



SCDOT Update
Transportation Infrastructure & Management
Ad Hoc Committee
September 16, 2014

1



SCDOT's Strategic Direction
Janet Oakley
Secretary of Transportation

2

Our Vision

The vision of SCDOT is to deliver, operate and maintain a world-class, 21st century, multimodal transportation system that enables the Palmetto State to continue to grow our economy, enhance our communities and improve our environment.



Our Mission

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.

(SC Code Section 57-1-30)



Shared Values

- Leadership
- Innovation
- Public Responsiveness
- Inclusion
- Fiscal Stewardship
- Adaptability



Goals: The Vital Few

- Reduce fatalities on the South Carolina transportation system to zero and reduce workplace accidents to zero.
- Preserve the transportation infrastructure.
- Optimize mobility.
- Enhance a strengthened economy.



Emphasis Areas

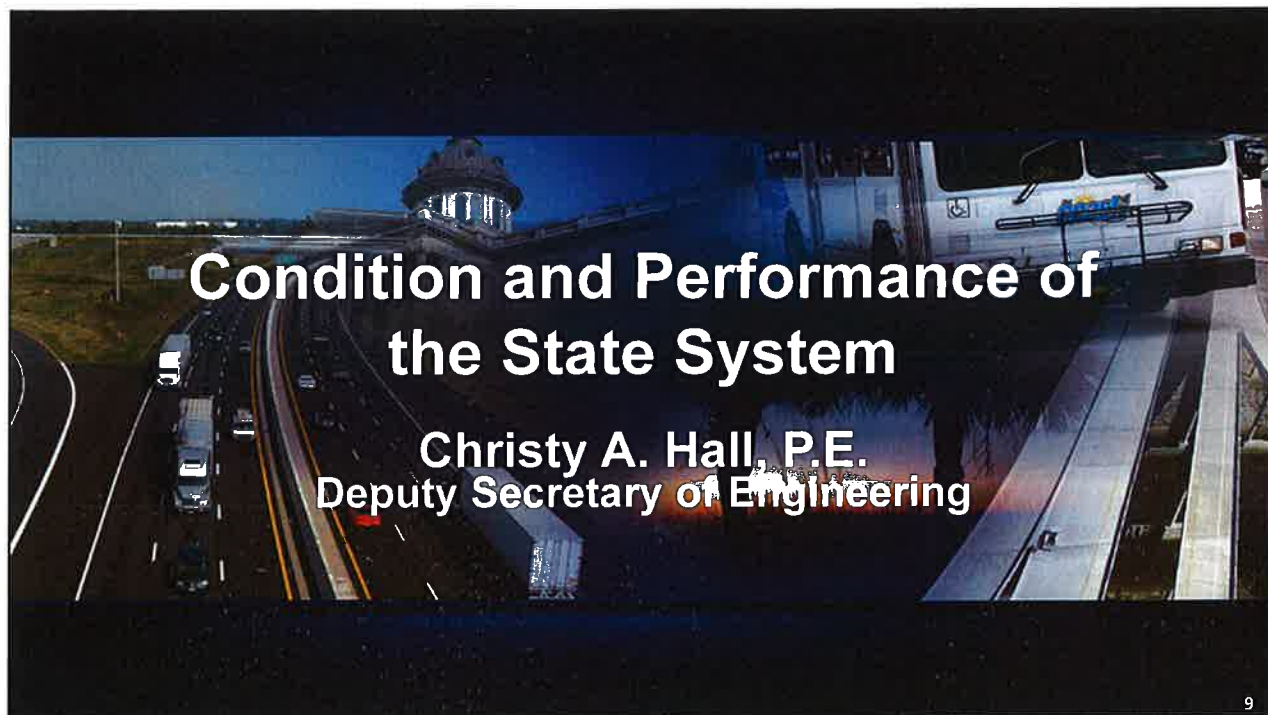
- Reinforce a culture of proactive, customer-driven, collaborative and inclusive service delivery.
- Establish a data-driven, performance-based approach to plan, measure, monitor, assess and improve program management and delivery.



Emphasis Areas

- Adopt innovative tools and practices to expedite project delivery and to maximize value for every dollar invested.
- Strengthen the workforce through support for a culture of inclusion, multidisciplinary teams, innovation and people development.





**Condition and Performance of
the State System**

Christy A. Hall, P.E.
Deputy Secretary of Engineering

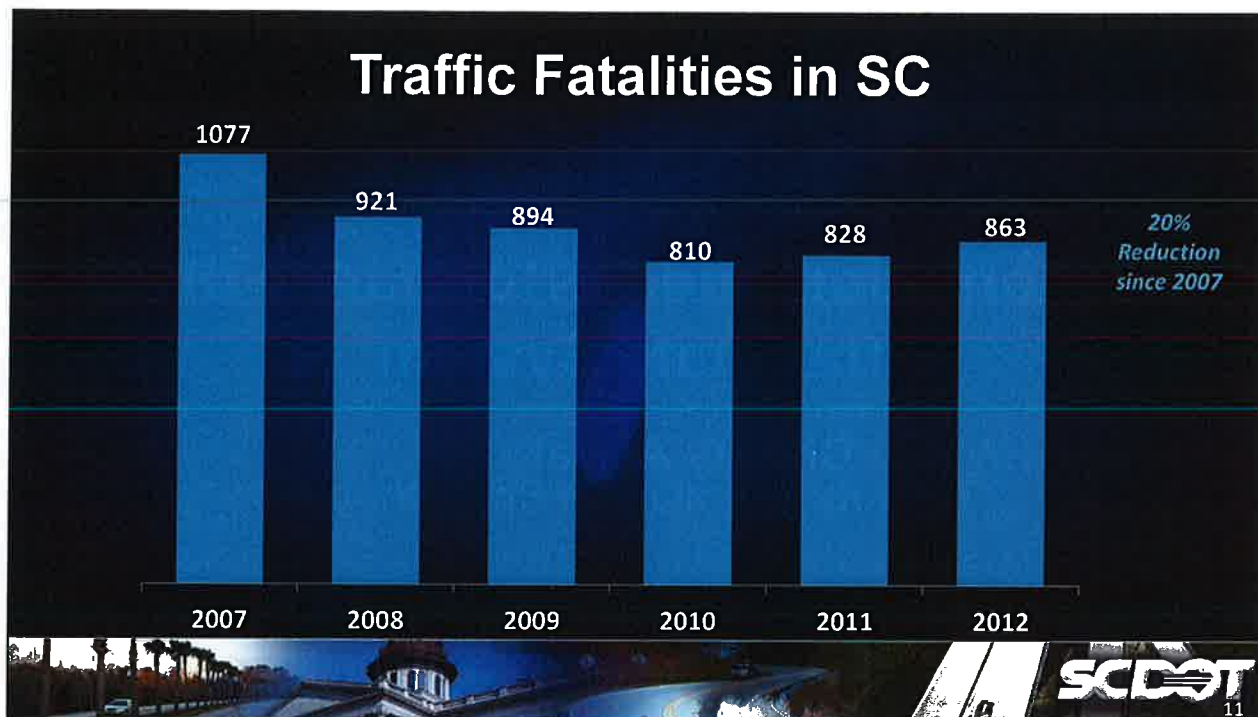
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**SAFETY
FIRST**



