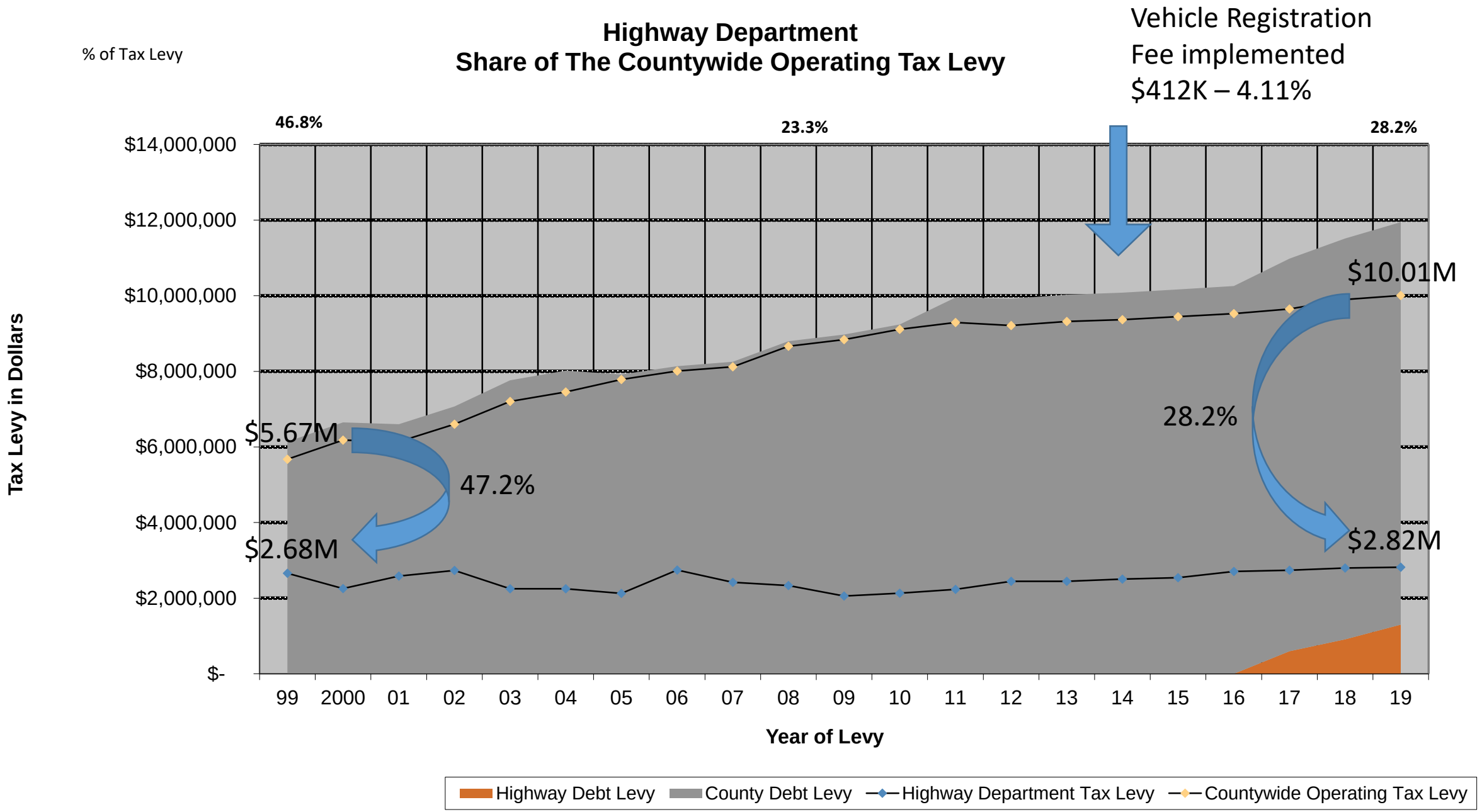
# COUNTY HIGHWAY CAPITAL IMPROVEMENT NEEDS

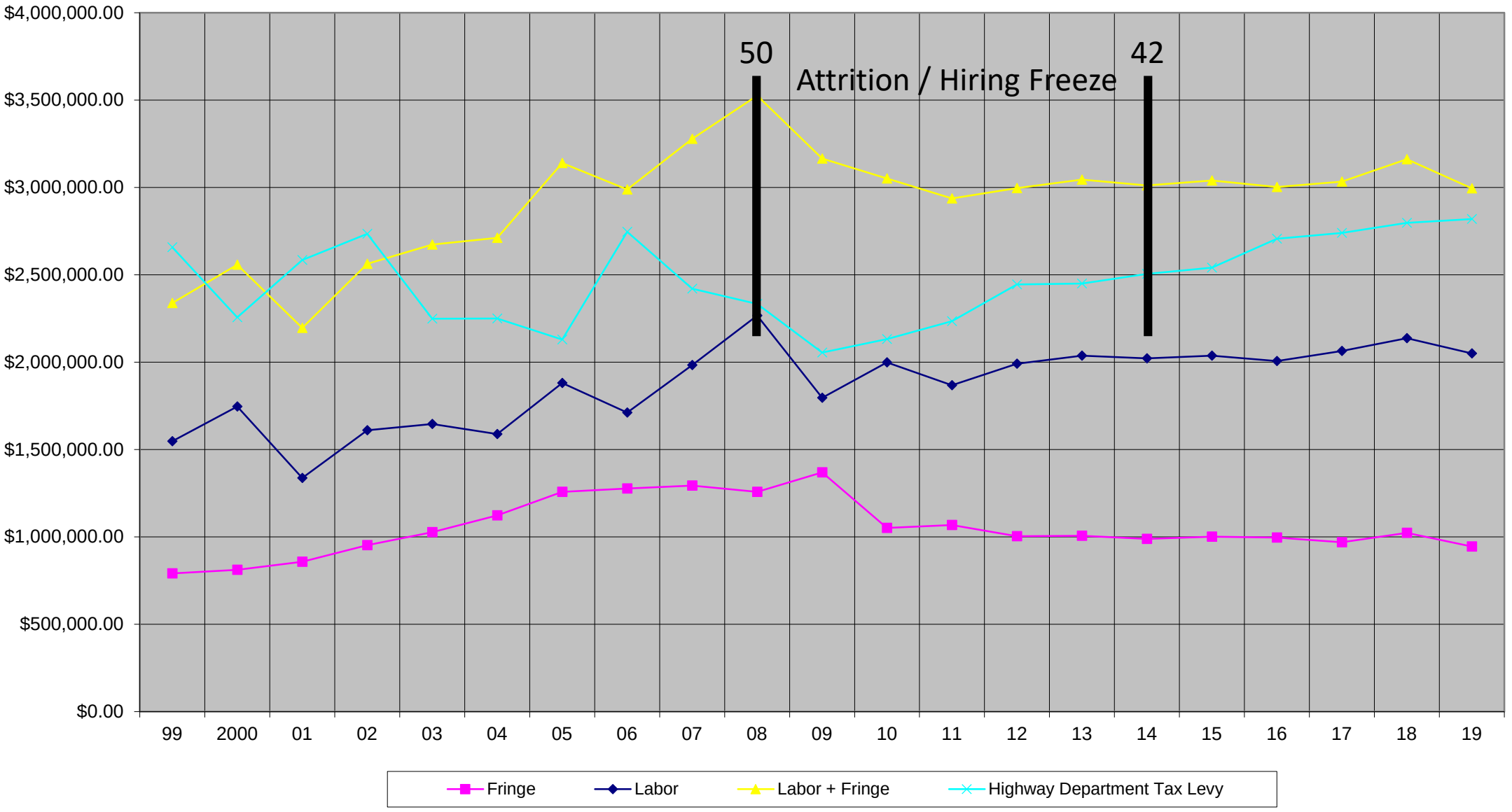
# INVESTMENT IN INFRA-STRUCTURE

| Type of Asset | Original Cost | Book Value | Quantity | Definition |
|---|---|---|---|---|
| Bridges | $10,453,387 | $7,216,592 | 52 | (> 20FT CL Msmt) 50Yr |
| Culverts | $2,776,480<br>$12,584,000 (Replcmt) | $967,287<br>Depleted | 327<br>1583 +/- | (5<X<20Ft CL Msmt = 327)<br>(X<5FT Msmnt = 1573+/-)<br>25Yr Life |
| Right-of-way | $867,132 | $867,132 | 3257.95 Acs | Not Depreciated |
| Roads | $99,495,588 | $34,032,484 | 365.7 CL Mi | 25-Year Life |
| Totals | $126,176,587 | $43,083,495 | | |
| | | | | |

