



Maintenance and Operations Budgeting: An Asset Management Approach

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Code of Virginia Statutory Requirements

Section 33.1-13.03 – in part, requires VDOT to submit an annual report (by November 30th) on 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

Section 33.1-23.02

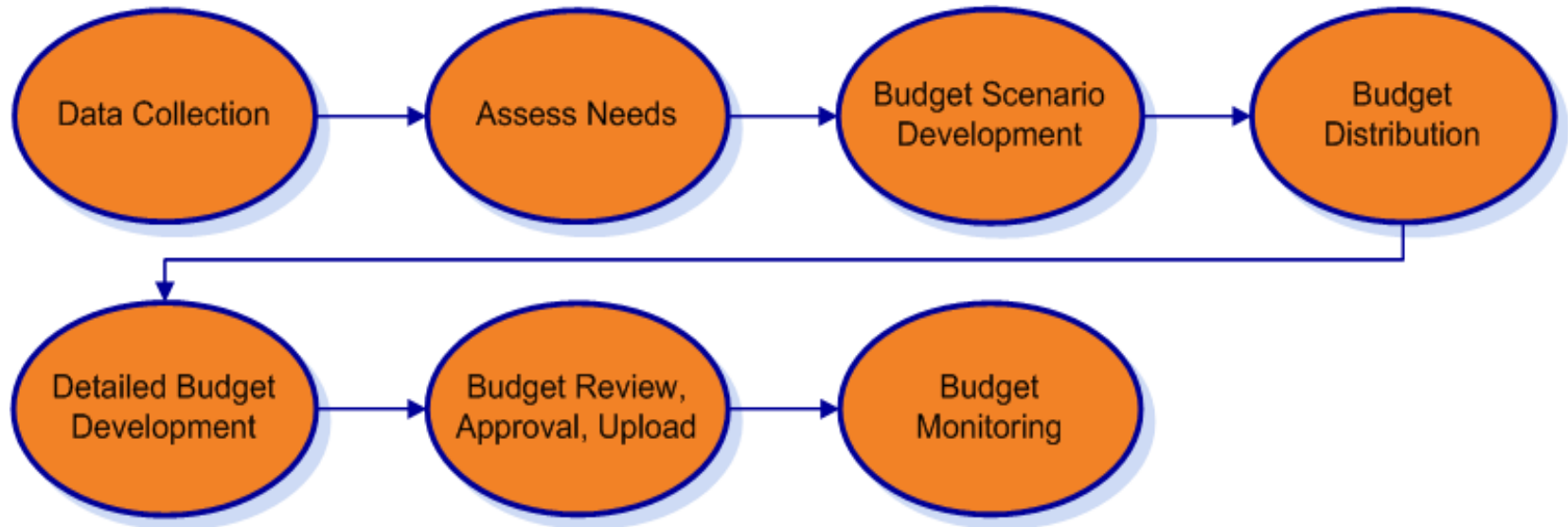
- Provides the definition of maintenance, operations, and asset management
- Requires VDOT to adopt an asset management approach to assess its maintenance and operations needs

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

Budgeting Background

- Prior to FY 2005, allocations to districts were based on primarily the on prior year distribution. If the statewide budget increased 2%, typically each district could expect to get a 2% increase.
- Beginning in FY 2005, the asset management assessment identified inequities in funding among districts. The new distribution of allocation was based on each district's needs as determined by inventory and condition levels.
- Between 2005 and 2011, adjustments were made to provide districts with greater needs, a larger share of the funding to improve their asset conditions while holding other districts at level funding. This has resulted in districts now having greater consistency in asset conditions and services.
- The goal has been to move each district closer to what the needs say they should have, to attain consistent performance levels statewide; i.e. every district would be at the same condition level
- Today, each district receives within 1 to 1.5 percent of their share of the needs based on this asset management approach.

