation 3-22**

**The SCDOT should develop system fund controls within its financial system for construction contracts.**

**NOT APPLICABLE**

At the time of this recommendation, SCDOT's legacy accounting systems did not have fund controls in place. This led to the possibility of contract payments exceeding approved budget amounts. The department implemented SCEIS financial modules in late 2011, which contain fund controls.

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**MGT Recommendation 3-23**

**The SCDOT should create IT policies and standards that reflect common and best practices and implement an information security awareness program.**

**IMPLEMENTED**

SCDOT created information technology (IT) security policies and provided online security awareness training to employees through the SANS Institute, a global organization that provides information security training. According to SCDOT management, there was a 96% completion rate. We reviewed the SCDOT IT security policies, security standards by the National Institute of Standards and Technology, security best practices by the U.S. General Accountability Office, and security guidelines by the Federal Communications Commission. We found that the scope of SCDOT IT security policies reflect standards, practices, and guidelines as recommended by these authorities.

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**MGT Recommendation 3-24**

**The SCDOT should review and revise departmental IT security administration policies and practices.**

**IMPLEMENTED**

According to SCDOT, the systems manager reviews the directory of active and inactive accounts monthly. Accounts that are inactive for 45 days are disabled and accounts that are inactive for 90 days are deleted per the IT policies. System administrators are provided a termination listing every two weeks to ensure that their records are up to date.

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**MGT Recommendation 3-25**

**The SCDOT should continue efforts to develop and implement a comprehensive business continuity and disaster recovery program.**

**IMPLEMENTED**

According to SCDOT management, SCDOT implemented a business continuity and disaster recovery program involving four phases. These four phases are complete and the disaster recovery site is located in a hurricane-proof, secure hub building. Currently, SCDOT is working on providing internet connectivity to the site and it should be completed by March 2016. SCDOT has also created a disaster recovery plan.

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**MGT Recommendation 3-26**

**The SCDOT should continue its efforts to refine its policy and procedure manual and its work to implement all policies and procedures.**

**IMPLEMENTED**

This recommendation was directed towards the Office of Public Transit (OPT) within SCDOT. A Statewide Management Plan (SMP) was completed in November 2010 and the latest update was December 2015. According to SCDOT management, the SMP requires that the OPT comply with U.S. Code of Laws. The OPT's policies and procedures manual is in compliance with the SMP. According the SCDOT management, the manual was updated in 2015 to reflect changes in federal regulations and internal process. There are no revision dates listed in the manual; however, the information in the manual is indicative of the manual being updated. We performed no further review due to audit time constraints and the materiality of this issue relative to other audit topics.

# Acronyms and Glossary

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**AADT** — Average Annual Daily Traffic

**Aggregate** — Inert granular materials such as sand, gravel, or crushed stone

**AASHTO** — American Association of State Highway and Transportation Officials

**ARC** — Appalachian Regional Commission

**ARMS** — Access and Roadside Management Standards

**ARRA** — American Recovery and Reinvestment Act of 2009

**BAMS/DSS** — Bid Analysis Management System/Decision Support System

**Boggs** — Boggs Paving, Inc.

**BRC** — Bid Review Committee

**EPPS** — Encroachment Permit Process System

**CAE** — Contract Administration Engineer

**CCA** — Construction Contracts Administration

**CFDA** — Catalog of Federal Domestic Assistance

**CFR** — Code of Federal Regulations

**CE&I** — Construction Engineering and Inspection

**Centerline Mileage** — Centerline mileage is the total length of the road.

**C Funds** — Funds distributed to counties pursuant to SC Code §12-28-2740 from the motor fuel user fee.

**Council of Governments (COG)** — a regional forum to allow local governments to come together to address common challenges, such as; infrastructure, community and economic development, and other general regional governmental issues. Their role is very similar to the MPO, to allow a public forum for transportation decision making and analyzing the area's long-range transportation needs. The following COGs are mentioned in this report:

|                |  |
|----------------|--|
| Appalachian    | Oconee, Pickens, Greenville, Spartanburg, Cherokee, Anderson |
| Catawba        | Union, Chester, York, Lancaster                              |
| Low Country    | Hampton, Colleton, Jasper, Beaufort                          |
| Lower Savannah | Aiken, Barnwell, Allendale, Bamberg, Orangeburg, Calhoun     |
| Pee Dee        | Chesterfield, Marlboro, Darlington, Florence, Marion, Dillon |
| Santee Lynches | Kershaw, Lee, Sumter, Clarendon                              |
| Upper Savannah | Abbeville, Laurens, McCormick, Greenwood, Saluda, Edgefield  |
| Waccamaw       | Williamsburg, Georgetown, Horry                              |

**COSO** — Committee of Sponsoring Organizations

**CMAQ** — Congestion Mitigation/Air Quality

**CPA** — Certified Public Accountant

**CRM** — Construction and Resource Management

**CTC** — County Transportation Committee

**DEA** — District Engineer Administrator

**DB** — Design-build

**DBB** — Design-bid-build

**DD** — Departmental Directive

**DBE** — Disadvantaged Business Enterprise Program

**DUNS** — Data Universal Numbering System

**FAST** — Fixing America's Surface Transportation

**FHWA** — Federal Highway Administration

**FDR** — Full-Depth Reclamation

**FDP** — Full-Depth Patching

**FTA** — Federal Transit Administration

**FTE** — Full-time Equivalent

**FDOT** — Florida Department Transportation

**FOIA** — Freedom of Information

**GAAP** — Generally Accepted Accounting Principles

**GAO** — Government Accountability Office

**GDOT** — Georgia Department of Transportation

**GIS** — Geographic Information System

**GSATS** — Grand Strand Area Transportation Study

**Guideshare** — South Carolina-specific term that includes the attributable federal funds to the TMAs as well as an allocation of additional funding to the TMAs, non-TMA MPOs, and COGs based on a Commission-approved formula and funding amount to each MPO and COG. These federal funds require a 20% state match.

**HLOC** — House Legislative Oversight Committee

**HMMS** — Highway Maintenance Management System

**HR** — Human Resources

**IFTA** — International Fuel Tax Agreement

**IG** — Inspector General

**IIA** — Institute of Internal Auditors

**IIMS** — Interstate Interchange Management System

**ISACA** — Information Systems Audit and Control Association

**ISTEA** — Intermodal Surface Transportation Efficiency Act of 1991

**IT** — Information Technology

**IRF** — Insurance Reserve Fund

**KIP** — Kilopound; 1 kilopound is equal to 1,000 pounds of force.

**LCCA** — Life Cycle Cost Analysis

**LOS** — Level of Service

**Lane Mileage** — Lane mileage is the total length of the road multiplied by the number of road lanes.

**Lynches** — Lynches River Contracting

**LRC** — Letting Review Committee

**LRTP** — Long Range Transportation Plan

**LPA** — Local Program Administration

**Maintenance** — The repair and upkeep of the existing roadways. This includes the day-to-day activities of the Department maintenance workers such as preservation (micro-surfacing, chip sealing, ultra-thin lift asphalt overlaying, and full-depth patching), pavement rehabilitation and reconstruction (structural asphalt overlays, roller-compacted concrete, and reclamation). All bridge replacement projects are considered maintenance internally to the Department, but are capital projects for presentation in the audited financial statements. The Department definition of maintenance includes maintenance items not related to roadway preservation (signage, mowing grass, etc.).

**Metropolitan Planning Organization (MPO)** — a transportation policy-making organization made up of representatives from local government and transportation authorities. MPOs were created in order to ensure that existing and future expenditures for transportation projects and programs were based on a comprehensive, cooperative, and continuing (3-C) planning process. The role of the MPO includes: establishing a local forum for transportation decision making, evaluating transportation alternatives, developing and updating a long-range transportation plan. The following MPOs are mentioned in this report:

|       |   |
|-------|---|
| ANATS | Anderson Area Transportation Study            |
| CHATS | Charleston Area Transportation Study          |
| COATS | Columbia Area Transportation Study            |
| FLATS | Florence Area Transportation Study            |
| GPATS | Greenville-Pickens Area Transportation Study  |
| RFATS | Rock Hill-Fort Mill Area Transportation Study |
| SPATS | Spartanburg Area Transportation Study         |
| SUATS | Sumter Urban Area Transportation Study        |

**MAP** — Maintenance Assessment Program

**MAP — 21** — Moving Ahead for Progress in the 21<sup>st</sup> Century

**MTP** — Multimodal Transportation Plan

**MMO** — Materials Management Office

**NCDOT** — North Carolina Department of Transportation



**New Construction** — Termed “capacity” or “operational improvements” projects by the department that include road widening projects, new location roadways, or any congestion mitigating projects

**NHPP** — National Highway Performance Program

**NHS** — National Highway System

**OCA** — Office of Contract Assurance

**OCIA** — Office of the Chief Internal Auditor

**OGFC** — Open-graded Friction Course

**OMB** — Office of Management and Budget

**OPT** — Office of Public Transit

**Other Maintenance** — The repair and upkeep of the existing transportation system, not including work directly on the roadway surface that relates to preserving the asset. This includes grass mowing, signage, safety projects, striping, crack sealing, and ditch maintenance (ditch maintenance that is not a part of a preservation or resurfacing project), pothole patching.

**PCA** — Portland Cement Association

**PIN** — Personal Identification Number

**PRAM** — Program Resource Analysis Meeting

**PPP** — Public Participation Plan

**The Program** — SCDOT’s “27 in 7” Acceleration Program

**PQI** — Pavement Quality Index

**P2S** — Project Management System

**RCE** — Resident Construction Engineer

**Resurfacing** — a general term used to describe the placement of any volume of hot mix asphalt on an existing paved road.

**Roadway** — That portion of a highway improved, designed, or ordinarily used for vehicular travel, exclusive of the shoulder or berm.

**RFP** — Request for Proposal

**RFQ** — Request for Qualification

**RSL** — Remaining Service Life

**SCDPS** — South Carolina Department of Public Safety

**SCEIS** — South Carolina Enterprise Information System

**SCTIB** — South Carolina Transportation Infrastructure Bank

**SDP** — Strategic Direction Plan

**SMART** — specific, measurable, agreed-upon, realistic, and time-bound

**Standards** — International Standards for the Professional Practice of Internal Auditing

**State HR** — Division of State Human Resources

**Single Audit** — A Single Audit is an audit under Office of Management and Budget (“OMB”) Circular A-133, *Audits of States, Local Governments and Non-Profit Organizations*.

**State — Maintained Highway System** — Interstate routes, primary routes (SC and US routes), and secondary routes whose maintenance is primarily controlled by the Department.

**STIP** — South Carolina Statewide Transportation Improvement Program

**STP** — Surface Transportation Program

**STRAHNET** — Strategic Highway Corridor Network

**TEA — 21** — Transportation Efficiency Act for the 21<sup>st</sup> Century

**TA** — Transportation Alternative

**TAMP** — Transportation Asset Management Plan

**TMA** — Transportation Management Area

**TRIP** — A private nonprofit organization that researches, evaluates, and distributes economic and technical data on surface transportation issues.

**USCG** — United States Coast Guard

**USDOT** — United States Department of Transportation

**VMT** — Vehicle Miles Traveled

# SCDOT County Operations — Filled FTEs, Road Mileage and Bridge Counts

FTEs as of January 27, 2016: M = Maintenance  
C = Construction  
Ø = No Construction Office

Miles: Center Line Miles of  
SCDOT System Roads

(Source: SCDOT)

|  |   |   |   |
|--|---|---|---|
| <b>DISTRICT 1</b><br>47 District-Level Staff<br>5,799 Miles of Road<br>982 Bridges <hr/> <b>Kershaw</b><br>69 FTEs (69M, ØC)<br>1,026 Miles of Road<br>173 Bridges<br><b>Lee</b><br>44 FTEs (44M, ØC)<br>606 Miles of Road<br>93 Bridges<br><b>Lexington</b><br>133 FTEs (109M, 24C)<br>1,510 Miles of Road<br>219 Bridges<br><b>Richland</b><br>152 FTEs (122M, 30C)<br>1,613 Miles of Road<br>331 Bridges<br><b>Sumter</b><br>84 FTEs (71M, 13C)<br>1,043 Miles of Road<br>166 Bridges | <b>DISTRICT 2</b><br>30 District-Level Staff<br>6,259 Miles of Road<br>1,323 Bridges <hr/> <b>Abbeville</b><br>44 FTEs (37M, 7C)<br>656 Miles of Road<br>148 Brides<br><b>Anderson</b><br>95 FTEs (79M, 16C)<br>1,261 Miles of Road<br>324 Bridges<br><b>Edgefield</b><br>36 FTEs (36M, ØC)<br>604 Miles of Road<br>108 Bridges<br><b>Greenwood</b><br>63 FTEs (58M, 5C)<br>737 Miles of Road<br>133 Bridges<br><b>Laurens</b><br>68 FTEs (59M, 9C)<br>1,052 Miles of Road<br>234 Bridges<br><b>McCormick</b><br>30 FTEs (30M, ØC)<br>451 Miles of Road<br>63 Bridges<br><b>Newberry</b> (50M, 8C)<br>58 FTEs<br>853 Miles of Road<br>191 Bridges<br><b>Saluda</b><br>53 FTEs (45M, 8C)<br>644 Miles of Road<br>122 Bridges | <b>DISTRICT 3</b><br>70 District-Level Staff<br>4,365 Miles of Road<br>1,322 Bridges <hr/> <b>Greenville</b><br>118 FTEs (90M, 28C)<br>1,463 Miles of Road<br>463 Bridges<br><b>Oconee</b><br>54 FTEs (47M, 7C)<br>826 Miles of Road<br>185 Bridges<br><b>Pickens</b><br>62 FTEs (52M, 10C)<br>709 Miles of Road<br>213 Bridges<br><b>Spartanburg</b><br>133 FTEs (101M, 32C)<br>1,368 Miles of Road<br>461 Bridges | <b>DISTRICT 4</b><br>59 District-Level Staff<br>6,118 Miles of Road<br>1,266 Bridges <hr/> <b>Cherokee</b><br>47 FTEs (38M, 9C)<br>741 Miles of Road<br>185 Bridges<br><b>Chester</b><br>55 FTEs (47M, 8C)<br>811 Miles of Road<br>186 Bridges<br><b>Chesterfield</b><br>55 FTEs (48M, 7C)<br>1,035 Miles of Road<br>196 Bridges<br><b>Fairfield</b><br>39 FTEs (39M, ØC)<br>710 Miles of Road<br>127 Bridges<br><b>Lancaster</b><br>55 FTEs (48M, 7C)<br>895 Miles of Road<br>177 Bridges<br><b>Union</b><br>36 FTEs (36M, ØC)<br>616 Miles of Road<br>122 Bridges<br><b>York</b><br>93 FTEs (84C, 9M)<br>1,310 Miles of Road<br>273 Bridges |
|--|---|---|---|

