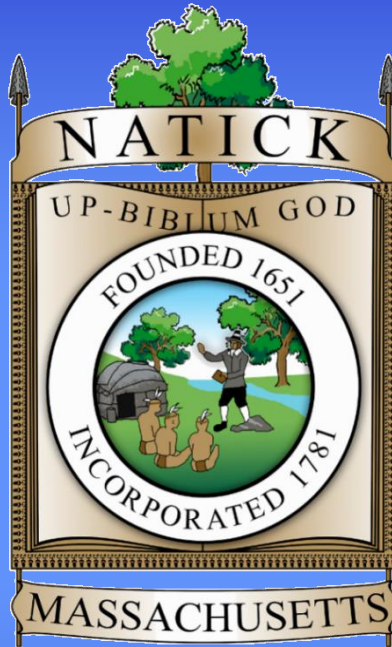


Town of Natick

Department of Public Works



Pavement Management/Pedestrian Accessibility

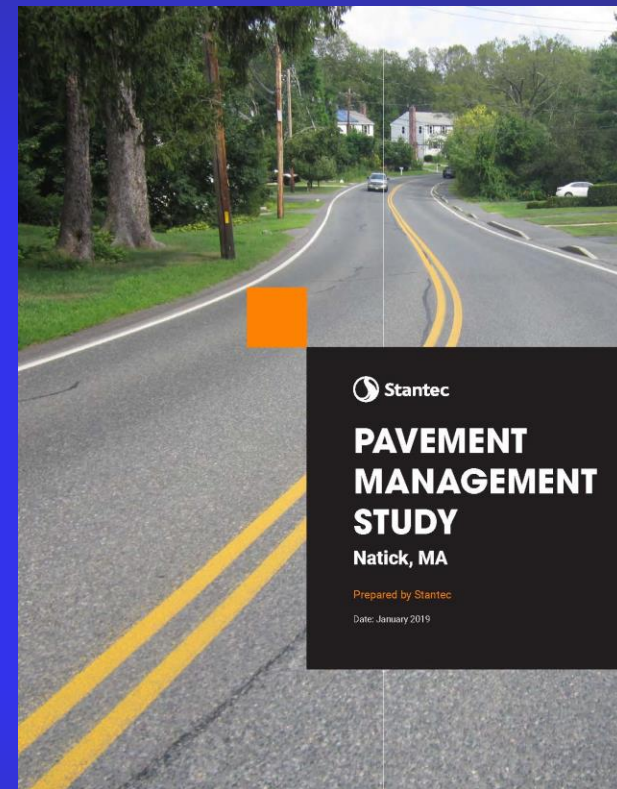
Five Year Roadway Improvement Plan

March 1, 2019



Network Level Pavement Assessment

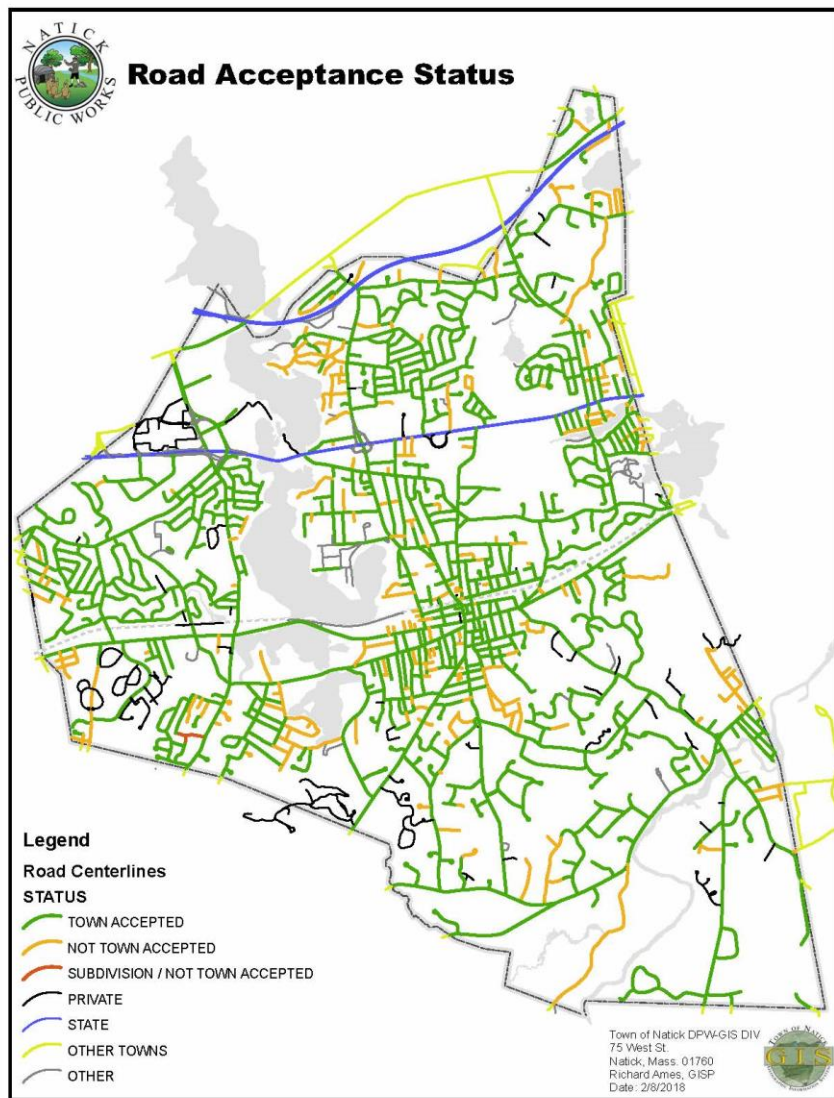
- Consultant assessed all the public and unaccepted roadways
- Identified pavement distresses for each segment
- Calculated Pavement Condition Index (PCI) 0-100 Score for each segment based on ASTM Standard
- Analyzed current conditions and backlog along with future scenarios based on network goals





Pavement Management Program

Roadway Network Profile



Type	Miles
Town Accepted	124
Unaccepted (private)	26*
Total	150

* Unaccepted Amount includes:

- 24.89 miles Paved Roads
- 1.09 miles Gravel Roads

MGL restricts public funds from being expended for capital improvements to private (unaccepted) roadways



Pavement Management Program Overview

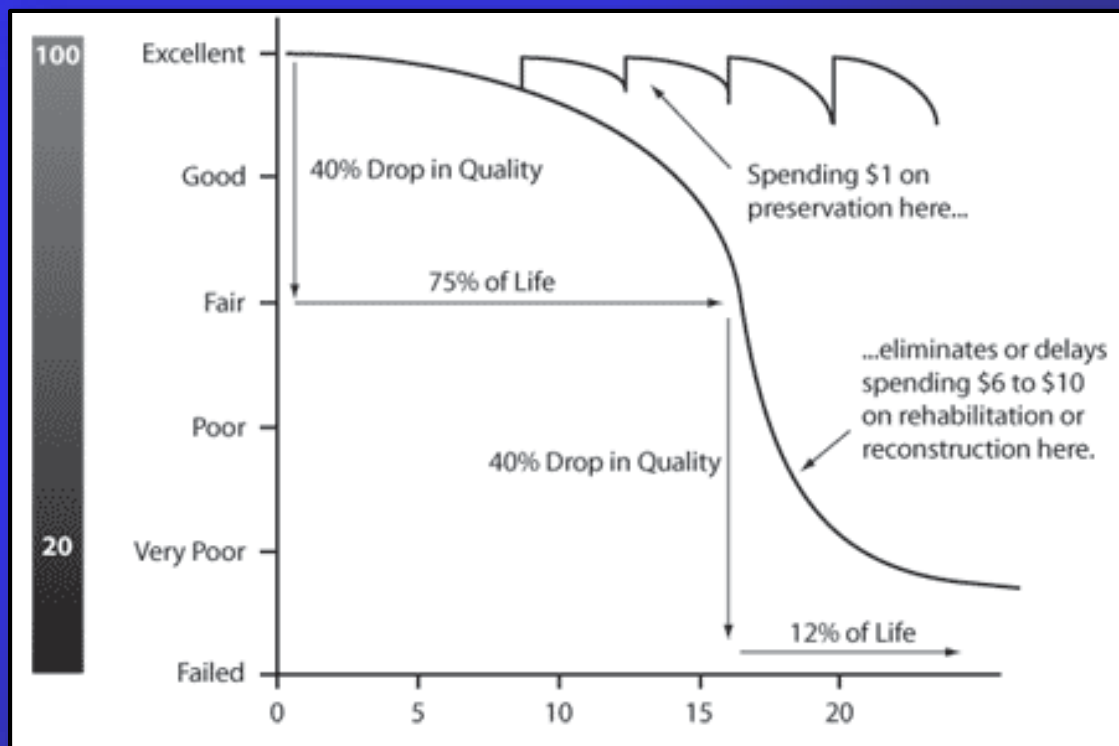
- The practice of planning for pavement maintenance and rehabilitation with the goal of maximizing the value and life of a pavement network.

- **The right repair at the right time!**

- It is more cost effective to keep good roads in good condition.

