How to Use Roadsoft in Making Data Driven Decisions in Your Community

ROAD COMMISSION OF KALAMAZOO COUNTY (RCKC)
www.kalamazoocountyroads.com
Your Local Road Professionals since 1909
In our world of **ACRONYMS**...

- AASHTO
- RCKC
- TAMC
- ROW
- ADARS
- APWA
- RUCUS
- MMUTCD
- RTB
- PASER
- MDOT
- CRA
Hint #1
HINT #2!

WESTERN MICHIGAN FOOTBALL

8-ROW
<table>
<thead>
<tr>
<th>Rank</th>
<th>Team</th>
<th>Conference</th>
<th>Record</th>
<th>Score</th>
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<td>16</td>
<td>Oklahoma</td>
<td>Big 12</td>
<td>4-2</td>
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<td>SEC</td>
<td>5-0</td>
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<td>Pac-12</td>
<td>6-1</td>
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<td>20</td>
<td>Western Michigan</td>
<td>Mid-American</td>
<td>7-0</td>
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<td>21</td>
<td>Auburn</td>
<td>SEC</td>
<td>4-2</td>
<td>277</td>
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<td>22</td>
<td>North Carolina</td>
<td>ACC</td>
<td>5-2</td>
<td>264</td>
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</table>
RCKC General Information

- 1,267 Miles
  - 450 Primary Road Miles
  - 817 Local Road Miles
    - 106 Local Gravel Road Miles
  - 61 Bridges
  - 20,941 Signs
  - 47 Signalized Intersections
- 5 Road Commissioners
- 44 Employees
- Contractors/Vendors/Consultants
What Problem Are We Trying to Solve?

- Aging Infrastructure
- Costly Improvements
- Limited Funding
- Historical Data in Various Locations/Files
- Electronic Storage
- We all want good infrastructure, however no one wants to pay for it
- Educating vs. Advocating
What Is Asset Management?

- “a systematic process of deploying, operating, maintaining, upgrading, and disposing of assets cost effectively....” Source: Wikipedia

- “a strategic and systematic process of operating, maintaining, upgrading, and expanding physical assets effectively throughout their lifecycle...” Source: AASHTO

- “knowing what you have, knowing its condition and trying to preserve it efficiently and effectively for generations...” Source: Mark Worden
Where to Begin?

- RCKC - Pavement Management
- Local Officials Training - over and over
  - Asset Management
  - Transportation Funding 101
  - Joint Township Meetings
- Staff Training - on-going
- Data Collection - What, When, How
- Data Storage Program
How do we collect the data?

- Laptop Data Collector
  - Night Crew
  - Restricted Duty
  - All staff available
- Historical Files
- Contractors/Consultants
Knowing WHAT you HAVE; Data Collection - Asset Management

**Inventory:**
- Inventory Bridges: Bridge Management - National Bridge Inventory Rating Scale
- **Safety Analysis:** Crash Management
- Inventory Culverts: Culvert Management
- Inventory Guardrail: Guardrail Management
- Inventory Pavement Marking: Linear/Point
- **Inventory Roads:** Pavement Management
  - Federal Aid Network
  - All non-federal aid network; 15 Townships
- **Inventory Signs:** Sign Management
- Inventory Traffic Signals: Traffic Signal Management
- Inventory Traffic Counts: Traffic Count Management
Why Roadsoft for Data Storage?

- RCKC had limited inventory use in early 2008
- Allowed for collecting, storing and analyzing data in one place for all staff
- FREE, including upgrades
- GIS-Based Mapping
- Variety of data storage associated with transportation
- Overall easy to use
- Reporting Features
- Integration with other Applications - Transportation Asset Management Reporting
How do we incorporate Roadsoft Daily?

