

Town of Weymouth, MA Pavement Management Study



Presented by: Vanasse Hangen Brustlin, Inc.
November 19, 2012



Presentation Overview



- Pavement Management Concepts
- Pavement Management in Weymouth
 - ❖ Current Conditions & Backlog
 - ❖ Budget Analysis
- Recommendations

Pavement Management Concepts



What is Pavement Management?

- The practice of planning for pavement maintenance and rehabilitation with the goal of maximizing the value and life of a pavement network.

Otherwise known as
“Getting the Biggest Bang for Your Buck”

Pavement Management Concepts



The Process

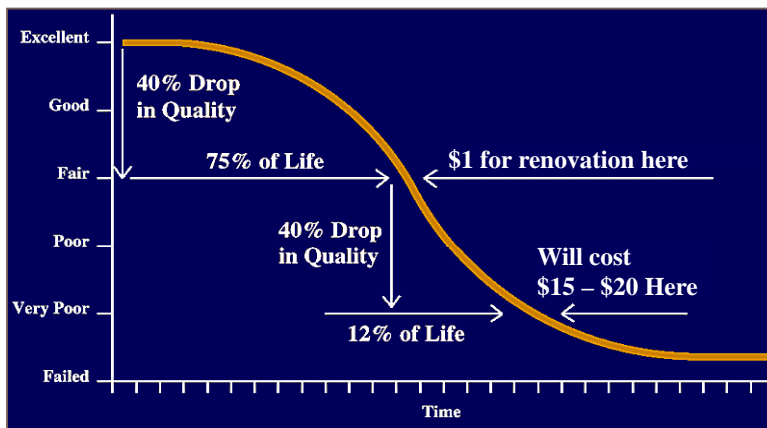
- Pavement Section Inventory
- Pavement distress identification and quantification
(Visual Inspection Only)
- Sidewalk and Curbing Inventory
- Pavement Condition Index (PCI) calculation on a 0 - 100 scale
- Define Treatment Options and Costs
- Test various Budget Scenarios
- Develop list of candidate projects
- Apply engineering and local judgment to define annual road program

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Pavement Management Concepts



Pavement Deterioration Curve



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Pilgrim Rd- North St to Wadaga Rd (PCI = 100)



No Immediate Maintenance (PCI 93-100)

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Merryknoll Rd- Green St to Fairfax St (PCI = 90)



Routine Maintenance Condition (PCI 86-92)

Treatment options – Crack sealing, patching

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Green St- Elva St to East St (PCI = 73)



Preventive Maintenance Condition (PCI 73-85)

Treatment options – Crack sealing, Microsurfacing, thin overlay

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Fuller Rd- Weyham St to Irving Rd (PCI = 59)



Structural Improvement Condition (PCI 59-72)

Treatment options – Overlay or Mill & Overlay

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Harlem Rd- Fort Point Rd to Dead End (PCI = 40)



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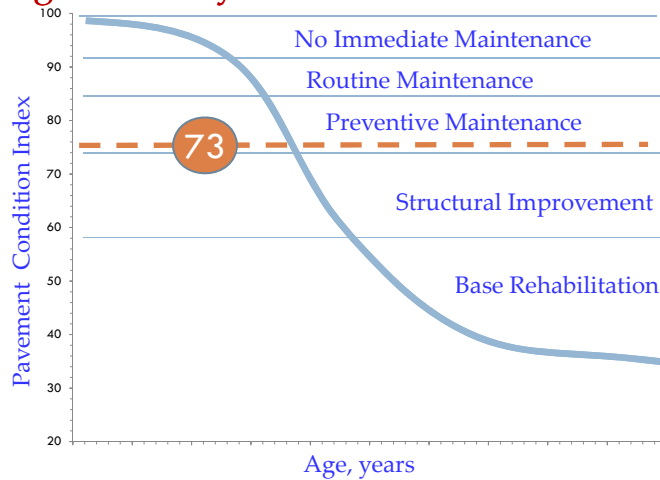
Treatment options – Reclamation, Reconstruction

Pavement Management in Weymouth

Town Maintained Roads Only (No State or Private)



Average Roadway Pavement Condition Index = 73

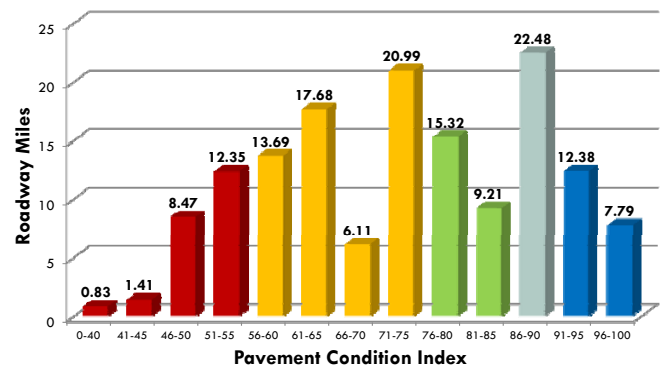


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Pavement Management in Weymouth