FTEs as of January 27, 2016: M = Maintenance  
C = Construction  
Ø = No Construction Office

Miles: Center Line Miles of  
SCDOT System Roads

**DISTRICT 5**

69 District-Level Staff  
7,301 Miles of Road  
1,448 Bridges

**Darlington**

64 FTEs (56M, 8C)  
1,011 Miles of Road  
165 Bridges

**Dillon**

49 FTEs (41M, 8C)  
667 Miles of Road  
127 Bridges

**Florence**

107 FTEs (88M, 19C)  
1,360 Miles of Road  
268 Bridges

**Georgetown**

53 FTEs (46M, 7C)  
655 Miles of Road  
104 Bridges

**Horry**

101 FTEs (89M, 12C)  
1,340 Miles of Road  
388 Bridges

**Marion**

66 FTEs (58M, 8C)  
574 Miles of Road  
110 Bridges

**Marlboro**

37 FTEs (37M, ØC)  
718 Miles of Road  
96 Bridges

**Williamsburg**

63 FTEs (63C, ØC)  
978 Miles of Road  
190 Bridges

**DISTRICT 6**

74 District-Level Staff  
4,933 Miles of Road  
1,056 Bridges

**Beaufort**

42 FTEs (42M, ØC)  
532 Miles of Road  
63 Bridges

**Berkeley**

64 FTEs (64M, ØC)  
1,008 Miles of Road  
177 Bridges

**Charleston**

111 FTEs (72M, 39C)  
1,149 Miles of Road  
265 Bridges

**Colleton**

83 FTEs (75M, 8C)  
1,045 Miles of Road  
231 Bridges

**Dorchester**

68 FTEs (54M, 14C)  
681 Miles of Road  
194 Bridges

**Jasper**

49 FTEs (41C, 8C)  
518 Miles of Road  
126 Bridges

**DISTRICT 7**

19 District-Level Staff  
6,615 Miles of Road  
1,029 Bridges

**Aiken**

97 FTEs (87M, 10C)  
1,510 Miles of Road  
189 Bridges

**Allendale**

35 FTEs (35M, ØC)  
484 Miles of Road  
69 Bridges

**Barnwell**

30.75 FTEs (30.75M, ØC)  
592 Miles of Road  
75 Bridges

**Bamberg**

42 FTEs (36M, 6C)  
552 Miles of Road  
85 Bridges

**Calhoun**

40 FTEs (40M, ØC)  
528 Miles of Road  
66 Bridges

**Clarendon**

45 FTEs (39M, 6C)  
775 Miles of Road  
170 Bridges

**Hampton**

29 FTEs (29M, ØC)  
581 Miles of Road  
112 Bridges

**Orangeburg**

112 FTEs (105M, 7C)  
1,593 Miles of Road  
263 Bridges

# Self-Administered C Program Spending by State and Local Roads

To comply with the C Fund law, counties must spend at least 25% of their C Fund apportionment, based on a biennial averaging of expenditures, on the state highway system for construction, improvements, and maintenance. Using the annual reporting by CTCs, the amount spent on state and local projects was calculated by county and in total for the past nine fiscal years. As of the date of this report, FY 14-15 had not been reported by the CTC programs.

| COUNTY       | 2014-13             |                     | 2013-12             |                     | 2012-11             |                     |
|--------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|              | STATE               | LOCAL               | STATE               | LOCAL               | STATE               | LOCAL               |
| Anderson     | \$2,244,435         | \$1,320,702         | \$1,106,300         | \$ 822,542          | \$1,472,411         | \$1,711,818         |
| Beaufort     | 750                 | 846,756             | 2,346,138           | 1,058,686           | -                   | 644,940             |
| Berkeley     | -                   | 629,187             | 2,906,260           | 674,635             | 113,765             | 5,260,739           |
| Charleston   | 2,085,853           | 1,201,880           | 4,971,798           | 1,709,081           | 4,827,929           | 1,915,317           |
| Cherokee     | 264,429             | 542,123             | 745,066             | 377,881             | 343,743             | 963,312             |
| Chester      | 480,500             | 535,467             | 147,400             | 1,339,215           | 484,870             | 1,496,454           |
| Clarendon    | 258,554             | 1,157,740           | 284,678             | 372,481             | 275,000             | 807,143             |
| Colleton     | 500                 | 1,568,982           | 1,400,000           | 1,135,912           | 1,022,360           | 184,027             |
| Edgefield    | 72,030              | 817,970             | 459,500             | 648,391             | 2,450               | 815,239             |
| Greenville   | 1,717,014           | 10,113,017          | 1,461,848           | 9,021,055           | 1,458,154           | 9,902,524           |
| Greenwood    | 401,000             | 798,124             | 449,982             | 686,318             | 410,320             | 1,431,986           |
| Lancaster    | 457,000             | 1,471,822           | 515,760             | 630,994             | 124,890             | 1,744,543           |
| Laurens      | 624,048             | 678,054             | 370,000             | 765,865             | 366,302             | 939,525             |
| Lexington    | 260,445             | 2,014,228           | 1,583,708           | 2,159,534           | 128,822             | 2,764,826           |
| Pickens      | 821,468             | 288,131             | 1,968,118           | 967,295             | 1,700,424           | 374,945             |
| Saluda       | 368,909             | 806,476             | 376,002             | 680,204             | 350,001             | 670,501             |
| Spartanburg  | 235,864             | 2,829,895           | 2,948,641           | 2,002,263           | 695,988             | 2,584,915           |
| Sumter       | 612,862             | 1,758,501           | 537,761             | 861,211             | 648,702             | 830,740             |
| York         | 626,821             | 2,060,003           | 3,856,794           | 1,305,180           | 2,920,555           | 927,584             |
| <b>TOTAL</b> | <b>\$11,532,482</b> | <b>\$31,439,058</b> | <b>\$28,435,753</b> | <b>\$27,218,743</b> | <b>\$17,346,687</b> | <b>\$35,971,077</b> |

Source: Scott and Company

Appendix C  
Self-Administered C Program Spending by State and Local Roads

| COUNTY       | 2011-10             |                     | 2010-09             |                     | 2009-08             |                     |
|--------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|              | STATE               | LOCAL               | STATE               | LOCAL               | STATE               | LOCAL               |
| Anderson     | \$1,827,039         | \$2,875,126         | \$1,086,767         | \$ 601,827          | \$2,811,697         | \$ 974,077          |
| Beaufort     | 851,307             | 1,248,698           | 563,904             | 1,278,537           | 290,746             | 219,165             |
| Berkeley     | 2,756,600           | 149,318             | 3,107,449           | 576,311             | 699,031             | 1,311,362           |
| Charleston   | 2,014,172           | 1,863,472           | 1,639,987           | 2,655,619           | 1,645,759           | 1,655,793           |
| Cherokee     | 573,620             | 515,877             | 275,574             | 865,683             | 623,592             | 621,579             |
| Chester      | 379,930             | 1,066,027           | 245,594             | 510,463             | 304,442             | 1,665,187           |
| Clarendon    | 365,000             | 845,890             | 332,029             | 649,497             | 360,500             | 1,306,658           |
| Colleton     | 150,000             | 160,641             | 1,785,000           | 474,081             | 250,000             | 646,394             |
| Edgefield    | 710,000             | 602,449             | 211,772             | 241,091             | 384,961             | 502,330             |
| Greenville   | 2,903,314           | 4,319,397           | 6,249,561           | 2,929,210           | 3,913,370           | 1,511,484           |
| Greenwood    | 459,864             | 1,202,622           | 290,585             | 384,126             | 843,188             | 17,988              |
| Lancaster    | 419,666             | 864,404             | 429,660             | 434,608             | 283,150             | 465,406             |
| Laurens      | 700,000             | 898,610             | 633,941             | 659,663             | 997,517             | 662,070             |
| Lexington    | 1,471,103           | 1,927,277           | 540,748             | 1,776,733           | 1,935,919           | 692,188             |
| Pickens      | 294,480             | 237,454             | 1,120,934           | 406,652             | 2,487,234           | 586,445             |
| Saluda       | 702,000             | 632,208             | -                   | 753,851             | 733,190             | 1,431,159           |
| Spartanburg  | 2,525,028           | 2,315,395           | 793,731             | 4,641,719           | 2,708,178           | 1,810,322           |
| Sumter       | 342,045             | 2,895,714           | 1,935,277           | 935,827             | 1,388,051           | 832,562             |
| York         | 1,507,121           | 598,173             | 1,331,512           | 467,609             | 3,268,894           | 857,886             |
| <b>TOTAL</b> | <b>\$20,952,289</b> | <b>\$25,218,752</b> | <b>\$22,574,026</b> | <b>\$21,243,106</b> | <b>\$25,929,418</b> | <b>\$17,770,055</b> |

Source: Scott and Company

| COUNTY       | 2008-07             |                     | 2007-06             |                     | 2006-05             |                     |
|--------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|              | STATE               | LOCAL               | STATE               | LOCAL               | STATE               | LOCAL               |
| Anderson     | \$2,427,118         | \$1,857,365         | \$ 360,881          | \$1,540,450         | \$2,011,589         | \$1,581,686         |
| Beaufort     | 677,819             | 1,513,405           | 52,020              | 1,549,601           | 1,990,550           | 1,173,787           |
| Berkeley     | 1,817,585           | 2,199,536           | 371,502             | 3,718,065           | 914,989             | 426,359             |
| Charleston   | 3,023,433           | 1,653,556           | 922,733             | 1,040,811           | 5,161,525           | 2,760,555           |
| Cherokee     | 529,729             | 643,066             | 649,511             | 1,088,239           | 112,205             | 475,315             |
| Chester      | 711,228             | 708,695             | 70,775              | 167,890             | 498,510             | 1,375,184           |
| Clarendon    | 185,826             | 1,108,079           | 366,387             | 1,373,132           | -                   | -                   |
| Colleton     | 1,302,945           | 1,105,978           | 2,208,759           | 268,153             | 1,420,412           | 572,518             |
| Edgefield    | 234,703             | 411,862             | 185,542             | 1,086,735           | 15,000              | 199,807             |
| Greenville   | 7,740,665           | 1,474,419           | 4,544,613           | 1,618,811           | 8,008,768           | 2,767,289           |
| Greenwood    | 334,418             | 1,147,401           | 461,764             | 30,741              | 644,728             | 981,758             |
| Lancaster    | 572,255             | 482,322             | 334,800             | 1,262,574           | 53,498              | 1,028,737           |
| Laurens      | 807,827             | 755,660             | 1,057,010           | 744,406             | 444,707             | 482,567             |
| Lexington    | 2,549,806           | 3,511,110           | 1,152,619           | 3,396,041           | 1,149,290           | 2,814,285           |
| Pickens      | 268,246             | 919,146             | 1,028,941           | 2,867,658           | 1,067,794           | 1,032,274           |
| Saluda       | 375,000             | 1,146,580           | 100,000             | 368,109             | 246,045             | 410,858             |
| Spartanburg  | 2,403,225           | 2,922,517           | 1,809,172           | 2,278,529           | 959,568             | 2,212,410           |
| Sumter       | 200,942             | 683,747             | 1,034,644           | 1,526,190           | 649,236             | 1,783,416           |
| York         | 1,960,626           | 661,519             | 2,871,804           | 2,363,773           | 1,033,368           | 1,003,863           |
| <b>TOTAL</b> | <b>\$28,123,396</b> | <b>\$24,905,963</b> | <b>\$19,583,477</b> | <b>\$28,834,468</b> | <b>\$26,648,213</b> | <b>\$23,762,656</b> |

