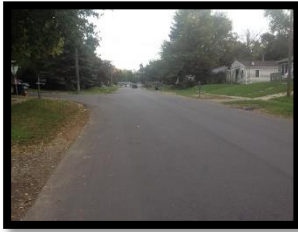


# How to Use Roadsoft in Making Data Driven Decisions in Your Community



**ROAD COMMISSION OF KALAMAZOO COUNTY (RCKC)**

**[www.kalamazooountyroads.com](http://www.kalamazooountyroads.com)**

***Your Local Road Professionals since 1909<sup>1</sup>***



**2016 RUCUS**  
Roadsoft User Conference of the United States

# 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-R O W





# Row The Boat!!!

collegefootball.ap.org

16		Oklahoma Big 12 Record: 4-2	19 612
17		Arkansas SEC Record: 5-2	22 584
18		Tennessee SEC Record: 5-2	9 550
19		Utah Pac-12 Record: 6-1	21 479
20		Western Michigan Mid-American Record: 7-0	24 285
21		Auburn SEC Record: 4-2	23 277
22		North Carolina ACC Record: 5-2	- 264



# 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

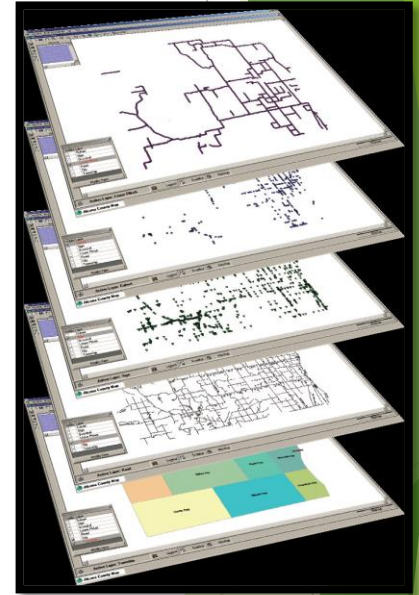
## ► Inventory:

- 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



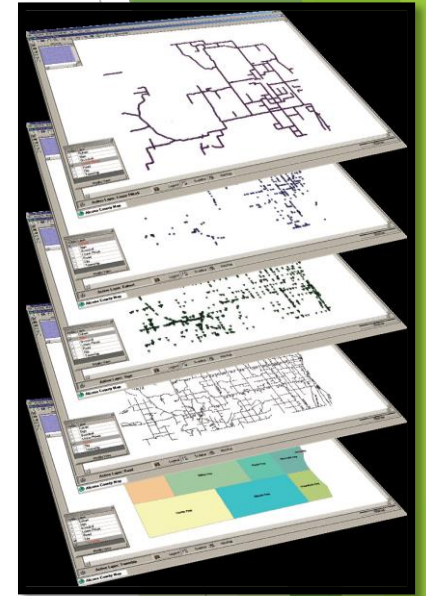
# Why Roadsoft for Data Storage?

- ▶ 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

2016		2017		2018
Township		Township		Township
Schoolcraft		Kalamazoo		Texas
Oshtemo		Cooper		Ross
Charleston		Wakeshma		Brady
Comstock		Pavilion		Alamo
Richland		Prairie Ronde		Climax

