



Clare County  
Road Commission

February 2019

# Clare Avenue Experimental Project and Chip Seal Experiences

Deepak Gupta, Engineer-Manager  
Allan Leonard, Engineering Tech  
Stacie Wilhelm, PowerPoint Development





# Agenda



1. **CCRC Overview**
2. *Chip Seal Program - \$4 Million*
3. *North Clare Ave. Micro-Mill & Chip Seal - \$36,000/Mile*
4. *South Clare Ave. Sandwich Seal - \$180,000/Mile*
5. *Chip Sealing Paser 1, 2, & 3 ?*

# Clare County Road Commission Story

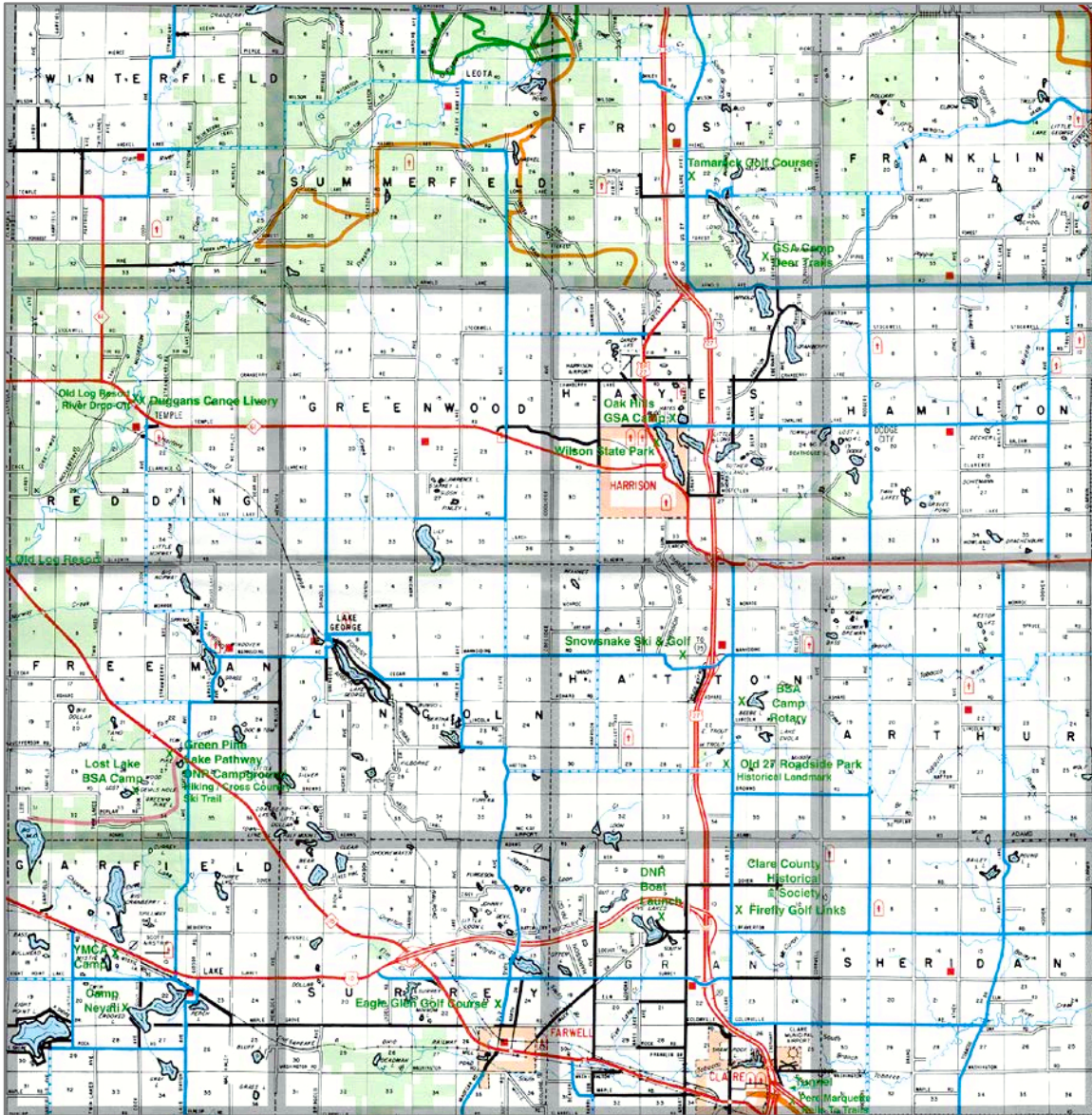


- *30,000 population*
- *No county road millage*
- *50% townships with millage*
- *28 union employees*
- *6 administrative employees*





# Clare County Road Commission Story



**Road System = 1005 total miles**

- Total Primary: 244 miles
- Paved Primary: 187
- Total Local: 761
- Paved Local: 102

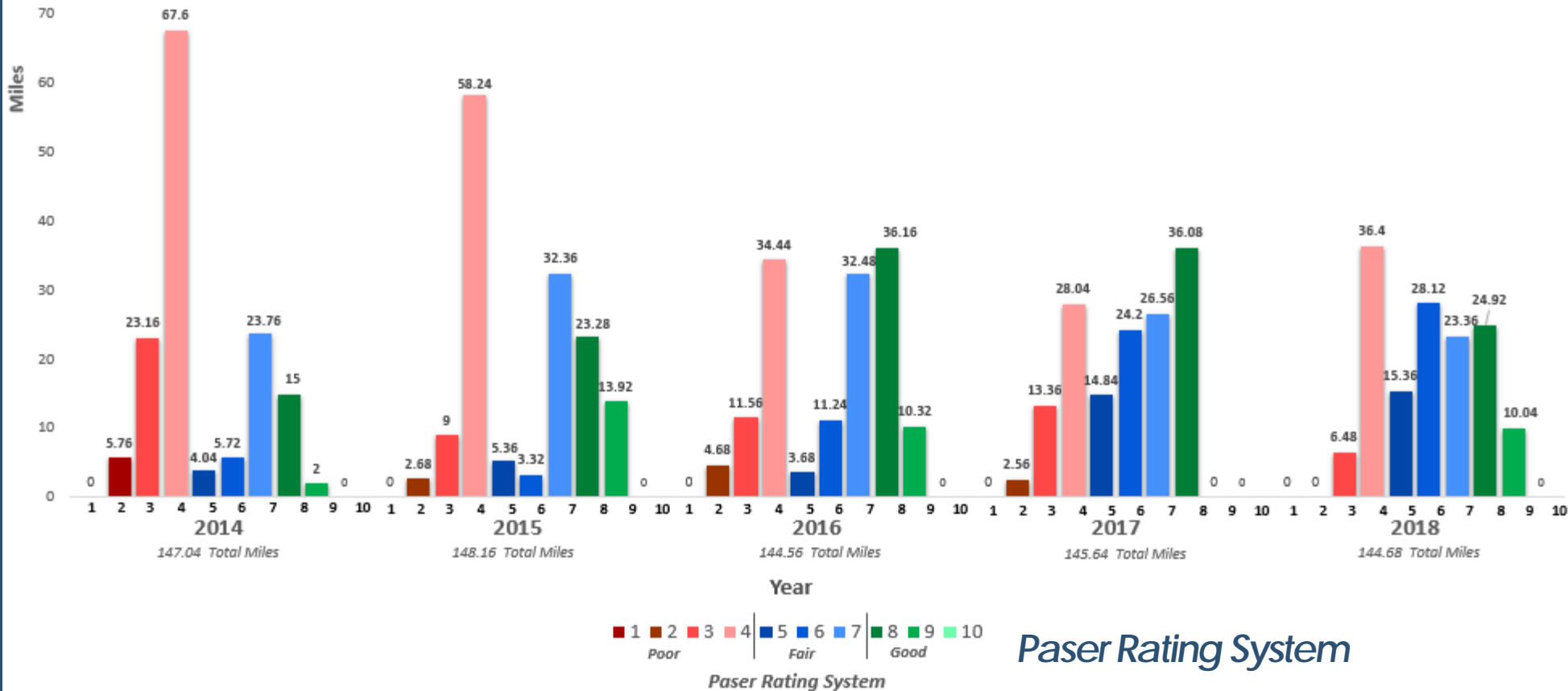
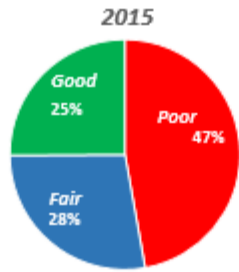