- Asset Management & Forecasting Tool

- Roadway Surface Rating (PCI) from 0 to 100 (worst to best)





Pavement Management Program

Repair & Rehabilitation Methods

Routine Maintenance

- Crack Sealing
- Patching

Preventative Maintenance

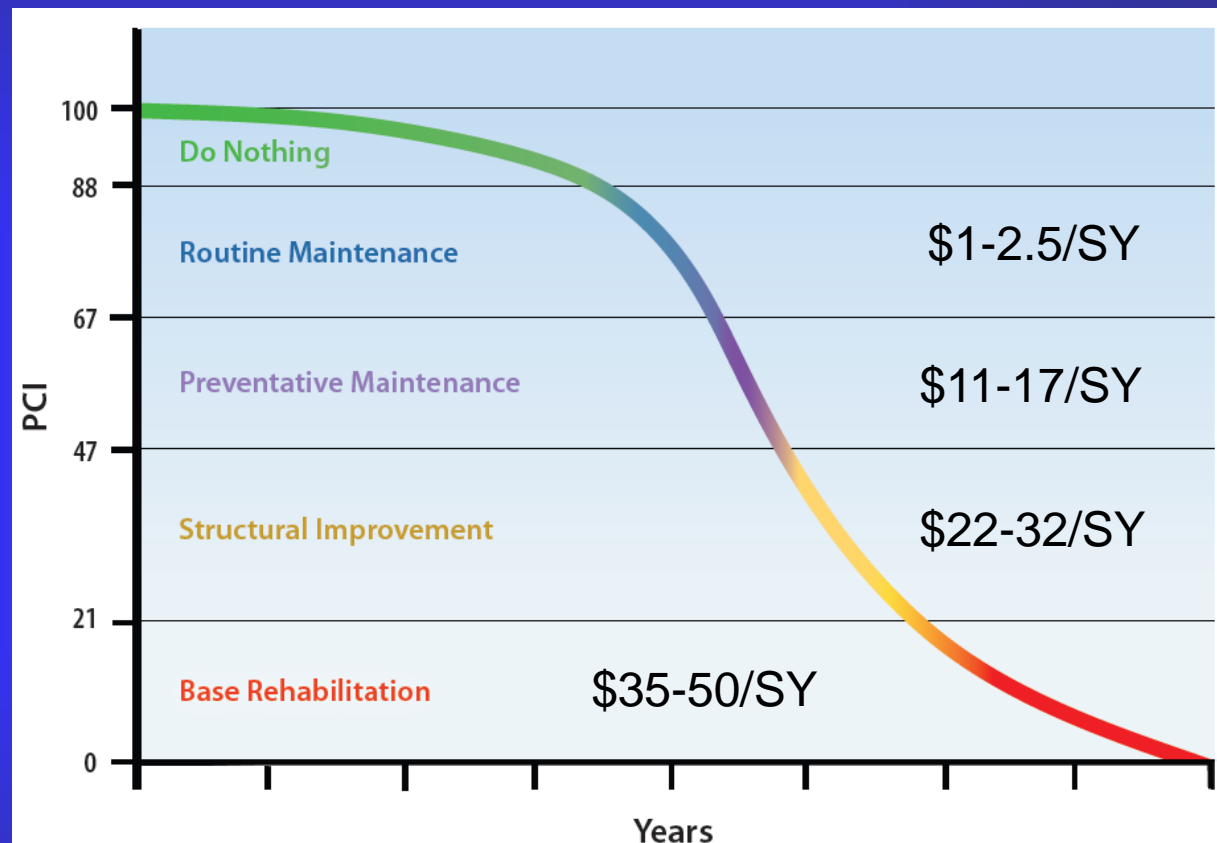
- Patch, Level & Chip Seal

Structural Improvement

- Mill and Overlay
- Level and Overlay

Base Rehabilitation

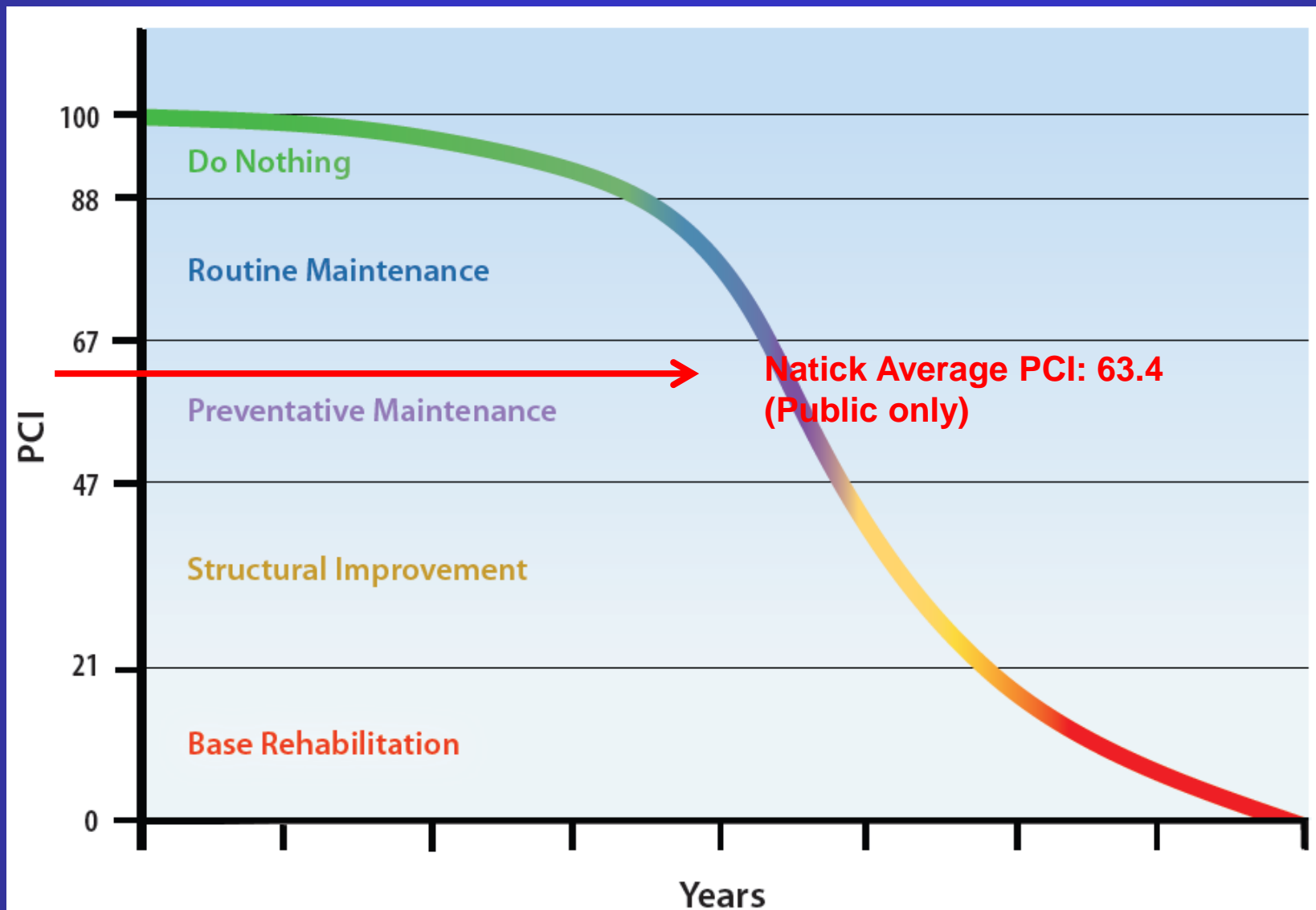
- Reclamation - \$40 SY
- Reconstruction - \$50 SY