Maintenance and Operations Asset Management Based Budget Process



Maintenance and Operations Asset Management Based Budget Process

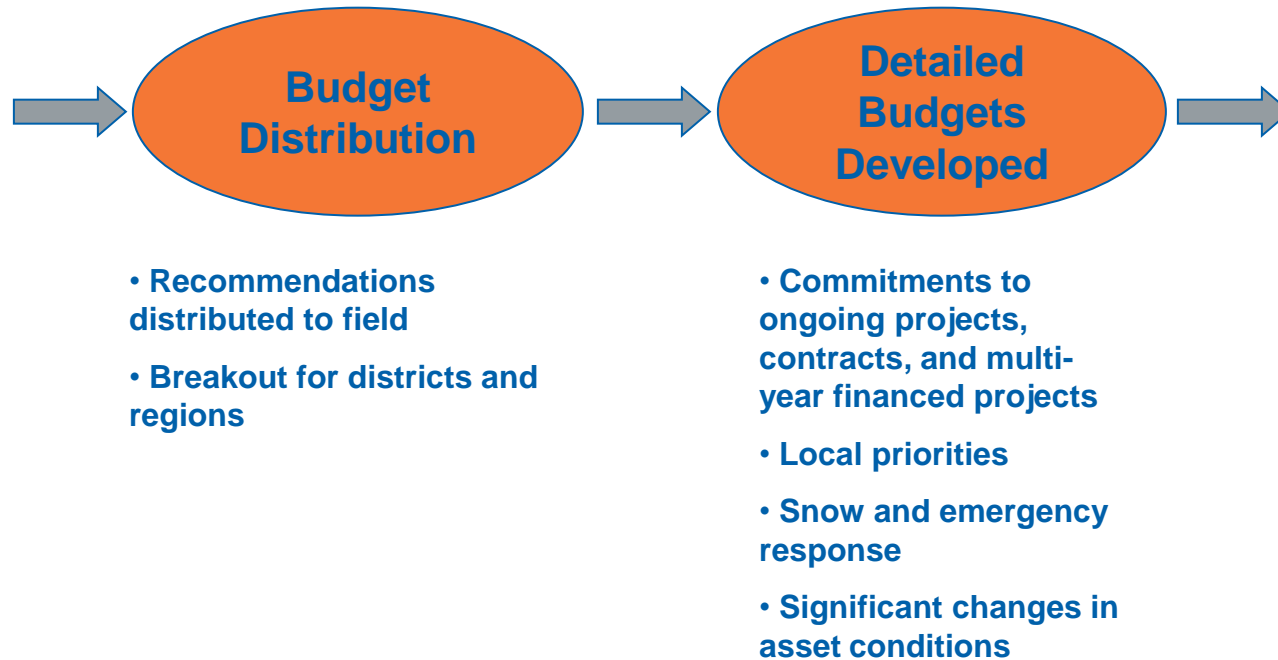


- Asset specific mgmt systems: Pavement Management System (PMS), Bridge Management System (BMS), etc.- inventory, work activities, and needs dollars
- Roadware non-pavement asset data: inventory
- Contracts: work type, frequency and pricing information, maybe even some inventory information
- Stand-alone databases – inventory, condition, work history
- Bid Tabs - pricing
- Industry research – pricing, work activities and frequency
- Agency experts – work activities, work frequencies, resources

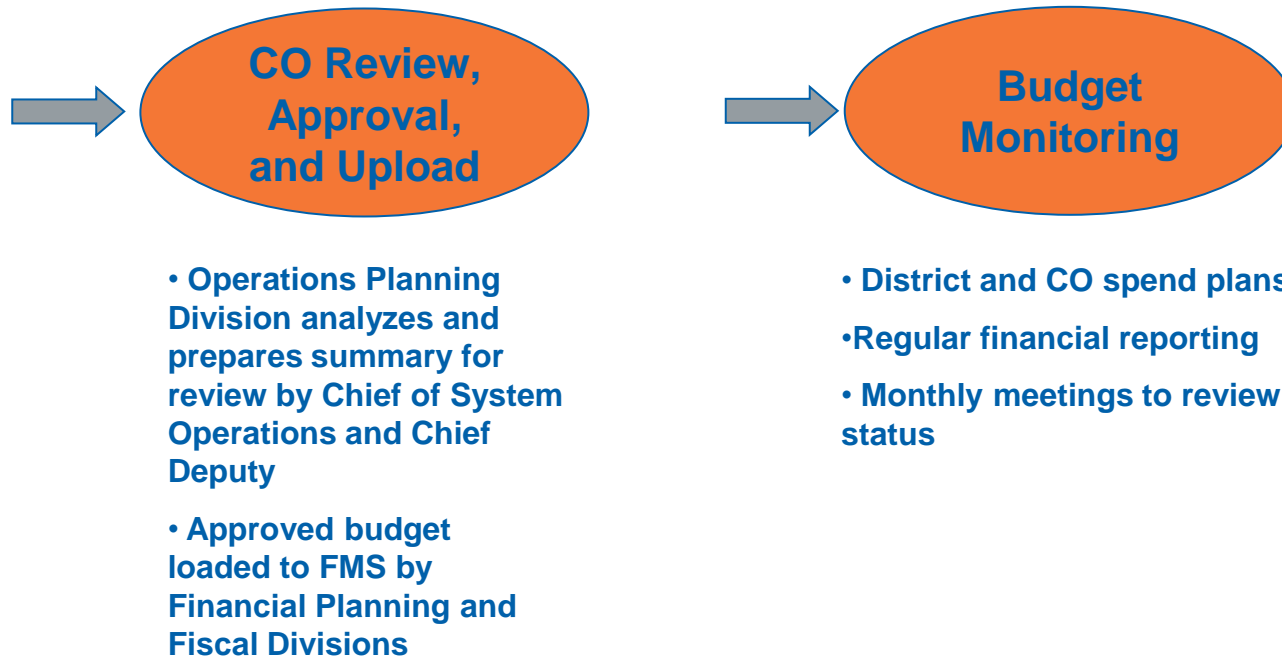
- Analysis
- Compilation
- Organization
- Biennial Report