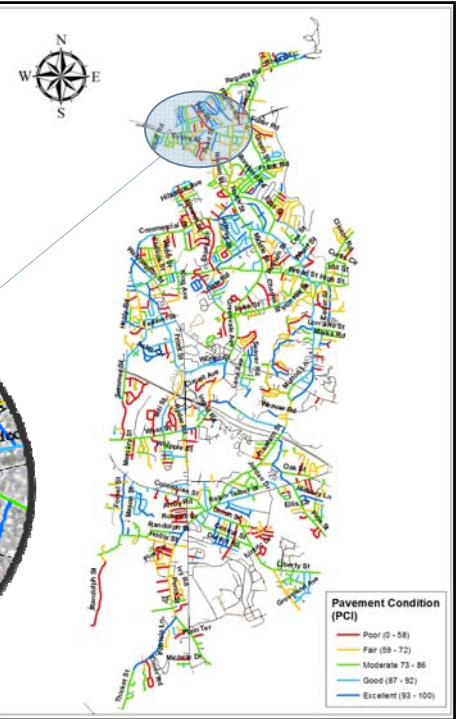


Roadway Pavement Condition Index Distribution



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Pavement Condition GIS Map



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Sidewalk Data Summary

Material	Condition	Mileage
Bituminous Concrete	Excellent	2.85
Bituminous Concrete	Good	67.34
Bituminous Concrete	Fair	52.6
Bituminous Concrete	Poor	21.20
Pavers	Fair	<.01
Portland Cement Concrete	Excellent	1.23
Portland Cement Concrete	Good	5.14
Portland Cement Concrete	Poor	<.01
	Total:	150.38

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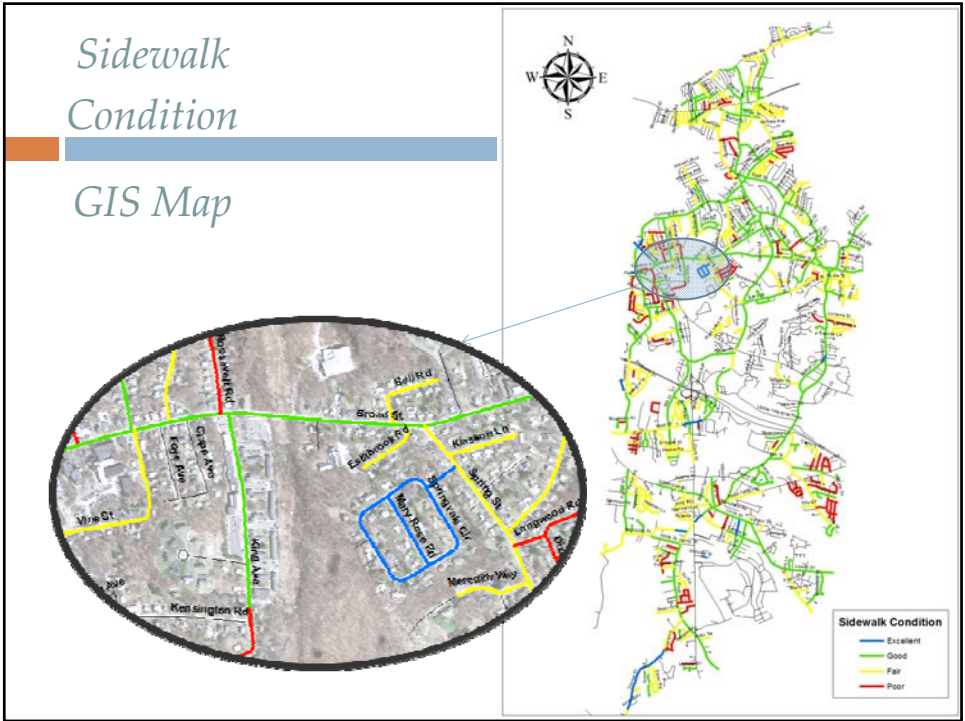
Curb Data Summary

Material	Condition	Mileage
Bituminous Concrete	Excellent	1.45
Bituminous Concrete	Good	9.45
Bituminous Concrete	Fair	6.95
Bituminous Concrete	Poor	.93
Cape Cod Berm	Excellent	2.31
Cape Cod Berm	Good	23.69
Cape Cod Berm	Fair	5.21
Granite	Excellent	20.00
Granite	Good	29.67
Granite	Fair	.98
Granite	Poor	.26
Portland Cement Concrete	Excellent	.18
Portland Cement Concrete	Good	18.8
Portland Cement Concrete	Fair	.02
Portland Cement Concrete	Poor	2.00
Other	Fair/Poor	.13
	Total:	133.03

