



Goshen Common Council

**10 a.m., August 9, 2024 WORK SESSION about City roadway conditions
Goshen Chamber of Commerce, 232 S. Main Street, Goshen, IN**

Common Council:

Linda Gerber (At-Large) **Phil Lederach** (District 5) **Doug Nisley** (District 2)
Megan Peel (District 4) **Donald Riegsecker** (District 1) **Matt Schrock** (District 3)
Council President Brett Weddell (At-Large)

Purpose: Presentation and discussion of roadway condition and PASER scores, transportation network funding concerns and potential future funding possibilities.

1) Welcome by Mayor Leichty and Goshen Engineering Team introductions

2) PASER Dashboard

3) Transportation Funding Presentation

- a. PASER
 - i. What is it?
 - ii. Survey results
 - iii. Projected PASER scores
- b. Data Science
 - i. Roadway analysis
 - ii. Additional considerations
- c. Roadway Funding
 - i. Current funding sources
 - ii. Funding expenditures
 - iii. Funding needs
- d. Holistic Approach
 - i. Signs
 - ii. Sidewalks
 - iii. Pavement markings and curb ramps
- e. Redevelopment Case Study – 10th Street
- f. Utility Emergency Case Study – Denver Street
- g. Closing Thoughts
 - i. Meeting our needs
 - ii. What we need
 - iii. Discussion topics
 - iv. Additional revenue options

4) Open Discussion/Q&A

Adjournment

Transportation Funding Work Session

City of Goshen



What is PASER?

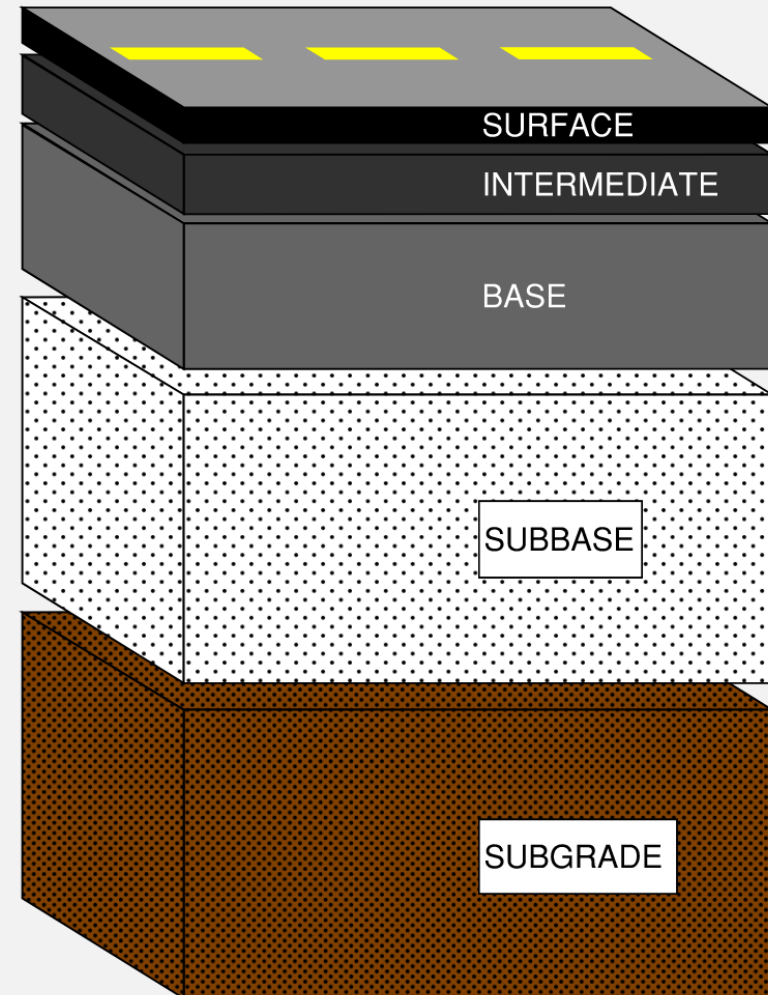
- PAvement Surface Evaluation Rating
- Roadways are divided into segments
 - In urban areas, typically from intersection to intersection
- Roadway segments are given a score of 1 – 10
 - 10 being used to score a brand-new roadway segment
 - 1 being used to score a roadway segment that has completely failed
- Survey performed every Spring by Goshen Street Department

Purpose and Reporting Requirements

- Why do we rate roadways?
 - Inventory roadway condition
 - Prioritize roadway treatments and reconstruction projects
 - Provides crucial data for a local Pavement Asset Management Plan (PAMP)
 - PAMPs are required by the Indiana Department of Transportation (INDOT) to be eligible for Federal highway funding for local roadway projects
 - INDOT adopted PASER as standard pavement rating system

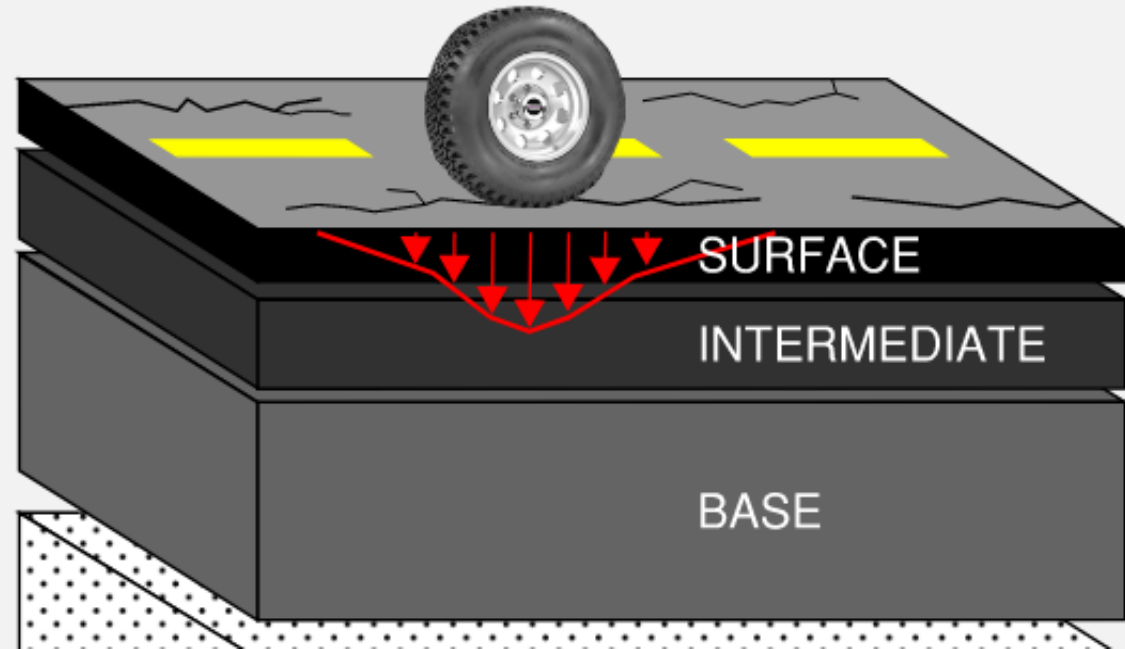
Asphalt Pavement Basics

- HMA Pavement Layers
 - Surface (Wearing) Layer
 - Intermediate (Binder) Layer
 - Base Layer
- Subbase (Aggregate)
 - Crushed stone or crushed concrete
- Subgrade
 - Compacted Soil



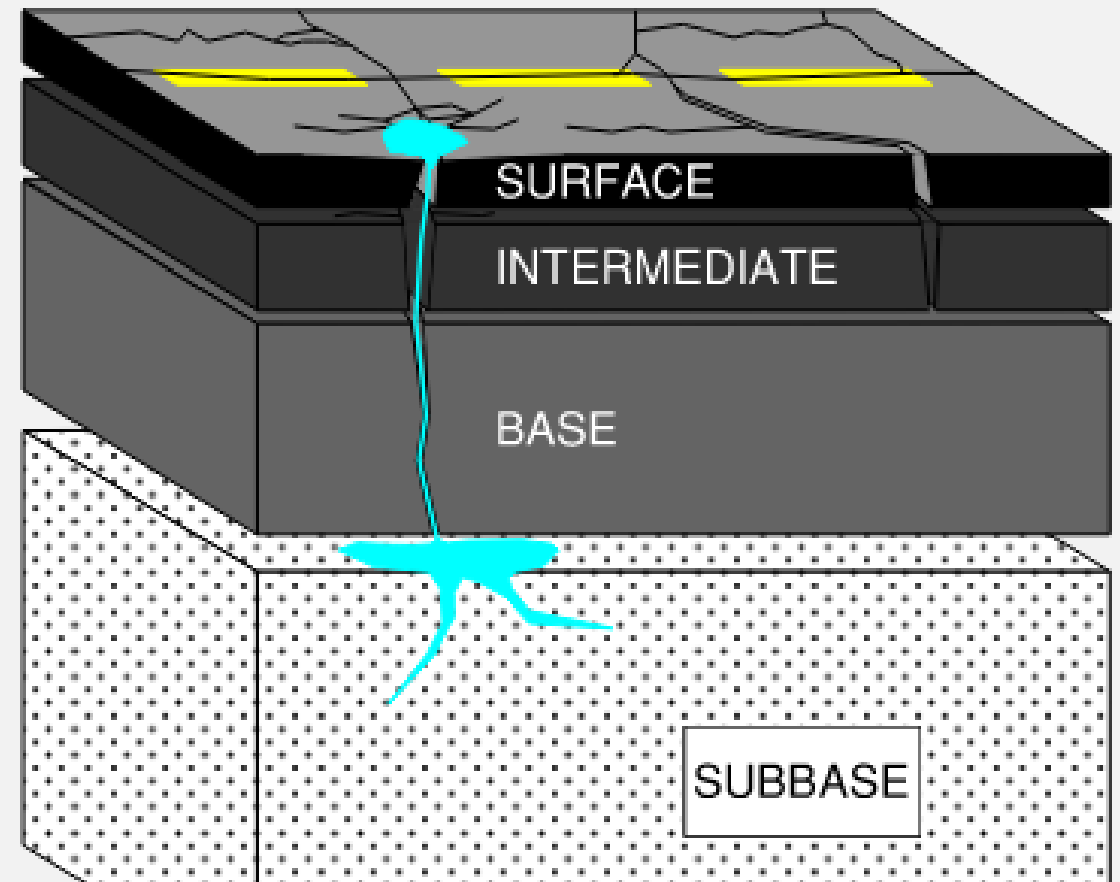
Asphalt Pavement Wear

- Environmental Aging
 - Natural elements degrade asphalt binder
 - Pavement loses “elasticity”
 - Cracks form more easily
- Traffic Loads
 - Repeated stresses from vehicles crack pavement



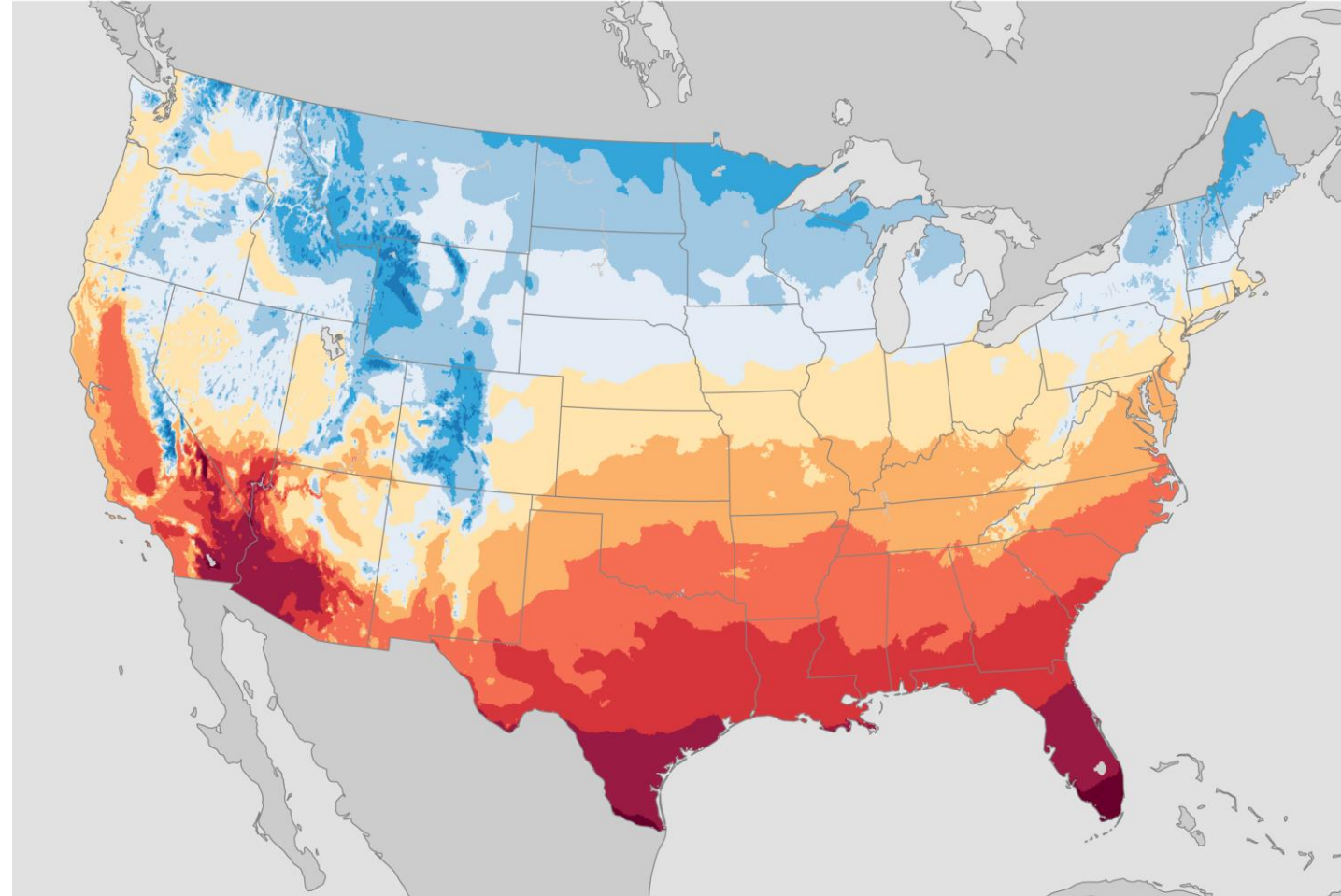
Asphalt Pavement Wear

- Effects of Moisture
 - Cracks allow water into pavement structure
 - Freezing creates more cracks
 - Moisture softens and erodes subbase



