

PAVEMENT PRESERVATION

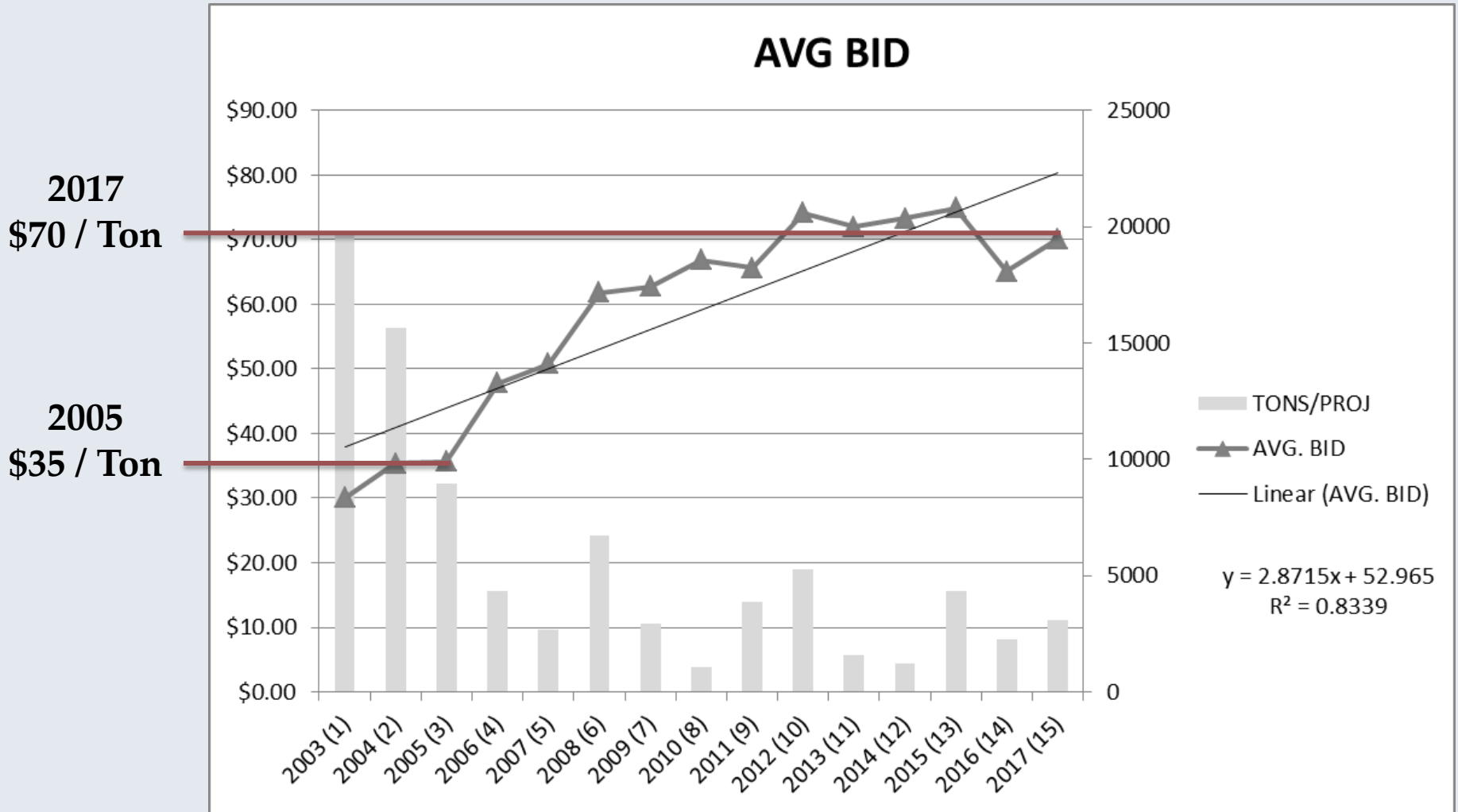
SHRINKING THE FUNDING GAP



Objectives

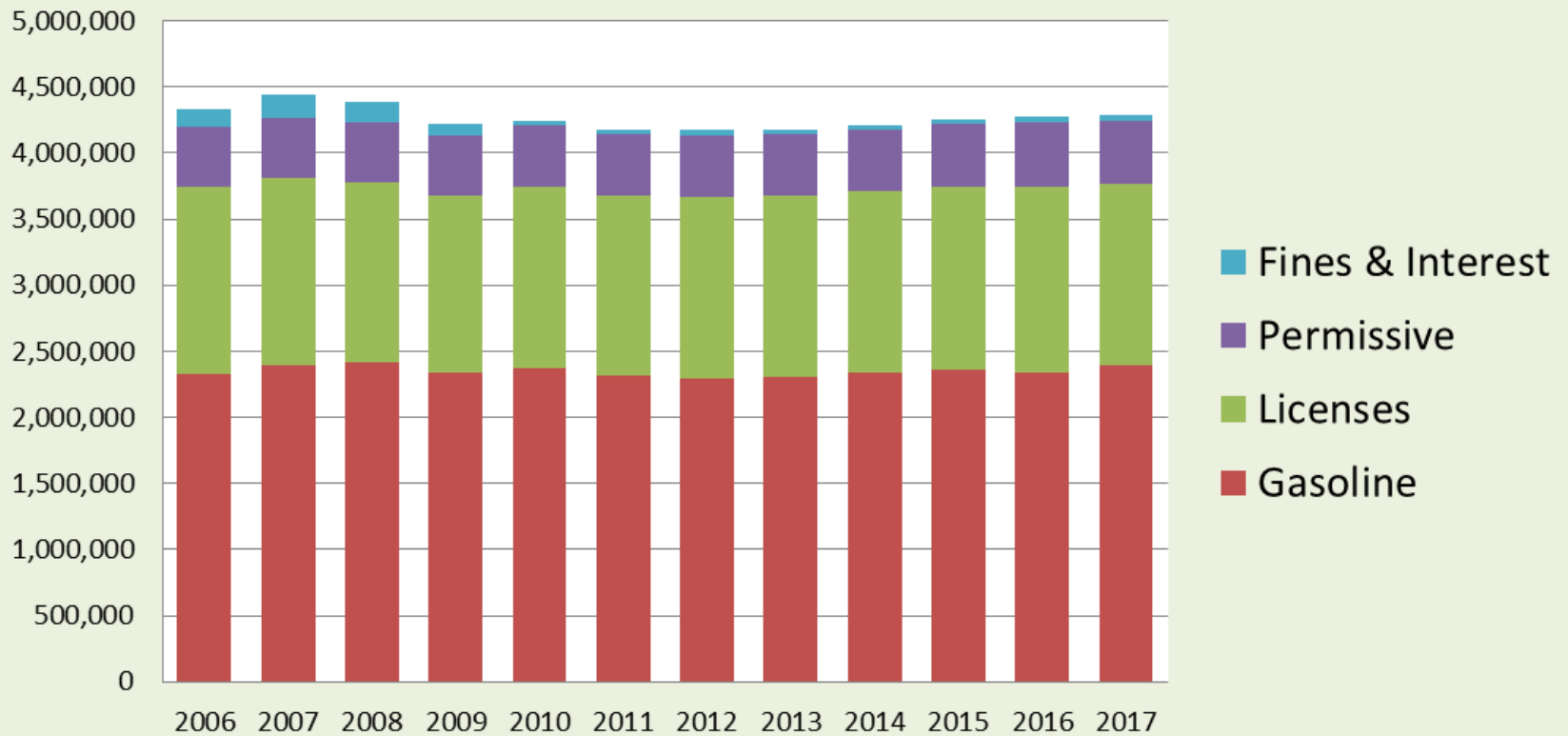
- Better understand our current funding challenge
 - Current Trends
 - Shortfall
- Identify things we can do now to decrease our funding shortfall
 - Pavement Preservation
 - The 3R's
 - Outside Funding Sources
- Discuss our ongoing efforts to continue to improve our decision making
 - Improvement History Database

