

Chillicothe – ACGP Road Improvements



AMERICAN
STRUCTUREPOINT
INC.

City of Chillicothe
March 10, 2025

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Appalachian Community Grant Program (ACGP)

- 500 Million available for the 32 County Appalachian Region
- Funded by Ohio's designation of ARPA dollars
- Eligible Projects include Infrastructure, Workforce, Healthcare
- Chillicothe was awarded 35 million for:
 - Armory/Visitor's Center/Farmers Market
 - Yoctangee Park amenities
 - Upgrading the Street network surrounding the park

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Goals of the Street Projects will:

- Improve traffic flow on the public streets around the park.
- Cut down on thru traffic inside the park.
- Provide safe access for pedestrians and vehicles to, from, and within the park.

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Achieving these goals:

- Evaluate intersection control (Signal vs Roundabout)
- Determine ways for speed reduction.
- Limiting existing crashes and mitigating future crashes.
- Use proven countermeasures to achieve desired results.
- Creating a safe and traversable street network for all users

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Why roundabouts??

SAFEST FORM OF INTERSECTION CONTROL AVAILABLE:

- 35% Reduction in total crashes
- 76% Reduction in injury crashes
- 81% Reduction in fatal crashes
- 30-40% Reduction in pedestrian crashes

Compared to signalized intersections, as published in NCHRP Report 572, Roundabouts in the United States, Transportation Research Board, 2007

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WHY ARE THEY SAFER?

- Severe crash types nearly eliminated (No head-on, angle, and left turn crashes)
- Fewer conflict points (vehicles and pedestrians) (less conflict = less crash potential)
- Speeds reduced through geometry (slower speeds = decrease in crash severity)
- Shorter pedestrian crossing widths (less time in street = less potential for crash)
- No ability to speed up to “beat the light”
- No red light running
- No left turn crossing conflicts (with pedestrians and opposing traffic)
- Driver’s attention is focused on the roadway, not up at traffic signals



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EFFICIENCY

- Keep traffic moving
- Shorter delays and queues (limit the amount of stacking traffic)
- Signals are much less efficient during off-peak times
(waiting at red light with no conflicting traffic)

COSTS

- Cheaper than signals when planned with roadway reconstruction work and built within existing right-of-way
- Signals have added monthly electrical bills
- Signals have added maintenance costs (see next slide)



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MAINTENANCE

- Little maintenance required (landscaping and signage only)
- Signals require annual inspections
- Signals require equipment repairs and upgrades
- Signals can malfunction and are subject to power outages

ENVIRONMENT

- Less air and noise pollution (less stop and start)
- Less energy consumption (gas for cars and electricity from signals)
- Landscaping opportunities

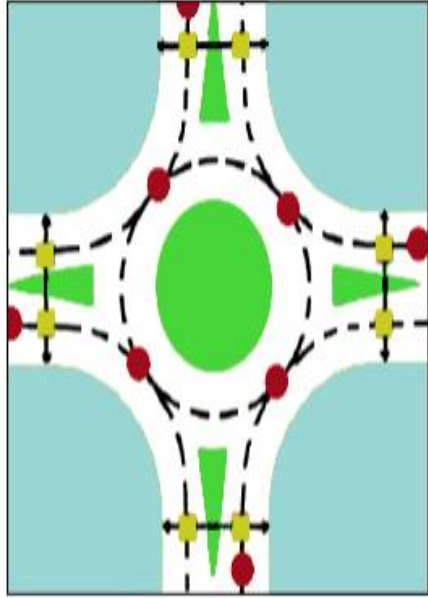
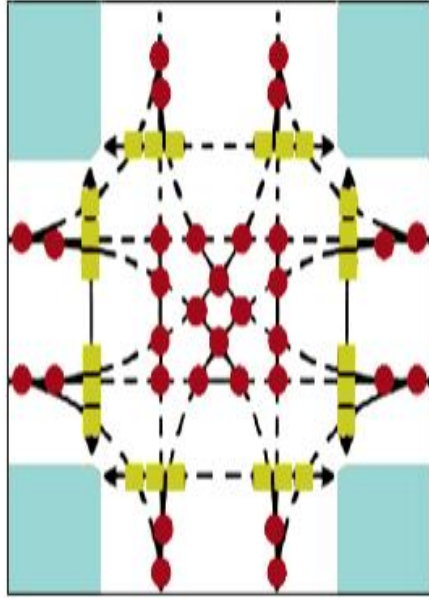


