

Town of South Bethany, DE

Managing Your Pavements
Effectively

Presented by:



Alan Kercher, P.E.

Kercher Engineering, Inc.



Kercher Engineering, Inc.

- Cradle to Grave Engineers for Various Municipalities
 - From Condition Surveys to Managing Final Construction
 - Provides a Full Understanding of Complete Pavement Management
- Pavement Management with a Focus on Preservation
 - More than 21 years of Experience
 - Small Cities to Large Cities/Counties to State DOT's
 - Delaware Technology Transfer (T2) Center – 16 Years
 - DelDOT Pavement Management Consultants
- Provide Training and Technical Assistance at the Local, State, National and International Levels
 - More than 250 Presentations, Workshops and Seminars

Why Manage Your Pavements?

We Maintain Vehicles Properly



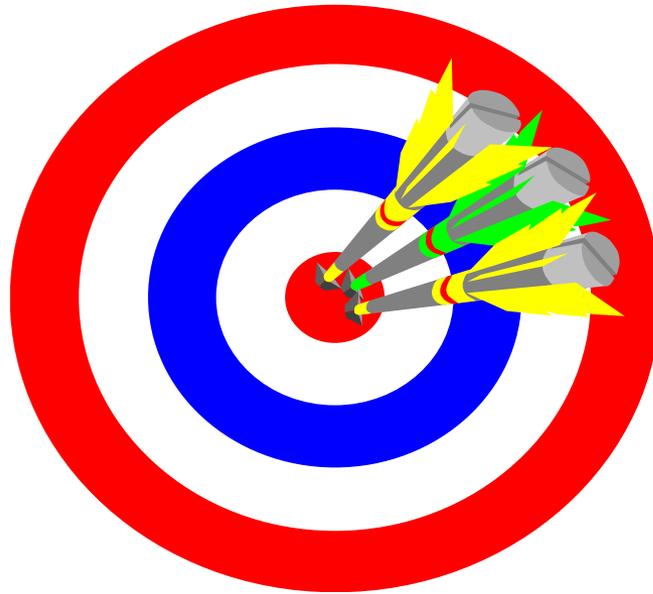
We Maintain Buildings Properly



But We Don't Maintain Roads Properly



**There needs to be
a Better Method!**

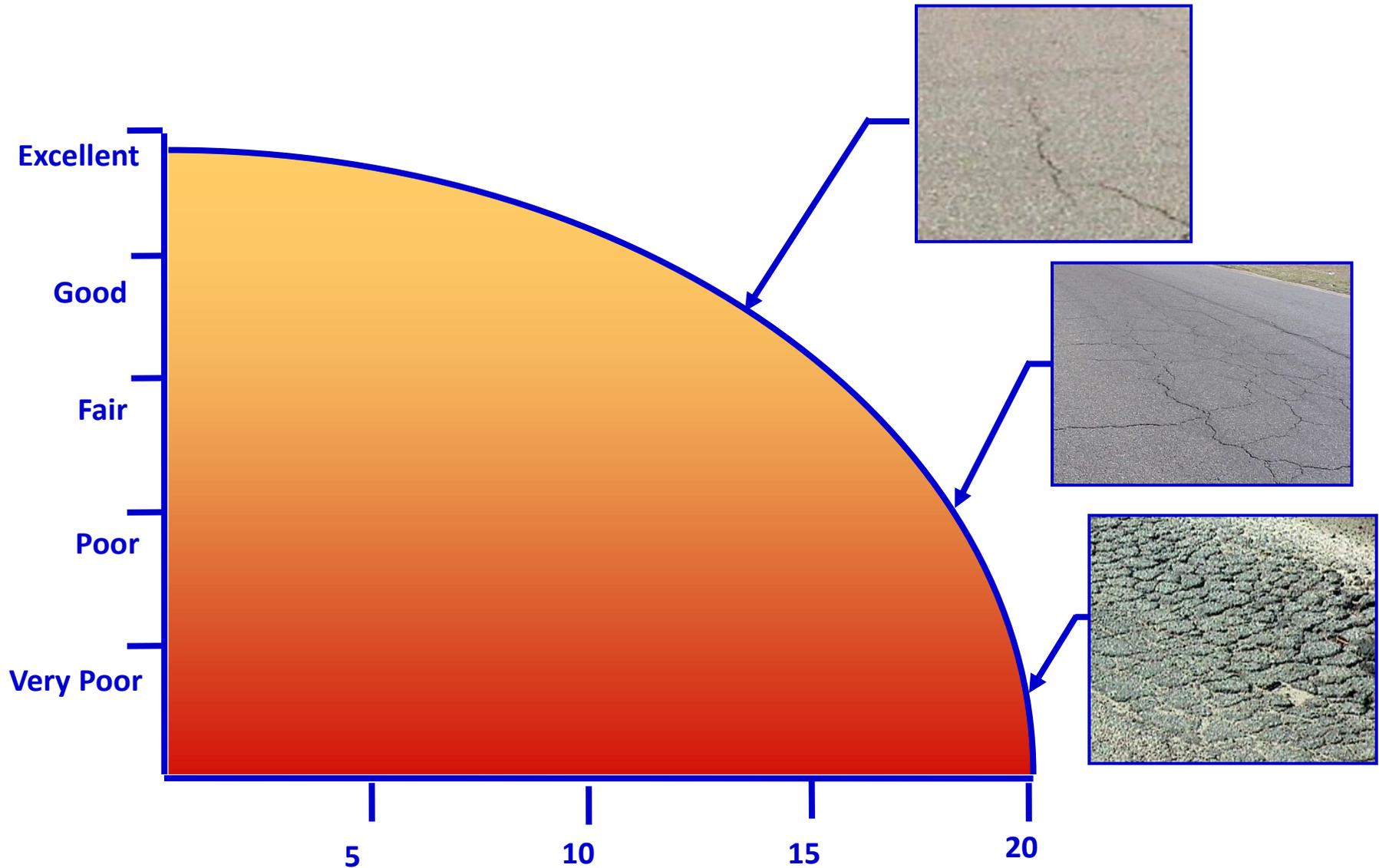


Pavement Management

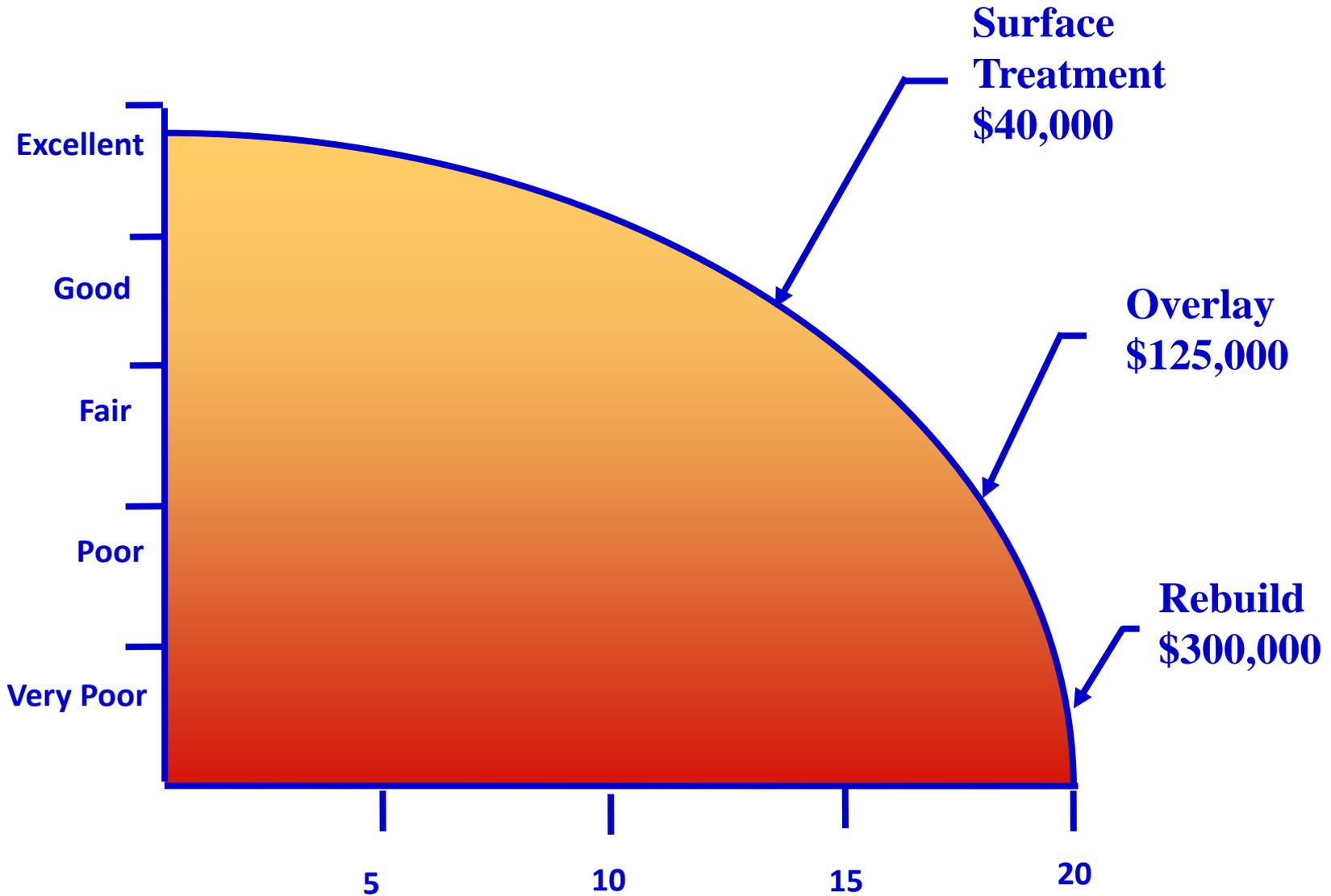
Why Timing Is Critical?



