

# ROAD ASSESSMENT PRESENTATION

## SILVER CREEK TOWNSHIP

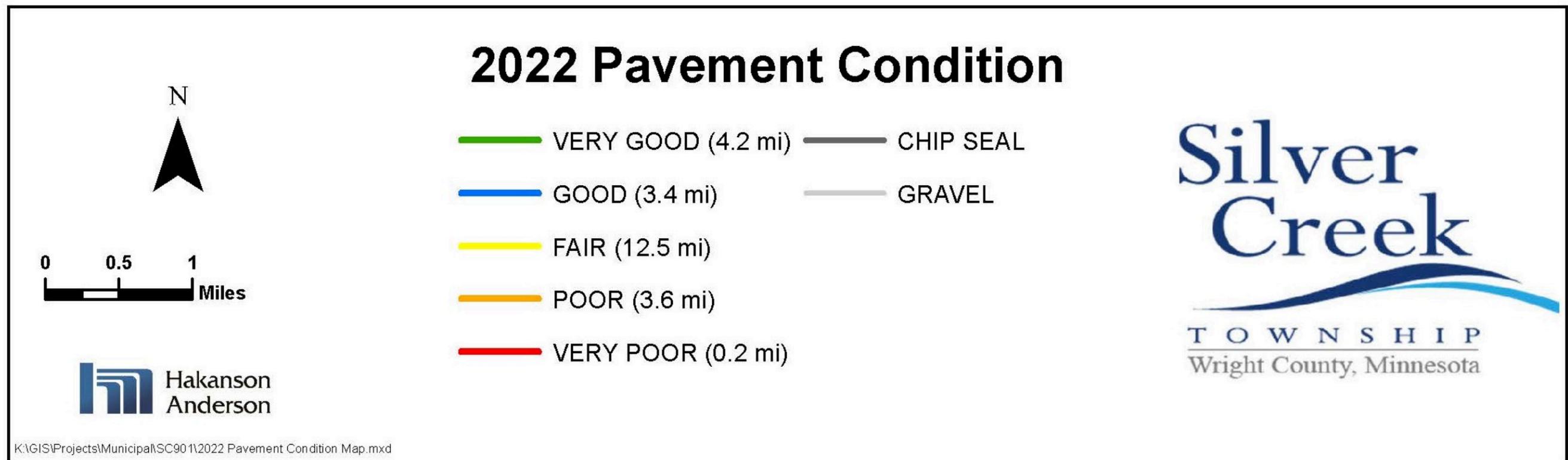
Presented By: Shane Nelson, P.E.

Hakanson Anderson

# Background

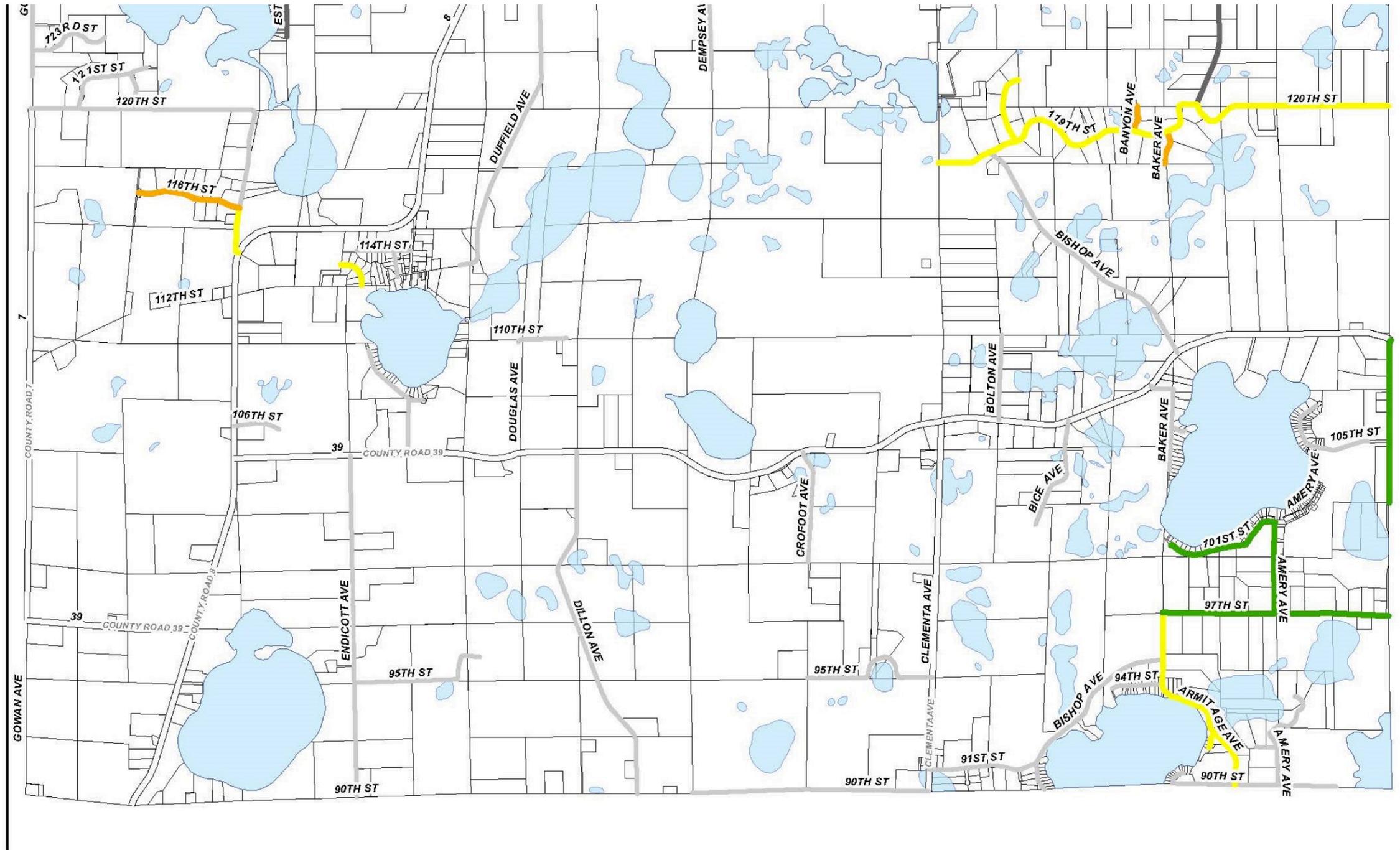
- 24 Miles of Paved Roads
- 8.5 Miles of Chip Seals
- 33.5 of Gravel Roads
- Proactive Vs Reactive Strategies
- Paved roads – largest asset replacement cost  
(24 mi x \$400k / mi = \$9.6 M)