- Data Collection - in field signs, culverts, pavement marking, etc.
- Inventory/Tracking
- Project selection
- Projects entered beginning of season with estimate and tracked - Closed with final $
- Resource at our Desks
- Grant Applications - crash data, etc.
- 5-year plans
RCKC Priority in 2008 - Pavement Management

- Trained staff
  - PASER, Roadsoft

- Local Officials Training

- Federal Aid Data Collection Experience

- Invited Local Officials in the Data Collection Effort Non-Federal Aid

- Had a Plan - 5 Townships per Year Data Collection Non-Federal Aid
  - Trained Staff
  - Grand Valley Metro Council
**KNOWING Its Condition; PASER System Data**

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td>Township</td>
<td>Schoolcraft</td>
<td>Kalamazoo</td>
<td>Texas</td>
</tr>
<tr>
<td></td>
<td>Oshtemo</td>
<td>Cooper</td>
<td>Ross</td>
</tr>
<tr>
<td></td>
<td>Charleston</td>
<td>Wakeshma</td>
<td>Brady</td>
</tr>
<tr>
<td></td>
<td>Comstock</td>
<td>Pavilion</td>
<td>Alamo</td>
</tr>
<tr>
<td></td>
<td>Richland</td>
<td>Prairie Ronde</td>
<td>Climax</td>
</tr>
</tbody>
</table>

*Non-federal Aid System*

- PASER data collection is a 3 year rotation that continuously cycles (i.e. PASER data collected at sites in 2016 will be the same as those in 2019)*
Trying to PRESERVE IT; Data Driven Decisions

» Roads:
  » 5 Year Primary Road Plans
  » 5 Year Township Plans: 15 Townships

» Funding a key element

» You NEED A PLAN
  » Asset Management Plan
  » MIX OF FIXES-Preventive Maintenance
  » Goals - PASER?
Taking it to the Streets!

- Visuals - MAP IT - GRAPH IT
- Communicate it at every opportunity
- Road Tours/On-site Visits
- MIX OF FIXES-Preventive Maintenance
- POST IT
  - Facebook, Website, Annual Reports, Newsletters, etc.
- Videos
Windows of Opportunity

Years

PASER

$5K/Mile

$20K/Mile

$100K/Mile

$200K/Mile

>$300K/Mile

CDP
Need $75,000,000 + to bring all roads to good condition today.

Need $39,000,000 to bring all bridges into good condition.

*Good (PASER rating ≥8), Fair (PASER rating = 7, 6, 5) & Poor (PASER rating ≤4)

PASER Data does not include gravel roads.
EXAMPLE
2016 Schoolcraft Township

Primary Roads
- Good: 21%
- Fair: 74%
- Poor: 5%

Local Roads
- Good: 12%
- Fair: 63%
- Poor: 25%

Primary & Local Roads
- Good: 16%
- Fair: 67%
- Poor: 17%

*Good (PASER rating ≥8), Fair (PASER rating = 7, 6, 5) & Poor (PASER rating ≤4)

PASER Data does not include gravel roads.
ASSET MANAGEMENT
Asset Management is a systematic approach to selecting the best investment at the right time to maximize the life of the asset being measured, in this case, road surface conditions. The goal is to maintain our roads in good condition, making periodic investments in the pavement, rather than letting it deteriorate to a level that requires a major investment to bring it back to a good condition. Periodic maintenance investments typically total less than the major investment required to rebuild a road.

PASER RATINGs
PASER stands for Pavement Surface Evaluation and Rating. The PASER rating scale ranges from 1, failed condition, to 10, brand new pavement. A pavement will only be a 10 the first year of its life, the second year it may automatically become a 9. Any condition of 8 or greater is considered to be a good condition, 7, 6 or 5 are fair, 4 or lower is poor.

THE RIGHT FIX AT THE RIGHT TIME
The KCRC determines the best fix to optimize service life for each of our projects. Good pavement management involves less expensive treatments earlier in the life of the pavement in order to take full advantage of infrastructural investments.

2016 Current Asset Management Ratings Map
Schoolcraft Twp

<table>
<thead>
<tr>
<th>Road Classifications</th>
<th>Road Ratings</th>
<th>Boundary Designations</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Trunkline</td>
<td>Good (8, 9, 10)</td>
<td>Township/City</td>
</tr>
<tr>
<td>County Primary</td>
<td>Fair (7, 6, 5)</td>
<td>City/Village Limits</td>
</tr>
<tr>
<td>County Local - Gravel</td>
<td>Poor (4, 3, 2, 1)</td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>Private Roads (Not Rated)</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>Lakes &amp; Rivers</td>
<td></td>
</tr>
</tbody>
</table>
**2015 SCHOOLCRAFT TOWNSHIP, ESTIMATED IMPROVEMENT COSTS FOR LOCAL ROADS**

