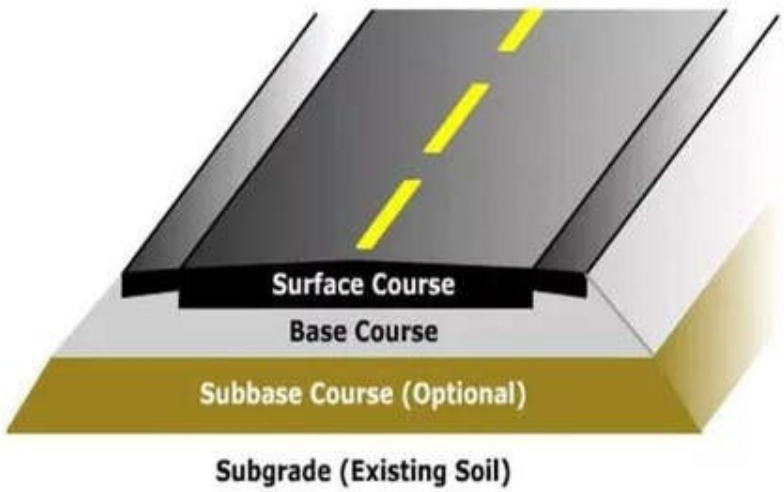
Common Council Presentation -

Roadway Pavement Condition Update

BRANDON SCHWENN, P.E.
DEPUTY DIRECTOR/CITY ENGINEER

What is Pavement?

- Driving Surface for vehicular traffic
- 3 Primary types within the City
  - Asphalt Pavement (Hot Mix Asphalt/HMA)
  - Concrete Pavement
  - Composite Pavement (Combination of Concrete and Asphalt)
- Supported by granular base material (Hopefully)
- Finite service life



Statistics

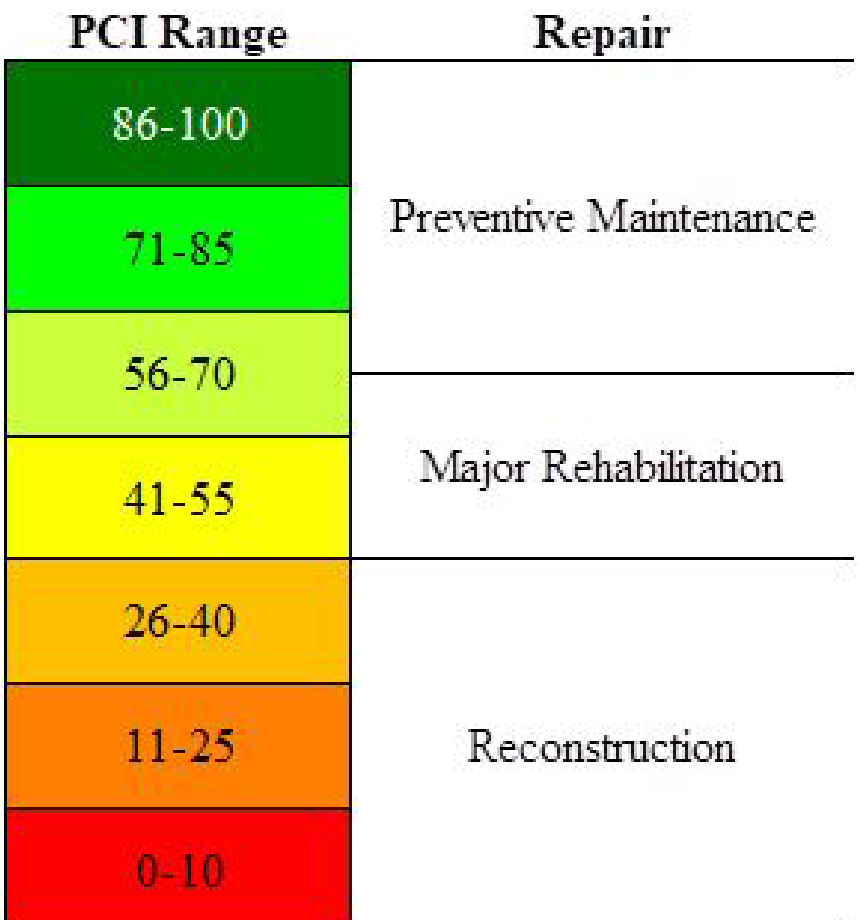
253.28 centerline miles maintained by the City