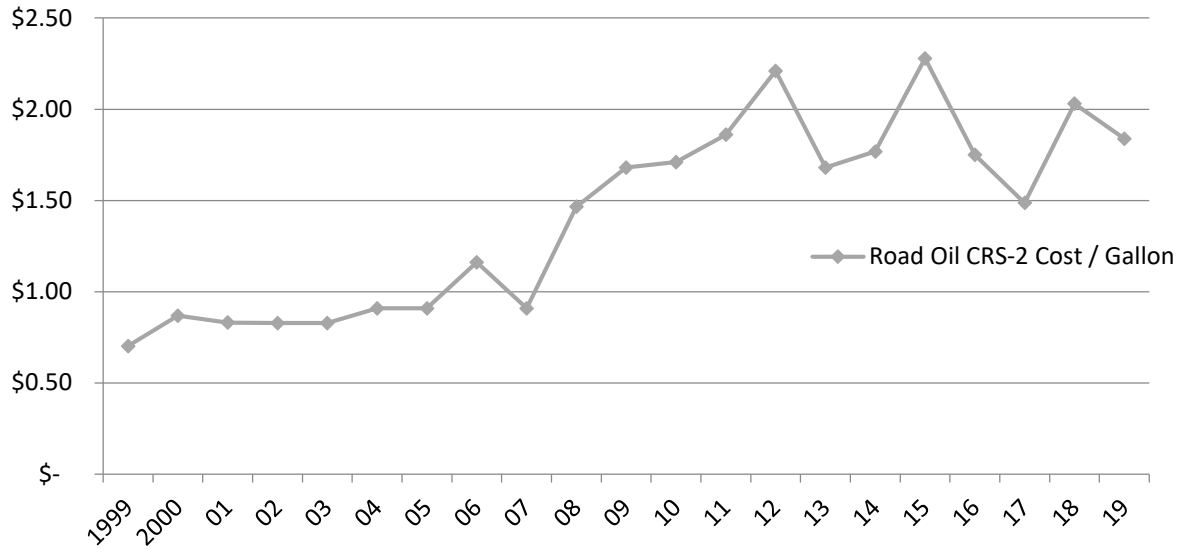
In addition; the department maintains 22 buildings at four facility sites in Dodgeville, Highland, Hollandale, and Mifflin


Highway Department
Share of The Countywide Operating Tax Levy
% of Tax Levy
Vehicle Registration
Fee implemented
$412K – 4.11%
46.8%
23.3%
28.2%
$14,000,000
$12,000,000
$10,000,000
$8,000,000
$6,000,000
$4,000,000
$2,000,000
$-
Tax Levy in Dollars
$5.67M
47.2%
$2.68M
28.2%
$10.01M
$2.82M
99
2000
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
Year of Levy
Highway Debt Levy
County Debt Levy
Highway Department Tax Levy
Countywide Operating Tax Levy

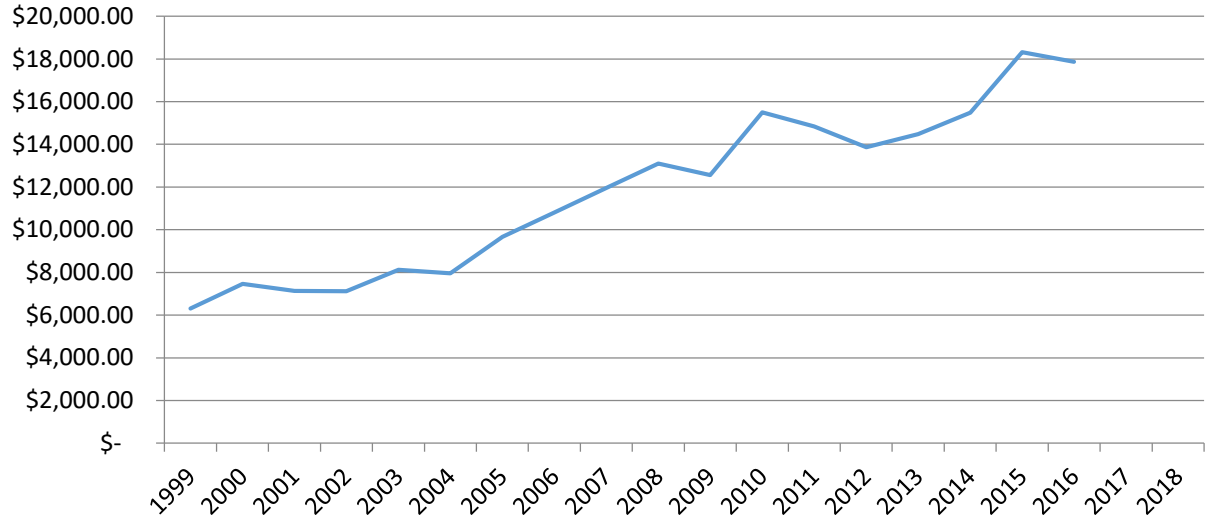
## Department Wage & Fringe Benefits Comparison to Tax Levy