# Agenda

- 
1. CCRC Overview
  2. **Chip Seal Program - \$4 Million**
  3. North Clare Ave. Micro-Mill & Chip Seal - \$36,000/Mile
  4. South Clare Ave. Sandwich Seal - \$180,000/Mile
  5. Chip Sealing Paser 1, 2, & 3 ?

## Clare County Road Commission Road Surface Ratings 2014 - 2018



2015:  
New manager  
at CCRC

66% of road  
system at Paser  
Rating 4 or below



Started a 4 year,  
\$4 Million Chip  
Seal program to fix  
the worst roads first

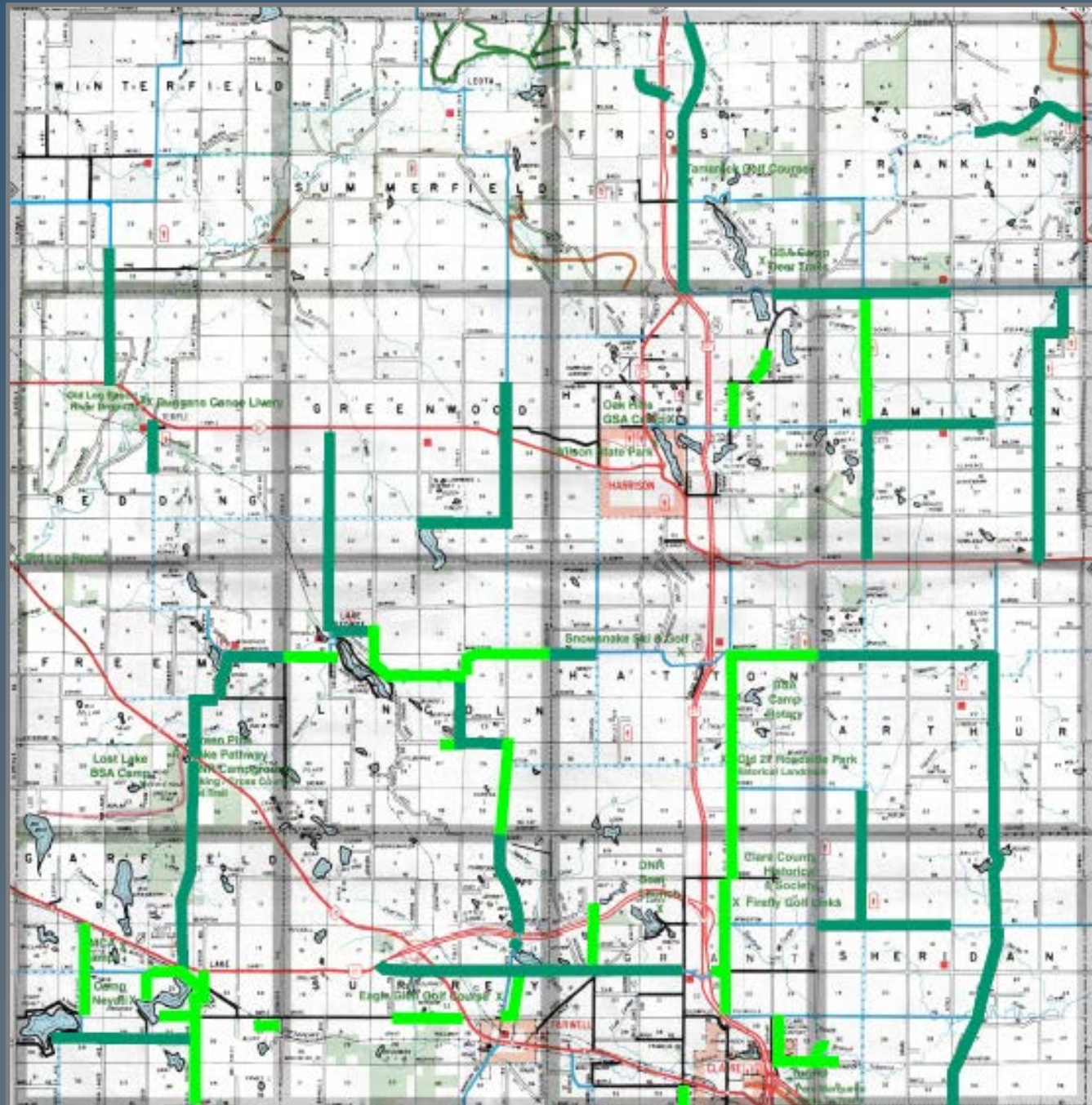
Didn't necessarily  
use Paser Rating to  
decide what  
to Chip Seal



# Chip Seal Program 2015 - 2018

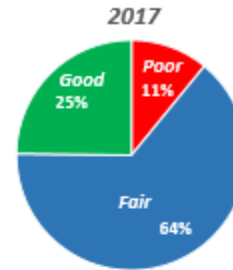
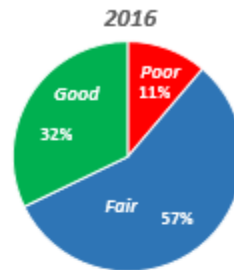
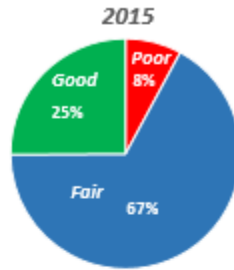
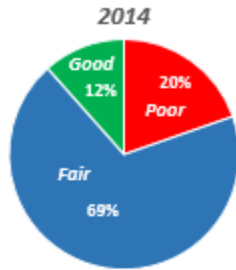
- 4 year
- \$4 Million
- 122 Miles
- 65% of primary paved system

