# Biennial Report:
# On the Condition of and Investment Needed to Maintain and Operate the Existing Ground Transportation System

**Commonwealth Transportation Board Meeting**
**September 16, 2009**
**Connie Sorrell**
**Chief of System Operations**

# Outline of Presentation

- Statutory Requirements
- Framework of the Assessment
- Overview of the Methodology
- Results of the 2009 Needs Assessment
- Summary

# Background

## Code of Virginia Statutory Requirements:

**Section 33.1-13.02** – requires VDOT to report by September 15th of each odd-numbered year on the condition of and needs for maintaining the existing transportation system. This report marks the second biennial assessment

**Section 33.1-23.02**

- Provides the definition of maintenance, operations, and asset management
- Requires VDOT to adopt an asset management approach to assess its maintenance and operations needs

**Section 33.1-41.1** – pertain to payments to localities and include requirements for localities to report expenditures of state funds received as well as performance of local roads

# Framework for Maintenance and Operations Needs Assessment

## Asset Investments

- Maintenance and rehabilitation of pavements, bridges, tunnels, and repair or replacement of guardrail, pavement markings, signals, signs, and ITS technology

## Services

- Ordinary maintenance of roadway, bridge, traffic and safety, drainage, and roadside assets, such as ditch cleaning, bridge washing, pot-hole patching, mowing
- Regular repair and replacement of minor assets such as pipes, fences, sidewalks, and sound walls
- Operations services such as snow removal, incident response, facility operations, rest areas, signal timing, traveler information

# Methods

- **80% of needs are based on some form of performance or service based model**
- **Investment Needs:**
  - **Interstate and Primary Pavements – generated from the new PMS**
  - **Secondary Pavements – based on inventory and life-cycle cost of maintenance**
  - **Bridges – generated from the BMS**
  - **Tunnels – based on known repairs as well as improvements needed to comply with Fire, Life, and Safety requirements**
  - **Signals, CCTV, DMS, portable DMS, and HAR – based on maintenance management model**
  - **Signs, guardrail and pavement marking – based on inventory and life-cycle replacement cost**
- **Service Needs:**
  - **Pipes, ditches, turf, trees, brush, barriers, unpaved roads and shoulders based on inventory and service level models**
  - **Facility services based on current costs and planned service levels**
  - **Snow and ice removal, other weather related activities, land use permits, and other services are based on expenditure data and service levels.**

# 2009 Biennial Needs Assessment Totals ($ millions)

| Investment | | FY 2011 | FY 2012 |
|---|---|---|---|
| Pavement | | $708.9 | $711.7 |
| Bridges* | | $112.7 | $114.0 |
| Tunnels | | $32.0 | $34.7 |
| Traffic and Safety | | $158.3 | $161.8 |
| Signals and Technology | | $90.6 | $64.0 |
| | Sub-Total | $1,102.6 | $1,086.2 |
| Services | | | |
| Emergency and Safety Response Services | | $177.1 | $163.4 |
| Traffic and Safety Services | | $62.5 | $65.6 |
| Roadway Services | | $185.4 | $196.2 |
| Roadside Services | | $149.4 | $153.2 |
| Facility and Other Services | | $207.6 | $215.4 |
| | Sub-Total | $782.0 | $813.1 |
| * Does not include major replacements | Total | $1,884.5 | $1,899.2 |

# Asset Investment Needs for FY 2011 - 2012

| Asset Investment | | FY 2011 $ Million | FY 2012 $ Million |
|---|---|---|---|
| **Pavement** | Interstate | $119.1 | $113.6 |
| | Primary | $251.6 | $249.7 |
| | Secondary | $338.3 | $348.4 |
| | Sub-Total | $708.9 | $711.7 |
| **Bridges** | | $112.7 | $114.0 |
| **Tunnels** | | $32.0 | $34.7 |
| **Traffic and Safety** | | $158.3 | $161.8 |
| **Signals and Technology** | | $90.6 | $64.0 |
| **Total** | | **$1,102.6** | **$1,086.2** |