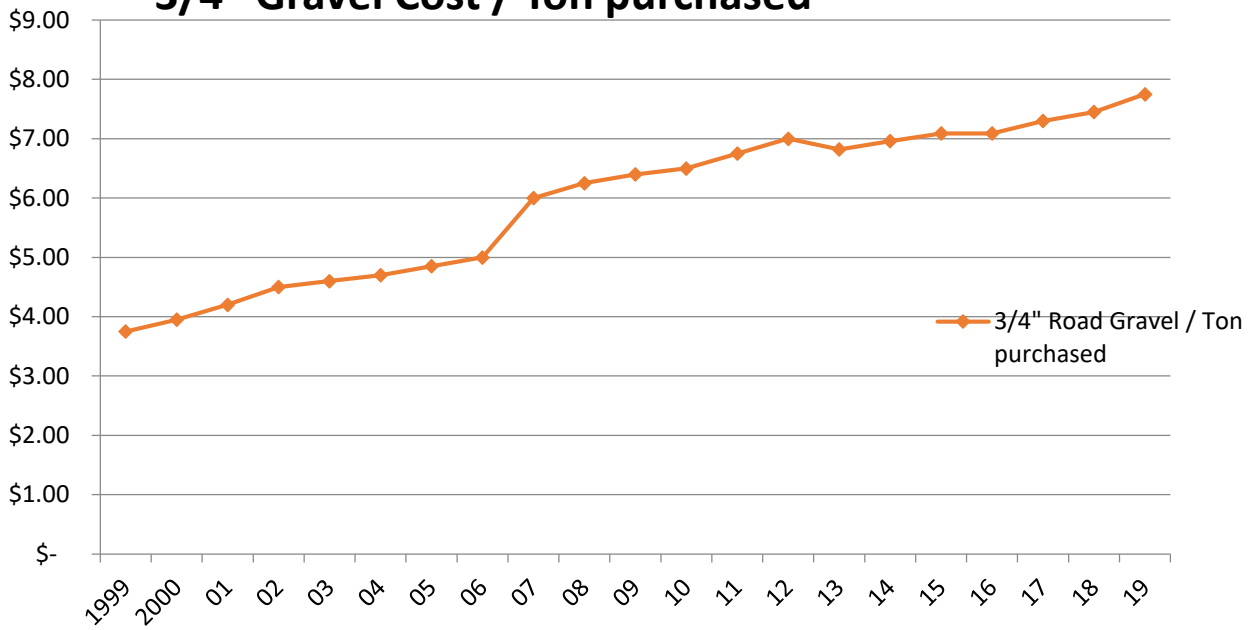
## Road Oil CRS-2 Cost / Gallon



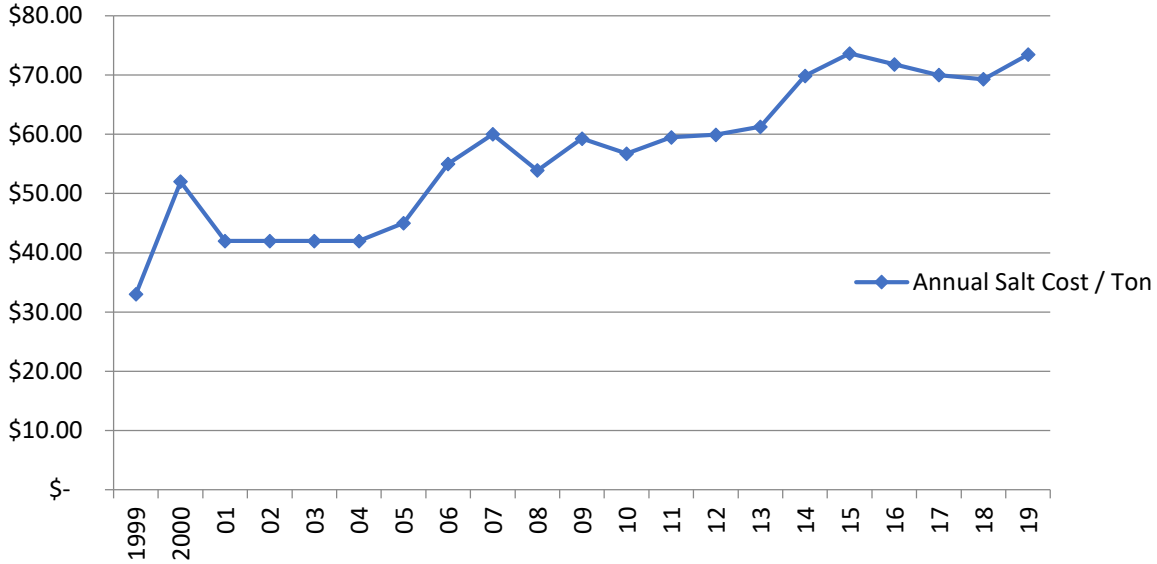

## Sealcoat Cost $ / Mile




## 3/4" Gravel Cost / Ton purchased




## Annual Salt Cost / Ton



## WISCONSIN COUNTIES 2012 - 2017 CTH MILEAGE & GENERAL TRANSPORTATION AIDS INFO.

## Ranked by 6 yr. Average GTA Cost / Mile

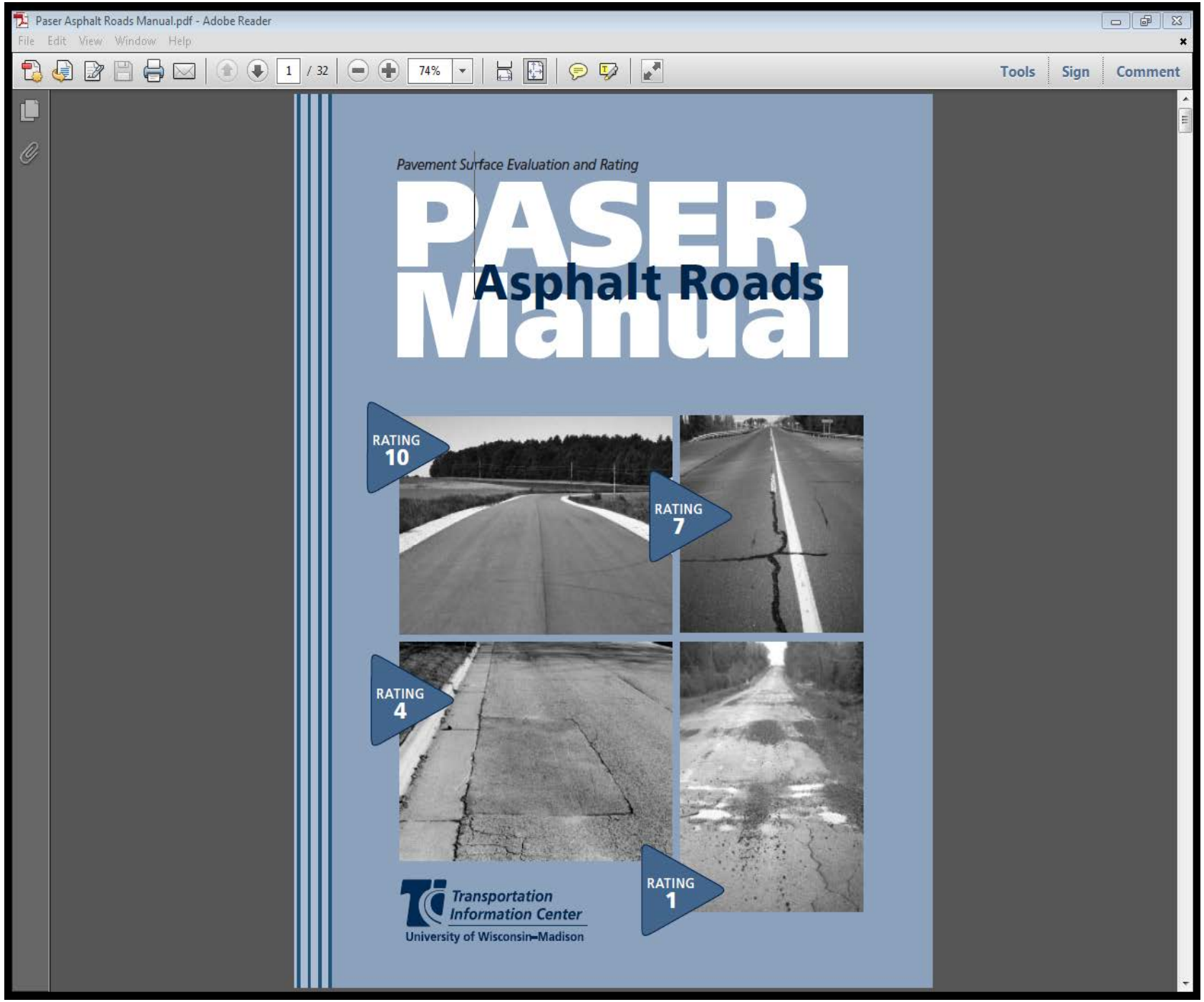
| 6-Yr Ave GTA Costs/Mile Ranking | Mileage Maintained Ranking | LG Name | WISLR Miles | SixYearAvgCost | 6Yr Ave / Mileage | GTA 2019 Amount | GTA$ / Mileage |
|---|---|---|---|---|---|---|---|
| 1 | 65 | Milwaukee County | 141.02 | 26,101,299.43 | 185,089.34 | 4,979,950.08 | $ 35,313.79 |
| 2 | 62 | Racine County | 164.77 | 14,238,473.93 | 86,414.24 | 2,716,603.81 | $ 16,487.25 |
| 3 | 12 | Brown County | 360.85 | 24,647,675.07 | 68,304.49 | 4,702,608.45 | $ 13,032.03 |
| 4 | 9 | Waukesha County | 407.38 | 26,107,501.23 | 64,086.36 | 4,981,133.34 | $ 12,227.24 |
| 5 | 59 | Washington County | 182.02 | 11,598,011.97 | 63,718.34 | 2,212,821.66 | $ 12,157.02 |
| 6 | 42 | Kenosha County | 252.72 | 15,942,511.40 | 63,083.69 | 3,041,722.54 | $ 12,035.94 |
| 7 | 58 | Walworth County | 193.21 | 11,422,507.20 | 59,119.65 | 2,204,077.33 | $ 11,407.68 |
| 8 | 55 | Rock County | 213.30 | 12,020,611.80 | 56,355.42 | 2,293,450.82 | $ 10,752.23 |
| 9 | 3 | Dane County | 521.44 | 28,908,529.93 | 55,439.80 | 5,515,550.53 | $ 10,577.54 |
| 10 | 51 | Winnebago County | 220.27 | 10,604,849.57 | 48,144.77 | 2,023,333.04 | $ 9,185.70 |
| 11 | 63 | Ozaukee County | 155.55 | 7,464,913.27 | 47,990.44 | 1,424,254.59 | $ 9,156.25 |
| 12 | 14 | Outagamie County | 344.02 | 16,405,587.87 | 47,687.89 | 3,130,074.38 | $ 9,098.52 |
| 13 | 8 | Eau Claire County | 420.53 | 17,833,786.10 | 42,407.88 | 3,402,564.87 | $ 8,091.13 |
| 14 | 40 | Jefferson County | 257.27 | 10,454,958.03 | 40,638.08 | 1,994,734.75 | $ 7,753.47 |
| 15 | 66 | Calumet County | 133.49 | 5,145,909.90 | 38,549.03 | 981,804.54 | $ 7,354.89 |
| 16 | 22 | Wood County | 324.41 | 11,501,590.27 | 35,453.87 | 2,194,425.05 | $ 6,764.36 |
| 17 | 57 | Washburn County | 198.75 | 6,925,701.43 | 34,846.30 | 1,321,376.64 | $ 6,648.44 |
| 18 | 10 | Fond Du Lac County | 384.05 | 13,367,386.63 | 34,806.37 | 2,550,406.28 | $ 6,640.82 |
| 19 | 17 | Saint Croix County | 336.07 | 11,363,617.57 | 33,813.25 | 2,168,100.80 | $ 6,451.34 |
| 20 | 5 | Sheboygan County | 449.30 | 14,546,447.33 | 32,375.80 | 2,775,363.03 | $ 6,177.08 |
| 21 | 71 | Florence County | 49.12 | 1,577,922.17 | 32,123.82 | 301,056.80 | $ 6,129.01 |
| 22 | 19 | Waupaca County | 333.69 | 10,503,376.27 | 31,476.45 | 2,003,972.62 | $ 6,005.49 |
| 23 | 67 | Crawford County | 132.43 | 4,107,745.33 | 31,018.24 | 783,729.82 | $ 5,918.07 |
| 24 | 72 | Menominee County | 36.51 | 1,127,868.13 | 30,892.03 | 215,189.55 | $ 5,893.99 |
| 25 | 35 | La Crosse County | 282.09 | 8,516,611.83 | 30,191.12 | 1,624,911.51 | $ 5,760.26 |
| 26 | 50 | Adams County | 226.67 | 6,664,889.40 | 29,403.49 | 1,271,615.48 | $ 5,609.99 |
| 27 | 21 | Polk County | 331.37 | 9,577,611.67 | 28,903.07 | 1,827,343.05 | $ 5,514.51 |
| 28 | 43 | Pierce County | 248.65 | 6,994,579.80 | 28,130.22 | 1,334,518.16 | $ 5,367.05 |
| 29 | 61 | Oneida County | 171.22 | 4,665,155.73 | 27,246.56 | 890,079.93 | $ 5,198.46 |
| 30 | 2 | Dodge County | 538.61 | 14,584,221.57 | 27,077.52 | 2,782,570.10 | $ 5,166.21 |
| 31 | 1 | Marathon County | 614.48 | 16,538,018.70 | 26,913.84 | 3,155,341.28 | $ 5,134.98 |