Pavement Deterioration Accelerates with Time



Cost of Delaying Maintenance

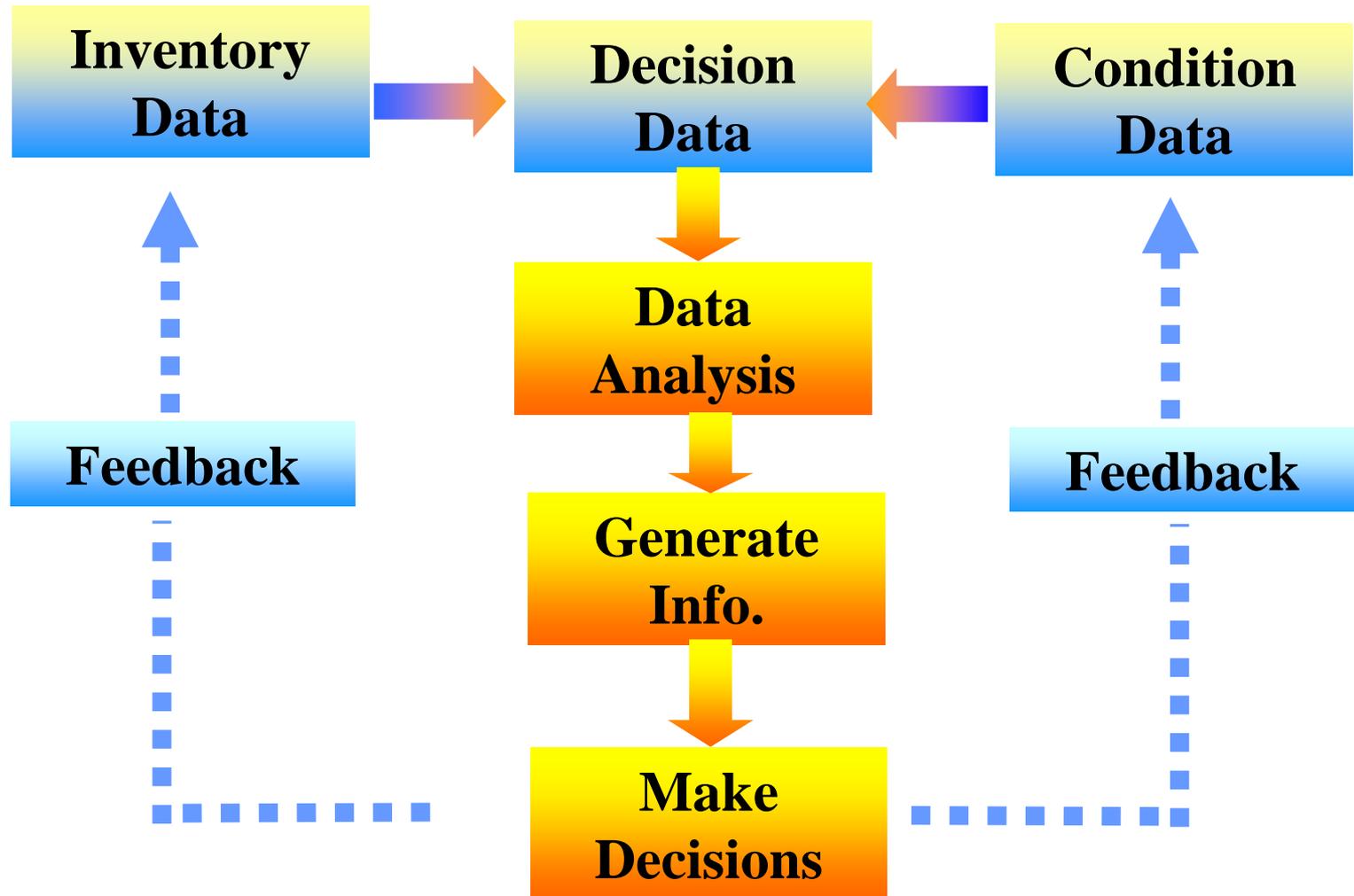


What is
Pavement Management?

Pavement Management

- Planning tool for Budgeting:
 - Rational, Schematic Approach to managing Pavements
 - Collects and monitors information on current pavement conditions
 - Determines Repair Strategies and Costs
 - Prioritizes Selected Repairs

PMS Flow Chart



Network-Level Management

- Overall road system
- Approximate Costs
 - Average values: actual costs depend on many factors including project size
- “General” Scope of Work
 - Based on Windshield Survey
 - Requires Project-Level Analysis to finalize
 - Scope of Work
 - Budget

Developing a Budget

- Develop a Short-Term Plan (3-5 Years) based on allocated Levels of Investment
 - Ranking based on Priorities
 - Main Roads
 - Feeder Roads
 - Dead Ends

<u>Year 1 - Approx. \$175,000</u>						
No.	ROAD NAME	FROM STREET	TO STREET	LENGTH (mi.)	DESCRIPTION	COST
1	SCHOOL LN-05	GLENWOOD AVE	NORTH ST	0.090	Full Depth Reclaim	\$29,937.60
2	SCHOOL LN-06	NORTH ST	MT VERNON ST	0.110	Full Depth Reclaim	\$36,590.40
3	LAKE DR WEST-05	CINDY LN	KATES WAY	0.170	Full Depth Reclaim	\$64,088.64