- Transportation Maintenance and Operations Committee (TMOC) Finance Committee
- Identify programmatic priorities
- Investments: recommendations by key asset and sometimes roadway system
- Services: recommendations by service area
- Starting point for 6-yr program update

Asset Management Based Budget Process (cont.)



Asset Management Based Budget Process (cont.)



Asset Management Methods Used to Assess Needs

- **Pavements**
 - Interstate and Primary Pavements – Pavement Management System
 - Secondary Pavements – based on inventory and life-cycle cost of maintenance
- **Bridges**
 - Generated from the Bridge Management System
- **Tunnels**
 - Based on known repairs and improvements needed to comply with Fire, Life, and Safety requirements
- **Signals and Technologies (Traffic Camera, Changeable Message Signs (CMS), portable CMS, and Highway Advisory Radio etc.)**
 - Based on lifecycle maintenance management model
- **Signs, guardrail and pavement marking**
 - Based on inventory and life-cycle replacement cost
- **Pipes, ditches, turf, trees, brush, barriers, unpaved roads and shoulders**
 - Based on inventory, historic expenditure levels
- **Facility services**
 - Based on current costs and planned service levels
- **Snow and ice removal, other weather related activities, land use permits, and other services**
 - Based on prior expenditure data and service levels

Data Collection Methods

- **Pavement and bridges**
 - **Pavement: 100% Interstate and Primary, ~20% Secondary collected annually**
 - **Bridge: Ongoing inspections based on NBI requirements (once every 2 years)**
- **Non-pavement and non-bridge assets**
 - **Traffic, drainage, and roadside assets:**
 - 2009 ~ present: Inventory data from video taken during pavement assessment
 - Prior to 2009: Inventory and condition from Random Condition Assessment survey extrapolated to provide estimate of entire inventory
 - **ITS assets and facilities:**
 - Inventory data provided by operations regions
- **Work Frequency and Unit Cost Assumptions**
 - **Contracts (work type, frequency and pricing information)**
 - **Bid Tabs – pricing**
 - **Industry research – pricing and best practices**
 - **Agency experts – cost of work, work frequencies, resource requirements**