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 37 | 31 | 1 | Marathon County | 614.48 | 16,538,018.70 | | 26,913.84 | | 3,155,341.28 | $ 5,134.98 |
| 38 | 32 | 6 | Portage County | 434.00 | 11,408,382.73 | | 26,286.60 | | 2,176,641.69 | $ 5,015.30 |
| 39 | 33 | 13 | Columbia County | 357.23 | 8,806,249.13 | | 24,651.48 | | 1,680,172.33 | $ 4,703.33 |
| 40 | 34 | 18 | Marinette County | 334.28 | 8,112,998.70 | | 24,270.07 | | 1,547,904.87 | $ 4,630.56 |
| 41 | 35 | 26 | Sauk County | 308.31 | 7,357,821.03 | | 23,865.01 | | 1,403,822.12 | $ 4,553.28 |
| 42 | 36 | 30 | Shawano County | 293.87 | 6,936,835.40 | | 23,605.12 | | 1,323,500.93 | $ 4,503.70 |
| 43 | 37 | 60 | Bayfield County | 172.81 | 4,008,243.10 | | 23,194.51 | | 764,745.47 | $ 4,425.35 |
| 44 | 38 | 34 | Manitowoc County | 283.60 | 6,574,239.27 | | 23,181.38 | | 1,254,320.06 | $ 4,422.85 |
| 45 | 39 | 39 | Lincoln County | 270.73 | 6,198,337.37 | | 22,894.90 | | 1,182,600.53 | $ 4,368.19 |
| 46 | 40 | 25 | Grant County | 310.87 | 7,024,912.13 | | 22,597.59 | | 1,340,305.37 | $ 4,311.47 |
| 47 | 41 | 70 | Iron County | 67.24 | 1,425,130.70 | | 21,194.69 | | 271,905.23 | $ 4,043.80 |
| 48 | 42 | 29 | Door County | 295.55 | 6,201,585.90 | | 20,983.20 | | 1,183,220.33 | $ 4,003.45 |
| 49 | 43 | 69 | Ashland County | 91.35 | 1,885,146.33 | | 20,636.52 | | 359,673.07 | $ 3,937.31 |
| 50 | 44 | 36 | Green County | 277.86 | 5,619,447.43 | | 20,224.02 | | 1,072,152.28 | $ 3,858.61 |
| 51 | 45 | 56 | Vilas County | 204.17 | 4,107,258.70 | | 20,116.86 | | 783,636.97 | $ 3,838.16 |
| 52 | 46 | 47 | Jackson County | 231.24 | 4,642,380.27 | | 20,076.03 | | 885,734.52 | $ 3,830.37 |
| 53 | 47 | 46 | Juneau County | 234.18 | 4,594,922.97 | | 19,621.33 | | 876,679.99 | $ 3,743.62 |
| 54 | 48 | 49 | Green Lake County | 228.27 | 4,206,183.13 | | 18,426.35 | $ 19,465.39 | 802,511.08 | $ 3,515.62 |
| 55 | 49 | 7 | Dunn County | 425.12 | 7,775,034.27 | | 18,289.03 | $ 3,515.62 | 1,483,423.56 | $ 3,489.42 |
| 56 | 50 | 4 | Chippewa County | 489.25 | 8,480,159.37 | | 17,332.98 | | 1,617,956.62 | $ 3,307.01 |
| 57 | 51 | 16 | Douglas County | 336.72 | 5,735,945.60 | | 17,034.76 | | 1,094,379.34 | $ 3,250.12 |
| 58 | 52 | 54 | Kewaunee County | 219.06 | 3,724,500.67 | | 17,002.19 | | 710,609.35 | $ 3,243.90 |
| 59 | 53 | 32 | Barron County | 290.90 | 4,917,614.13 | | 16,904.83 | | 938,247.27 | $ 3,225.33 |
| 60 | 54 | 23 | Oconto County | 318.51 | 5,371,289.37 | | 16,863.80 | | 1,024,805.41 | $ 3,217.50 |
| 61 | 55 | 15 | Monroe County | 343.58 | 5,664,149.47 | | 16,485.68 | $ 16,770.57 | 1,080,681.12 | $ 3,145.36 |
| 62 | 56 | 48 | Sawyer County | 228.94 | 3,706,012.50 | | 16,187.70 | $ 3,145.36 | 738,658.99 | $ 3,226.43 |
| 63 | 57 | 45 | Marquette County | 237.28 | 3,722,671.93 | | 15,688.94 | | 710,260.44 | $ 2,993.34 |
| 64 | 58 | 33 | Vernon County | 285.22 | 4,421,086.93 | | 15,500.62 | | 876,975.65 | $ 3,074.73 |
| 65 | 59 | 31 | Trempealeau Count | 291.90 | 4,436,260.93 | | 15,197.88 | | 846,408.36 | $ 2,899.65 |
| 66 | 60 | 52 | Burnett County | 220.05 | 3,278,042.43 | | 14,896.81 | | 625,428.16 | $ 2,842.21 |
| 67 | 61 | 44 | Taylor County | 248.37 | 3,664,454.00 | | 14,754.01 | | 699,152.85 | $ 2,814.96 |
| 68 | 62 | 41 | Rusk County | 255.13 | 3,719,759.00 | | 14,579.86 | | 709,704.67 | $ 2,781.74 |
| 69 | 63 | 20 | Waushara County | 333.46 | 4,591,978.90 | | 13,770.70 | | 876,118.28 | $ 2,627.36 |
| 70 | 64 | 53 | Price County | 220.05 | 2,998,213.87 | Ave = 2017 Amount | 13,625.15 | | 572,038.78 | $ 2,599.59 |
| 71 | 65 | 27 | Clark County | 300.91 | 4,074,267.47 | $ 6,117,064 | 13,539.82 | @ 55th Rank | 777,342.47 | $ 2,583.31 |
| 72 | 66 | 11 | Iowa County | 364.75 | 4,746,089.00 | Ranks 55th | 13,011.90 | $ 1,147,268.29 | 905,521.44 | $ 2,482.58 |
| 73 | 67 | 68 | Forest County | 109.06 | 1,354,195.97 | Add $1M @ Yr6 | 12,416.98 | @ 48th Rank | 258,371.36 | $ 2,369.08 |
| 74 | 68 | 38 | Langlade County | 271.09 | 3,283,688.40 | $ 7,117,064 | 12,112.91 | $ 1,282,323.20 | 626,505.37 | $ 2,311.06 |

