Use of Pavement Management Data for Planning and Development

Or

Is it Possible for a Pavement Guy to become a Planning Engineer?
Back when I started......
What do we need to make proper decisions?

- Condition Rating of the Pavement Today?
- Performance curves for like pavements?
- Condition Forecasts on a network level?
  - By type?
  - Functional class?
  - Design?
  - Traffic?
It’s a Matter of Opinion
What is Available?

- IRI within the last two years
- Rutting data
- Willing staff
1. Inventory and Condition Data

2. Performance Indexes
   - PCI
   - PSR
   - IRI

3. Performance Curves
   - Seal
   - Overlay
   - Recon

4. Treatments - Costs
   - Impacts - Reset

5. Triggers

6. Prioritization or Optimization
The plan

- We “correlated” IRI with earlier pavement condition ratings.
- We segmented the State Highway System to produce useable ratings.
- We established threshold values on segments to trigger treatment options such as overlay or reconstruction.
- We utilized all databases at our disposal to develop the map and determine costs.
Maintaining the System
<table>
<thead>
<tr>
<th>10-Year Highway Needs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Congestion Relief</td>
<td>$ 3.4 billion</td>
</tr>
<tr>
<td>Maintaining the System</td>
<td>$ 8.8 billion</td>
</tr>
<tr>
<td>Congressionally-designated</td>
<td></td>
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<tr>
<td>High Priority Corridors</td>
<td>$ 5.2 billion</td>
</tr>
<tr>
<td>Economic Development</td>
<td></td>
</tr>
<tr>
<td>Connectors</td>
<td>$ 1.7 billion</td>
</tr>
<tr>
<td>Total Needs and Other Improvements</td>
<td>$ 19.1 billion</td>
</tr>
<tr>
<td>Anticipated Funding</td>
<td>$ 4.1 billion</td>
</tr>
<tr>
<td>SHORTFALL</td>
<td>$ 15.0 billion</td>
</tr>
</tbody>
</table>
System-wide Needs

- Constantly growing needs
  - 1998 - $14.2B in 10-year highway needs
  - 2003 - $16.1B in 10-year highway needs
  - 2006 - $19.1B in 10-year highway needs
Existing and Under Construction
- 4+ Lane
- Passing Lanes
- Interstate Rehabilitation (Since 2009)
Scheduled Through 2007
- 4+ Lane
- Interchange
- Passing Lanes
- Interstate Rehabilitation
Roadway Rehabilitation/Minor Widening

Proposed Highway Program 2006-2017
- 4+ Lane
- Interchange
- Railroad Overpass
- Passing Lanes
- Interstate Rehabilitation
Roadway Rehabilitation/Minor Widening
Safety Improvements
Resurfacing/Minor Widening
(Not Shown on Map) - $0.25 Billion
Bridge Improvements
(Not Shown on Map) - $0.5 Billion

Proposed Highway Program 2018-2027
- 4+ Lane
- Interchange
- Passing Lanes
- Interstate Rehabilitation
(Not Shown on Map) - $0.8 Billion
- Roadway Rehabilitation/Minor Widening
(Not Shown on Map) - $0.2 Billion
- Resurfacing/Minor Widening
(Not Shown on Map) - $0.25 Billion
- Safety Improvements
(Not Shown on Map) - $0.2 Billion
- Bridge Improvements
(Not Shown on Map) - $0.5 Billion

Long Range Unfunded Corridor Needs
- 4+ Lane
- Passing Lanes

Note: Other projects may be added and modifications may be made to this plan as needs change due to traffic conditions, economic development activity, safety concerns, pavement deterioration and other factors unknown at this time.
Existing and Under Construction
- Interstate Rehabilitation (Since 2000)

Scheduled Through 2007
- Interstate Rehabilitation
- Roadway Rehabilitation/Minor Widening

Proposed Highway Program 2008-2017
- Interstate Rehabilitation
- Roadway Rehabilitation/Minor Widening

NOTE: Other projects may be added and modifications may be made to this plan as needs change due to traffic conditions, economic development activity, safety concerns, pavement deterioration and other factors unknown at this time.
Improvements needed to provide network level data for program development

- Pavement Structure Data
- Cracking data
- Strength data
- Performance history
- Crystal Ball
Current and Emerging Issues

• Managing an Extraordinarily Large Highway System
  ✓ Capacity Improvements
  ✓ System Preservation
  ✓ Corridor Development

• Stable Source of Funding that Includes Growth

• Accommodating Construction Cost Increases

• Meeting Expectations of Arkansas Drivers