



Town of Marion, MA Pavement Management Program



July 3, 2024

Agenda

- What is Pavement Management?
- Why? Goals & Objectives
- History
- Methodology
- State of the Network
- Budget Analysis
- Planning
- Q&A



Pavement Management Defined

- “Pavement Management is the process of planning the maintenance and repair of a network of roadways or other paved facilities in order to **optimize** pavement conditions *over the entire network.*” - Wikipedia
- “A set of tools or methods that assist decision-makers in finding **optimum** strategies for providing, evaluating, and maintaining pavements in serviceable condition over a period of time.” - FHWA

Getting the Most Bang for your Buck!

Goals & Objectives

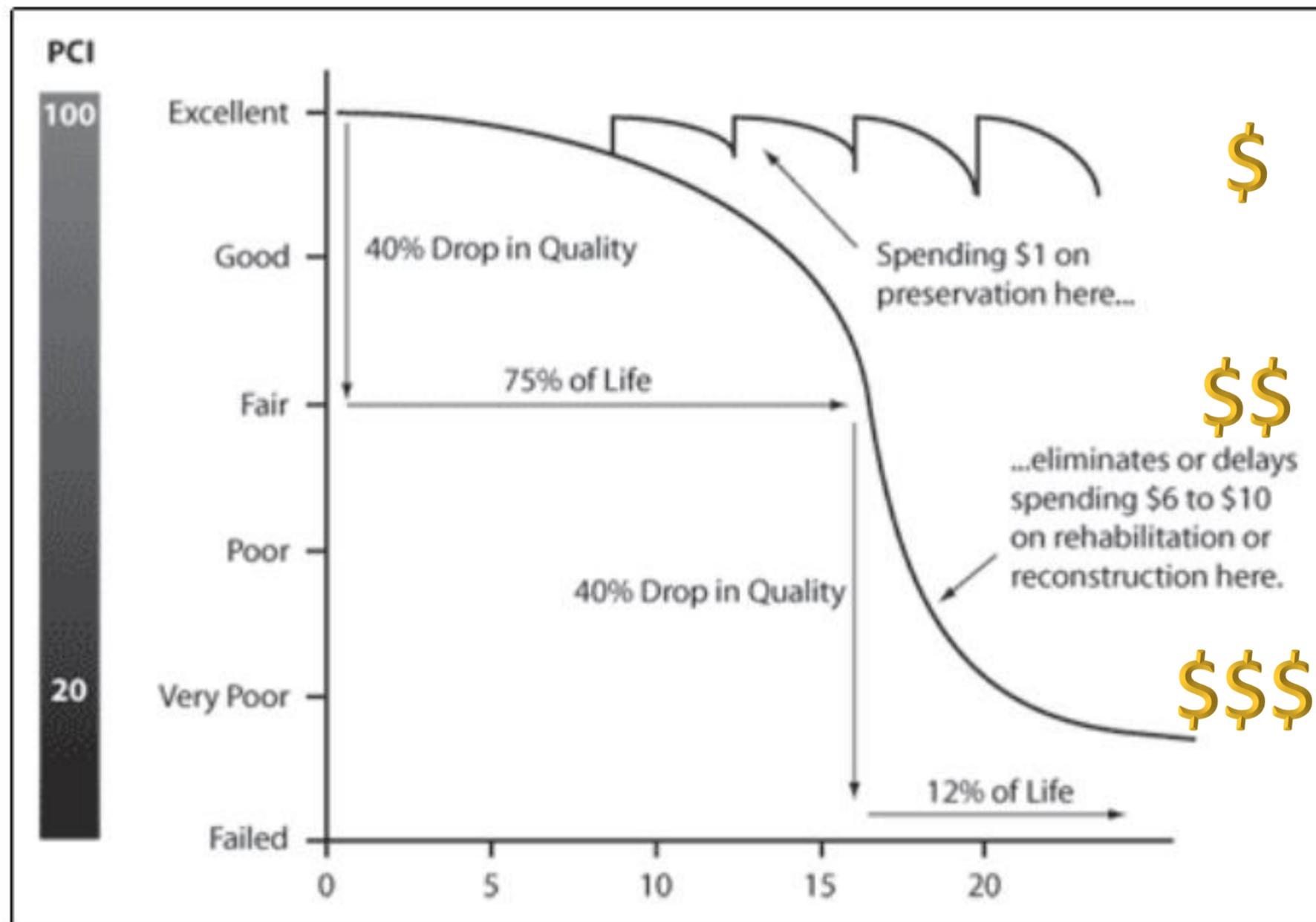
- Public Roadways are a municipality's largest asset
- “Can't Manage What You Don't Know”
- Objectively plan your annual roadwork (i.e. data-driven)
- Inject the most value into your pavement network