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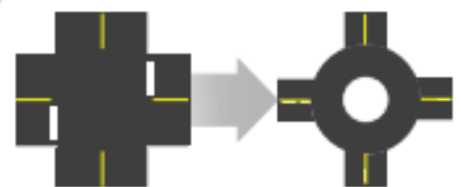


Safety Benefits:
RRFBs can reduce crashes up to:
47%
for pedestrian crashes.⁴

RRFBs can increase motorist yielding rates up to:
98%
(varies by speed limit, number of lanes, crossing distance, and time of day).³

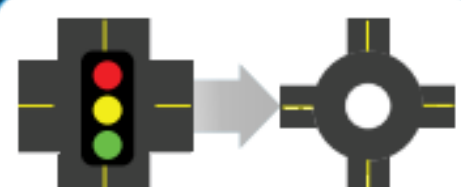
Roundabout	Intersection
	
● 8 Vehicle conflicts ■ 8 Pedestrian conflicts	● 32 Vehicle conflicts ■ 24 Pedestrian conflicts

Safety Benefits:
Two-Way Stop-Controlled Intersection to a Roundabout



82%
reduction in fatal and injury crashes.¹

Safety Benefits:
Signalized Intersection to a Roundabout



78%
reduction in fatal and injury crashes.¹

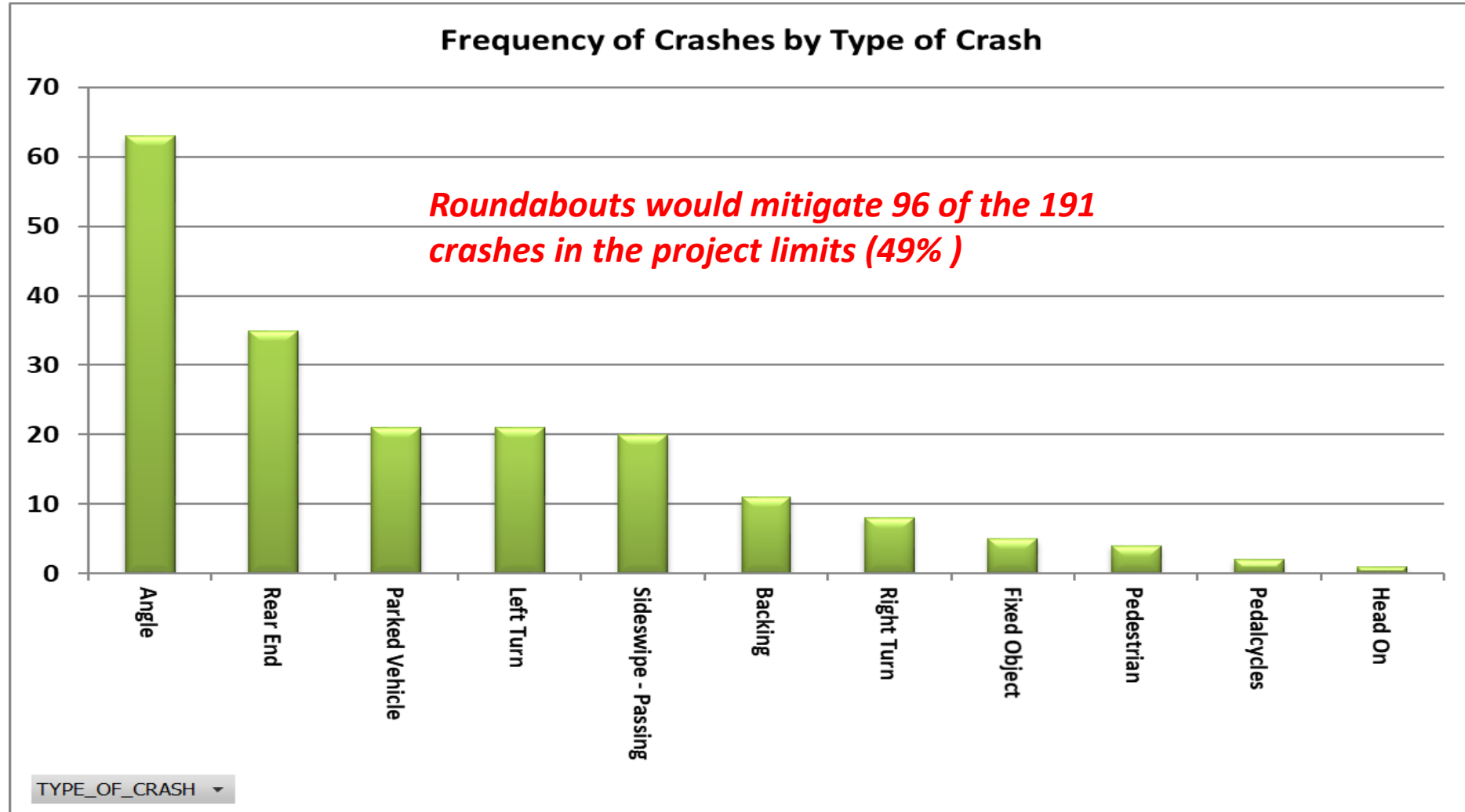
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Total Crashes Crash Type	Injury Level				Grand Total
	(2) Serious Inju	(3) Minor Injury	(4) Injury Possi	(5) PDO/No Inji	
Angle	3	3	5	52	63
Rear End	0	0	3	32	35
Left Turn	0	3	5	13	21
Parked Vehicle	0	1	0	20	21
Sideswipe - Passing	1	0	1	18	20
Backing	0	0	1	10	11
Right Turn	0	2	0	6	8
Fixed Object	0	0	0	5	5
Pedestrian	3	1	0	0	4
Pedalcycles	0	1	1	0	2
Head On	0	1	0	0	1
Grand Total	7	12	16	156	191