# 2022 Road Inspection





# Southern Half – Pavement Conditions



# Condition Example – Meridian Ave

(Green)



# Condition Example – 119<sup>th</sup> St

(Yellow)



# Condition Example – 116<sup>th</sup> Street

(Brown)



# Condition Example – Baker Ave

(Brown)



# Pavement Management Explained

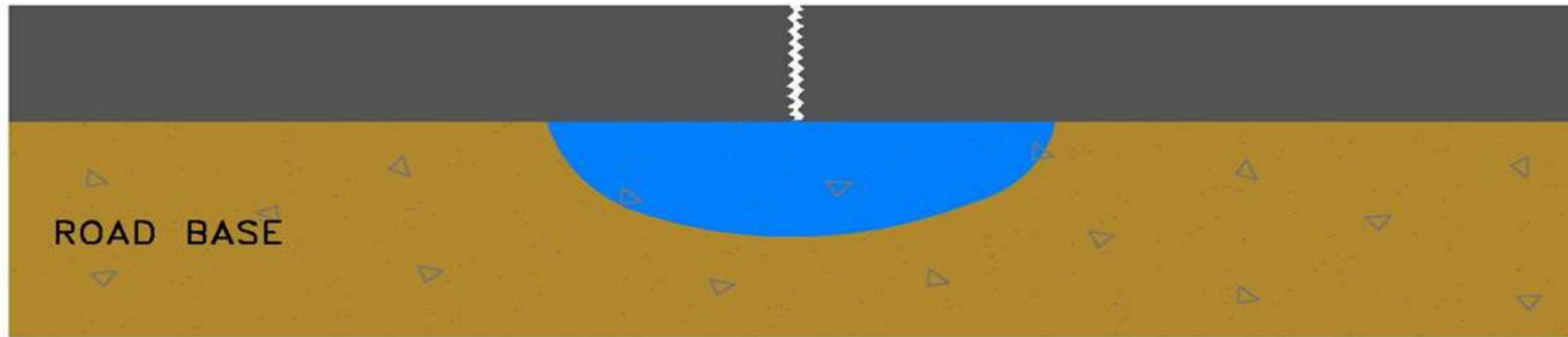


# Pavement Management Explained



# Pavement Management Explained

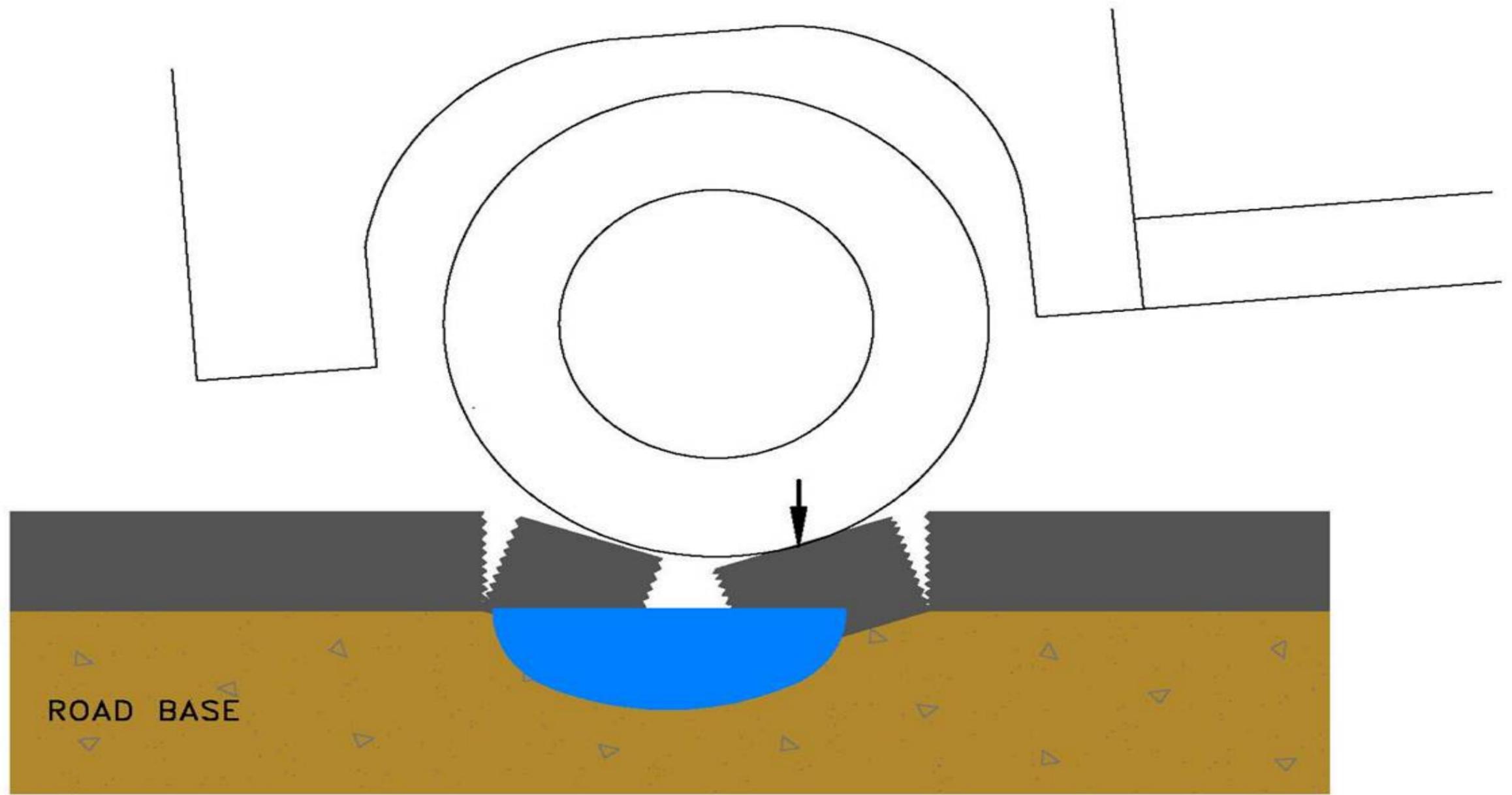




**EXHIBIT**  
**SATURATED BASE**  
**DUE TO UNFILLED CRACK**



Hakanson  
Anderson  
Assoc., Inc.