History

- Marion has had a PMP in place since 2018
- TEC tasked with reinspection, reporting, planning in Nov. '23
- TEC developed draft report, database, and 3-year plan through Feb. '24
- Based on DPW feedback TEC finalized analysis, summary reporting, pavement database, and 3-year plan through May '24

Methodology



Source: FHWA

- Pavement Condition Index (PCI) is a numerical rating from 0-100 to indicate the health of a particular roadway segment

Methodology

- Review existing roadway inventory (i.e. Town inventory, MassDOT inventory)
- Field Data Collection
 - Identify type and severity of surface distresses
 - Assign PCI
- Treatment Banding Analysis
- Update pavement database
- Summary Reporting

PCI	CONDITION	TREATMENT BAND
94-100	Excellent	No Maintenance
80-94	Good	Routine Maintenance
65-84	Fair	Preventive Maintenance
45-65	Deficient	Minor Rehabilitation
0-45	Poor	Major Rehabilitation

State of the Network

- Approximately 28-Miles of Town-Accepted Roadways
- Network Average PCI = 71.80
 - Represents a roadway network in 'Fair' condition
 - 12% of network requires no maintenance
 - 18% of network requires routine maintenance
 - 39% of network requires preventive maintenance
 - 31% of network requires rehabilitation (minor & major)
- Estimated Backlog = \$5.9M