Existing Conditions Summary

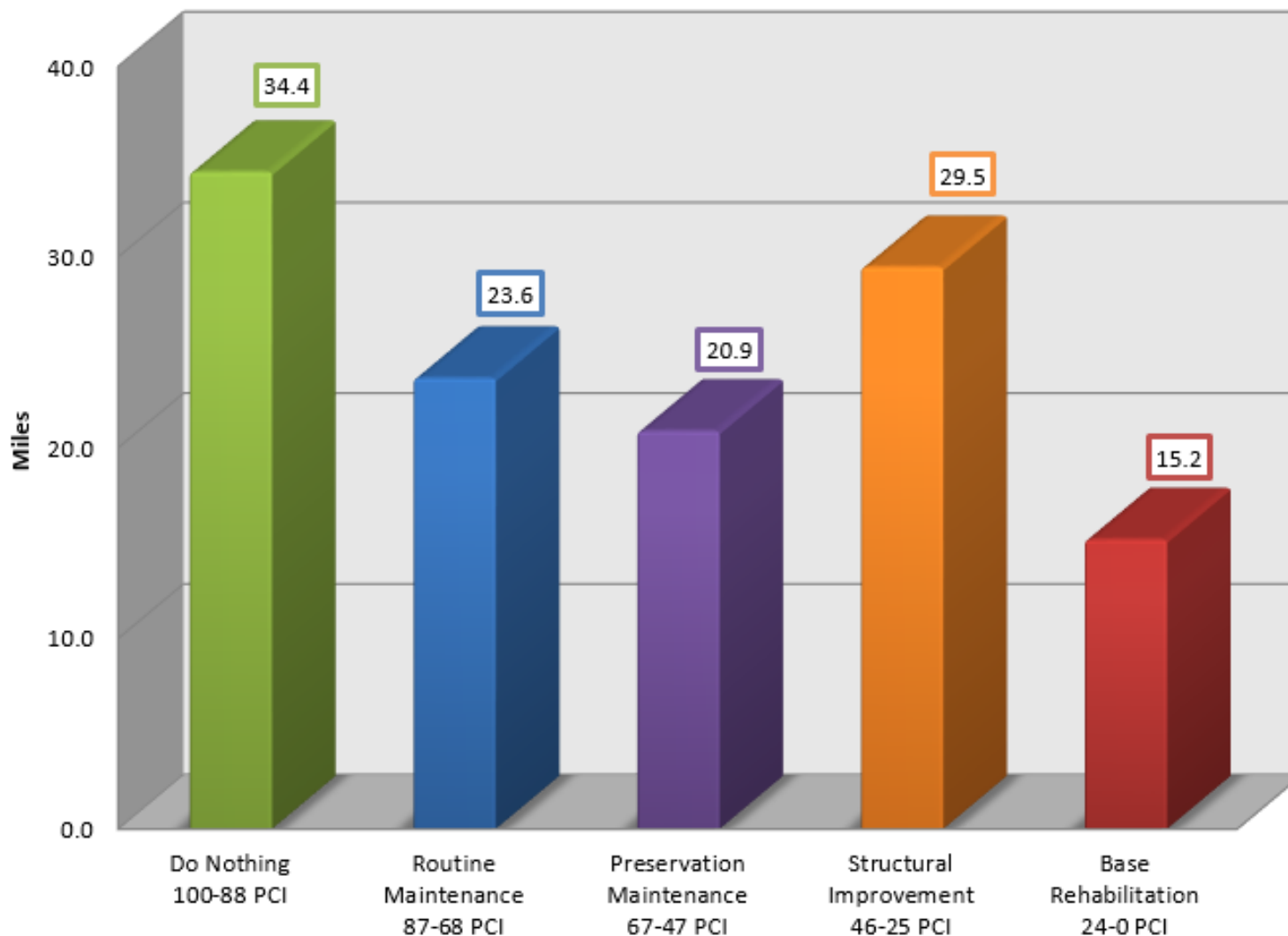
Town Accepted Roadways





Existing Conditions Summary

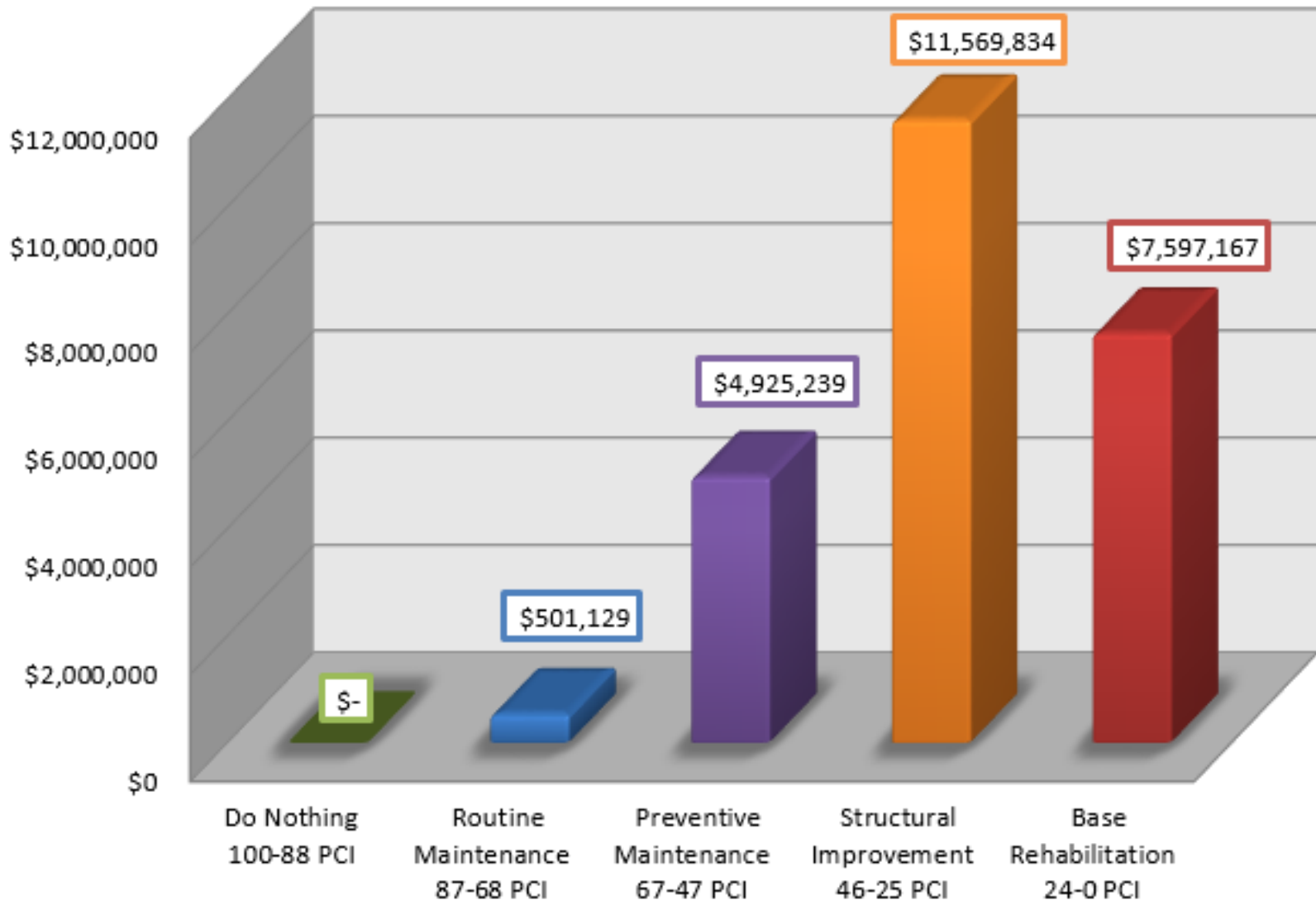
Public Roadways (124 miles)





Existing Conditions Summary

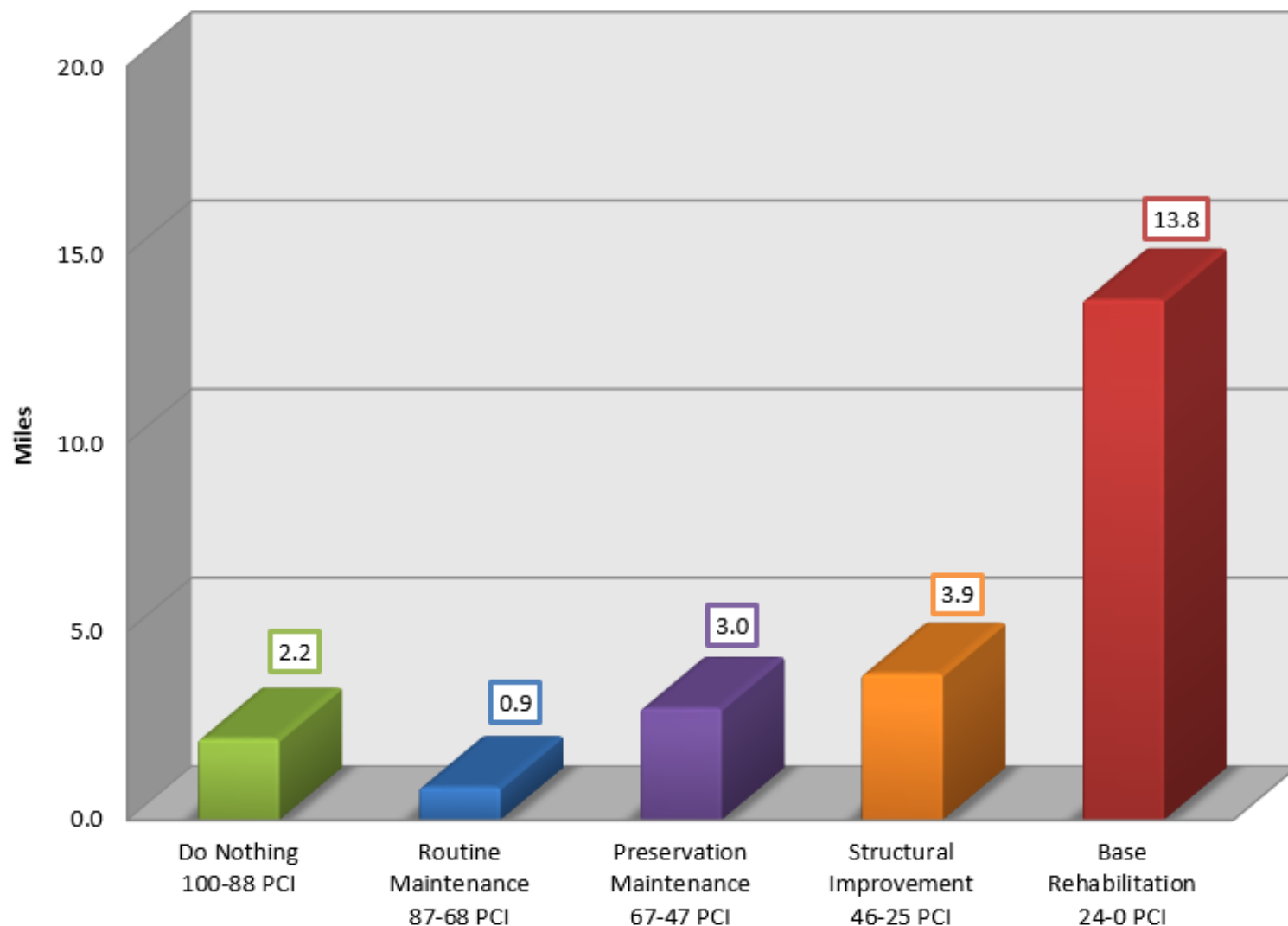
Public Roadways (124 miles)