Freeze-Thaw Cycle

U.S. annual average temperature (1991–2020)



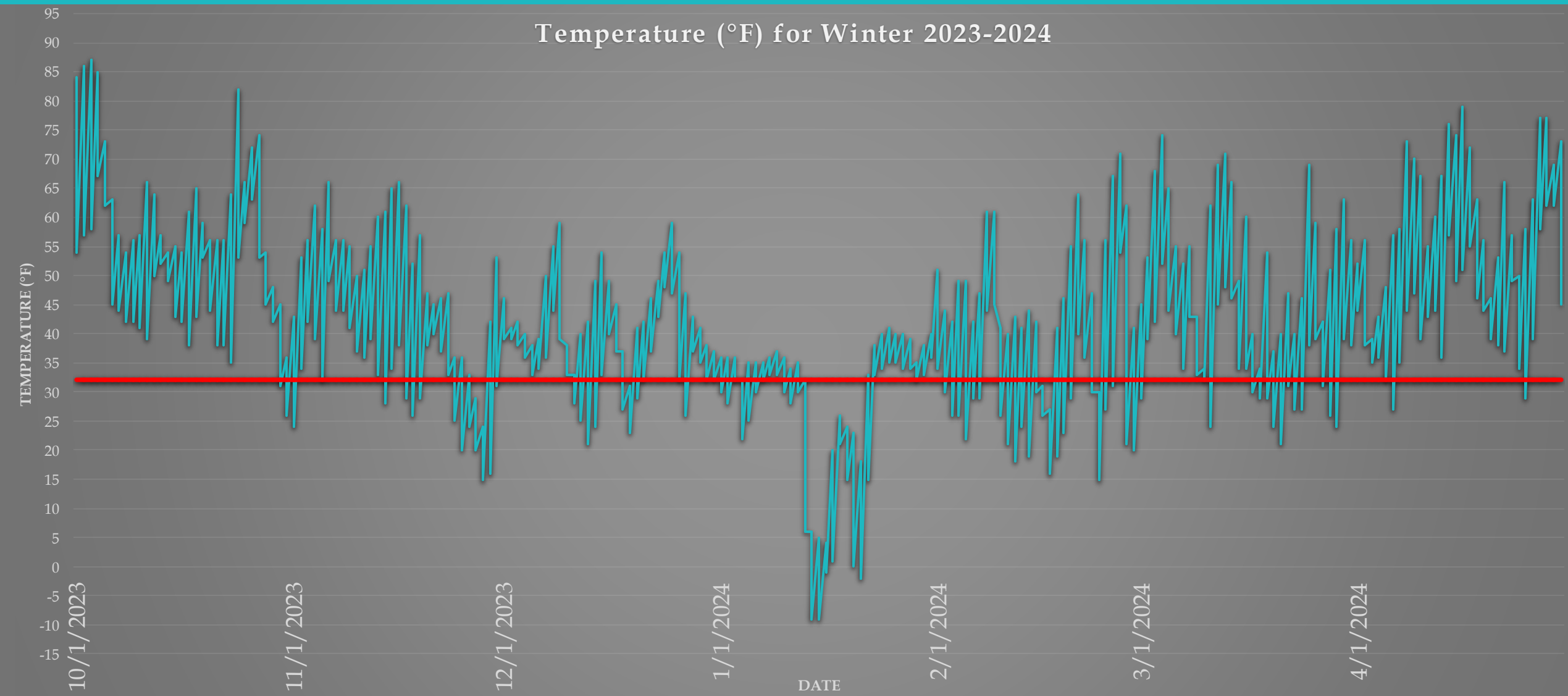
1991–2020 Normals

Average temperature (°F)



NOAA Climate.gov
Data: NCEI

Freeze-Thaw Cycle



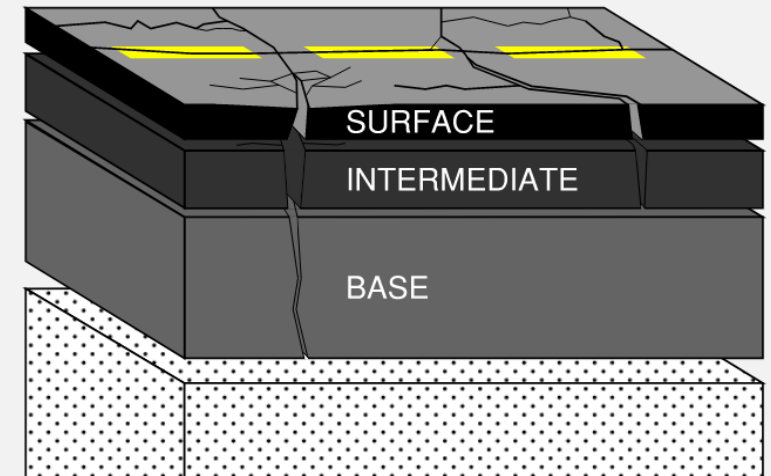
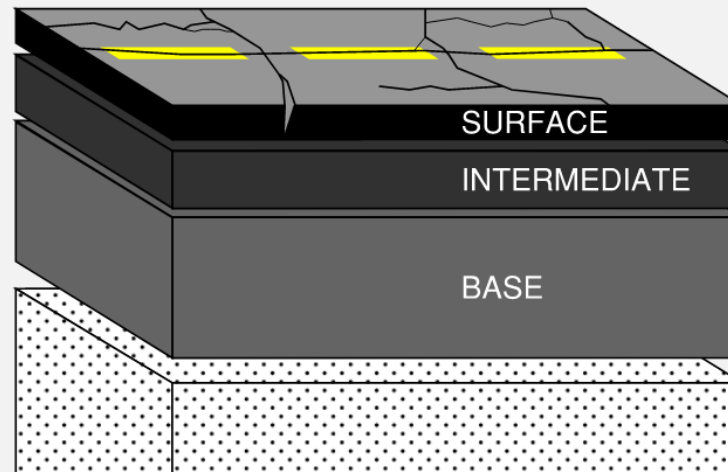
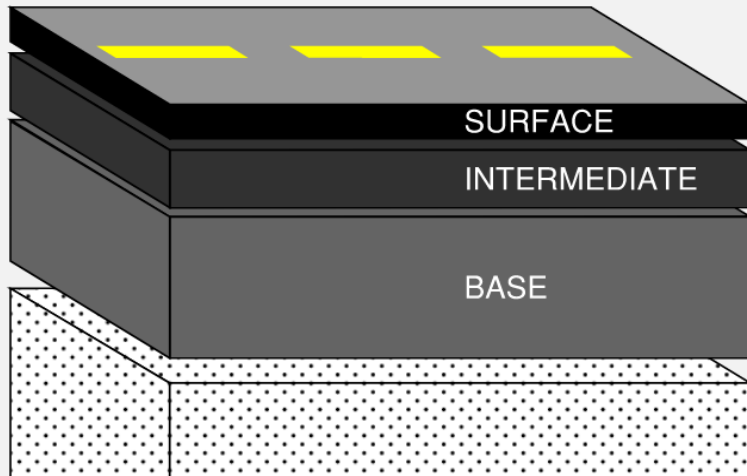
PASER Rating Process

- Pavement Distress
 - Cracks
 - Longitudinal, Transverse, Block, Wheel-path, Alligator
 - Crack Opening
 - Rutting
 - Raveling
 - Patches
 - Potholes
 - Polishing, Bleeding
- Roadway Segment Rating based on Worst Distress



PASER Rating and Pavement Integrity

Good			Fair				Poor		
10	9	8	7	6	5	4	3	2	1



PASER Rating Example

- PASER Rating = 9
 - Like new condition
 - No defects



PASER Rating Example

- PASER Rating = 6
 - Cracks are tight (hairline) = 8
 - Longitudinal cracks at joints = 8
 - Transverse cracks
 - Less than 10' apart = 6



PASER Rating Example

- PASER Rating = 4
 - Cracks are open, $\frac{1}{4}$ " - $\frac{1}{2}$ " = 6
 - Longitudinal crack at joint = 8
 - Transverse cracks
 - Less than 10' apart = 6
 - Block cracking
 - 1' - 5' Blocks = 5
 - Wheel-path cracking = 4



PASER Rating Example

- PASER Rating = 2

Worst Distresses:

- Wheel-path cracking = 4
- Potholes, occasional = 3
- Alligator cracking
 - Greater than 25% = 2



PASER Rating Example

- PASER Rating = 1

Worst Distresses:

- Cracks
 - Close spacing and eroded = 2
- Potholes, frequent = 2
- Alligator cracking
 - Greater than 25% = 2
- Severe surface distress and HMA base is visible = 1

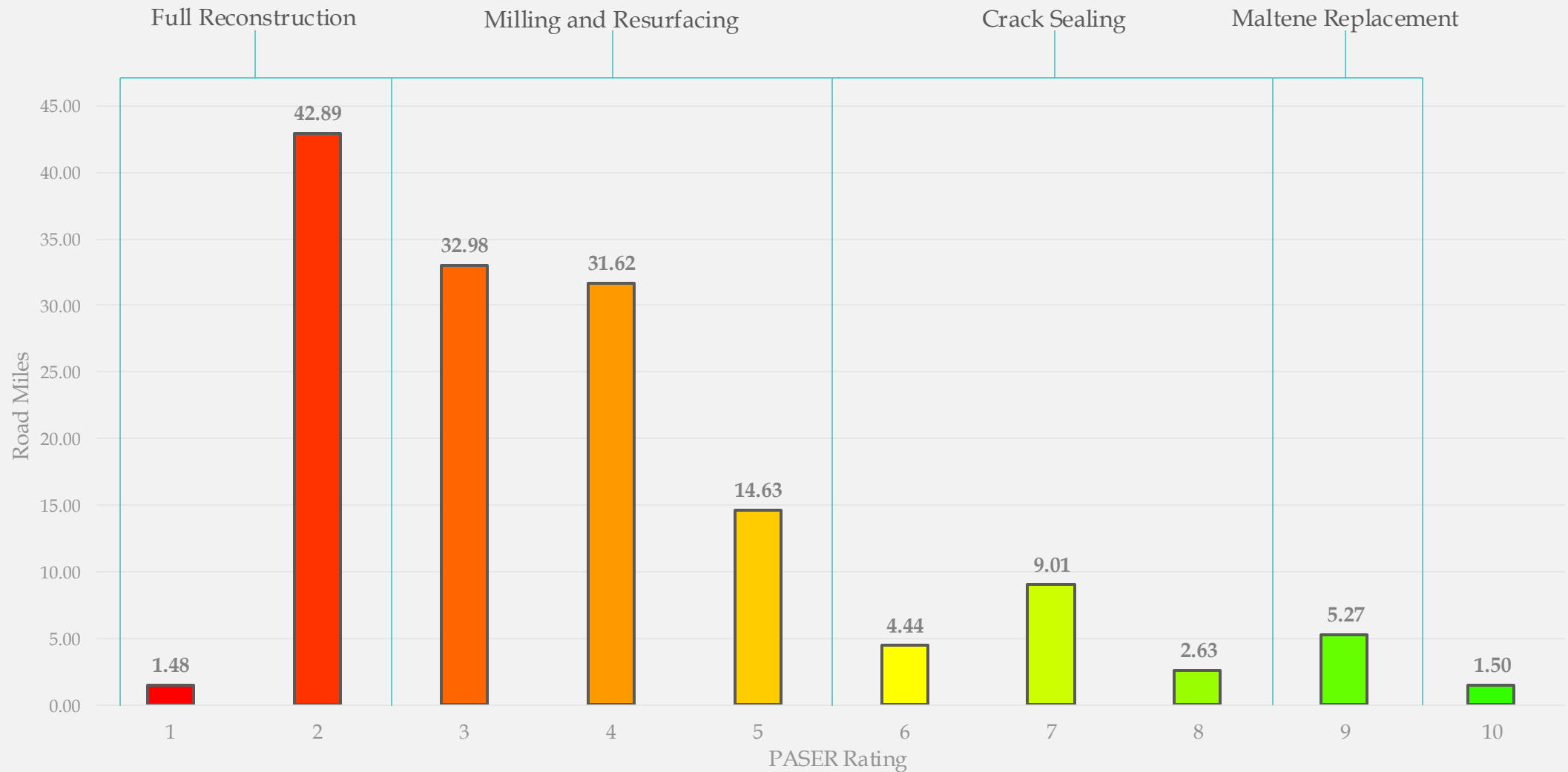


2024 PASER Survey Results

- 146.45 Total Miles of Roadway
 - Up from 146.04
- 3.90 Average PASER Score
 - Down from 4.26