Source: Scott and Company

# Accountability Report Performance Measures

| Agency Name: |               |       |        | Department of Transportation   |          |     | Fiscal Year 2014-15<br>Accountability Report<br>Strategic Planning |
|--------------|---------------|-------|--------|--|----------|-----|--|
| Agency Code: |               |       |        | U12  | Section: | 084 |  |
| Type         | <u>Item #</u> |       |        | Description  |          |     |  |
|              | Goal          | Strat | Object |  |          |     |  |
| G            | 1             |       |        | Improve SAFETY.  |          |     |  |
| S            |               | 1.1   |        | Develop, implement, and manage a data-driven highway safety program.   |          |     |  |
| O            |               |       | 1.1.1  | Reduce the number of fatalities and serious injuries on the state highway system.  |          |     |  |
| S            |               | 1.2   |        | Promote Workforce Safety throughout the Agency.  |          |     |  |
| O            |               |       | 1.2.1  | Reduce the number of workplace injuries and lost work hours.   |          |     |  |
| G            | 2             |       |        | PRESERVE our Transportation Infrastructure.  |          |     |  |
| S            |               | 2.1   |        | Develop a risk-based asset management plan that optimizes investments in our roads and bridges.                                      |          |     |  |
| O            |               |       | 2.1.1  | Decrease number of roads and bridges moving from "good to fair" and "fair to poor."  |          |     |  |
| S            |               | 2.2   |        | Develop a risk-based program targeting posted and closed bridges.  |          |     |  |
| O            |               |       | 2.2.1  | Strategically reduce the number of posted and closed bridges.  |          |     |  |
| S            |               | 2.3   |        | Use the transit asset management system to optimize replacement of public transit vehicles.  |          |     |  |
| O            |               |       | 2.3.1  | Reduce the portion of the state's public transit fleet that has reached minimum useful life.   |          |     |  |
| G            | 3             |       |        | Optimize MOBILITY.   |          |     |  |
| S            |               | 3.1   |        | Continue to support an ITS and Incident Management Program.  |          |     |  |
| O            |               |       | 3.1.1  | Increase Traffic Management System coverage of strategic locations to enhance incident notification and hurricane evacuation.        |          |     |  |
| O            |               |       | 3.1.2  | Increase the number of lane miles of incident response coverage to increase safety and response to disabled motorists and incidents. |          |     |  |
| S            |               | 3.2   |        | Develop and implement a performance-based transit program.   |          |     |  |
| O            |               |       | 3.2.1  | Improve transit ridership and efficiency.  |          |     |  |
| S            |               | 3.3   |        | Continue support for a three-year pilot program in counties introducing public transit service for the first time.                   |          |     |  |
| O            |               |       | 3.3.1  | Increase access to public transit service.   |          |     |  |
| S            |               | 3.4   |        | Identify and deliver projects that relieve bottlenecks and recurring congestion.   |          |     |  |
| O            |               |       | 3.4.1  | Reduce congestion on our highway system.   |          |     |  |
| G            | 4             |       |        | Enhance a Strengthening ECONOMY.   |          |     |  |
| S            |               | 4.1   |        | Identify SC Freight Network and incorporate appropriate considerations into project ranking criteria.                                |          |     |  |
| O            |               |       | 4.1.1  | Improve freight mobility along freight corridors.  |          |     |  |
| S            |               | 4.2   |        | Strengthen the responsibilities of the Office of Minority Affairs and Small Business.  |          |     |  |
| O            |               |       | 4.2.1  | Increase participation by minority, women, and small owned businesses.   |          |     |  |

Appendix D  
Accountability Report Performance Measures

| Fiscal Year 2014-15<br>Accountability Report<br>Performance Measurement |  |                              |  |                             |                         |  |  |   |  |  |  |  |   |  |                         |  |
|---|--|------------------------------|--|-----------------------------|-------------------------|--|--|---|--|--|--|--|---|--|-------------------------|--|
| Agency Name:<br>Agency Code:<br>Performance Measure                     |  | Department of Transportation |  |                             | Time Applicable         |  |  | Data Source and Availability  |  |  | Reporting Freq.  |  | Calculation Method  |  | Associated Objective(s) |  |
|   |  | U12                          |  | Section:                    | 084                     |  |  |   |  |  |  |  |   |  |                         |  |
|   |  | Last Value                   | Current Value                                | Target Value                |                         |  |  |   |  |  |  |  |   |  |                         |  |
| 1   | Number of fatalities and rate  | Number: 824<br>Rate: 1.65    | Number: 435<br>Rate: TBD*<br>(thru 6-30-15)  | Number: 722<br>Rate: 1.53   | January 1 - December 31 |  |  | Traffic Engineering (DPS records).<br>All values are reported by calendar year. |  |  | Fatality count is received daily; Severe injury data is included in crash file received quarterly from SCDPS |  | Rate = # fatalities per 100 million VMT (vehicle miles traveled).                       |  | 1.1.1, 1.2.1            |  |
| 2   | Number of serious injuries and rate                                      | Number: 3,156<br>Rate: 6.32  | Number: 1259<br>Rate: TBD*<br>(thru 6-30-15) | Number: 3,210<br>Rate: 6.43 | January 1 - December 31 |  |  | Engineering- Traffic (DPS records)  |  |  | Annually or as needed  |  | Rate = # serious injuries per 100 million VMT (vehicle miles traveled).                 |  | 1.1.1, 1.2.1            |  |
| 3   | Number of fatal pedestrian accidents                                     | 109                          | 48<br>(thru 6-30-15)                         | 98                          | January 1 - December 31 |  |  | Engineering- Traffic (DPS records)  |  |  | Annually or as needed  |  | Total number reported.  |  | 1.1.1, 1.2.1            |  |
| 4   | Number of fatal bicycle accidents  | 14                           | 8<br>(thru 6-30-15)                          | 12                          | January 1 - December 31 |  |  | Engineering- Traffic (DPS records)  |  |  | Annually or as needed  |  | Total number reported.  |  | 1.1.1, 1.2.1            |  |
| 5   | Number of workplace injuries   | 559                          | 210<br>(thru 6-30-15)                        | 351                         | January 1 - December 31 |  |  | Support Services - Safety   |  |  | Workplace injuries are received daily  |  | Total number reported from "Total first report of injury filed by year."                |  | 1.1.1, 1.2.1            |  |
| 6   | Number of lost work days   | 3919                         | 2357<br>(thru 6-30-15)                       | 2938                        | January 1 - December 31 |  |  | Support Services - Safety   |  |  | Lost workdays are received daily   |  | Lost Workday Cases x (100 employees x 50 weeks x 40 hours) divided by man-hours worked. |  | 1.1.1, 1.2.1            |  |
| 7   | Percentage of road miles in good condition                               | 16%                          | 19%<br>(thru 12-31-14)                       | TBD **                      | January 1 - December 31 |  |  | Engineering - Road Data Services  |  |  | Annually   |  | Lane miles in good condition divided by total number of roads.                          |  | 1.1.1, 1.2.1            |  |
| 8   | Percentage of bridges in satisfactory condition                          | 65.70%                       | 65.40%                                       | < 66%                       | July 1 - June 30        |  |  | Engineering - Maintenance   |  |  | Annually or as needed  |  | Satisfactory bridges divided by total number of bridges.                                |  | 2.1.1, 2.2.1, 2.3.1     |  |
| 9   | Deck area of structurally deficient bridges (in msf-million square feet) | 5,199 msf                    | 4,866 msf                                    | 4,650 msf                   | July 1 - June 30        |  |  | Engineering - Bridge Maintenance  |  |  | Monthly  |  | Total amount of structurally deficient bridge deck area in million square feet (msf).   |  | 2.1.1, 2.2.1, 2.3.1     |  |



Appendix D  
Accountability Report Performance Measures

|    |  |              |                                  |   |                         |                                  |                       |   |   |
|----|--|--------------|----------------------------------|---|-------------------------|----------------------------------|-----------------------|---|---|
| 10 | Percentage of vehicle miles traveled (VMT) on good pavement  | 29%          | 36%<br>(thru 12-31-14)           | TBD **  | January 1 - December 31 | Engineering - Road Data Services | Annually              | Percentage of good pavement miles divided by total pavement miles.                              | 2.1.1, 2.2.1,<br>2.3.1                  |
| 11 | Reduce number of targeted posted bridges   | 398          | 384                              | 350   | July 1 - June 30        | Engineering - Bridge Maintenance | Monthly               | Total number of targeted bridges posted. Method to identify targeted bridges under development. | 2.1.1, 2.2.1,<br>2.3.1                  |
| 12 | Reduce number of targeted closed bridges   | 12           | 8                                | 10  | July 1 - June 30        | Engineering - Bridge Maintenance | Monthly               | Total number of targeted bridges closed. Method to identify targeted bridges under development. | 2.1.1, 2.2.1,<br>2.3.1                  |
| 13 | Percentage of SCOTD-titled active duty public transit vehicles beyond defined useful life parameters | 47%          | 56%                              | 40%   | July 1 - June 30        | Intermodal Planning              | As needed             | Number beyond useful life divided by number of total vehicles.                                  | 2.1.1, 2.2.1,<br>2.3.1                  |
| 14 | Area of Traffic Management System coverage (miles)   | 255          | 275                              | 293   | July 1 - June 30        | Engineering - Traffic (SHEP)     | Annually or as needed | Total miles reported.   | 3.1.1, 3.1.2,<br>3.2.1, 3.3.1,<br>3.4.1 |
| 15 | Lane miles of incident response coverage (miles)   | 347          | 347                              | 347   | July 1 - June 30        | Engineering - Traffic (SHEP)     | Annually or as needed | Total miles reported.   | 3.1.1, 3.1.2,<br>3.2.1, 3.3.1,<br>3.4.1 |
| 16 | Number of public transit passenger trips   | 12.0 million | 12.8 million<br>(6.52% increase) | ≥ 2% increase                                   | July 1 - June 30        | Intermodal Planning              | Annually or as needed | Total number of annual one-way passenger trips reported by transit providers.                   | 3.1.1, 3.1.2,<br>3.2.1, 3.3.1,<br>3.4.1 |
| 17 | Cost per transit passenger per trip  | \$4.83       | \$4.87<br>(0.85% increase)       | Maintain growth below the annual inflation rate | July 1 - June 30        | Intermodal Planning              | Annually or as needed | Total transit operations expenses divided by total number of transit passenger trips.           | 3.1.1, 3.1.2,<br>3.2.1, 3.3.1,<br>3.4.1 |
| 18 | Percentage of South Carolina counties with a public transit system                                   | 87%          | 89%                              | 90%   | July 1 - June 30        | Intermodal Planning              | As needed             | Number of counties with public transit service divided by total counties (46).                  | 3.1.1, 3.1.2,<br>3.2.1, 3.3.1,<br>3.4.1 |

Appendix D  
Accountability Report Performance Measures

|    |  |   |   |         |                         |                                |  |  |                                   |
|----|--|---|---|---------|-------------------------|--------------------------------|--|--|-----------------------------------|
| 19 | Annual hours of delay on interstates and Strategic Network | 2,481,054<br>(Interstate Only)<br>(thru 12-31-2012) | 3,186,078<br>(Interstate Only)<br>(thru 12-31-2013) | TBD *** | January 1 - December 31 | Engineering - Traffic/Planning | SCDOT is identifying the values for these performance measures but is currently awaiting the final federal guidance to ensure consistency with federal requirements. | The difference in daily VMT divided by average congested speed and daily VMT divided by free flow speed, multiplied by 365 days.             | 3.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1 |
| 20 | Interstate reliability index                               | 1.25<br>(thru 12-31-2012)                           | 1.27<br>(thru 12-31-2013)                           | TBD *** | January 1 - December 31 | Engineering - Traffic/Planning | SCDOT is identifying the values for these performance measures but is currently awaiting the final federal guidance to ensure consistency with federal requirements. | Compares near worst case travel time to a travel time in light or free flow traffic.   | 3.1.1, 3.1.2, 3.2.1, 3.3.1, 3.4.1 |
| 21 | Freight hours of delay                                     | 399,342<br>(Interstate Only)<br>(thru 12-31-2012)   | 535,574<br>(Interstate Only)<br>(thru 12-31-2013)   | TBD *** | January 1 - December 31 | Planning/Intermodal Planning   | SCDOT is identifying the values for these performance measures but is currently awaiting the final federal guidance to ensure consistency with federal requirements. | The difference in daily truck VMT divided by average congested speed and daily truck VMT divided by free flow speed, multiplied by 365 days. | 4.1.1, 4.2.1                      |

|     |   |  |  |                    |                          |  |  |  |              |
|-----|---|--|--|--------------------|--------------------------|--|--|--|--------------|
| 22  | Freight reliability index                               | 1.25<br>(Interstate Only)<br>(thru 12-31-2012) | 1.27<br>(Interstate Only)<br>(thru 12-31-2013) | TBD ***            | January 1 - December 31  | Planning/Intermodal Planning                         | SCDOT is identifying the values for these performance measures but is currently awaiting the final federal guidance to ensure consistency with federal requirements. | Compares near worst case truck travel time to a truck travel time in light or free flow traffic. | 4.1.1, 4.2.1 |
| 23a | Percentage of work awarded/committed to federal program | 13.40%   | 19.7%<br>(thru 6-30-15)                        | 12.50%             | October 1 - September 30 | Engineering- Construction and Support Services - DBE | Semi-annually  | DBE committed amount divided by total awarded amount.  | 4.1.1, 4.2.1 |
| 23b | Percentage of work awarded/committed to state program   | 3.22%  | 6.70%  | WBE: 5%<br>MBE: 5% | July 1 - June 30         | Engineering- Construction and Support Services - DBE | Semi-annually  | DBE awarded projects divided by total projects.  | 4.1.1, 4.2.1 |

\* Items 1 & 2} The rate values for the current year will be determined once the final Vehicle Miles Travelled (VMT) are calculated.

\*\* Items 7 & 10} SCDOT is currently developing a Transportation Asset Management Plan (TAMP), which involves developing fiscally constrained targets for bridge and pavement conditions. Targets for these categories will be set once the financial component and the TAMP are complete.

\*\*\* Items 19-22} These values await the final Federal rule stipulating the parameters and manner in which states should capture and report on them. Awaiting the final Federal rule is important to ensure data consistency.



## “27 in 7” Program

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Prominent projects involved in the “27 in 7” Program included:

**CONWAY BYPASS**

\$387 million; 28.5 miles; 4-lanes from U.S. 501, 10 miles north of Conway, to the Carolina Bays Parkway, and 6-lanes from there to U.S. 17 in the Myrtle Beach area.