Existing Conditions Summary

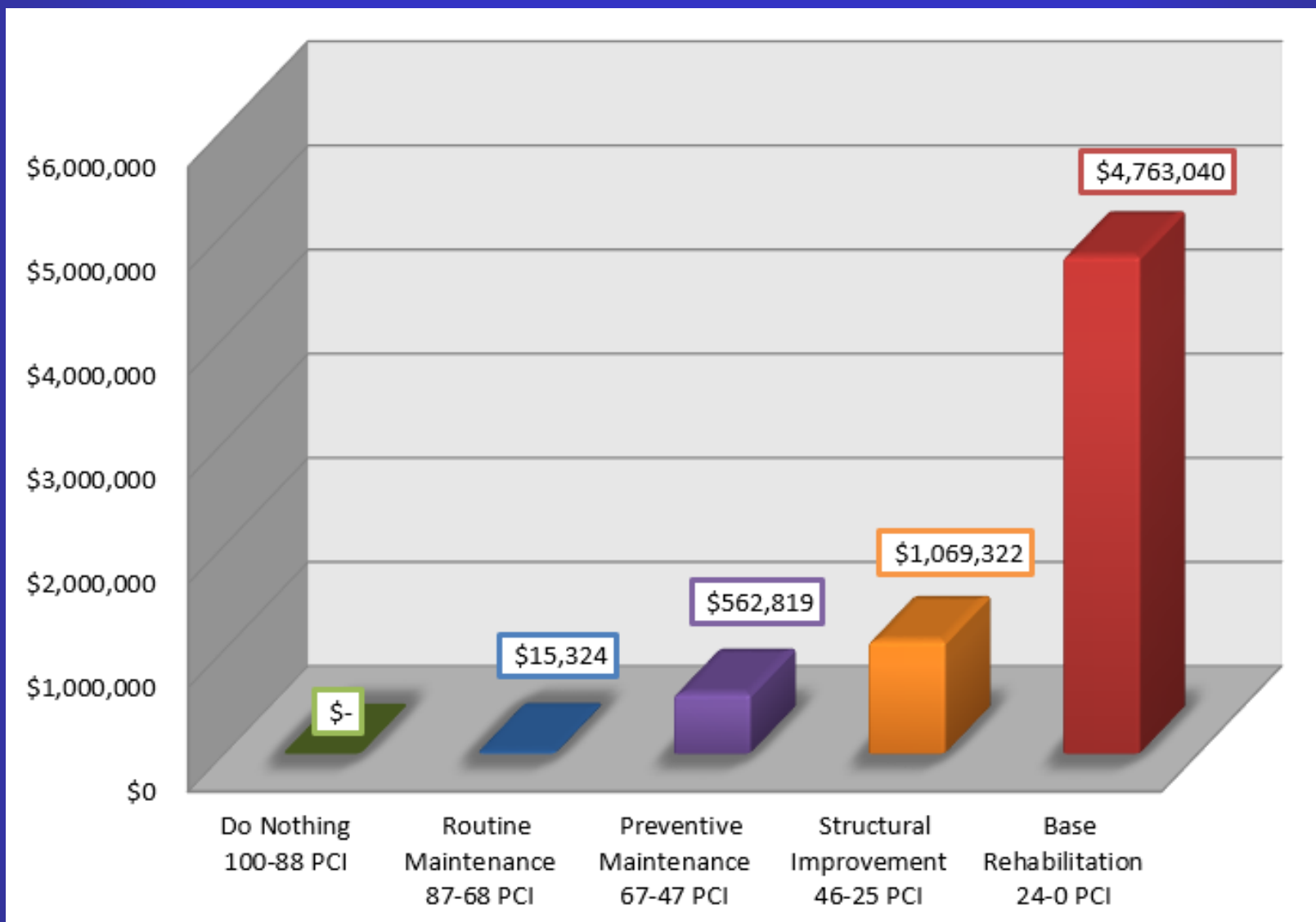
Unaccepted Roadways (26 miles)





Existing Conditions Summary

Unaccepted Roadways (26 miles)

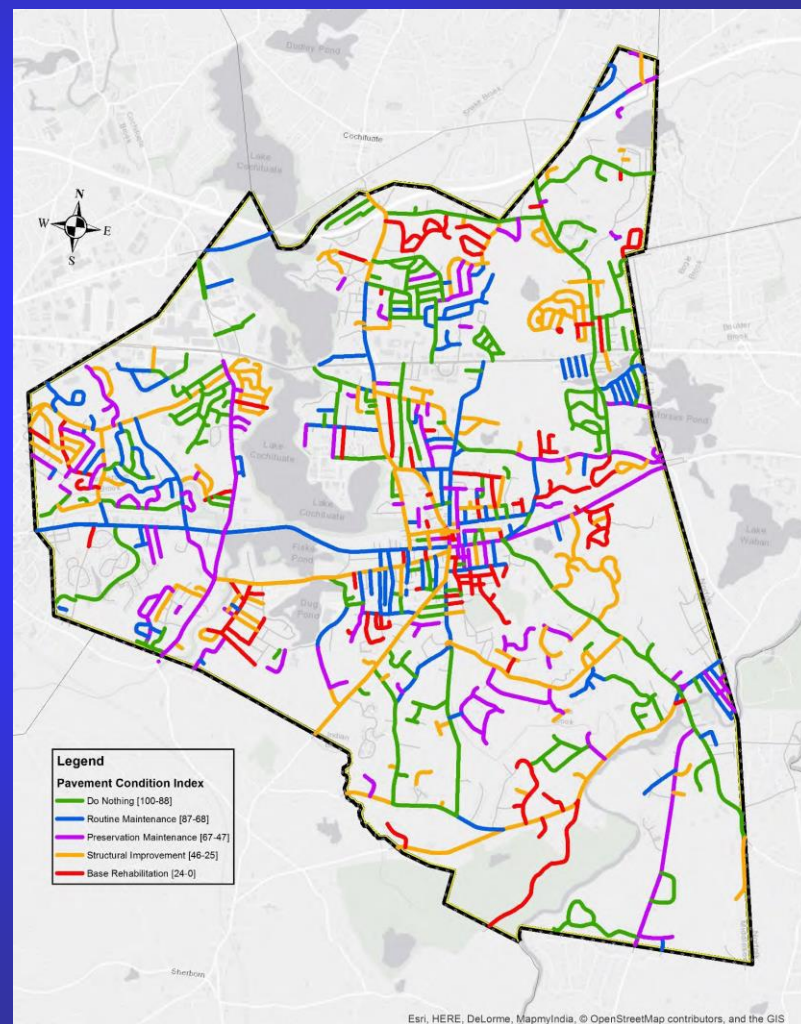




Pavement Management Program

Existing Conditions Summary

Jurisdiction	Avg. PCI	# Segments	Miles	Backlog Cost
Public Accepted	63.4	549	124	\$24,593,369
Unaccepted	32.7	222	26	\$6,410,506
Total	59.3	771	150	\$31,003,875

