Pavement and Roadway Asset Management Project

Construction Management & Engineering
Project Purpose

The purpose of this project is to develop a pavement and roadway asset management program allowing the City to best utilize city funds to maintain our roadways.
Strategic Action Plan

• Objective 1.1: To enhance infrastructure in order to maintain quality neighborhoods and business districts

• Objective 5.2: Enhance safety measures throughout the community
Current Procedure

City maintains 1186.2 lane miles of roadway

- The City resurfaces 20 to 30 lane miles per year (2%)
- City utilizes resurfacing as the only maintenance option

Public Works staff performs annual roadway ratings

- Lead signal technician spends between 240 to 320 hours rating the roadways
- Public works performs a visual evaluation
- Priorities are based on available funds
Pavement Management Plan

• Use a professional service to create Pavement Condition Index (PCI) utilizing American Society for Testing & Materials (ASTM) standards

• Establish a PCI standard for residential, collector and arterial roadways

• Develop a long term capital plan for maintaining the roadways utilizing more than just resurfacing
Pavement Management Plan Benefits

• Better data collection will lead to utilizing other pavement maintenance techniques
• Creation of a GIS shape file that identifies all roadway rating
• Establishing standards for maintaining residential, collector and arterial roadways
• Establish long term costs for maintaining our roadways
• Develop a long range plan utilizing a variety of techniques such as:
  • Rejuvenation (approx. $6,000 / lane mile)
  • Microsurfacing (Approx. $25,000 / lane mile)
  • Resurfacing/Mill & Overlay (Approx $55,000 / lane mile)
  • Roadway Reconstruction (Approx $350K - $500K / lane mile)
Consultant

• Sent a Request for Qualifications and received seven submittals
• Five firms were shortlisted and presented to a team of City Staff members
• The following criteria was utilized to score the presenting teams
  – Experience with Similar Projects
  – Project Understanding
  – Project Team
  – Schedule and Availability
  – Location
• The consultant selected was Transmap
City of Palm Coast, FL
Pavement and Roadway Asset Management Project

Craig Schorling, GISP
Vice President
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TRANSMAP SOLUTION

Quick turnaround: PCI delivery in under 57 days
PHASE I: PAVEMENT CONDITION & MASTERPLAN

- Instant crack data delivered as GIS file
- ASTM D6433 crack identification
- Pothole detection
ArcGIS ONLINE VIEWER
PAVEMENT PRESERVATION

Pavement Preservation: Planned system of treating pavements to maximize their useful life as cost-effectively as possible.

<table>
<thead>
<tr>
<th>PCI Range</th>
<th>Work Type</th>
<th>Rehabilitation Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>86-100 Good</td>
<td>Rejuvenation</td>
<td>Little or no maintenance E.g. Crack Seal, Reclaimite, fog seal</td>
</tr>
<tr>
<td>71-85 Satisfactory</td>
<td>Global</td>
<td>Routine Maintenance E.g. Seals such as slurry seal</td>
</tr>
<tr>
<td>56-70 Fair</td>
<td>Critical</td>
<td>Non-structural overlay, cape seal</td>
</tr>
<tr>
<td>41-55 Poor</td>
<td>Conventional</td>
<td>Structural overlay Overlay, Mill and overlay</td>
</tr>
<tr>
<td>26-40 Very Poor</td>
<td>Conventional</td>
<td>Structural Overlay Overlay, Mill and overlay</td>
</tr>
<tr>
<td>11-25 Serious</td>
<td>Reconstruction</td>
<td>Reconstruction, rebuild, full depth reclamation</td>
</tr>
<tr>
<td>0-10 Failed</td>
<td>Reconstruction</td>
<td>Reconstruction, rebuild, full depth reclamation</td>
</tr>
</tbody>
</table>

**Boca Raton, FL Residential Roads**

Major M&R Treatments

PCI at Year End Comparison for Various Annual Budgets

- Do Nothing
- $2.3M Annual Budget to Hold the PCI
- $4.04M Annual Budget Backlog Elimn

![Graph showing PCI at Year End Comparison for Various Annual Budgets](chart.png)
BUDGET OPTIMIZATION

- Boot Camp on-site with City
- Define needs
- M&R Optimization (preventative maintenance)
- Maximize budgets
- District PCI analysis
- 5-10 year CIP plan
PHASE I DELIVERABLES

- Maps
  - PCI, IRI, RUT, cross slope
- Reports
  - 5-10 year Master Plan
  - Report book
- Image deliverables
  - Project page
  - Web-based viewer
  - hard drive
- GIS data
  - PCI centerline
  - Van image
  - LCMS polygons
- Crack intelligence report
PHASE II: PATHWAY / ROADWAY ASSETS

System 6 with Ladybug5 and LiDAR
PHASE II DELIVERABLES

- Roadway assets
- Pathway assets
- Maps
- Reports
  - Statistics
- Image deliverables
  - Web-based viewer
  - Hard drive
  - Project page
- Compliance
- GIS data
Proposed Plan and Costs

• Budget FY 2017 - $150,000
  – Phase 1 - Pavement Condition Survey - $77,399.55

• Budget FY 2018 - $150,000
  – Phase 1 - Master Plan Creation - $87,180.46
  – Phase 2 - Striping Condition Inventory and Survey - $12,178.00
  – Phase 2 - Sidewalk/Pathway Inventory and Survey - $33,711.57

  Project Total $210,469.58
COUNCIL ACTION

- Approve Work Order in the Amount of $210,469.58 with Transmap, Inc. for the development of a new pavement and roadway asset management program
Questions?