Pavement Management & Decision Making

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Decision Making (what?)

• Importance of Data:
  – Inventory
  – Assessment of condition

• Proper DST

• Needs
Assets we Maintain
Data Collection Process

- Objective
- Repeatable
- Added features (one pass)
- Safety considerations (automated data collection)
Good or Bad?
Good or Bad?
Good or Bad?
Good or Bad?
Good or Bad?
Data Collection
Decision Support Tools

- Management systems:
  - Pavement Management
  - Bridge Management
  - Maintenance Management
  - Sign Management
  - Pavement Marking Management
  - SAFETY
Decision Support Tools

- Components:
  - Models:
    - Prioritization
    - Economic analysis
    - Optimization
  - Data:
    - Existing conditions
    - Forecasted condition
    - Financial (budget, interest and inflation rates)
Decision Support Tools

- Project Selection
- Resource Allocation
- Develop Funding Needs
- Package Funding Requests
Reactive vs. Proactive

- Fix the worst first
- Mix of fixes
- Asset Management

![Pavement Condition Index](image)

- 40% Time
- 70% Time
- 90% Time

- $0.85
- $4.25
- $7.50
- $16.75

Overlay

- $$$$$
- $$$$$
- $$
Fix the Worst First!

Worst First

Best First
Average PCI Comparison (Before PMS)

Average Network Condition Comparison 1992-1996

<table>
<thead>
<tr>
<th>Year</th>
<th>PCI (PMS)</th>
<th>PCI (DOT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>76.77</td>
<td>76.88</td>
</tr>
<tr>
<td>1993</td>
<td>76.85</td>
<td>75.11</td>
</tr>
<tr>
<td>1994</td>
<td>76.42</td>
<td>73.76</td>
</tr>
<tr>
<td>1995</td>
<td>76.51</td>
<td>72.09</td>
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<tr>
<td>1996</td>
<td>76.43</td>
<td>73.79</td>
</tr>
</tbody>
</table>
Results (Before PMS)

- DOT Average PCI = 73.79
- PMS Average PCI = 76.43

2.64

- Total Budget = $175 Millions over 5 years
Results (Before PMS)

- The Level of Investment For the PMS to Achieve an Average PCI of 73.79:
  - $162.5 Millions
  - $12.5 Millions difference over 5 years
  - $5 million for each PCI point
Average PCI Comparison (After PMS)

Average Network Condition Comparison 1999-2003

<table>
<thead>
<tr>
<th>Year</th>
<th>Average PCI (PMS)</th>
<th>Average PCI (DOT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>74.55</td>
<td>73.56</td>
</tr>
<tr>
<td>2000</td>
<td>76.69</td>
<td>72.66</td>
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<td>2001</td>
<td>74.72</td>
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<td>2002</td>
<td>73.89</td>
<td>71.95</td>
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<tr>
<td>2003</td>
<td>73.08</td>
<td>71.63</td>
</tr>
</tbody>
</table>
Results (After PMS)

- DOT Average PCI = 71.63
- PMS Average PCI = 73.08

$7.5 \text{ millions difference based on the previous analysis}$
Results

Before PMS:
- 2.64 PCI point difference
- Equates to $12.5 millions difference in investment

After PMS:
- 1.45 PCI points difference
- Equates to $7.5 millions difference in investment

Benefits = $5 millions over 5 yrs