North Carolina DOT’s Efforts to Tie Maintenance Funding to Performance

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July 20, 2015
Discussion Points

- NCDOT Highway System & DOT Structure
- Historical Allocations
- Tying Maintenance Funding to Performance
- Determining Needs
- Allocation/Funding Formulas
- Results – Refinement – Future Direction
• 79,327 road miles
• 163,000 paved lane miles
• 4,495 miles of unpaved roads
• 18,303 structures
• 91.8 M sf bridge deck area
Historical Allocations

**Primary System Routine Maintenance**
State Appropriations x (Division Lane Miles/State Total Lane Miles)

**Secondary System Routine Maintenance**
A uniform allocation of $50,000 to each county + 90% x State Appropriations x (County Secondary Road Miles/State Total Secondary Road Miles) + 10% x State Appropriations x (County Population/State Population)

**Contract Resurfacing**
50% x State Appropriations x (Division Resurfacing Needs/State Resurfacing Needs) + 37.5% x State Appropriations x (Division Lane Miles/State Total Lane Miles) + 12.5% x State Appropriations x (Division Population/State Population)

**Pavement Preservation**
State Appropriations x (Division Lane Miles/State Total Lane Miles)

**Bridge Preservation**
State Appropriations x (Division Bridge Deck Area/State Total Bridge Deck Area)
**Tying Maintenance Funding to Performance**

- Directly ties the maintenance allocation to the need:
  - Condition
  - Operational improvements

- Emphasis is placed on funds being used:
  - Assets that are below targets
  - Optimized to achieve the overall target level of service.

- Areas of greatest need can be identified:
  - By asset group
  - Geographical location
  - Areas of operation such as safety or aesthetics.
Purpose of Maintenance Allocation Changes

- Data driven decision making
- Targeted Levels Of Service
- Better accountability
- Most efficient use of maintenance funds
- Shift resources to better serve the public need
New formulas involved 3 categories of needs:

• Assessed
• Non-assessed
• Emergency & Administration
• Maintenance Condition Assessment Program (MCAP)
  - Elements such as drainage, vegetation, traffic
• National Bridge Inspection Standards (NBIS)
  - Bridge components – deck, superstructure, and substructure
• Pavement Condition Survey
  - Concrete and asphalt pavement distresses
Performance Measures

- Define the expectations for element condition or operating LOS
- Element Groups: pavement, bridge, roadside, traffic, & road maintenance

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>ASSET</th>
<th>CONDITION INDICATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM-1</td>
<td>Unpaved Shoulders (Low &amp; High Shoulder)</td>
<td>No dropoff's greater than 3 inches and no shoulders higher than 2 inch</td>
</tr>
<tr>
<td>RM-2</td>
<td>Ditches (Lateral Ditches)</td>
<td>No blocked, eroded or non-functioning ditches</td>
</tr>
<tr>
<td>RM-3</td>
<td>Crossline Pipes (Blocked)</td>
<td>Greater than 50% diameter open</td>
</tr>
<tr>
<td>RM-4</td>
<td>Crossline Pipes (Damaged)</td>
<td>No damage of structural deficiency affecting functionality</td>
</tr>
<tr>
<td>RM-5</td>
<td>Curb &amp; Gutter (Blocked)</td>
<td>No obstruction greater than 2 inches for 2 feet</td>
</tr>
<tr>
<td>RM-6</td>
<td>Boxes (Blocked or Damaged)</td>
<td>Grates and outlet pipe of boxes not blocked greater than 50%, Inlet and outlet of boxes are not damaged, and grates are present and not broken</td>
</tr>
</tbody>
</table>
Non-Assessed Elements

- Cyclical
- On Demand
- Indirect
• Division specific needs based on historical expenditures
• Traffic control devices
• Roadway lighting
• Rest area maintenance
• River ferries
• Major events
## Allocations/Funding Formulas

### Primary and Secondary Road Maintenance & Bridge Maintenance

| Division Assessed Needs + Non-Assessed Needs + Division Administration |
| Statewide Assessed Needs + Non-Assessed Needs |

### Bridge Program, Pavement Preservation, General Maint. Reserve & Resurfacing

| Division Assessed Needs |
| Statewide Assessed Needs |
• Shifted:
  • Resurfacing funds from urban to rural
  • Bridge preservation dollars away from small timber structures

• Analysis tools are good
  • Pavement and bridge decision trees need review
Refinement

- No changes to the formulas
- Remove caps
- Historical expenditures based on 3 yr. avg.
- Change the data input based on:
  - Decision Tree analysis and modification
  - Stakeholder input
  - Division input
Future Direction

- Implement requirements from budget bill
- Continue to develop analysis tool for roadway elements
- What is the impact to our business partners?
- What legislative changes are needed?