The cost estimate and funding scenarios provided in the presentation are preliminary and subject to change. This information is being provided for information only at this time. Final cost estimates and budget scenarios will be provided when the project is completed.
Presentation Overview

- Pavement Management Concepts
- Pavement Management in Canton
  - Methodology
  - Current Conditions & Backlog
  - Budget Analysis
- Recommendations
Pavement Management Concepts

What is Pavement Management?

- The practice of planning for pavement maintenance and rehabilitation with the goal of maximizing the value and life of a pavement network.

Otherwise known as

“Getting the Biggest Bang for Your Buck”
Pavement Management Concepts

The Process

- Pavement Section Inventory
- Pavement distress identification and quantification *(Visual Inspection Only)*
- General Drainage Deficiency Assessment
- Pavement Condition Index (PCI) calculation on a 0 - 100 scale
- Define Treatment Options and Costs
- Test various Budget Scenarios
- Develop list of candidate projects
- Apply engineering and local judgment to define annual road program
Pavement Management Concepts

Pavement Deterioration Curve

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

40% Drop in Quality

75% of Life

$1.00 for Renovation Here

40% Drop in Quality

12% of Life

Will cost $19.00 to $22.00 Here
Pavement Management Concepts

No Immediate Maintenance (PCI 93-100)

PCI = 99
PCI = 86

Routine Maintenance Condition (PCI 86-92)

Treatment options – Crack sealing, patching
Pavement Management Concepts

Preventive Maintenance Condition (PCI 73-85)

PCI = 73

Treatment options – Crack sealing, chip seal, thin overlay
Pavement Management Concepts

PCI = 65

Structural Improvement Condition (PCI 61-72)

Treatment options – Overlay or Mill & Overlay or Cold In-place Recycling
Pavement Management Concepts

PCI = 43

Base Rehabilitation Condition (PCI 0-60)

Treatment options – Reclamation, Reconstruction
Pavement Management in Canton

Average Roadway Pavement Condition Index = 74
Pavement Management in Canton

Roadway Pavement Condition Index Distribution

![Bar Chart]

- **0 - 60**: 16.2 miles
- **61 - 72**: 14.7 miles
- **73 - 85**: 20.8 miles
- **86 - 92**: 9.3 miles
- **93 - 100**: 7.0 miles

Pavement Condition Index

Miles
GIS Map
# Pavement Management in Canton

## Current Roadway Pavement Backlog

<table>
<thead>
<tr>
<th>Pavement Treatment Band</th>
<th>Miles</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Immediate Maintenance</td>
<td>7.0</td>
<td>$0</td>
</tr>
<tr>
<td>Routine Maintenance</td>
<td>9.3</td>
<td>$90,000</td>
</tr>
<tr>
<td>Preventative Maintenance</td>
<td>20.8</td>
<td>$2,125,000</td>
</tr>
<tr>
<td>Structural Improvement</td>
<td>14.7</td>
<td>$4,355,000</td>
</tr>
<tr>
<td>Base Rehabilitation</td>
<td>16.2</td>
<td>$8,470,000</td>
</tr>
</tbody>
</table>

**Pavement totals:** 67.9 miles $15,040,000
Pavement Management in Canton

Current Roadway Pavement Backlog Summary

COST

- 56%
- 29%
- 14%
- 1%

MILES

- 30%
- 22%
- 24%
- 10%
- 14%
## Pavement Management in Canton

### Current Parking Lot Pavement Backlog

<table>
<thead>
<tr>
<th>Pavement Treatment Band</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Immediate Maintenance</td>
<td>$0</td>
</tr>
<tr>
<td>Routine Maintenance</td>
<td>$0</td>
</tr>
<tr>
<td>Preventative Maintenance</td>
<td>$120,000</td>
</tr>
<tr>
<td>Structural Improvement</td>
<td>$170,000</td>
</tr>
<tr>
<td>Base Rehabilitation</td>
<td>$0</td>
</tr>
</tbody>
</table>

Pavement lot total: **$290,000**
## Current Roadway Drainage Improvement Needs

<table>
<thead>
<tr>
<th>Drainage Items</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replace Curbing</td>
<td>$120,000</td>
</tr>
<tr>
<td>Install Ditch</td>
<td>$310,000</td>
</tr>
<tr>
<td>Install Underdrain</td>
<td>$25,000</td>
</tr>
<tr>
<td>Install Storm Drain</td>
<td>$535,000</td>
</tr>
<tr>
<td>Install Catch Basins</td>
<td>$400,000</td>
</tr>
<tr>
<td>Install Cross Culvert</td>
<td>$990,000</td>
</tr>
<tr>
<td>Rock Removal</td>
<td>$130,000</td>
</tr>
<tr>
<td>Install Paved Leakoffs</td>
<td>$40,000</td>
</tr>
</tbody>
</table>

Drainage total: $2,550,000
Pavement Management in Canton

Total Backlog Summary = $17,880,000
Pavement Management in Canton

Funding Scenarios (Roadway Pavement & Drainage)

- Historic Funding - $200,000/yr for 10 years
- Maintain PCI - $1,400,000/yr for 10 years
- Improve PCI - $2,000,000/yr for 10 years (PCI increases to 80)
- Postponed Investment Program - $200,000 for 3 years then $2,400,000 for 7 years. (PCI increases to 76)
Pavement Management in Canton

Future Roadway Pavement Condition Comparison

![Graph showing pavement condition index over time for different investment scenarios.](image-url)
Development of Annual Road Program

- Determine effective funding levels

- System recommends roads of highest benefit to the Town based on:
  - High Traffic Volume
  - Lower Repair Cost
  - Longer Repair Life Expectancy
  - Poorer Road Conditions

- The system allocates annual budget to high benefit roads and analyzes the effect on overall town wide conditions.

- Engineering judgment is used to adjust the program to reflect coordination with other projects, neighborhood programs, mobilization efficiencies, etc.
Recommendations

- Budget adequate funds to achieve pavement condition goals
- Use the Right Tool at the Right Time in the Right Place
- Make timely maintenance repairs
- Address major rehabilitation & drainage needs as funding allows
Next Steps

- Implement GIS based system
- Update system as work is done
- Fine tune treatment selections
- Evaluate alternative funding scenarios
Questions and Answers

Presented by: Vanasse Hangen Brustlin, Inc.
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