5,521,103 Square Yards of Pavement

4,390,892 SY Asphalt Pavement (79.5%)	920,225 SY Concrete Pavement (16.7%)	209,986 SY Composite Pavement (3.8%)

Condition Assessment

HOW DOES THE CITY MONITOR/ASSESS 5.5 MILLION SY OF PAVEMENT?



Pavement Rating

- All streets rated once every 2 years and reported to WisDOT
- Pavement Condition Index (PCI)
- All roadways given a score of 0 – 100 throughout the City.
- PCI based on the type, severity, and extent of distresses that exist on a pavement
- PCI scores utilized to compare streets to one another

What is a Distress? - Asphalt

Transverse Cracking

Block Cracking - High

Block Cracking - Medium

Alligator Cracking (Leads to potholes)

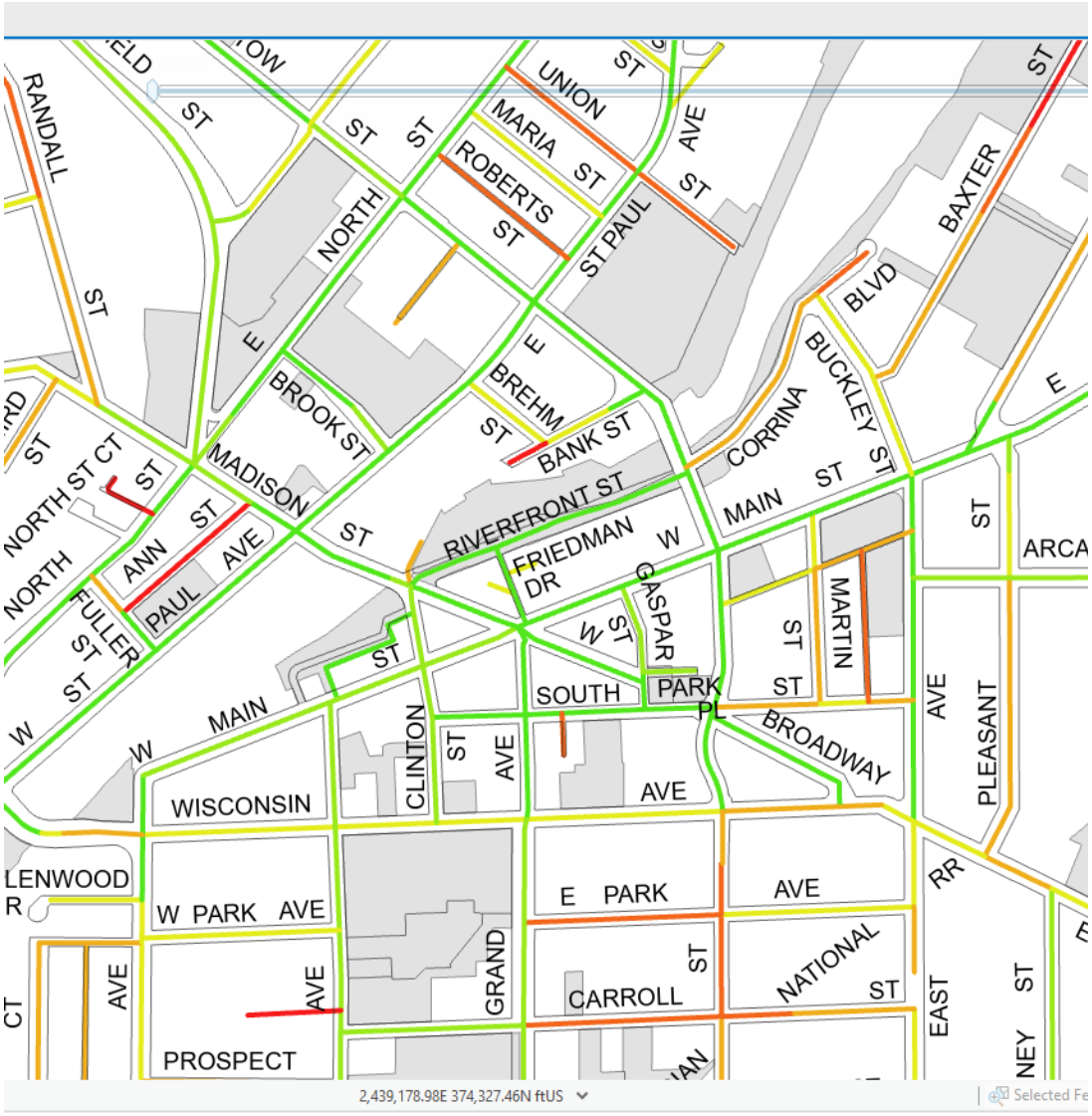
What is a Distress? - Concrete