**Management Tool**

**GTA $**

**PA**vement
**S**urface
**E**valuation and
**R**ating



# Do Nothing Approach

If no corrective or preventative treatments are applied the road rating deteriorates due to asphalt pavement oil age and weathering – computer program defaults

| | | | | |
|---|---|---|---|---|
| | "Serviceable road is considered a 4 or 5 rating and above." | | | |
| | | | | |
| Paser Rating of | Loss/Year | Years/Paser loss | Age in Years | Treatment Recommendation |
| 10 | 1.01 | 0.99 | 0 | None |
| 9 | 1.01 | 0.99 | 0.99 | None |
| 8 | 0.34 | 2.93 | 1.98 | Pavement Marking / FogSeal? |
| 7 | 0.26 | 3.85 | 4.91 | Crackfill |
| 6 | 0.341 | 2.93 | 8.76 | Sealcoat |
| 5 | 0.51 | 1.96 | 11.69 | Seal and spot wedge restoration |
| 4 | 0.341 | 2.93 | 13.65 | Sealcoat and other deterioration repairs |
| 3 | 0.341 | 2.93 | 16.58 | Asphalt Pavement Resurface or Structural Overlay |
| 2 | 0.21 | 4.76 | 19.51 | Pavement & Subgrade Recondition or Rehabilitation |
| 1 | 0.21 | 4.76 | 24.27 | Complete Roadbed Reconstruction |
| <1 | | | 29.03* | Impassable – Consider closing to traffic |

Done out of schedule costs increase

PREVENTATIVE MAINTENANCE

CAPITAL IMPROVEMENT SURFACE OR COMPLETE SURFACE AND BASE

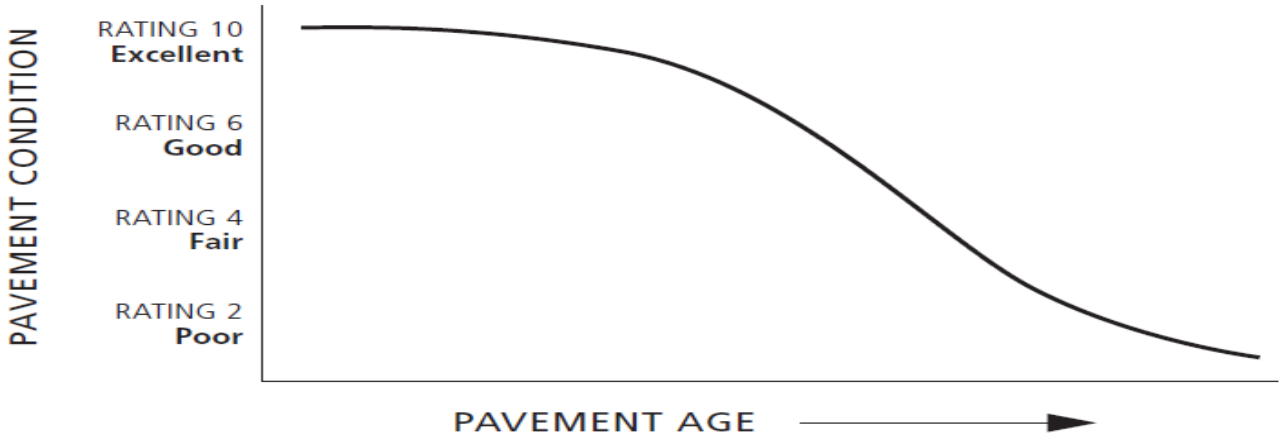
CTH T Birch Lake
Paved 1966
Sealcoated 1985

# PAVEMENT CONDITION (DISTRESS) VERSUS PAVEMENT AGE – LIFE CYCLE

Paser Asphalt Roads Manual.pdf - Adobe Reader

File Edit View Window Help

16 / 32 125% Tools Sign Comment




In addition to indicating the surface condition of a road, a given rating also includes a recommendation for needed maintenance or repair. This feature of the rating system facilitates its use and enhances its value as a tool in ongoing road maintenance.

**RATINGS ARE RELATED TO NEEDED MAINTENANCE OR REPAIR**

| | |
|---|---|
| **Rating 9 & 10** | No maintenance required |
| **Rating 8** | Little or no maintenance |
| **Rating 7** | Routine maintenance, cracksealing and minor patching |
| **Rating 5 & 6** | Preservative treatments (sealcoating) |
| **Rating 3 & 4** | Structural improvement and leveling (overlay or recycling) |
| **Rating 1 & 2** | Reconstruction |

**What is the Life of a road?** Based on deterioration due to Weather, Ultra-violet (sun), Water, Load, Design, Usage, ADT, and other stresses

- GASB 34 – 25 Year Depreciation Life
- WisDOT follows a 25-Year design life.
- Paser – Foundation of the Do Nothing approach = 29.03 Years.

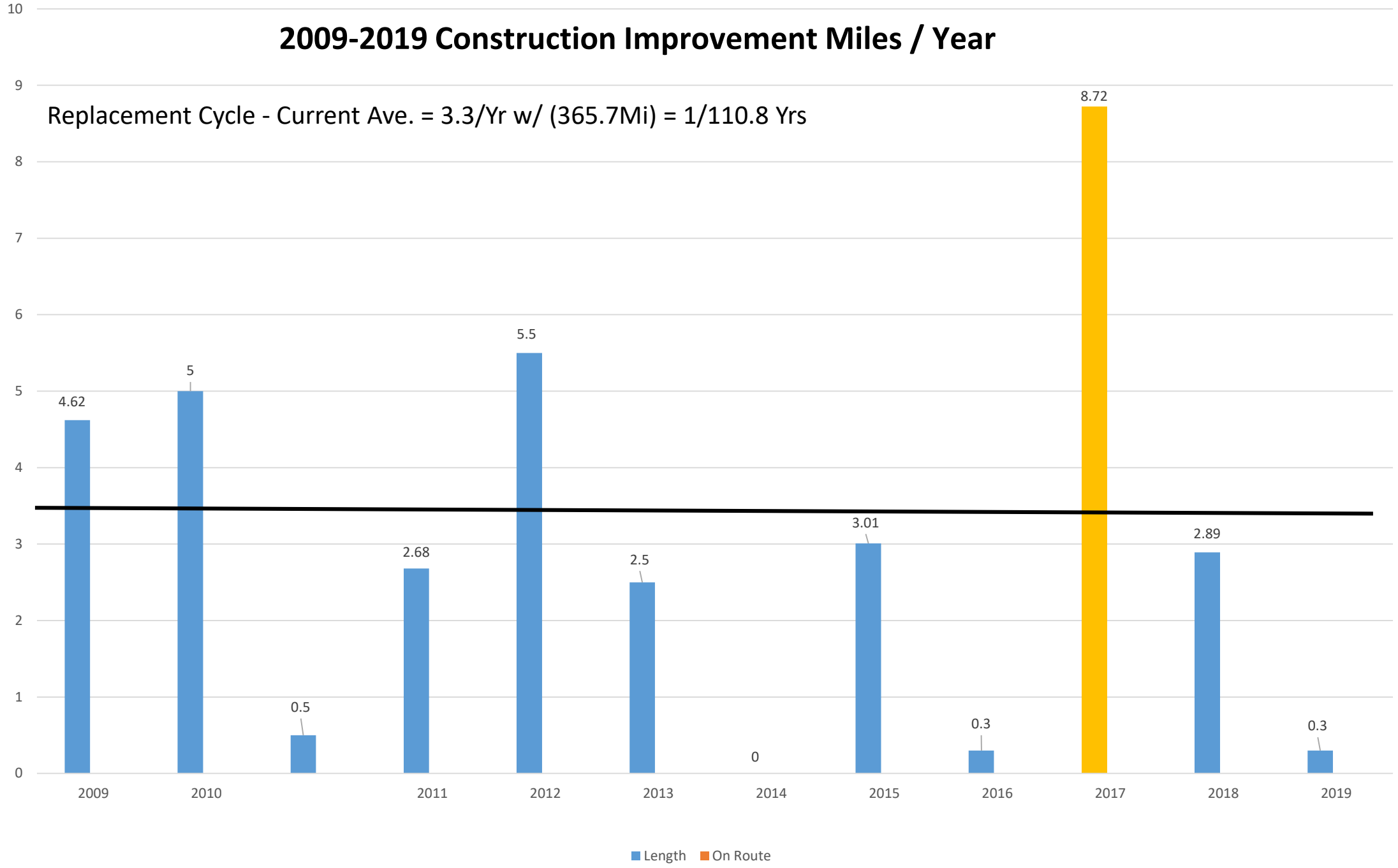
Life - Age can vary by ADT, Traffic type, Loads, Original design assumptions, maintenance strategies, etc.

