



Maintenance and Operation Program

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Chief of System Operations
CTB meeting presentation
September 22, 2011

Overview of Presentation

- **Meeting our Statutory Requirements**
- **Maintenance and Operations Overview**
- **Current Maintenance and Operations Budget**
- **Summary of Other Performance and Services Delivered**
- **Options for Reducing Crossover**

Meeting Our Statutory Requirements

Code of Virginia Statutory Requirements

§ 33.1-23.02. Definition of the terms "maintenance" and "asset management."

- A. For the purpose of this title, unless otherwise explicitly provided, the term "maintenance" shall include (i) ordinary maintenance, (ii) maintenance replacement, (iii) operations that include, but are not limited to, traffic signal synchronization, incident management, other intelligent transportation system functions, and (iv) any other categories of maintenance which may be designated by the Commissioner.
- B. 1. For the purposes of this title, unless otherwise explicitly provided, the term "asset management" shall mean a systematic process of operating and maintaining the state system of highways by combining engineering practices and analysis with sound business practices and economic theory to achieve cost-effective outcomes.
2. The Department shall develop asset management practices in the operation and maintenance of the state system of highways.
3. The Commissioner shall advise the Board, on or before June 30 of even-numbered years, of performance targets and outcomes that are expected to be achieved, based upon the funding identified for maintenance, over the biennium beginning July 1 of that year. In addition, not later than September 30 of even-numbered years, the Commissioner shall advise the Board on the Department's accomplishments relative to the expected outcomes and budget expenditures for the biennium ending June 30 of that year and also advise the Board as to the methodology used to determine maintenance needs and the justification as to the maintenance funding by source.

§ 33.1-13.03 Annual report by the Virginia Department of Transportation.

The Commissioner of Highways shall annually report in writing to the Governor and General Assembly, no later than November 30 each year, on (i) the condition and performance of the existing transportation infrastructure, using an asset management methodology and generally accepted engineering principles and business practices to identify and prioritize maintenance and operations needs and to identify performance standards to be used to determine those needs, and funding required to meet those needs, (ii) the Department's strategies for improving safety and security, increasing efficiency in agency programs and projects, and collaborating with the private sector and local government in the delivery of services, (iii) the operating and financial activities of the Department including, but not limited to, the construction and maintenance programs, transportation costs and revenue, and federal allocations, and (iv) other such matters of importance to transportation in the Commonwealth.

§ 33.1-41.1 Payments to cities and certain towns for maintenance of certain highways.

The Commissioner of Highways, subject to the approval of the Commonwealth Transportation Board, shall make payments for maintenance, construction, or reconstruction of highways, as hereinafter provided, to all cities and towns eligible for allocation of construction funds for urban highways under § 33.1-23.3. Such payments, however, shall only be made if those highways functionally classified as principal and minor arterial roads are maintained to a standard satisfactory to the Department of Transportation. Whenever any city or town qualifies under this section for allocation of funds, such qualification shall continue to apply to such city or town regardless of any subsequent change in population and shall cease to apply only when so specifically provided by an act of the General Assembly. All allocations made prior to July 1, 2001, to cities and towns meeting the criteria of the foregoing provisions of this section are hereby confirmed.

Code of Virginia Statutory Requirements, Cont.

No payments shall be made to any such city or town unless the portion of the highway for which such payment is made either (a) has (i) an unrestricted right-of-way at least 50 feet wide and (ii) a hard-surface width of at least 30 feet; or (b) has (i) an unrestricted right-of-way at least 80 feet wide, (ii) a hard-surface width of at least 24 feet, and (iii) approved engineering plans for the ultimate construction of an additional hard-surface width of at least 24 feet within the same right-of-way; or (c) (i) is a cul-de-sac, (ii) has an unrestricted right-of-way at least 40 feet wide, and (iii) has a turnaround that meets applicable standards set by the Department of Transportation; or (d) either (i) has been paved and has constituted part of the primary or secondary system of state highways prior to annexation or incorporation or (ii) has constituted part of the secondary system of state highways prior to annexation or incorporation and is paved to a minimum width of 16 feet subsequent to such annexation or incorporation and with the further exception of streets or portions thereof which have previously been maintained under the provisions of § 33.1-79 or § 33.1-82; or (e) was eligible for and receiving such payments under the laws of the Commonwealth in effect on June 30, 1985; or (f) is a street established prior to July 1, 1950, which has an unrestricted right-of-way width of not less than 30 feet and a hard-surface width of not less than 16 feet; or (g) is a street functionally classified as a local street and constructed on or after January 1, 1996, which at the time of approval by the city or town met the criteria for pavement width and right-of-way of the then-current edition of the subdivision street requirements manual for secondary roads of the Department of Transportation (24 VAC 30-90-10 et seq.); (h) is a street previously eligible to receive street payments that is located in the City of Norfolk and the City of Richmond and is closed to public travel, pursuant to legislation enacted by the governing body of the city in which it is located, for public safety reasons, within the boundaries of a publicly funded housing development owned and operated by the local housing authority; or (i) is a local street, otherwise eligible, containing one or more physical protuberances placed within the right-of-way for the purpose of controlling the speed of traffic.

However, the Commissioner may waive the requirements as to hard-surface pavement or right-of-way width for highways where the width modification is at the request of the local governing body and is to protect the quality of the affected local government's drinking water supply or, for highways constructed on or after July 1, 1994, to accommodate some other special circumstance where such action would not compromise the health, safety, or welfare of the public. The modification is subject to such conditions as the Commissioner may prescribe.

For the purpose of calculating allocations and making payments under this section, the Department shall divide affected highways into two categories, which shall be distinct from but based on functional classifications established by the Federal Highway Administration: (i) principal and minor arterial roads and (ii) collector roads and local streets. Payments made to affected localities shall be based on the number of moving-lane-miles of highways or portions thereof available to peak-hour traffic in that locality.