LEGEND	
	Chip Seal- Federal/Local
	Chip Seal- Non Federal

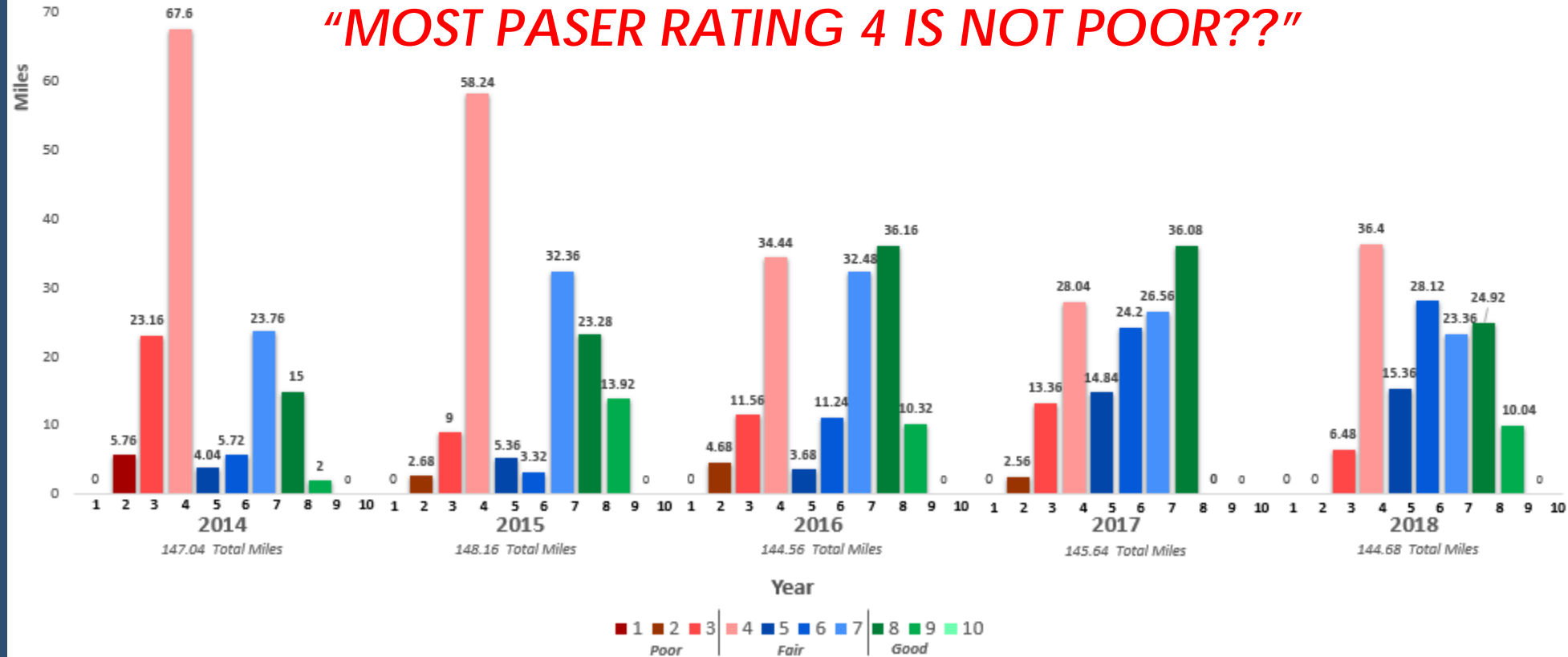


# Clare County Road Commission Road Surface Ratings

2014 - 2018



**“MOST PASER RATING 4 IS NOT POOR??”**

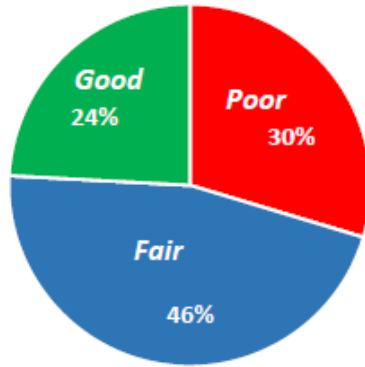




2018

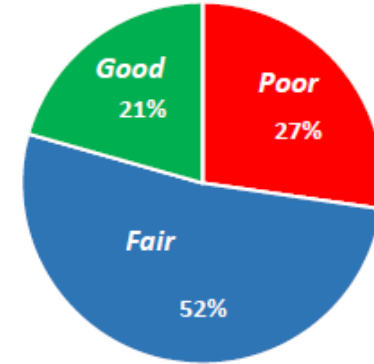
Clare County Road Commission Road Surface Ratings  
With and Without Minor Collectors