Rating and Mileage Summary		
Rating	Road Miles	Percentage
1	1.48	1.01%
2	42.89	29.29%
3	32.98	22.52%
4	31.62	21.59%
5	14.63	9.99%
6	4.44	3.03%
7	9.01	6.15%
8	2.63	1.79%
9	5.27	3.60%
10	1.50	1.02%

2024 PASER Survey Results



2024 PASER Survey Results – Classifications

Arterial - 4.35 Average
PASER Score

Minimum PASER
Score goal of 6.0

Collector – 3.75 Average
PASER Score

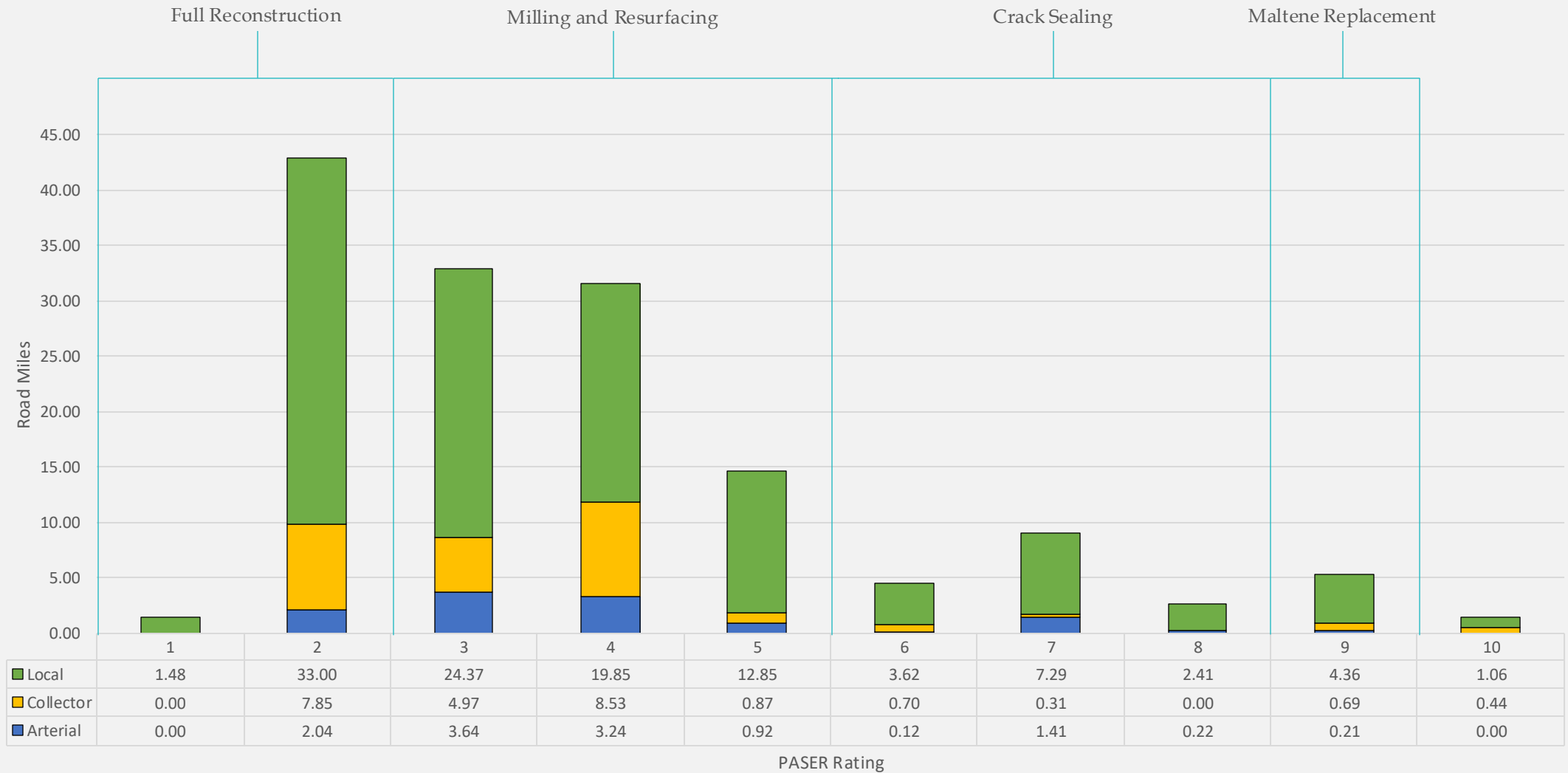
Minimum PASER
Score goal of 6.0

Local – 3.88 Average
PASER Score

Minimum PASER
Score goal of 4.0



2024 PASER Survey Results – Classifications



Elkhart County 2023 PASER Results (Lane Miles)

Elkhart County
2023 PASER Survey Results

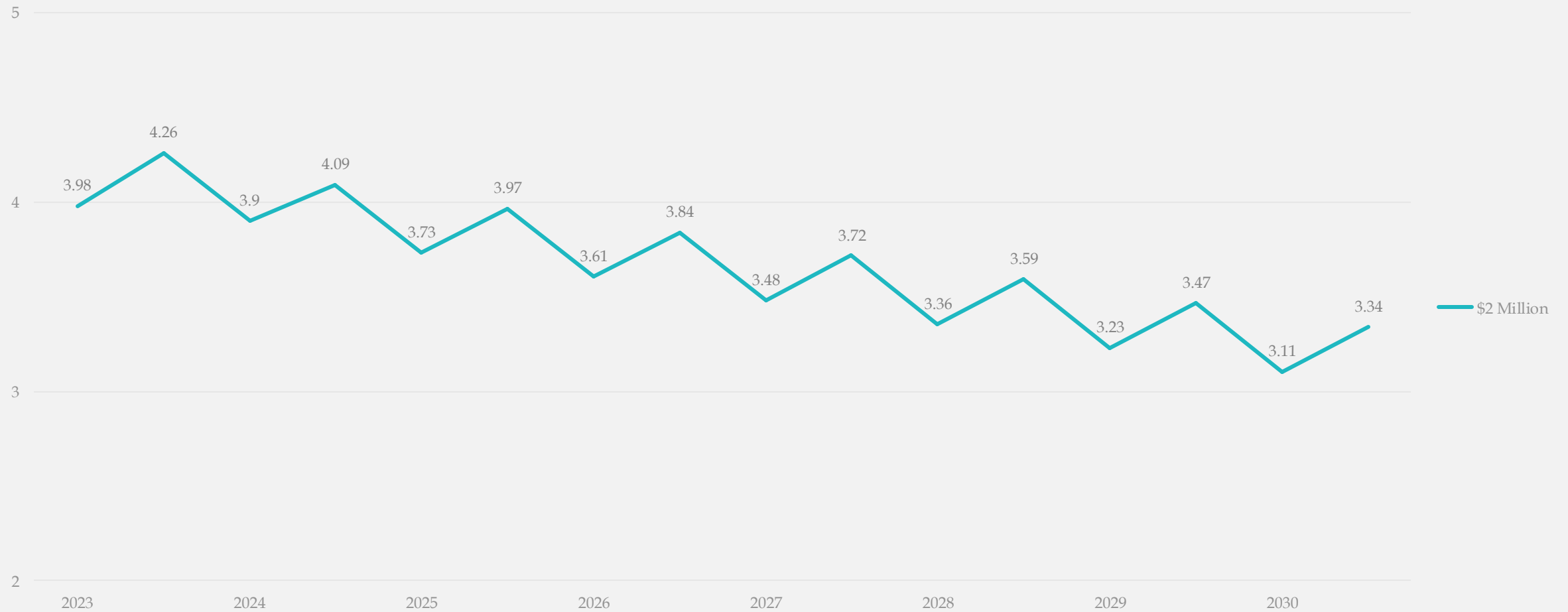


Projected PASER Scores

- 2024 Season
 - Construction will raise Goshen's PASER 0.19 to 4.09
 - Average Construction increase is 0.24
- Winter Season
 - Average decrease to Goshen's PASER score of 0.36
- Losing more points over winter than gained through construction