The Department of Transportation shall recommend to the Commonwealth Transportation Board an annual rate per category to be computed using the base rate of growth planned for the Department's Highway Maintenance and Operations program. The Board shall establish the annual rates of such payments as part of its allocation for such purpose, and the Department of Transportation shall use those rates to calculate and put into effect annual changes in each qualifying city's or town's payment under this section.

The payments by the Department shall be paid in equal sums in each quarter of the fiscal year, and payments shall not exceed the allocation of the Board.

The chief administrative officer of the city or town receiving this fund shall make annual categorical reports of expenditures to the Department, in such form as the Board shall prescribe, accounting for all expenditures, certifying that none of the money received has been expended for other than maintenance, construction or reconstruction of the streets, and reporting on their performance as specified in subdivision B 3 of § 33.1-23.02. Such reports shall be included in the scope of the annual audit of each municipality conducted by independent certified public accountants.

Meeting Our Statutory Requirements

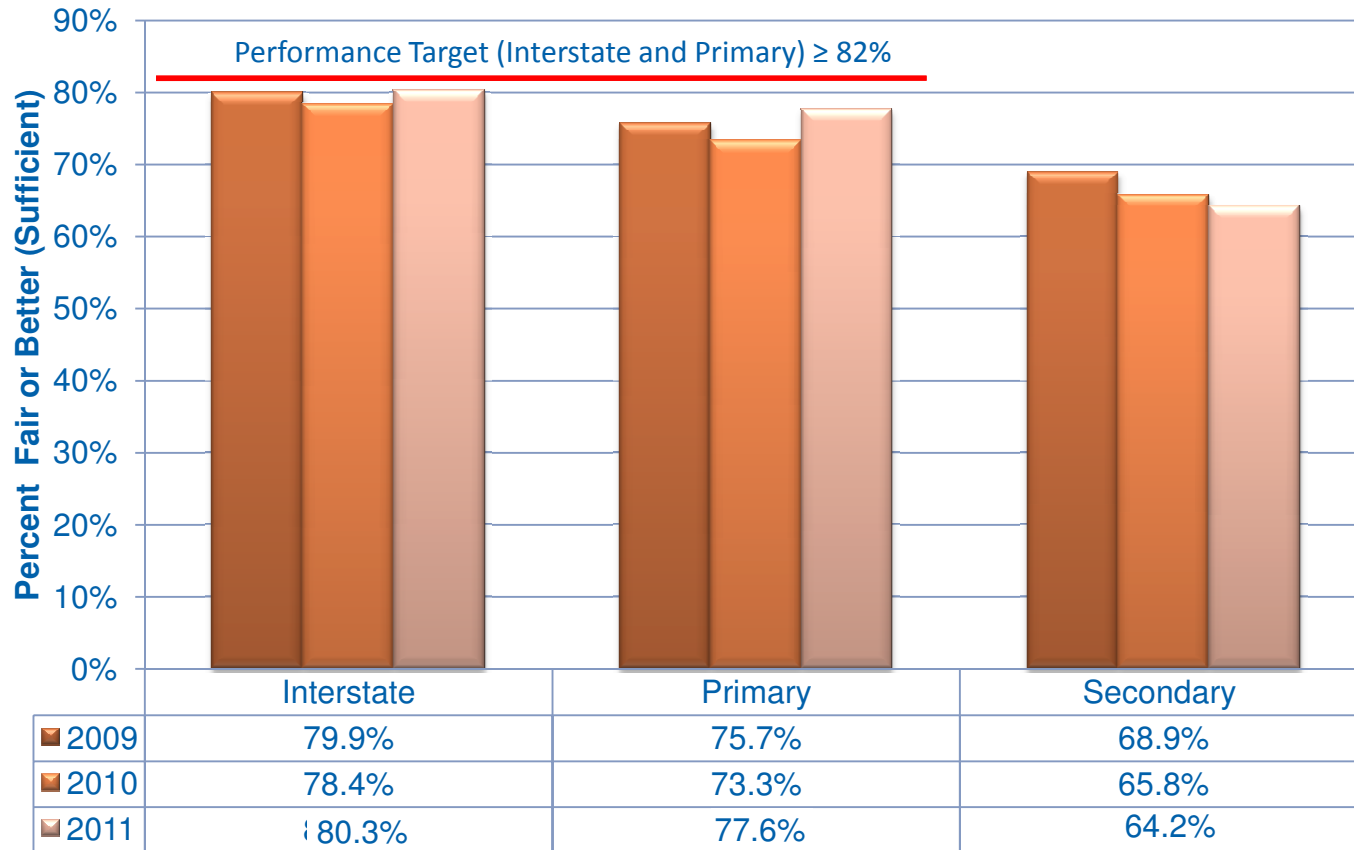
The Maintenance Performance Targets are:

- 82 percent of interstate and primary system pavements in fair or better condition
- 92 percent of bridges in structurally sufficient condition