## *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?



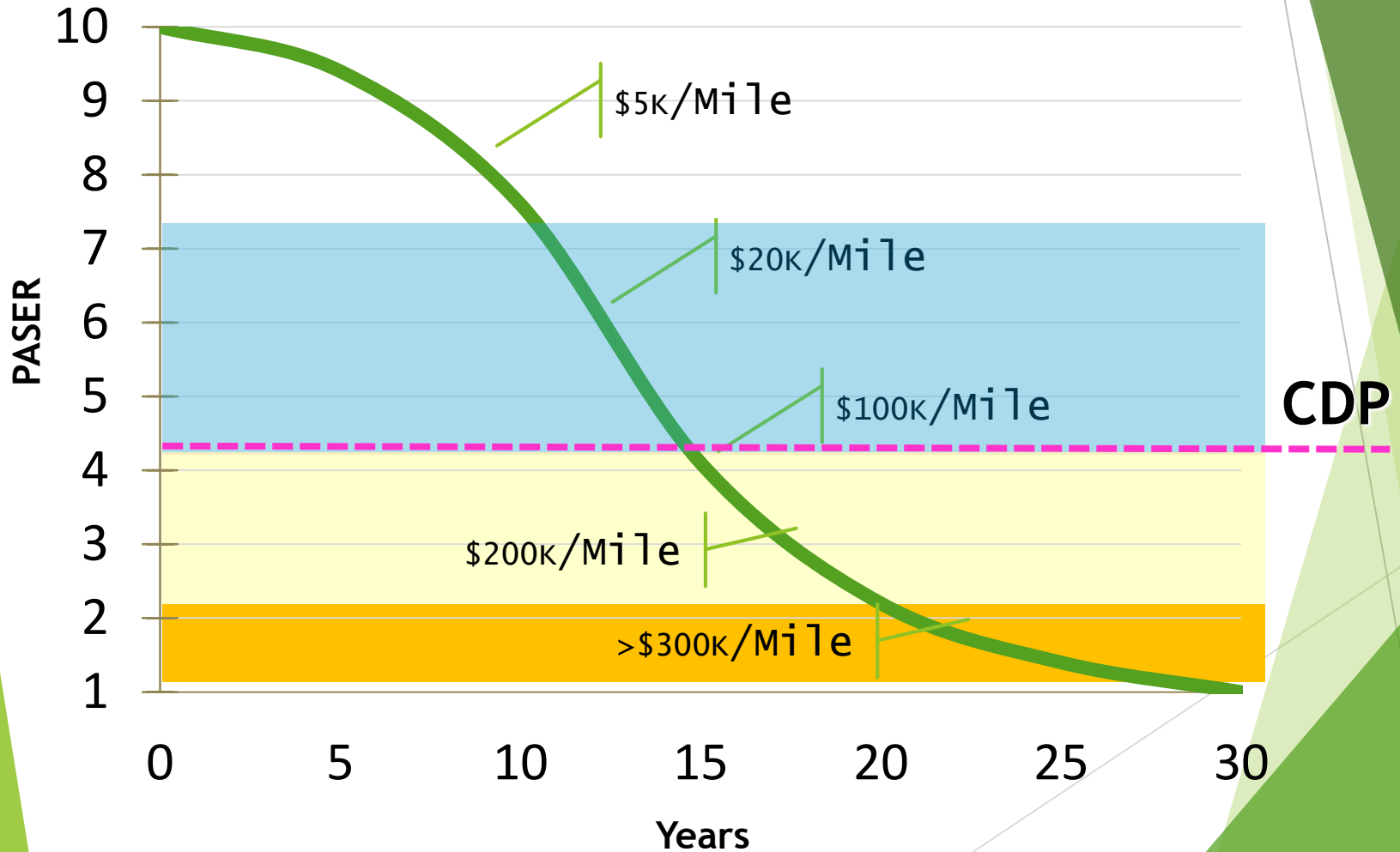
# Taking it to the Streets!



- ▶ 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



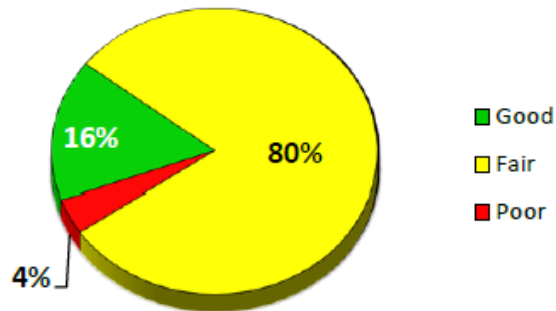
# Windows of Opportunity



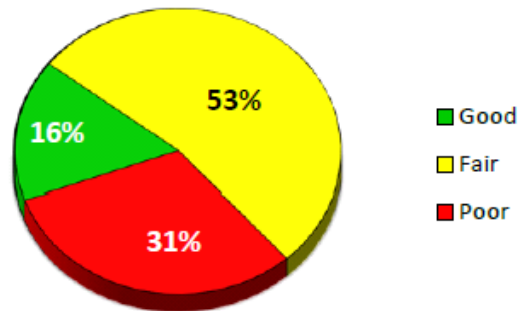


# 2016 Kalamazoo County Surface Rating Summary

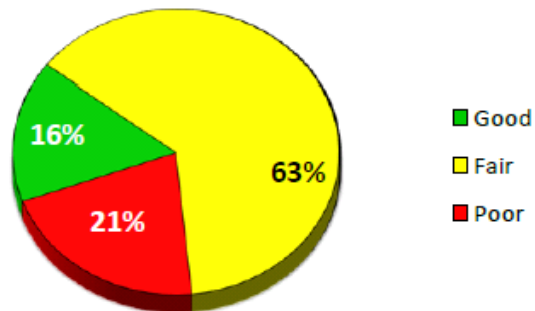
## Primary Roads



## Local Roads



## Primary & Local Roads



**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  $\geq 8$ ), Fair (PASER rating = 7, 6, 5) & Poor (PASER rating  $\leq 4$ )

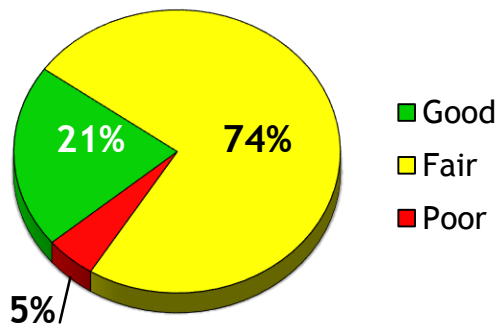
PASER Data does not include gravel roads.



