City of Sanford
Department of Public Works

PAVEMENT MANAGEMENT PROGRAM

February 7, 2017
Pavement Management

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

Perform the right repair at the right time!
Pavement Management

- Asset Management & Forecasting Tool

- It is more cost effective to keep good roads in good condition

Source: Federal Highway Administration
Pavement Management

Maintenance
- Crack Seal
- Fog Seal
- Pothole/Utility Patching

Surface Treatment
- Chip Seal
- Microsurfacing
- HMA Overlay

Structural Repair
- Mill and Overlay
- Reclamation
- Reconstruction
Roadway Inventory & GIS Mapping

Sanford Roadway Profile

<table>
<thead>
<tr>
<th>Type</th>
<th>Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Accepted</td>
<td>136.83</td>
</tr>
<tr>
<td>City by Prescription</td>
<td>0.80</td>
</tr>
<tr>
<td>Private</td>
<td>15.73</td>
</tr>
<tr>
<td>State</td>
<td>37.30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>190.66</strong></td>
</tr>
</tbody>
</table>

* Inspected road miles does not include gravel roads
Calculate Road Surface Rating (RSR) based on existing distresses

- Ratings are 0 to 100 (Worst to Best)
- Line striping, curb and sidewalk information identified
Repair Methods & Unit Costs

- Defer Maintenance - $0 SY
- Routine Maintenance - $0.50 SY
  - Crack Sealing
  - Fog Seal
- Preventative Maintenance - $6.00 SY
  - Chip Seal
  - Microsurfacing
  - HMA Overlay
- Rehabilitation - $14.00 SY
  - Mill & Overlay
- Reconstruction - $45.00 SY

* Please note that unit prices reflect curb to curb improvements only
Existing Conditions Summary

**REPAIR BREAKDOWN & CURRENT RSR**

- **Approx. 163 Road Miles**
- **RSR = 69.21**

*City Maintained Paved Roadways Only*
Field Inspection Program

REPRESENTATIVE CONDITIONS – FULL DEPTH

RSR = 20
Field Inspection Program

REPRESENTATIVE CONDITIONS – REHABILITATION

RSR = 57
Field Inspection Program

REPRESENTATIVE CONDITIONS – PREVENTATIVE

RSR = 79
Field Inspection Program

REPRESENTATIVE CONDITIONS – ROUTINE

RSR = 85
Existing Conditions Summary

Breakdown by Repair Method (City Maintained)

<table>
<thead>
<tr>
<th>Repair Method</th>
<th>Length (Miles)</th>
<th>Square Yards</th>
<th>Percent Repair</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reconstruction</td>
<td>18.46</td>
<td>285,446</td>
<td>11.33%</td>
<td>$10,381,363</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>52.78</td>
<td>883,102</td>
<td>32.40%</td>
<td>$10,597,228</td>
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<tr>
<td>Preventative Maintenance</td>
<td>34.93</td>
<td>583,452</td>
<td>21.44%</td>
<td>$3,500,712</td>
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<tr>
<td>Routine Maintenance</td>
<td>31.02</td>
<td>529,889</td>
<td>19.04%</td>
<td>264,944.27</td>
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<tr>
<td>Defer Maintenance</td>
<td>25.71</td>
<td>410,885</td>
<td>15.78%</td>
<td>$0</td>
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<tr>
<td>Total</td>
<td>162.90</td>
<td>2,692,774</td>
<td>100.00%</td>
<td>$24,479,303</td>
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</tbody>
</table>

Network Level RSR 69.21

Backlog = Approx. $24.5 Million

*Curb to Curb Improvements Only
Does Not Include Drainage, Sidewalks, Ramps
CIP Development

- Target RSR & Budget Requirements
- Refine Repair Methods Unit Costs
- Prioritization Strategies (CBV)
- ADA & Utility Coordination
- Deterioration Rates
CIP Development

RSR FORECASTING – 5 YEARS (STANDARD MODEL)

Roadway Forecast Model Percentage Breakdown:
- Crack Seal – 10%
- Preventative – 20%
- Rehabilitation – 40%
- Reconstruction – 30%

*City Maintained Paved Roadways Only
## 2017 Pavement Management Projects

**2017 Construction Season**

<table>
<thead>
<tr>
<th>Repair Method</th>
<th>Length (Miles)</th>
<th>Square Yards</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Maintenance</td>
<td>11.72</td>
<td>210,723</td>
<td>$165,158</td>
</tr>
<tr>
<td>Preventative Maintenance</td>
<td>1.12</td>
<td>17,752</td>
<td>$177,053</td>
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<tr>
<td>Reconstruction</td>
<td>0.69</td>
<td>13,210</td>
<td>$437,548</td>
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<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>13.52</strong></td>
<td><strong>241,684</strong></td>
<td><strong>$779,759</strong></td>
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</table>
### PROPOSED CIP

<table>
<thead>
<tr>
<th>Year</th>
<th>Repair Method</th>
<th>Length (Miles)</th>
<th>Square Yards</th>
<th>Est. Cost</th>
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</thead>
<tbody>
<tr>
<td>FY2018</td>
<td>Preventative Maintenance</td>
<td>11.15</td>
<td>168,746</td>
<td>$362,489</td>
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<tr>
<td></td>
<td>Rehabilitation</td>
<td>1.23</td>
<td>18,895</td>
<td>$226,735</td>
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<td>Reconstruction</td>
<td>0.17</td>
<td>4,213</td>
<td>$189,603</td>
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<td><strong>YEAR TOTAL:</strong></td>
<td><strong>12.54</strong></td>
<td><strong>191,853</strong></td>
<td><strong>$778,827</strong></td>
</tr>
<tr>
<td>FY2019</td>
<td>Preventative Maintenance</td>
<td>11.37</td>
<td>175,229</td>
<td>$430,670</td>
</tr>
<tr>
<td></td>
<td>Rehabilitation</td>
<td>3.15</td>
<td>17,752</td>
<td>$177,053</td>
</tr>
<tr>
<td></td>
<td><strong>YEAR TOTAL:</strong></td>
<td><strong>14.51</strong></td>
<td><strong>227,489</strong></td>
<td><strong>$1,174,832</strong></td>
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<td></td>
<td><strong>TOTAL:</strong></td>
<td><strong>27.05</strong></td>
<td><strong>419,342</strong></td>
<td><strong>$1,953,659</strong></td>
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</table>

**Supplemental Funding:**
- $200,000 will be allocated on a yearly basis for Future MaineDOT Reconstruction of Route 202/Cottage Street (Expected Project Start Date: 2021)
- $125,000 will be allocated on a yearly basis for drainage repairs
System Maintenance

- Update data as improvements are completed
- Monitor and update actual costs
- Re-assess assets periodically
- Add new subdivisions and newly accepted roads to database
City of Sanford
Department of Public Works

PAVEMENT MANAGEMENT PROGRAM

Thank You
February 7, 2017