2018  
Without Minor Collectors

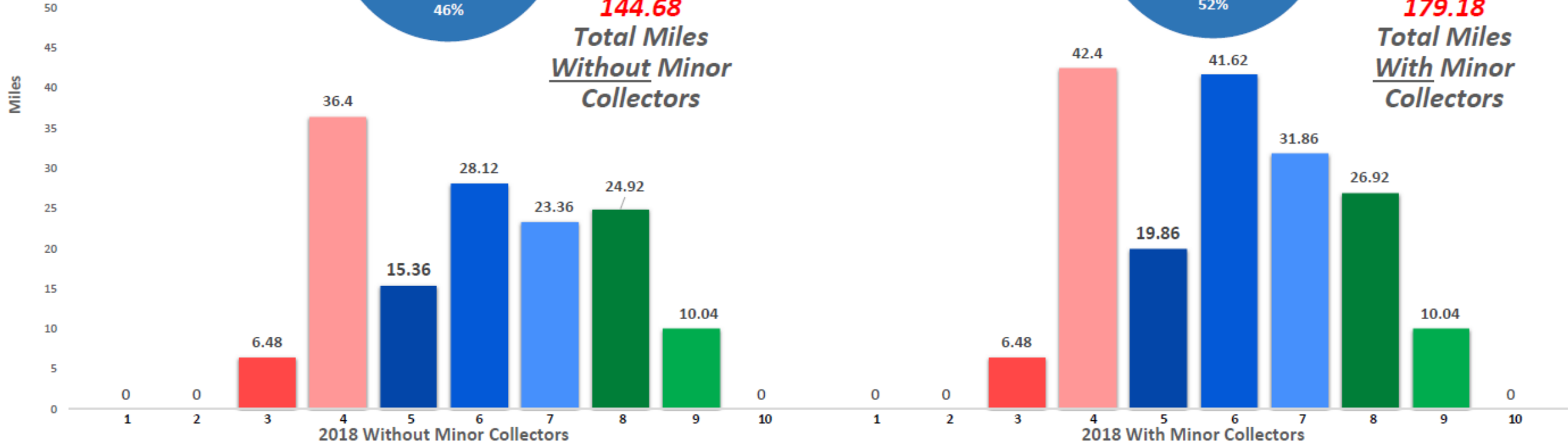


**144.68**  
Total Miles  
Without Minor  
Collectors

2018  
With Minor Collectors



**179.18**  
Total Miles  
With Minor  
Collectors



Paser Rating System

# *“Zero Potholes”*

- Our goal is to Chip Seal every primary paved road*



*Chip Seal | Lilley Lake Near Harding*



# \$4 Million Chip Seal Program

- *Where did \$4 Million come from?*
- *What else could have been done?*



# Project Locations

## North Clare Ave.

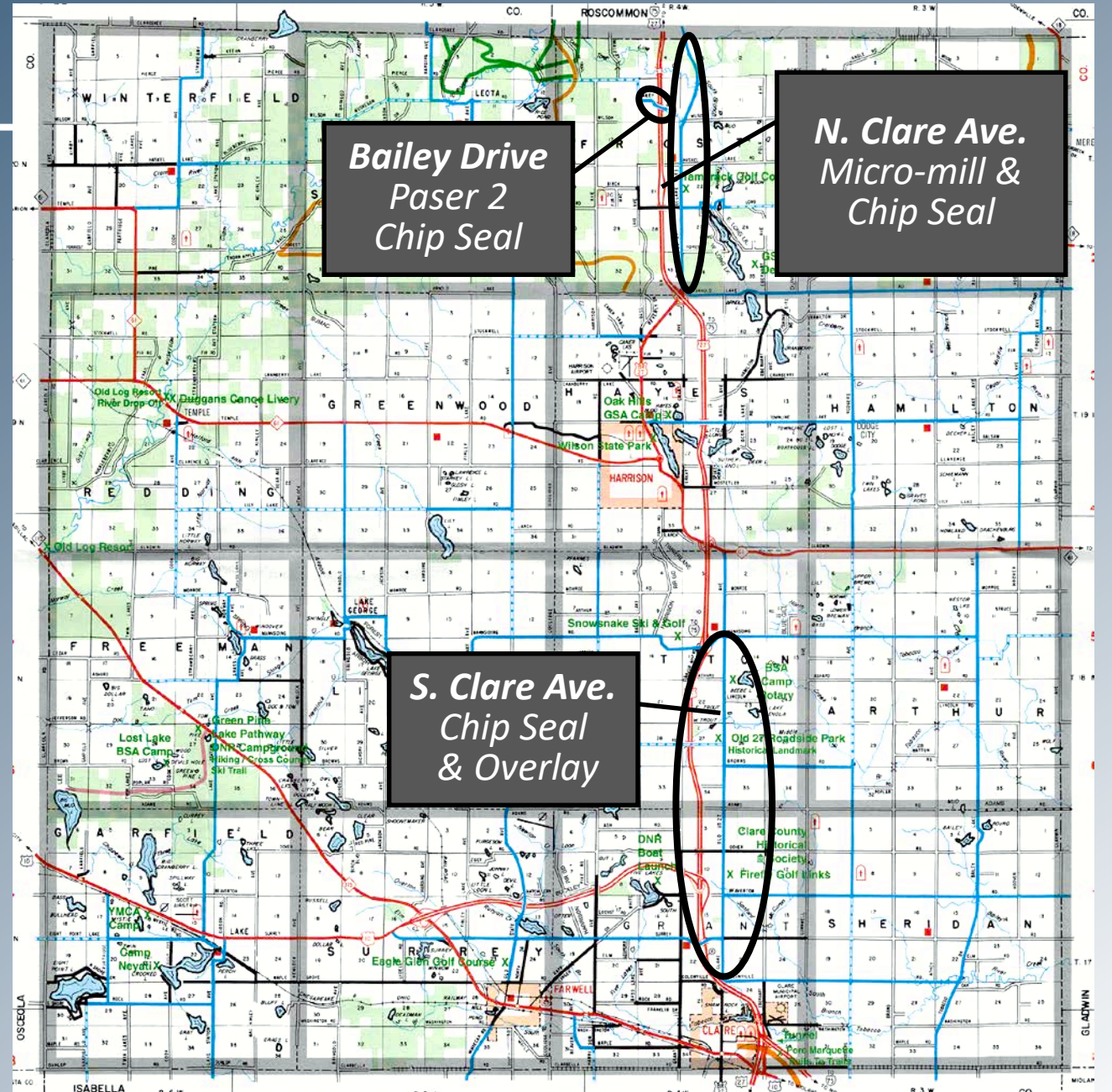
- Micro-Mill & Chip Seal (2017)
- \$36,000 / mile

## South Clare Ave.

- Chip Seals & Overlays (2015-2018)
- \$180,000 / mile

## Bailey Drive

- Paser 2 Chip Seal (2016)