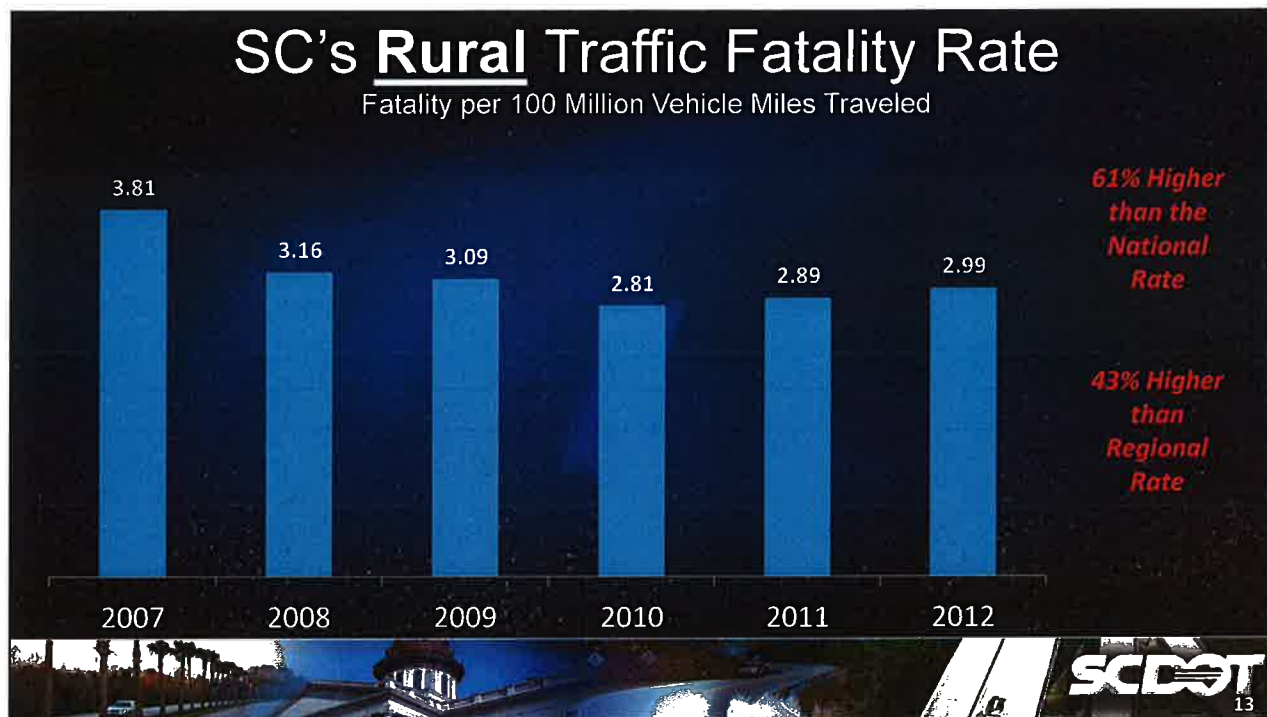
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10



What the data tells us (2007-2012).....

- ***Driver Behavior is a major factor.***
 - 55% of all vehicle occupant fatalities were not wearing seatbelts
 - 48% of all crash fatalities were alcohol-related
 - 38% of fatal crashes were speed-related
- ***Run-off-road crashes is the highest frequency crash which results in fatalities and serious injuries.***
 - Over **half** of all traffic fatalities involve vehicles leaving roadway
 - About 1/3 of all rural interstate crash fatalities involve a vehicle striking a tree
- ***Nearly 2/3 of all traffic fatalities occur on rural roads.***

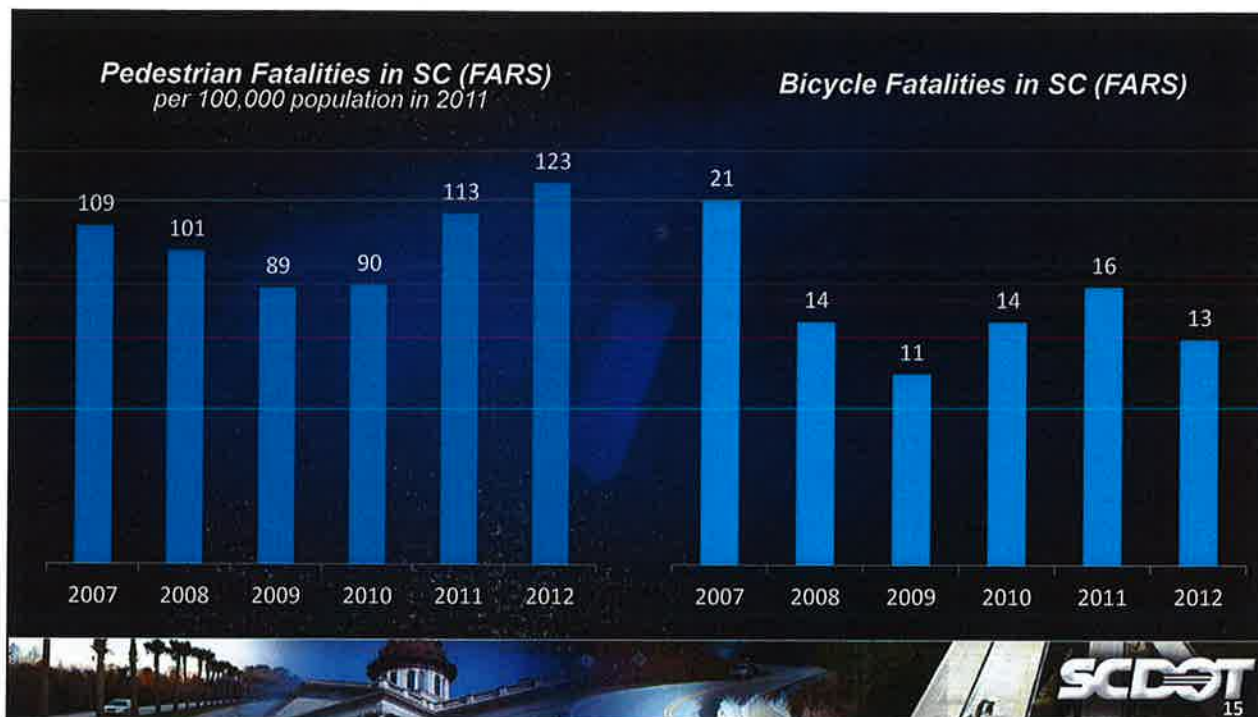




Run off the Road Countermeasures

- *Installation of Edgeline Rumble Strip*
- *Installation of Safety Edge on paving projects*
- *Installation of Paved Shoulder on paving and widening projects*
- *Shoulder Re-grading and vegetative control as part of routine maintenance*
- *Cable Rail Program*
- *Annual Guardrail Replacement and Installation Program*
- *Median grading project*
- *Implementation of a Systemic Road Departure plan to address statewide crashes*
- *Corridor improvement projects*





What the data tells us (based on 2007-2012 data).....

Pedestrians & Bicyclists:

- Nearly 60% of the fatalities were in urban areas.
- More than ¾ were not at intersections.
- Less than ½ were on the weekend.
- Vast majority died in dark lighting conditions.
- More than 1/3 were alcohol-related.



Pedestrian & Bicycle Countermeasures

- *Improve pedestrian signs, signals and road markings.*
- *Install separated paths/sidewalks.*
- *Install pedestrian traffic signal countdown heads.*
- *Construct median refuges.*
- *Enhance intersection and roadway design to better accommodate pedestrians and cyclists.*
- *Implementation of bike/ped educational campaigns.*



SC's Bridges

McKinley Washington, Jr. Bridge



SC's Bridges

(State Owned Data Current as of July 1, 2014)