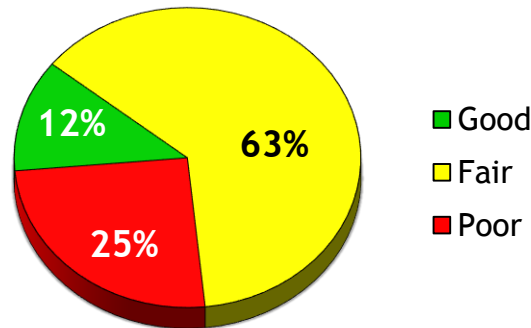
# EXAMPLE

## 2016 Schoolcraft Township

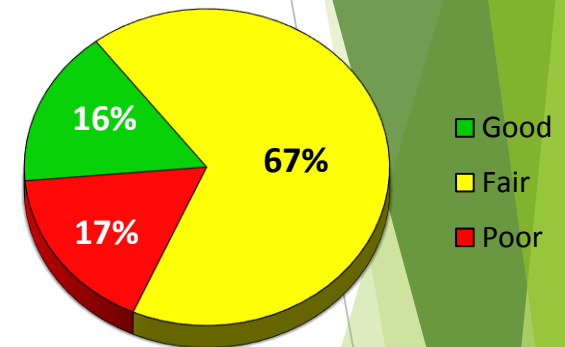
Primary Roads



Local Roads



Primary & Local Roads



\*Good (PASER rating  $\geq 8$ ), Fair (PASER rating = 7, 6, 5)  
& Poor (PASER rating  $\leq 4$ )

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

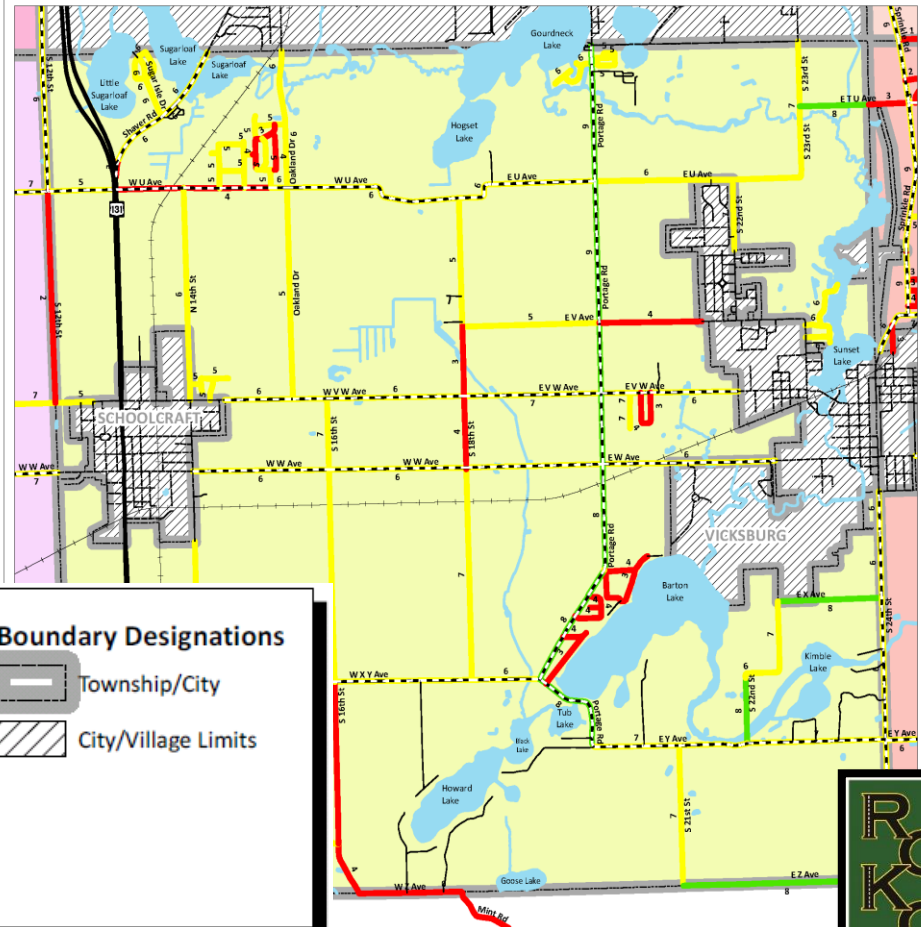
PASER stands for Pavement Surface Evaluation and Rating. The PASER rating scale ranges from 1, failed condition, to 10, brand new pavement. A pavement will only be a 10 the first year of its life, the second year it may automatically become a 9. Any condition of 8 or greater is considered to be a good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