4	E. COOK AVE-03	BELMONT AVE	W. COOK AVE	0.090	Full Depth Reclaim	\$29,937.60
5	W. COOK AVE-04	PAVE CHANGE	COOK CT	0.010	Full Depth Reclaim	\$3,326.40
6	MILL ST-01	MAIN ST	RT. 13 S.B.	0.050	Full Depth Reclaim	\$8,870.40
Year 1 Length:				0.520	Year 1 Cost:	\$172,751.04
<u>Year 2 - Approx. \$175,000</u>						
No.	ROAD NAME	FROM STREET	TO STREET	LENGTH (mi.)	DESCRIPTION	COST
1	W. COOK AVE-05	COOK CT	E. COOK AVE	0.160	Full Depth Reclaim	\$53,222.40
2	LAKE DR WEST-03	MARILYN RD	MARILYN RD	0.180	Patch, M & O	\$40,068.86
3	LAKE DR WEST-04	MARILYN RD	CINDY LN	0.070	Patch, M & O	\$15,582.34
4	NORTH ST-08	EAST ST	RT. 13 N.B.	0.100	Mill_Overlay	\$26,716.80
5	SCHOOL LN-09	SOUTH ST	KENT WAY	0.120	Mill_Overlay	\$25,090.56
6	CHESTNUT ST	EAST ST	MAIN ST	0.100	Full Depth Reclaim	\$24,393.60
Year 2 Length:				0.730	Year 2 Cost:	\$185,074.56

- Over time, the data becomes old as pavements continue to deteriorate

Project-Level Management

- Once **Candidate Roads** are selected through Prioritization:
 - Examined more closely to determine:
 - Exact scope of work
 - More accurate cost estimate
 - With more accurate information:
 - The number of roads to be repaired may need to be revised.