- Minnesota Sealcoat Manual – Increase life 10Yr/cycle preventative maint.
  - Do Nothing = 29 Yrs
  - 3 Sealcoats at 10/Yr = 30Yrs
  - Pavement Life of +/- 60 Years based on ultra-violet (sun) age deterioration alone

- Minnesota IOH Study in 2009-2010 concluded:
  - 5 Inch Asphalt over County Equivalent – 4 Inch
  - 9 Inch CABC 12 Inch

**HISTORY** - 2009-2019 CTH Roadway Improvement Projects Completed

| Year | Length | On Route | From Route | To Route | Type | Cost $ | $ / Mile |
|---|---|---|---|---|---|---|---|
| 2009 | 4.62 | CTH XX | CTH X | STH 18 | 2-Inch Overlay | $ 408,030.00 | $ 88,318.18 |
| 2010 | 5 | CTH B | CTH G | STH 80 | Pulverize | $ 693,503.60 | $ 138,700.72 |
| | 0.5 | CTH U | STH 39 | South | Reconstruct | $ 126,272.52 | $ 252,545.04 |
| 2011 | 2.68 | CTH G | STH 18 | Roaster Rd | Pulverize | $ 408,829.65 | $ 152,548.38 |
| 2012 | 5.5 | CTH T | USH 151 | CTH K | Pulverize | $ 1,205,843.84 | $ 219,244.33 |
| 2013 | 2.5 | CTH DD | Ferrell Rd | CTH DDD | Pulverize | $ 745,661.71 | $ 298,264.68 |
| 2014 | 0 | N/A | | | No Work | $ - | $ - |
| 2015 | 3.01 | CTH QQ | STH 39 | STH 39 | Pulverize | $ 746,885.19 | $ 248,134.61 |
| 2016 | 0.3 | CTH E | Mifflin | Highway Shop | Reconstruct | $ 234,791.30 | $ 782,637.67 |
| 2017 | 8.72 | CTH K | Mounds View Rd | STH 14 | Pulverize | $ 1,462,669.00 | $ 167,737.27 |
| 2018 | 2.89 | CTH E | Highway Shop | CTH G | Recondition | $ 626,507.31 | $ 216,784.54 |
| 2019 | 0.3 | CTH G | Pecatonica Bridge | Approaches | Reconstruct | $ 385,000.00 | $ 1,283,333.33 |
| | | | | | | | |
| | | | | | | $ 7,043,994.12 | |
| Totals | 36.02 | Miles | | | | | |
| Ave/Yr | 3.3 | Miles | | | | | |


2009-2019 Construction Improvement Miles / Year
Replacement Cycle - Current Ave. = 3.3/Yr w/ (365.7Mi) = 1/110.8 Yrs
10
9
8
7
6
5
4
3
2
1
0
4.62
5
0.5
2.68
5.5
2.5
0
3.01
0.3
8.72
2.89
0.3
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Length
On Route

Due to construction improvement backlog - Roads rated 3 / 4 are becoming Preventative Maintenance Projects:

- CTH Y
- CTH HH
- CTH I
- CTH HK
- AND OTHERS

- As a result; we are investing more $ / mile for rideability
  - Crackfill $4-5K / Mile
  - Wedging $16K+ / mile to fix deficiencies from load, water, and age.
  - Now dealing with culverts / drainage too at $5-12K / location
    - usually as capital improvement project.
    - Performing preventative maintenance on roads which should be improved.

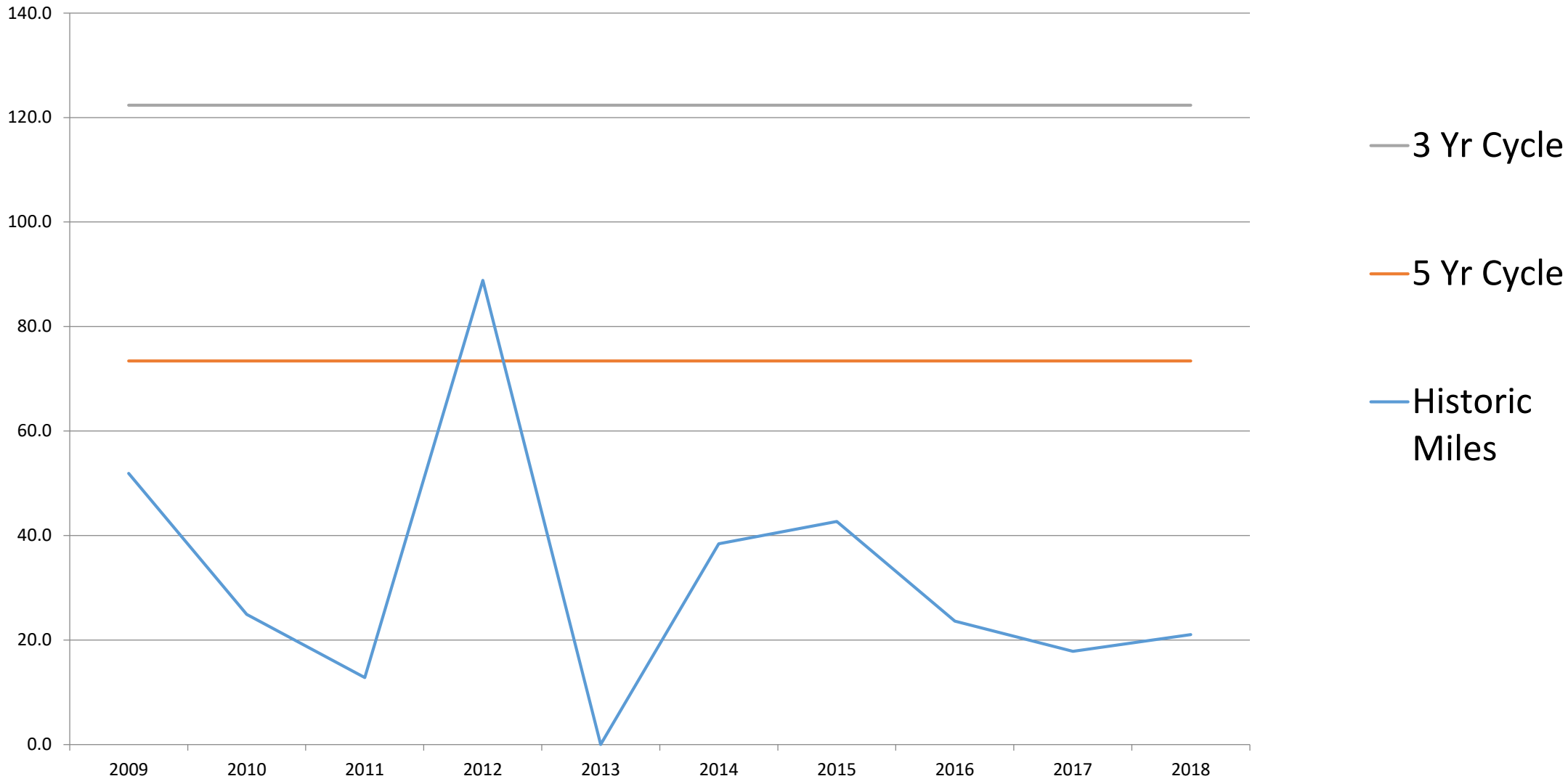
# Preventative Maintenance – Crackfill Rout N Seal – CTH D