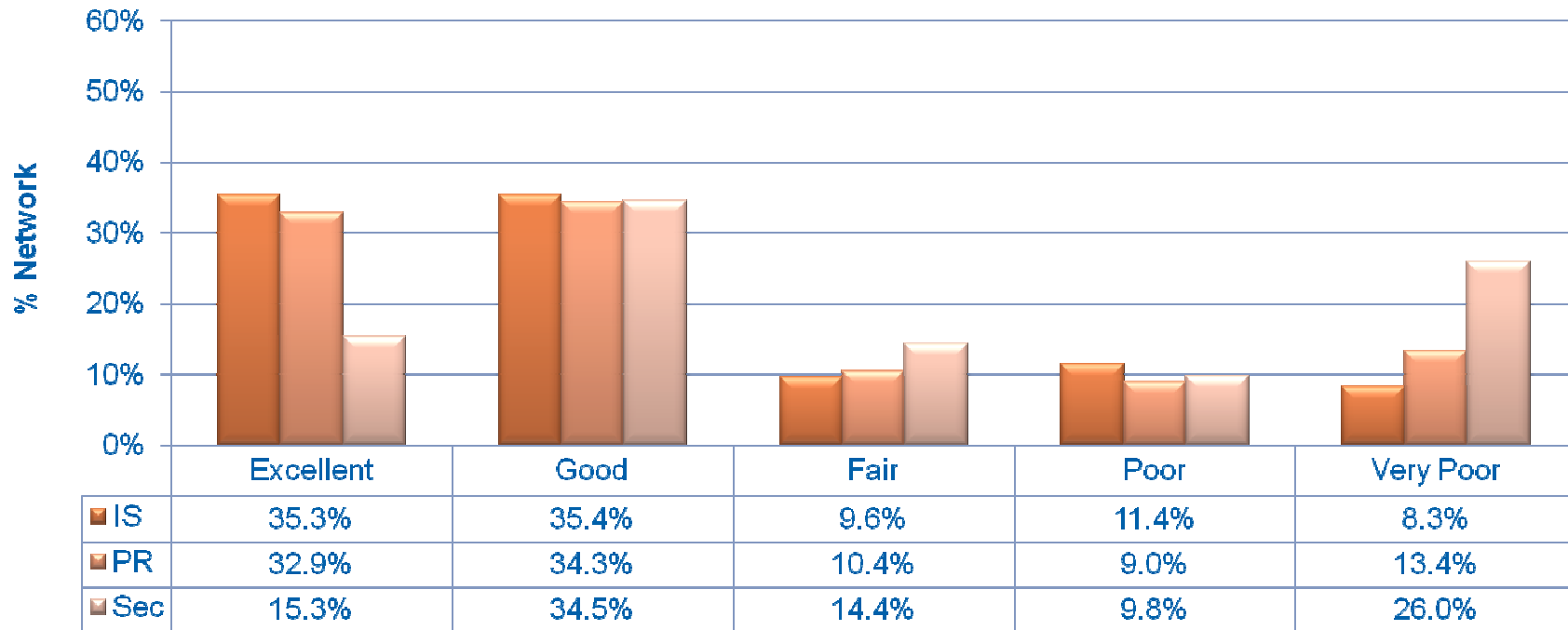
In June 2011, VDOT advised the Commonwealth Transportation Board (CTB) of anticipated performance

- By June 30, 2012, will meet or exceed performance communicated in June 2010
 - Will meet interstate pavement performance target of 82 percent
 - Will meet 80 percent primary pavements rated fair or better
 - Will maintain condition of secondary pavements
 - Will meet the target with 91.7 percent bridges and culverts rated structurally sufficient
- By June 30, 2013, will meet primary pavement performance target
- Will increase focus on improving the condition of secondary pavements

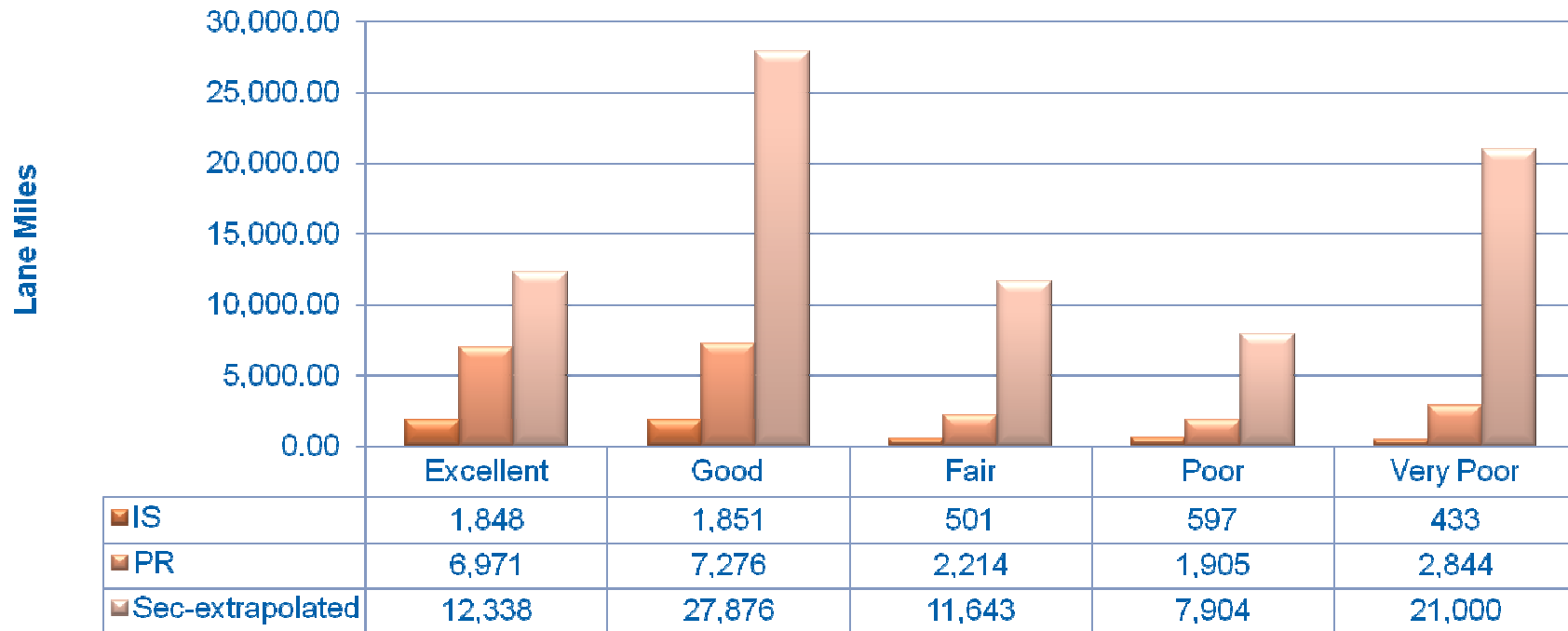
Percent of Lane Miles in Sufficient Condition by System