Town of South Bethany

2008 Survey Results

Network Summary

2008 Report

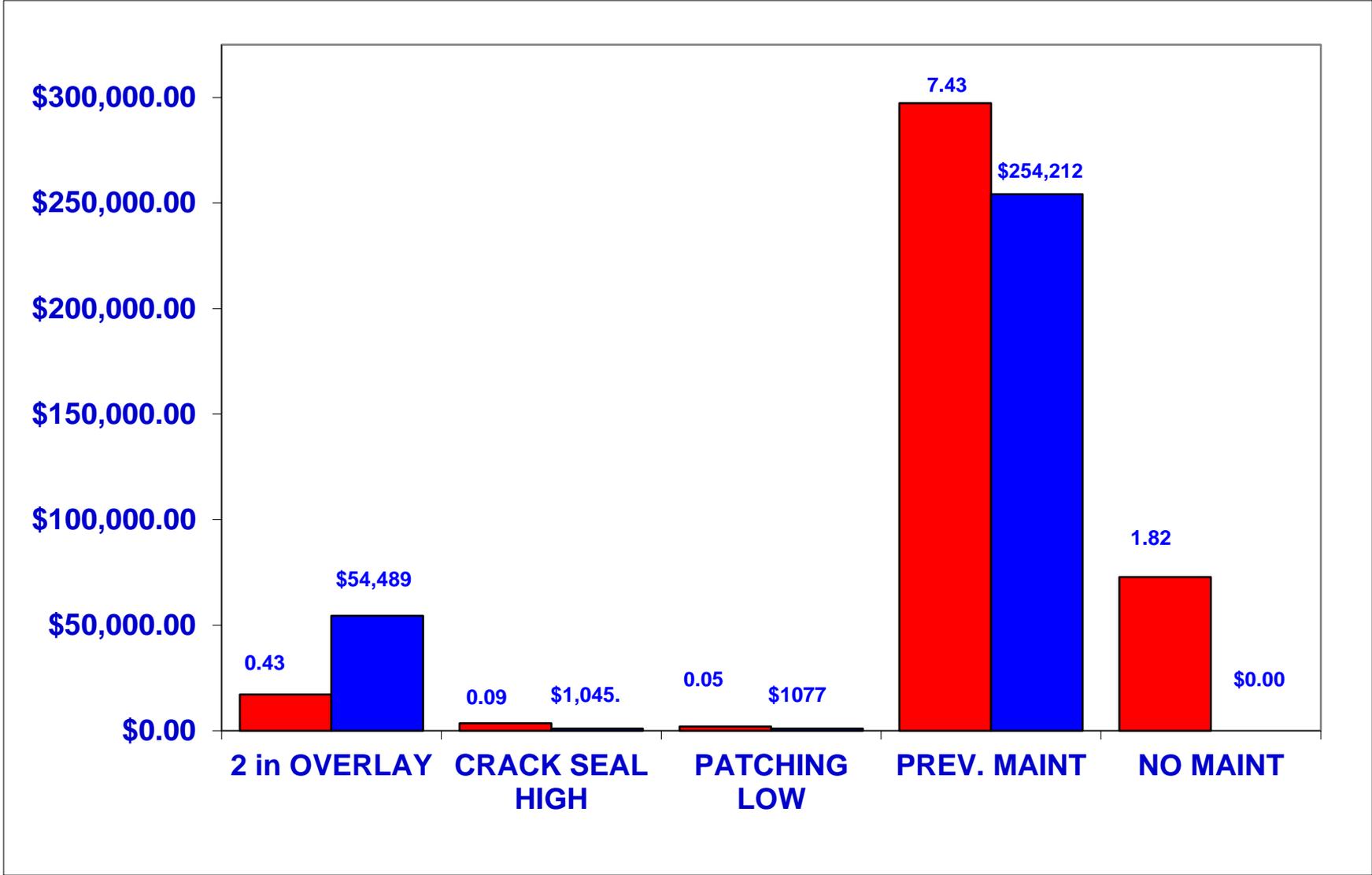
REPAIR STRATEGY	DISTANCE	PERCENT	COST
2 in OVERLAY	0.43 MILES	4.38%	\$54,489.60
Crack Seal-High	0.09 MILES	0.92%	\$1,045.44
Patching-Low	0.05 MILES	0.51%	\$1,077.12
Preventive Maintenance	7.43 MILES	75.66%	\$254,212.97
NO MAINTENANCE REQUIRED	1.82 MILES	18.53%	\$0.00
TOTAL	9.82 MILES		\$310,825.13