Projected PASER Scores

Projected PASER Scores

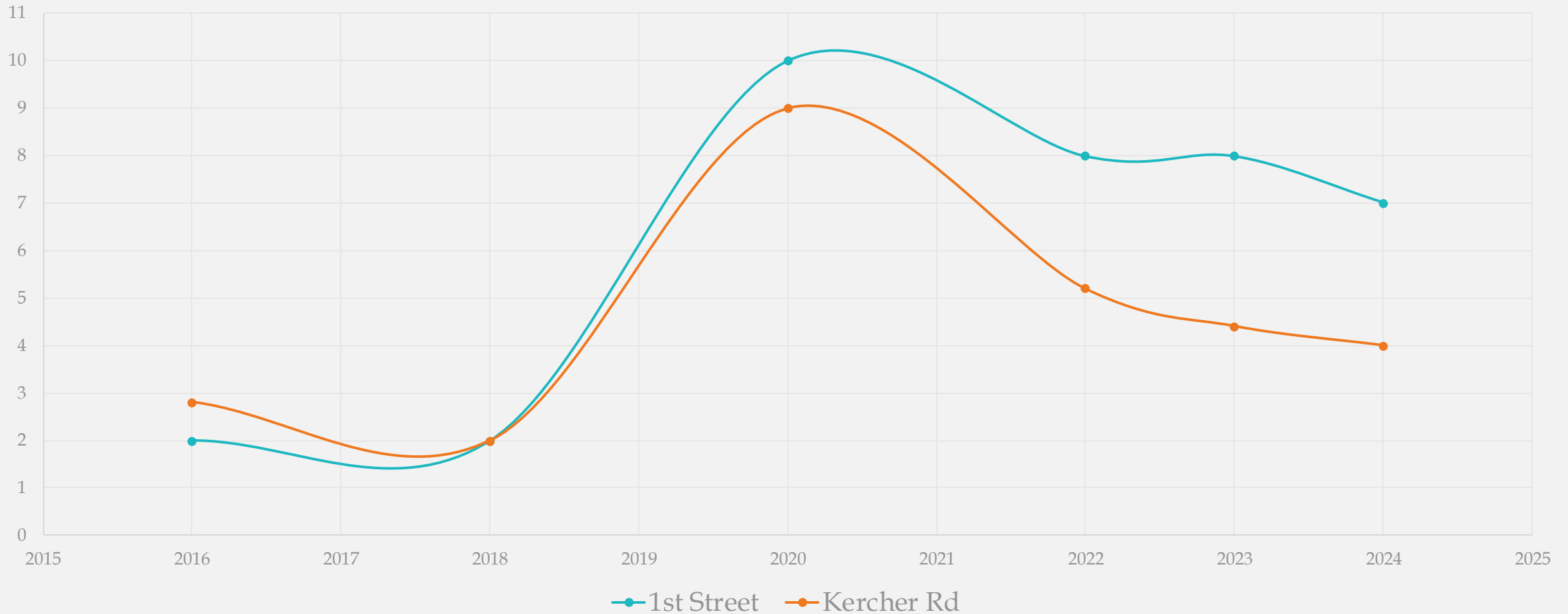


Data Science and Analysis

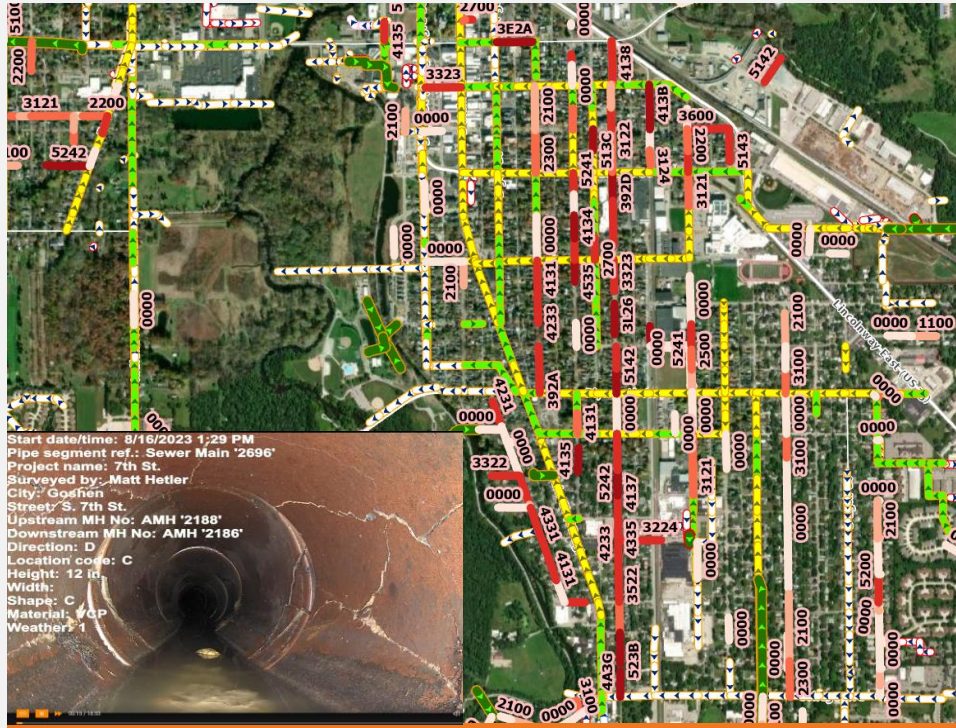
- Mapped out roadway degradations curves for all projects since 2014
- Correct treatments at the correct time have shown positive results
- Asphalt mix specifications have shown positive results
- Early intervention is cheaper than full replacement
- Evaluating treatment alternatives
- We have better data to plan for utility and drainage work minimizing premature excavation of new roadway

Data Science and Analysis

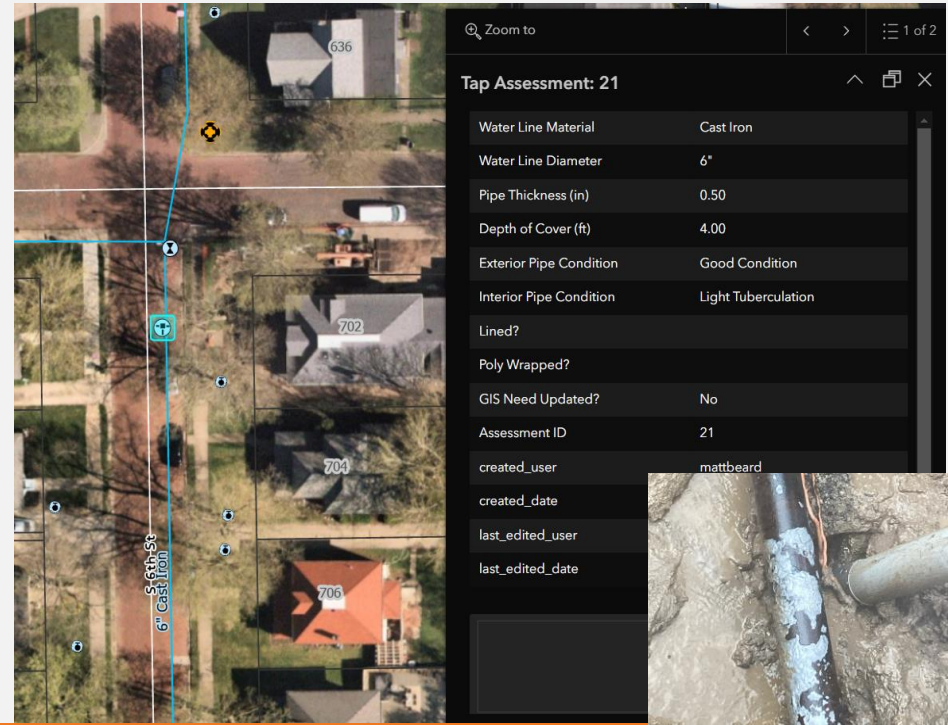
Road Construction Analysis



Utility Planning = Long Road Life



Sewer
Televising Software



Water
Break History, Field Assessments, and Modeling

Solving Drainage = Long Road Life

Stormwater Management

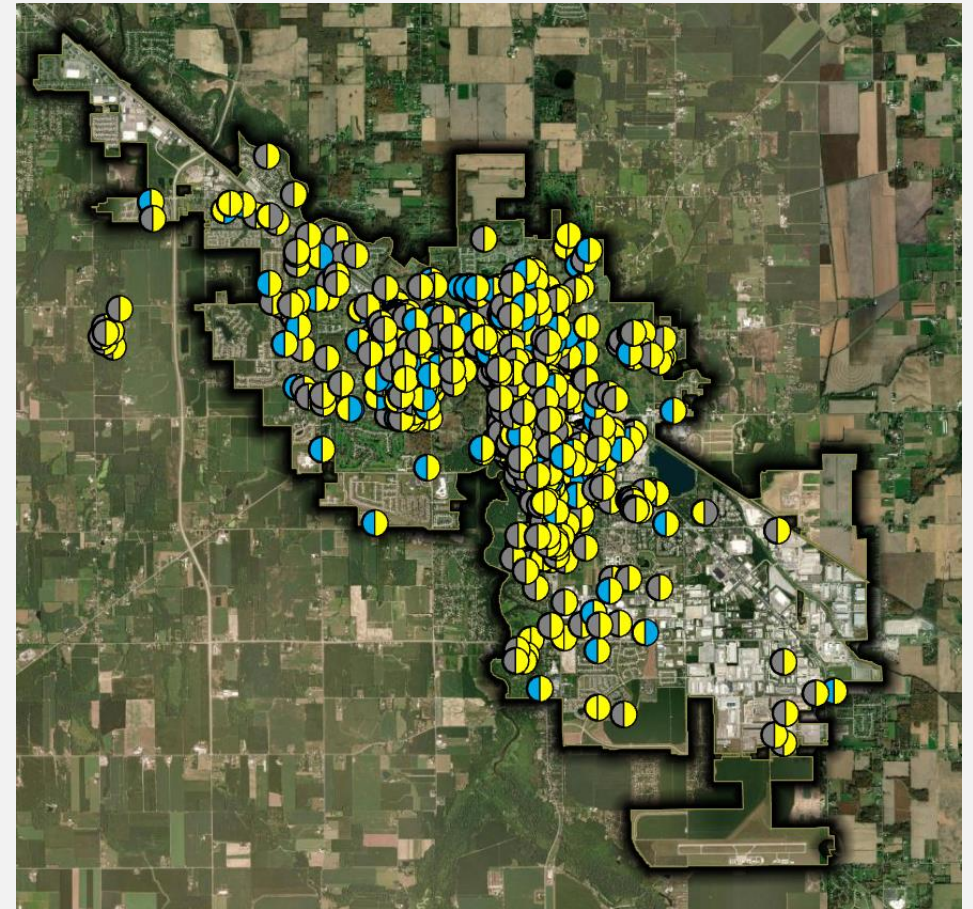
Complaint Records = 65 open since 2017



Looking Ahead - Water Service Line Replacements

Material	Number of Lines	Must Replace?
Non-Lead	3,469	No
Galvanized Requiring Replacement	1,435	Yes (?)
Lead	0	Yes
Unknown	6,857	Part of Replacement Pool
Total	11,761	

Under proposed Lead/Copper rule, City would be required to eliminate all lead and galvanized requiring replacement lines within 10 years.



Transportation Funding

Fund	Max Available	Guaranteed vs. Awarded	Restrictions
Motor Vehicle Highway (local fees and taxes)	\$3,709,240.50	Guaranteed	Fuel tax deficiencies, fuel tax expires in 2028, covers salaries, equipment, materials, etc...
Motor Vehicle Highway Restricted (local fees and taxes)	\$743,269.11	Guaranteed	Fuel tax deficiencies, fuel tax expires in 2028, covers salaries, equipment, materials, etc..., 50% must be used for road maintenance
Local Roads and Streets (local fees and taxes)	\$641,477.74	Guaranteed	Fuel tax deficiencies, fuel tax expires in 2028, covers salaries, equipment, materials, etc...
Civil City - EDIT	\$2,000,000.00	Requested	
Redevelopment (TIF)	variable	Requested	Can only reconstruct, location-specific, benefit to new development, expires in 2034
Civil City - Cum. Cap.	\$465,000.00 (2023)	Requested	
Community Crossings	Up to \$1.5 million annually	Awarded	Asset management plan approval, must provide financial match, not always awarded

Redevelopment

- Significant amount of roadway work contributions
 - Downtown Streetscape (Main St from Pike to Madison)
 - Waterford Mills Parkway
 - Eisenhower Drive Reconstruction
 - East College Development (Brinkley Way)
 - 10th Street
 - Lincoln and Steury
 - Consolidated Courts Roadway Improvements (Reliance and Peddlers)

Redevelopment

- Future roadway work contributions
 - Dierdorff Road
 - Eisenhower Drive
 - Century Drive
 - College Avenue
 - Southeast Goshen Industrial
 - Corrie Drive
 - Sourwood Drive
 - Firethorn Drive
 - Hackberry Drive
 - Linden Drive
 - Caragana Court
 - County Road 40

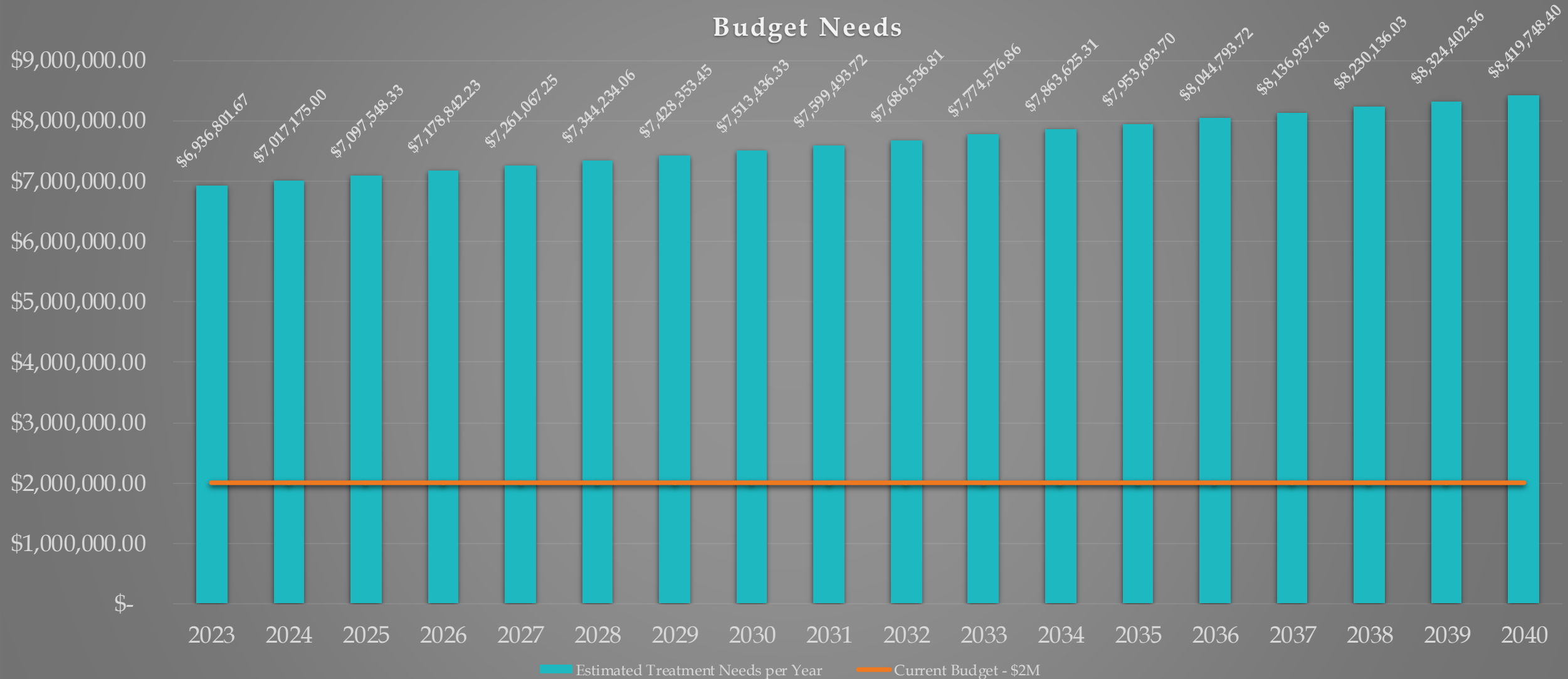
Prior Roadway Treatment Summary

Treatment	2019 Mileage	2020 Mileage	2021 Mileage	2022 Mileage	2023 Mileage	Total Miles	Costs
Crack Seal	9.5	18.37	8.46	4.54	12.25	53.12	\$ 531,200.00
Maltene Replacement Treatment	-	-	-	-	4.31	4.31	\$ 101,986.50
Overlay - 1.5"	0.51	0.41	0.19	1.68	0.34	3.13	\$ 234,750.00
Mill and Resurface - 1.5"	1.1	0	0	3.3	0	4.4	\$ 1,320,000.00
Mill and Resurface - 2"	4.06	0.58	3.92	0	1.9	10.46	\$ 3,399,500.00
Mill and Resurface - 4"	0	0	0	0	0.56	0.56	\$ 224,000.00
Reconstruction - Asphalt	2.22	0.45	3.53	1.02	1.4	8.62	\$ 6,465,000.00
Reconstruction - Concrete	-	0.7	0.4	0.67	-	1.77	\$ 1,539,900.00
Total Miles	17.39	20.51	16.5	11.21	20.76	84.6	-
Costs	\$ 3,447,750.00	\$1,349,450.00	\$ 4,368,350.00	\$ 1,926,400.00	\$ 2,141,486.50	-	\$13,816,336.50