# Services Needs for FY 2011 - 2012

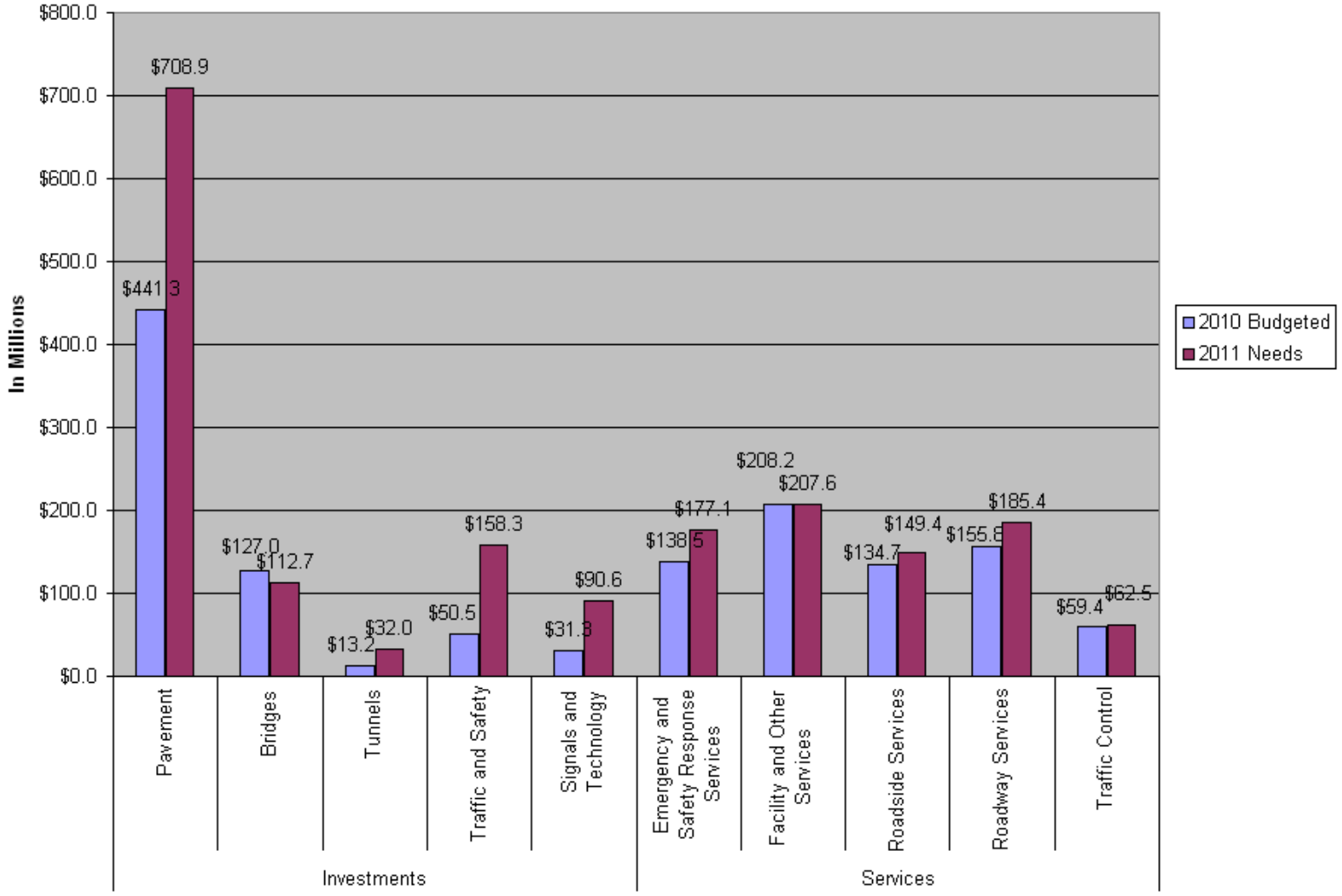
| Service Area | | FY 2011 $ Million | FY 2012 $ Million |
|---|---|---|---|
| Emergency and Safety Response | Incident response, Snow and Ice control, Traffic operations, Asset services | $177.1 | $182.7 |
| Traffic and Safety Services | Asset services, Traffic and safety engineering services | $62.5 | $65.6 |
| Roadway Services | Pavement services Bridge services, Tunnel services | $185.4 | $196.2 |
| Roadside Services | Drainage services, Vegetation services, Barrier services, Other roadside services | $149.4 | $153.2 |
| Facility and Other Services | Ferry services, Rest Area services, Park and Ride lot services, Sidewalk/trail services, management services | $207.6 | $215.4 |
| **Total** | | **$782.0** | **$813.1** |

# Gap between the Program Budget and the Needs Assessment

## The total Gap over the Biennium is $923 million

| Fiscal Year | Six Year M&O Program Budget (Million) | Need Assessment (Million) | Difference (Million) |
|---|---|---|---|
| 2010 | $1,359.8 | | |
| 2011 | $1,409.5 | $1,884.5 | $475.0 |
| 2012 | $1,450.7 | $1,899.2 | $448.5 |

# FY 2010 Budget and FY 2011 Needs



# 2009 Needs Assessment Compared to 2007

**The 2009 biennial assessment is approximately 27 percent higher than the 2007 assessment due to several factors, including:**

- **Cost of asphalt and other petroleum-based products increased significantly.**
- **The investment needed to meet the Pavement targets is $370.7 million in FY 2011 and $363.3 million in FY 2012.**
- **The investment needed to maintain the Secondary system in its current condition at no more than 31 percent of lane miles in deficient condition is more than $338 million in FY 2011 and $348 million in FY 2012.**
- **Needs to address outstanding maintenance of tunnels and replacement of ITS technology assets.**
- **Updates and additions to the inventory of assets and updated condition (included in the assessment for the first time is the complete inventory of all roadway lighting, signals, curb and gutter, sidewalks, ITS technology assets and sound walls.**

