Overcoming Obstacles to Effective Use
Roadsoft: Overcoming Obstacles to Effective Use

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Senior Software Architect
MTU – Center for Technology & Training

Larry Brown, P.E.
Road Commissioner, Allegan County
Today’s Topics

• Agency Requirements, Wants, & Needs
• Obstacles for achievement
• Solutions using Roadsoft effectively
Agency Requirements

- Collect 50% Fed Aid PASER
- Report Completed & Planned Projects
- Road/Bridge Asset Management Plans (PA 325)
Agency Needs & Wants

- Improve/Maintain Road Condition
- Better planning for future projects
- Best bang for buck
Obstacles: Real or Perceived

- Time
- Money
- Knowledge
- Inexact Tools
- Time
- Money
Solution: Roadsoft

- Inventory
  - Know what you have
- Assessment
  - Know its condition
- Analysis
  - Make informed decisions
Obstacle: No Time/Money

- Incomplete Data
- Invalid Data
- No Data
No Time/Money: Solutions

- Funding for local collection via Region
- Interns trained on PASER
Problem: Incomplete Data

• Missing ratings
• Missing Project Data
Problem: Incomplete Data
Partial Solution: More Ratings

<table>
<thead>
<tr>
<th>Surface</th>
<th>Asphalt-Standard (Asphalt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIRE Surface Type</td>
<td>Bituminous</td>
</tr>
<tr>
<td>Current PASER Rating</td>
<td>3 - Poor</td>
</tr>
<tr>
<td>RSL</td>
<td>5</td>
</tr>
<tr>
<td>Confidence</td>
<td>85</td>
</tr>
<tr>
<td>YLR</td>
<td></td>
</tr>
</tbody>
</table>

**PASER Rating/Treatment History**

- **1/15/2011**
  - PASER Rating: 8 - Very Good
- **8/28/2003**
  - PASER Rating: 8 - Very Good

![Graph showing trend of ratings over years]
Solution: Project Data

**Surface**
- Surface SubType: Asphalt-Standard (Asphalt)
- MIRE Surface Type: Bituminous
- Current PASER Rating: 4 - Fair
- RSL: -2
- Confidence: 97

**PASER Rating/Treatment History**
- **Add PASER Rating/Treatment...**
  - 1/15/2011
    - PASER Rating: 8 - Very Good
  - 1/15/2010 (Sealcoat)
    - PASER Rating: 8 - Very Good
  - 8/28/2003
    - PASER Rating: 8 - Very Good

The graph shows a downward trend over time, indicating a decrease in PASER rating.
Solution: Project Data

- **Surface**
  - Surface SubType: Asphalt-Standard (Asphalt)
  - MIRE Surface Type: Bituminous
  - Current PASER Rating: 3 - Poor
  - RSL: -5
  - Confidence: 85
  - YLR

- **PASER Rating/Treatment History**
  - 1/15/2011: PASER Rating 8 - Very Good
  - 8/28/2003: PASER Rating 8 - Very Good

- **Surface**
  - Surface SubType: Asphalt-Standard (Asphalt)
  - MIRE Surface Type: Bituminous
  - Current PASER Rating: 4 - Fair
  - RSL: -2
  - Confidence: 97
  - YLR

- **PASER Rating/Treatment History**
  - 1/15/2010 (Sealcoat)
    - PASER Rating 8 - Very Good
  - 8/28/2003
    - PASER Rating 8 - Very Good
Solution: Project Data

- 5-10 Minutes per Project to add

- Step 1:
  - Select Road Segments on Map
Solution: Project Data

• 5-10 Minutes per Project to add

• Step 2:
  – Add Project Using Selection
Solution: Project Data

- 5-10 Minutes per Project to add
- Step 3:
  - Enter Project Info and Save
Solution: Project Data

• 5-10 Minutes per Project to add
• 3 Major Benefits:
  1. More Complete Data = Better Calculations
  2. Data Ready for Submission to TAMC
  3. Data Ready for Asset Management Plan
Current Rating vs Last Rating

- 7/15/2019 PASER Rating 10 is Last Rating
- 9 is Current Rating
- Current Rating ≠ Last Rating
Current Rating vs Last Rating

- Current Rating = Calculated Rating
- Last Rating = Last Entered Rating
Current Rating = Calculated

Deterioration Curves
Suggested Model: Logistic Growth Model Unforced through Zero
Chosen Model: Gompertz Growth Model UnForced through Zero
Current Rating = Calculated
Current Rating = Calculated

• Calculated based on deterioration curve (best fit)

• Pessimistic: 5.9999 = 5

Note: If Last Entered Rating Year = Current Year then Current Rating = Last Entered Rating
When is Current Rating Calculated?