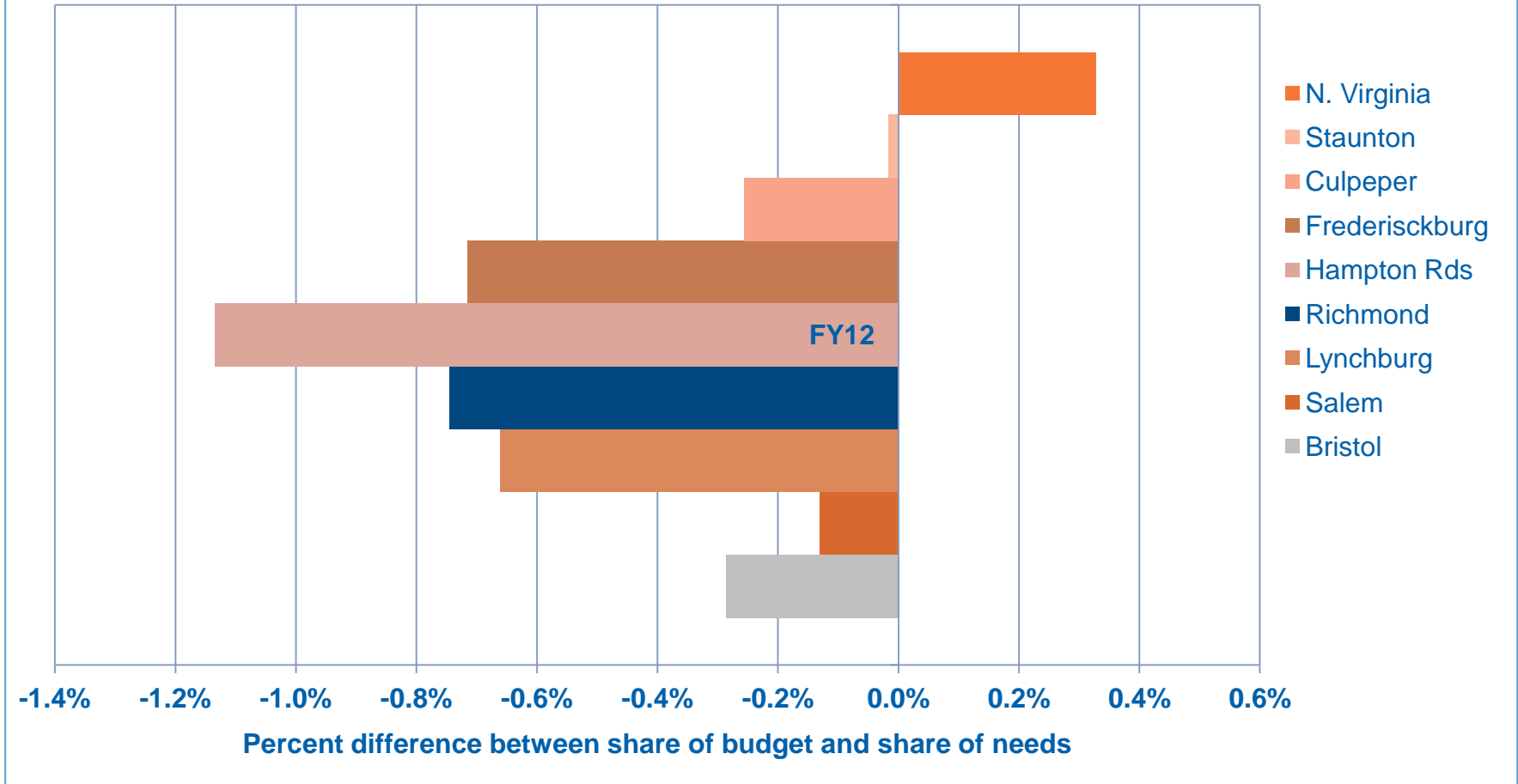
Detailed Annual Budget Process

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 FY 2012 programmatic priorities:
 - Use the data from the latest asset management needs assessment
 - 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 – congestion reduction and safety initiatives
 - Fund interstate and primary pavement investment at level estimated to achieve and maintain performance target of 82 percent; Increase funds to the secondary system
 - Close the gap between needs and budget for tunnel investment
 - Develop draft budget scenario
 - Ensure each district receives its share of budget based on asset inventory condition and these priorities
- 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

Alignment of District Budgets to District Needs FY12

Each district now receives within +/- 1.2% of its share of funding based on the needs



Maintenance and Operations Budgeting Summary

- **State law requires VDOT to use an asset management approach in determining the needs for maintenance and allocating funds based on needs.**
- **VDOT uses an objective, quantitative process for determining the asset inventory and conditions to develop needs based budgets**
- **VDOT's process was most recently audited by the Auditor of Public Accounts in (date) and found to be "capable of providing an accurate, independent, consistent assessment of the states infrastructure maintenance needs."**
- **Nationally, the use of asset management to determine needs is a recognized "best business practice" among AASHTO states and the FHWA.**

Maintenance and Operations Budgeting Summary (cont.)

- **Districts have received their proportionate share of Maintenance Funding within a margin of approximately +/- 1 percent**
- **By November 30, 2011, VDOT will provide a new biennial needs assessment as required by law**
- **VDOT continues to look for improvements in the asset management data and methods it uses to determine needs**
- **The CTB will receive the report by that date and will have a briefing on the report at its December meeting**



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