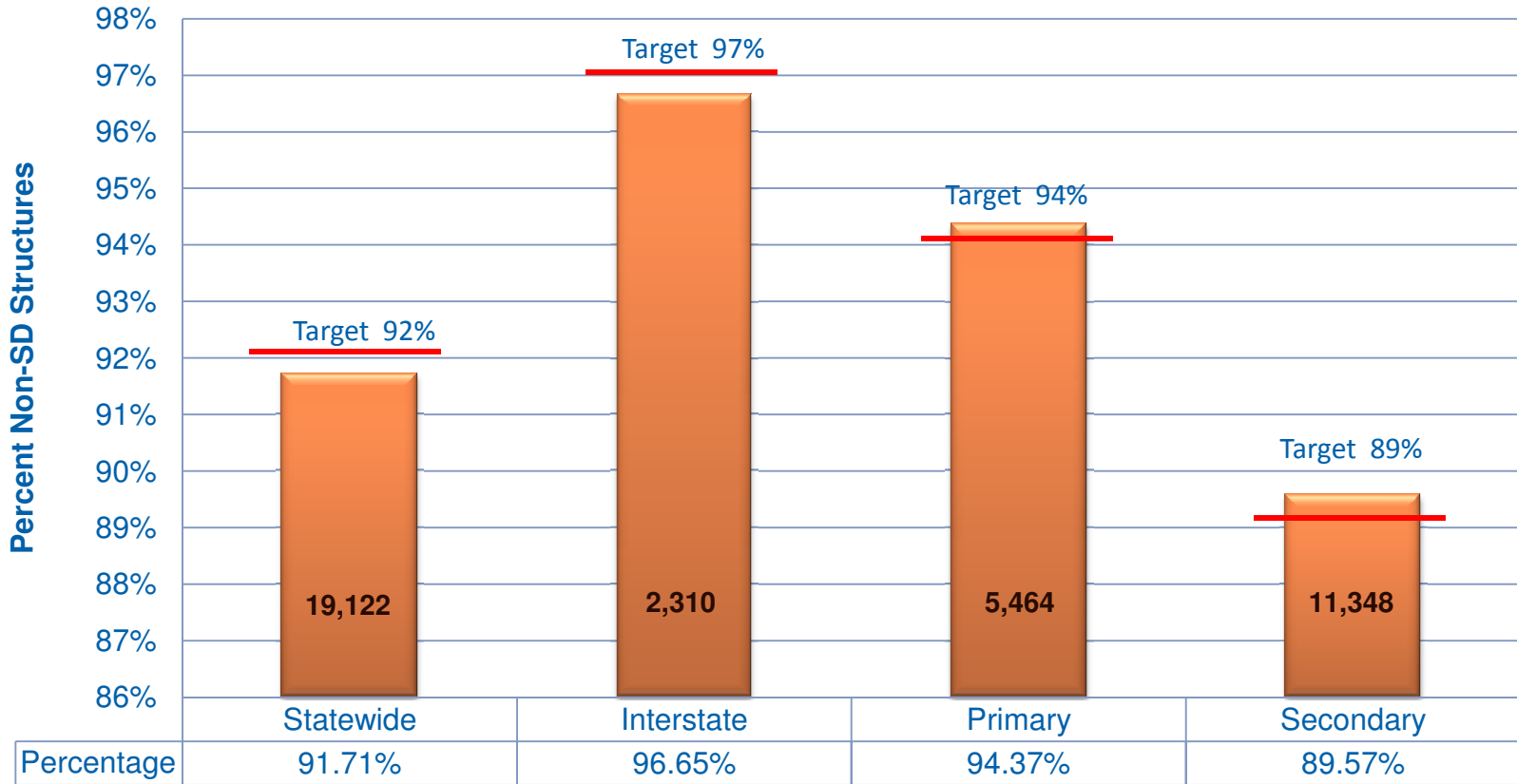
2011 Pavement Conditions Percent of Network by Roadway System