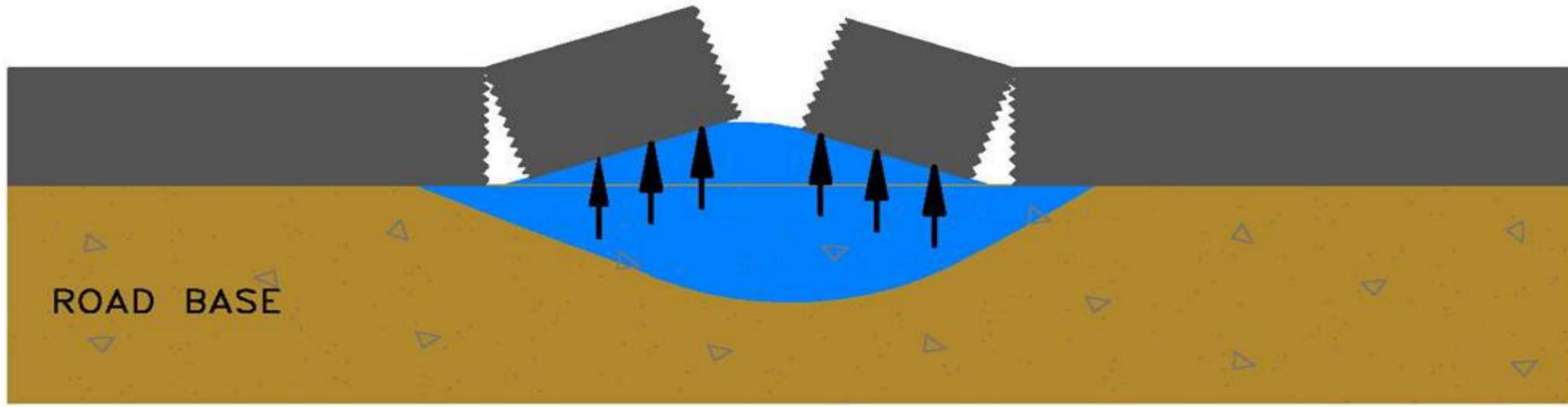


ROAD BASE

**EXHIBIT**  
**LOSS OF STABILITY DUE**  
**TO SATURATED BASE**



Hakanson  
Anderson  
Assoc., Inc.



ROAD BASE

**\* FREEZING WATER INCREASES IN VOLUME BY 9%**

**EXHIBIT  
EFFECTS OF FROST IN  
SATURATED BASE**

Mar 17, 2023 - 11:13:00am  
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Hakanson  