8,419 State Owned Bridges

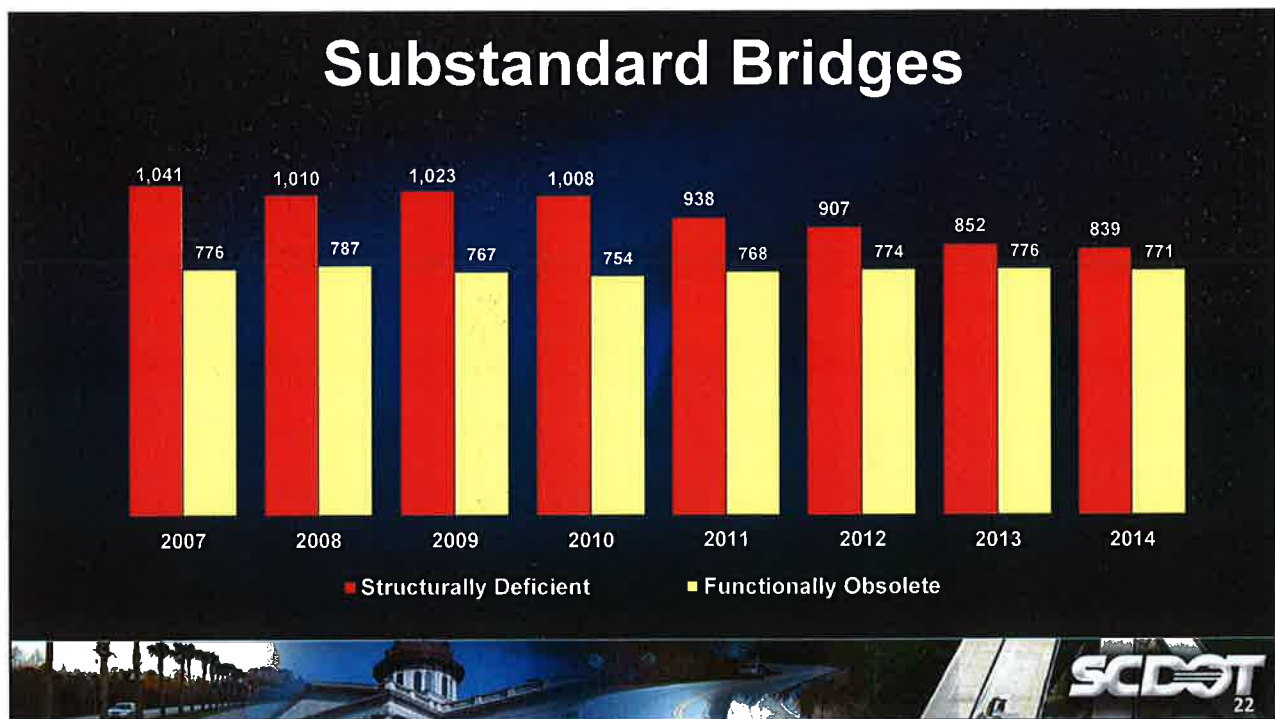
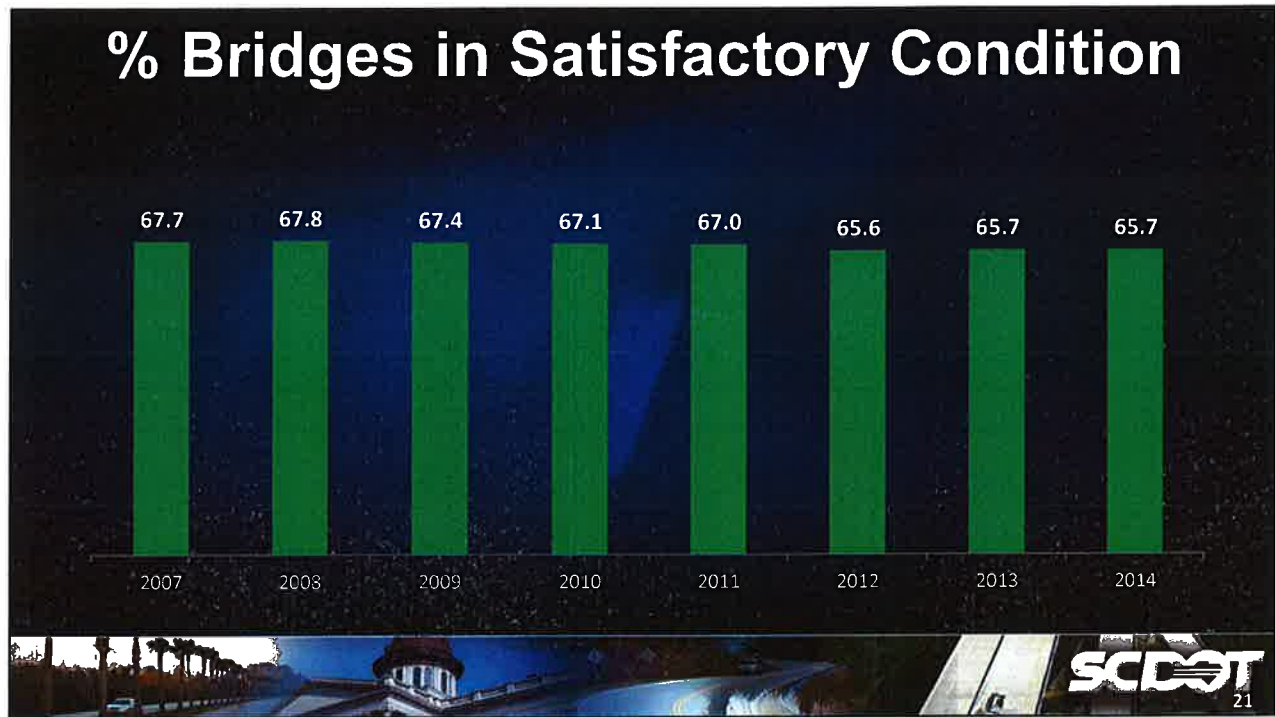
- 19% are Substandard
- 10% are Structurally Deficient
- 9% are Functionally Obsolete
- 5% are Load Restricted
- 12 are Closed

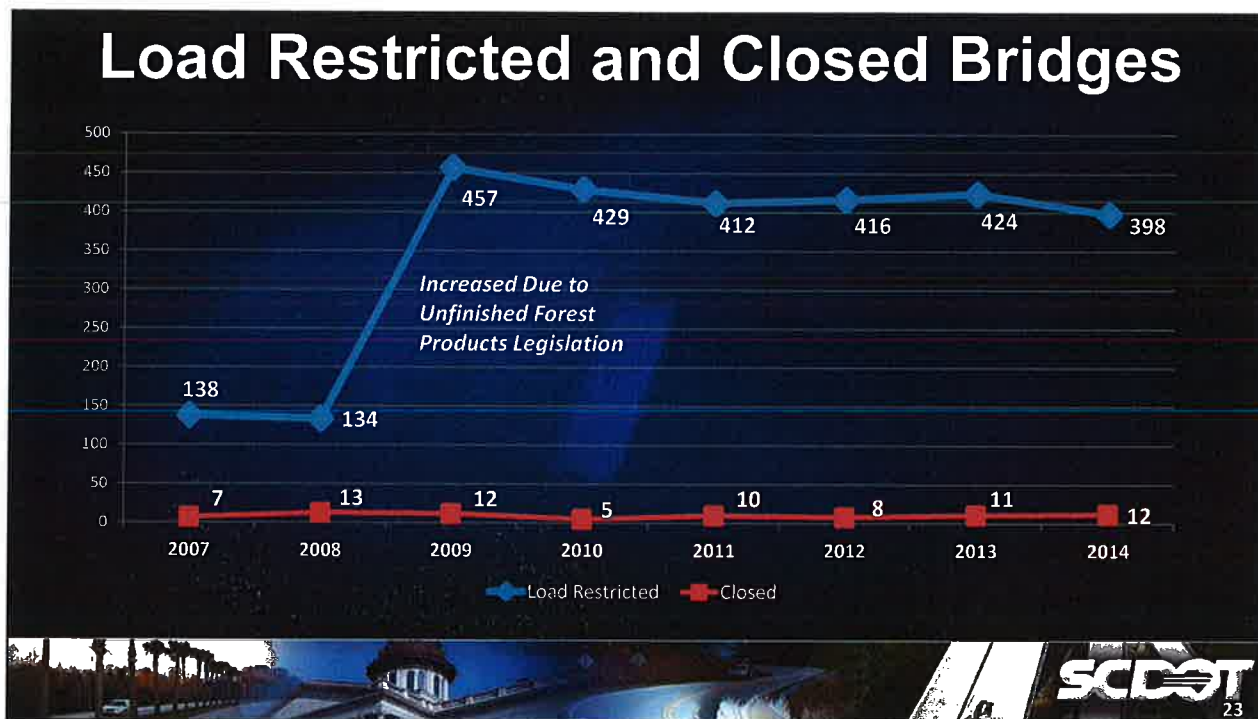
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19

Bridges by System, Classification and Restriction

System	# Bridges	Substandard	Structurally Deficient	Functionally Obsolete	Load Restricted	Closed
Interstate	734	144	27	117	0	0
Primary	2,575	595	270	325	9	0
Secondary	5,110	871	542	329	389	12
Total	8,419	1,610	839	771	398	12

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20





What the data tells us.....

Bridges:

- 2/3 of SC's bridges are in satisfactory condition.
- Increased funding since 2007 reduced the number of structurally deficient bridges.
- SCDOT built a significant number of precast concrete bridges on timber pile foundations. Additional restrictions and closures will likely be required.



Countermeasures

- Use of Structural Health Monitoring (SHM) Technology has provided benefits and savings in bridge repairs, upgrades and restrictions by testing for actual load carrying performance.
- Use of modern, non-site specific, standard bridge designs with an alternative project development process to quickly program for replacement
- Deploy Asset Management/Maintenance contracts to protect and preserve critical assets.
- Balance bridge program to include more rehabilitation and preservation to extend bridge service life
- Work with our partners to control the loadings on bridges while promoting continued needs and services for commerce.