2011 Pavement Conditions Lane Miles by Roadway System

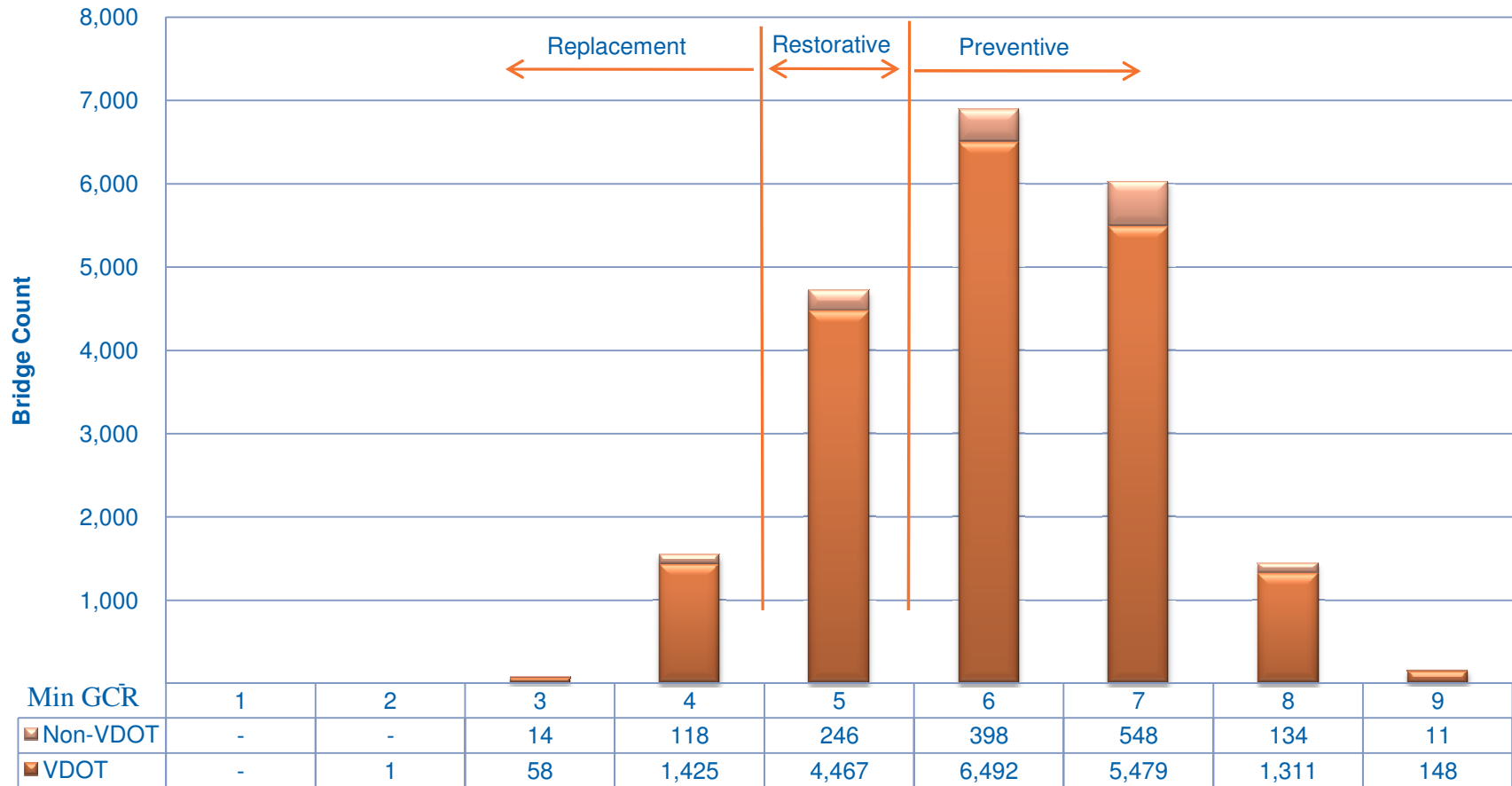


Percent of Structurally Sufficient Structures



As of June 17, 2011 - Statewide - System wide

Distribution of Bridges by Minimum General Condition Rating FY 2011



Meeting Our Statutory Requirements

Based on the significant commitment of Transportation Trust Fund funding to the Highway Maintenance Operating Funds, the maintenance targets that are being maintained, and the additional funding in the Six-Year Improvement Program that improves the system, the CTB is meeting its statutory responsibility of maintenance first.

Maintenance and Operations Overview

Maintenance and Operations Investments

Focus on physical condition of assets

Mill and Overlay



Restore



Deck Rehab



Guardrail Upgrade



Striping



Replace



Maintenance and Operations Services

The focus on emergency response, operations, and ordinary/routine maintenance of assets

Patching



Flushing



Mowing



Safety Service



Snow Removal



Washing



Scope of Systems

- 126,529 VDOT maintained lane miles – 3rd largest network in U.S.
- 19,381 VDOT maintained bridges and large culverts
- 740,000 ground mounted signs, 30,000 overhead signs
- 66,700 miles of pavement markings
- 6,286 miles of guardrail
- 3,407 signalized intersections or flashers
- Technology- 648 cameras, 502 dynamic message boards, 79 portable message signs, 68 weather stations, 35 highway advisory radios
- 7 tunnels (4 water tunnels; 2 mountain tunnels, 1 urban tunnel)
- 7 ferry boats
- 17 movable bridges
- 5 traffic operations centers
- 42 safety rest areas