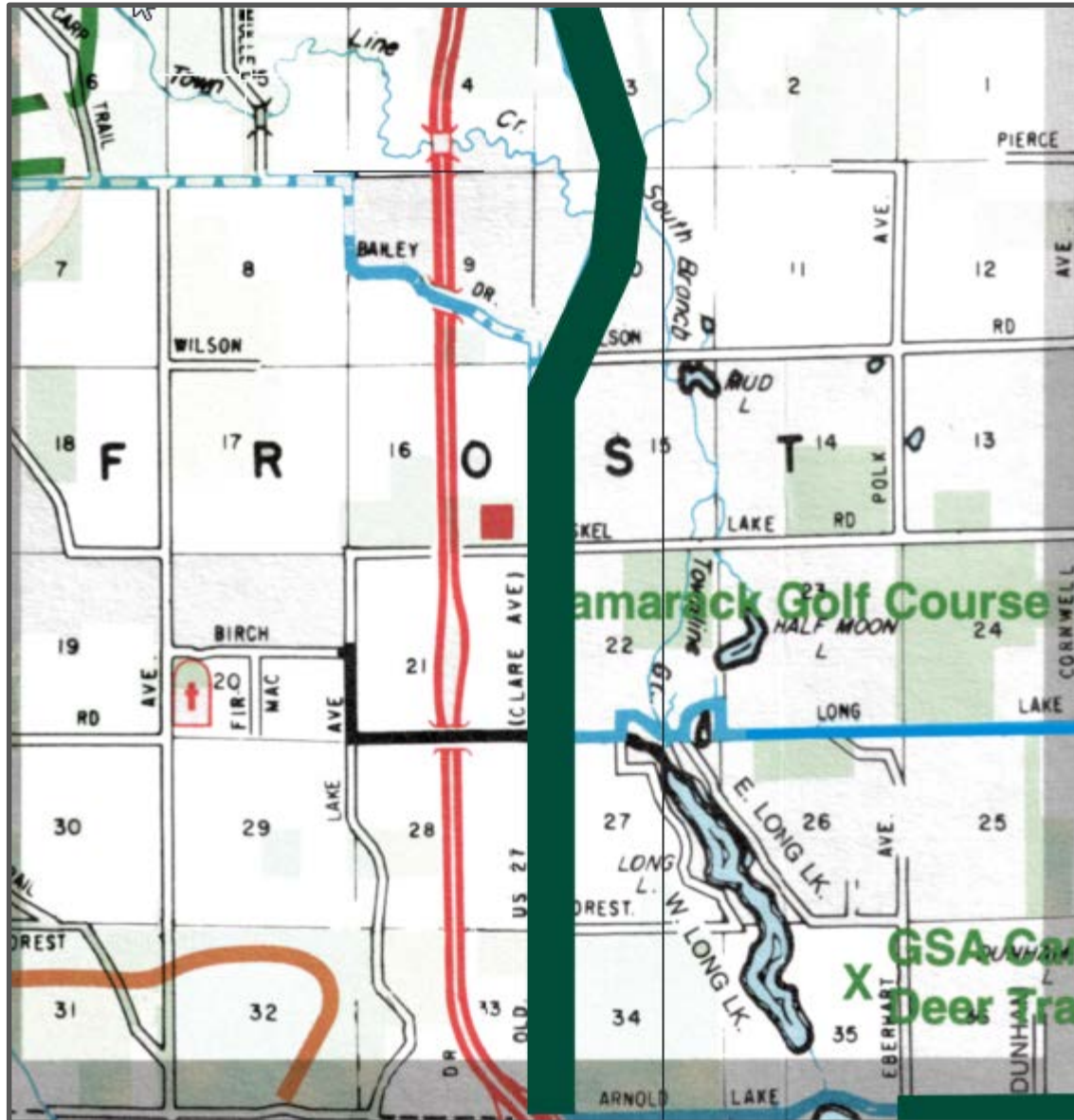




# Agenda

- 
1. CCRC Overview
  2. Chip Seal Program - \$4 Million
  - ➔ 3. **North Clare Ave. Micro-Mill & Chip Seal - \$36,000/Mile**
  4. South Clare Ave. Sandwich Seal - \$180,000/Mile
  5. Chip Sealing Paser 1, 2, & 3 ?

# North Clare Avenue Micro-Mill & Chip Seal



- 2017 construction
- 6 miles
- \$36,000/Mile
- ADT = 600
- Micro-Milled & Chip Sealed
- Millings hauled to CCRC Garage to cover Gravel Yard



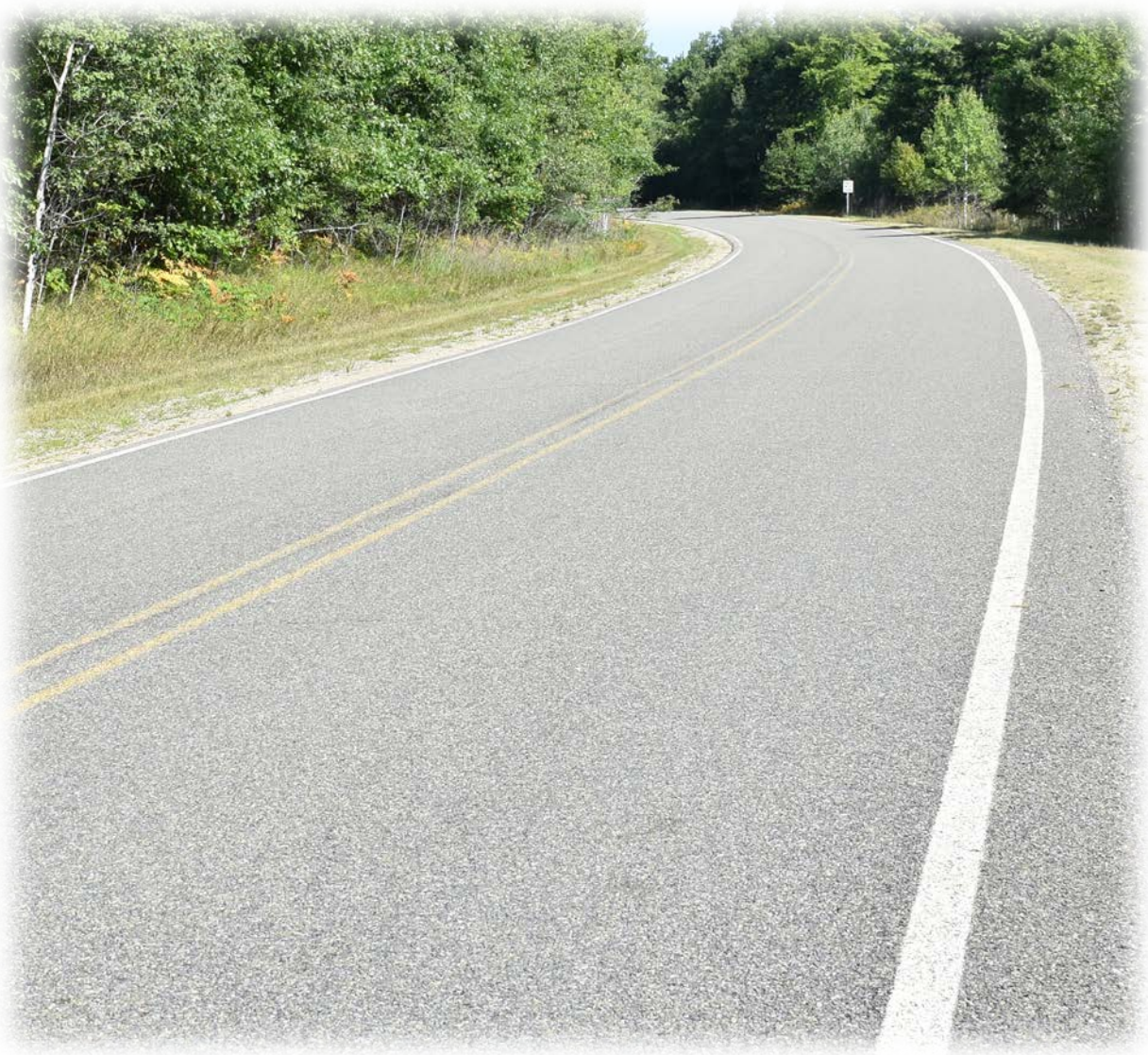
# North Clare Avenue Micro-Mill

2017 | 6 miles | Micro-Milling | \$6,000 / Mile





# North Clare Avenue Micro-Mill & Chip Seal



- *Micro-Milled \$6,000 / mile*
- *Chip Seal & Fog \$30,000/mile*
- *What do we do now?*
  - *Crack Seal*
  - *AMZ*
  - *Bump Grind?*
  - *Micro-Mill*
  - *Chip Seal*
  - *Ultrathin*
  - *Overlay*

*North Clare Ave Near Wilson, 1 Year After Micro-Mill & Chip Seal*



# *North Clare Ave. Millings Used at CCRC*



*Millings hauled to CCRC to cover Gravel Yard*



# Agenda

1. CCRC Overview
2. Chip Seal Program - \$4 Million
3. North Clare Ave. Micro-Mill & Chip Seal - \$36,000/Mile
- ➔ 4. **South Clare Ave. Sandwich Seal - \$180,000/Mile**
5. Chip Sealing Paser 1, 2, & 3 ?



