ODOT Bridge and Pavement Funding Allocation Business Process

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ODOT's Construction Programs

ConnectOregon I-VI
ARRA
OTIA I/II
OTIA III
JTA

Statewide Transportation Improvement Program

Calendar Year

INFLATION on STIP

Millions
“Fix-It” Preservation Program

Purpose: The Preservation Program is to extend the service life of existing facilities without increasing capacity.

Strategy:
- Keep bridges & highways in best possible condition at the lowest cost
- Avoid “worst first”
- Prioritize by State Classification (tiered approach)
- Balance bridge & pavement conditions across regions by highway class

Implementation:
- Bridge Section & Pavement Services Unit
- Regions (STIP) & Districts (Major Maintenance Contracting)
- Project Delivery Staff & District Crews

Oversight:
- Bridge Leadership Team & Statewide Pavement Committee
Fix-It Selection Criteria/Process

**Old:**
- Used historical splits between programs
- Used management systems to rank projects

**New:**
- Use common set of criteria and management systems to set program levels and rank projects
## Current Funding Programs

1. STIP “Fix-it” Bridge & Pavements Preservation
2. Major Maintenance Contracts and Crews

<table>
<thead>
<tr>
<th>Programs</th>
<th>Avg. Amount (2016-2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STIP (Fix-it)</strong></td>
<td></td>
</tr>
<tr>
<td>Pavements</td>
<td>$104 million/yr</td>
</tr>
<tr>
<td>Bridge</td>
<td>$54 million/yr</td>
</tr>
<tr>
<td>1R Safety Features</td>
<td>$6 million/yr</td>
</tr>
<tr>
<td><strong>Major Maintenance</strong></td>
<td></td>
</tr>
<tr>
<td>Pavements</td>
<td>$13 million/yr</td>
</tr>
<tr>
<td>Bridge</td>
<td>$8 million/yr</td>
</tr>
</tbody>
</table>

*Current funding is $240 million short of optimal level to maintain current conditions.*
State Highway Classification System

This map shows only state owned portions of highways. Gaps represent highways owned by local governments.
“Common Ground” Themes

Bridge and Pavements

Both Programs are tracked by Key Performance Measures

High Priority given to low cost, high return preservation activities
• Bridge painting
• Chip seals

Route classification and freight volumes play a critical role in prioritization
• Bridge – NHS cusp bridges and SD bridges on freight routes
• Pavement – High/Low volume stratification, NHS given higher priority

Use Practical Design concepts to develop project purpose & need, and scope
• Focus program funding on feature, while meeting required design standards
• Use other funding sources for add-ons

Explore combining activities when:
• Work needs align
• Minimize traffic impacts
• Economic advantage
• Public Perception
Fix-It STIP Development

- Timeline – Data to Construction – 6 years!
- Use BMS & PMS to develop initial priority list
  - Project conditions 6 years ahead
  - Priority to higher classes / traffic highways
  - Priority to projects with higher cost effectiveness
150% List

1. Start with BMS query for needs list in 13 categories
2. Preliminary Problem Statements in Work Types
3. Region and District Coordination
4. Desk Scope
   1. Investigate differences - planning $ vs. scope $
5. Prioritize using Bridge Preservation Strategies
6. Cut to 150% list
State Bridge Program Goals

Our investment decisions will be based on these goals:

Improve state bridges by eliminating
  • Freight mobility restrictions (load, width, or vertical clearance)
  • Poor structural condition (deterioration, damage, scour)

Maximize investment by building bridges that
  • Require less maintenance with longer life expectancy
  • Meet standards and community expectations well into the future
Bridge Preservation Strategies

• Protect high value coastal, historic, major river crossings, and border structures by **acting before cost becomes prohibitive**

• Use **Practical Design** and fund **only** basic bridge rehabs and rare replacements with bridge funds

• Give priority to **maintaining the highest priority freight corridors**

• Develop **bridge preventive maintenance program** to extend the service life of decks and other components

• Resolve "Structurally Deficient" bridges on the NHS and monitor "cusp" bridges for preservation needs
Bridge Needs - 13 categories

- Coastal
- Deck condition
- Deck width
- Historic bridge rehabilitation
- Load capacity
- Moveable bridge needs (electrical/mechanical)
- Paint
- Rails
- Scour
- Seismic
- Substructure
- Superstructure
- Vertical clearance
Bridge Work Types - 22+ categories

- Approach panel repair/replacement
- Bearing repair/replacement
- Cathodic protection
- Cold plane pavement removal
- Culvert replacement
- Deck joints repair/replacement
- Deck overlay
- Deck replacement
- Electrical/mechanical system repair/replacement
- Historic rehabilitation
- Painting
- Rail retrofit/replacement
- Raising
- Scour countermeasures
- Seismic retrofit
- Strengthening
Bridge Work Types - cont'd.