Slab Cracking

Joint Fault

Joint Spalling/Failure

End of Service Life

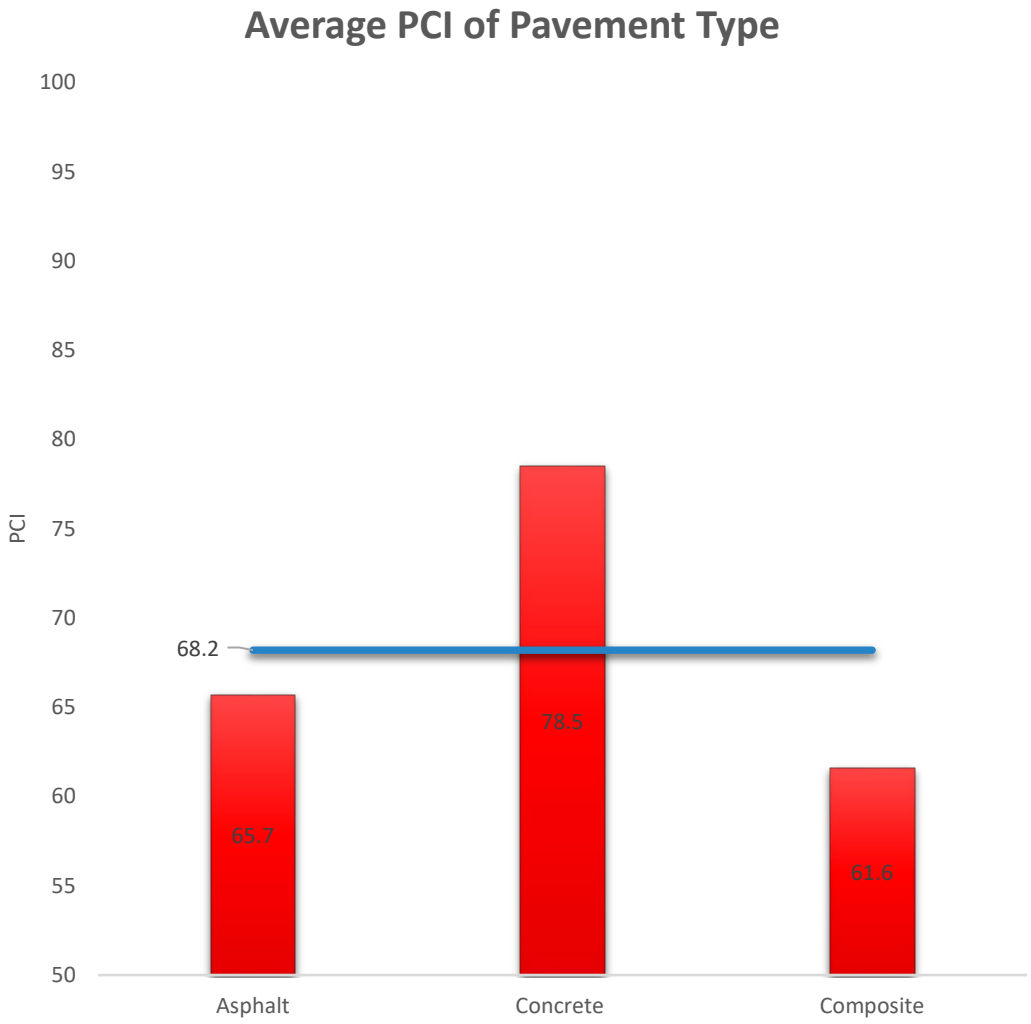


Keeping Track of Road Ratings

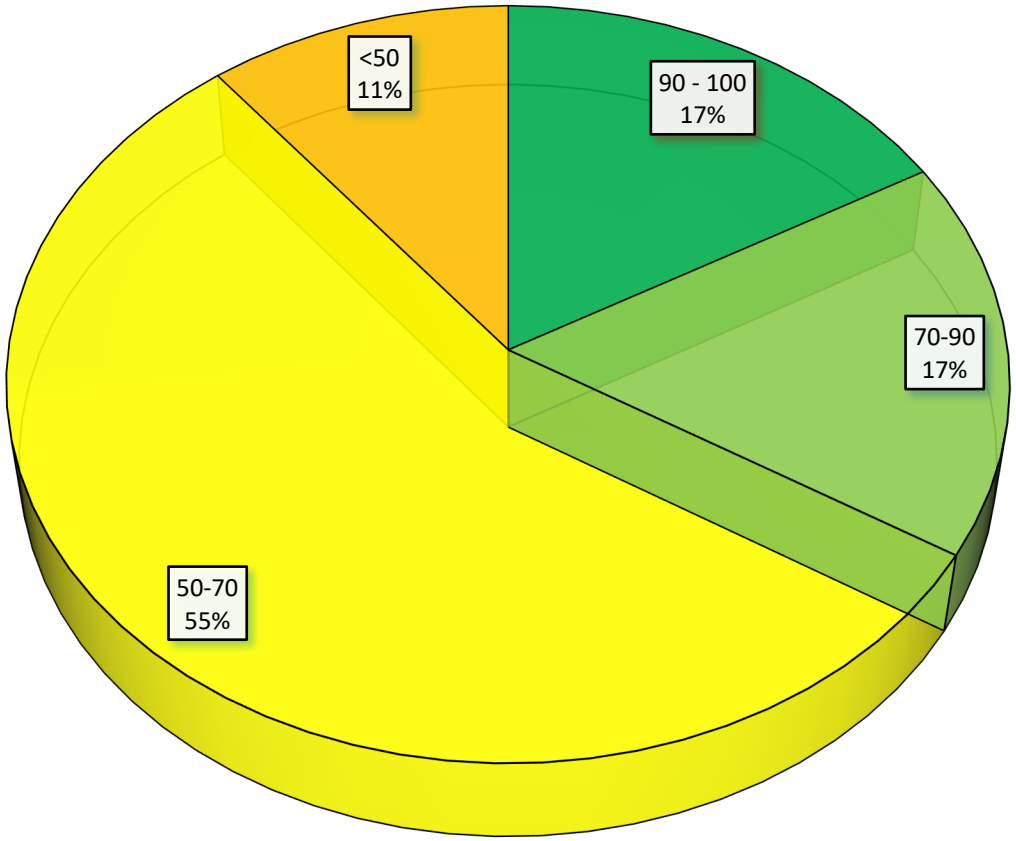
- Direct Input into VueWorks (City's current asset management software)
- Linked to GIS for additional map creation and data analysis
- All previous records/ratings can always be accessed.