Cost History



Revenue Trend

Ottawa County Engineer's Office Revenue 2006 to 2017



Cost of a Typical Pavement Improvement Project

- Typical Improvement (1 Mile Long, 20' Wide)
 - Mill Existing Pavement (\$1.50/SY)
 - 5% Pavement Area - Base Repairs (\$200/CY)
 - 0.75" Hot Mix Leveling Course (\$70/TON)
 - 1.25" Surface Course (\$70/TON)

\$130,000 / mile

Life Expectancy of a Typical Pavement Improvement Project

- **Difficult to Predict with Certainty**
 - Existing Roads - Vary in Condition
 - Different Improvement – Vary in Life Expectancy
 - Varying opinions/interpretations of “failed”
- **Industry standards will give ranges to expect**
 - Often these will be skewed toward who is presenting the data
- **Combining our historical knowledge & industry standards**

14 Years

Annual Projected Cost

\$130,000

/ Mile /

14 Years

\$9,300/Mile/Year

County System – Approximately 162 Miles

\$9,300/Mile/Year x 162 Miles = \$1,506,600/Year

1.5 Million / Year

Current Annual OOP Roadway Budget = ± \$700,000

Annual Shortfall = \$800,000

Township #'s

Townships			
Township	\$ / Mile / Year	Road Miles	\$ / Year
Allen	\$8,370	41	\$343,170
Bay	\$8,370	13	\$108,810
Benton	\$8,370	41	\$343,170
Carroll	\$8,370	39	\$326,430
Catawba	\$8,370	13	\$108,810
Clay	\$8,370	44	\$368,280
Danbury	\$8,370	16	\$133,920
Erie	\$8,370	7	\$58,590
Harris	\$8,370	38	\$318,060
Portage	\$8,370	13	\$108,810
Put-In-Bay	\$8,370	13	\$108,810
Salem	\$8,370	35	\$292,950

Possible Solutions

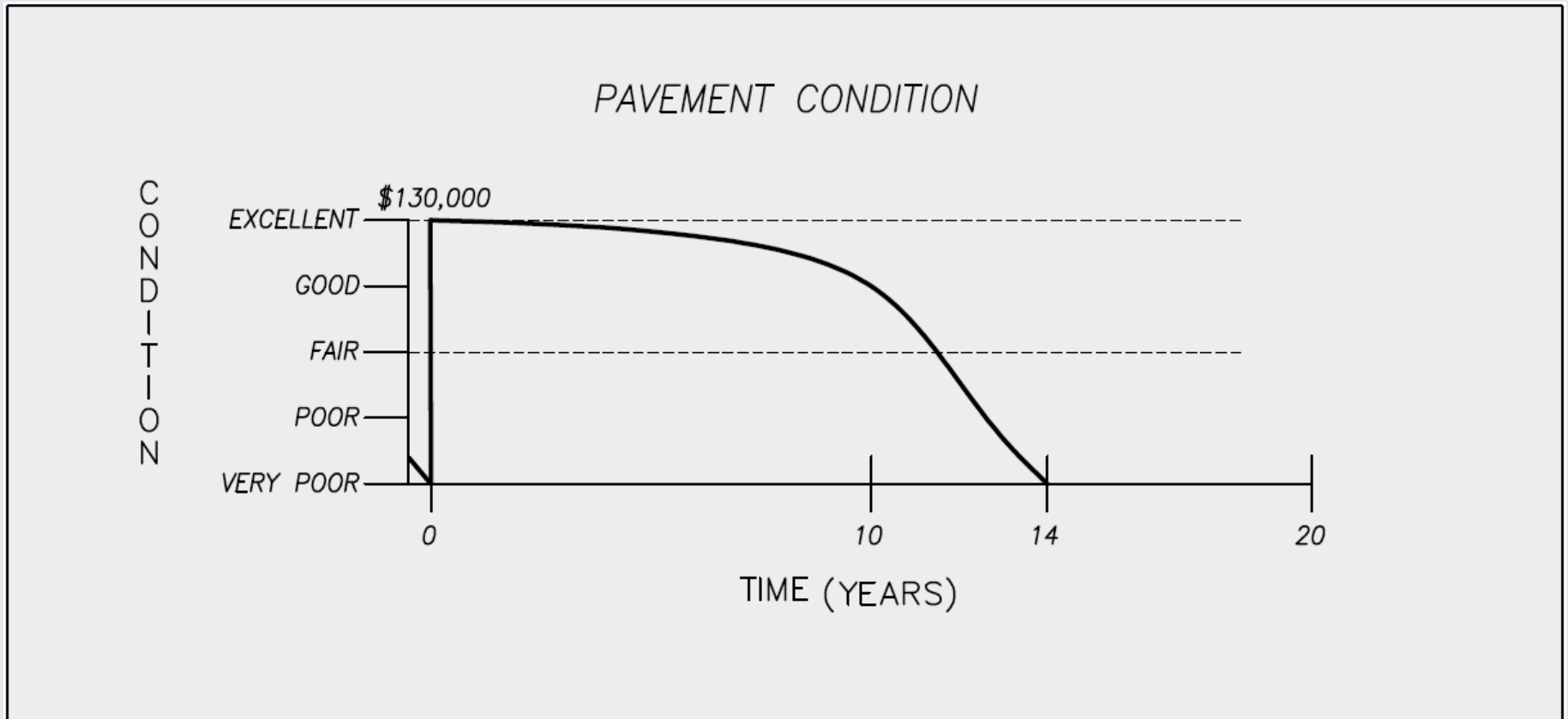
- ~~More Money~~
- ~~Less Road Mileage~~
- **Realistic Strategies We Can Control**
 - Pavement Preservation
 - Outside Funding
 - The 3 R's