Pavements



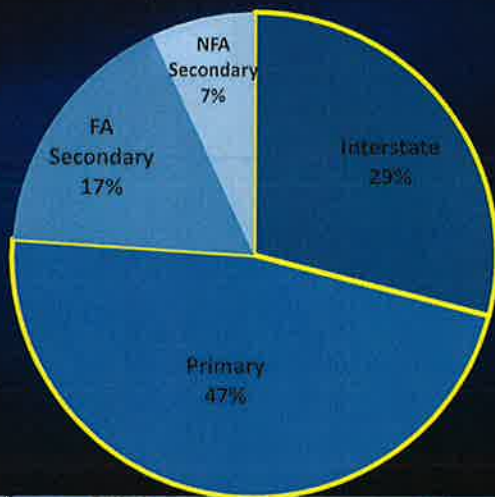
The State System

Route Type	Centerline Miles	Lane Miles
Interstate	851	3,796
Primary	9,472	23,869
Federal Aid Secondary	10,271	21,105
Non Federal Aid Secondary	20,821	41,758
Total	41,414	90,530

Note: Total Centerline Miles (41,414) is the 4th Largest.



% Traffic Carried by Route Type



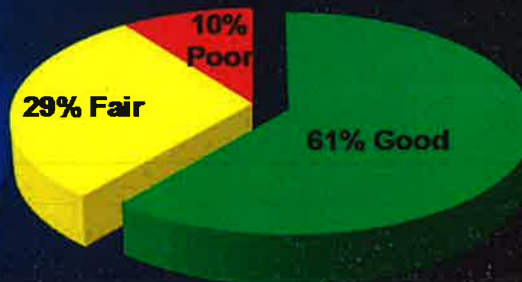
≈75% of SC's traffic is carried on the Interstates and Primary Routes



Interstate System Pavement Condition

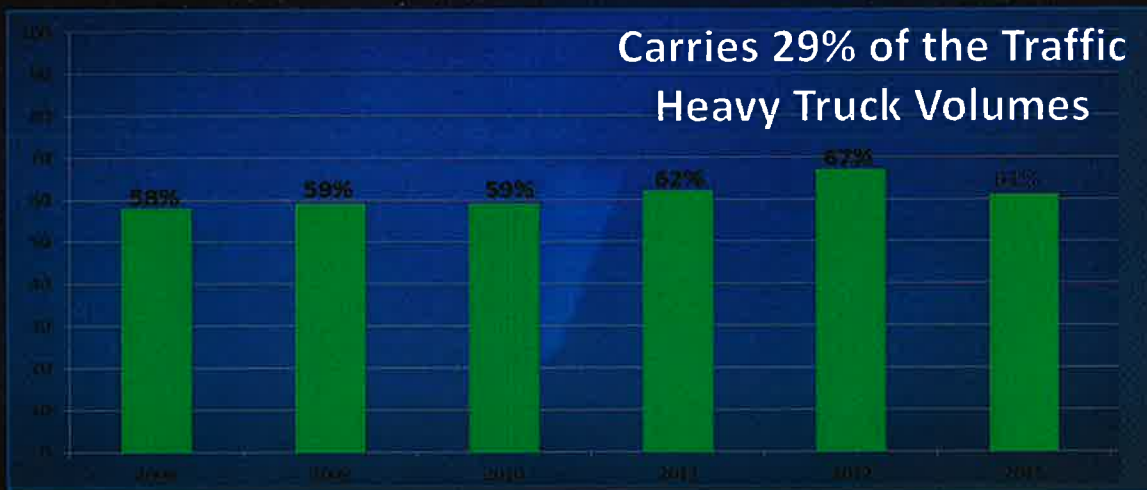
Federal Aid Eligible

- 851 centerline miles
- 3,796 lane miles
- Interstate system is over 50 years old
- Nearly 29% of all roadway travel in SC occurs on the interstates
- Key component of Freight Network
- Heavy truck volumes
- 13% of interstates are high usage, carrying over 70,000 vehicles per day



Interstate System: % Pavement in Good Condition

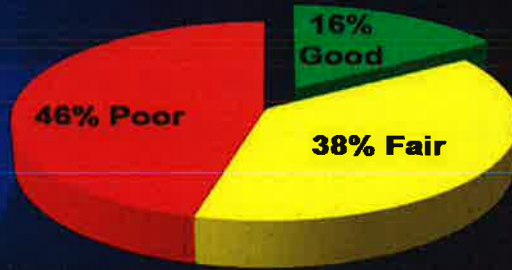
Carries 29% of the Traffic
Heavy Truck Volumes



Primary System Pavement Condition

Federal Aid Eligible

- 9,472 centerline miles
- 23,869 lane miles
- Comprised of US and SC routes
- Includes routes on the National Highway System (NHS)
- 47% of all travel in SC occurs on the primary system

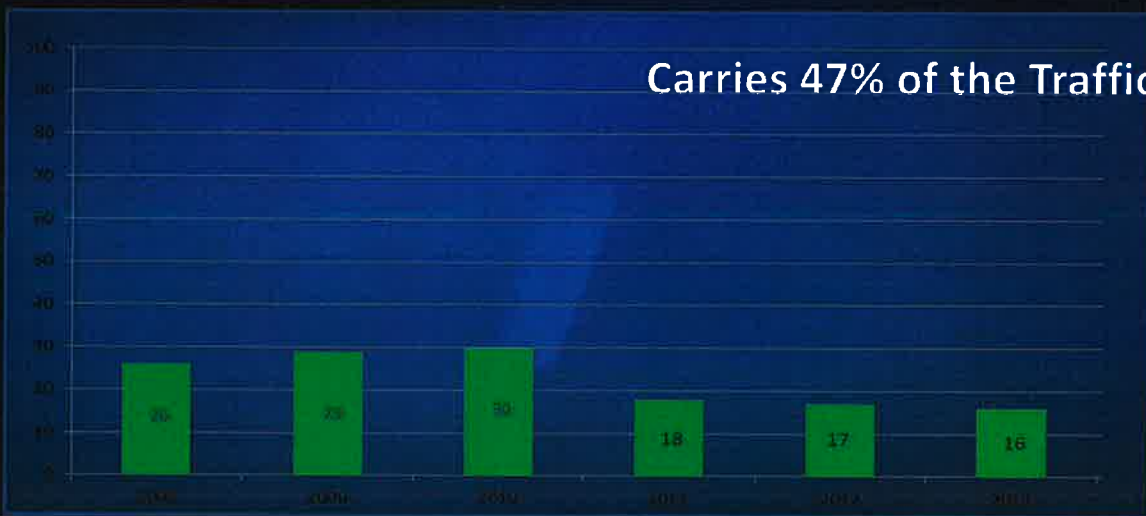


Source: Road Inventory Management System (RIMS) as of January 2014



Primary System: % Pavement in Good Condition

Carries 47% of the Traffic



Secondary System Pavement Condition

Federal Aid Eligible Portion



Non Federal Aid Eligible Portion



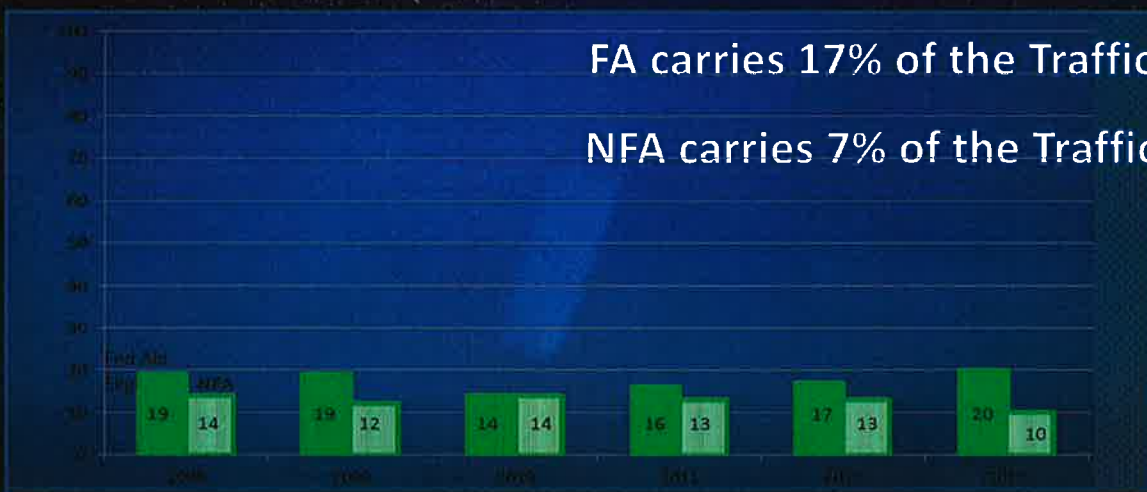
December 31, 2013 Data

- 10,271 centerline miles
- 21,108 lane miles
- Higher volume secondaries
- 17% of travel occurs on the federal aid secondary system