Pavement Condition Status

- City-wide Average PCI Rating: 68.2
- Asphalt Pavement Average PCI: 65.7
- Concrete Pavement Average PCI: 78.5
- Composite Pavement Average PCI: 61.6



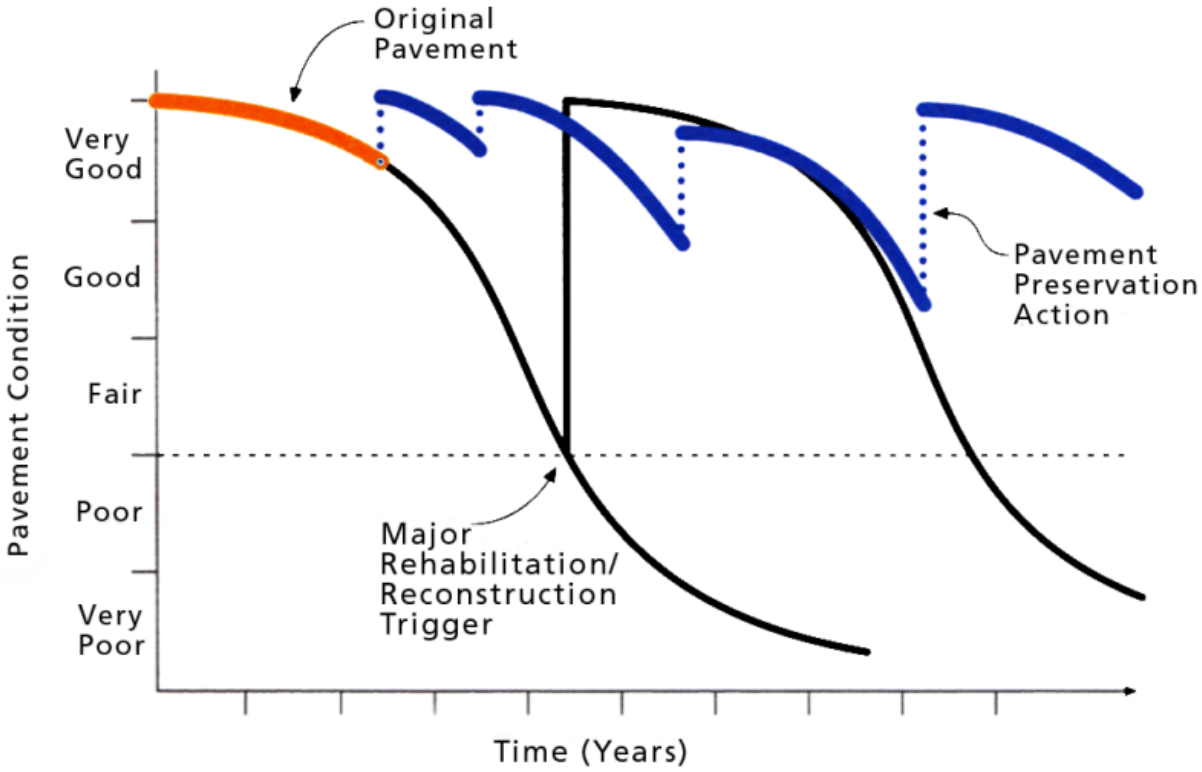
PCI RANGE BREAKDOWN



PCI Range	Repair
86-100	Preventive Maintenance
71-85	
56-70	Major Rehabilitation
41-55	
26-40	Reconstruction
11-25	
0-10	

Condition Data Over Time

- Current condition data is extremely useful, but how does it change over time?
- Pavement condition over time = Life Cycle
- Pavement has a finite life cycle that is non-linear
- Maintenance work/methods extend the overall life cycle of pavement



New Construction

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Early Preventative Maintenance

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Resurfacing/Slab repair

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Full Depth Resurfacing/Major Patching