Pavement Preservation

- Pavement Preservation activities extend the service life of a roadway asset in a cost effective manner.
 - Most common preservation treatments include
 - Chip Seal (Single or Double) ± \$3,200 / mile / year (Single)
 - Cape Seal ± \$5,100 / mile / year
 - Microsurfacing ± \$6,700 / mile / year
 - Thinlay ± \$7,500 / mile / year

Pavement Condition

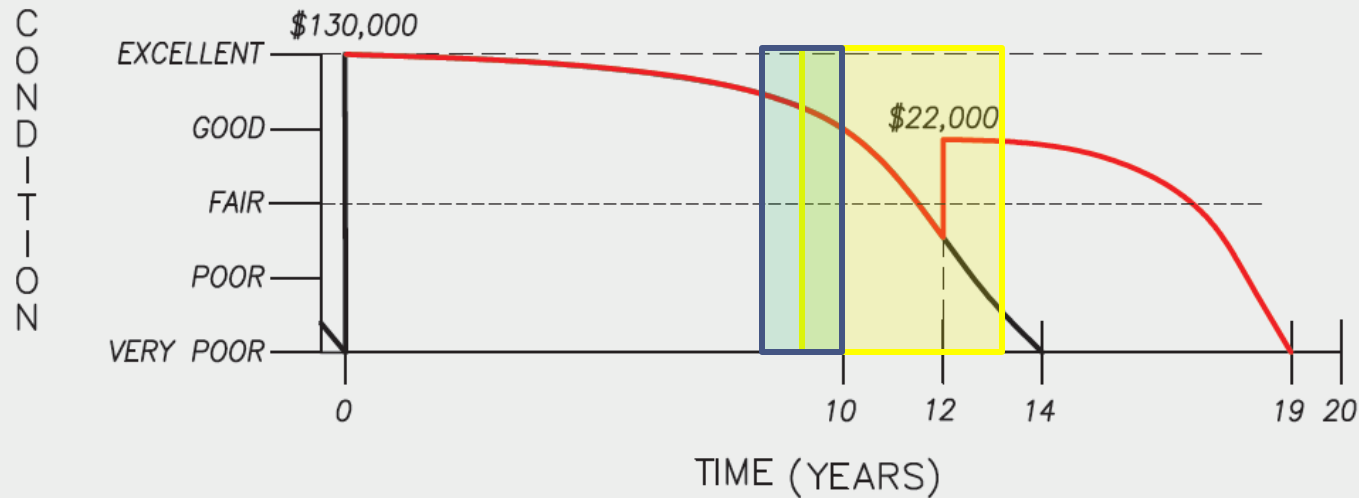
Pavement Life



Chip Seal As Preservation Tool

- Typical Tar, Chip & Fog Life - 7 Years
- Typical Tar, Chip & Fog Cost - \$22,000 / Mile
- Applied at year 12