**Vehicle Miles of Travel (VMT)
on VDOT Maintained Roads**

24.0 billion annual VMT on interstates

24.7 billion annual VMT on primaries

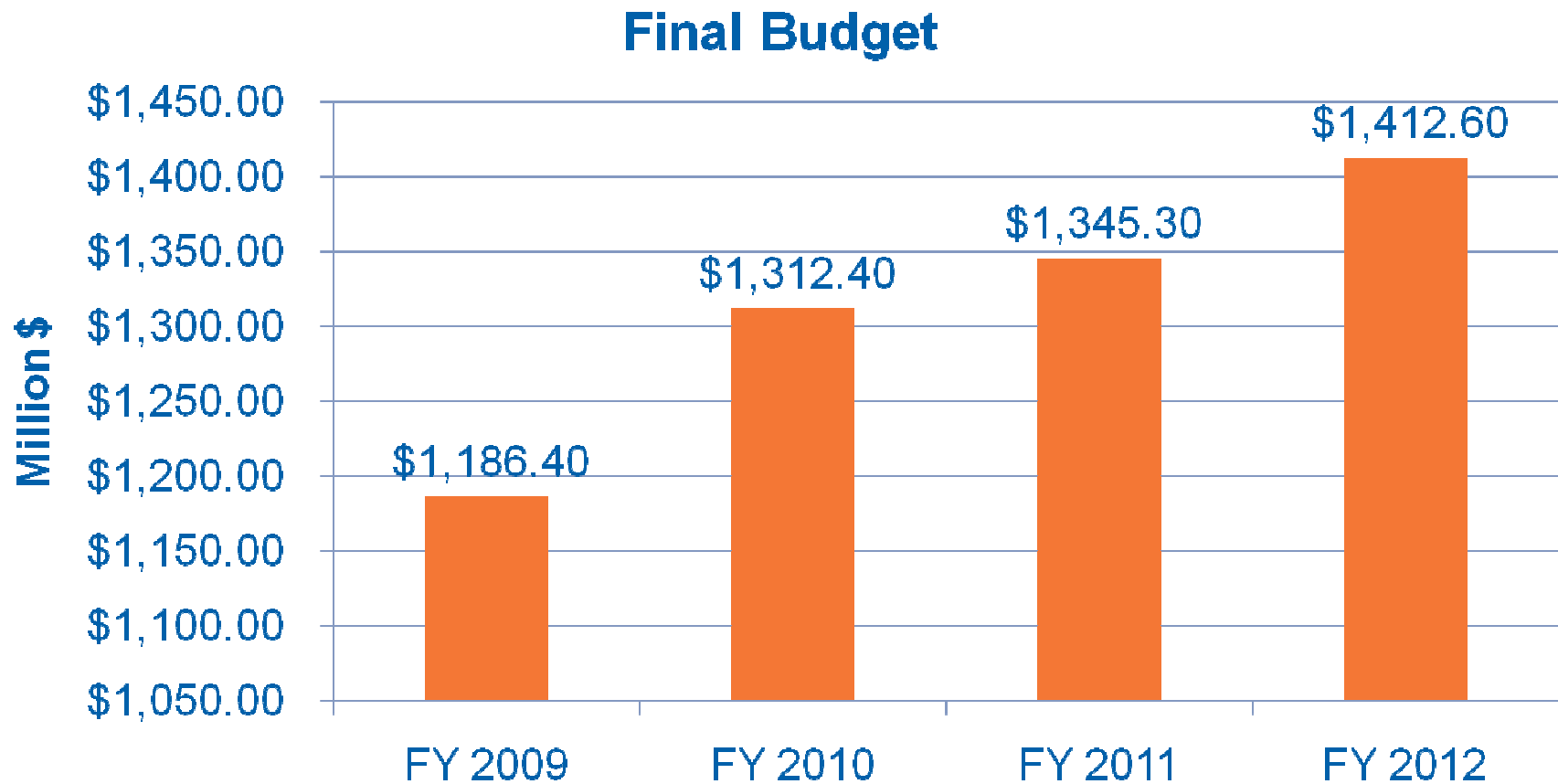
14.4 billion annual VMT on secondaries

Operation and Maintenance Services Delivered in FY2011 and Expenditure (\$millions)

- **Pothole blitz: 108,203 potholes patched**
- **53,300 safety service patrol citizens assists**
- **Over 33 million safety rest area visits annually**
- **5,651 lane miles paved in calendar year 2010 - \$220.6**
- **9,218 lane miles planned to be paved in calendar year 2011 - \$418.2**
- **1,111,500 callers to 511 Virginia traveler information**
- **402,196 work orders, 96,367 generated from citizen requests**
 - **Pothole patching**
 - **Dead animals**
 - **Drainage problems**
 - **Limb/tree damage**
- **159,485 acres mowed - \$36.2, 2-3 mowing cycles**
- **96,779 signs fabricated**
- **32,152 ferry crossings**
- **Major weather events: Responded to 21 snow events and 14 tornadoes**

Current Maintenance and Operations Budget

FY 2009 - 2012 Maintenance and Operations Final Budget (nominal dollars)



FY 2009 - 2012 Maintenance and Operations Budget by Program (\$ million)

Program Area	FY 2011 Budget	FY 2012 Budget
Interstate Maintenance	\$345.3	\$356.6
Primary Maintenance	456.7	470.2
Secondary Maintenance	345.3	373.2
Transportation Operations Services	120.6	138.8
Management and Direction	77.4	73.8
Total	\$1,345.3	\$1,412.6



Maintenance and Operations Budget FY 2011-2012 (\$ millions)

Service Type	Service Area	Service Group	FY 2011 Budget	FY 2012 Budget	
Investment	Emergency and Incident Management	TOC and Technology	\$23.3	\$28.9	
		Roadway	Road Surface	318.3	360.6
			Interstate Pavement	92.6	83.8
			Primary Pavement	164.9	188
			Secondary Pavement	60.7	88.8
			Bridges	131.1	123.0
			Tunnels	24.6	22.7
	Traffic and Safety		Guardrail and Traffic Barriers	30.6	30.1
			Lights	4.0	7.3
			Pavement Markings	46.5	63.7
			Signals	19.9	23.6
			Signs	15.5	16.0
			Sub-Total	613.8	675.9
	Services	Emergency and Incident Management	Incident Response	3.1	12.8
			Snow and Ice	115.1	125.9
TOC and Technology			39.5	38.4	
Roadway			Bridges	40.7	42.9
			Road Surface	112.5	96.5
			Tunnels	20.2	19.7
Traffic and Safety			Guardrail and Traffic Barriers	18.2	13.4
			Lights	4.6	4.1
			Miscellaneous Traffic and Safety	26.7	27.6
			Pavement Markings	1.1	0.4
			Signals	10.6	8.9
			Signs	9.2	11.0
Roadside			Drainage and Slopes	68.4	65.3
			Sound Barriers and Fences	0.04	0.3
			Vegetation Management	69.4	71.7
			Equipment and Inventory Management	13.9	15.5
Facility and Other			Ferries	11.6	12.1
			Management and Direction	70.5	73.8
			Miscellaneous Facility and Other	10.7	8.9
			Permitting	9.8	8.4
			Reserves	56.9	53.8
			Safety Rest Areas and Waysides	16.2	21.3
			Sidewalks and Trails	2.5	4.2
		Sub-Total	731.5	736.7	
		Total	\$1,345.3	\$1,412.6	