Anderson  
Assoc., Inc.

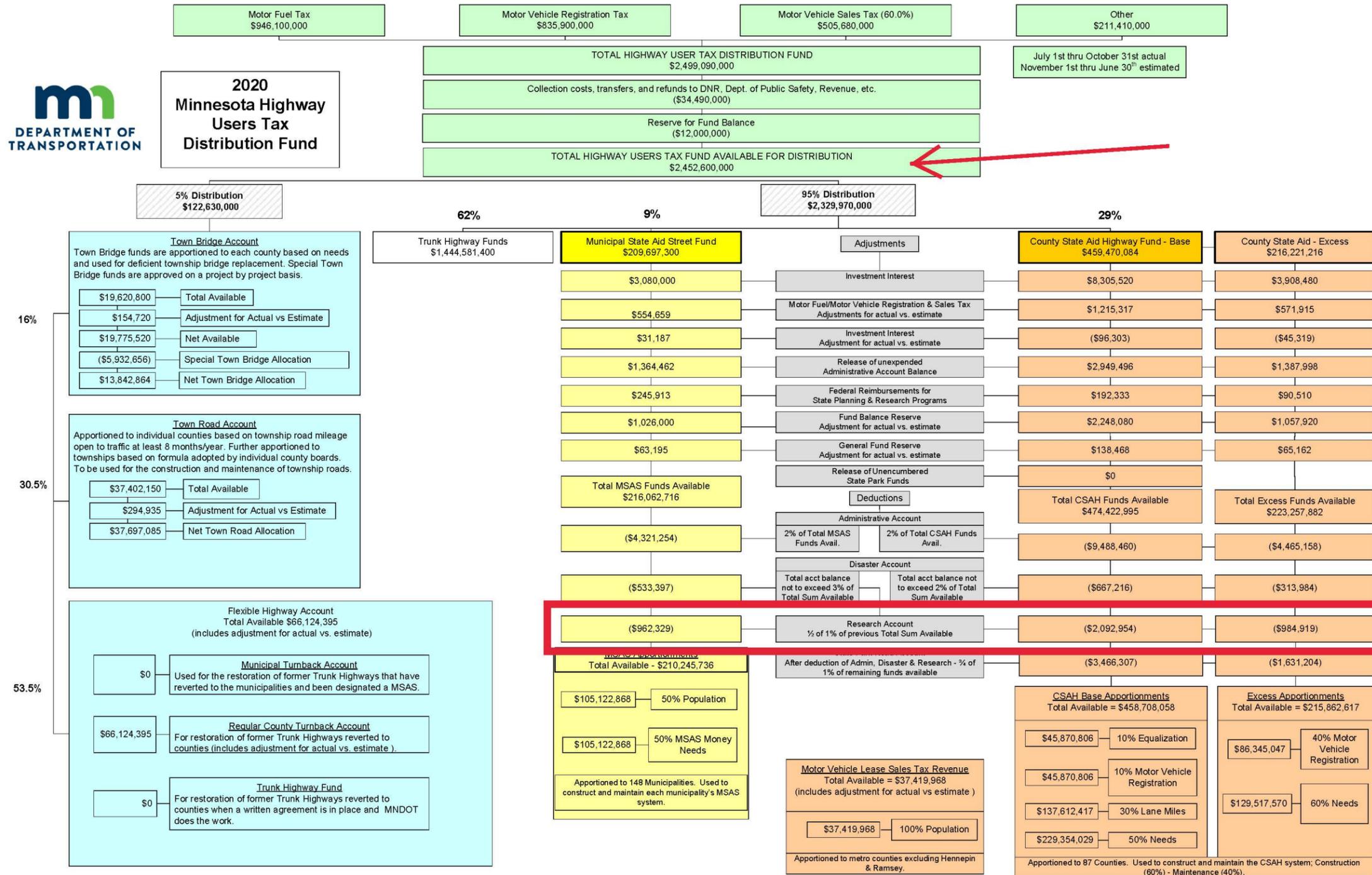
# Pavement Research

- A significant amount of money is spent on our State Highway system every year ~ \$2.5 B
- MnDOT designates 0.5% of the total allocation each year on research to ensure the construction money is well spent
- Typically budget is ~ \$3M - \$4M annually on research