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Reconstruction

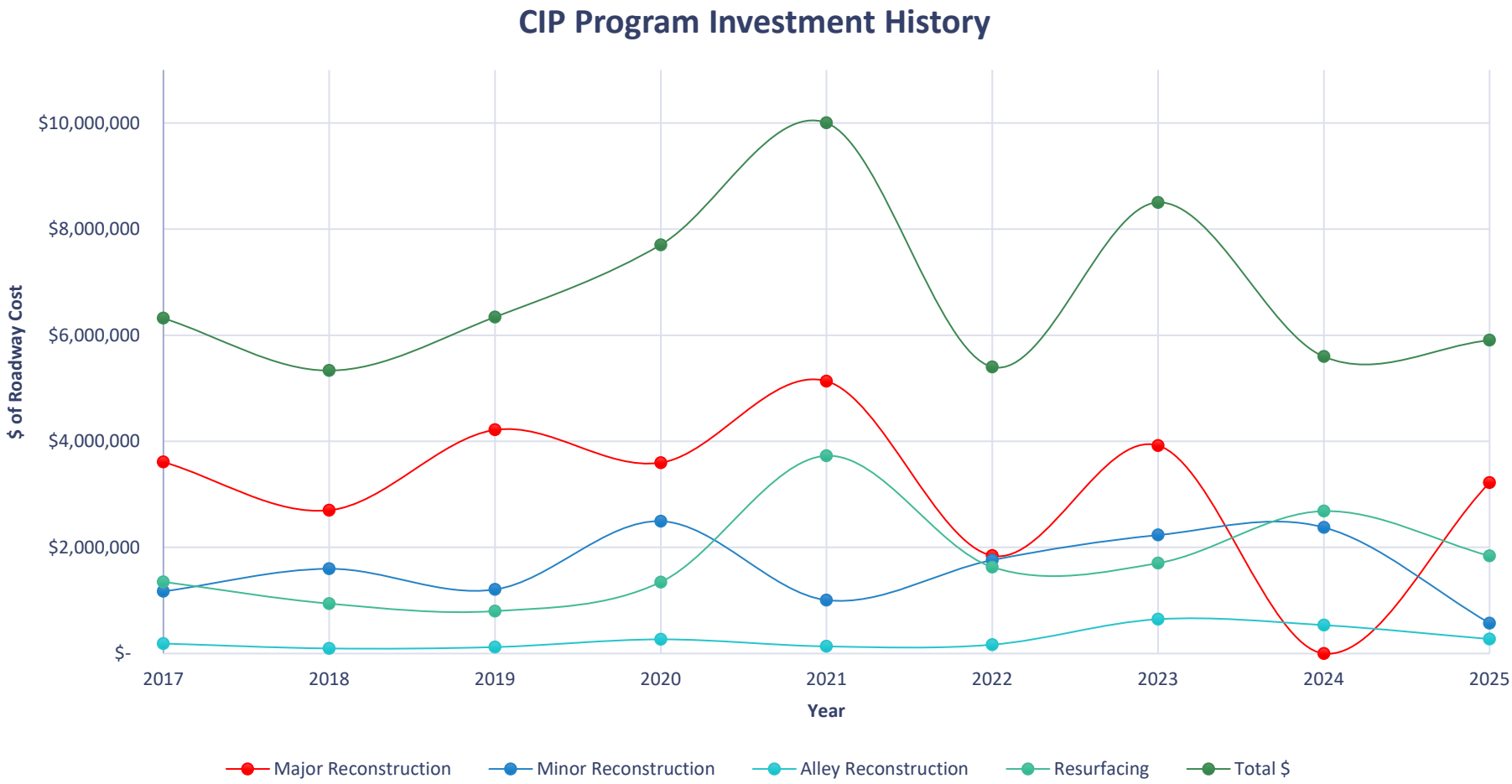
Pavement Life Cycle

Pavement Maintenance Approach

- Preventative Maintenance
  - Asphalt Pavement Crackfilling
  - Concrete Pavement Joint Filling (Previous completed program)
- Moderate Rehabilitation
  - 2-Inch asphalt Mill and Overlay
  - Concrete pavement panel replacement
  - Spot asphalt pavement patching
- Major Rehabilitation
  - Full depth asphalt pavement resurfacing
  - Full depth concrete pavement replacement
- Full Reconstruction