PAVEMENT CONDITION



New Annual Projected Cost

\$152,000

/ Mile /

19 Years

\$8,000/Mile/Year

County System – Approximately 162 Miles

\$8,000/Mile/Year x 162 Miles = \$1,296,000/Year

1.3 Million / Year

Current Annual OOP Roadway Budget = ± \$700,000

Annual Shortfall = \$600,000 \$800,000

Outside Funding (OPWC/Issue II)

- Annual Funding Program (August)
- Local Projects (Townships, County Engineers, Municipalities, Sanitary Engineer's, Etc.)
- Projects are ranked according to a scoring system
 - We work with the townships to put them in the best situation to receive funding.
- This is a reoccurring, predictable funding source
- Typical awarded project would receive up to 50% Grant Funding

Issue II Impact

- Lets assume we receive funding every other year and are awarded \$300,000 on average

\$150,000 / Year

Annual Shortfall = \$450,000

\$800,000

\$600,000

What else can we do???

- Focus on the 3 R's.
 - The Right Treatment
 - On the Right Road
 - At the Right Time
- As your engineer you rely heavily on our advice
 - What are we doing to continue to try and make the best decisions we can?
 - We want to be on the high end of the life expectancy range



Road Improvement History

- We have records of the paving history on every road
 - What was done
 - How long it lasted
 - How much it cost at the time of construction
- We have 12 years of pavement condition rating data
- How do we utilize this information???

Conclusion

- Focus on extending the life pavements
- Be proactive in your pursuit of outside funding
- We will continue to work to improve our decision making

These things together can make a difference



ROAD WORK ESTIMATING TOOL - COST PER MILE (IN 2018 DOLLARS)