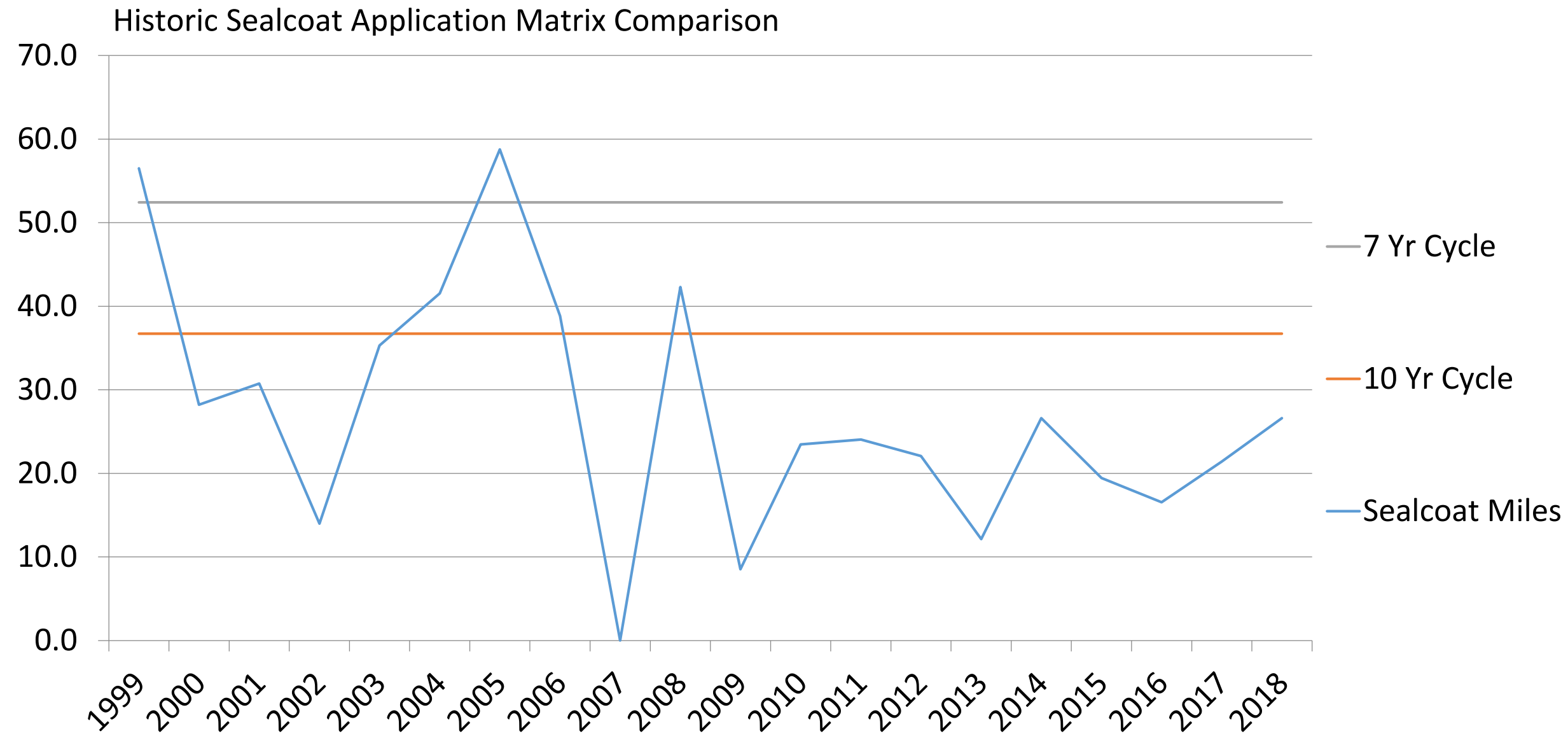
# Crackfill - Overband (Blow N Go) CTH B

# Wedging - Non-structural Overlay

# SEALCOAT APPLICATION – Pavement Surface Sealer

# Preventative Maintenance - Historic Crackfilling Matrix Comparison




Historic Sealcoat Application Matrix Comparison
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
7 Yr Cycle
10 Yr Cycle
Sealcoat Miles

# Types of CAPITAL IMPROVEMENTS

(Bold = Historical Process of Iowa County prior to 2009)

- The following listing is types of capital improvements typically performed on rural asphalt pavement roads, it is not intended to be an all inclusive listing (Ratings 3 to 1) :
  - **Reconstruction** – complete removal, replacement, and reconstruct of the subbase and pavement surface.
  - **Recondition** – widening of the roadbed shoulders and enhancement of subbase, includes overlay or replacement of the pavement surface.
  - **Cold-In-Place Recycling** – pulverization of the existing pavement, injection of a stabilizer into the millings, re-pulverization and road mixing of the subbase, and placement of a pavement surface.
  - **Hot-In-Place Recycling** – heating of the existing asphalt surface, scarification of the existing surface, injection of an oil rejuvenating agent, replacing existing surface and placing a new surface either sealcoat or surface layer.
  - **Pulverization** – placement of additional crushed aggregate base coarse on the existing asphalt pavement surface, pulverizing or mixing of the base and the existing pavement, shaping and regrading of cross sectional elements, placement of a new asphalt surface.

## Capital Improvements

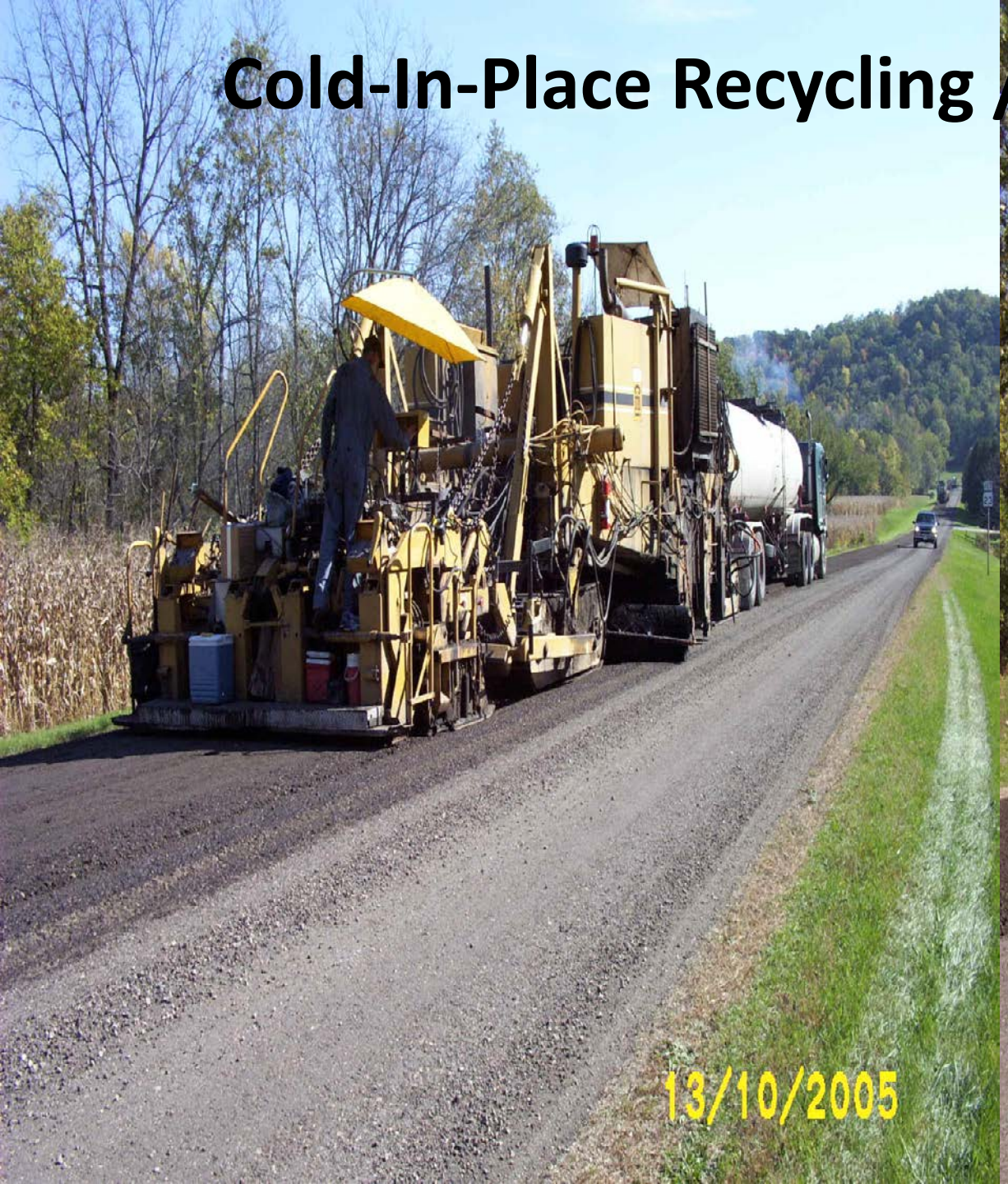
Reconstruct - $785,000 - $1.0M / Mile.
Recondition - $375,000- $650,000 / Mile.
Cold-In-Place Recycling - $325,000 / Mile.
Hot-In-Place Recycling - $385,000 / Mile.
Pulverization - $250,000 / Mile.