# EXAMPLE

## 2016 Current Asset Management Ratings Map Schoolcraft Twp



# EXAMPLE

2015 SCHOOLCRAFT TOWNSHIP, ESTIMATED IMPROVEMENT COSTS FOR LOCAL ROADS											
PASER RATING	10	9	8	7	6	5	4	3	2	1	*TOTAL COST
LOCAL LANE MILES	0	0	0.264	15.609	7.096	6.383	2.251	3.863	0.466	0	
*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
<p>*Costs listed above are for estimated planning purposes only. The estimated figures are based on best available information. Funding and budgets may vary.</p> <p>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.</p>											



# EXAMPLE

## 2016 Ross TOWNSHIP, ESTIMATED IMPROVEMENT COSTS FOR LOCAL ROADS

Pavement Surface Evaluation and Rating (PASER)											
	10	9	8	7	6	5	4	3	2	1	*TOTAL COST
LOCAL LANE MILES	0	0.604	4.595	2.061	11.623	8.841	4.874	4.644	6.09	5.278	48.61
*COST PER MILE	\$ -	\$ -	\$ 5,000	\$ 10,000	\$ 20,000	\$ 50,000	\$ 100,000	\$ 200,000	\$ 250,000	\$ 300,000	
*TOTAL COST PER PASER RATING	\$ -	\$ -	\$ 22,975	\$ 20,610	\$ 232,460	\$ 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	Mutiplied by	48.61 Miles	equals	\$ 388,880	per year
Funding needed to maintaining gravel roads	\$ 2,700	Mutiplied by	5.4 Miles	equals	\$ 14,580	per year
Total roads funds needed to maintain all roads					\$ 403,460	per year





# EXAMPLE



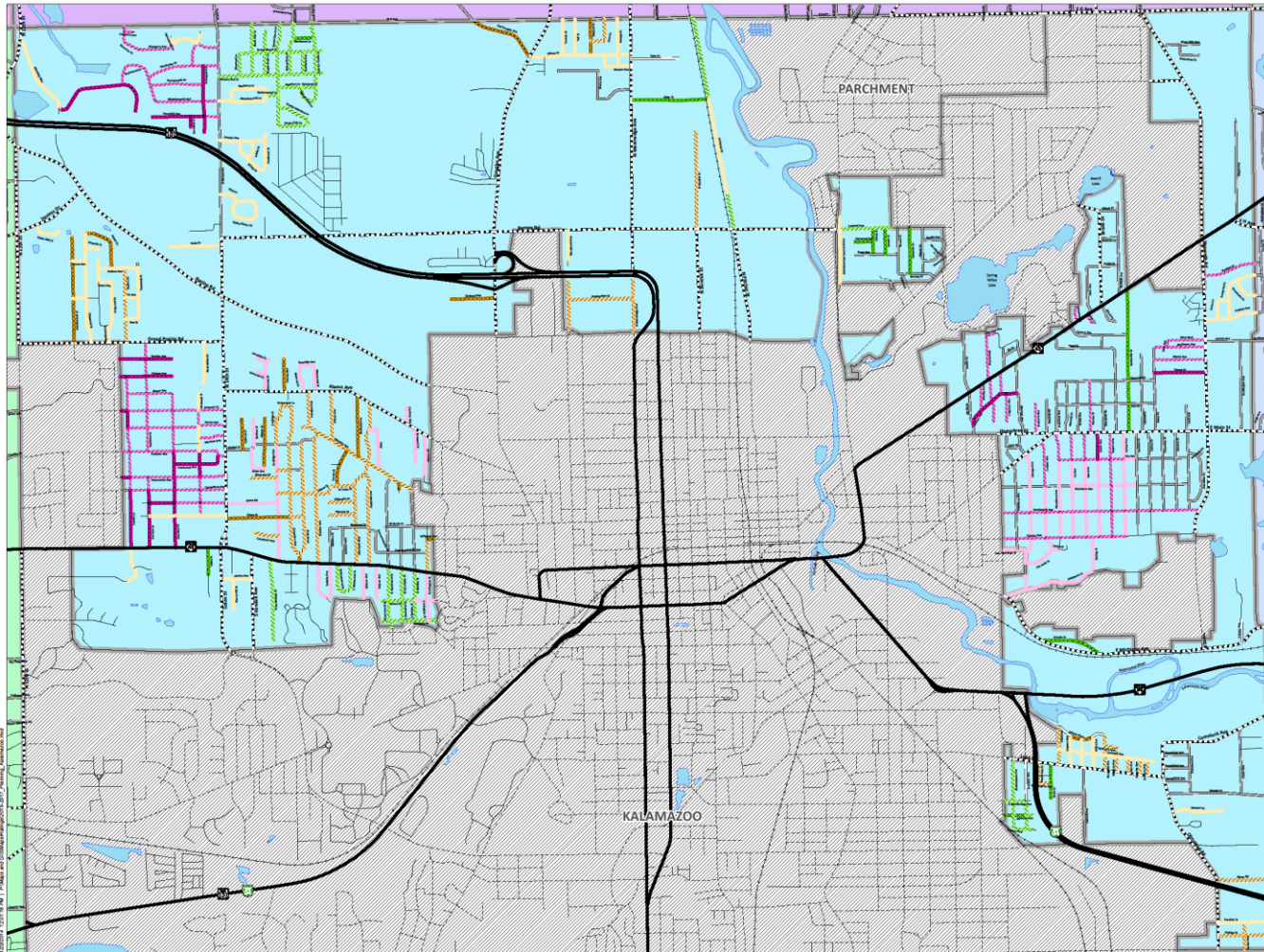
## Capital Improvement Plan - Cooper Township 2014 - 2018