Annual Budget Need Summary

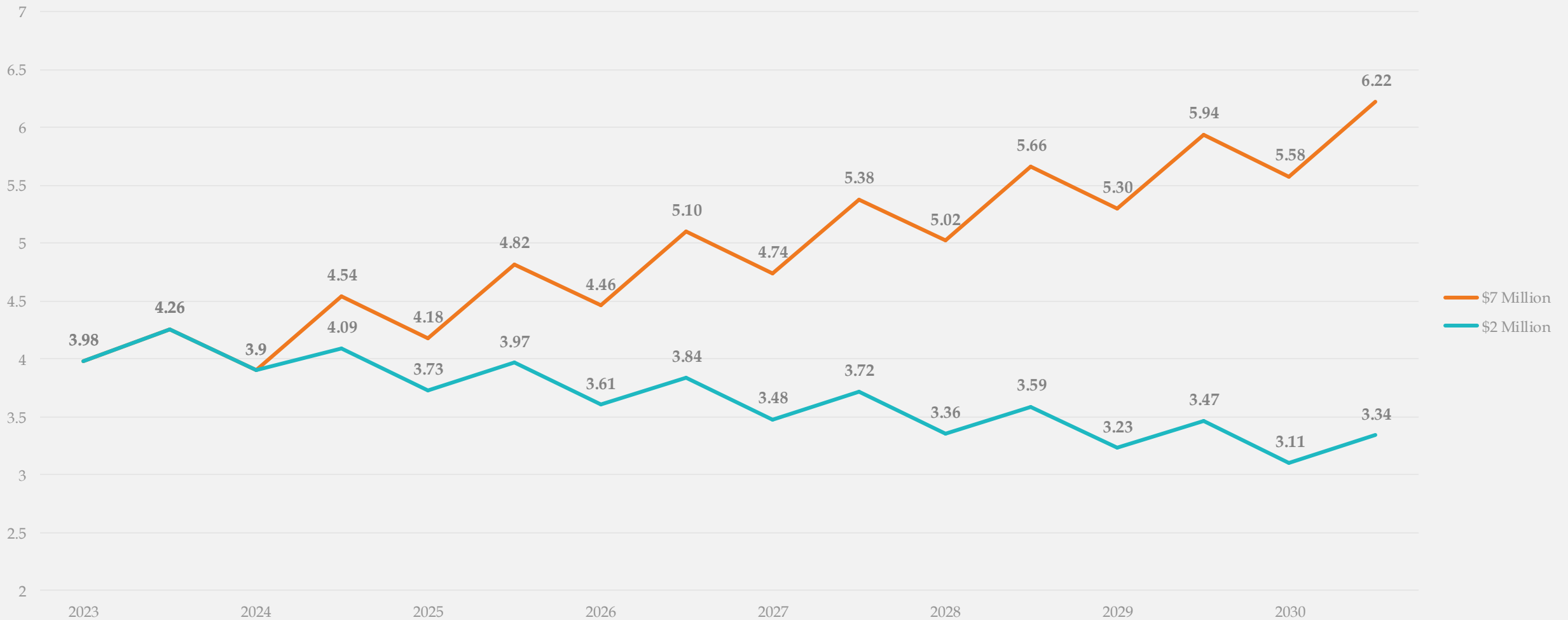
Year	Estimated PASER Score	Treatment	Estimated Cost
2	9	MRT	\$ 2,750.00
4	8	Crack Seal	\$ 1,100.00
10	6	Crack Seal	\$ 1,100.00
13	4	Mill and Resurface	\$ 33,000.00
18	7	Crack Seal	\$ 1,100.00
21	6	Crack Seal	\$ 1,100.00
24	3	Mill and Resurface	\$ 33,000.00
27	6	Crack Seal	\$ 1,100.00
30	2	Reconstruction	\$ 82,500.00
Segment cost per life cycle			\$ 156,750.00
Segment cost per year			\$ 5,225.00
Total number of segments			1343
Total budget needed per year			\$ 7,017,175.00

Annual Budget Need Summary



Projected PASER Scores

Projected PASER Scores



Projected PASER Scores

Projected PASER Scores



The Holistic Approach

Other infrastructure needs

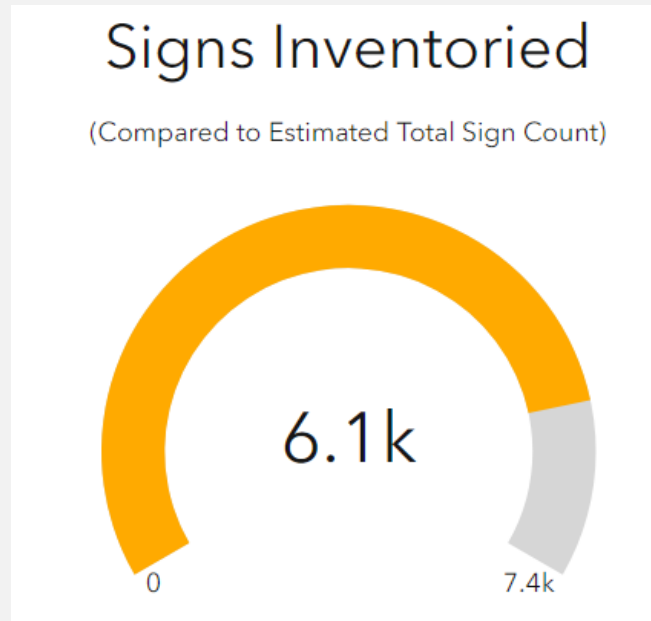
- Signs
- Sidewalks and Multi-Use Paths
- Curb Ramps
- Pavement Markings



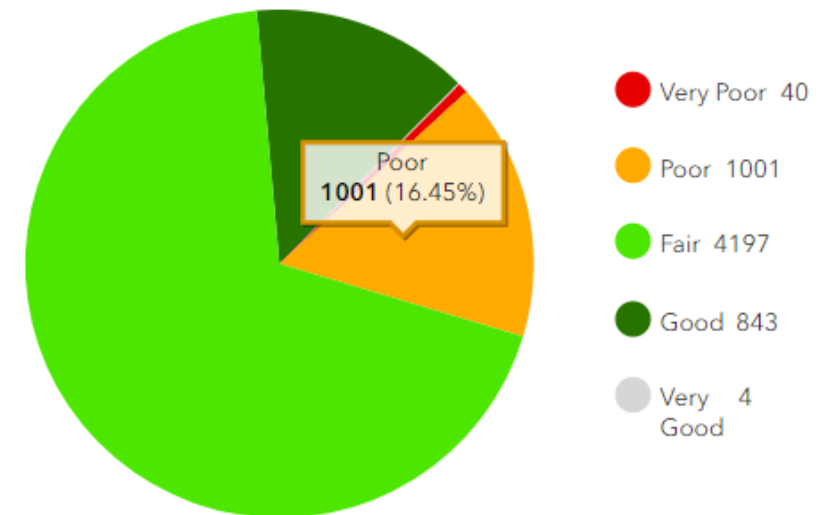
Street Signs

"Expected Sign Life Management Method"

- Replace signs every 7, 10, or 12 years depending on sign sheeting type
- Resolution of the Goshen BOW Establishing the Sign Maintenance Retroreflectivity Program (signed 8/33/2011)



Assessed Condition



Street Signs

City Owned Signs

Sign Type	Inventoried	Older than Expected Life	% Needing Replaced	Cost Estimate
Regulatory	2,746	2,106	77%	\$176,904
Warning	517	338	65%	\$28,140
Other	2,304	1,821	79%	\$152,964
Sign Total	5,567	4,265	76%	\$358,008
Poles		1,519		\$296,964
Regulatory, Warning, and Poles				\$502,008

*** Preliminary Numbers ONLY, Inventory is Ongoing ***



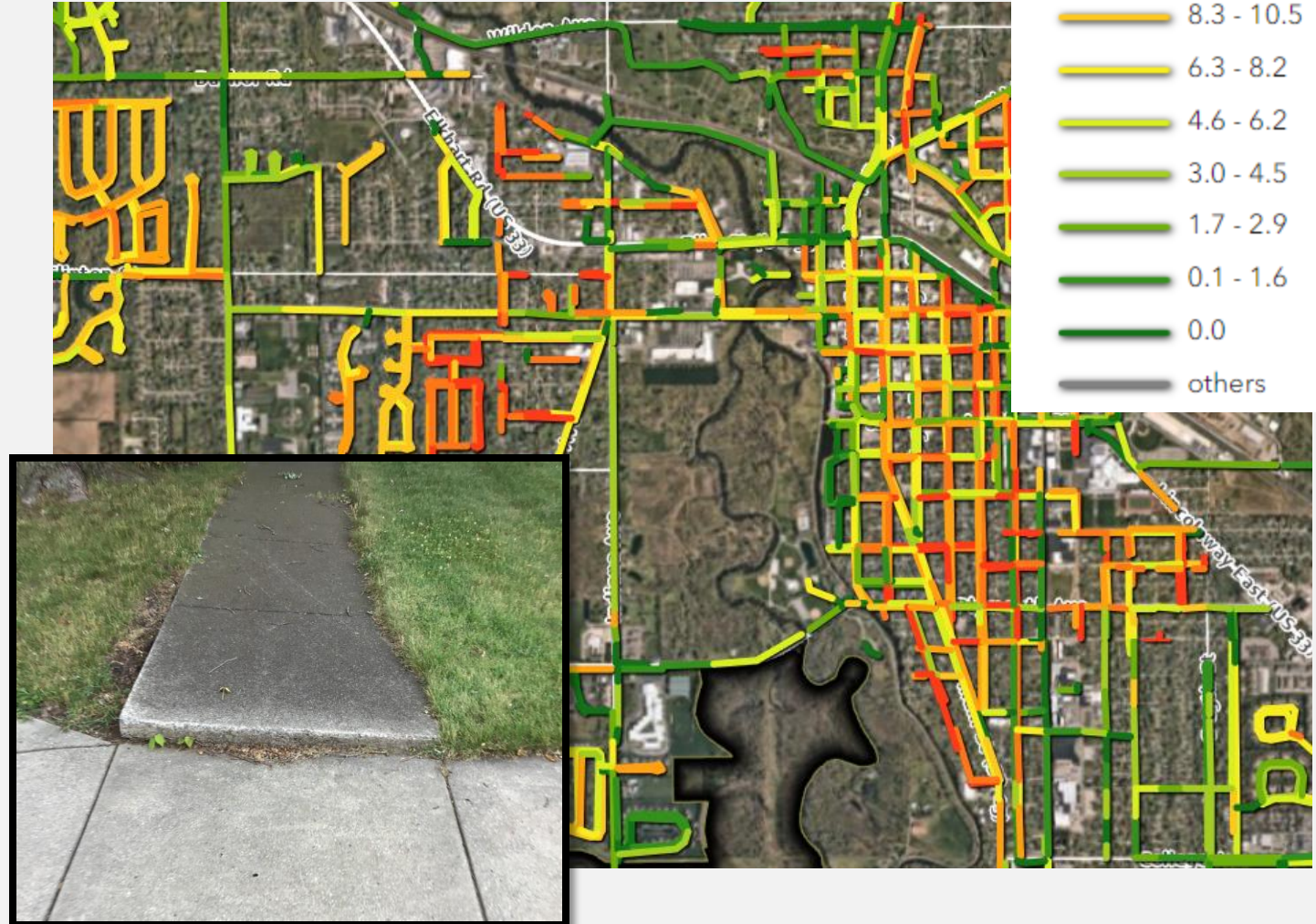
Sidewalk

2024 Inventory

- 57.8 Miles of Sidewalk
- More than 2,500 trip hazards identified
- Around \$1 million to address all trip hazards