**GREENVILLE SOUTHERN CONNECTOR**

\$219 million; 16 miles; toll road; 4-lane southern loop around the city of Greenville linking I-85 and I-385.

**COOPER RIVER BRIDGES**

\$531 million; Arthur Ravenel Jr. Bridge replaced Charleston's Cooper River Bridges and connected the historic Charleston peninsula with the growing town of Mount Pleasant; 2.8 miles of structures that included two interchanges, a pedestrian and bicycle facility, and a 1,546-foot cable-stay span over the shipping channel.

**CAROLINA BAYS PARKWAY**

\$232 million; 6-lanes from US-501 to SC-9, north/south highway intersecting the Conway Bypass in the Myrtle Beach area.

**SC-170 WIDENING PROJECT**

\$105 million; 12.5 miles; widened to 4-lanes west of the City of Beaufort from east of the SC-462 to just west of S-761 (W.L. Alston Drive) and the replacement of bridges over the Chechessee and Broad Rivers.

All the above projects were design-build projects that were financed primarily by the State Infrastructure Bank, except for the Greenville Southern Connector toll road which was financed primarily by private investors.

Under the “27 in 7” Program, SCDOT also accelerated improvements to the Interstate System. They financed the work using State Highway Bonds and Federal funds, with future debt service on the highway bonds funded through future Federal funds.

The program included the following widening and interchange improvement projects:

INTERSTATE WIDENING PROJECTS:

- I-26 in the Charleston area. 10 miles; 6 lanes.
- I-85 in the Greenville area. 15 miles; 6 lanes, 7 bridges.
- I-77 in York County. 5 miles; 8 lanes; 1 bridge.

INTERSTATE INTERCHANGE IMPROVEMENT PROJECTS:

- I-26/US-78 (University Avenue, Exit 205) near Charleston.
- I-26/US-378 (Sunset Boulevard, Exit 110) in Columbia.
- I-20/SC-6 (South Lake Drive, Exit 55) in Columbia.
- I-26/US-176 (Broad River Road, Exit 101) in Columbia.
- I-385/S-55 (Fairview Road, Exit 27) in Greenville.
- I-85/SC-14 (Exit 56) near Greenville area.
- I-85/SC-11 (Floyd Baker Boulevard, Exit 92) in Gaffney.

There were three components of the Program:

METROPOLITAN PLANNING ORGANIZATIONS (MPOs)

The first component was the improvement of highways and bridges which were part of either the state highway system or certain county road systems.

COUNCILS OF GOVERNMENTS (COGs)

The second component was the highways and bridges which were part of either the state highway system or certain county road systems, interchange improvements, the 16-mile, four-lane Southern Connector.

INTERSTATE UPGRADE ACCELERATION PROGRAM

The third component included widening and improvements to interchanges that were part of the state highway system that could be accomplished within existing rights of way in short periods of time.

Tables E.1 and E.2, below, reflect the bond financed funds that each MPO and COG received to spend on the "27 in 7" Program.

**Table E.1: MPO Bond Funding**

| SERIES       | ANATS               | CHATS               | COATS               | FLATS               | GPATS               | RFATS               | SPATS               | SUATS               | TOTAL                |
|--------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|
| 1999A        | \$5,593,000         | \$10,144,000        | \$7,773,000         | \$850,000           | \$5,102,000         | \$1,188,000         | \$958,000           | \$1,013,000         | \$32,621,000         |
| 2001B        | 8,580,000           | 57,815,000          | 39,183,000          | 4,264,000           | 38,921,000          | 13,529,000          | 20,301,000          | 9,142,000           | \$191,735,000        |
| 2005A        | -                   | 13,191,000          | 18,363,000          | 6,818,000           | 6,000,000           | 2,577,000           | 7,426,000           | 4,020,000           | \$58,395,000         |
| <b>TOTAL</b> | <b>\$14,173,000</b> | <b>\$81,150,000</b> | <b>\$65,319,000</b> | <b>\$11,932,000</b> | <b>\$50,023,000</b> | <b>\$17,294,000</b> | <b>\$28,685,000</b> | <b>\$14,175,000</b> | <b>\$282,751,000</b> |

Source: Scott and Company

**Table E.2: COG Bond Funding**

| SERIES       | APPALACHIAN         | CATAWBA             | LOW COUNTRY         | LOWER SAVANNAH      | PEE DEE             | SANTEE LYNCHES     | UPPER SAVANNAH      | WACCAMAW           | TOTAL                |
|--------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|---------------------|--------------------|----------------------|
| 1999A        | \$2,756,000         | \$2,845,000         | \$509,000           | \$2,803,000         | \$1,510,000         | \$260,000          | \$1,975,000         | \$898,000          | \$13,556,000         |
| 2001B        | 36,341,000          | 18,097,000          | 14,964,000          | 12,322,000          | 24,417,000          | 1,281,000          | 13,341,000          | 2,598,000          | \$123,361,000        |
| 2005A        | -                   | 8,225,000           | 6,007,000           | 11,01,000           | 3,814,000           | 7,335,000          | 11,899,000          | 6,280,000          | \$54,570,000         |
| <b>TOTAL</b> | <b>\$39,097,000</b> | <b>\$29,167,000</b> | <b>\$21,480,000</b> | <b>\$26,135,000</b> | <b>\$29,741,000</b> | <b>\$8,876,000</b> | <b>\$27,215,000</b> | <b>\$9,776,000</b> | <b>\$191,487,000</b> |

Source: Scott and Company

Table E.3, below, reflects the bond financed funds that were issued to be spent on the Interstate Interchange Program.

**Table E.3: Interstate Bond and Interchange Funding**

| SERIES | INTERCHANGE  | INTERSTATE    | TOTAL         |
|--------|--------------|---------------|---------------|
| 1999A  | \$41,613,000 | \$112,425,000 | \$154,038,000 |
| 2001B  | 15,430,000   | 26,973,000    | \$42,403,000  |
| 2005A  | 32,582,000   | 1,126,000     | \$33,708,000  |
| TOTAL  | \$89,625,000 | \$140,524,000 | \$230,149,000 |

Source: Scott and Company

**Table E.4: Total Bond Funding, by Bond Series, by Organization and Project Type**

| BOND SERIES |               | ORGANIZATION/PROJECT TYPE |               |
|-------------|---------------|---------------------------|---------------|
| SERIES      | TOTAL BONDING | BOND TYPE                 | TOTAL BONDING |
| 1999A       | \$200,215,000 | MPO                       | \$282,751,000 |
| 2001B       | 357,499,000   | COG                       | \$191,487,000 |
| 2005A       | 146,673,000   | Interstate                | \$230,149,000 |
| TOTAL       | \$704,387,000 | TOTAL                     | \$704,387,000 |

Source: Scott and Company

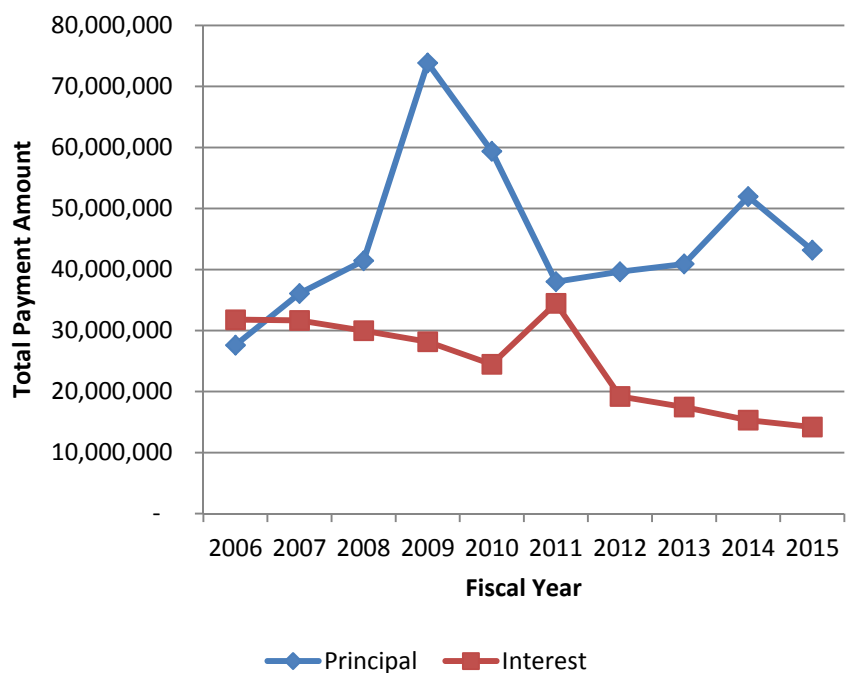
The department issued the 1999A, 2001B, and 2005A bonds and was responsible for its debt service. However, the underlying cause of the bond issuance was the MPO and COG projects as identified above. The MPOs and COGs were responsible for funding a portion of the debt service from its Guideshare allocated by the department. Guideshare funds are the main source of funding for MPO and COGs. This type of funding is also known as Surface Transportation Program (STP) funding in other states. Guideshare funds are federal funding that is funneled through the department to the MPOs and COGs in the state. It should be noted that the Guideshare funds do not get contributed to the MPO or COG.

The department retains and uses the funds to manage the projects and make expenditures for the projects that have been programmed by the MPO or COG. In order to ensure that the department did not have to utilize its own state funds for the debt service, the department limited the bond funding for each MPO or COG to one half of its Guideshare at the time the bonds were issued. From that time forward, the department retains the Guideshare funds and only will expend Guideshare funding at an amount that permits debt service to be covered.



Chart E.5 summarizes the department's general obligation bond debt service of the past ten fiscal years. Note that amounts that were paid directly to the escrow agent for advance refunding old bond issues have been removed from the debt service amounts as additional debt was issued to make those payments.

**Chart E.5: Total General  
Obligation Bond Debt Service,  
2006-2015**



Note: These amounts have been adjusted to remove the effects of bond refundings to depict actual debt service.

Source: Scott and Company



# SCDOT C Program Fee Revenues by County, FY 10-11 – FY 15-16 (as of March 2016)

|              | RESURFACING         |                       | CONSTRUCTION          |                     | TOTAL                 |
|--------------|---------------------|-----------------------|-----------------------|---------------------|-----------------------|
|              | PE                  | CEI                   | PE                    | CEI                 |                       |
| Abbeville    | \$1,000.00          | \$0.00                | \$0.00                | \$0.00              | \$1,000.00            |
| Aiken        | 43,390.49           | 254,342.86            | 559,368.83            | 668.50              | 857,770.68            |
| Allendale    | 6,389.27            | 32,335.59             | 16,900.00             | 15,017.14           | 70,642.00             |
| Anderson     | 34,307.73           | 173,245.49            | 34,110.00             | 0.00                | 241,663.22            |
| Bamberg      | 12,006.48           | 72,038.94             | 0.00                  | 0.00                | 84,045.42             |
| Barnwell     | 8,067.81            | 49,778.59             | 0.00                  | 0.00                | 57,846.40             |
| Beaufort     | 11,984.31           | 71,905.83             | 0.00                  | 0.00                | 83,890.14             |
| Berkeley     | 23,269.98           | 139,619.85            | 0.00                  | 4,946.30            | 167,836.13            |
| Calhoun      | 8,621.07            | 39,726.40             | 0.00                  | 0.00                | 48,347.47             |
| Charleston   | 0.00                | 0.00                  | 0.00                  | 0.00                | 0.00                  |
| Cherokee     | 0.00                | 0.00                  | 0.00                  | 0.00                | 0.00                  |
| Chester      | 9,597.49            | 61,727.70             | 1,000.00              | 0.00                | 72,325.19             |
| Chesterfield | 1,346.56            | 8,079.34              | 30,082.41             | 155,153.73          | 194,662.04            |
| Clarendon    | 4,150.88            | 33,402.46             | 19,531.93             | 34,180.89           | 91,266.16             |
| Colleton     | 8,334.90            | 50,009.42             | 32,500.00             | 0.00                | 90,844.32             |
| Darlington   | 21,645.01           | 129,870.06            | 2,916.53              | 40,831.43           | 195,263.03            |
| Dillon       | 14,564.28           | 75,385.64             | 0.00                  | 0.00                | 89,949.92             |
| Dorchester   | 0.00                | 0.00                  | 0.00                  | 0.00                | 0.00                  |
| Edgefield    | 5,767.06            | 22,602.37             | 0.00                  | 0.00                | 28,369.43             |
| Fairfield    | 8,279.74            | 43,678.44             | 2,564.64              | 32,158.64           | 86,681.46             |
| Florence     | 80,924.42           | 485,546.61            | 2,989.55              | 11,937.27           | 581,397.85            |
| Georgetown   | 13,756.58           | 82,539.46             | 0.00                  | 0.00                | 96,296.04             |
| Greenville   | 0.00                | 0.00                  | 0.00                  | 0.00                | 0.00                  |
| Greenwood    | 5,922.83            | 19,614.16             | 0.00                  | 0.00                | 25,536.99             |
| Hampton      | 9,719.04            | 58,314.27             | 1,187.94              | 16,631.09           | 85,852.34             |
| Horry        | 54,893.35           | 311,360.08            | 351.32                | 4,918.48            | 371,523.23            |
| Jasper       | 5,159.95            | 24,959.69             | 0.00                  | 0.00                | 30,119.64             |
| Kershaw      | 29,233.32           | 169,399.93            | 1,000.00              | 0.00                | 199,633.25            |
| Lancaster    | 8,004.98            | 60,946.52             | 0.00                  | 0.00                | 68,951.50             |
| Laurens      | 17,418.27           | 68,741.98             | 0.00                  | 0.00                | 86,160.25             |
| Lee          | 10,246.86           | 61,481.17             | 31,571.37             | 36,833.27           | 140,132.67            |
| Lexington    | 0.00                | 0.00                  | 279,135.00            | 0.00                | 279,135.00            |
| McCormick    | 15,545.15           | 81,270.91             | 0.00                  | 0.00                | 96,816.06             |
| Marion       | 9,472.67            | 38,836.01             | 0.00                  | 0.00                | 48,308.68             |
| Marlboro     | 18,869.90           | 113,219.38            | 1,799.67              | 25,195.37           | 159,084.32            |
| Newberry     | 17,535.96           | 81,215.74             | 0.00                  | 0.00                | 98,751.70             |
| Oconee       | 5,624.56            | 33,747.36             | 0.00                  | 0.00                | 39,371.92             |
| Orangeburg   | 26,912.53           | 155,480.37            | 28,168.26             | 64,871.13           | 275,432.29            |
| Pickens      | 0.00                | 0.00                  | 0.00                  | 0.00                | 0.00                  |
| Richland     | 33,395.37           | 200,372.23            | 388,047.90            | 103,265.00          | 725,080.50            |
| Saluda       | 9,252.96            | 55,517.72             | 0.00                  | 0.00                | 64,770.68             |
| Spartanburg  | 1,000.00            | 0.00                  | 144,000.00            | 0.00                | 145,000.00            |
| Sumter       | 10,658.72           | 63,952.28             | 0.00                  | 0.00                | 74,611.00             |
| Union        | 19,628.90           | 105,773.44            | 0.00                  | 0.00                | 125,402.34            |
| Williamsburg | 0.00                | 0.00                  | 0.00                  | 0.00                | 0.00                  |
| York         | 44,937.90           | 295,081.24            | 0.00                  | 0.00                | 340,019.14            |
| <b>TOTAL</b> | <b>\$670,837.28</b> | <b>\$3,825,119.53</b> | <b>\$1,577,225.35</b> | <b>\$546,608.24</b> | <b>\$6,619,790.40</b> |