Road Name	From	To	Treatment	Estimated Project Cost	Miles	PASER Rating
<b>2015</b>						
17th Street	B Avenue	AB Avenue	HMA Wedge/Crack Fill/Chip Seal	\$20,000.00	0.50	4
E Avenue	16th Street	N. Westnedge Avenue	HMA Wedge/Crack Fill/Chip Seal	\$32,000.00	1.00	4
E Avenue	1 Mile West of Riverview Dr.	Riverview Drive	HMA Wedge/Crack Fill/Chip Seal	\$32,000.00	1.00	4
F Avenue	14th Street	Douglas Avenue	HMA Wedge/Crack Fill/Chip Seal	\$36,000.00	1.20	5-4
B Avenue	19th Street	1/2 Mile W of 19th St.	Crack Fill/Chip Seal	\$15,000.00	0.50	5
C Avenue	Riverview Drive	24th Street	HMA Wedge/Crack Fill/Chip Seal	\$42,000.00	1.20	4
Everhard Avenue	G Avenue	Remus Street	Chip Seal	\$6,500.00	0.26	5
Beverly Avenue	G Avenue	Remus Street	Chip Seal	\$6,500.00	0.26	5
Remus Street	Beverly Avenue	20th Street	Chip Seal	\$6,000.00	0.24	5
20th Street	G Avenue	Colby Street	Chip Seal	\$8,750.00	0.35	5
Henshaw Street	G Avenue	Moffett Avenue	Crack Fill/Chip Seal	\$2,176.14	0.07	5
Moffett Avenue	Westnedge Avenue	Henshaw Street	Crack Fill/Chip Seal	\$3,900.00	0.13	5
Crimson Oak Avenue	Riverview Drive	Cinnamon Woods Trail	Crack Fill/Chip Seal	\$7,500.00	0.25	5
Cardinal Hills Trail	283' n/o Crimson Oak Lane	Cinnamon Woods Trail	Crack Fill/Chip Seal	\$9,600.00	0.32	5
Cinnamon Woods Trail	Cardinal Hills Trail	Crimson Oak Avenue	Crack Fill/Chip Seal	\$3,000.00	0.10	5
Old Douglas Avenue	F Avenue	Douglas Avenue	Crack Fill/Chip Seal	\$7,500.00	0.25	5
Travis Road	20th Street	1,320' e/o 20th Street	Crack Fill/Chip Seal	\$7,500.00	0.25	5
Total Funds				<u>\$245,926.14</u>		



# EXAMPLE

## 2015-2017 Preliminary Planning Map Kalamazoo Township



**Kalamazoo County Road Commission**  
3801 East Kilgore Road  
Kalamazoo, MI 49001  
Ph: (269) 381-3171  
Fax: (269) 381-1700  
www.kalamazoo-countyroads.com

**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.

### Road Classifications

- State Trunkline
- County Primary
- County Local - Gravel
- City
- Private

### Work Type and Year

- Recently Improved Local Road
- 2015, Reconstruction
- 2015, Mill & Overlay
- 2015, Chip Seal
- 2016, Reconstruction
- 2016, Mill & Overlay
- 2016, Chip Seal
- 2017, Reconstruction
- 2017, Mill & Overlay