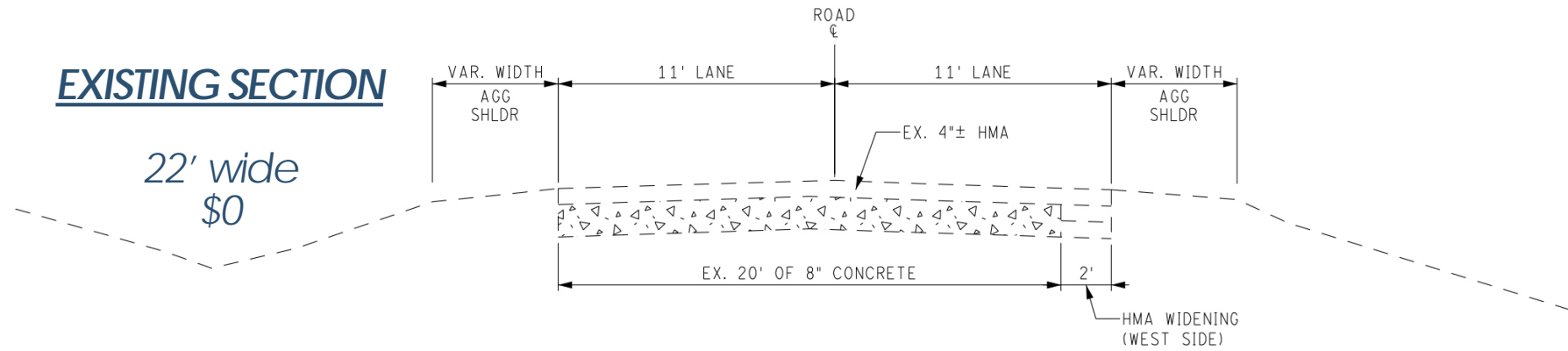
# South Clare Ave. "Sandwich Seal"

- \$1.2 Million  
- 6,000 ADT

"Sandwich Seal" contains two waterproof layers, keeping water infiltration from going down or coming up