<table>
<thead>
<tr>
<th>PASER RATING</th>
<th>10</th>
<th>9</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>*TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCAL LANE MILES</td>
<td>0</td>
<td>0</td>
<td>0.264</td>
<td>15.609</td>
<td>7.096</td>
<td>6.383</td>
<td>2.251</td>
<td>3.863</td>
<td>0.466</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

| *COST PER MILE | $ - | - | $5,000 | $10,000 | $20,000 | $50,000 | $100,000 | $200,000 | $250,000 | $300,000 |
| *TOTAL COST PER PASER RATING | $ - | - | $1,320 | $156,090 | $141,920 | $319,150 | $225,100 | $772,600 | $116,500 | $ - | $1,732,680 |

*Costs listed above are for estimated planning purposes only. The estimated figures are based on best available information. Funding and budgets may vary.*

*Estimated figures are based on approximate calculations for quantities, treatment costs and miles. The figures do not include unforeseen infrastructure issues, bridges, drainage, continued road deterioration or cost of living increases.*
### 2016 Ross TOWNSHIP, ESTIMATED IMPROVEMENT COSTS FOR LOCAL ROADS

#### Pavement Surface Evaluation and Rating (PASER)

<table>
<thead>
<tr>
<th>LOCAL LANE MILES</th>
<th>10</th>
<th>9</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>*TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0.604</td>
<td>4.595</td>
<td>2.061</td>
<td>11.623</td>
<td>8.841</td>
<td>4.874</td>
<td>4.644</td>
<td>6.09</td>
<td>5.278</td>
<td>48.61</td>
</tr>
</tbody>
</table>

*Cost per mile:

| *COST PER MILE | $ - | $ - | $ 5,000 | $ 10,000 | $ 20,000 | $ 50,000 | $ 100,000 | $ 200,000 | $ 250,000 | $ 300,000 |

*Total cost per PASER rating:

| *TOTAL COST PER PASER RATING | $ - | $ - | $ 22,975 | $ 20,610 | $ 232,450 | $ 442,050 | $ 487,400 | $ 928,800 | $ 1,522,500 | $ 1,583,400 | $ 5,240,195 |

*Costs listed above are for estimated planning purposes only. The estimated figures are based on best available information. Funding and budgets may vary.

Estimated figures are based on approximate calculations for quantities, treatment costs and miles. The figures do not include unforeseen infrastructure issues, bridges, drainage, continued road deterioration or cost of living increases.

- Funding needed using asset management to improve all streets: $5,240,195 divided by 5 years equals $1,048,039 per year.
- Funding needed using worst first approach to improve all streets: $8,384,690 divided by 5 years equals $1,676,938 per year.

Funding needed to maintain asphalt roads after improvements: $8,000 multiplied by 48.61 miles equals $388,880 per year.

Funding needed to maintain gravel roads: $2,700 multiplied by 5.4 miles equals $14,580 per year.

Total roads funds needed to maintain all roads: $403,460 per year.
## Capital Improvement Plan - Cooper Township 2014 - 2018