Next Step

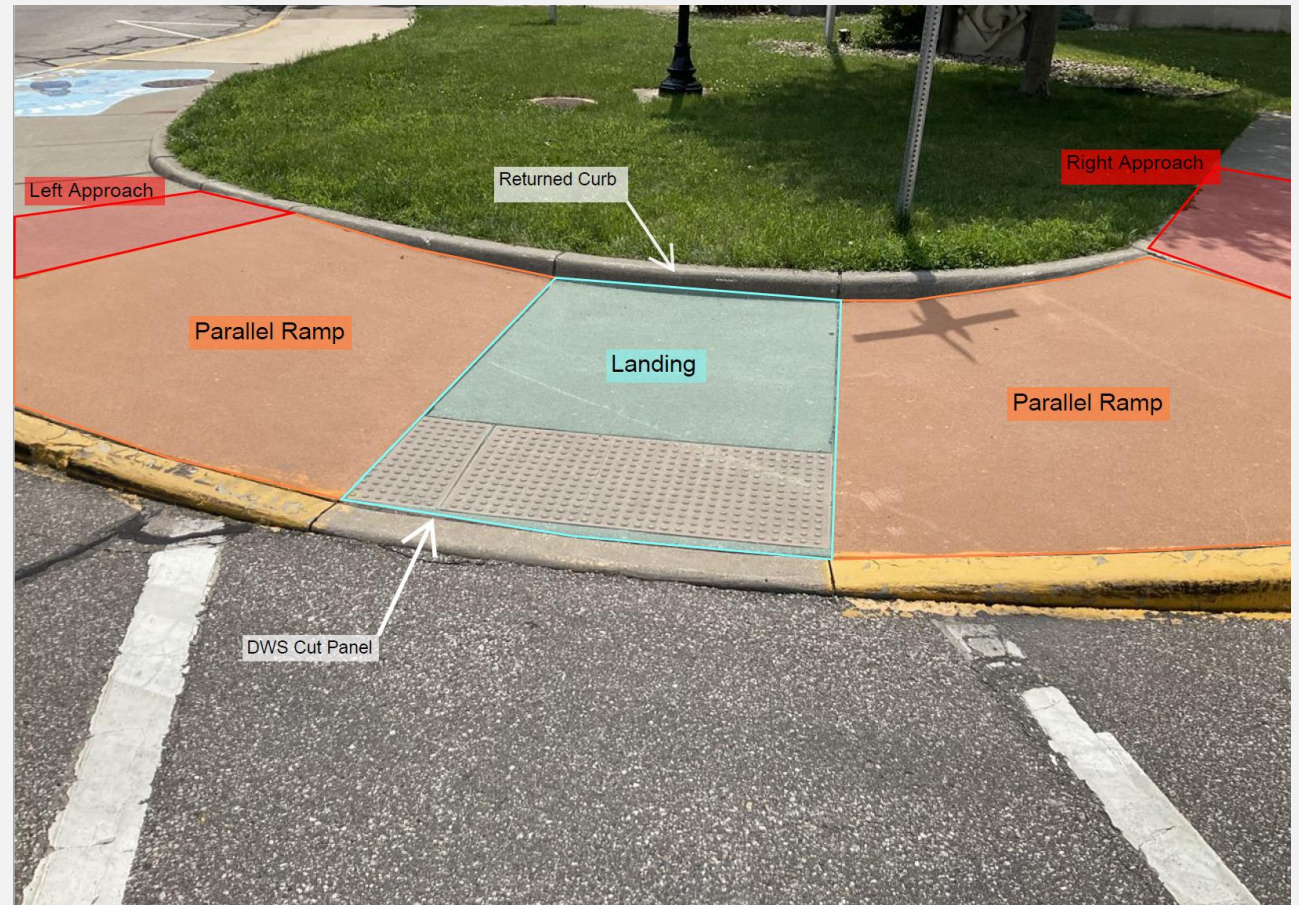
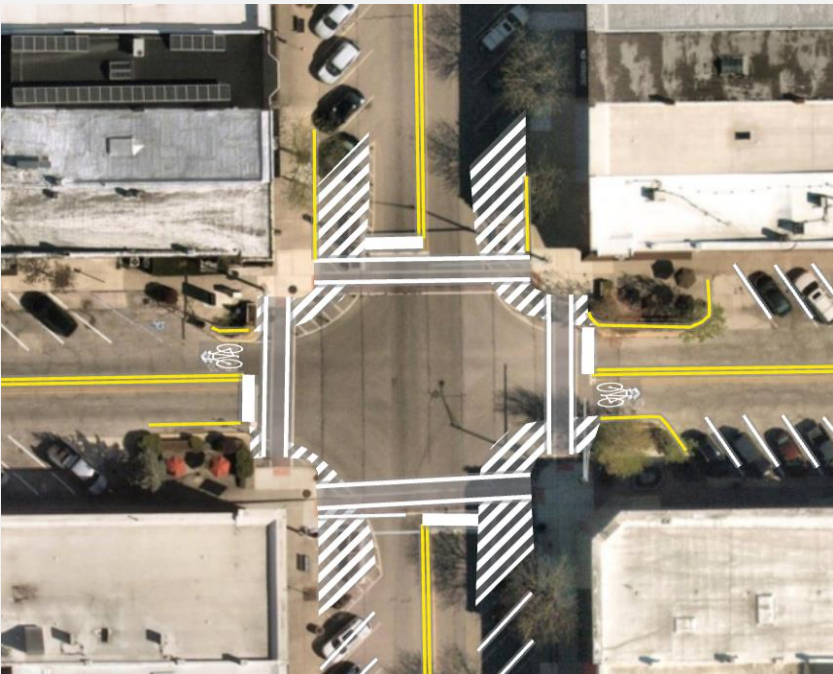
- Work with community partners to prioritize routes
- Gap analysis, repair prioritization, and more



Pavement Markings & Curb Ramps

Ongoing Inventory Effort

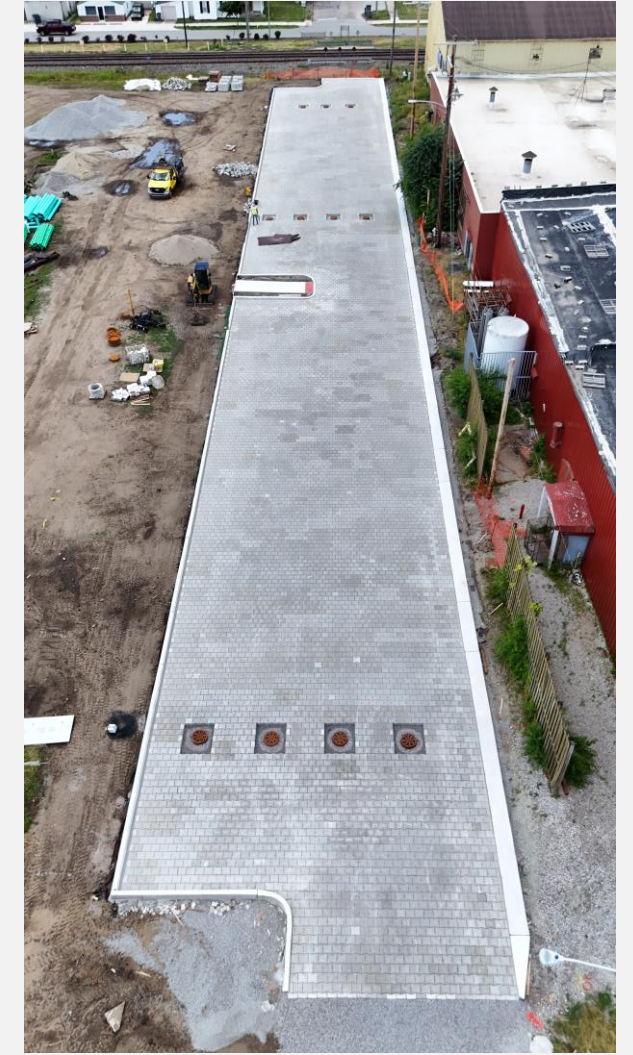
- 269 curb ramps inventoried this summer of 1,628
- Pavement Markings



Case Study = 10th St. (the "Cadillac" treatment)

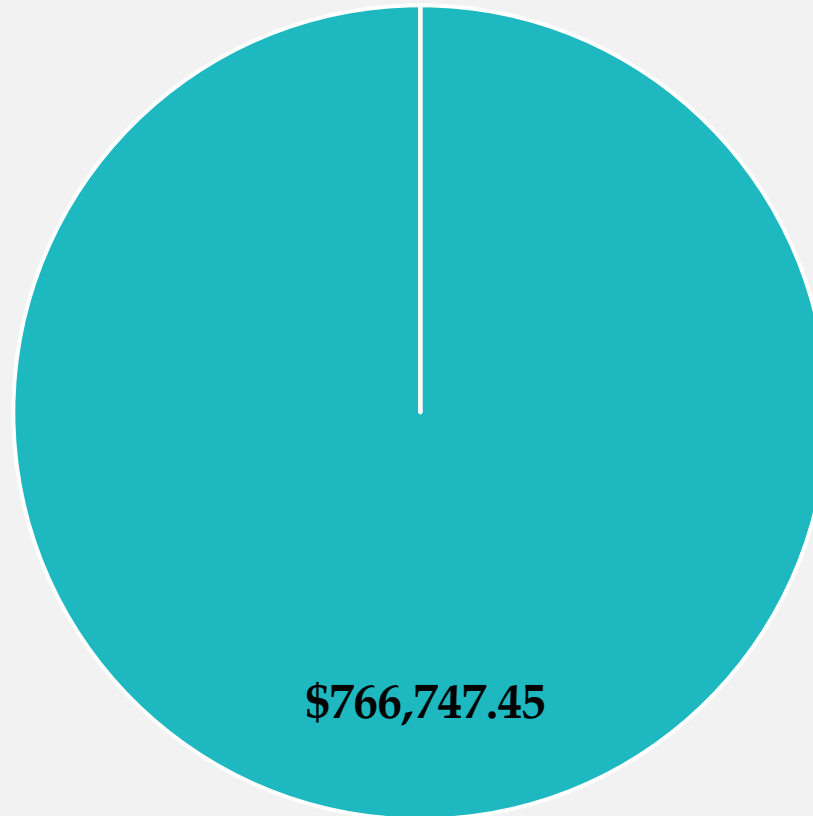
Cost

- Approximately \$4,300,000.00
- Full Corridor Project



Case Study = 10th St. (the "Cadillac" treatment)