### Boundary Designations

- Township/City
- ▨ City/Village Limits
- Lakes & Rivers

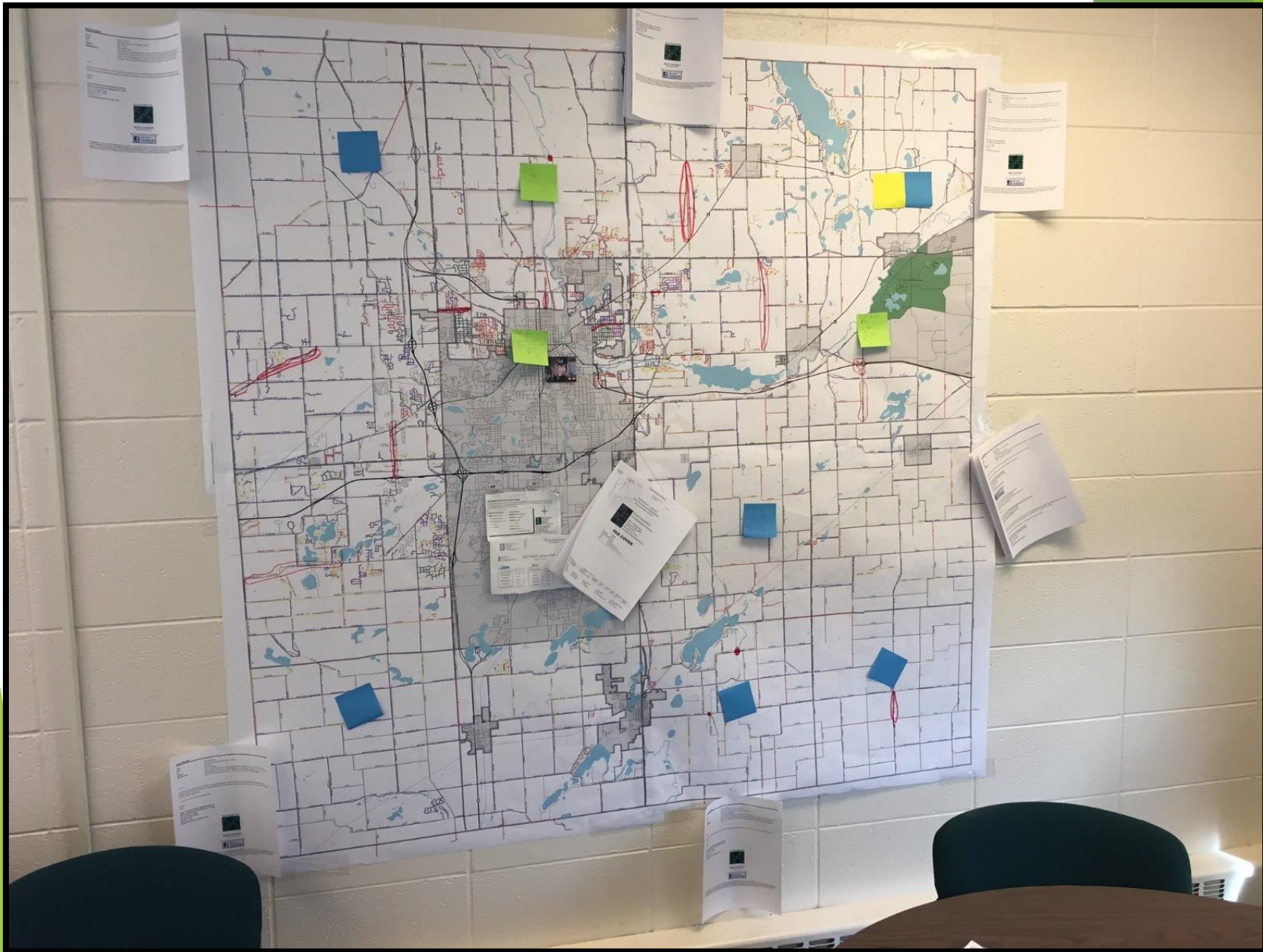


For more information on this, as well as on other topics, please feel free to contact our office or visit our website.