<table>
<thead>
<tr>
<th>Road Name</th>
<th>From</th>
<th>To</th>
<th>Treatment</th>
<th>Estimated Project Cost</th>
<th>Miles</th>
<th>PASER Rating</th>
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</thead>
<tbody>
<tr>
<td>17th Street</td>
<td>B Avenue</td>
<td>AB Avenue</td>
<td>HMA Wedge/Crack Fill/Chip Seal</td>
<td>$20,000.00</td>
<td>0.50</td>
<td>4</td>
</tr>
<tr>
<td>E Avenue</td>
<td>16th Street</td>
<td>N. Westnedge Avenue</td>
<td>HMA Wedge/Crack Fill/Chip Seal</td>
<td>$32,000.00</td>
<td>1.00</td>
<td>4</td>
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<tr>
<td>E Avenue</td>
<td>1 Mile West of Riverview Dr.</td>
<td>Riverview Drive</td>
<td>HMA Wedge/Crack Fill/Chip Seal</td>
<td>$32,000.00</td>
<td>1.00</td>
<td>4</td>
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<tr>
<td>F Avenue</td>
<td>14th Street</td>
<td>Douglas Avenue</td>
<td>HMA Wedge/Crack Fill/Chip Seal</td>
<td>$36,000.00</td>
<td>1.20</td>
<td>5-4</td>
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<tr>
<td>B Avenue</td>
<td>19th Street</td>
<td>1/2 Mile W of 19th St.</td>
<td>Crack Fill/Chip Seal</td>
<td>$15,000.00</td>
<td>0.50</td>
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<tr>
<td>C Avenue</td>
<td>Riverview Drive</td>
<td>24th Street</td>
<td>HMA Wedge/Crack Fill/Chip Seal</td>
<td>$42,000.00</td>
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<tr>
<td>Everhard Avenue</td>
<td>G Avenue</td>
<td>Remus Street</td>
<td>Chip Seal</td>
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<tr>
<td>Beverly Avenue</td>
<td>G Avenue</td>
<td>Remus Street</td>
<td>Chip Seal</td>
<td>$6,500.00</td>
<td>0.26</td>
<td>5</td>
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<tr>
<td>Remus Street</td>
<td>Beverly Avenue</td>
<td>20th Street</td>
<td>Chip Seal</td>
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<td>20th Street</td>
<td>G Avenue</td>
<td>Colby Street</td>
<td>Chip Seal</td>
<td>$8,750.00</td>
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<tr>
<td>Henshaw Street</td>
<td>G Avenue</td>
<td>Moffett Avenue</td>
<td>Crack Fill/Chip Seal</td>
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<td>Moffett Avenue</td>
<td>Westnedge Avenue</td>
<td>Henshaw Street</td>
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<tr>
<td>Crimson Oak Avenue</td>
<td>Riverview Drive</td>
<td>Cinnamon Woods Trail</td>
<td>Crack Fill/Chip Seal</td>
<td>$7,500.00</td>
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<tr>
<td>Cardinal Hills Trail</td>
<td>283' n/o Crimson Oak Lane</td>
<td>Cinnamon Woods Trail</td>
<td>Crack Fill/Chip Seal</td>
<td>$9,600.00</td>
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<tr>
<td>Cinnamon Woods Trail</td>
<td>Cardinal Hills Trail</td>
<td>Cinnamon Oak Avenue</td>
<td>Crack Fill/Chip Seal</td>
<td>$3,000.00</td>
<td>0.10</td>
<td>5</td>
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<tr>
<td>Old Douglas Avenue</td>
<td>F Avenue</td>
<td>Douglas Avenue</td>
<td>Crack Fill/Chip Seal</td>
<td>$7,500.00</td>
<td>0.25</td>
<td>5</td>
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<tr>
<td>Travis Road</td>
<td>20th Street</td>
<td>1,320' e/o 20th Street</td>
<td>Crack Fill/Chip Seal</td>
<td>$7,500.00</td>
<td>0.25</td>
<td>5</td>
</tr>
</tbody>
</table>

**Total Funds** | $245,926.14
Sign Management

- Trained staff
- 1 Sign Maintenance Staff
- Updates in the Field
- On-going
Safety Analysis

- Most recent year crash data
- UD-10 Information
- Reports
- Assists in Safety Funding Applications
Data Does Matter

- Without DATA the Public and Elected Officials cannot make educated decisions
- Need to rely on the local road professionals
- Value in knowing what you have!
Data Driven Decisions

- Township Millage
  - Climax Township Millage
    - 1 mill, 10 years = Approx. $65,000
- Township Special Assessments per Parcel
  - Alamo Township = Approx. $160,000
  - Texas Township = Approx. $360,000
- Bond Proposal
  - Kalamazoo Township $9.75 million
- Others: Ross, Comstock, Cooper Townships
Team Testimonials

Bill DeYoung, General Superintendent:
“Roadsoft provides a historical project tracking and assists in road comparisons for project planning - Where to spend their dollars in the most effective manner.”

Traffic Engineer, Jim Hoekstra:
”Up to date sign inventory allows for a response to service requests without necessarily driving to the street.”

Project Engineer, Rebekkah Ausbury:
“Everyone puts their information in the same place. It keeps us all on the same page and up to date.”
THANK YOU!

Questions?

Road Commission of Kalamazoo County

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Your Local Road Professionals since 1909