GIS for resurfacing roads and pavement management, and maintenance

IT Department, GIS Services

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Town of Oro Valley
Oro Valley is known for the quality of its roads

- Background (Oro Valley)
- Surface treatment process
- Why we decided to use GIS to help pavement
- Examples of CAD DWG, bidding and ArcGIS Online maps
- Questions
Town of Oro Valley

Background

- 35 square Miles
- Population of 43,565
- Located just north of Tucson, Pima County, Arizona
- America’s 10 Safest Suburbs (Movoto Real Estate, 2014)
- Best Place in Arizona to Raise Kids (Bloomberg Businessweek, 2013)
- 100 Best Places in America to Live and Launch a Small Business (Fortune Small Business Magazine, 2008)
- 2011-16 Playful City, USA
Surface treatment Process

- Five (5) year plan (3 years for major arterials)
- Make an initial list of roads to be treated (based on previous inspections and OCI from OMS)
- Determine project areas, and capture surface areas
  - Example subdivision, specific road or road stretch from “A” to “B”
- Perform field inspections to make final determination of treatment types (example: FOG, SAM)
- Calculate surface area and estimated cost for each project
- Submit DWG/Maps for bidding (with s.q. yards and type of treatment)
Why we decided to use GIS to help pavement

- Already using GIS Imagery to generate CAD DWG
- GIS Database benefits – Effectiveness and efficiency
  - One single file/location, spatial query/attributes, multi-users access (vs one CAD user), easy calculations and statistics for budgeting/bidding and providing nice maps that goes with it
- GIS Training and Teaching (via digitizing)
  - Staff are interested and there is a need to learn/use GIS, why not train them (hands on) to create useful GIS data
- Provide services via Internet (ArcGIS Online)
  - For public, staff and council members (current, scheduled, proposed)
- Main Challenge
  - Can we do it? Yes!
  - Why? Background/experience, staff motivation, easy start, public roads only, spatial analysis for attributing and weighing the great benefit.
Examples - CAD Drawing

Surface Treatments FY 2015/2016
### Example of Important Fields Info

<table>
<thead>
<tr>
<th>Streets</th>
<th>Name</th>
<th>PastT1</th>
<th>PastT2</th>
<th>Current T</th>
<th>Future Treatment</th>
<th>Current Status</th>
<th>Construction M</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. sub.</td>
<td>SAM</td>
<td></td>
<td></td>
<td></td>
<td>e.g. In Progress</td>
<td>Asphalt</td>
<td></td>
</tr>
<tr>
<td>street range</td>
<td>PMM</td>
<td></td>
<td></td>
<td></td>
<td>Completed (date)</td>
<td>Concrete</td>
<td></td>
</tr>
<tr>
<td>Admin Parking</td>
<td>FOG</td>
<td></td>
<td></td>
<td></td>
<td>Proposed</td>
<td>Scheduled (date)</td>
<td></td>
</tr>
</tbody>
</table>
Examples – Surface Area Type

Surface Area Types
- Cart Path
- Parking Lot
- Paved Shared Path
- Roadway
- Subdivision (Rds)
Example of Online Map

Legend
- Completed Fall 2016
- Completed Spring 2016
- Inprogress
- Proposed Spring 2017
Thank you!

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