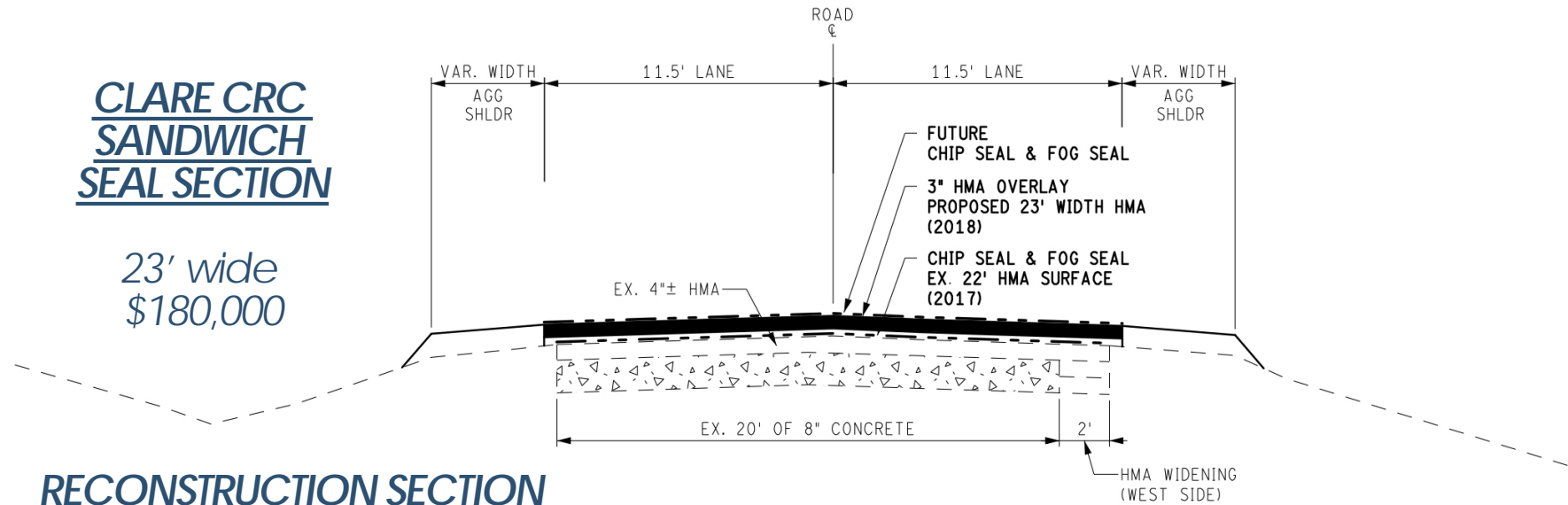
## EXISTING SECTION

22' wide  
\$0



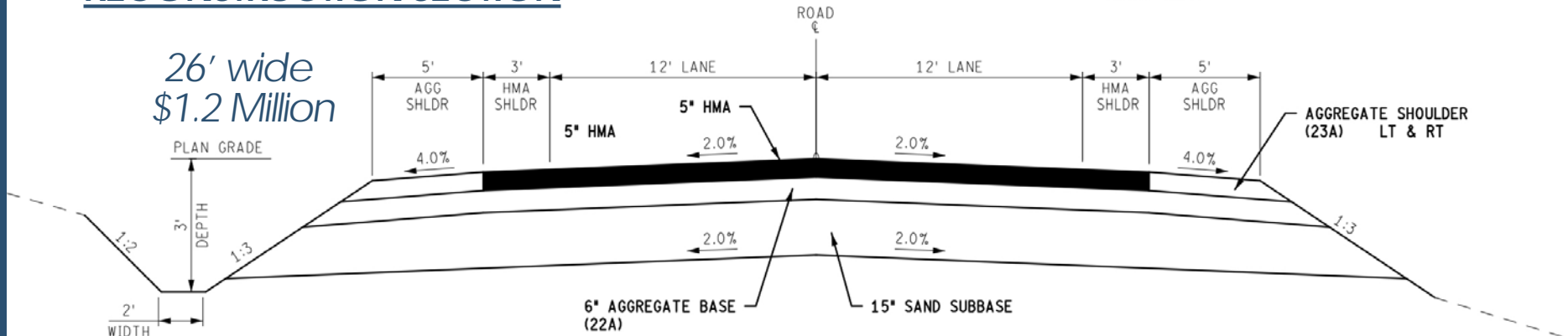
## CLARE CRC SANDWICH SEAL SECTION

23' wide  
\$180,000

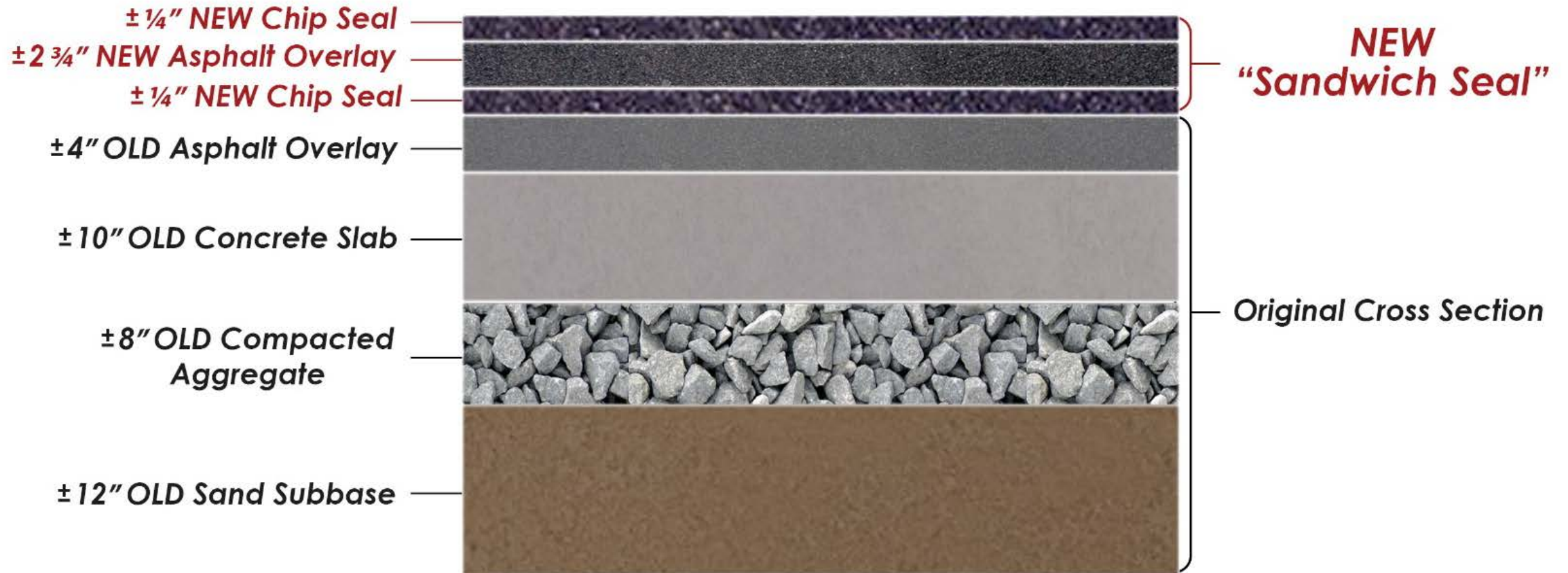


## RECONSTRUCTION SECTION

26' wide  
\$1.2 Million



# *“Clare Sandwich Seal”*



*Road Cross Section*



*South Clare Ave. | 26' Wide Reconstruct | \$1.2 Million / Mile*



South Clare Ave Near Adams



# *South Clare Ave. – Before Sandwich Seal*





# *South Clare Ave. – Before Sandwich Seal*





*South Clare Ave. | Chip Seal 23' Wide | \$180,000 / Mile*



**Chip Seal / Overlay / Chip Seal | 23' Wide**



# South Clare Ave – Asphalt Overlay Paving | 23' Wide



*Asphalt Overlay Paving*



# *South Clare Ave – Asphalt Overlay Paving | 23' Wide*



*Asphalt Overlay Paving*



# Public Communication Flyer



3900 East Mannsiding Road | Harrison, MI 48625 | Phone- 989.539.2151 | www.clarecrc.com  
 Chair- Michael Duggan | Vice Chair- Richard Haynak | Commissioner- Timothy Haskin | Engineer-Manager- Deepak Gupta, P.E.

## Clare Avenue Experimental Project – “Sandwich Seal”

Detailed History Per Mile Segment  
 Colonville to M-61 (8 Miles)



Image: 2018 Clare Avenue Paving



Image: 2018 Clare Avenue Chip Seal

- Colonville to Surrey**
  - Reconstruction – 2011
  - Chip Seal – 2018
- Surrey to Beaverton**
  - Reconstruction – 2011
  - Chip Seal – 2018
- Beaverton to Dover (Sandwich Seal)**
  - Chip Seal – 2015
  - Overlay – 2016
  - Chip Seal – 2018
- Dover to Adams (Future Sandwich Seal)**
  - Chip Seal – 2016
  - Overlay – 2017
  - Future Chip Seal
- Adams to Browns (Future Sandwich Seal)**
  - Chip Seal – 2016
  - Overlay – 2018
  - Future Chip Seal
- Browns to 1 mile North (Future Sandwich Seal)**
  - Chip Seal – 2016
  - Overlay – 2018
  - Future Chip Seal
- 1 mile North of Browns to Ashard (Future Sandwich Seal)**
  - Chip Seal – 2016
  - Overlay – 2018
  - Future Chip Seal
- Ashard to Mannsiding (Future Sandwich Seal)**
  - Chip Seal – 2016
  - Overlay – 2018
  - Future Chip Seal
- Mannsiding to M-61**
  - Reconstruction – 2013
  - Future Chip Seal



3900 East Mannsiding Road | Harrison, MI 48625 | Phone- 989.539.2151 | www.clarecrc.com  
 Chair- Michael Duggan | Vice Chair- Richard Haynak | Commissioner- Timothy Haskin | Engineer-Manager- Deepak Gupta, P.E.

## Clare Avenue Experimental Project – “Sandwich Seal”

Detailed History Per Mile Segment  
 Colonville to M-61 (8 Miles)

In 2014, the Clare County Road Commission took an experimental initiative on how to improve Clare Avenue at a reduced cost. The previous industry accepted design was approximately \$1.2 Million per mile, which included removing old concrete slabs, existing asphalt, going down approximately three feet and starting fresh with new sand, gravel, and pavement. Implementing an experimental design methodology to reduce costs, resulted in a new cost of \$180,000 per mile.