- 20,821 centerline miles
- 41,758 lane miles
- 30% are in urban areas, comprising over 12,000 individual road segments
- 7% of travel occurs on the non federal aid secondary system



Secondary System: % Pavement in Good Condition



% VMT on Pavement Condition Type



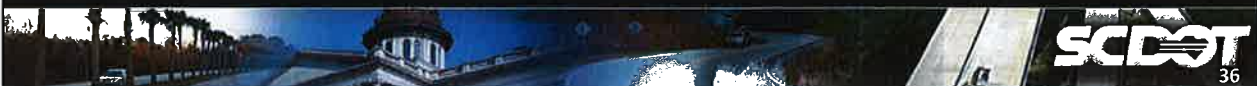
29% of SC's traffic is riding on good pavements

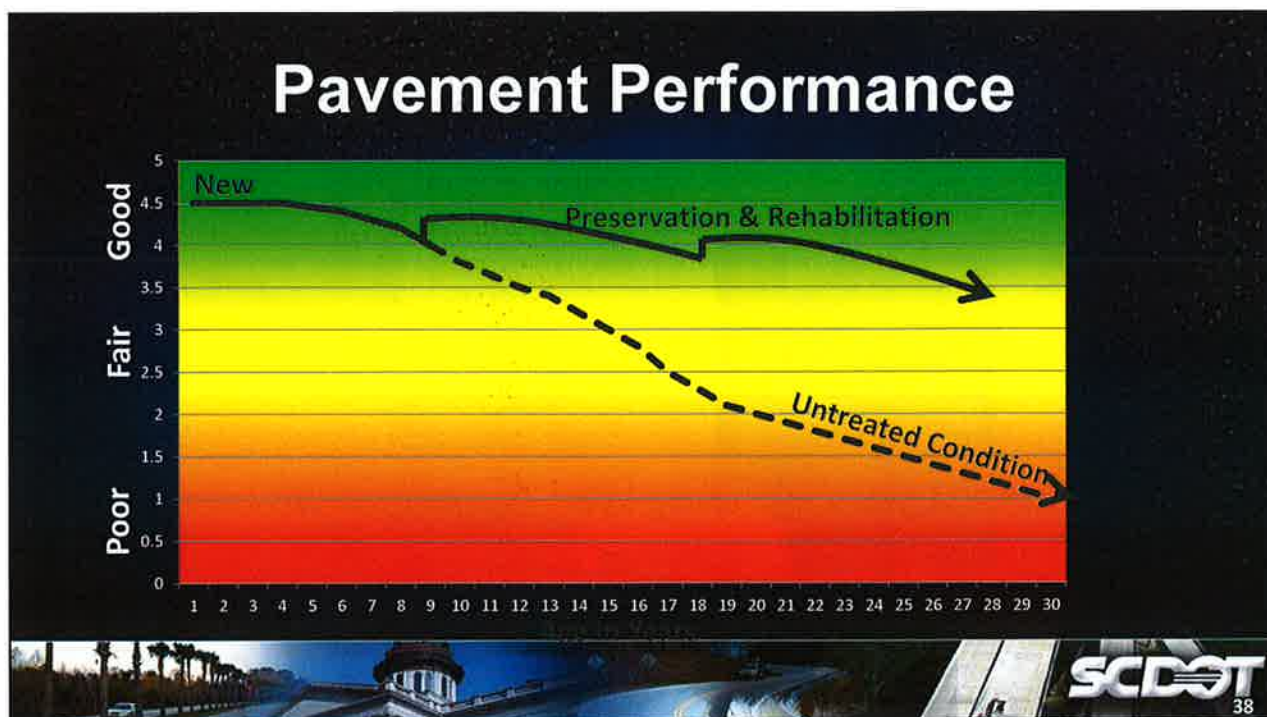
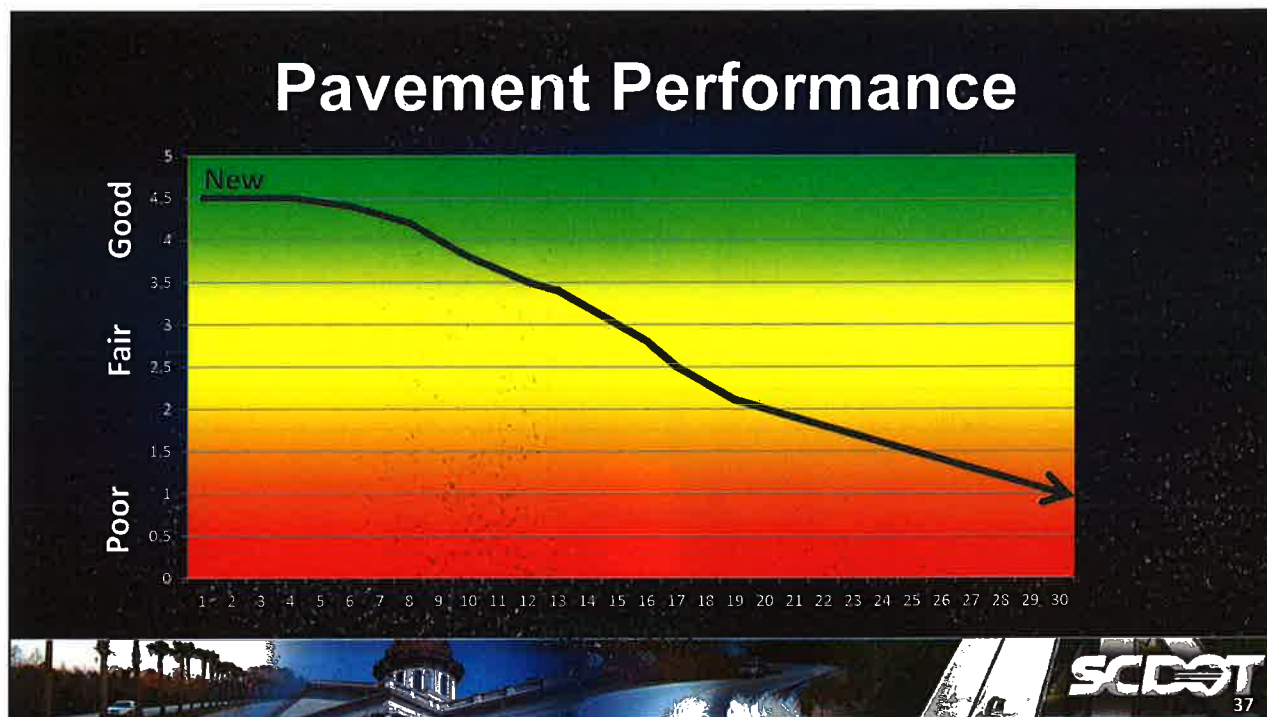


What the data tells us.....

Pavements:

- SC has the 4th largest state maintained system.
- Less than 30% of SC's traffic is riding on good pavements.
- The Interstates & Primary Routes carry 75% of the traffic.
- The Primary System is in poor condition and carries nearly ½ of the motoring public in SC.
- Preservation is key.