Pavement Maintenance Programs

- Preventative Maintenance
  - Asphalt pavement crackfilling (Annual CIP Project)
  - Spot crackfilling and hot applied mastic (Internal DPW crews)
- Rehabilitation
  - Asphalt street resurfacing (Annual CIP Project)
  - Concrete slab and joint repair (Annual CIP Project)
  - Spot concrete slab and curb repair (Internal DPW crews)
  - Asphalt street resurfacing and patching (Internal DPW crews)
- Reconstruction
  - Major Street Reconstruction (CIP Project when budgeted)
  - Minor Street Reconstruction (CIP Project when budgeted)
  - Alley Reconstruction (CIP Project when budgeted)



Program Investment History

Program Investment History (con't)

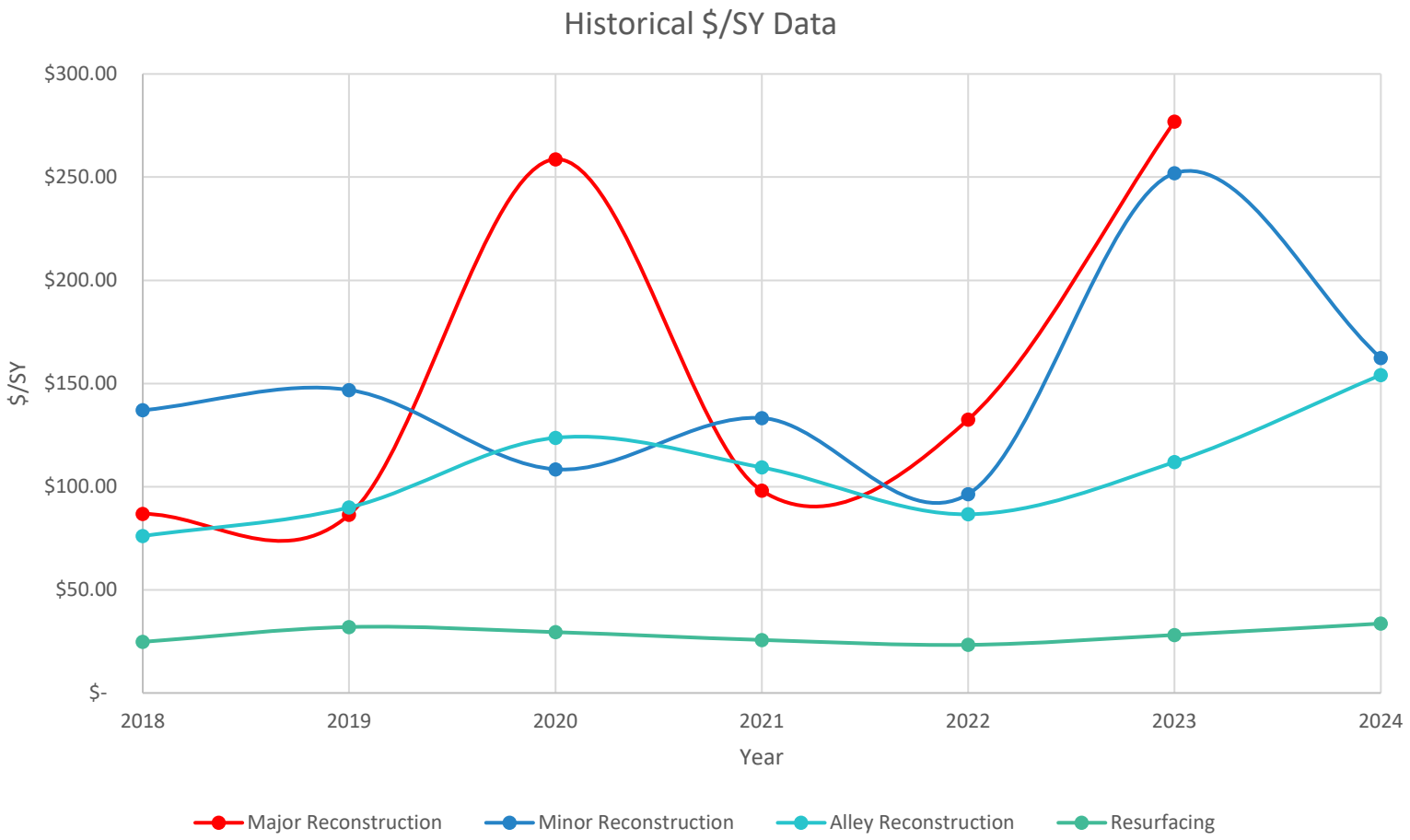
Year	Total Miles Reconstructed/ Resurfaced	Total Cost Reconstructed/ Resurfaced
2017	4.72	$ 6,507,400
2018	3.71	$ 5,429,000
2019	3.58	$ 6,463,900
2020	4.16	$ 7,971,100
2021	9.93	$ 10,136,500
2022	4.89	$ 5,568,700
2023	4.79	$ 9,149,700