Source: SCDOT



# Prioritization Chart

| County                      | Route # | Existing # of lanes | Urban/Rural | Segment                             | Begin Milepost | End Milepost | Mi    | Average Capacity |
|-----------------------------|---------|---------------------|-------------|-------------------------------------|----------------|--------------|-------|------------------|
| CHARLESTON                  | 26      | 6                   | U           | US 52 CONN TO I-526                 | 208.09         | 212.51       | 4.42  | 79,700           |
| GREENVILLE                  | 385     | 4                   | U           | N of S-272 (6 lane section) TO I-85 | 29.88          | 36.33        | 6.45  | 50,600           |
| RICHLAND                    | 20      | 4                   | U           | I-77 TO S-53                        | 75.72          | 81.66        | 5.94  | 50,600           |
| LEXINGTON/RICHLAND          | 26      | 6                   | U           | US 176 TO S-36 (ST ANDREWS RD)      | 101.48         | 106.46       | 4.98  | 79,700           |
| GREENVILLE/SPARTANBURG      | 85      | 6                   | U           | US 25 TO SC 129                     | 43.21          | 67.90        | 24.69 | 76,000           |
| CHARLESTON/BERKELEY         | 526     | 4                   | U           | SC 7 TO S-97 (LONG POINT RD)        | 0.12           | 17.50        | 17.38 | 48,200           |
| LEXINGTON/CALHOUN           | 26      | 4                   | U/R         | US 321 TO S-31                      | 115.18         | 124.68       | 9.50  | 61,600           |
| CHARLESTON                  | 526     | 4                   | U           | S-97 (LONG POINT RD) TO US 17       | 17.50          | 19.56        | 2.06  | 48,200           |
| LEXINGTON                   | 20      | 4                   | U           | S-204 TO US 378                     | 50.96          | 61.27        | 10.31 | 51,900           |
| SPARTANBURG                 | 85      | 6                   | U           | SC 85 TO I-85 BUS LOOP              | 68.84          | 77.59        | 8.75  | 70,500           |
| ANDERSON/GREENVILLE         | 85      | 6                   | R/U         | SC 153 TO US 25                     | 40.21          | 43.21        | 3.00  | 93,100           |
| CHARLESTON                  | 26      | 6                   | U           | I-526 TO HERIOT ST                  | 212.51         | 219.20       | 6.69  | 87,000           |
| LEXINGTON/RICHLAND          | 20      | 6                   | U           | US 378 TO I-77                      | 61.27          | 75.72        | 14.45 | 81,500           |
| LEXINGTON/RICHLAND          | 26      | 6                   | U           | I-126 TO US 321                     | 107.96         | 115.18       | 7.22  | 79,700           |
| RICHLAND                    | 77      | 4                   | U           | I-20 TO SC 277                      | 15.87          | 18.45        | 2.58  | 48,200           |
| BERKELEY/CHARLESTON         | 26      | 6                   | U           | US 17-A TO US 52 CONN               | 199.04         | 208.09       | 9.05  | 77,300           |
| GREENVILLE                  | 385     | 6                   | U           | S-55 TO N of S-272 (6 lane section) | 27.30          | 29.88        | 2.58  | 76,000           |
| SPARTANBURG/CHEROKEE        | 85      | 4                   | R           | US 221 TO NC ST LINE                | 77.92          | 106.28       | 28.36 | 64,100           |
| SPARTANBURG                 | 26      | 4                   | U           | US 176 TO SC 296                    | 14.05          | 22.07        | 8.02  | 51,300           |
| AIKEN                       | 20      | 4                   | U           | GA STATE LINE TO US 25              | 0.00           | 5.02         | 5.02  | 50,600           |
| NEWBERRY/LEXINGTON/RICHLAND | 26      | 4                   | R/U         | SC 202 TO US 176                    | 85.36          | 101.48       | 16.12 | 64,600           |
| YORK                        | 77      | 6                   | U           | US 21 TO SC 122                     | 76.87          | 78.89        | 2.02  | 79,700           |
| GREENVILLE                  | 385     | 6                   | U           | I-85 TO SC 291                      | 36.33          | 40.24        | 3.91  | 87,000           |
| RICHLAND                    | 77      | 6                   | U/R         | SC 277 TO US 21                     | 18.45          | 24.05        | 5.60  | 98,200           |
| BERKELEY                    | 26      | 6                   | R/U         | SC 27 TO US 17-A                    | 187.38         | 199.04       | 11.66 | 62,800           |
| OCONEE/ANDERSON             | 85      | 4                   | R           | GA ST LINE TO US 76                 | 0.00           | 19.44        | 19.44 | 63,900           |
| DORCHESTER/ORANGEBURG       | 95      | 4                   | R           | US 178 TO I-26                      | 82.23          | 85.74        | 3.51  | 67,300           |
| RICHLAND                    | 77      | 6                   | U           | SC 35 TO I-20                       | 1.65           | 15.87        | 14.22 | 79,700           |
| AIKEN                       | 20      | 4                   | U           | US 25 TO S-144                      | 5.02           | 11.22        | 6.20  | 50,600           |
| JASPER                      | 95      | 4                   | R           | US 278 TO US 17                     | 20.74          | 33.08        | 12.34 | 67,300           |
| RICHLAND/KERSHAW            | 20      | 4                   | R           | S-53 TO US 521                      | 81.66          | 97.81        | 16.15 | 70,700           |
| FLORENCE                    | 95      | 4/6                 | U           | US 76 TO US 52                      | 157.26         | 164.10       | 6.84  | 62,900           |
| RICHLAND/FAIRFIELD          | 77      | 4                   | R           | US 21 TO S-41                       | 24.05          | 40.77        | 16.72 | 67,300           |
| SPARTANBURG                 | 26      | 4                   | U           | SC 296 TO US 221                    | 22.07          | 28.13        | 6.06  | 50,600           |
| CALHOUN/LEXINGTON/RICHLAND  | 26      | 4                   | R           | S-31 TO I-95                        | 124.68         | 168.53       | 43.85 | 70,700           |
| ANDERSON                    | 85      | 6                   | R           | US 76 TO SC 153                     | 19.44          | 40.21        | 20.77 | 93,700           |
| FAIRFIELD/CHESTER/YORK      | 77      | 4                   | R/U         | SC 200 TO US 21                     | 48.03          | 76.87        | 28.84 | 66,200           |
| JASPER                      | 95      | 4                   | R           | GA ST LINE TO US 278                | 0.00           | 20.74        | 20.74 | 67,300           |

436.44

| V/C Range |       |      | % Truck Range |        |   | CRASH RATE | SAFETY SCORE |
|-----------|-------|------|---------------|--------|---|------------|--------------|
| 1         | 0.00  | 0.75 | 0             | 5,000  | 1 | 0-0.49     | 1            |
| 2         | 0.75  | 1.00 | 5,000         | 10,000 | 2 | 0.50-0.74  | 2            |
| 3         | 1.00  | 1.15 | 10,000        | 15,000 | 3 | 0.75-0.99  | 3            |
| 4         | 1.15  | 1.34 | 15,000        | 20,000 | 4 | 1.0-1.24   | 4            |
| 5         | >1.34 |      | >20,000       |        | 5 | >1.25      | 5            |

Appendix G  
Prioritization Chart

|                             |              |             |                  |             | 30%       | 10%            | 20%          | 10%       | 10%                 | 10%      | 10%         |
|-----------------------------|--------------|-------------|------------------|-------------|-----------|----------------|--------------|-----------|---------------------|----------|-------------|
|                             | 2008         |             |                  |             | 2008      | 2008           |              |           |                     |          |             |
| County                      | Average AADT | Average V/C | Average % Trucks | Safety Rate | V/C Score | % Trucks Score | Safety Score | PQI Score | Financial Viability | Econ Dev | Envir Score |
| CHARLESTON                  | 129,900      | 1.630       | 13,000           | 1.988       | 5.000     | 3.000          | 5            | 1.628     | 5                   | 5        | 1           |
| GREENVILLE                  | 65,100       | 1.286       | 13,000           | 1.622       | 3.865     | 3.000          | 5            | 1.865     | 5                   | 2        | 3           |
| RICHLAND                    | 63,200       | 1.249       | 12,200           | 1.027       | 4.350     | 2.916          | 4            | 1.679     | 5                   | 2        | 3           |
| LEXINGTON/RICHLAND          | 98,700       | 1.238       | 14,900           | 1.789       | 3.691     | 3.845          | 5            | 1.578     | 1                   | 4        | 3           |
| GREENVILLE/SPARTANBURG      | 88,100       | 1.160       | 24,700           | 0.861       | 4.000     | 5.000          | 3            | 1.513     | 1                   | 5        | 1           |
| CHARLESTON/BERKELEY         | 63,500       | 1.319       | 9,800            | 0.889       | 4.708     | 2.500          | 3            | 1.387     | 1                   | 5        | 1           |
| LEXINGTON/CALHOUN           | 56,300       | 0.947       | 11,100           | 0.642       | 2.808     | 2.946          | 2            | 2.536     | 5                   | 5        | 3           |
| CHARLESTON                  | 37,700       | 0.782       | 9,800            | 1.399       | 1.680     | 2.680          | 5            | 2.158     | 5                   | 5        | 1           |
| LEXINGTON                   | 51,000       | 0.980       | 10,200           | 1.178       | 2.614     | 2.614          | 4            | 2.203     | 3                   | 2        | 5           |
| SPARTANBURG                 | 60,400       | 0.857       | 16,900           | 0.752       | 2.000     | 4.000          | 3            | 0.981     | 5                   | 5        | 3           |
| ANDERSON/GREENVILLE         | 81,700       | 0.889       | 27,800           | 0.589       | 2.143     | 5.000          | 2            | 2.947     | 5                   | 5        | 1           |
| CHARLESTON                  | 84,700       | 0.973       | 5,000            | 1.141       | 2.132     | 1.442          | 4            | 1.880     | 3                   | 5        | 3           |
| LEXINGTON/RICHLAND          | 83,600       | 1.026       | 9,100            | 1.124       | 3.000     | 2.000          | 4            | 2.530     | 3                   | 2        | 1           |
| LEXINGTON/RICHLAND          | 77,300       | 0.971       | 11,600           | 1.015       | 2.000     | 3.000          | 4            | 2.384     | 3                   | 4        | 1           |
| RICHLAND                    | 46,900       | 0.973       | 7,000            | 0.777       | 2.000     | 2.000          | 3            | 2.428     | 5                   | 2        | 3           |
| BERKELEY/CHARLESTON         | 73,300       | 0.945       | 14,700           | 0.858       | 2.000     | 3.000          | 3            | 1.269     | 3                   | 5        | 1           |
| GREENVILLE                  | 59,900       | 0.789       | 12,000           | 0.632       | 2.000     | 3.000          | 2            | 0.913     | 5                   | 2        | 3           |
| SPARTANBURG/CHEROKEE        | 49,700       | 0.775       | 14,900           | 0.791       | 1.306     | 3.306          | 3            | 1.411     | 1                   | 5        | 3           |
| SPARTANBURG                 | 45,200       | 0.877       | 7,700            | 0.882       | 1.835     | 2.000          | 3            | 1.756     | 3                   | 2        | 3           |
| AIKEN                       | 48,400       | 0.957       | 9,700            | 0.665       | 2.000     | 2.000          | 2            | 1.921     | 5                   | 1        | 3           |
| NEWBERRY/LEXINGTON/RICHLAND | 43,600       | 0.699       | 8,700            | 0.825       | 1.306     | 2.000          | 3            | 1.960     | 1                   | 4        | 3           |
| YORK                        | 57,300       | 0.719       | 14,300           | 0.596       | 1.000     | 3.000          | 2            | 0.992     | 5                   | 2        | 3           |
| GREENVILLE                  | 84,800       | 0.975       | 13,200           | 0.724       | 2.678     | 3.033          | 2            | 1.827     | 1                   | 2        | 1           |
| RICHLAND                    | 62,200       | 0.642       | 9,300            | 0.501       | 1.095     | 2.032          | 2            | 1.522     | 3                   | 2        | 5           |
| BERKELEY                    | 40,800       | 0.678       | 8,200            | 0.891       | 1.392     | 2.000          | 3            | 1.286     | 1                   | 5        | 1           |
| OCONEE/ANDERSON             | 38,400       | 0.601       | 13,200           | 0.744       | 1.000     | 3.000          | 2            | 1.175     | 1                   | 5        | 3           |
| DORCHESTER/ORANGEBURG       | 38,500       | 0.572       | 9,600            | 0.507       | 1.000     | 2.000          | 2            | 0.698     | 5                   | 2        | 3           |
| RICHLAND                    | 67,700       | 0.850       | 10,200           | 0.968       | 2.000     | 2.510          | 3            | 1.179     | 1                   | 2        | 1           |
| AIKEN                       | 28,800       | 0.569       | 5,760            | 0.660       | 1.000     | 2.000          | 2            | 1.401     | 5                   | 1        | 3           |
| JASPER                      | 41,600       | 0.618       | 10,400           | 0.557       | 1.000     | 3.000          | 2            | 1.816     | 3                   | 1        | 3           |
| RICHLAND/KERSHAW            | 38,800       | 0.549       | 7,800            | 0.605       | 1.000     | 2.000          | 2            | 1.526     | 3                   | 2        | 3           |
| FLORENCE                    | 38,000       | 0.603       | 8,300            | 0.850       | 1.000     | 2.000          | 3            | 1.332     | 5                   | 0        | 1           |
| RICHLAND/FAIRFIELD          | 38,300       | 0.569       | 8,900            | 0.282       | 1.000     | 2.000          | 1            | 1.133     | 3                   | 2        | 5           |
| SPARTANBURG                 | 27,400       | 0.542       | 5,500            | 0.484       | 1.000     | 2.000          | 1            | 0.993     | 5                   | 2        | 3           |
| CALHOUN/LEXINGTON/RICHLAND  | 45,400       | 0.643       | 9,100            | 0.638       | 1.000     | 2.000          | 2            | 1.770     | 1                   | 5        | 1           |
| ANDERSON                    | 56,900       | 0.608       | 19,700           | 0.390       | 1.000     | 4.302          | 1            | 1.365     | 1                   | 5        | 1           |
| FAIRFIELD/CHESTER/YORK      | 37,100       | 0.566       | 9,300            | 0.314       | 1.059     | 2.059          | 1            | 1.628     | 1                   | 2        | 5           |
| JASPER                      | 45,600       | 0.677       | 11,400           | 0.494       | 1.000     | 3.000          | 1            | 1.481     | 3                   | 1        | 1           |