11/20/2014

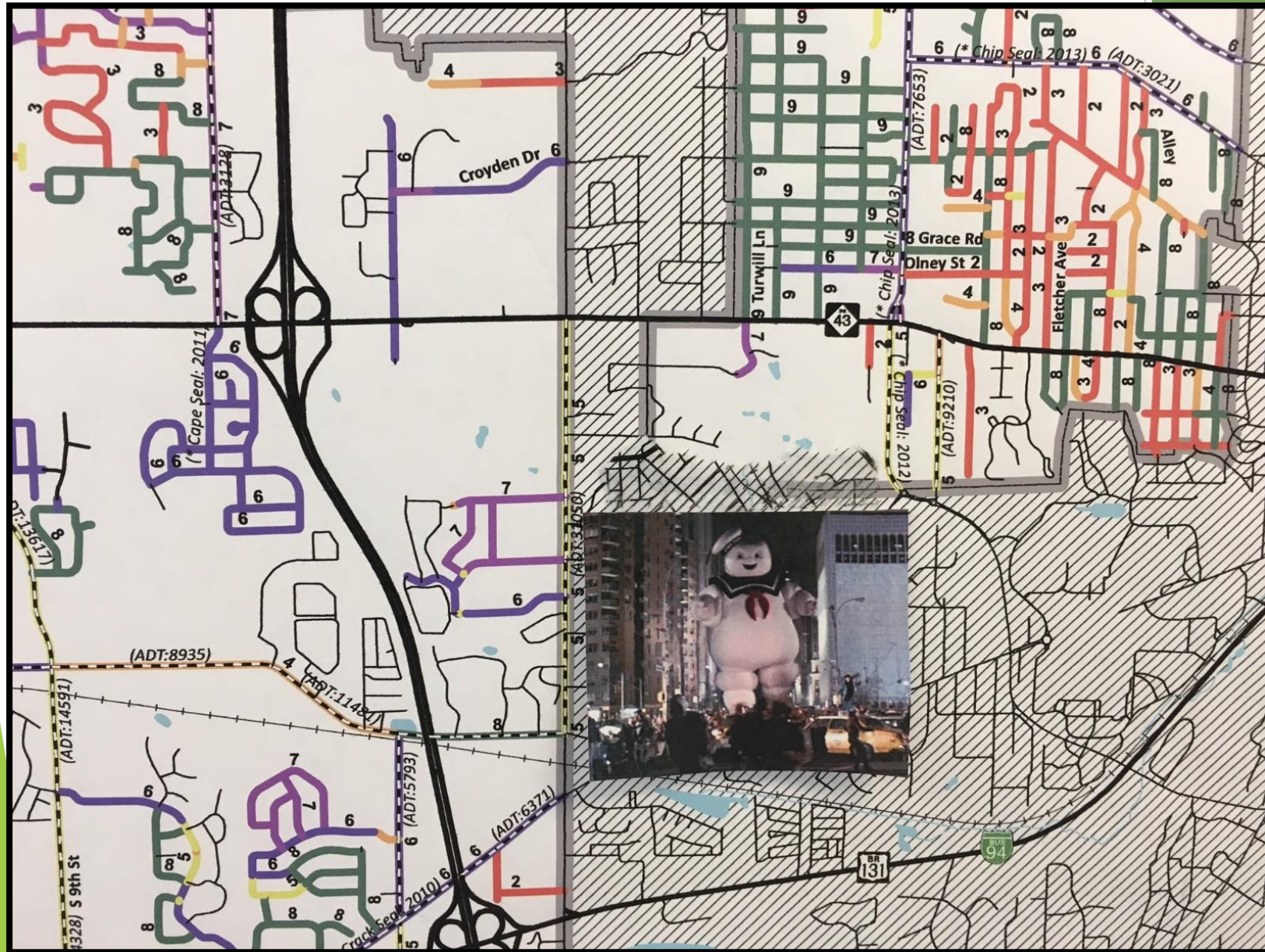






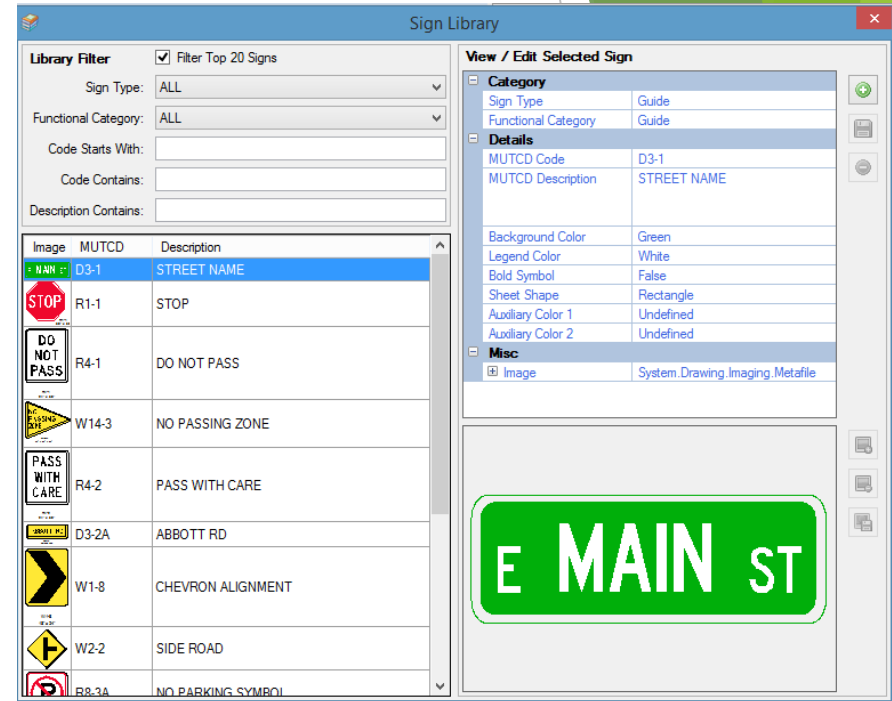


# EXAMPLE



# Sign Management

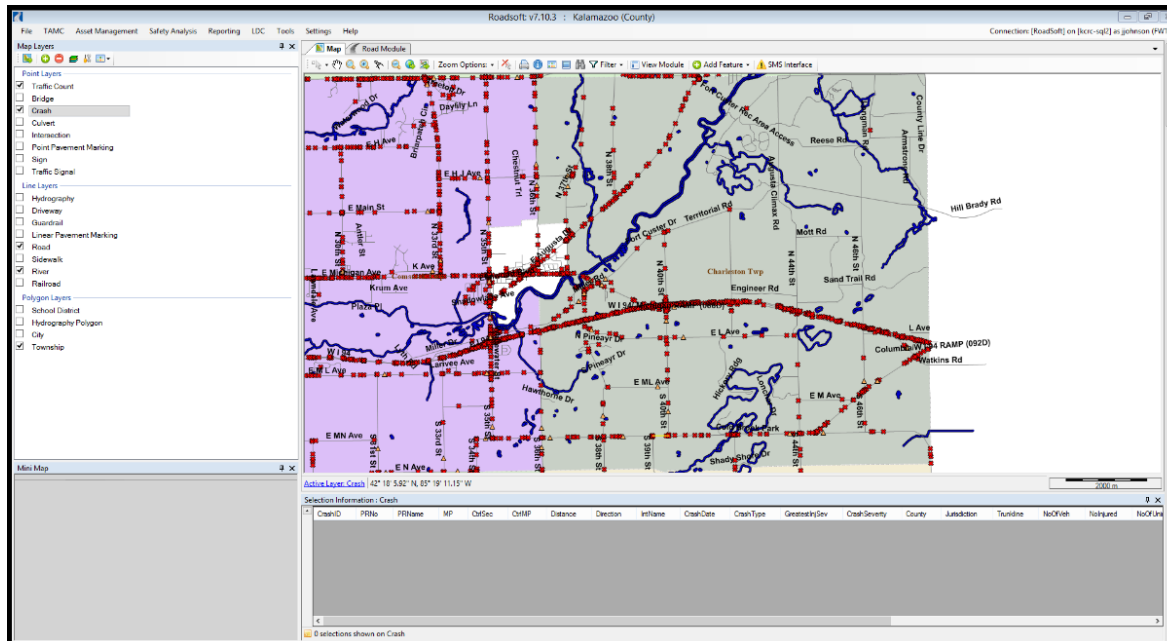
- ▶ Trained staff
- ▶ 1 Sign Maintenance Staff
- ▶ Updates in the Field
- ▶ On-going





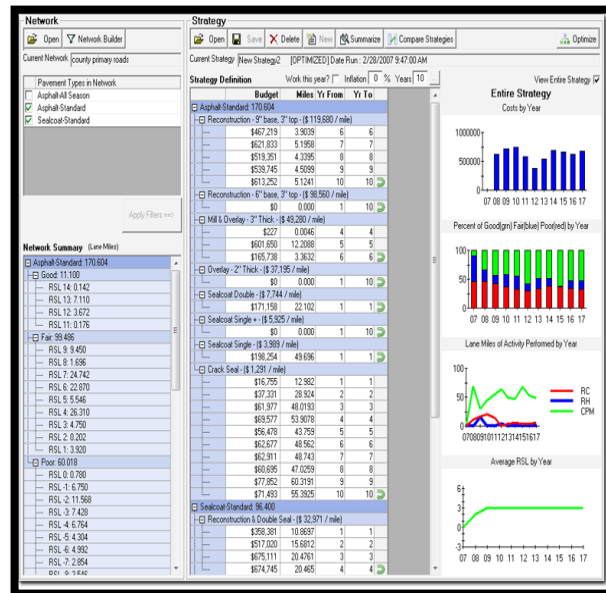
# Safety Analysis

- ▶ 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.”*

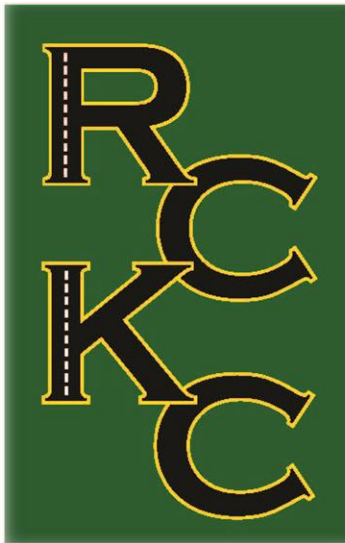
► **Project Engineer, Rebekkah Ausbury:**

*“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

3801 E. Kilgore Road  
Kalamazoo, MI 49001

(269) 381-3171

Fax (269) 381-1760

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