Cost per Mile : \$31,652.25

Pavement Condition Index : 88.76

Recommended Repairs

Cost and Mileage by Treatment Type



5-Year Budget/Work Plan

<u>Year 1 - Approx. \$150,000</u>							
No.	ROAD NAME	FROM STREET	TO STREET	LENGTH (mi.)	DESCRIPTION	COST	
1	NEW AMSTEL AVE-01	CASMIR DR	CASMIR DR	0.110	Patch, Mill&Overlay	\$60,600.67	
2	THE STRAND-01	HARMONY	DELAWARE	0.190	Patch & Overlay	\$36,596.74	
3	THIRTEENTH ST-03	WASHINGTON	LINDEN	0.100	Mill & Overlay	\$27,297.60	
4	TWELFTH ST-02	WASHINGTON	LINDEN	0.090	Mill & Overlay	\$25,684.56	
				Year 1 Length:	0.490	Year 1 Cost:	\$150,179.57
<u>Year 2 - Approx. \$150,000</u>							
No.	ROAD NAME	FROM STREET	TO STREET	LENGTH (mi.)	DESCRIPTION	COST	
1	THIRTEENTH ST-04	LINDEN	OAK	0.260	Mill & Overlay	\$70,973.76	
2	TWELFTH ST-03	LINDEN	11TH	0.290	Patch, Mill&Overlay	\$99,313.63	
				Year 2 Length:	0.550	Year 2 Cost:	\$170,287.39
<u>Year 3 - Approx. \$150,000</u>							
No.	ROAD NAME	FROM STREET	TO STREET	LENGTH (mi.)	DESCRIPTION	COST	
1	CHESTNUT ST-01	6TH	4TH	0.170	Mill & Overlay	\$73,827.60	
2	ELEVENTH ST-02	JUNIPER	WASHINGTON	0.120	Patch, Mill&Overlay	\$39,308.54	
3	FOURTH ST-06	CHESTNUT	RD. 19	0.100	Mill & Overlay	\$32,260.80	
				Year 3 Length:	0.390	Year 3 Cost:	\$145,396.94
<u>Year 4 - Approx. \$150,000</u>							
No.	ROAD NAME	FROM STREET	TO STREET	LENGTH (mi.)	DESCRIPTION	COST	
1	FOURTEENTH ST-01	OAK	BALLANCA	0.200	Patch, Mill&Overlay	\$98,271.36	
2	FOURTEENTH ST-02	BALLANCA	PAVE CHANGE	0.030	Patch, Mill&Overlay	\$14,740.70	
3	FOURTEENTH ST-06	NEW AMSTEL	STUYVESANT	0.050	Mill & Overlay	\$21,093.60	
4	FOURTEENTH ST-07	STUYVESANT	BALDT	0.060	Mill & Overlay	\$25,312.32	
				Year 4 Length:	0.340	Year 4 Cost:	\$159,417.98
<u>Year 5 - Approx. \$150,000</u>							
No.	ROAD NAME	FROM STREET	TO STREET	LENGTH (mi.)	DESCRIPTION	COST	
1	STUYVESANT AVE-01	14TH	CASMIR	0.120	Mill & Overlay	\$32,757.12	
2	THIRD ST-05	SOUTH	PENN	0.050	FullDepthReclamation	\$33,633.60	
3	THIRD ST-06	PENN	BOAT RAMP	0.130	FullDepthReclamation	\$67,267.20	
				Year 5 Length:	0.300	Year 5 Cost:	\$133,657.92
				Total Length:	2.070	Total Cost:	\$758,939.80

Micro-Surfacing

A Preservation Treatment

Micro-surfacing

- A High-Tech Chip Seal
- Developed for the Autobahn in the late 60's
- Cost: Approximately \$3 per Sq. Yd.
- Locally:
 - Fenwick Island
 - Round 1: 1994
 - Round 2: 2005
 - Ocean View
 - Since 2005
 - Lewes
 - Since 2000 (±)

Micro-Surfacing

- Applied as a slurry mixture
 - Emulsified Asphalt Cement
 - Aggregates
 - Curing Agents
- No Traffic for One Hour
 - Emergency traffic after 10-15 minutes preferred



Micro-Surfacing

- Not as smooth as Hot Mix Asphalt
- Aesthetics Improve with Time
- Strongly Recommend a Community Outreach Program
 - Explain What It Is
 - Explain What to Expect
 - Explain Why (Save \$\$\$)
 - Extend Life Very Cost Effectively
 - Environmentally Friendly



Alan Kercher, P.E.

ask@kercherei.com

302-894-1098, Ext. 301

KERCHER ENGINEERING, INC.

www.kercherei.com