Side by side analysis indicates a better overall level of service on the paved road system. At \$180,000 per mile vs. \$1.2 Million, we can improve roadways at a lower cost.

While the \$1.2 Million per mile provides a wider cross section, including paved shoulders, the road commission accepted narrower cross sections for cost efficiency and value. If this design strategy was not selected, much of the funding would have gone to Clare Avenue at the expense of the rest of the county roads, which have been maintained at either \$30,000 per mile for chip sealing, or \$80,000 per mile for asphalt overlay/paving.



### Increased Miles Rated Fair to Good

As seen in the adjacent chart, the savings from this design strategy resulted in increased road improvements throughout the entire county.



Image: 2018 Clare Avenue Paving

# Why “Experimental Sandwich Seal”

- *New process for Clare County*
- *Increase community engagement*
- *Media coverage*
- *Social Media stories & public interaction*
- *Major route in Clare County*
- *Set public expectations*





# Clare Avenue "Sandwich Seal" Ribbon Cutting 2018

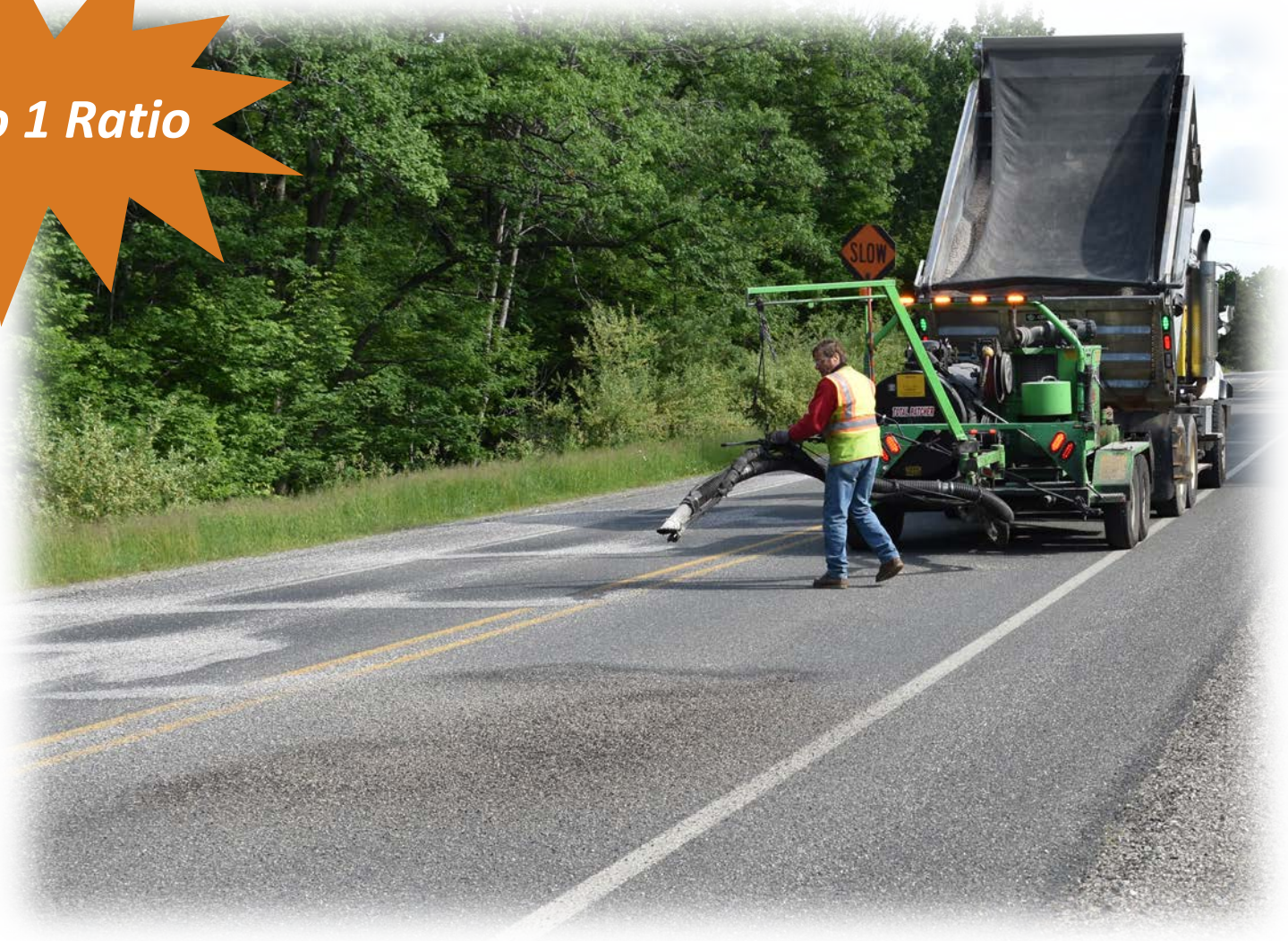




# Future Sandwich Seal Repair Needs?

- Crack Seal
- AMZ
- Bump Grind?
- Micro-Mill
- Chip Seal
- Ultrathin
- Overlay

**6 to 1 Ratio**





# Agenda

1. CCRC Overview
2. Chip Seal Program - \$4 Million
3. North Clare Ave. Micro-Mill & Chip Seal - \$36,000/Mile
4. South Clare Ave. Sandwich Seal - \$180,000/Mile
- ➔ 5. **Chip Sealing Paser 1, 2, & 3 ?**





# Chip Sealing Paser 2 | Bailey Drive

- Chip Sealed 2016



*BEFORE Chip Seal*



*AFTER Chip Seal*



# Chip Seal Preparation for Paser Rated 1, 2, & 3

- *AMZ – spread pattern*
- *Crack Seal*
- *Bar Seal – 2' to 5' wide*
- *Asphalt Wedging*

*\*After Chip Seal application,  
wait a year to see if  
pavement is stabilized for  
potential overlay if desired*

*\*\*If low shoulder condition ☹,  
consider 6 inch wide  
overspray to hold asphalt  
pavement edge together*





# *Chip Seal Preparation for Paser Rated 1, 2, & 3*





# *Chip Seal Preparation for Paser Rated 1, 2, & 3*





# *Chip Seal Preparation for Paser Rated 1, 2, & 3*





# *Where & When Chip Seals May NOT Work Well*

- *Poor base*
- *Very little asphalt thickness – needs structure*
- *Bad drainage areas*
- *Outside the construction window*



# Chip Seal Education is Needed



- *State wide survey*
- *Best practices*
- *How & why Chip Seals fail*
- *Cost comparison of different techniques*
- *Continued LTAP education*
- *Continued MRPA Education (Feb. 26, 2019)*



*Questions?*





# *The End*



21

-

7



7 Michigan Wolverines

(7 - 1)

Michigan State Spartans

(4 - 3)

<https://www.youtube.com/watch?v=Pgw3gtzWfaA>