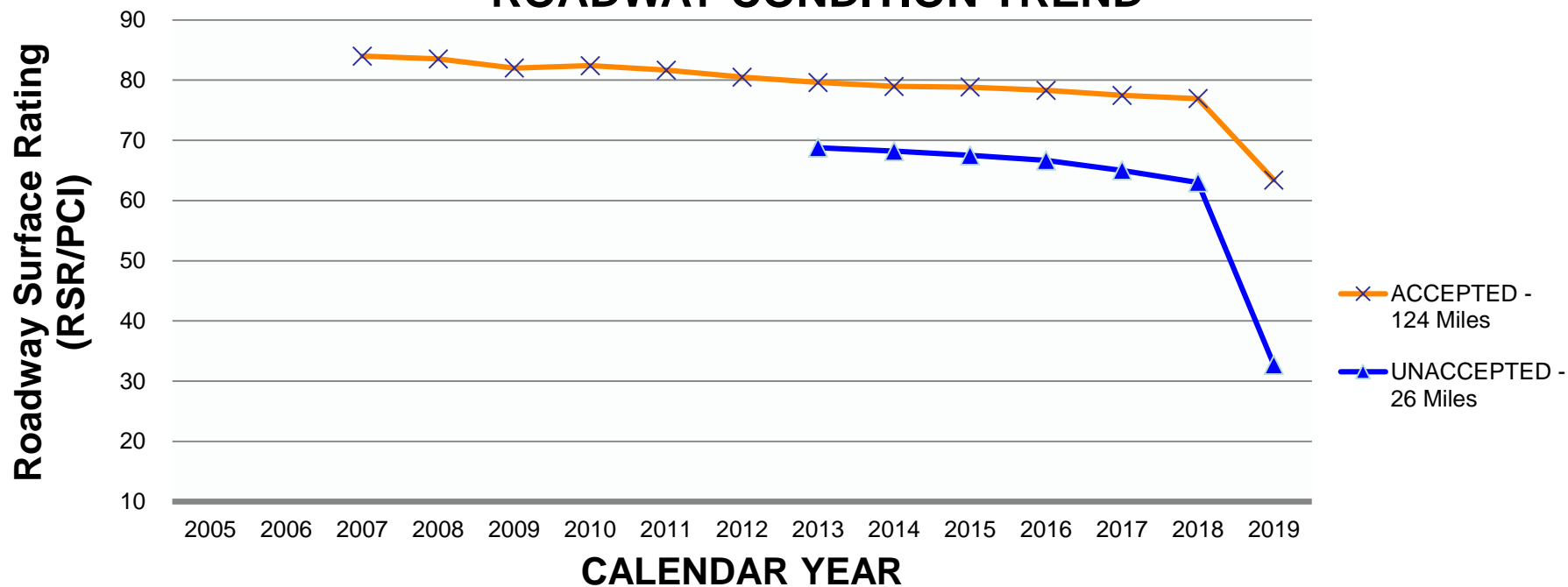




Pavement Management Program

Historical RSR/PCI

ROADWAY CONDITION TREND

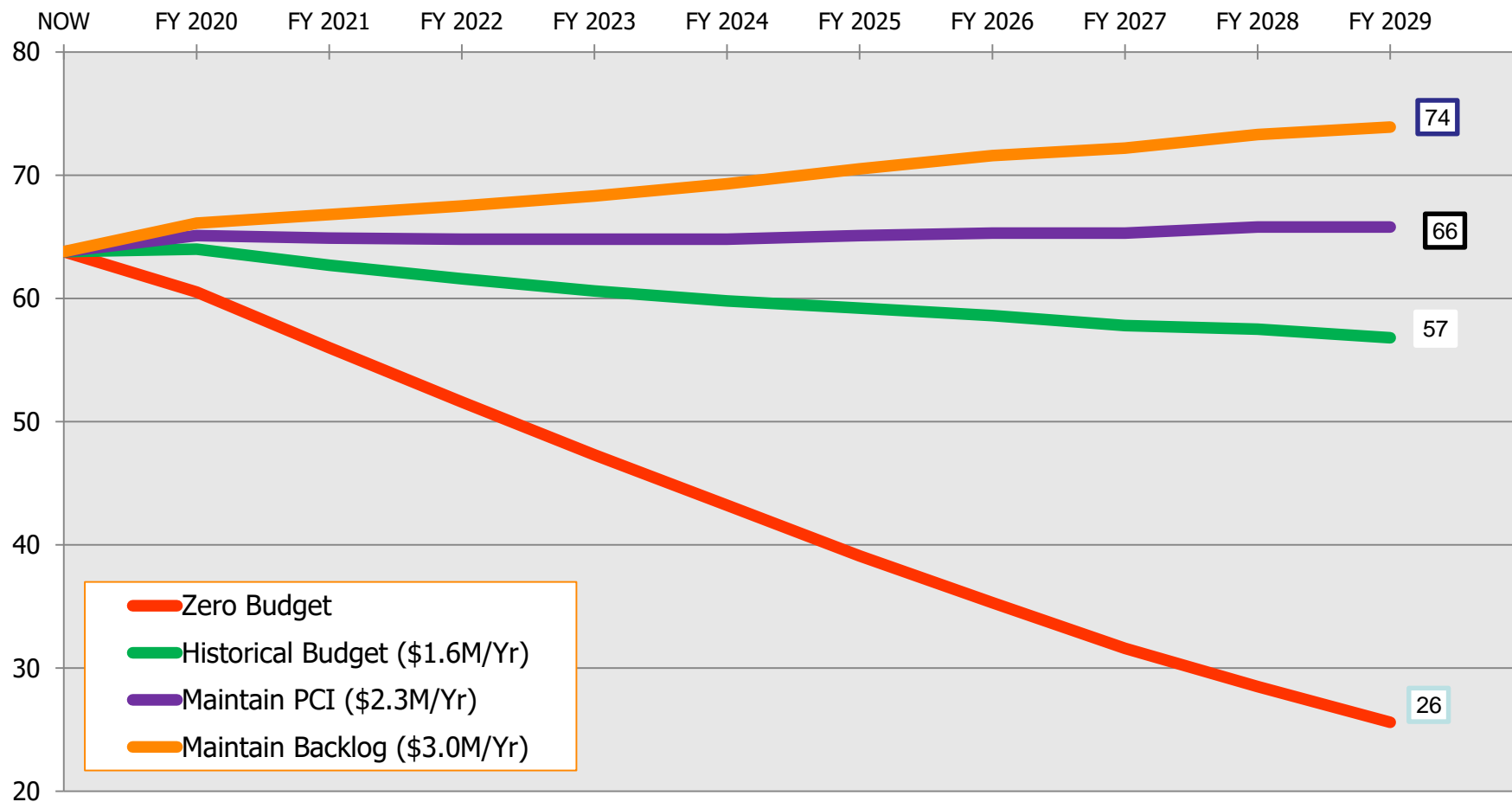


Funding	FY13	FY14	FY15	FY16	FY17	FY18	FY19
Chapter 90	\$1 M	\$1 M	\$1.5 M	\$996 k	\$987 k	\$982 k	\$975 k
Town Funding	-	\$300 k	\$300 k	\$350 k	\$1 M	\$1 M	\$1 M
Total	\$1 M	\$1.3 M	\$1.8 M	\$1.3 M	\$2 M	\$2 M	\$1.9 M



Average PCI Projections

Public Accepted Roadways (124 miles)

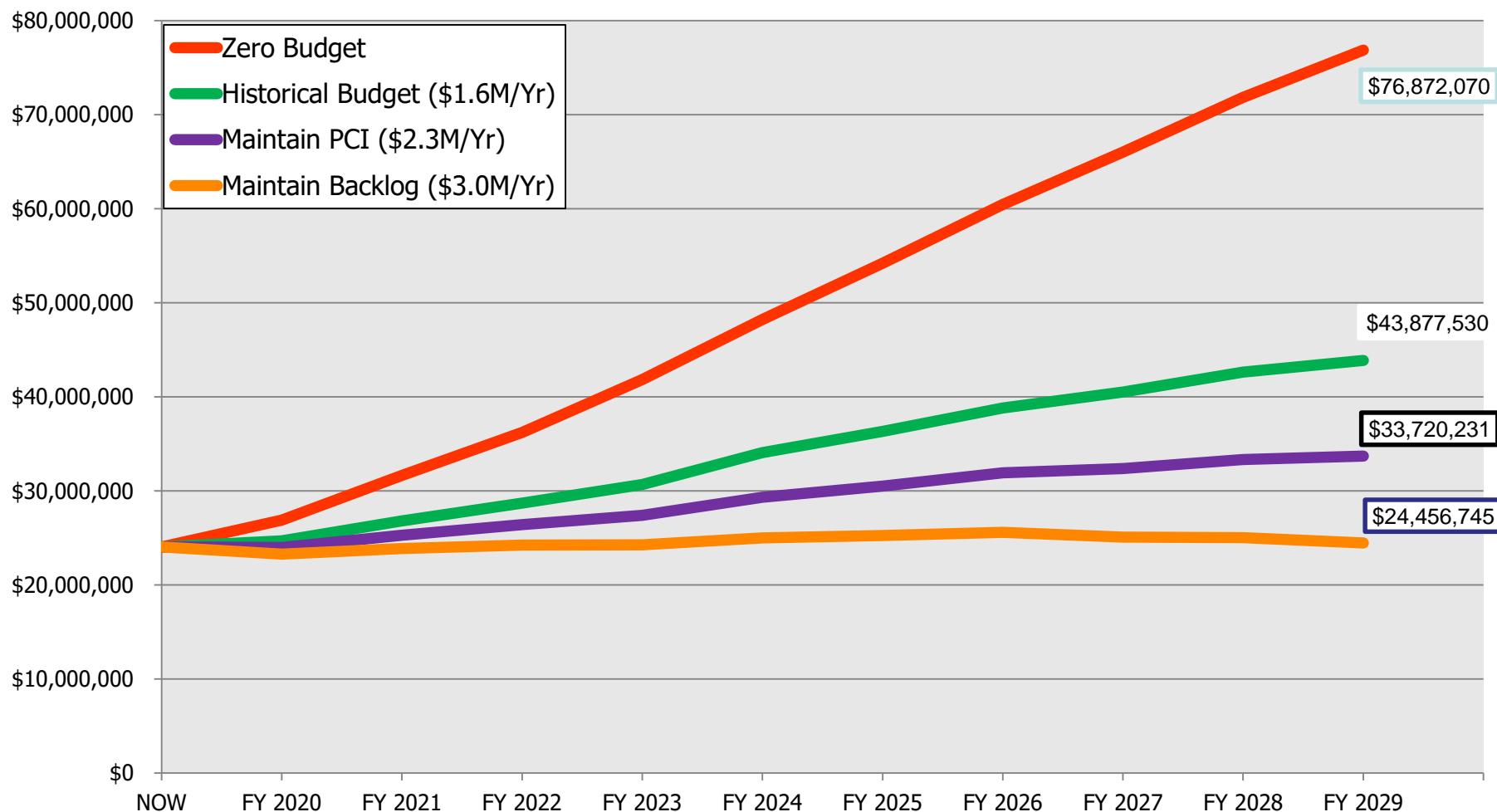


Note: Future budget scenarios include 2.5% inflation on repair costs



Total Backlog Projections

Public Accepted Roadways (124 miles)