Year	Overall PCI
2017	67.4
2019	67.2
2021	67.5
2023	68.2

Future Investment Impacts on PCI

- What level of funding would be required to maintain or improve the City's overall PCI?
  - Difficult question to predict – Dependent on deterioration and outside conditions
- Results based on Scenarios:
  - The investment made in 2024, $5.6 million would increase the average PCI from 68.2 to 68.9 (Assuming no drop in ratings)
  - If the entire 2025 – 2029 proposed CIP, $24.8 million were to be completed in 1 year, the average PCI would increase from 68.9 to 71.1
  - Overall Average pavement rating average drops approximately 0.5 to 1.0 every 2 years.
- Major changes to average PCI requires investment

Cost History/Increases



Cost History/Increases (Con't)

- Recent history of project bids showing a 10-15% annual increase of bid costs.
- Current CIP proposal includes reconstruction cost increases of 8% annually, and resurfacing 3% annually.
- If annual budgets are kept flat or reduced, less infrastructure can be improved annual due to cost increases.
  - i.e. a minor street reconstruction project of $1,630,000 in 2024 dollars is projected to cost $2,220,000 in 2029.

Current Project Backlog

- Major Reconstruction Program:
  - Streets below a PCI of 60, and at the end of their service life
  - $21.7 Million (2024 Dollars)
- Minor Reconstruction Program:
  - Streets below a PCI of 60, and at the end of their service life
  - $36.5 Million (2024 Dollars)
- Alley Reconstruction Program:
  - Alleys below a PCI of 60, and at the end of their service life
  - $12.0 Million (2024 Dollars)
- Resurfacing Program
  - Streets below a PCI of 65 and in need of resurfacing:
  - $83.0 Million (2024 Dollars)

Where Do We Go From Here?

- Maintaining the City's current roadway/pavement infrastructure requires ample funding.
  - Need to keep in mind the relationship between raising construction costs and flatlined/reduced budget allocation.
- After major investment in the Major Reconstruction program over the last 8-10 years, a shift in the approach to focus on resurfacing to have a higher impact on overall infrastructure.
- Reconstruction is expensive. Resurfacing/rehabilitation is exponentially more cost effective.
  - $30.00/SY vs. $275.00/SY
- Understand the importance of roadway and pavement infrastructure.
  - Residents, businesses, industry, stakeholders, commuters, visitors, police, fire all use this infrastructure on a daily basis.

Questions