- New or historical rating is entered
- New or historical treatment is entered
- New calendar year begins
Current Rating Calculation

• First login of new year
Current Rating Calculation

- Roads treated at end of year deteriorate a whole year
Current Rating Calculation

- One solution: Add another rating

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<td>Current PASER Rating</td>
<td>9 - Excellent</td>
</tr>
<tr>
<td>RSL</td>
<td>11</td>
</tr>
<tr>
<td>Confidence</td>
<td>92</td>
</tr>
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<td>YLR</td>
<td>2019</td>
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PASER Rating/Treatment History

- 10/13/2019 (Reconstruction - 6" base, 3" top)
- PASER Rating 10 - Excellent

```

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<td>RSL</td>
<td>12</td>
</tr>
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<td>Confidence</td>
<td>93</td>
</tr>
<tr>
<td>YLR</td>
<td>2019</td>
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PASER Rating/Treatment History

- 1/17/2020
- PASER Rating 10 - Excellent
- 10/13/2019 (Reconstruction - 6" base, 3" top)
- PASER Rating 10 - Excellent
- 6/21/2011
- PASER Rating 3 - Poor
```
Last Rating Usage

- Selection Info
- PASER Submission
- Reports
- Filters

<table>
<thead>
<tr>
<th>PRNo</th>
<th>RoadName</th>
<th>Bmp</th>
<th>Emp</th>
<th>SurfaceType</th>
<th>SurfaceSubType</th>
<th>LastPASERRating</th>
<th>LastPASERRatingDate</th>
<th>CurrentPASERRating</th>
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<tr>
<td>1572606</td>
<td>Grant Ave</td>
<td>0.081</td>
<td>0.172</td>
<td>Asphalt</td>
<td>Asphalt-Standard</td>
<td>2: Very Poor</td>
<td>9/17/2019</td>
<td>2</td>
</tr>
<tr>
<td>1572606</td>
<td>Grant Ave</td>
<td>0.172</td>
<td>0.211</td>
<td>Asphalt</td>
<td>Asphalt-Standard</td>
<td>8: Very Good</td>
<td>9/17/2019</td>
<td>6</td>
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<td>Grant Ave</td>
<td>0.211</td>
<td>0.272</td>
<td>Asphalt</td>
<td>Asphalt-Standard</td>
<td>7: Good</td>
<td>9/17/2019</td>
<td>5</td>
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Last Rating: Reports

- Compare Rating Histories Report
- Last Rating Entered Report
- Latest PASER Rating Mileage Summary
- Miles Rated (PASER) by City/Twp
Current Rating Usage

- Selection Info
- Reports
- Filters
- Good/Fair/Poor

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Current Rating: Reports

- Current PASER Rating Mileage Summary
- Current PASER Rating Report
- Good/Fair/Poor Summary w/Chart
# Current Rating: Reports

<table>
<thead>
<tr>
<th>Condition</th>
<th>Lane Miles</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good (Rating 8+)</td>
<td>12,408</td>
<td>12.95%</td>
</tr>
<tr>
<td>Fair (Rating 5-7)</td>
<td>45,407</td>
<td>47.30%</td>
</tr>
<tr>
<td>Poor (Rating 1-4)</td>
<td>38,007</td>
<td>39.66%</td>
</tr>
<tr>
<td>Unrated</td>
<td>0.000</td>
<td>0.00%</td>
</tr>
</tbody>
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**Total Miles:** 95,822

* New in version 2020.1
Notes on Unpaved Roads

- PASER = *Pavement* Surface Evaluation and Rating
- Inventory Based Rating (IBR) system recommended for collection
- Good/Fair/Poor uses IBR for unpaved
Obstacles/Solutions

- Time
- Money
- Knowledge
- Inexact Tools

- Local Data Collection Funding
- Roadsoft Tools
- Training
Questions

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  – www.roadsoft.org
  – nick@mtu.edu

• Larry Brown
  – (616) 813-5538
  – Larrywbrown.1953@gmail.com