Note: Future budget scenarios include 2.5% inflation on repair costs



Funding Scenario Summary

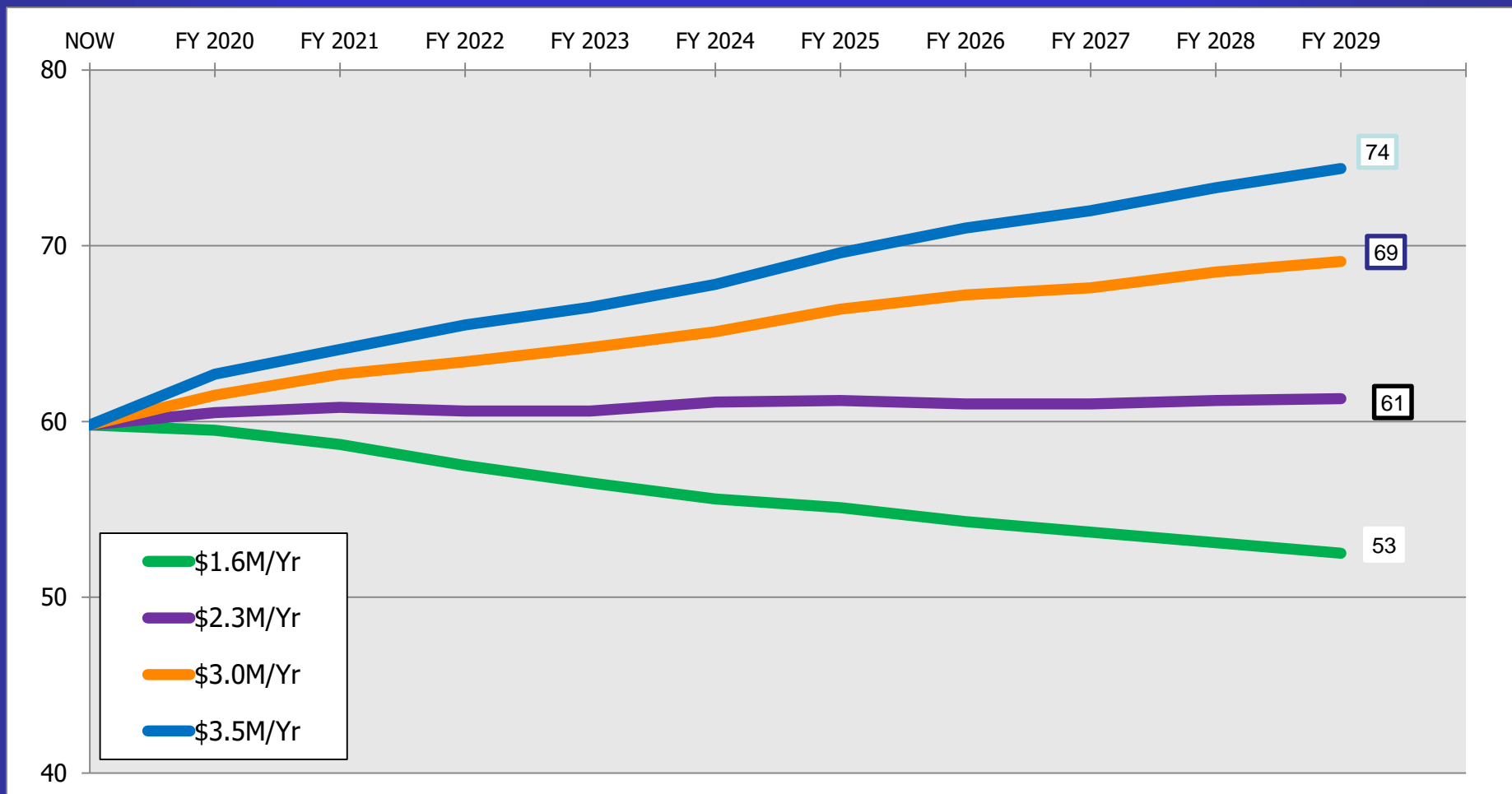
Public Accepted Roadways (124 miles)

- For the public accepted network alone, the current pavement only budget (\$1.6M) results in a PCI drop to 57 and a backlog increase to \$43.9M after 10 years.
- An increased pavement budget of \$2.3M slightly increases the PCI to 66 while the backlog increases to \$33.7M after 10 years.
- Increasing the pavement budget to \$3.0M increases the PCI to 74 (good condition) while keeping the backlog near current levels at \$24.4M after 10 years.

Scenario	Current	\$1.6M-10 Yrs.	\$2.3M- 10 Yrs.	\$3.0M- 10 Yrs.
Avg. PCI (Residual)	63.4	56.8	65.8	73.9
Backlog (Residual)	\$24.6 M	\$43.9 M	\$33.7 M	\$24.4 M



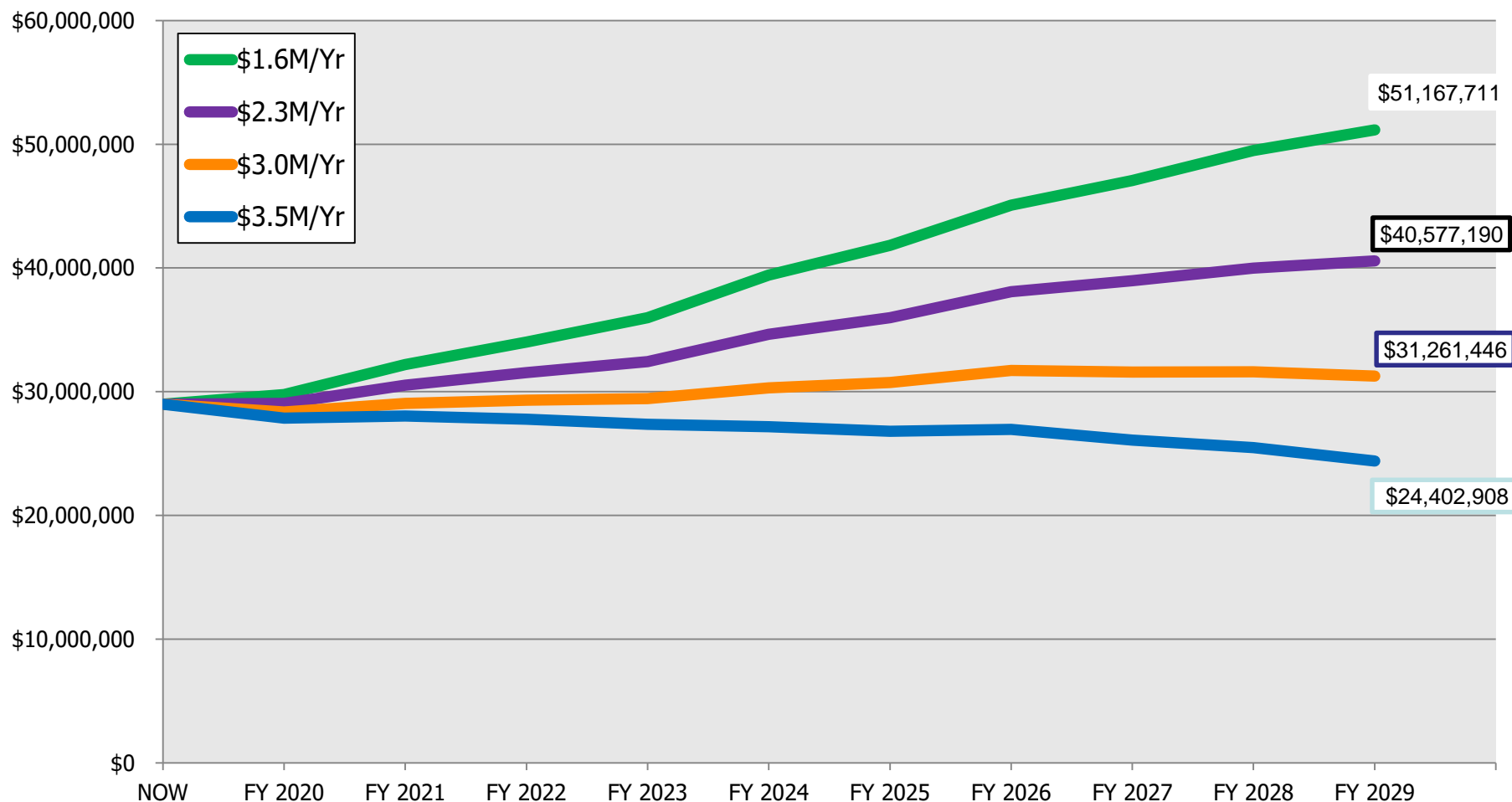
Average PCI Projections All Roadways (150 miles)



Note: Future budget scenarios include 2.5% inflation on repair costs



Total Backlog Projections All Roadways (150 miles)



Note: Future budget scenarios include 2.5% inflation on repair costs



Funding Scenario Summary

All Roadways (154 miles)