Treatment Type	Unit Price*		Road Width (ft)									
			16	17	18	19	20	21	22	23	24	
Chip & Fog Seal	\$ 2.10	SY	\$ 19,800	\$ 21,000	\$ 22,200	\$ 23,500	\$ 24,700	\$ 25,900	\$ 27,200	\$ 28,400	\$ 29,600	
Micro Surface	\$ 3.60	SY	\$ 33,800	\$ 36,000	\$ 38,100	\$ 40,200	\$ 42,300	\$ 44,400	\$ 46,500	\$ 48,600	\$ 50,700	
Cold Mix Leveling Course	\$ 7.30	SY	\$ 68,600	\$ 72,900	\$ 77,100	\$ 81,400	\$ 85,700	\$ 90,000	\$ 94,300	\$ 98,600	\$ 102,800	
Milling	\$ 1.75	SY	\$ 16,500	\$ 17,500	\$ 18,500	\$ 19,600	\$ 20,600	\$ 21,600	\$ 22,600	\$ 23,700	\$ 24,700	
Surface Asphalt Scratch (0.75")	\$ 77.00	Ton	\$ 30,200	\$ 32,000	\$ 33,900	\$ 35,800	\$ 37,700	\$ 39,600	\$ 41,500	\$ 43,300	\$ 45,200	
Surface Asphalt (1")	\$ 79.00	Ton	\$ 41,200	\$ 43,800	\$ 46,400	\$ 49,000	\$ 51,500	\$ 54,100	\$ 56,700	\$ 59,300	\$ 61,800	
Surface Asphalt (1.25")	\$ 79.00	Ton	\$ 51,500	\$ 54,800	\$ 58,000	\$ 61,200	\$ 64,400	\$ 67,600	\$ 70,900	\$ 74,100	\$ 77,300	
Surface Asphalt (1.50")	\$ 79.00	Ton	\$ 61,800	\$ 65,700	\$ 69,600	\$ 73,400	\$ 77,300	\$ 81,200	\$ 85,000	\$ 88,900	\$ 92,700	
Surface Asphalt (1.75")	\$ 79.00	Ton	\$ 72,100	\$ 76,700	\$ 81,200	\$ 85,700	\$ 90,200	\$ 94,700	\$ 99,200	\$ 103,700	\$ 108,200	
Surface Asphalt (2")	\$ 79.00	Ton	\$ 82,400	\$ 87,600	\$ 92,700	\$ 97,900	\$ 103,000	\$ 108,200	\$ 113,300	\$ 118,500	\$ 123,600	
Intermediate Asphalt (1.5")	\$ 74.00	Ton	\$ 57,900	\$ 61,600	\$ 65,200	\$ 68,800	\$ 72,400	\$ 76,000	\$ 79,600	\$ 83,300	\$ 86,900	
Intermediate Asphalt (1.75")	\$ 74.00	Ton	\$ 67,600	\$ 71,800	\$ 76,000	\$ 80,200	\$ 84,500	\$ 88,700	\$ 92,900	\$ 97,100	\$ 101,300	
Intermediate Asphalt (2")	\$ 74.00	Ton	\$ 77,200	\$ 82,100	\$ 86,900	\$ 91,700	\$ 96,500	\$ 101,300	\$ 106,200	\$ 111,000	\$ 115,800	
Base Repairs (5" Deep) 5% Road Area	\$ 210.00	CY	\$ 13,700	\$ 14,600	\$ 15,400	\$ 16,300	\$ 17,200	\$ 18,000	\$ 18,900	\$ 19,700	\$ 20,600	
Base Repairs (5" Deep) 10% Road Area	\$ 210.00	CY	\$ 27,400	\$ 29,100	\$ 30,800	\$ 32,600	\$ 34,300	\$ 36,000	\$ 37,700	\$ 39,400	\$ 41,100	
Base Repairs (5" Deep) 20% Road Area	\$ 210.00	CY	\$ 54,800	\$ 58,200	\$ 61,600	\$ 65,100	\$ 68,500	\$ 71,900	\$ 75,300	\$ 78,800	\$ 82,200	
Base Repairs (5" Deep) 30% Road Area	\$ 210.00	CY	\$ 82,200	\$ 87,300	\$ 92,400	\$ 97,600	\$ 102,700	\$ 107,800	\$ 113,000	\$ 118,100	\$ 123,200	
Berm Stone	\$ 6,000.00	Mile										
Center Line	\$ 800.00	Mile										
Edge Lines	\$ 900.00	Mile										

*The following examples are included to show how the cost data table above may be used to estimate the cost of a potential project. Please note there are additional examples on the back of this sheet.

Example 1

Road Length: 1 Mile

Road Width: 20'

Estimated cost to chip and fog seal. Centerline Striping shall be included as well.

Chip and Fog Seal = \$24,700/mile

Center Line = \$800/mile

Total Estimated Cost/mile = (\$24,700+\$800) = \$25,500

Example 2

Road Length: 1 Mile

Road Width: 20'

Estimated cost for a 1.5" hot mix overlay with centerline striping and berm included.

1.5" Hot Mix Surface = \$77,300/mile

Center Line = \$800/mile

Berm = \$6,000/mile

Total Estimated Cost/mile = (\$79,200+\$800+\$6000) = \$84,100

Example 3

Road Length: 1 Mile

Road Width: 18'

Estimated cost to mill off the existing surface asphalt, perform base repairs (approximately 5% of the road area) and lay a 0.75" hot mix scratch course and 1.25" surface course. Berm and striping shall also be included.

Milling = \$18,500/mile

Base Repairs = \$15,400/mile

0.75" Asphalt Scratch = \$33,900/mile

1.25" Asphalt Surface = \$58,000/mile

Berm = \$6,000/mile

Center Line = \$800/mile

Edge Line = \$900/mile

Total Estimated Cost/mile = (\$18,500+\$15,400+\$33,900+\$58,000+\$6,000+\$800+\$900) = \$133,500

Thank You

Questions?

Comments?