| V/C Range |       |      | % Truck Range |        |   | CRASH RATE | SAFETY SCORE |
|-----------|-------|------|---------------|--------|---|------------|--------------|
| 1         | 0.00  | 0.75 | 0             | 5,000  | 1 | 0-0.49     | 1            |
| 2         | 0.75  | 1.00 | 5,000         | 10,000 | 2 | 0.50-0.74  | 2            |
| 3         | 1.00  | 1.15 | 10,000        | 15,000 | 3 | 0.75-0.99  | 3            |
| 4         | 1.15  | 1.34 | 15,000        | 20,000 | 4 | 1.0-1.24   | 4            |
| 5         | >1.34 |      | >20,000       |        | 5 | >1.25      | 5            |

Appendix G  
Prioritization Chart

## Summary of Interstate Calculations

100%

| County                      | V/C   | Truck | Safety | PQI   | Financial<br>Viability | Econ<br>Dev | Environ | Total<br>Score | Updated |
|-----------------------------|-------|-------|--------|-------|------------------------|-------------|---------|----------------|---------|
|                             |       |       |        |       |                        |             |         |                | Rank    |
| CHARLESTON                  | 1.500 | 0.300 | 1.000  | 0.163 | 0.500                  | 0.500       | 0.100   | 4.063          | 1       |
| GREENVILLE                  | 1.159 | 0.300 | 1.000  | 0.187 | 0.500                  | 0.200       | 0.300   | 3.646          | 2       |
| RICHLAND                    | 1.305 | 0.292 | 0.800  | 0.168 | 0.500                  | 0.200       | 0.300   | 3.564          | 3       |
| LEXINGTON/RICHLAND          | 1.107 | 0.385 | 1.000  | 0.158 | 0.100                  | 0.400       | 0.300   | 3.450          | 4       |
| GREENVILLE/SPARTANBURG      | 1.200 | 0.500 | 0.600  | 0.151 | 0.100                  | 0.500       | 0.100   | 3.151          | 5       |
| CHARLESTON/BERKELEY         | 1.412 | 0.250 | 0.600  | 0.139 | 0.100                  | 0.500       | 0.100   | 3.101          | 6       |
| LEXINGTON/CALHOUN           | 0.843 | 0.295 | 0.400  | 0.254 | 0.500                  | 0.500       | 0.300   | 3.091          | 7       |
| CHARLESTON                  | 0.504 | 0.268 | 1.000  | 0.216 | 0.500                  | 0.500       | 0.100   | 3.088          | 8       |
| LEXINGTON                   | 0.784 | 0.261 | 0.800  | 0.220 | 0.300                  | 0.200       | 0.500   | 3.066          | 9       |
| SPARTANBURG                 | 0.600 | 0.400 | 0.600  | 0.098 | 0.500                  | 0.500       | 0.300   | 2.998          | 10      |
| ANDERSON/GREENVILLE         | 0.643 | 0.500 | 0.400  | 0.295 | 0.500                  | 0.500       | 0.100   | 2.938          | 11      |
| CHARLESTON                  | 0.639 | 0.144 | 0.800  | 0.188 | 0.300                  | 0.500       | 0.300   | 2.872          | 12      |
| LEXINGTON/RICHLAND          | 0.900 | 0.200 | 0.800  | 0.253 | 0.300                  | 0.200       | 0.100   | 2.753          | 13      |
| LEXINGTON/RICHLAND          | 0.600 | 0.300 | 0.800  | 0.238 | 0.300                  | 0.400       | 0.100   | 2.738          | 14      |
| RICHLAND                    | 0.600 | 0.200 | 0.600  | 0.243 | 0.500                  | 0.200       | 0.300   | 2.643          | 15      |
| BERKELEY/CHARLESTON         | 0.600 | 0.300 | 0.600  | 0.127 | 0.300                  | 0.500       | 0.100   | 2.527          | 16      |
| GREENVILLE                  | 0.600 | 0.300 | 0.400  | 0.091 | 0.500                  | 0.200       | 0.300   | 2.391          | 17      |
| SPARTANBURG/CHEROKEE        | 0.392 | 0.331 | 0.600  | 0.141 | 0.100                  | 0.500       | 0.300   | 2.363          | 18      |
| SPARTANBURG                 | 0.551 | 0.200 | 0.600  | 0.176 | 0.300                  | 0.200       | 0.300   | 2.326          | 19      |
| AIKEN                       | 0.600 | 0.200 | 0.400  | 0.192 | 0.500                  | 0.100       | 0.300   | 2.292          | 20      |
| NEWBERRY/LEXINGTON/RICHLAND | 0.392 | 0.200 | 0.600  | 0.196 | 0.100                  | 0.400       | 0.300   | 2.188          | 21      |
| YORK                        | 0.300 | 0.300 | 0.400  | 0.099 | 0.500                  | 0.200       | 0.300   | 2.099          | 22      |
| GREENVILLE                  | 0.803 | 0.303 | 0.400  | 0.183 | 0.100                  | 0.200       | 0.100   | 2.089          | 23      |
| RICHLAND                    | 0.328 | 0.203 | 0.400  | 0.152 | 0.300                  | 0.200       | 0.500   | 2.084          | 24      |
| BERKELEY                    | 0.418 | 0.200 | 0.600  | 0.129 | 0.100                  | 0.500       | 0.100   | 2.046          | 25      |
| OCONEE/ANDERSON             | 0.300 | 0.300 | 0.400  | 0.118 | 0.100                  | 0.500       | 0.300   | 2.018          | 26      |
| DORCHESTER/ORANGEBURG       | 0.300 | 0.200 | 0.400  | 0.070 | 0.500                  | 0.200       | 0.300   | 1.970          | 27      |
| RICHLAND                    | 0.600 | 0.251 | 0.600  | 0.118 | 0.100                  | 0.200       | 0.100   | 1.969          | 28      |
| AIKEN                       | 0.300 | 0.200 | 0.400  | 0.140 | 0.500                  | 0.100       | 0.300   | 1.940          | 29      |
| JASPER                      | 0.300 | 0.300 | 0.400  | 0.182 | 0.300                  | 0.100       | 0.300   | 1.882          | 30      |
| RICHLAND/KERSHAW            | 0.300 | 0.200 | 0.400  | 0.153 | 0.300                  | 0.200       | 0.300   | 1.853          | 31      |
| FLORENCE                    | 0.300 | 0.200 | 0.600  | 0.133 | 0.500                  | 0.000       | 0.100   | 1.833          | 32      |
| RICHLAND/FAIRFIELD          | 0.300 | 0.200 | 0.200  | 0.113 | 0.300                  | 0.200       | 0.500   | 1.813          | 33      |
| SPARTANBURG                 | 0.300 | 0.200 | 0.200  | 0.099 | 0.500                  | 0.200       | 0.300   | 1.799          | 34      |
| CALHOUN/LEXINGTON/RICHLAND  | 0.300 | 0.200 | 0.400  | 0.177 | 0.100                  | 0.500       | 0.100   | 1.777          | 35      |
| ANDERSON                    | 0.300 | 0.430 | 0.200  | 0.137 | 0.100                  | 0.500       | 0.100   | 1.767          | 36      |
| FAIRFIELD/CHESTER/YORK      | 0.318 | 0.206 | 0.200  | 0.163 | 0.100                  | 0.200       | 0.500   | 1.686          | 37      |
| JASPER                      | 0.300 | 0.300 | 0.200  | 0.148 | 0.300                  | 0.100       | 0.100   | 1.448          | 38      |

3/14/2016

| V/C Range |       |      | % Truck Range |        |   | CRASH RATE | SAFETY SCORE |
|-----------|-------|------|---------------|--------|---|------------|--------------|
| 1         | 0.00  | 0.75 | 0             | 5,000  | 1 | 0-0.49     | 1            |
| 2         | 0.75  | 1.00 | 5,000         | 10,000 | 2 | 0.50-0.74  | 2            |
| 3         | 1.00  | 1.15 | 10,000        | 15,000 | 3 | 0.75-0.99  | 3            |
| 4         | 1.15  | 1.34 | 15,000        | 20,000 | 4 | 1.0-1.24   | 4            |
| 5         | >1.34 |      | >20,000       |        | 5 | >1.25      | 5            |

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Appendix G  
Prioritization Chart

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# Agency Comments

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March 29, 2016

Mr. K. Earle Powell  
Director, Legislative Audit Council  
1331 Elmwood, Suite 315  
Columbia, SC 29201

Dear Director Powell:

SCDOT would like to thank the auditors at the Legislative Audit Council (LAC), its Financial Audit consultants Scott & Company, and the South Carolina Department of Transportation (SCDOT) Team for their efforts to thoroughly research, review and analyze the Agency's operations. SCDOT is a very large and complex agency, as evidenced by the sheer size and time dedicated to producing this review. We appreciate the opportunity to respond and provide information from the perspectives of both the SCDOT Management Team and the Commission. Attached is SCDOT's response to the LAC's Draft Review dated March 28, 2016.

SCDOT agrees with many of the recommended improvements identified by the LAC and plans to utilize the review as an opportunity for improving the operations of the Agency. However, there are some differences of opinion between LAC and SCDOT on the interpretation of Act 114 and the regulations that were promulgated. SCDOT believes it has complied with the Act and the regulations that the General Assembly approved in 2008. SCDOT has utilized the regulations as the basis for its current operating procedures of producing project lists to align with project funding categories and providing mechanisms for the Commission to advance projects. We welcome dialogue on this very important and complex topic and are receptive to discussing modifications that would enhance the process and the Agency's transparency.

Finally, SCDOT appreciates the LAC recognizing the difficulty of the governance structure that the Agency has been operating under since 2007, the broken financial model that has not kept pace with escalating costs, and the redirection of road and bridge money away from SCDOT and its core priorities. This approach for the funding and management of the Nation's fourth largest state-owned highway system has led us to the crossroads our State faces today.

Respectfully Submitted,



Christy A. Hall, P.E.  
Secretary of Transportation



James M. Wooten  
Chairman, SCDOT Commission

Attachment

## **SCDOT Management Team Response**

As the new Secretary of Transportation, I am especially appreciative of the team's efforts to identify areas of opportunity for improvement as well as to review several topics of frequent concern regarding SCDOT. Since my appointment, I have articulated a vision for a strong and effective DOT, where a hard-working, ethical and professional team earns the trust of the citizens of South Carolina. In order to achieve this vision, the organization must improve its transparency, responsiveness and migrate towards a performance based management organization that measures results. Quite frankly, the Agency has struggled for years with effectively communicating and, in particular, providing easy to use information that must be extracted from mounds of data and concepts that are highly technical in nature.

SCDOT's Management Team intends to use this review as a road map to assist the Agency in improving its operations. SCDOT concurs with 123 of the 148 agency-specific recommendations by the LAC. We will add these items to our other management initiatives which I had previously identified as our first four focus areas for improvement, which are:

1. Stabilize the Workforce and Leadership Team,
2. Improve Project Delivery,
3. Simplify Messaging and Provide Visibility into the Organization and
4. Strengthen our Procurement Processes for Consultants.