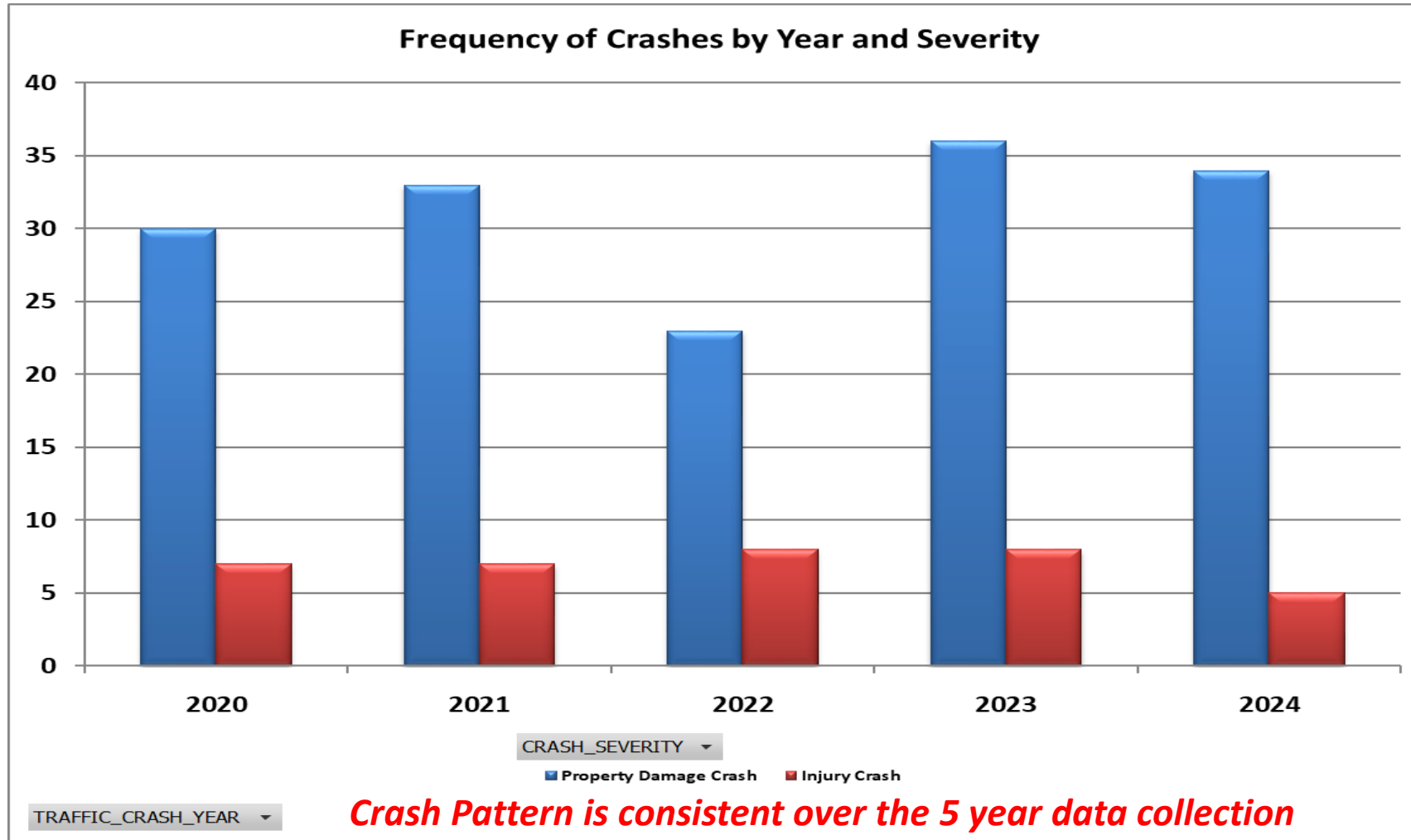
Crash Data obtained from ODOT TIMS
2020-2024