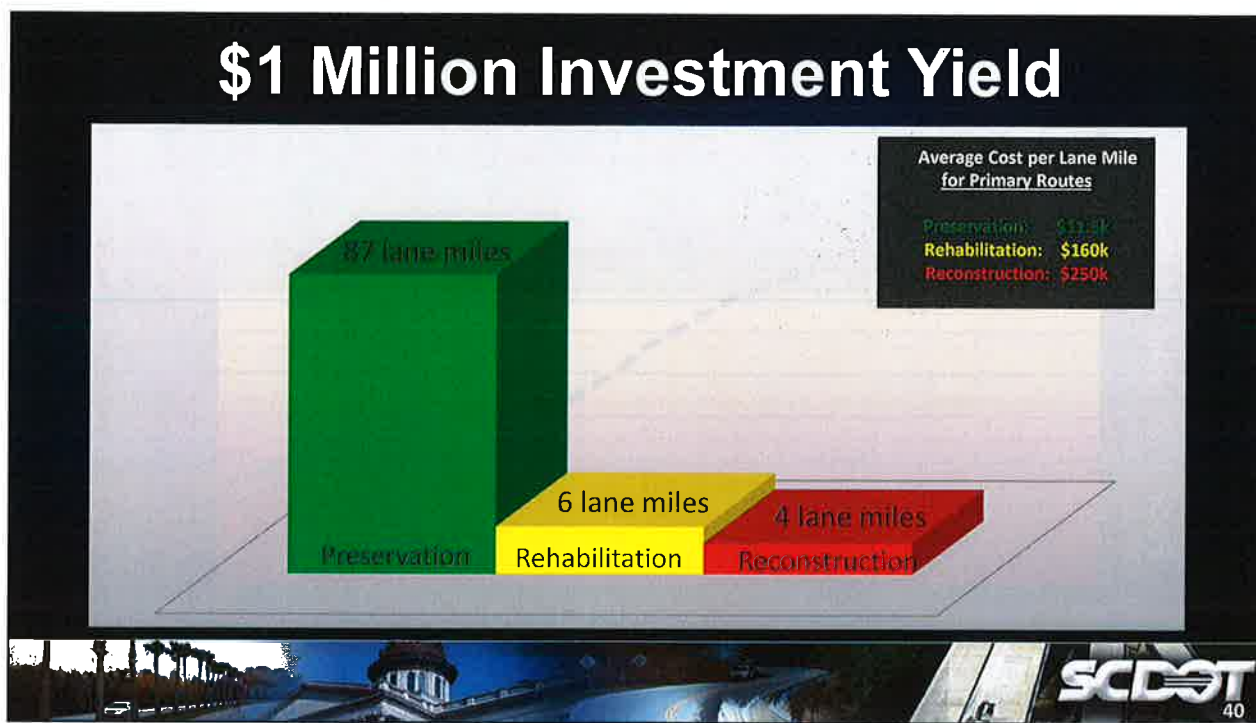




Cost of Deferred Maintenance



\$1 Million Investment Yield



Pavement Condition Countermeasures

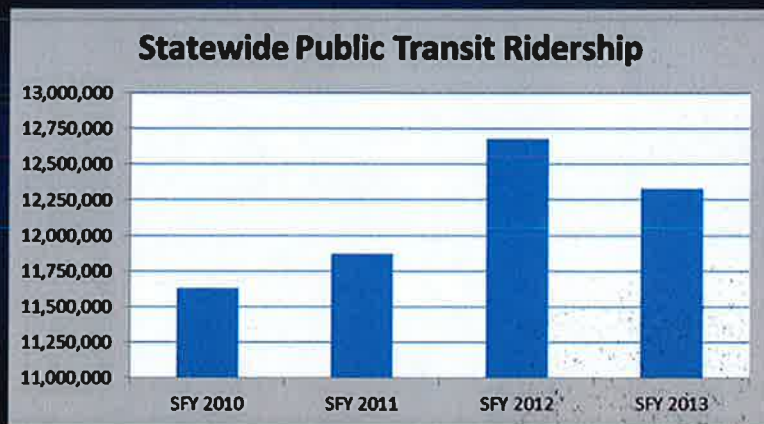
- Keep the Good pavements Good.
- Intercept Fair roads.
- Follow the traffic.
- Target roads on the Freight Network.
- Deploy innovative preservation & rehab practices.



Public Transit



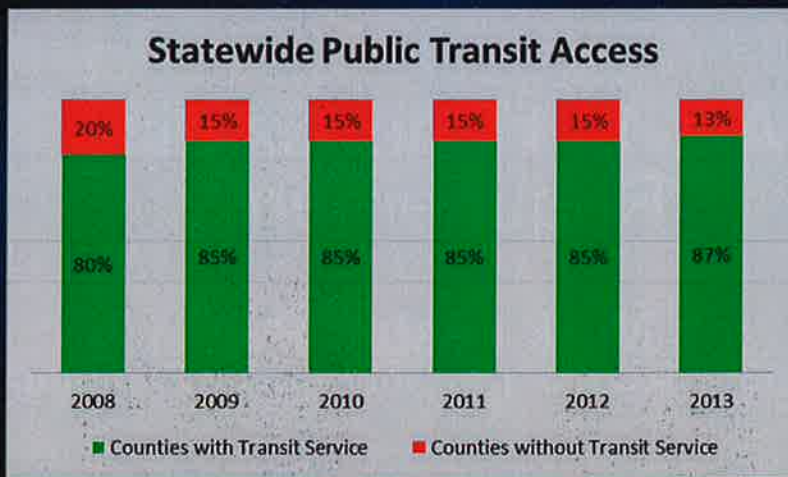
Public Transit Ridership



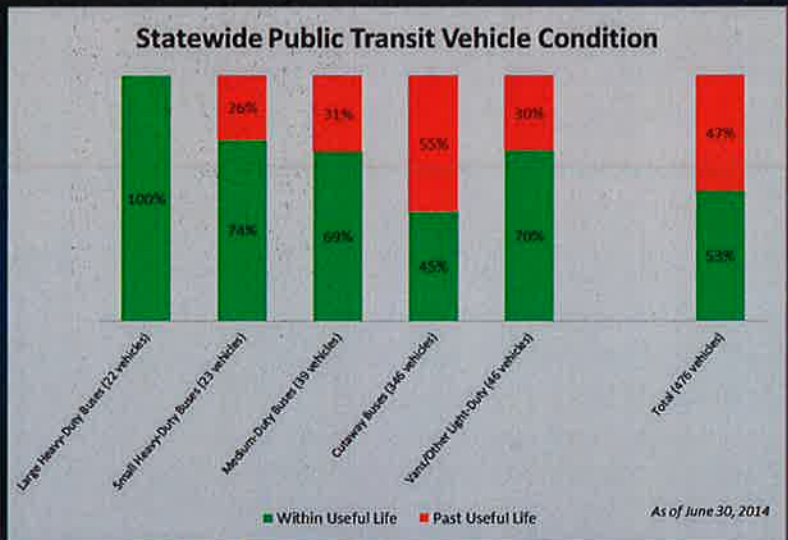
Public Transit Efficiency

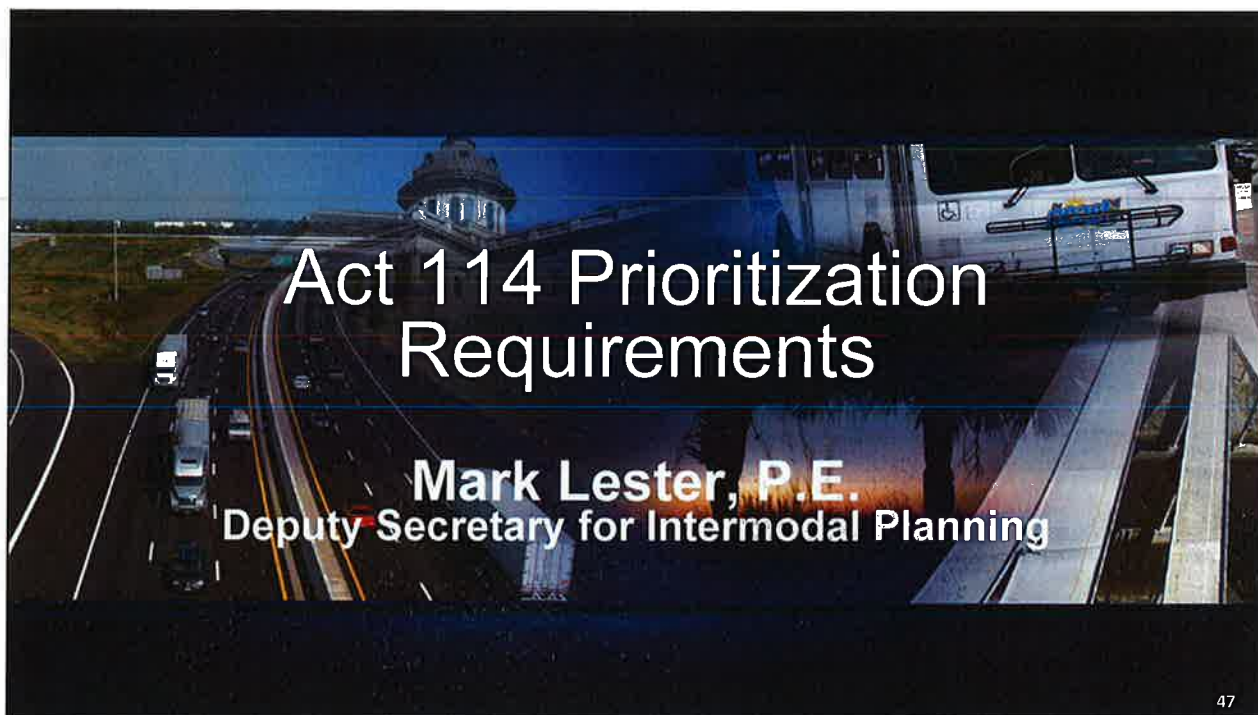


Public Transit Access



Public Transit Asset Condition






Act 114 Prioritization Requirements

Mark Lester, P.E.
Deputy Secretary for Intermodal Planning

47

Act 114 Criteria

- The Commission shall establish a priority lists of projects considering at least the following criteria:
 - a. Financial viability...
 - b. Public safety
 - c. Potential for economic development
 - e. Traffic volume and congestion
 - f. Truck traffic
 - g. The pavement quality index
 - h. Environmental impact
 - i. Alternative transportation solutions; and
 - j. Consistency with local land use plans