However, in order to position the Agency for success on implementing all of these much needed improvements and affect long-term, sustainable change for the organization, the issue of governance must be resolved. Without the governance issue resolved, it will be nearly impossible to set clear priorities, instill effective accountability and finally resolve the question of where the buck stops for the organization. According to the LAC, the current governance arrangement creates confusion as to who governs the department and undermines the authority of both the Secretary and the Commission. Leaving this issue unaddressed will hinder the Agency's ability to manage the change necessary for SCDOT to be in compliance with the LAC's recommendations.

SCDOT's Management Team notes the following 4 major themes within this LAC review:

1. ***No financial mismanagement was identified at the Agency.***
2. ***The prioritization and ranking processes associated with Act 114 are complex.***
3. ***SCDOT is tasked with managing a transportation system in a state of disrepair with revenues that have not kept pace with rising construction costs.***
4. ***Unclear lines of authority and turnover have led to shifting or unstable priorities.***

**No financial mismanagement was identified at the Agency.**

The Agency must maximize every dollar our citizens provide to operate and maintain the road and bridge network owned by the State. Therefore, SCDOT has to ensure that funds are used in accordance with their intended purpose. The Agency has received clean financial and procurement audits for the last several years. Additionally, this LAC review found no indication of unnecessary salary increases, no deficient items on vendor payments that would have caused penalties or missed opportunities for interest, no issues with contractor change orders and no issues on contract negotiations. The LAC commented that the fluctuating costs in administrative expenses have been outside of the control of the Agency. The LAC also notes that SCDOT has adhered to what the Agency believes to be the intent for the Non-Federal Aid account funds and has not spent those dollars on administrative expenses. Additionally, SCDOT's effort to implement a bright-line rule on post-employment was also recognized in a positive manner by the LAC.

The LAC further reports that SCDOT's costs are comparable to its neighboring states and that there is no clear evidence that the County Transportation Committees (CTCs) or county government can complete similar work as SCDOT at a lower cost. With regard to the rates charged to the CTCs for work SCDOT performs, SCDOT did complete an analysis of the fee structure and determined that the rates charged do not actually cover the cost for SCDOT to deliver those services.

Even with all of the positives noted above, there is still room for improvement. For example, this LAC review identified SCDOT's challenges with its efforts to engage in techniques to reduce costs for reconstructing segments of roadways where complete rebuilding from the foundation layer up is necessary due to years of deferred maintenance.

The LAC review also summarized the issues associated with the I-85 project in Spartanburg County, where the pavement rehabilitation for 10 miles in both the northbound and southbound directions had to be terminated as a result of decaying pavement in the underlying layers. This was an unprecedented event in South Carolina. Unfortunately, this situation is an example of increased costs associated with the continued decay of pavements and the lack of resources necessary to address the pavements on accepted industry resurfacing cycles. As a result of this experience on I-85, SCDOT is coring all pavements on the Interstate system prior to initiating a pavement project so the deterioration level of the underlying pavement layers can be determined. Furthermore, the Agency has identified two other major sections of the Interstate system that are exhibiting similar conditions of decayed underlying support layers and therefore the budgets for those respective projects will have to be increased to address the years of deferred maintenance.

The LAC review also points out two items where SCDOT was involved in responding to local requests and coordination regarding bridges: the inspection of privately-owned bridges in Woodside Plantation in Aiken County and the replacement of the S.C. 41 Bridge over the Wando River in Charleston/Berkeley Counties. The decisions regarding both of these items were made under previous administrations; however, it is important to note in both of these instances that SCDOT staff was responding to constituent requests and local involvement regarding important transportation issues.

According to S.C. Code Section 57-3-110(7), SCDOT has the duty to "instruct, assist and cooperate" with local governments in street and highway matters "when requested to do so" and "supervise or furnish engineering supervision for the construction and improvement of roads and bridges, provided such duties do not impair the attention to be given to the highways in the state highway system." SCDOT recognizes

that it is generally considered the transportation experts for the State of South Carolina and that there may be times when local governments will request assistance with transportation-related matters especially regarding safety. In order to remove the appearance of impropriety, we concur with the LAC's recommendation regarding the implementation of a policy to require a request for assistance from a local government entity for potential work to be performed outside of the Department's right-of-way to be submitted in writing and to include the purpose and need of the request.

The issue surrounding the replacement of the structurally deficient and functionally obsolete S.C. 41 Bridge over the Wando River was the result of SCDOT following S.C. Code of Laws Sections 57-5-820 and 57-5-830 that require the approval of a local municipality for projects within the municipal boundary. In this instance, the Town of Mount Pleasant did not want a bridge that was higher than 25-35 feet and the U.S. Coast Guard advised that they would not agree to a bridge less than 55 feet in height or a moveable bridge. After numerous attempts to resolve the issue, engineering staff determined that the only possible path forward to replace a seriously stressed bridge and achieve the required approvals was to replace the existing structure with an in-kind moveable bridge at a higher cost. While the issue was eventually resolved by the Town of Mt. Pleasant agreeing to a 55 foot high bridge, it took eight years to receive municipal consent. The Agency believes that the General Assembly should revisit the requirements for municipal consent on bridge replacement projects in order to allow the Agency to move forward with implementing these safety critical projects.

### **The prioritization and ranking processes associated with Act 114 are complex.**

Act 114 became law on June 27, 2007, which required promulgation of regulations related to the prioritization of projects requirement of the Act. The fact that the Legislature directed SCDOT to promulgate regulations to implement the prioritization process indicates that the Legislature recognized that the process would be complicated and required the input of SCDOT staff and expertise. As recognized by the South Carolina Supreme Court in numerous cases, a statute declares the legislative policy, establishes primary standards for carrying it out, and delegates to administrative agencies the duty of "filling in the details" through the rule making process. The Legislatively mandated procedures for promulgating regulations requires publication of a notice of drafting in the State Register, publication of the proposed regulations in the State Register with opportunity to comment and a public hearing and submission to the Legislature for approval.

SCDOT diligently undertook the development of a new prioritization process as soon as Act 114 was enacted and delivered the proposed regulations to the Legislature in January 2008. In April of 2008, the proposed regulations were considered by the Legislature. Most of the proposed regulations were approved without objection; however, there were some specific amendment adjustments requested before the regulations would be reported out to the full Senate. Ultimately, the regulations were approved by the Legislature in June 27, 2008.

LAC disagrees with SCDOT's prioritization process which provides for multiple project lists, not a single list. However, the approved regulations provide the basis for using multiple lists. For example, the title of S. C. Reg. 63-10(C) is "Project Priority **Lists**." S. C. Reg. 63-10(C)(1) provides that "The Commission shall establish statewide project priority **lists** ...." SCDOT is of the opinion that the law and regulations never intended to prescribe a process requiring the prioritization of projects of varying categories, such as an interstate

capacity project versus a bridge project, or a resurfacing project versus a safety project, into a single statewide project list.

It seems as though there is confusion regarding how the process actually works. At a high level, the current process is a two-step process:

- Step 1 involves the SCDOT Commission establishing the funding allocation amounts to the various, distinct, project categories. These categories are established in accordance with the intended purpose of the various types of projects such as bridges, resurfacing, safety, etc.
- Step 2 involves the ranking of projects within those categories.

The LAC suggests that SCDOT did not consider all the Act 114 criteria for each project category. SCDOT did consider all criteria but determined that some criteria were not relevant to every category. When SCDOT promulgated the project prioritization regulations, it stated that only “relevant criteria” would be applied and this provision of the regulations was approved. In some cases, federal guidelines mandate the criteria used for rankings.

SCDOT disagrees with the suggestion by the LAC that the Agency should have a single list and that the Agency should simply implement projects straight down that list, with no variation from the ranking order or distribution based on a county basis. Using the LAC’s proposed approach of a single list could conceivably mean beginning with the top ranked interchange improvement project, the I-20/I-26 interchange in Columbia, which is estimated at \$1-1.5 Billion in cost. This single project is equivalent to SCDOT’s entire annual road and bridge budget.

Additionally, the single list concept could very easily produce a situation where some counties in the State receive little to no SCDOT road or bridge funded projects for years, even though taxpayers in those counties are contributing to the funding mechanism for SCDOT. SCDOT identified this as a real and legitimate issue when the Agency initially developed statewide ranking lists for paving projects and found that many small rural counties received little or no funding from one of the paving categories for two years in a row.

Similarly, the Agency does not believe it would be effectively serving our citizens if we allowed planned bridge projects in the State to grind to a halt simply because a project ahead of them in the rankings was held up, such as the previously discussed S.C. 41 Bridge project that was held up for eight years. South Carolina simply cannot afford to wait in situations like this.

S.C. Reg. 63-10(C)(2) specifically provides for the ability of the Commission to deviate from the list based on significant financial or engineering considerations, delayed permitting, *force majeure*, pending legal actions directly related to the proposed project, federal law or regulation or economic growth.

We welcome dialogue on this very important topic and are certainly willing to reconsider our current processes. As part of the Agency’s efforts to implement a performance-based management program, we are already reviewing our processes and are moving forward to revise a few of our practices to align better with the federal program requirements.

We also recognize that a process of this complexity can be difficult to explain to the public in a transparent way. The Agency will develop a plan to simplify messaging on prioritization and provide access to information on what projects are being funded in order to gain the trust of our citizens.

**SCDOT is tasked with managing a transportation system in a state of disrepair with revenues that have not kept pace with rising construction costs.**

According to the LAC, SCDOT's total revenues only increased 12% or \$160M over the past 10 years, which includes the Act 98 pass-through money for the South Carolina Transportation Infrastructure Bank (SIB). Meanwhile, the Agency has been battling 34% inflation over that same time period. It is also important to recognize that General Funds, which had been allocated to SCDOT in this time frame, were typically earmarked for specific projects or certain activities.

The LAC further notes that 25% of the Agency's revenues are being diverted or allocated to others such as the SIB, CTCs, Metropolitan Planning Organizations (MPOs), Council of Governments (COGs) and debt payments. It's easy to see how there could be confusion regarding highway policy in this State. One could easily argue that there are at least four other DOTs in the State that are resourced in disparate ways, with differing priorities. The unintended consequence of South Carolina's current funding approach is the creation of bookends: (1) one bookend has funding directed to the high volume, high priority Interstate system by SCDOT's Federal Aid Program and the SIB Interstate Projects; and (2) the other bookend has funding directed to the low volume, local or neighborhood streets by the CTCs and SCDOT's Non-Federal Aid Program. This bookend approach, combined with 25% of the Agency's revenues being diverted and the overall decline in purchasing power, has limited SCDOT's ability to address its core priorities. As a result, the Primary system which carries half of our traffic and serves a vital role in the movement of people and freight in both our urban and rural communities has significantly eroded in condition.

The LAC notes that as pavements continue to decline the cost of repairs go up exponentially. SCDOT utilizes a blended approach for pavement treatments, based on engineering judgment and pavement condition. In order to ensure maximum optimization of available funds, we agree with the LAC that the Agency should increase the frequency that it collects pavement condition data and further refine our analysis and predictive modeling of pavement conditions in order to ensure that the timing of preservation and rehabilitation treatments are proper. However, we disagree that engineering judgment should be excluded from the process. The Agency's local engineers have first-hand knowledge of real-time road conditions, proposed construction (such as new schools, hospitals, economic development sites, etc.) and citizen complaints regarding the existing road network. Excluding them from the process would devalue the voice of the local community in the selection of projects.

The investment needs of the State's infrastructure network are tremendous. South Carolina has the 4<sup>th</sup> largest state-owned transportation system in the Nation and the fatality rate on our roadways has been about 50% higher than the national rate. Also, according to the LAC, SCDOT is more dependent on both federal funding and motor fuel taxes than the national average. The Federal Program represents about half of our total revenues and drives a lot of what the Agency does. The LAC also states that: "Of all states, South Carolina dedicates the smallest amount of revenue to state roads relative to the size of the system and the amount of traffic it carries. . . Even in a comparison with seven other Southeastern states, South Carolina's investment per lane mile is 66% lower than the regional average. . . ." This funding formula for South Carolina has led to a state-maintained system that is severely decayed and projected to erode even further.

Failure to address the funding needs for our roads will likely jeopardize our ability to be competitive in economic development projects and serve the basic needs of our citizens. In recognition that the \$1.47 Billion annual gap for road and bridge funding as identified through the last two multimodal plans was for



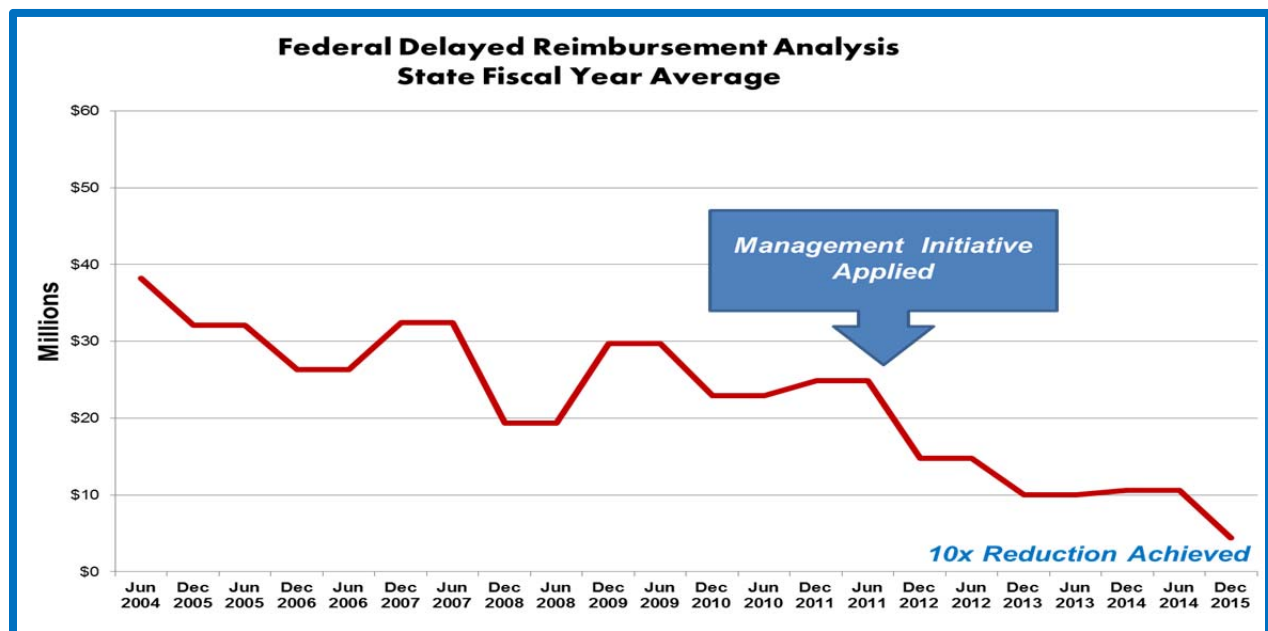
an unachievable, near-perfect transportation network, SCDOT's Management Team developed several investment scenarios with attainable goals. These investment scenarios were developed to focus on a "Fix-it-First" approach and also introduce performance targets to draw the connection between resources and outcomes.

