Developing Multi-year Pavement Rehabilitation Plan (case Study Fort Worth).

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PMS COMPONENTS

Pavement Management System

- Define Objectives
  - Review of GIS Inventory
  - Review of PMS Inventory

- Inventory Review
  - Pavement Distress Surveys
  - Assets and Right of Way Surveys

- Data Collection
  - Images and Videos
  - Google Maps Friendly
  - GIS Friendly

- Data Visualization
  - Distress Rating
  - Future Predictions

- Data Processing
  - Available Treatments
  - Different Budget Scenarios

- Budget Analysis
  - Decision Tree/ Matrix
  - Prioritizing

- Work Plan

Feedback Arrows
SIMPLIFIED OUTLINE

• Data Collection
• Decision Tree
• Budget Constraints
• Socio-economic Decision Factors
Data Collection Procedure
2021-2022
DATA COLLECTION

• Pavement Distresses

• Right of Way Images

• Ride Quality Data

• Asset Inventory (Sidewalks, utilities...etc.)
NETWORK STATISTICS

• 8,100 Lane Miles
• Approximately 40,000 Assets
• 52% Asphalt and 48% Concrete
• Overall PCI 74
Pavement Maintenance Tool Box
Example of Maintenance Strategies

- **POL**
- **MOL**
- **Surface Seal**

**Concrete Restoration**
Optimum Pavement Maintenance Strategy

Scheduled Preventive Maintenance Intervals

- Spending $4.00-$8.00 S/Y on preventive maintenance here...
- ...eliminates or delays spending $45.00 - $75.00 S/Y on rehabilitation or reconstruction here.

Age of Pavement in Years

- 40% Drop in quality
- 70% of life
- 12% of life

Pavement Condition Index

- Excellent
- Good
- Fair
- Poor
- Very Poor
- Failed

PCI
- 100
- 70
- 50
- 25
- 0
## Cost and impact of Maintenance Strategies

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Cost/LM</th>
<th>Resulted PCI</th>
<th>ROI*1000 (PCI/$)</th>
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<tr>
<td>Asphalt Recon</td>
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<td>Concrete Recon</td>
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<td>+35</td>
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<td>POL</td>
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<td>HIPR</td>
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<tr>
<td>MOL In House</td>
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<td>Crack Seal In House</td>
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<td>Do Nothing</td>
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<tr>
<td>Monitor</td>
<td>$ -</td>
<td>0</td>
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Pavement Management
Decision Tree
Critical Streets
• Which one is the critical?
How much will it cost to apply the decision tree to the entire network??

$840M
Budget Impact
What can we do with $22M??

- 150 LM MOL
- 86 LM POL
- 33 LM Recon
Year vs PCI at Different Budget Scenarios
Project Selection Procedure
5-Year Plan
Proximity analysis:
Current Progress
Next Steps

• Perform Detailed Proximity Analysis for Year 5
• Evaluate Different Alternatives and Enhance the selections
• Review all projects for conflicts
• Coordination with Utilities and other Departments
• Perform field visits to confirm each project limits
• Develop final 5-Year Plan GIS Maps
• Upload the 5-Year Plan to Vuework
• A Report Showing the Analysis and Procedure Steps
Thank you