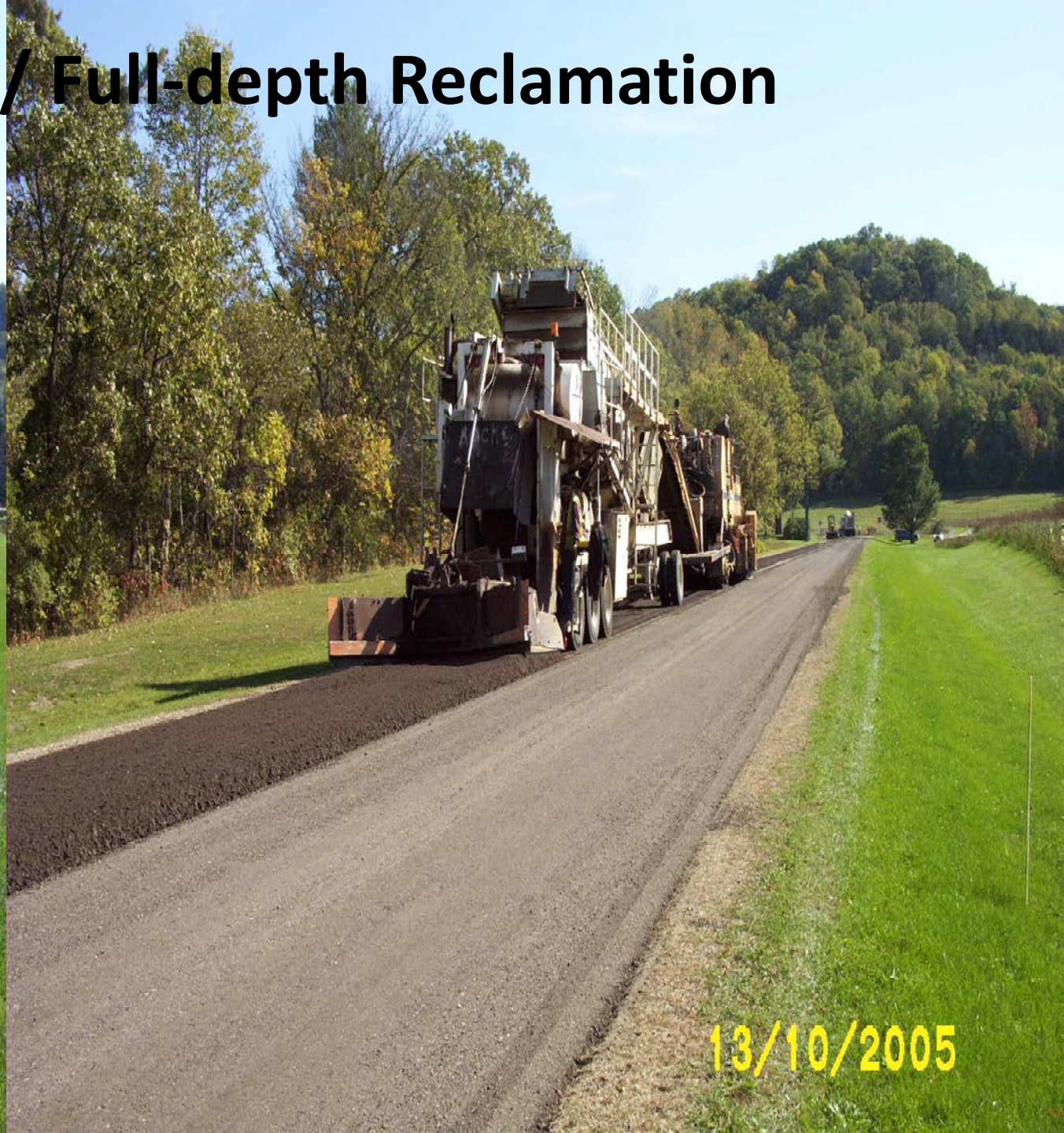
Minnesota IOH Study 5” Asphalt & 9” CABC
4-Inch Asphalt Surface with 12+ CABC

# TRADITIONAL RECONSTRUCT – CTH E Mifflin

# RECONDITION CTH E West of Mifflin

# Cold-In-Place Recycling / Full-depth Reclamation



# Hot-In-Place Recycling – CTH B Grant County

# Pulverization & Reconditon CTH QQ

# CTH DDD

# CTH F – STH 39 TO STH 78 / BLANCHARDVILLE

# CTH N – CTH I TO STH 133

# CTH NN – CTH N TO CHEESE FACTORY

# CTH U – STH 39 TO CTH DD

# CTH T – BIRCH LAKE

# **CONSTRUCTION IMPROVEMENT BACKLOG** (No particular order):

| | | Mileage | $ Estimate |
|---|---|---|---|
| • * CTH BB – CTH HHH to STH 191 – | Ridgeway | – 2.48 mi | - $620,000 |
| • * CTH F – STH 78 to STH 39 - | Moscow | – 4.1 mi | - $6,520,000 |
| • CTH U – CTH DD to STH 39 – | Waldwick | – 2.54 mi | - $1,905,000 |
| • CTH T – Barneveld to CTH H – | Brigham / Ridgeway | – 6.01 mi | - $4,112,550 |
| • CTH T – CTH H to CTH Z – | Arena / Wyoming | – 6.65 mi | - $4,987.500 |
| • CTH J – STH 18 to CTH A – | Linden | – 10.73 mi | - $2,692,500 |
| • CTH N – CTH I to STH 133 – | Clyde / Pulaski | – 5.28 mi | - $2,455,000 |
| • CTH NN – CTH NN to 2.0 mi east – | Clyde / Pulaski | – 2.25 mi | - $562,500 |
| • CTH PP – CTH I to CTH P – | Highland | – 3.76 mi | - $1.45M-$2.54M |
| • CTH Q – Highland to Grant Line – | Highland | – 2.87 mi | - $1,15M-$1.9M |
| • CTH M – CTH Q to STH 130 – | Dodgeville | – 5.13 mi | - $1.92M-$3.46M |
| • CTH CH – Dodgeville City Limits | | – 0.64 mi | - $168,000 County |
| • CTH C – STH 23 to CTH CC – | Wyoming | – 1.56 mi | - $1,560,000 |
| • CTH DDD – CTH W to CTH DD – | Waldwick | – 2.72 mi | - $1,020,000 |

- **Total = ……56.72 mi…- $31.12 – 34.51M**

*Estimated in 2019 Funds $.* *$1,380,400 / Mile*

# FLOODING ISSUES MAYBE FOR ANOTHER DAY - QUESTIONS?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CTH I Pompey Pillar Creek / Otter creek Flooding