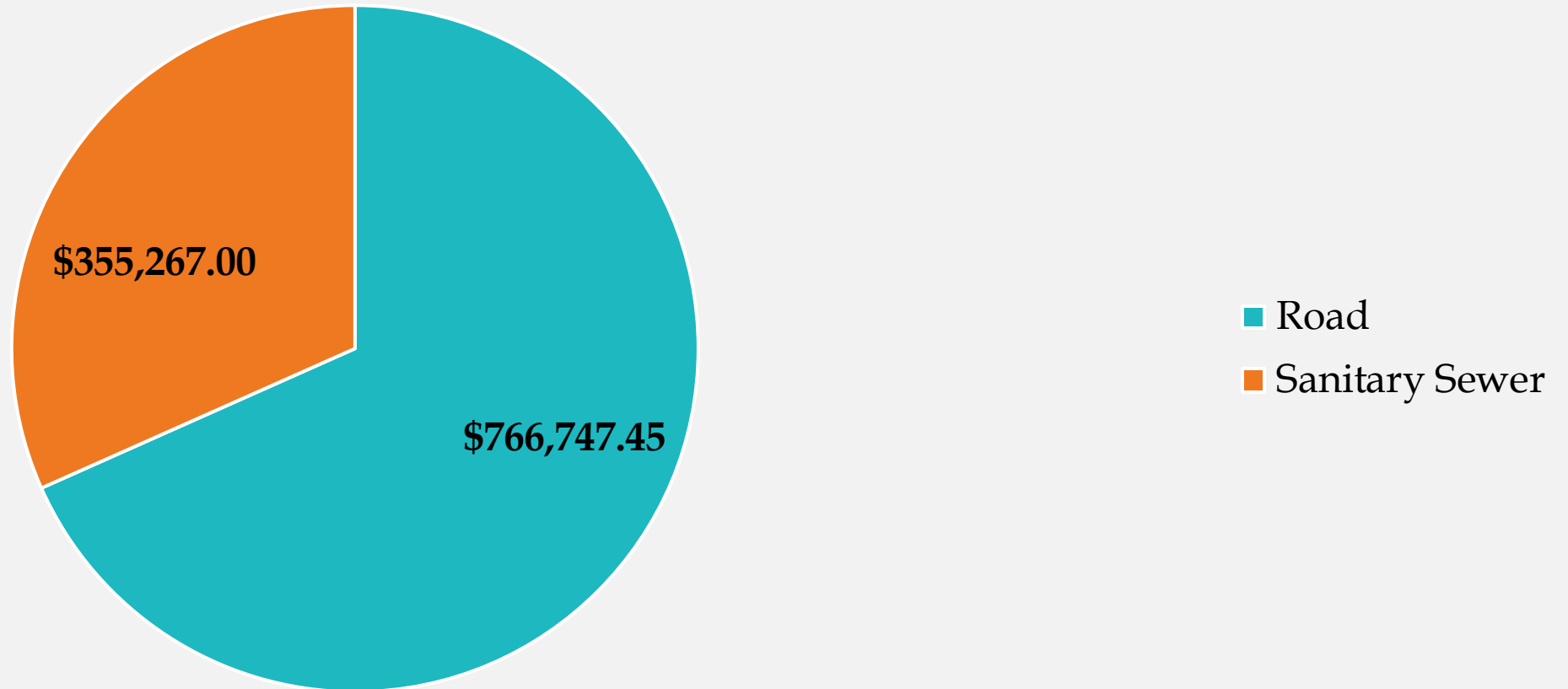
10th Street Reconstruction



■ Road

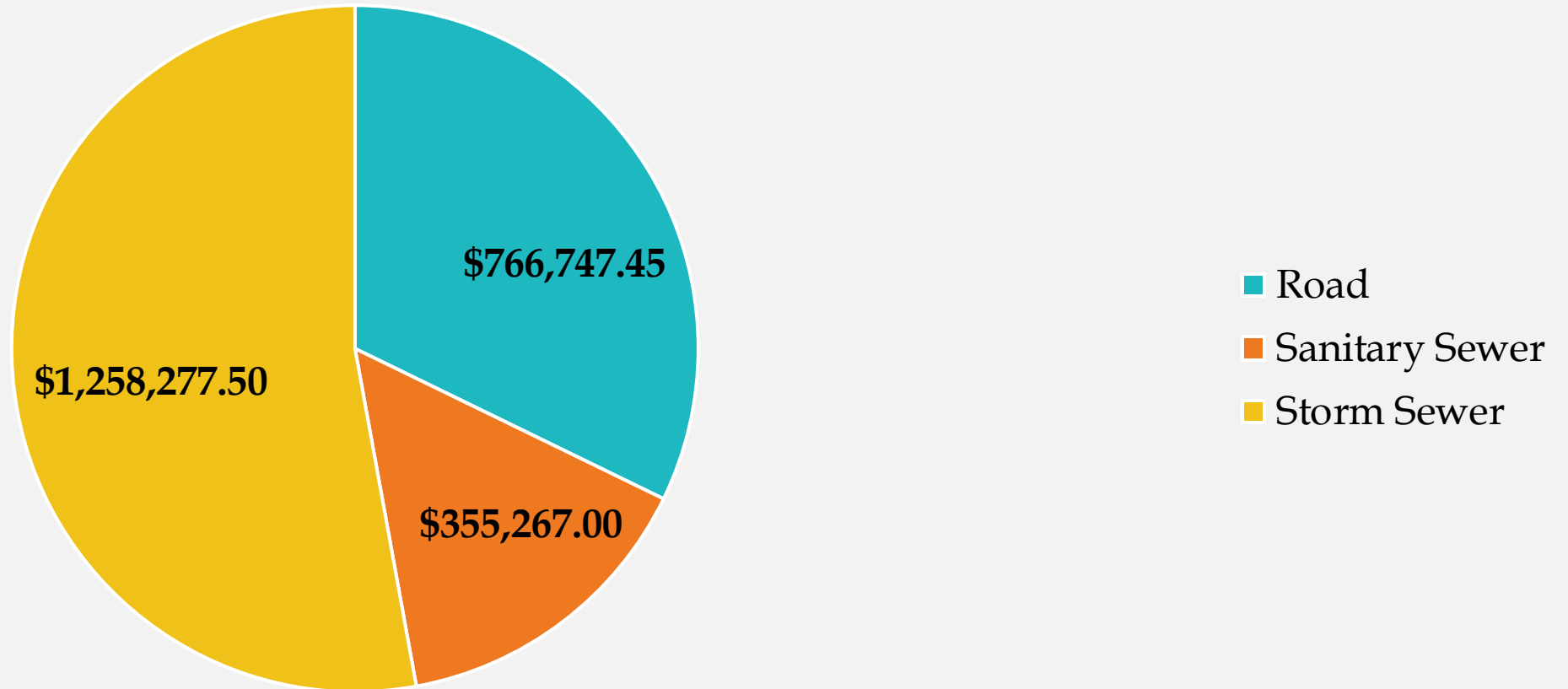
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10th Street Reconstruction



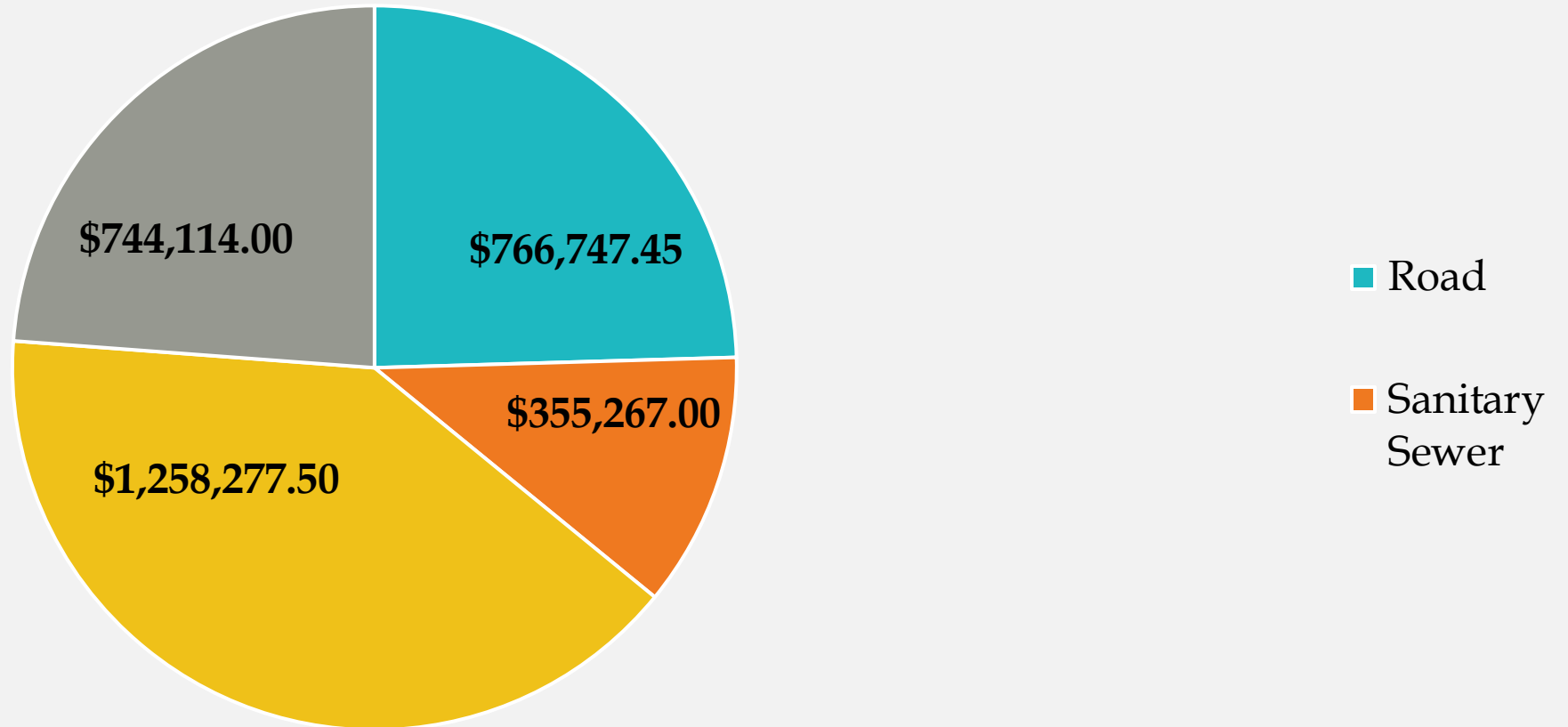
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10th Street Reconstruction



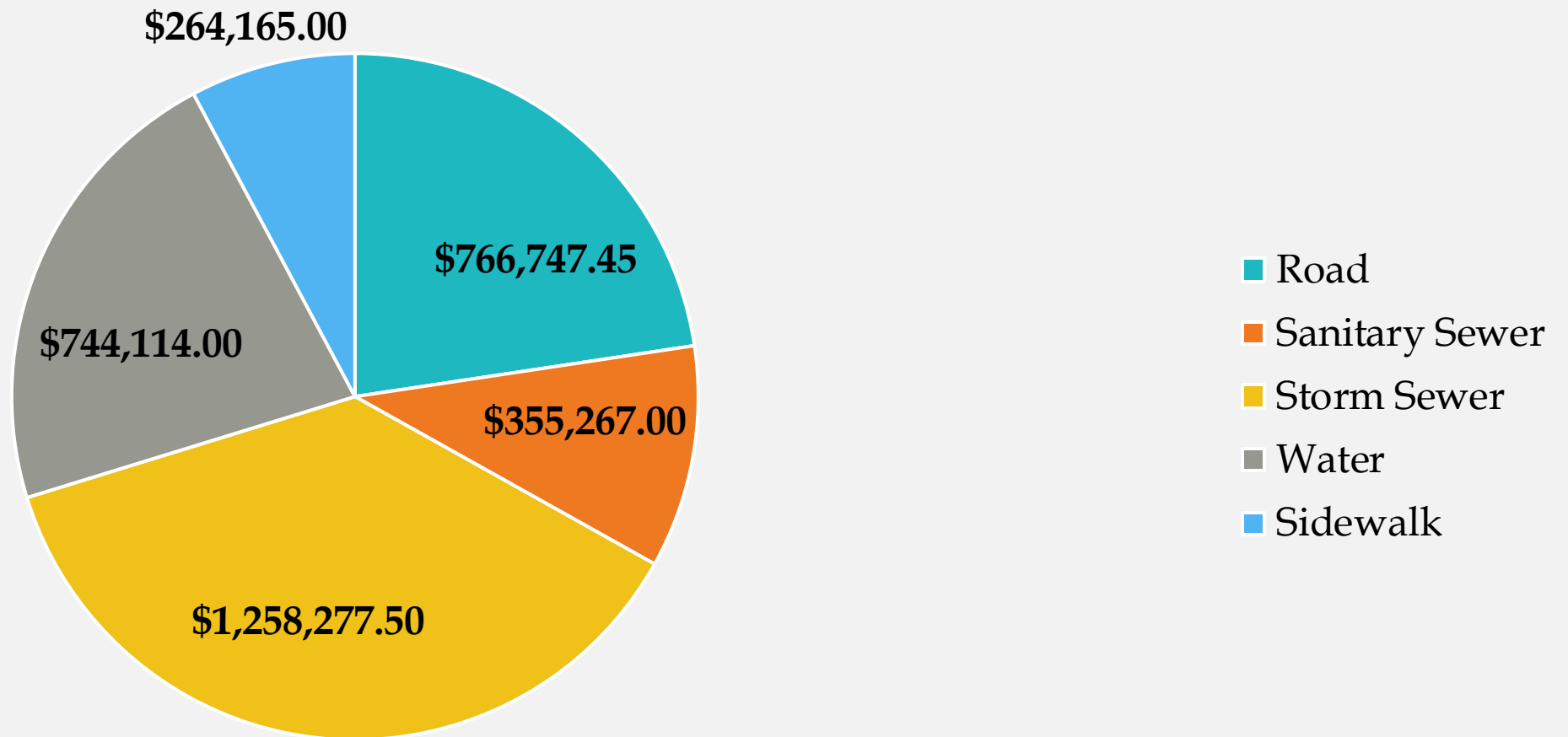
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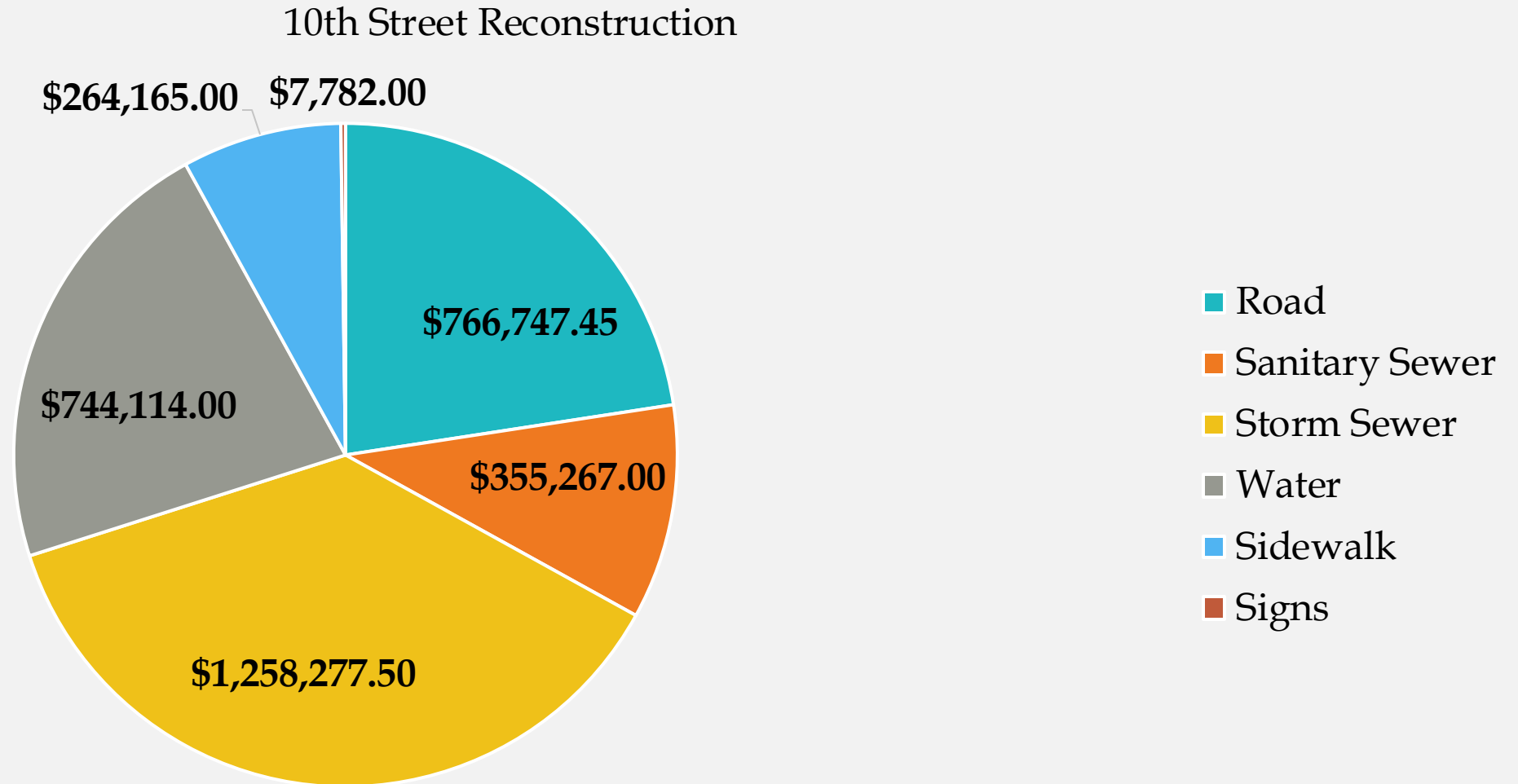