- Structural repairs - concrete
- Structural repairs - steel
- Structural repairs - timber
- Tunnel liner repair/replacement
- Tunnel portal repair/replacement
- Widening
- Other
New Trial Process  150% → 100%

 Applies to Pavement and Bridge Program

<table>
<thead>
<tr>
<th>Score 1 to 5 for Each of these Factors</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route Classification, ADT, Truck ADT</td>
<td>25%</td>
</tr>
<tr>
<td>Cost Effectiveness, Delay Risk</td>
<td>25%</td>
</tr>
<tr>
<td>Program Priority</td>
<td>25%</td>
</tr>
<tr>
<td>Region Priority</td>
<td>25%</td>
</tr>
</tbody>
</table>
## Classification Points

<table>
<thead>
<tr>
<th>Classification</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interstate</td>
<td>5</td>
</tr>
<tr>
<td>OTIA or Seismic Lifeline</td>
<td>4</td>
</tr>
<tr>
<td>State Class Route or NHS</td>
<td>3</td>
</tr>
<tr>
<td>Regional Class Route</td>
<td>2</td>
</tr>
<tr>
<td>District Class or Other</td>
<td>1</td>
</tr>
</tbody>
</table>
## ADT Points

<table>
<thead>
<tr>
<th>Traffic Level (ADT)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 10,000</td>
<td>5</td>
</tr>
<tr>
<td>&gt;4,000 to &lt;=10,000</td>
<td>4</td>
</tr>
<tr>
<td>&gt;1,500 to &lt;= 4,000</td>
<td>3</td>
</tr>
<tr>
<td>&gt;500 to &lt;=1,500</td>
<td>2</td>
</tr>
<tr>
<td>&lt;=500</td>
<td>1</td>
</tr>
</tbody>
</table>
# Truck ADT Points

<table>
<thead>
<tr>
<th>Truck ADT</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 1,200</td>
<td>5</td>
</tr>
<tr>
<td>&gt;600 to &lt;= 1,200</td>
<td>4</td>
</tr>
<tr>
<td>&gt;300 to &lt;= 600</td>
<td>3</td>
</tr>
<tr>
<td>&gt;100 to &lt;=300</td>
<td>2</td>
</tr>
<tr>
<td>&lt;=100</td>
<td>1</td>
</tr>
</tbody>
</table>
## Cost Effectiveness

<table>
<thead>
<tr>
<th>$ / Lane Mile / Year</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= $10,000</td>
<td>5</td>
</tr>
<tr>
<td>$10,000 to &lt;=$15,000</td>
<td>4</td>
</tr>
<tr>
<td>$15,000 to &lt;=$20,000</td>
<td>3</td>
</tr>
<tr>
<td>$20,000 to &lt;= $40,000</td>
<td>2</td>
</tr>
<tr>
<td>&gt;$40,000</td>
<td>1</td>
</tr>
</tbody>
</table>
Project Postponement Risk

- Score 1 to 5
- Looks at Consequence of Delay beyond STIP
  - Maintenance Cost / Risk
  - Pavement Repair Cost Risk (missing the window)
Program Priority (1 to 5)

- Bridge or Pavement Program Management
- Allotted 3 points per project
- Favor Projects which meet Transportation Commission priorities...
• Helps achieve performance measure target
• Maximizes benefit to the asset and/or reduce maintenance requirements and costs
• Maximize long term service life
• Provide safety benefits
• Improve freight movements (load capacity or VC)
• Minimize repetitive, reactive “throw away” maintenance costs
• Have negative impacts if treatment is deferred beyond the STIP period
Region Priority (1 to 5)

- Regions Allotted 3 points per project
- Suggested criteria include, but not limited to:
  - Maintenance Impact
  - Community Impacts (economics, travel time, freight & modal impacts, etc.)
  - Safety Impact
  - Detour or alternative route availability
  - Project Delivery Staffing implications
100% List

1. Combine Bridge and Pavement project in one list
2. Rank by total weighted scores
3. Send to Highway Management Team
   - use results to set final Bridge/Pavement funding levels
   - use results for regional paving splits
   - use results for initial 100% project list
Are we done?

- Are there **bundling** opportunities?
- Are there **leveraging** opportunities?
150% List

Work with region and Area Commissions on Transportation to find bundling and leveraging opportunities
100% List → Final

- Start with 100% list
- Option to swap projects (leverage enhance)
  - Swap must be from the 150% list
  - Program Manager and District Manager must approve
- Shelf Program – develop from unselected projects
Shelf Projects - Projects funded for Design Only (5%)

- Positioned to be ready for additional funding
- Look for projects with long shelf life and a priority for the next STIP
## Criteria/Process Results

Applied New process only to Pavement and Bridge

<table>
<thead>
<tr>
<th></th>
<th>2015-18 STIP</th>
<th>2018-21 STIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge</td>
<td>$54 Million</td>
<td>$85 Million</td>
</tr>
<tr>
<td>Pavement</td>
<td>$104 Million</td>
<td>$85 Million</td>
</tr>
</tbody>
</table>
Conclusions

- Bridge – Pavement Program Level Process resulted in about 50% - 50% split, versus old split of 34% bridge and 66% pavements
- Process is driven by overall highway category
  - Optimizes across a large number of goals
  - Federal Performance Measure Optimization will require a separate process
- Consider using process for Safety, Culverts, and Operations, etc. along with Bridge and Pavements