Explanation of Service Type

Investment

Includes repairs and maintenance work that changes the physical condition and extends the useful life of the asset

Examples of Investment activities include:

- Upgrading guardrail
- Replacing signs
- Upgrading signal systems
- Repairing tunnel HVAC and plumbing systems
- Rehabilitating bridge decks
- Paving roads

Services

Ordinary maintenance activities that do not change the physical condition of the asset

Examples of Services include:

- Pothole patching
- Deck patching
- Cleaning and repairing drainage
- Flushing culverts, pipes and bridge scuppers
- Mowing
- Litter and dead animal pick up
- Snow removal
- Incident response
- Repairing damaged guardrail and signs

Distributing Statewide Maintenance and Operations Allocation

Based on the VDOT Business Plan Goals and Needs Assessment

- Team consisting of VDOT's district and main office program managers
 - Developed a list of programmatic priorities:
 - Ensure services funding (including emergency response) is no less than FY 2011 level
 - Restore funding for safety service patrols and rest areas to FY2009 levels
 - Fund interstate and primary pavement investment at level estimated to achieve and maintain performance target of 82 percent; Start to redirect funds to the secondary system
 - Close the gap between needs and budget for tunnel investment
 - Developed draft budget scenario using needs assessment and historical budget information
- District maintenance managers and operations directors reviewed resulting allocation distribution scenario and provided feedback
- The final maintenance and operations budget was approved by district administrators, chief of system operations, chief deputy, commissioner, and the CTB

Budget Facts

Maintenance Budgets

- 80 percent outsourced (contracts as well as material costs)
- 20% internal costs

Estimated cost of paving 1 lane mile - (standard plant mix overlay with the associated construction costs)

- Interstate \$ 126,000
- Primary \$ 101,000
- Secondary \$ 87,000

FY 2011

Average cost mowing per cycle statewide	\$ 12.0 million
Over 11,500 Drainage work orders :	\$ 43.8 million
Over 12,000 Dead Animal work orders:	\$ 3.9 million

FY2012

Interstate maintenance contracting:	\$ 86 million
Snow and other emergency budget:	\$ 126 million

Summary of Other Performance and Services Delivered

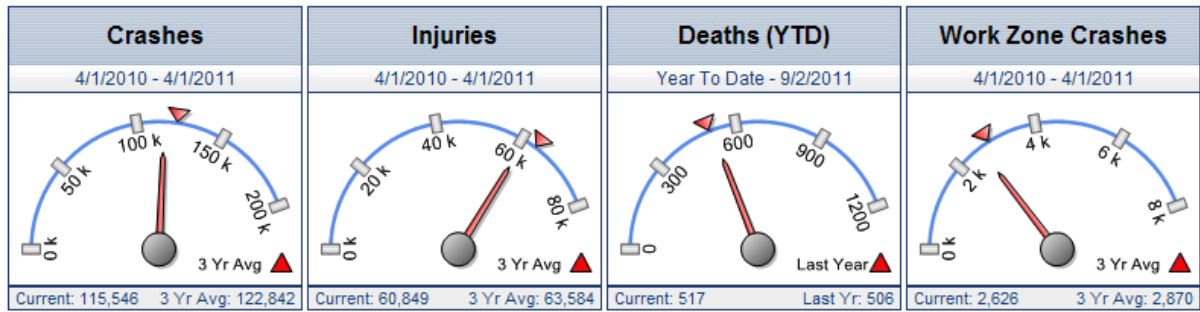
Outsourcing – Payments to the Private Sector FY 2011 - (Millions)

Service Area –Service Group	FY 2011 Payments
Emergency and Incident Management	\$230.8
Incident Response	1.9
Snow and Ice	177.0
TOC and Technology	51.9
Roadway	637.1
Bridges	138.0
Road Surface	478.2
Tunnels	20.9
Traffic and Safety	100.3
Guardrail and Traffic Barriers	22.8
Lights	6.7
Miscellaneous Traffic and Safety	12.7
Pavement Markings	15.9
Signals	30.6
Signs	11.6
Roadside	98.1
Drainage and Slopes	45.0
Sound Barriers and Fences	0.4
Vegetation Management	52.7
Facility and Other	69.0
Equipment and Inventory Management	(2.4)
Ferries	6.7
Management and Direction	33.8
Miscellaneous Facility and Other	4.6
Permitting	3.4
Safety Rest Areas and Waysides	22.0
Sidewalks and Trails	0.9
Grand Total	\$1,135.3

Constance S. Sorrell
Chief of System Operations

Safety

District: Counties Cities Focus Area:
(not applied to YTD Deaths)



Crashes Injuries Deaths WorkZone

Description	Recent 12 Months	3-Year Avg
Angle	30,466	31,030
Backed Into	942	1,379
Bicyclist	544	431
Deer	5,191	5,969
Fixed object in road (from ditch to ditch)	1,042	1,135
Fixed object off road (from outside of ditch)	21,699	24,856
Head on	3,559	2,878
Miscellaneous or other	2,047	1,607
Motorcyclist	202	141
Non-Collision, overturned, jackknifed or ran off road (no object)	2,426	2,804

Constance S. Sorrell Chief of System Operations
 Malcolm T. Kerley, P.E. Chief Engineer

Highway Performance

Choose Measure

Overview

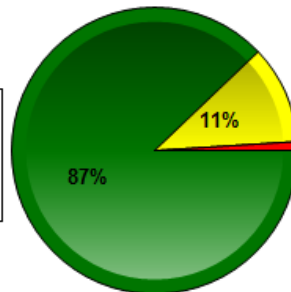
Congestion at Various Interstate Locations

% of Vehicle Miles During Selected Period

Date Range: Most Current (August 3)

30-Day Average: (Inner Pie)