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10th Street Reconstruction

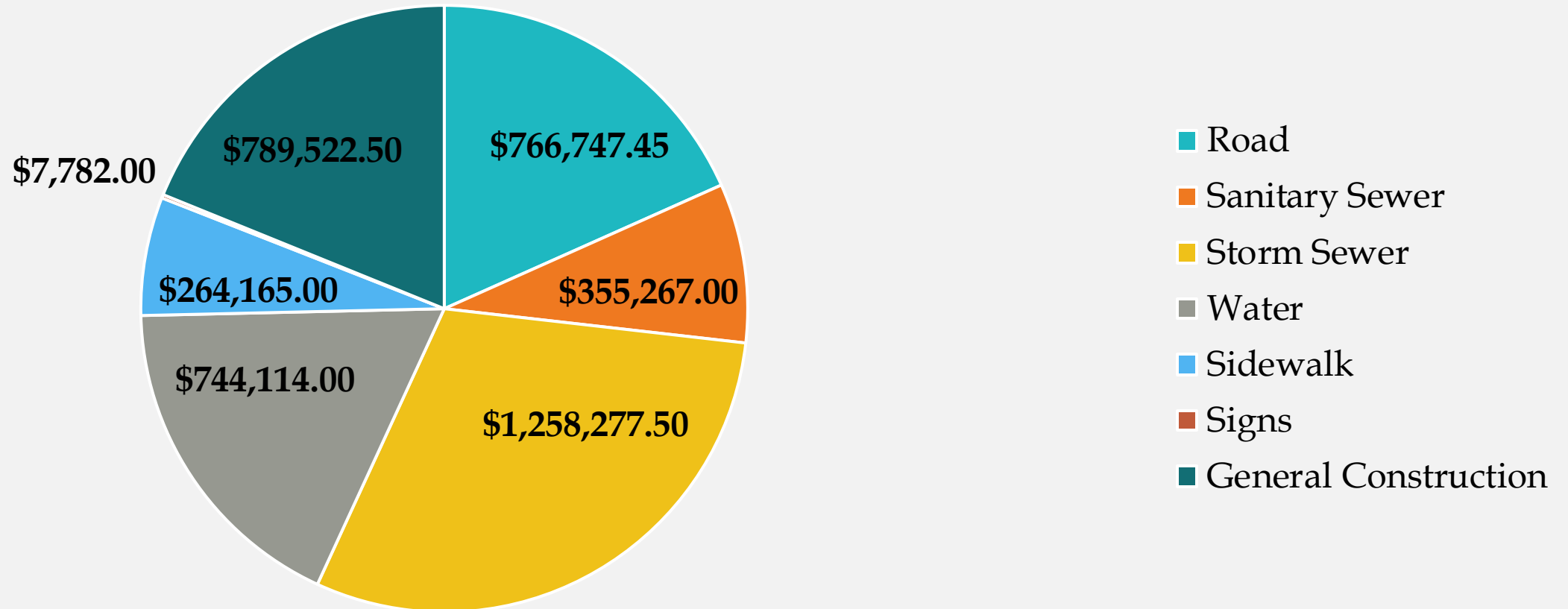


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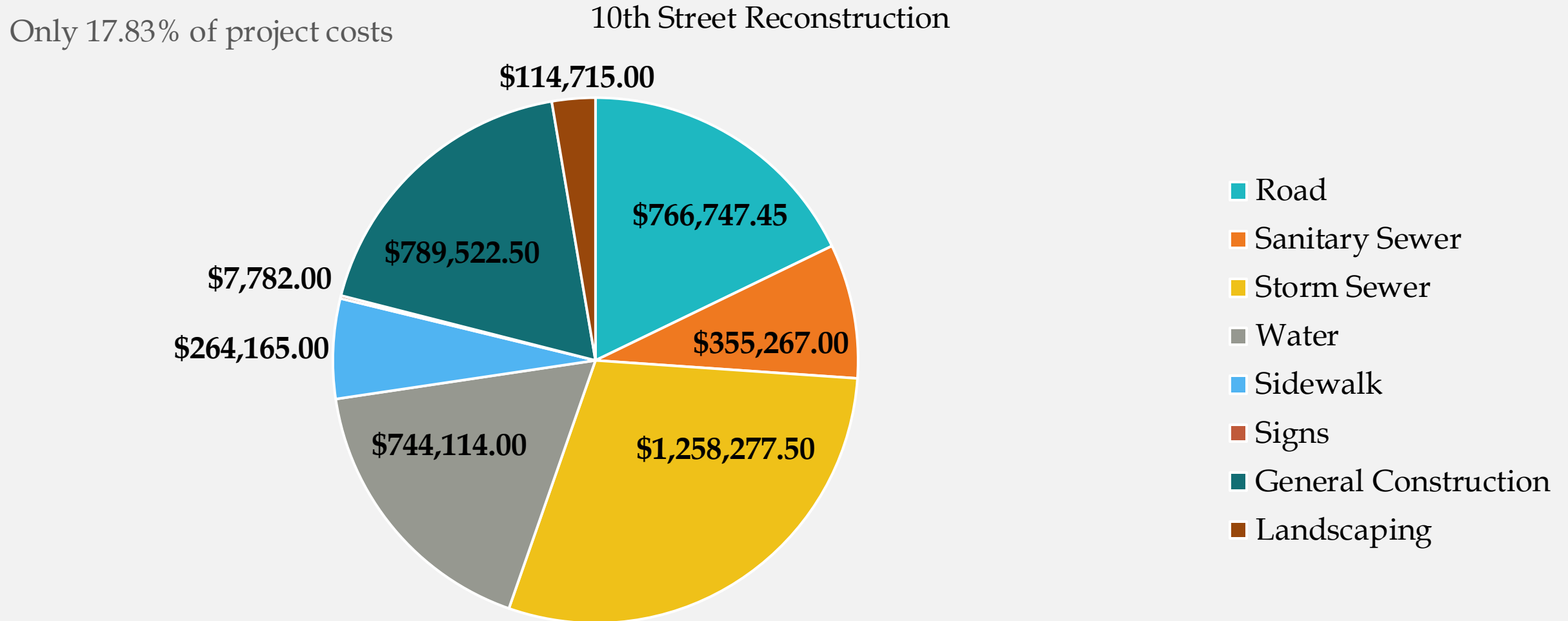


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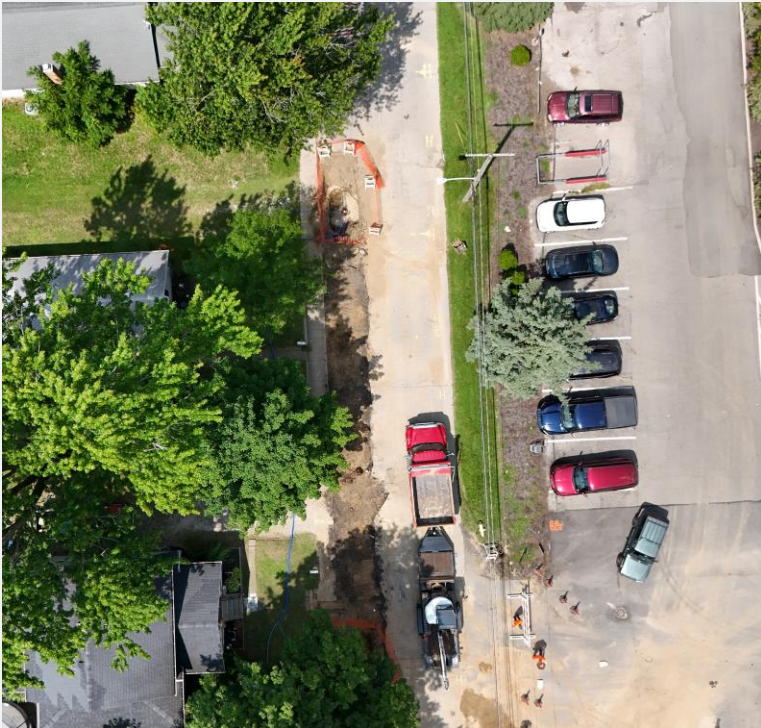
10th Street Reconstruction



Case Study = 10th St. (the "Cadillac" treatment)



Case Study = Denver (the "scramble")



Infrastructure	Fund (s)	Cost
Asphalt Material Only	Civil/Streets	\$91,240.50
Water Main Material	Utility Rates	\$83,075
Water Services	Utility Rates	\$7,825
Sidewalk	Civil/Streets	\$2,400
Sanitary Sewer	Utility Rates	\$10,820
Stormwater Drainage	Stormwater Fee	\$7,900
Other/General	Civil/Streets/Utility Rates	\$21,702.50

Meeting Our Transportation Needs

- Roads are deteriorating faster than current funding supports
- Supporting and active transit assets also have maintenance deficits
- We are using data to evaluate our methods and use data-driven decisions that maximize our outcomes per dollar
- Our funding options are currently maxed out



What we need

- \$2,000,000.00
 - Our PASER score decreases to 3.34 in 5 years
- \$3,230,000.00
 - We can hold PASER score steady at 4.26
- \$7,000,000.00
 - We can maintain our entire roadway network and increase PASER score to 6.22 in 5 years
- Currently, we have no dedicated funding for active transit assets



Discussion

- What infrastructure condition is Goshen willing to live with?
- What investment balance do you want to see between active transit and roadway assets?
- Where do we get more money? How do we meet our condition goals and needs?



Additional Revenue Options

- Local wheel tax
- Environmental fee
- Local food and beverage tax