18.3% Injury

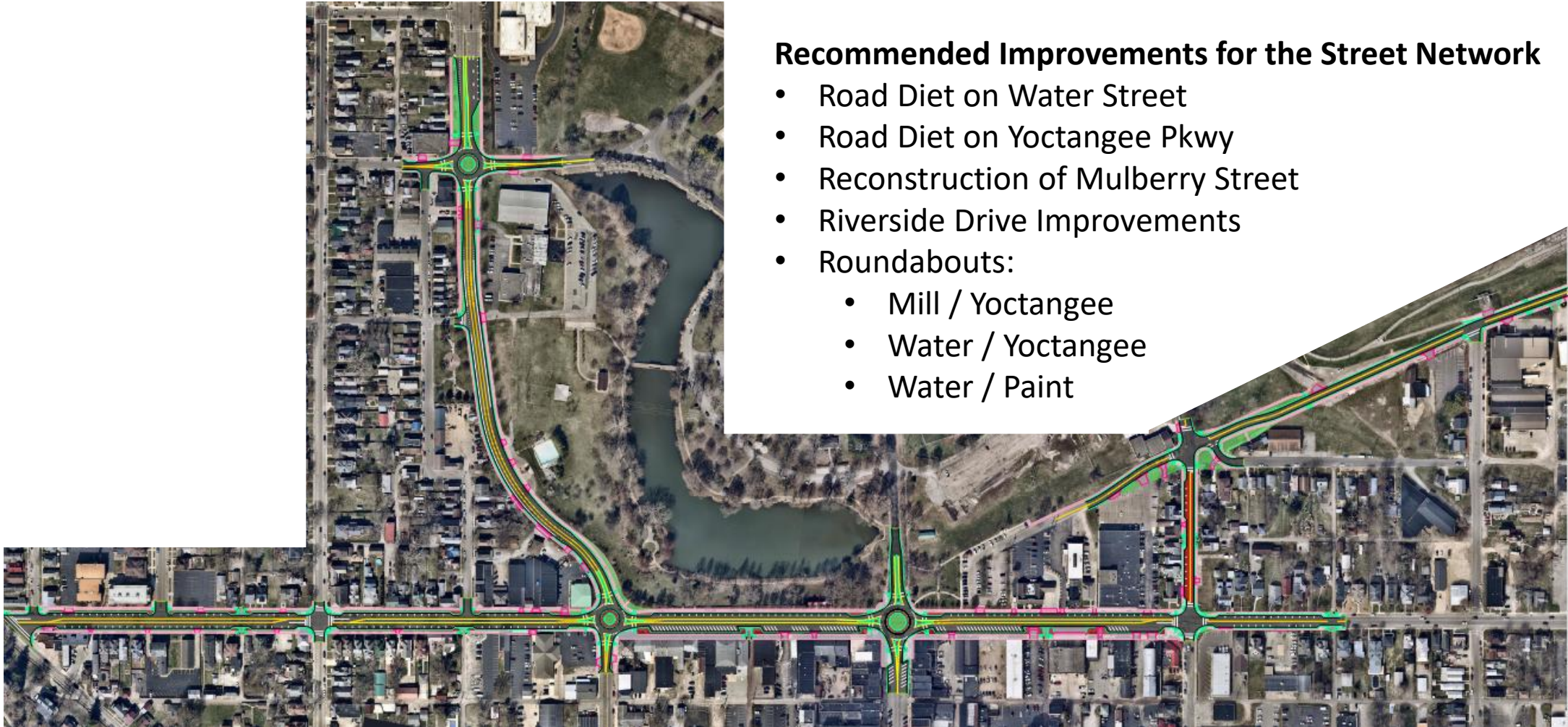
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Recommended Improvements for the Street Network