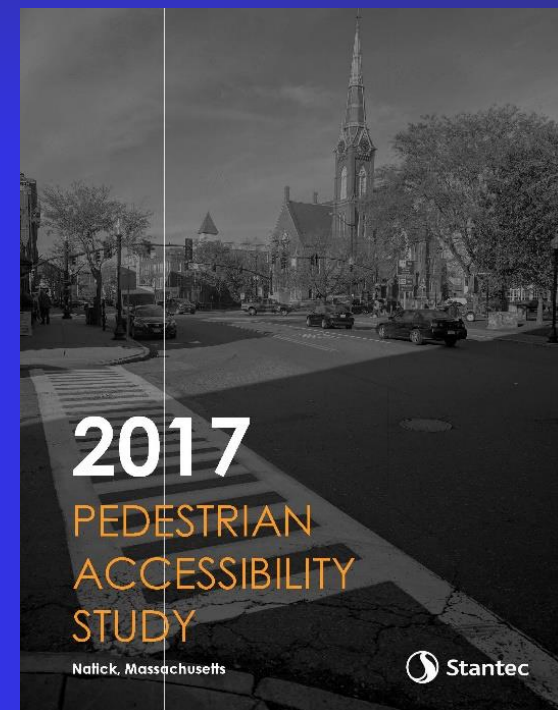
- For the combined network, the current pavement only budget (\$1.6M) results in a PCI drop to 53 and a backlog increase to \$51.2M after 10 years.
- Increasing pavement budget to \$2.3M, slightly increases the PCI to 61 while the backlog increases to \$40.6M after 10 years.
- Increasing the pavement budget to \$3.0M increases the PCI to 69 while keeping the backlog near current levels at \$31.3M after 10 years.
- Increasing the pavement budget up to \$3.5M increase the PCI to 74 (good condition) and decreases the backlog to \$24.4M

Scenario	Current	\$1.6M-10 Yrs.	\$2.3M- 10 Yrs.	\$3.0M- 10 Yrs.	\$3.5M- 10 Yrs.
Avg. PCI (Residual)	59.3	52.5	61.3	69.1	74.4
Backlog (Residual)	\$31.0 M	\$51.2 M	\$40.6 M	\$31.3 M	\$24.4 M



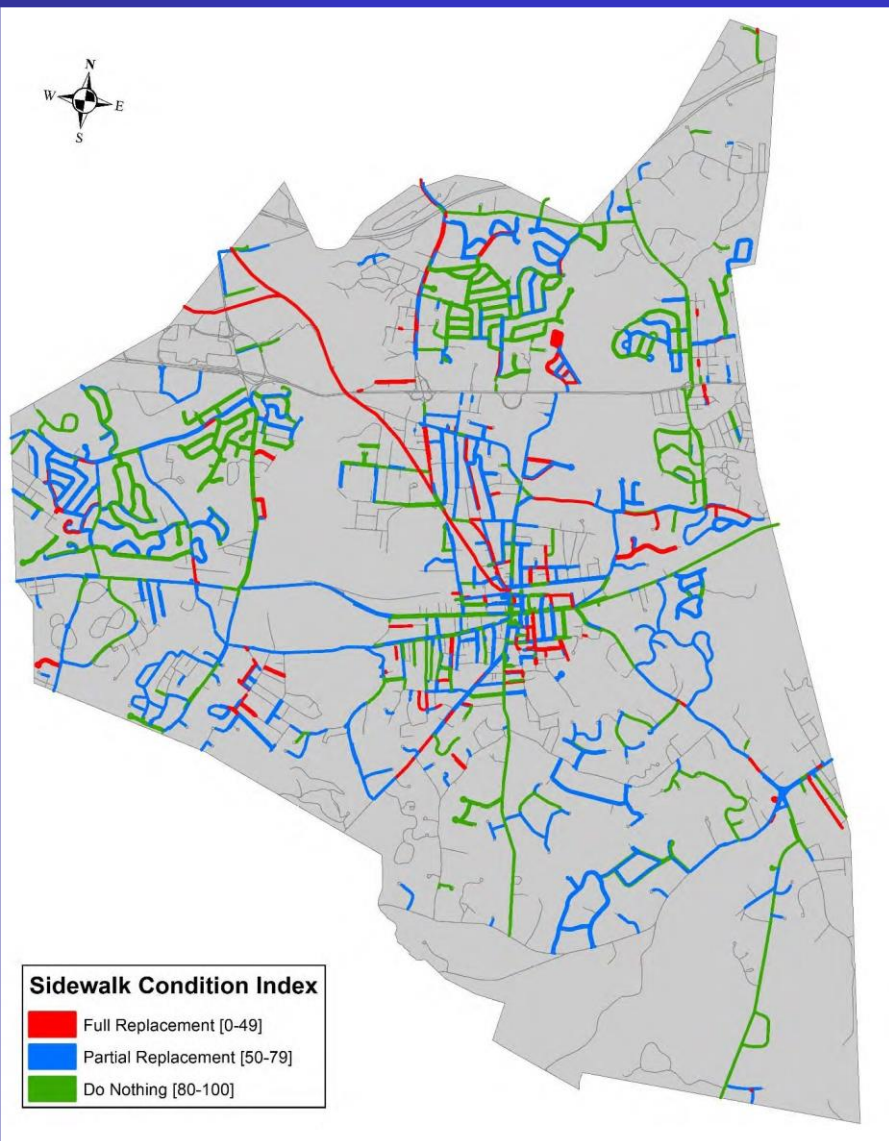
Network Level Sidewalk/Accessibility Assessment

- Inventory and assessment of all sidewalks on public and unaccepted roadways. Inventory of all wheelchair ramps and curbing.
- Rectified GIS mapping
- Identified distresses for each segment, cross-slope, material, ramp types, curb reveal, width, obstructions, clearances, and ADA compliance
- Calculated Sidewalk Condition Index (PCI) 0-100 Score for each segment
- Analyzed current conditions and backlog along with future scenarios based on network goals





Sidewalk Network Profile



Town Accepted Sidewalk Segments	1,665
Unaccepted (private) Sidewalk Segments	151
Total Sidewalk Miles	149.7
Average SCI	70 (fair/good)
Replacement/Reconstruction	18.1 miles
Localized Repair	74.6 miles
Wheelchair Ramps	1,551



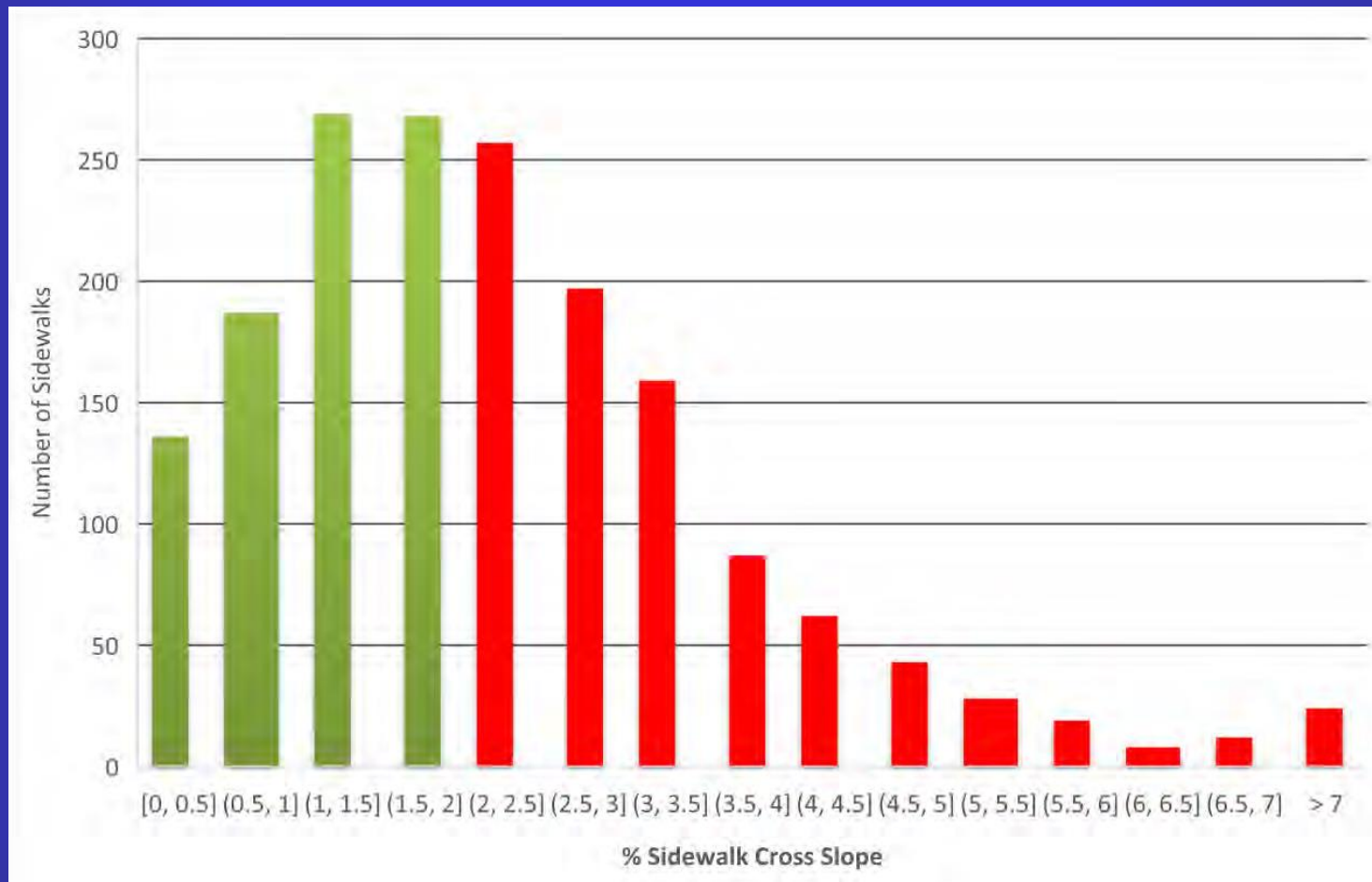
Sidewalk Network ADA Compliance

Ramp Accessibility	# Segments
Existing Ramp w/landing and no obstruction	1,311
Existing Ramp w/no landing present	229
Ramp is missing	40
Existing Ramp w/ obstruction	13
Ramps likely not compliant (ramp/landing slope, condition, no landing, lip)	74%