# Pavement Research

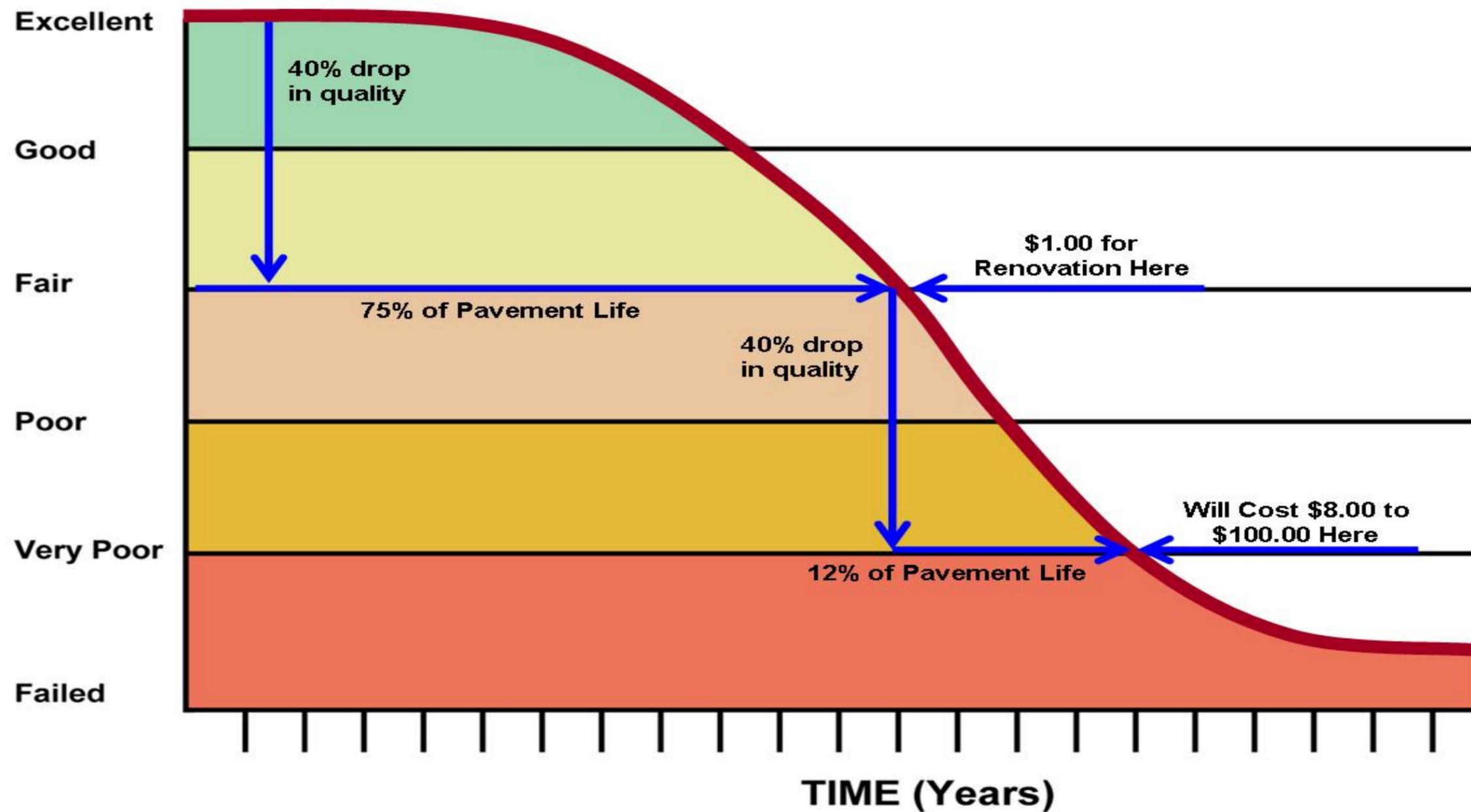


## 2020 Minnesota Highway Users Tax Distribution Fund

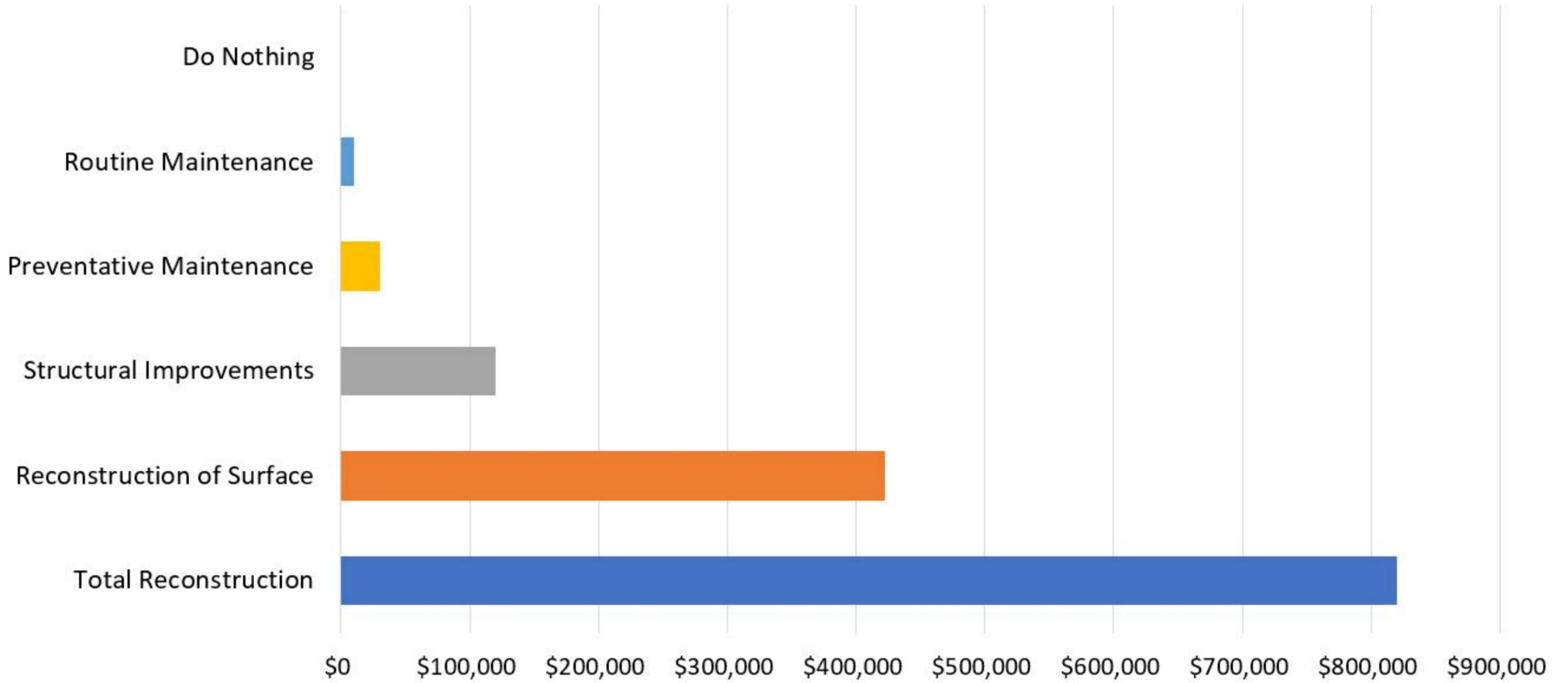


# Figure 1

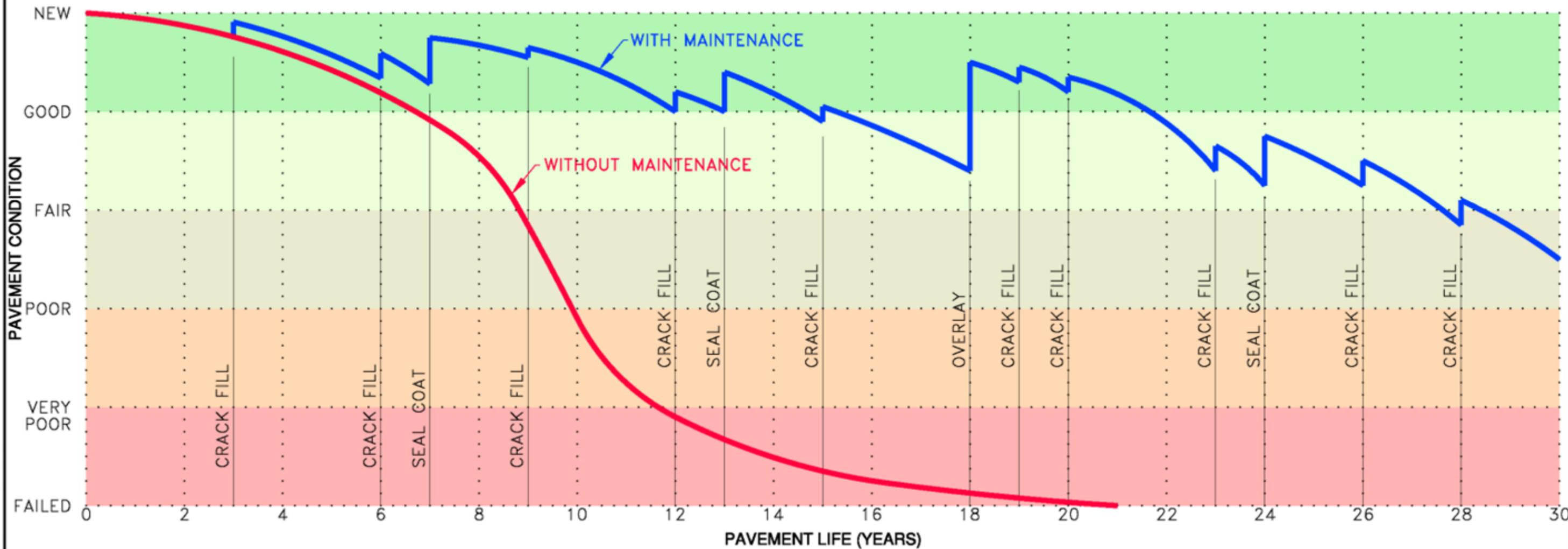
## Typical Pavement Deterioration Curve



### Treatment Band Costs

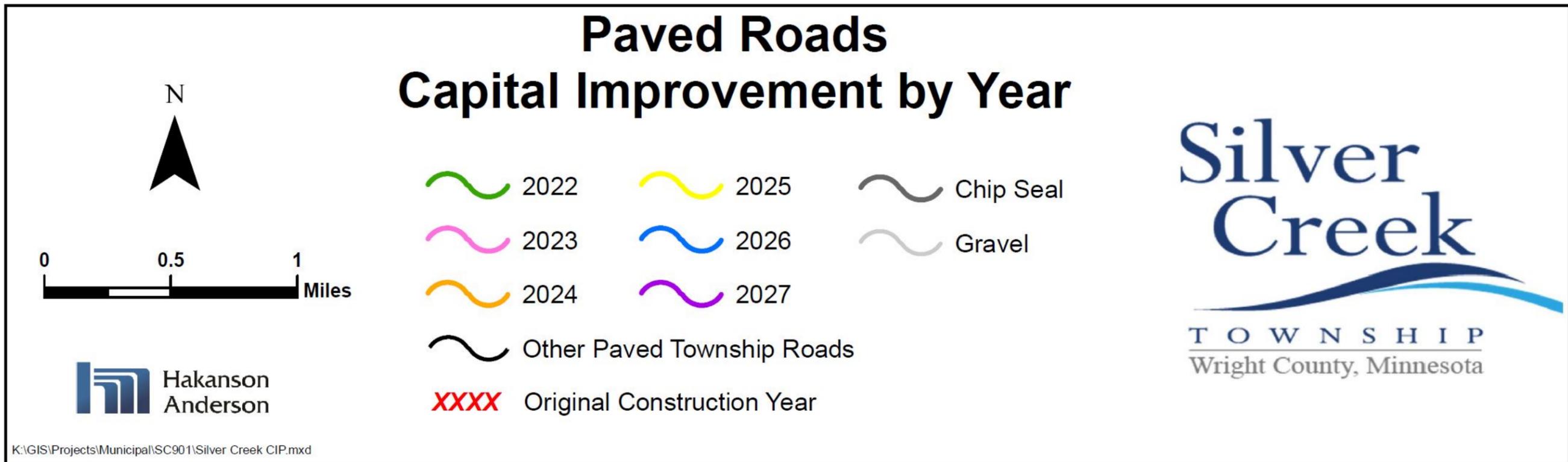


# TYPICAL PAVEMENT DETERIORATION CURVE WITH SCHEDULED MAINTENANCE



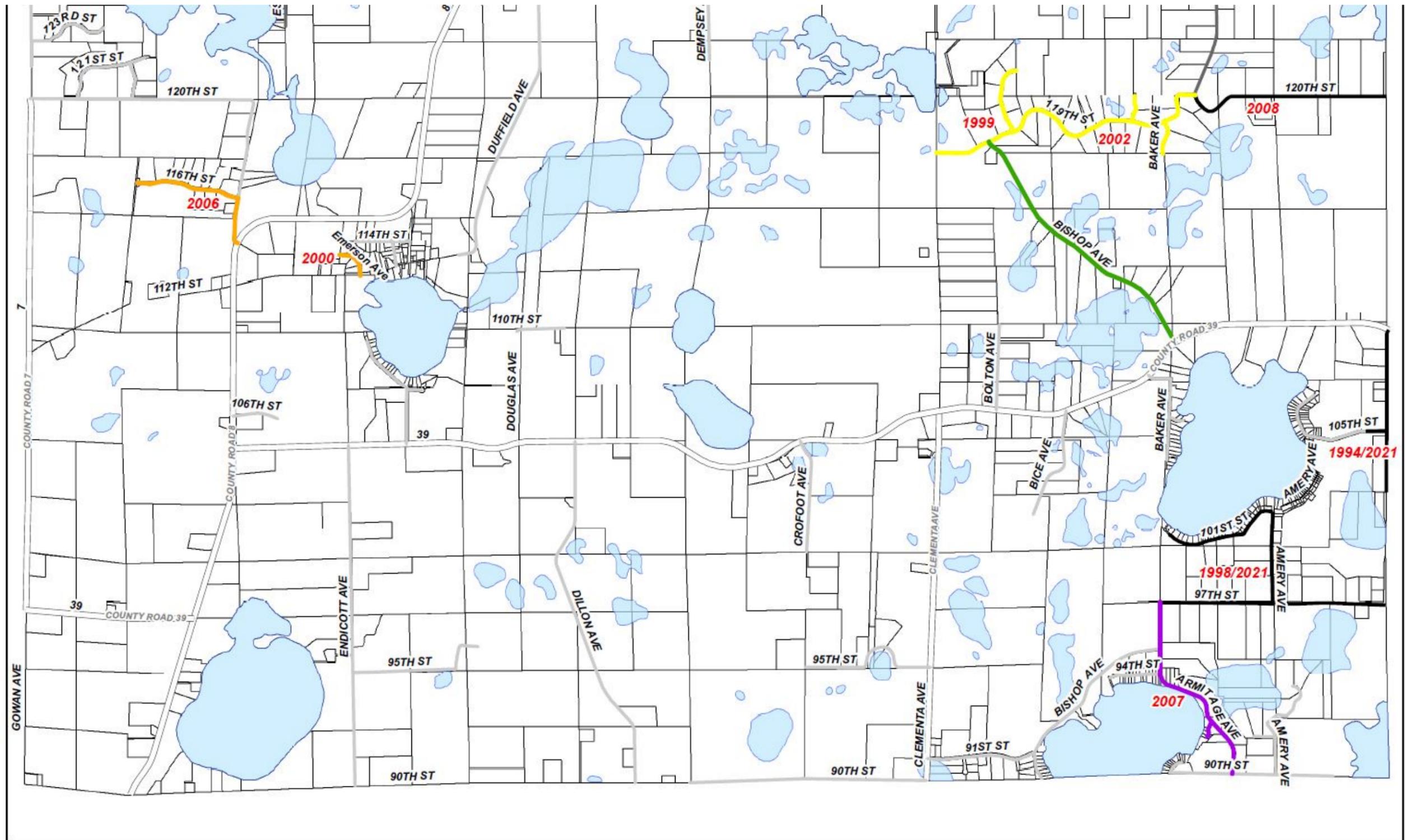
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# CIP Recommendation





# CIP Recomm. – South Half



# Recommended Strategy – 5 Years

- Save what is worth saving - High Priority
  - ▣ Keep roads in “Fair” condition from becoming worse