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Sidewalk Condition

GIS Map



Pavement Management in Weymouth



Current Roadway Pavement Backlog

Pavement Treatment Band	Miles	Cost
Do Nothing	19.1	\$0
Routine Maintenance	24.5	\$183,000
Preventative Maintenance	39.1	\$3,169,000
Structural Improvement	22.6	\$6,151,000*
Base Rehabilitation	44.4	\$19,338,000*
Pavement totals:	148.7	\$28,841,000

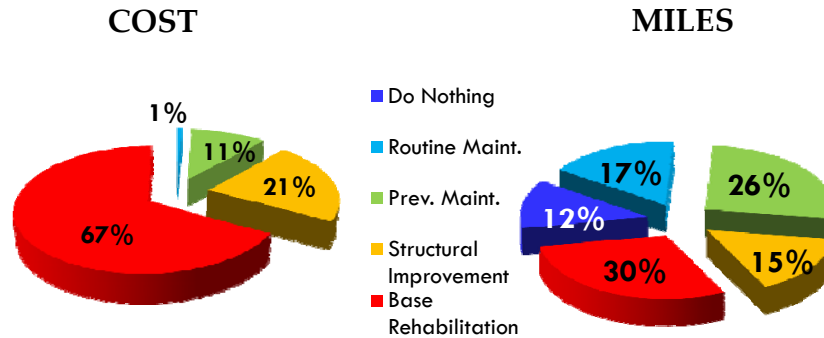
*Costs for Structural Improvement and Base Rehabilitation projects include Sidewalk and Curbing improvements.

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Current Roadway Pavement Backlog Summary



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Current Backlog by Functional Class

Treatment Band	Arterial/Collector		Local	
	Miles	Cost	Miles	Cost
Do Nothing	5.6	\$0	12.5	\$0
Routine Maintenance	9.4	\$81,000	15.1	\$101,000
Preventative Maintenance	19.0	\$1,796,000	20	\$1,368,000
Structural Improvement	5.8	\$2,272,000	16.9	\$3,909,000
Base Rehabilitation	5.0	\$3,656,000	39.5	\$15,690,000
Pavement totals:	44.8	\$7,804,000	103.9	\$21,068,000

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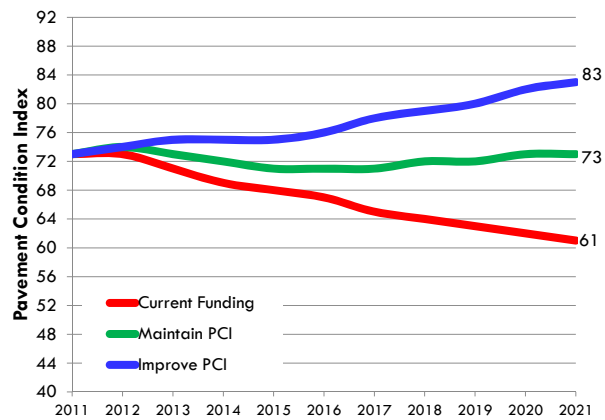
Funding Scenarios

- ❖ Current Funding - \$1.14 M/yr for 10 years (PCI decreases to 61)
- ❖ Maintain PCI - \$2.6 M/yr for 10 years (PCI remains at 73)
- ❖ Improve PCI - \$3.6 M/yr for 10 years (PCI increases to 83)

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Future Roadway Pavement Condition Comparison



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Annual Maintenance Cost Comparison

Annual Road Budget \$1,140,000	=	Annual Auto Maintenance \$\$\$ \$190
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Total Value of Road Network \$120,000,000		Value of a New Car \$20,000

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Annual Road Program Development



- Determine effective funding levels
- System recommends roads of highest benefit to the Town based on:
 - ❖ High Traffic Volume
 - ❖ Lower Repair Cost
 - ❖ Longer Repair Life Expectancy
 - ❖ Poorer Road Conditions
- The system allocates annual budget to high benefit roads and analyzes the effect on overall town wide conditions.
- Engineering judgment is used to adjust the program to reflect coordination with other projects, neighborhood programs, mobilization efficiencies, etc.

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Recommendations



- Identify pavement condition goals
- Budget adequate funds to achieve those goals
- Use the Right Tool at the Right Time in the Right Place
- Implement full spectrum of pavement treatments
- Continue to maintain updated pavement management data
- Continue to utilize pavement management system to help plan optimal road program

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Questions and Answers

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