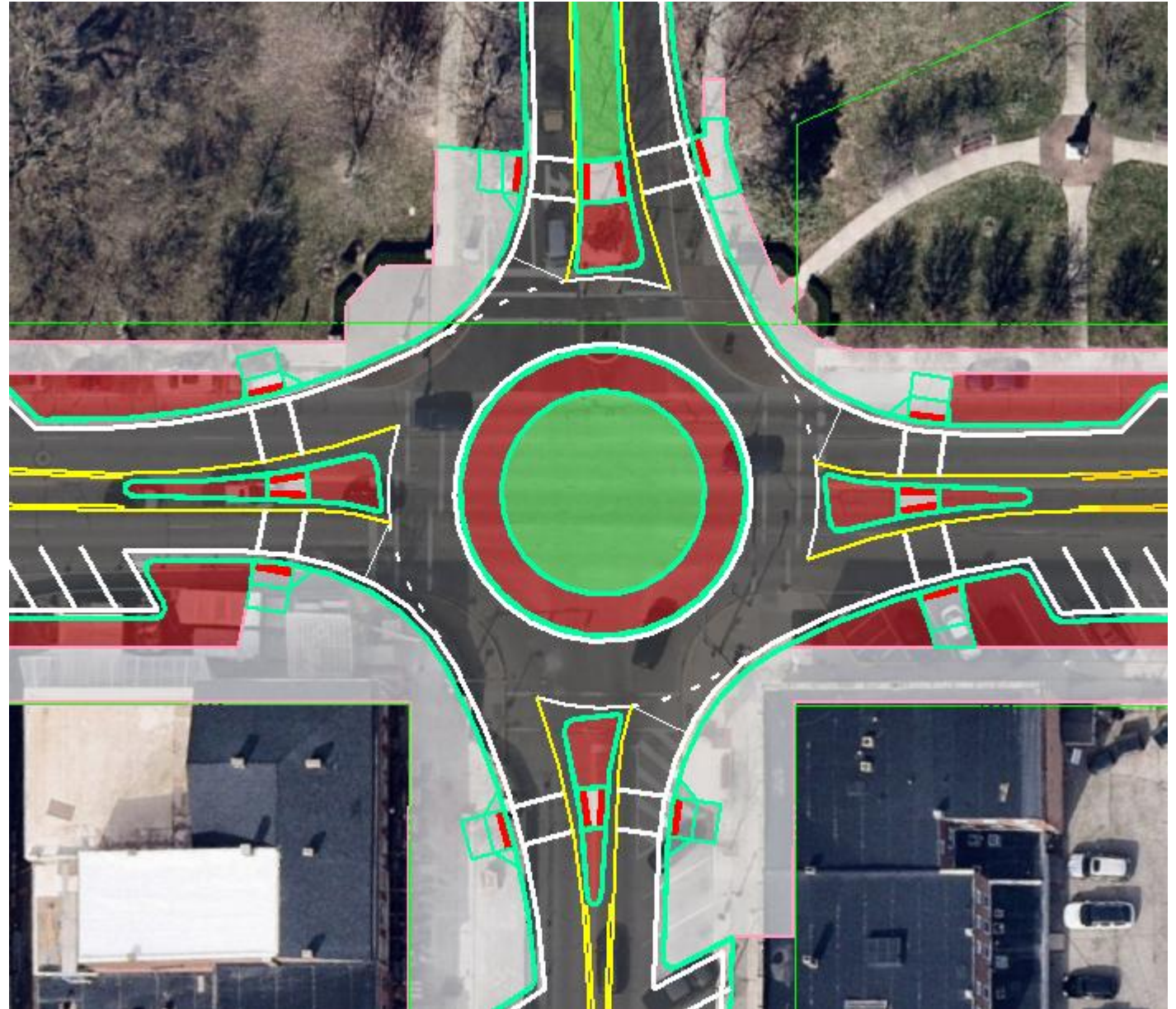
- Road Diet on Water Street
- Road Diet on Yoctangee Pkwy
- Reconstruction of Mulberry Street
- Riverside Drive Improvements
- Roundabouts:
 - Mill / Yoctangee
 - Water / Yoctangee
 - Water / Paint