  - ▣ Construct Bituminous Overlays to improve condition, add structural strength and extend service life
  - ▣ Interrupt the Pavement Deterioration Curve
- Also “work in” repairing the roads that are in “Poor” condition or are on the lower end of “Fair” condition

# Cost of Recommendation (Paved Roads)

- 2022 - \$344k (2.5 miles)
- 2023 - \$370k (2.9 miles)
- 2024 - \$631k (1.6 miles)
- 2025 - \$728k (4.1 miles)
- 2026 - \$553k (3.4 miles)
- 2027 - \$643k (3.8 miles)

Total over next 6 years = \$3.3M (18.3 miles)

Average = \$585k per year 2023-2026

# Pro's & Con's

## □ Pro's

- Conditions of roads in the Township will improve over next 5 years
- Lower life cycle costs
- Maintains or improves property values

## □ Con's

- Will have to start increasing annual budget considerably to fund
- Does not directly benefit residents that live on gravel or county roads – is it equitable?

# Alternatives – Fix Roads as they Fail

- 14 miles of roads currently in “Fair” condition will degrade to “Poor” condition (16 miles total in poor condition)
- Cost will go from \$110k per mile to \$420k per mile
- Total Cost increases to \$8M - \$10M but will be spread over a longer period of time
- Spread over a 5 year period averages \$1.6 - \$2M per year
- Spread over a 10 year period averages \$800k - \$1M per year
- Roads will be in poorer condition in the near term

# Chip Seal Roads

- MnDOT Research – Chip Seal last 5-7 years
- Recommend to maintain roads that are chip sealed in good condition
- 2022 - \$206k (4.7 miles)
- 2024 - \$137k (4.0 miles)
- Note that much of the costs of Chip Sealing on Gravel Roads are partially offset by reduced graveling and blading costs

# Other Considerations / Summary

- Gravel Road Maintenance / Improvements
- Equipment Replacement
- Construction of Bituminous Overlays extends the life of the pavement by 10-15 years
- More than one Bituminous Overlay can be constructed
- A Proactive approach to Pavement Management reduces the overall Life Cycle costs

# Questions / Comments



Please wait to be  
recognized by the  
Moderator