SCDOT 48

Act 114 Requirements

- Commission must establish priority list for federal aid and state non-federal aid programs.
- SIB, Local Option Sales Tax projects, and C-fund projects are exempt.
- State Highway Engineer shall develop engineering directives detailing ranking process for each project category.



Pavement Selection Criteria

- Pavement condition (65%)
- Average daily traffic (15%)
- Average daily truck traffic (5%)
- The pavement maintenance costs for the road (5%)
- The road's location and significance to the community and local businesses (10%)



Bridge Replacement Selection Criteria

- Pontis (75%):
 - Structural Condition
 - Traffic Status
 - Average Daily Traffic (ADT)
 - Average Daily Truck Traffic Percentage (ADTT %)
 - Detour Length



Bridge Replacement Selection Criteria

- Engineering Judgment Criteria (25%):
 - District maintenance capabilities, frequency of repairs, effectiveness of repairs, funding availability, including contracts
 - Coordination with other SCDOT projects
 - Additional engineering review of rehabilitation-vs-replacement options
 - Current and future economic/industrial development



Bridge Replacement Selection Criteria

- Engineering Judgment Criteria (Continued):
 - Route continuity and river basin upgrades
 - Improved emergency services and emergency evacuation routes
 - Strategic and network planning for current and future needs
 - Environmental impacts
 - Current and future housing developments
 - New schools and/or changes in bus routes



Interstate Upgrade (Widening) Criteria

- Volume to Capacity – 30%
- Public Safety – 20%
- Truck Traffic – 10%
- Pavement Condition – 10%
- Financial Viability – 10%
- Environmental Impacts – 10%
- Economic Development – 10%



Act 114 Requirements

Section 57-1-460 “routine operation and maintenance and emergency repairs by secretary”

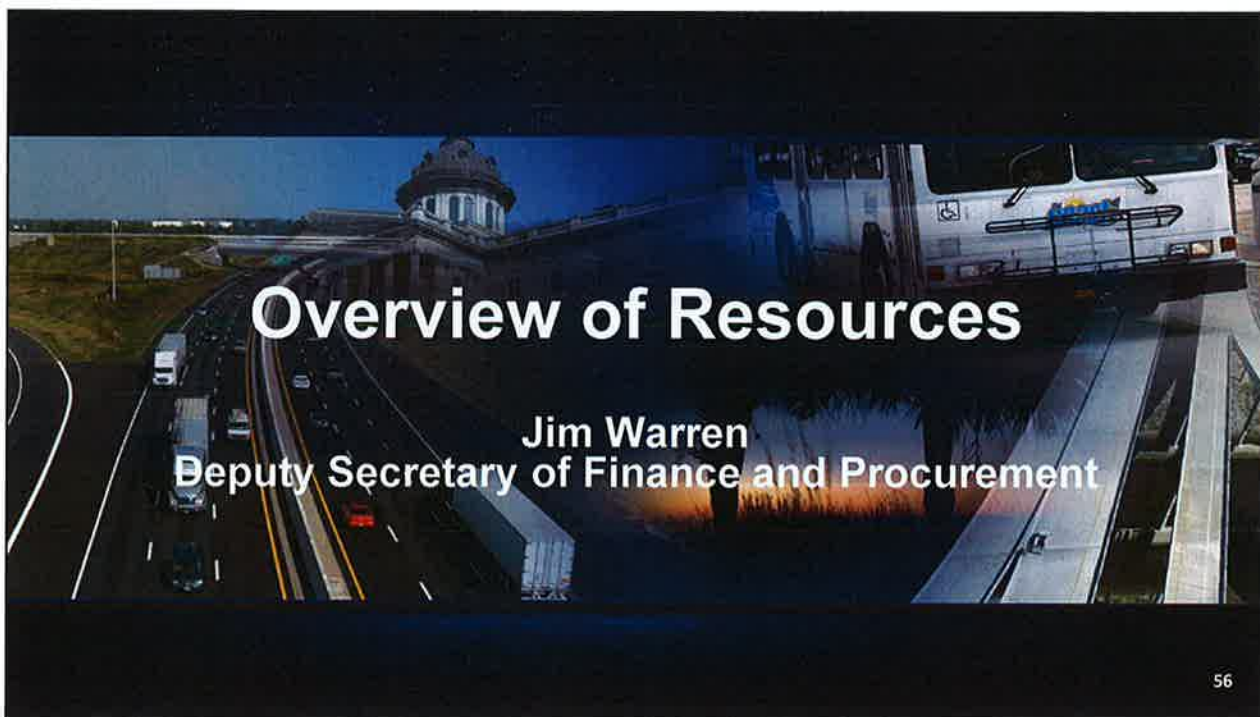
(1) Signage of routes, pavement marking, replacement and installation of guard rails, repair and installation of signals, “chip seal” of existing roads, enhancement projects, bike lanes, curb cuts, installation of overhead message boards and cameras, research projects funded with federal aid, and pavement management system mapping

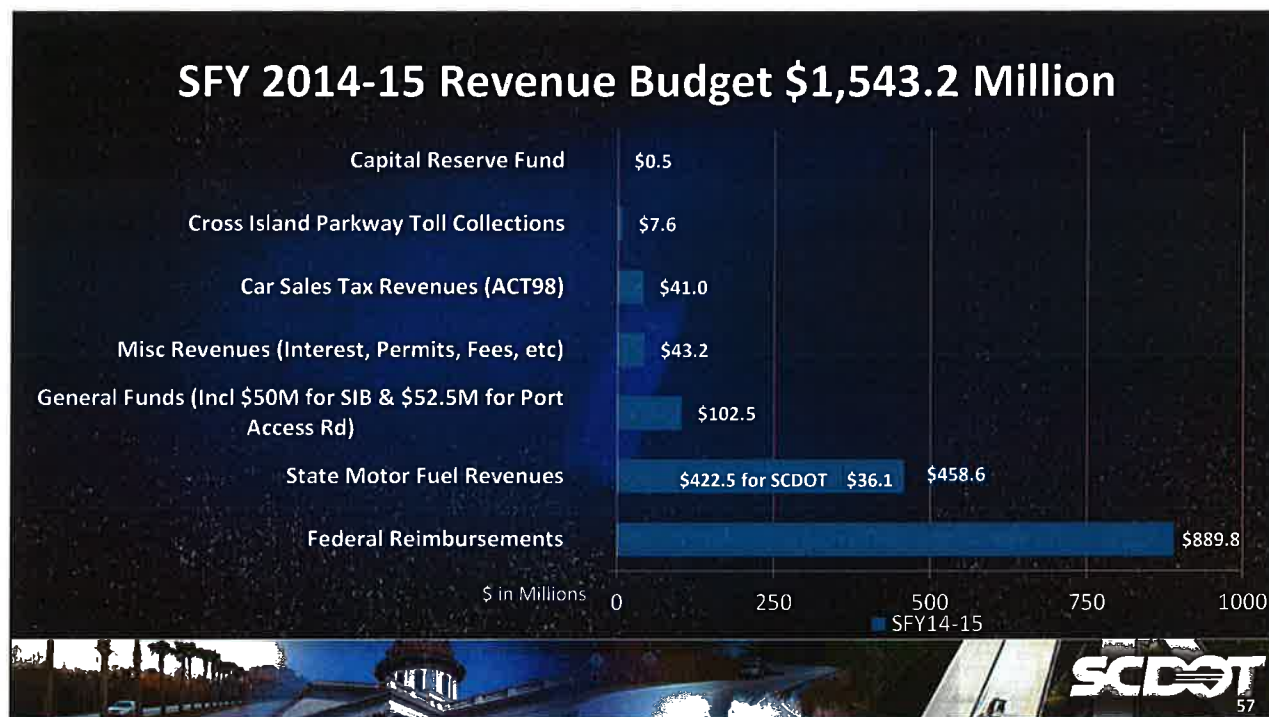
(2) Emergency repairs – unforeseen deterioration of roads, bridges, or equipment due to accidents, natural disasters, or other causes that are not included in the STIP