# Performance Achievements with 2009 Needs Assessment Level of Funding

## Pavements

With the proposed level of funding the Interstate and Primary pavement to meet the target of no more than ≤ 18% deficient pavements:

- Interstate Pavements would meet the target in 2011
- Primary Pavements would meet the target in 2013

Secondary Pavements would be maintained at current level of 31% deficient

## Bridges

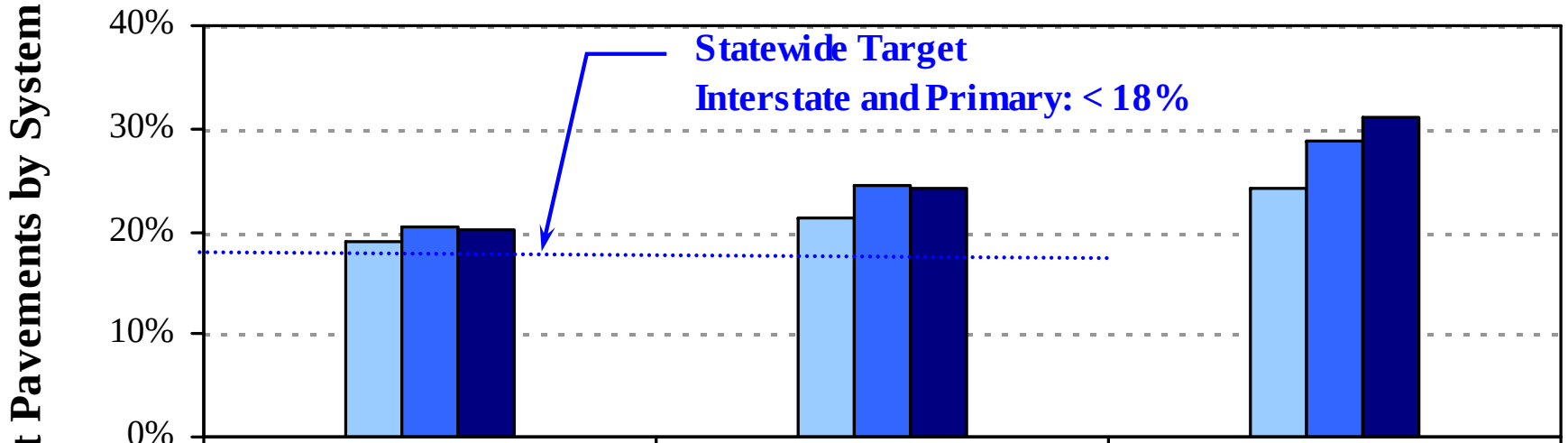
Proposed funding would maintain their performance target of no more than 8% deficient

Caveat: that the SYIP Continues major funding to replace deficient bridges

## Other Assets

Proposed funding provides much needed funding for the ongoing rehabilitation work in the Hampton Roads Tunnels as well as needs for traffic, safety and technology assets based on life cycle costs. This includes replacing message boards and cameras, upgrading signalized intersection equipment, and replacement of moveable bridge components.

# Updated Pavement Conditions as of January 1, 2009




| | Interstate | Primary | Secondary |
|---|---|---|---|
| 2007 | 19.1% | 21.2% | 24.2% |
| 2008 | 20.5% | 24.4% | 28.7% |
| 2009 | 20.1% | 24.3% | 31.1% |

# 2009 Needs Assessment Compared to the 2007 Needs Assessment

**Biennial Needs Assessment for FY 2011 and 2012 increased 27% over the FY 2009 and 2010 needs**

**Reasons:**

- **Pavement conditions have deteriorated since 2007**
- **Unit prices of asphalt have increased significantly driving up cost of pavement maintenance**
- **Tunnel maintenance needs increased due to major rehabilitation projects**
- **Inventory data now available for many assets, used to develop inventory and unit cost based assessment**

# Summary

- **The Good News:**
  - Interstate and Primary Pavements either stayed at their current level or had a slightly better condition rating.
  - Bridges continued at their same level of performance
  - Asphalt costs are predicted to increase only slightly over the next few years.
  - Some slightly upward trend in the economy was reported yesterday
- **The Bad News:**
  - Asset Conditions can not meet performance standards at current and proposed funding levels as shown in the Six Year Maintenance and Operations Budget Program.
  - Services levels may not be sustained at the current and proposed funding levels
  - Only a finite amount of additional federal funds can be used in the Maintenance and Operations Program, mostly on federally eligible roads
  - More federal dollars drives up the overall cost of paving projects
  - Secondary pavements are continuing to decline
  - Additional revenues reductions of $135 million for VDOT were announced in August and another revenue forecast is due in November

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