Level of Service
 Good
 Marginal
 Poor



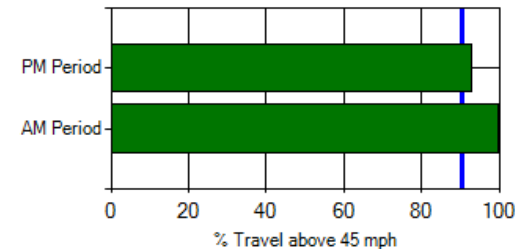
HOV Travel Speed Performance

% Travel above 45 mph (Northern VA only)

Date Range: Last 30 Days

Facility: [All Facilities]

Show Speeds: Above 45 mph Below 45 mph



Travel Time on Key Commuter Routes

During Peak Commuter Hours

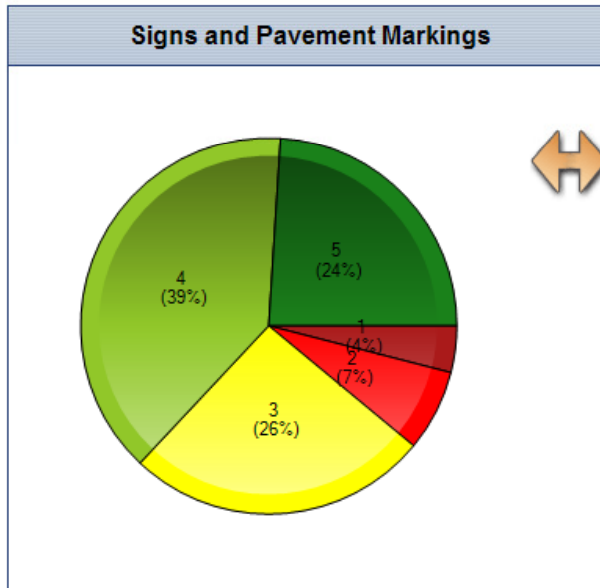
Date Range: Current Month

Route	Segment	Total Mileage	Average Travel Times (AM Peak)	Average Travel Times (PM Peak)	Travel Times at Speed Limit
I-66 EastBound	Rt-234 to Rt-50	10.6 miles	15.5 minutes	13.5 minutes	10.0 minutes
I-66 EastBound	Rt-50 to I-495	7.0 miles	18.5 minutes	17.5 minutes	6.5 minutes
I-66 WestBound	TR Bridge to I-495	11.0 miles	63.5 minutes	61.5 minutes	12.0 minutes
I-66 WestBound	I-495 to Rt-50	7.0 miles	8.0 minutes	8.5 minutes	6.5 minutes

Jeffrey J. Caldwell
Chief of Communications

Citizen Survey Results

District: [Statewide] Date Range: (September) 2010 Choose a Measure: Signs and Pavement Markings



Legend

	5	Very Satisfied
	4	
	3	
	2	
	1	Not at all Satisfied
		Don't Know
		Indicates statistically significant increase since the last survey
		No significant change or no history
		Indicates statistically significant decline since the last survey

One item in the District selection is "Statewide". This represents the combined results for all VDOT Districts, weighted by populations.

Information on the Citizen Survey Results Measure

VDOT's Citizen Survey is conducted by the Southeastern Institute of Research (SIR), a nationally recognized research firm. SIR uses a random-digit telephone survey of 1,800 Virginians around the Commonwealth to measure trends in citizens' opinions with Virginia's transportation program and VDOT's performance.

The overall citizen satisfaction results measure can best be understood by also reviewing the individual elements that drive public opinion. These can be viewed within the performance measures menu (the drop-down list under "Choose a Measure" above).

Options for Reducing Crossover

Actions Taken to Improve Business Processes and Reduce Costs

Business Processes Improvements Actions

- Streamlined budget review process
- Established new reporting for maintenance project expenditures and year end carry-over
- Established simpler tiered approach to project development for small vs. large projects
- Developed and executed improved process for the federal strategy to obligate and spend federal funds

Cost Reduction Actions Taken:

- Closed 13 residencies, 21 area headquarters, and 36 shops
- Cut 1,500 positions department-wide
- Reduced frequency and width of mowing

Actions Taken to Improve Business Processes and Reduce Costs

Additional Actions

- Centralized sign fabrication - reduced cost by \$1 million annually
- Deployed severe weather application system to coordinate response
- Created a customer call center to manage customer requests
- Updated spreaders with better salt calibration technology – \$3 million annual savings
- Retrofit signals with LED lighting – \$2 million annual savings

Actions Underway to Improve Efficiency

VDOT Business Plan Action Items

- **Working with Federal Highway Administration and regions to streamline project delivery and obligation of federal funds:**
 - Streamlined regional on-call contracting model for traffic assets improvement
 - Streamlined safety assessment procedures for paving projects
- **Establish initiative in the Six-Year Improvement Program to address unmet need for major pavement reconstruction**
- **Reclassify roads from secondary to primary: 50 miles annually**
 - Study underway to make recommendations to the CTB.
- **Migrate traffic operations centers (TOC) software to one operating system**
- **Implement recommendations of the statewide tunnel management committee**
- **Implement GPS devices on all snow plow trucks to better manage operations**
- **Establish a statewide operations and maintenance contract for TOC**
- **Implemented a revenue generating contract to expand safety rest area vending services, sponsorships and advertising to offset operational costs. Contract executed August, 2011. This will help offset the cost of the safety rest areas.**
- **Traffic video and data services agreement - Developing revenue generating contract for traveler information system (511 Virginia) to help offset costs.**

Options to Further Reduce Maintenance and Operations Costs

- Reduce city street payments
- Discontinue acceptance of new secondary streets
- Pay counties a set amount for secondary snow and other emergency services each year
- Increase fees for traveler information/tourism signing
- Increase fees paid for permits of all types



Questions