Overview of Resources

Jim Warren
Deputy Secretary of Finance and Procurement





Selected Revenues are Directed to Specific Activities

General Funds	\$52.5 M	→	Port Access Road
General Funds	\$50.0 M	→	SIB Act 98 Projects
State Motor Fuel Revenues	\$26.6 M	→	SIB 1¢ Gasoline
State Motor Fuel Revenues	\$15.0 M	→	IFTA Transfer
State Motor Fuel Revenues	\$9.5 M	→	County Transportation Fund

Selected Revenues are Directed to Specific SCDOT Activities

Car Sales Tax	\$41 M	→	Non Federal Aid Act 98 Resurfacing Projects
Miscellaneous Revenues	\$24.3 M	→	Non Federal Aid Projects
State Fuel Revenues	\$18.0 M	→	Non Federal Aid Projects
Toll Revenues	\$7.6 M	→	Toll Debt and Operations
General Funds	\$0.5 M	→	Facility Related Projects



SC Motor Fuel User Fee Budget SFY 2014-15



Gross Collections (Gasoline & Diesel)		\$574.0 M
<hr/>		
Dept of Revenue Deductions (Refunds, Corrections, Tare Allowances, School Buses, US Government Use)		(\$9.0 M)
DHEC SUPERB Fund 0.50¢ per gallon		(\$17.6 M)
Department of Agriculture 10% of 0.25¢		(\$0.9 M)
DNR Watercraft Fund 1% of the first 13¢ collected		(\$3.4 M)
<u>County Transportation Fund 2.66¢ per gallon of Gasoline</u>		<u>(\$69.5M)</u>
State Motor Fuel Revenues Transmitted to SCDOT		\$473.6M
	IFTA Transfer	(\$15.0M)
Net State Motor Fuel Revenues to SCDOT		\$458.6M
	County Transportation Fund Donor Bonus	(\$9.5M)
	State Infrastructure Bank 1¢ of Gasoline Equivalent	(\$26.6M)
Remaining for SCDOT Utilization		\$422.5M

26%



SC is Heavily Dependent on Federal Funding

- Federal system is a reimbursement system
- SCDOT pays invoices, then submits to FHWA for reimbursement
- SCDOT is reimbursed approximately 80% for every dollar spent
- Can only be used on federally-eligible roads
- Only half of SC roads are eligible



Long Range Plans

Mark Lester, P.E.
Deputy Secretary for Intermodal Planning



What is in the MTP?

- **2040 Multimodal Transportation Plan**
 - Vision, Goals, Objectives, Performance Measures
 - Modal Needs and Revenue Projections
 - Alternative Investment Scenarios
 - Implementation Strategies
 - **Modal Plans**
 - Interstate
 - Freight
 - Strategic Corridor Network
 - Rail
 - Transit and Human Service
- } Bottlenecks
Existing/Future Congestion
Needs
Strategies
- Strategic Highway Safety Plan developed in partnership with SC Department of Public Safety and FHWA



Draft Statewide Interstate Plan

Key Output:

- Updates 2008 Interstate Plan
- Assessment of existing and future congestion
- Current condition analysis based on vehicle speed data
- Future condition analysis based on newly developed statewide travel demand model

Key Findings:

- Today, 28% (237 centerline miles) of existing interstate operate at LOS C or worse
- By 2040, 65% (553 centerline miles) of the interstate will operate at LOS C or worse
- Most congested corridors
 - I-26 (Charleston)
 - I-26 (Columbia)
 - I-85 (Greenville)
 - I-526 (Charleston)



Statewide Freight Plan

Key Findings

- 300 million tons moved by truck in 2011
- \$506 billion in value moved by truck in 2011
- 574 million tons projected to move by truck in 2040 (91% increase)
- \$1.140 trillion in value projected to move by truck in 2040 (125% increase)
- Identified freight bottlenecks
- Developed Statewide Strategic Freight Network
- Today, 19% (469 centerline miles) of existing freight network operates at LOS C or worse
- By 2040, 42% (1,054 centerline miles) of the freight network will operate at LOS C or worse

Corridors identified for priority improvements to preserve and improve freight movements:

- *I-26 between Charleston through Columbia
- *I-77 through the Columbia metropolitan area
- *I-385 near Greenville
- *U.S. 17 through the Lowcountry
- *I-85 through the Upstate
- *U.S. 78/U.S. 278 through the Lower/Upper Savannah
- *I-20 through the Columbia metropolitan area,



Draft Statewide Freight Network



Draft Statewide Strategic Corridor Network

Key Output:

- Updates 2008 Corridor Plan
- Defines a hierarchy of corridors that support interregional connectivity, mobility, and economic activity
- Assessment of existing and future congestion
- Current condition analysis based on vehicle speed data
- Future condition analysis based on newly developed statewide travel demand model

Key Findings:

- Today, 12% (416 centerline miles) of strategic network operate at LOS C or worse
- By 2040, 27% (938 centerline miles) of strategic network is projected to operate at LOS C or worse
- Most congested corridors
 - US 501 (Horry)
 - US 17 (Charleston)
 - US 378 (Lexington/Richland)
 - US 291 (Greenville)



Draft Strategic Corridor Network



Draft Strategic Corridor Network Freight Network



Draft Strategic Corridor Network NHS



Draft Strategic Corridor Network STRAHNET



Draft Strategic Corridor Network Evacuation Routes



Draft Strategic Corridor Network



Draft Statewide Transit and Human Services Coordination Plans

Key Findings

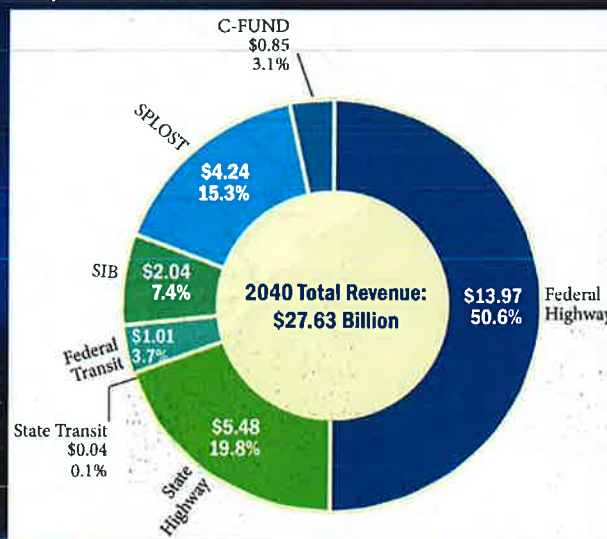
- 11.8 M annual one-way trips provided in FY11
- 11.2 M annual one-way trips provided in FY08
- Public transit available in 39 of 46 counties in FY11
- 44% of existing needs were met in 2011
- 37% of existing needs were met in 2008
- Public transit demand projected to increase 30% to 2040.
- Annual public transit needs of \$125 million (cumulative public transit needs of \$3.6 billion) to maintain and enhance existing public transit service
- 2013 annual funding gap of \$48 million



2040 Baseline Revenue


Federal, State, and Local

2040 Revenue \$27.63 Billion
(in 2011 Dollars)
29 Years



SPLOST = Special Purpose Local Option Sales Tax

75



Charting a Course to 2040

2040 MODAL NEEDS, REVENUE, AND FUNDING GAP

Highways
\$59.76 Billion

Bridges
\$5.44 Billion

Public Transit
\$5.25 Billion

2040 TOTAL REVENUE = \$27.63 BILLION


SIB = State Infrastructure Bank
SPLOST = Special Purpose Local Option Sales Tax

\$70.45B

REVENUE: \$27.63

NEEDS: \$70.45

Includes highway, bridge, and transit.
Annual Funding Gap = \$1.47 Billion



SOUTH CAROLINA MULTIMODAL TRANSPORTATION PLAN

76

Funding Gap



Questions?