The annual funding need is actually increasing with each year that SCDOT does not receive additional funding. While there may be a temptation to issue debt in order to address these significant funding needs regarding the condition of the State system, the Agency would not recommend issuing bonds or incurring any other indebtedness for addressing paving projects. Instead, the responsible use of debt would be for larger capacity type projects or bridge replacement projects.

SCDOT still carries \$525M in debt associated with General Obligation Highway Bonds and other significant projects financed through the SIB. While the Agency has limited bonding capacity available based on current resourcing levels, SCDOT has been able to cut its debt in half since 2006. Additionally, the LAC recognized that the Agency has aggressively managed its bond indebtedness, which has resulted in significant savings of approximately \$41M in bond refundings over the recent years.

As described by the LAC, SCDOT has had a renewed focus on cash flow management since its financial crisis of 2011. SCDOT's monthly financial reports reflect that the Agency typically has well over \$1.5 Billion in contractual commitments in force at any one time, with most of those contracts structured on a reimbursement basis. This means that SCDOT must utilize state cash on hand to pay for the project up front and then request reimbursements for appropriate portions. During the peak summer construction season, SCDOT contracts can have a peak monthly cash demand on state dollars up front of over \$100 Million. Therefore, a cash balance between \$200 - \$300 Million would represent two to three months of operating expenses in the event of a disruption of the revenue streams at either the State or Federal level currently flowing into the Agency.

As an example of the Agency's modifications of its financial management practices, SCDOT's Management Team places an emphasis on ensuring that the Agency properly receives all eligible federal reimbursements in a timely manner: the results of which are shown in the below chart.



**Unclear lines of authority and turnover have led to shifting or unstable priorities.**

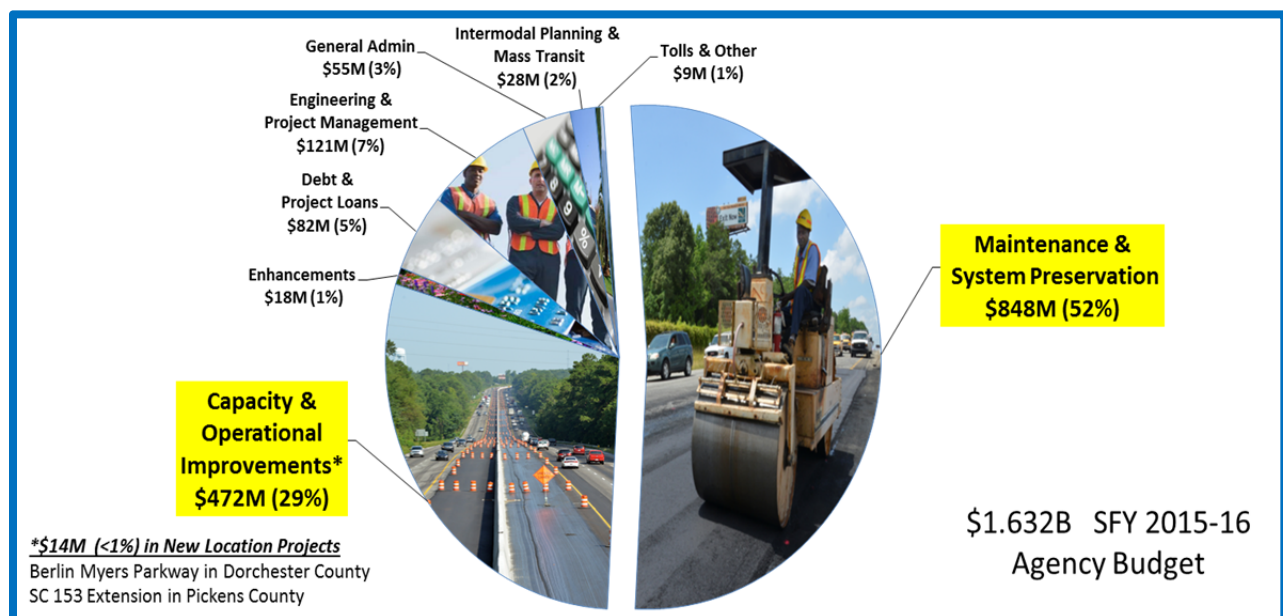
The LAC review documents that SCDOT has struggled with unclear lines of authority and turnover leading to fluctuating priorities, inconsistent policies and a lack of focus on our core mission. The items discussed in the review regarding governance, internal audit functions, Strategic Plan, data management and retention are all evidence of these problems.

The current Management Team of SCDOT has accepted the challenge of refocusing the Agency on our core mission, improving transparency, developing and implementing performance measures, improving the reliability and responsiveness of the Agency and making positive changes within the organization. However, the effectiveness of the Management Team's efforts will be hampered by the cloud that continues to hang over the Agency regarding governance and lines of authority.

Additionally, the relationship between the Commission, Internal Audit and the Management Team is not conducive to improving program performance and operations, reducing costs, facilitating prompt decision making, and ensuring public accountability.

In order to make the Agency more transparent and bring more accountability to the organization, the Management Team has created and published reports not only to provide visibility into certain management metrics, but also to set the tone for the organization. The latest of these efforts is the Monthly Management Report which is posted on SCDOT's webpage and presented to the Commission at its monthly public meeting. This report is structured to align with the focus areas and as such details accomplishments, workforce trends, project delivery indicators, social media snapshots and consultant utilization. SCDOT also posts on its website detailed information relative to consultant solicitations, engagements and awarded work by firm. The vast majority of these contracts are procured on a qualification-based selection process, in accordance with federal requirements. Furthermore, SCDOT posts monthly on its website all bids received for road and bridge construction contracts.

Additionally, two years ago, SCDOT worked with the S.C. House of Representatives to revise the way it was presenting its budget and expenditures. The result of the new methodology is a much easier-to-understand budget, as shown below.



Over the past year, SCDOT has diligently worked to post its monthly expenditures based on this format on its webpage at [www.scdot.org/inside/spending.aspx](http://www.scdot.org/inside/spending.aspx). The expenditures report provides information in a statewide table, a SCDOT Engineering District table and provides the ability to drill down to an individual county level.

Prior to this new methodology, it was virtually impossible to determine with any great precision how much SCDOT was spending on maintenance versus widening projects unless the accounting definitions were utilized. For practical purposes, SCDOT defines maintenance as the repair and upkeep of the existing transportation system. It includes items such as the day-to-day activities our maintenance forces do in the field (mowing, pot hole patching, shoulder and ditch work), resurfacing, pavement preservation, pavement rehabilitation and reconstruction work and all bridge replacement projects.

Maintenance is a priority of the current Management Team as indicated in the investment scenarios prepared for the General Assembly this year. These scenarios all placed a high priority on improving the conditions of the existing road and bridge network. The SCDOT Team is dedicated and committed to serving the State's citizens. Our performance during and after the October 2015 record flooding event clearly demonstrates our ability to deliver top notch results, given good solid direction and resourcing.

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### **SCDOT Commission Response**

The SCDOT Commission thanks the LAC for the opportunity to respond and provide perspective on the findings of the most recent legislative audit. South Carolina needs a safe and reliable network of transportation corridors. The Commission believes an efficient well maintained network ensures a competitive advantage to our State in the recruitment of new industry and advancement of our tourism. These networks also allow existing industry an opportunity to grow. The Commission and the Agency should share a passion in achieving this goal with a statewide sense of purpose, and we believe it does.

The Commission agrees the General Assembly should provide clarity to the current structure. The Commission believes the best structure is one where the Commission sets policy and direction and is responsible for employing the Secretary, much as a vast majority of boards do. We believe the Commission should not be responsible for the selection of projects, contractors or the approval of their contracts. It is the responsibility of the Secretary of Transportation to develop, design, build and maintain the network. The Commission should approve an annual budget, a strategic operational plan and review the Department's performance relative to that budget and plan. It is the Secretary's responsibility to keep the Commission informed in a manner that allows it to measure the effectiveness of the department in delivery of projects and meeting its annual strategic goals and objectives.

The Commission believes that it plays an important role in providing oversight and direction to the Agency. Its makeup should consist of a nine (9) member Commission with one Commissioner from each Congressional District and two members at large. The Commissioners should select its Chairperson on an annual basis. This would ensure the Chairperson had some experience and knowledge of the overall workings of the Commission and the Agency prior to his or her service. Each Commissioner's term should be six (6) years with an additional six (6) year appointment available. No Commissioner should serve more than 12 years.

The Commission should select a highly qualified individual with the experience, knowledge and leadership abilities to serve as Secretary of Transportation. The duties of the Secretary should at a minimum include the following:

- Serve as the Chief Executive Officer (CEO)
- Employ and manage a team of highly qualified individuals to assist in the day to day operations of the Agency, including the Deputy Secretaries, legal staff and any other personnel deemed necessary in carrying out the duties of the Secretary.
- Represent the SCDOT in dealings with federal, state and local governments and special purpose districts.
- Prepare an annual budget and operational plan with defined goals and objectives to be approved by the Commission.
- Direct the implementation of a Statewide Transportation Improvement Program (STIP) with a 5-year Program to be approved by the Commission on a biannual basis.
- Develop a ranking system to quantify inclusion of a project into the STIP.
- Direct the implementation of a statewide Mass Transit Plan.
- Approve all construction, consulting and procurement contracts.
- Approve all encroachment permits
- Approve all installation of new signals, curb cuts on primary roads, bike lanes and walking trails
- Approve routine operation, maintenance and emergency repair requests and needs.
- Approve additions and deletions of roads in the state highway system
- Approve the sale of all surplus properties.
- Report at a minimum of six (6) times a year to the Commission on the status of the SCDOT in meeting its goals, objectives and budget compliance. This includes the preparation of management reports that can quantify and measure operational performance of the SCDOT and the State transportation system.

The Commission believes it should approve all projects included in the STIP. The Commission agrees the prioritization and selection of projects should follow the guidelines outlined in Act 114. The Commission believes prioritization rankings are quantifiable and can only meet the Agency's objectives and goals if categorized by project type and funding sources. The Commission disagrees that there should be one list because this will be confusing at best and extremely difficult to justify given the vast differences between types of projects. The report suggests maintenance projects be prioritized. The Commission believes routine maintenance projects cannot be prioritized. The report also states the SCDOT should minimize spending on capacity projects. The Commission strongly disagrees. To ignore or reduce funding for capacity projects would effectively increase maintenance costs and further decay the road's foundation.

The Commission agrees the Agency is responsible for too many of the center lane miles throughout the State. Many of the secondary roads that provide connectivity only within their respective county should be transferred to that county or to municipalities within the county. The CTC funding program is a path the General Assembly can utilize to transfer a proportional share of State funding to maintain this network. However, the Commission feels the CTC must be carefully monitored to insure proper and expedient utilization of funding.

The Commission believes the MPO and COG programs should have planning authority within their respective areas. The Commission believes the TMAs should be funded based on Federal guidelines. Additional funding for planning purposes to the remaining MPOs and COGs should also be available.

Project selection under these programs should be submitted to the Agency and ranked based on Act 114 criteria. Inclusion of a project into the STIP must meet Commission approval.

Financial resources to carry out the responsibilities of the Agency are empowered in the State Legislature and reimbursements from Federal sources. The Commission and The Secretary of Transportation have a fiduciary responsibility to ensure these resources are spent efficiently and for the purpose for which they are intended. The Audit identifies a relatively flat level of State funding over the past eight years. The Commission agrees with the finding that revenue sources are not growing at a pace to cover increasing costs due to inflation, as well as the growth of the system. The Commission believes these findings validate the need for additional state funding. The State Legislature should ensure the Agency has sufficient resources to carry out its mission.

The Commission agrees the internal audit function has been ineffective. The Commission believes the Chief Internal Auditor should be reportable to a defined body to ensure compliance with its mission, duties and responsibilities. Any signs of fraud or unlawful acts by employees of the Agency should be immediately turned over to an investigator or compliance officer located in the Office of Chief Counsel. The Commission agrees that OCIA needs independence to adequately perform internal audit duties, and believes that it has that independence. The Commission agrees that OCIA should complete annual department-wide risk assessments. The Commission agrees each audit should be timely and conducted according to IIA's standards and guidance for internal auditors.



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