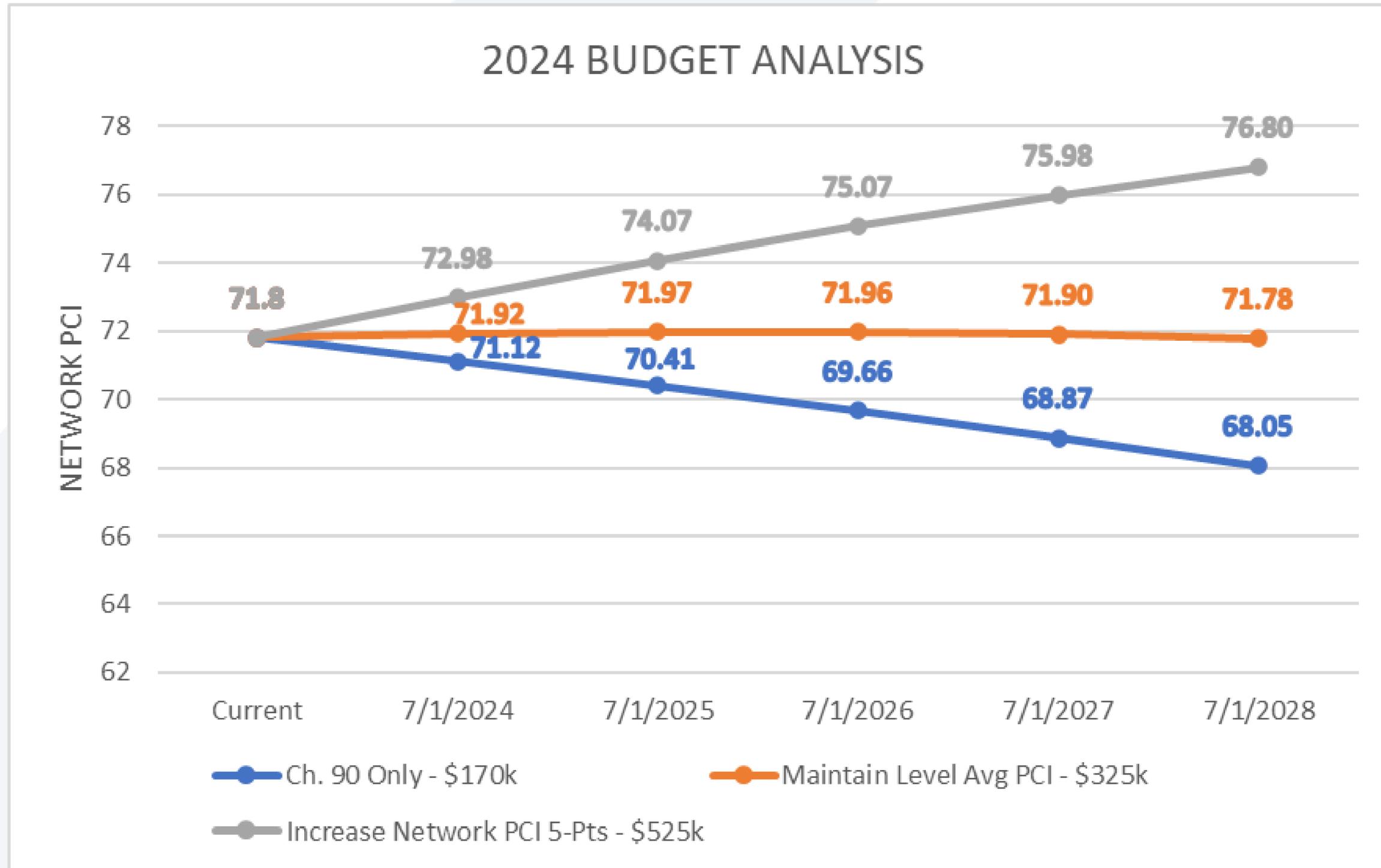


Budget Analysis

- 5-Year Horizon
- Ch. 90 Only - \$170,000 ± (FY24)
 - Network PCI decreases from 71.80 to 68.05 (-3.75)
- Maintain Level Average Network PCI
 - \$325,000 annually required
 - Nearly 2x current Ch. 90 budget
- 5-Point Network PCI Increase
 - \$525,000 annually required
 - Nearly 3x current Ch. 90 budget



Budget Analysis



Planning

- 3-Year Plan budget:

- Year 1: \$350,000
 - Year 2: \$170,000
 - Year 3 : \$170,000
- \$690,000

- Strategy

- PM focus to stretch budget
- Consider planned utility work & CS Improvements
- Catch roads before dropping into lower treatment band
- Engineering / Local Judgement



Planning

- Cost Benefit Value (CBV)
 - ADT, Life Extension, Unit Cost, PCI
 - In lieu of ADT - utilized weighted factor (1-5):
 - 5 – Arterial (Spring St, Main St)
 - 4 - Collector (Front St)
 - 3 - Hurricane / School Zones
 - 2 - Local
 - 1 – Dead Ends / Cul-de-Sacs
- Identify/Assign Repair Alternatives



Planning

- 3-Year Plan Summary:

TREATMENT BAND	ROADWAY MILES	EST. COST
Routine Maintenance	7.23	\$139,000
Preventive Maintenance	3.38	\$228,000
Minor Rehabilitation	0.59	\$313,000
Major Rehabilitation	0.00	\$0
TOTAL:	11.20	\$680,000

- 40% of network

- Network PCI Change = -1.55
(71.8 to 70.25)