Sidewalk Network ADA Compliance

Distribution of Sidewalk Cross-slope



79% Sidewalks likely not compliant (slope, width, condition)



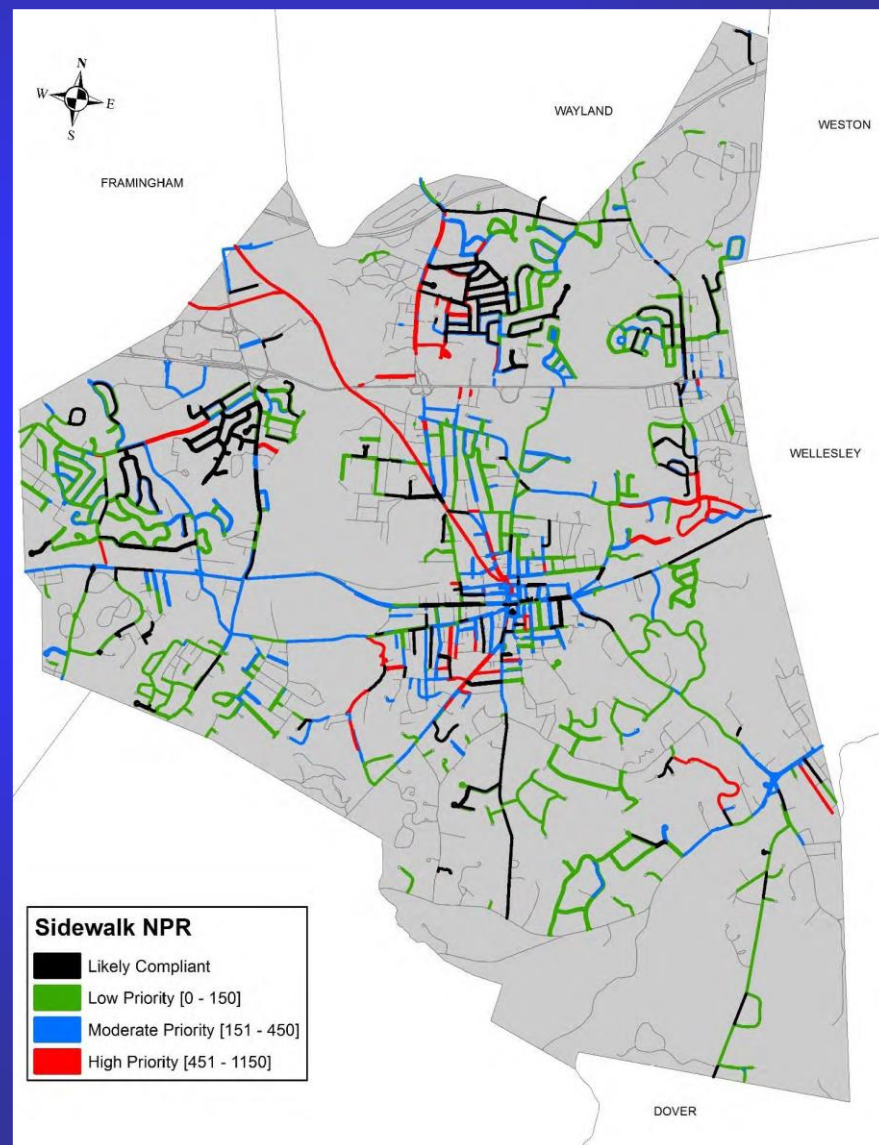
Sidewalk Network

Network Priority Ranking

Proximity to:

- Schools
- Commuter Rail and MWRTA Buses
- High Pedestrian Parcels

Ramp Existence/Condition





Sidewalk Network

Existing Conditions Summary

Jurisdiction	Avg. Condition	# Segments	Miles	Backlog Cost
Public Accepted Pavement	63.4	549	124	\$24,593,369
Sidewalk/WCR/Curbing	70	1,665	149.7	\$11,952,796
Total				\$36,546,165

Notes:

Natick's current annual 'roadway' budget is \$2.0M, however 20% of this funding goes to sidewalk and ramp work. (pavement \$1.6M and \$400k sidewalks/ramps)



Average SCI Projections

Sidewalk Funding

Sidewalk Funding/PCI Projections

Funding Scenario	Year 1	Year 2	Year 3	Year 4
\$ 0	70	67	64	61
\$ 675 k	70	68	67	66
\$ 1.25 M	70	70	70	71

Combined Pavement and Sidewalk

Current				
Pavement	\$1.6 M	\$2.3 M	\$3 M	\$3.5 M
Sidewalk	\$400 k	\$575 k	\$750 k	\$1.375 k
Total	\$2 M	\$2.875 M	\$3.75 M	\$4.375 M



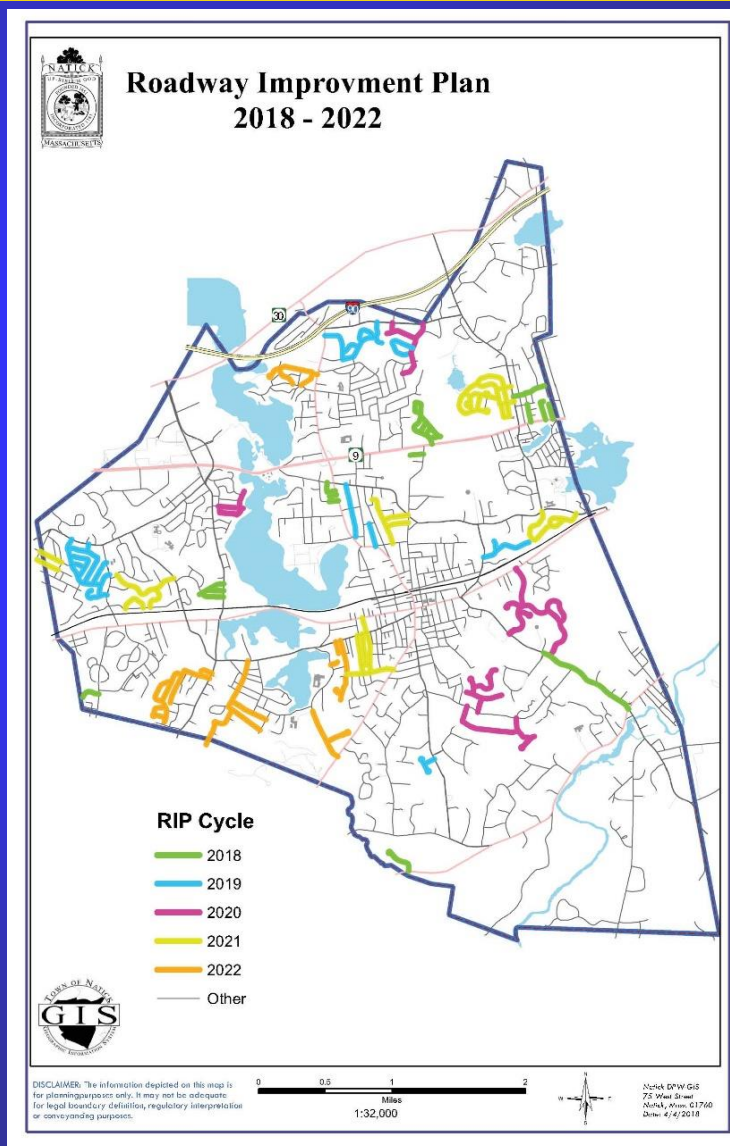
Five Year Roadway Improvement Plan

The 5 Year Plan allows the Town to:

- Coordinate with utility companies
- Plan and upgrade town sewer and water services
- Coordinate with future capital projects and future private development plans

Full Plan Available at:

<http://natickma.gov/259/Engineering-Division>





Five-year Roadway Improvement Plan

2018 Statistics

20 Streets, 15,400 ft (2.9 miles), \$1.9 Million

2019 Roadways

20 Streets, 23,635 ft (4.5 miles), \$2 Million

Gibson Road

Greenleaf Street

Brookdale Road

Hemlock Drive

Millbrook Road

Elwin Road

Ivy Lane

Ferndale Road *

Pryor Road *

Felch Road *

Franconia Avenue

Stratford Road

Drury Lane

Russell Circle

Cobblestone Drive

Bluestone Way

Kinsman Place *

Steven Circle *

Pauline Drive *

* Pending funding

Thank You for Your Continued Support !