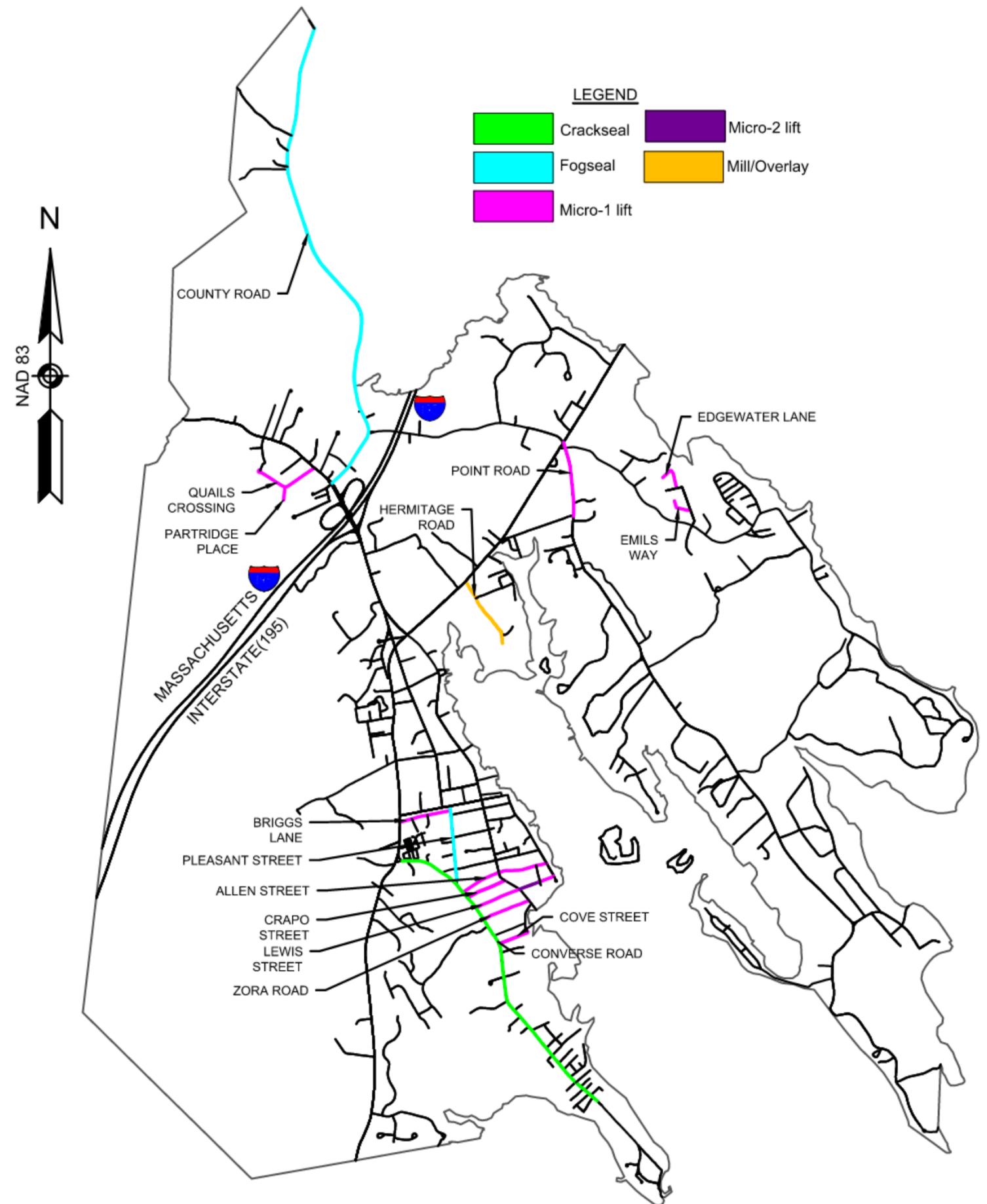
Planning

Plan Year 1

#	STREET	LENGTH (MI)	TREATMENT	EST. COST
1	Converse Road	1.80	Crackseal	\$31,890
2	County Road	1.53	Fogseal	\$34,382
3	Pleasant Street	0.38	Fogseal	\$11,872
4	Lewis Street	0.44	Microsurface Overlay	\$25,791
5	Cove Street	0.18	Microsurface Overlay	\$10,202
6	Zora Road	0.26	Microsurface Overlay	\$14,909
7	Crapo Street	0.22	Microsurface Overlay	\$11,930
8	Briggs Lane	0.27	Microsurface Overlay	\$11,412
9	Allen Street	0.47	Microsurface Overlay	\$29,759
10	Quails Crossing	0.37	Microsurface Overlay	\$21,564
11	Emils Way	0.11	Microsurface Overlay	\$6,993
12	Edgewater Lane	0.15	Microsurface Overlay	\$9,765
13	Point Road	0.39	Microsurface Overlay	\$22,703
14	Partridge Place	0.07	Microsurface Overlay	\$3,366
15	Hermitage Road	0.17	Mill & Overlay	\$52,740
	TOTAL:	6.80		\$299,276

Planning

- Plan year 1 Summary:
 - 25% of network
 - Network PCI Change = 0.67 (71.80 to 72.47)



Summary



Thank you!



TheEngineeringCorp.com