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Water St and Paint St

- Single lane entry/exit lanes
- 110' Inscribed Diameter
- 17' Circulating Lane
- 10' Truck Apron
- Rapid Flashing Beacons at crosswalks



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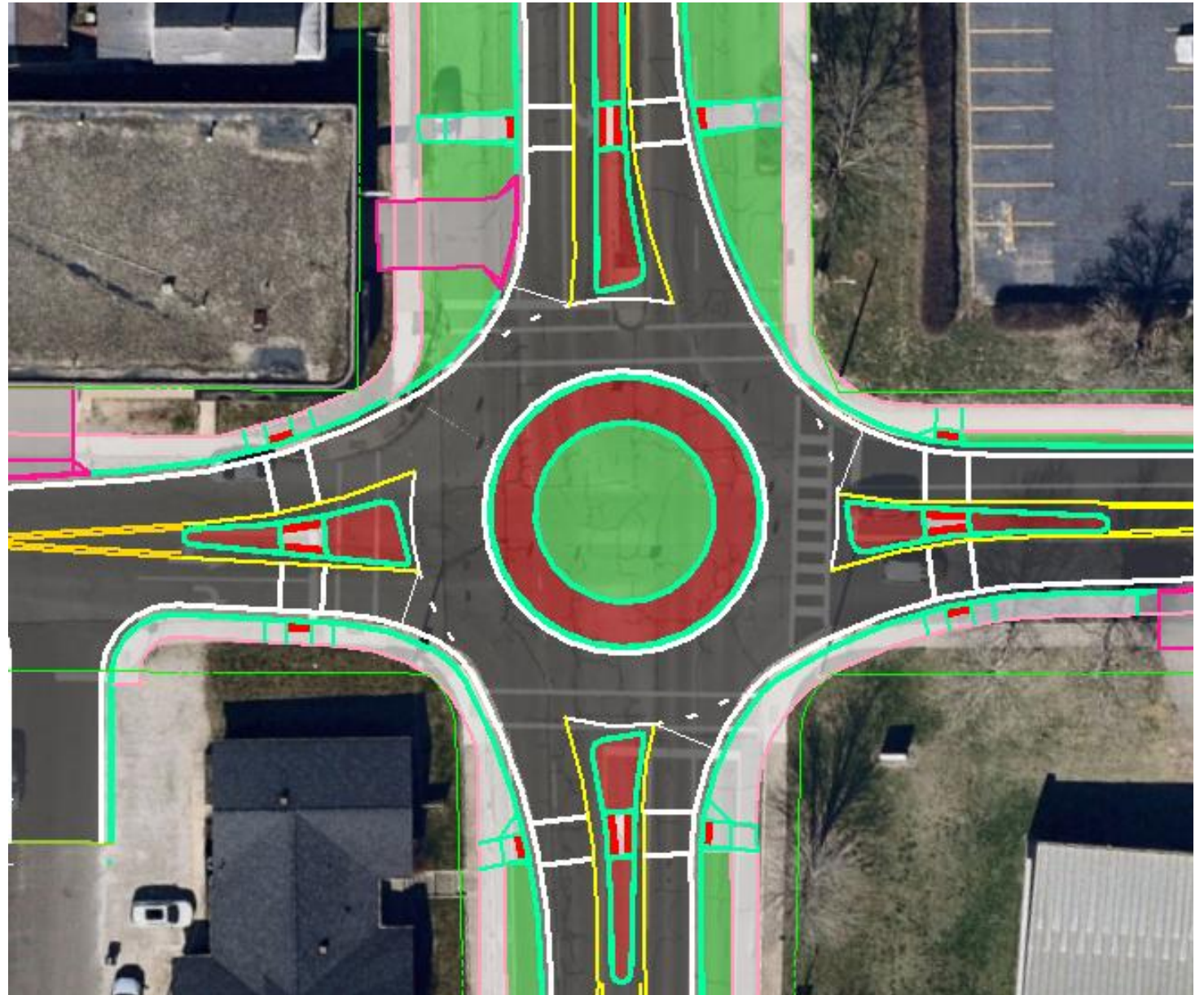
Example downtown Roundabout Pedestrian Crossing locations



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Mills St and Yoctangee Pkwy

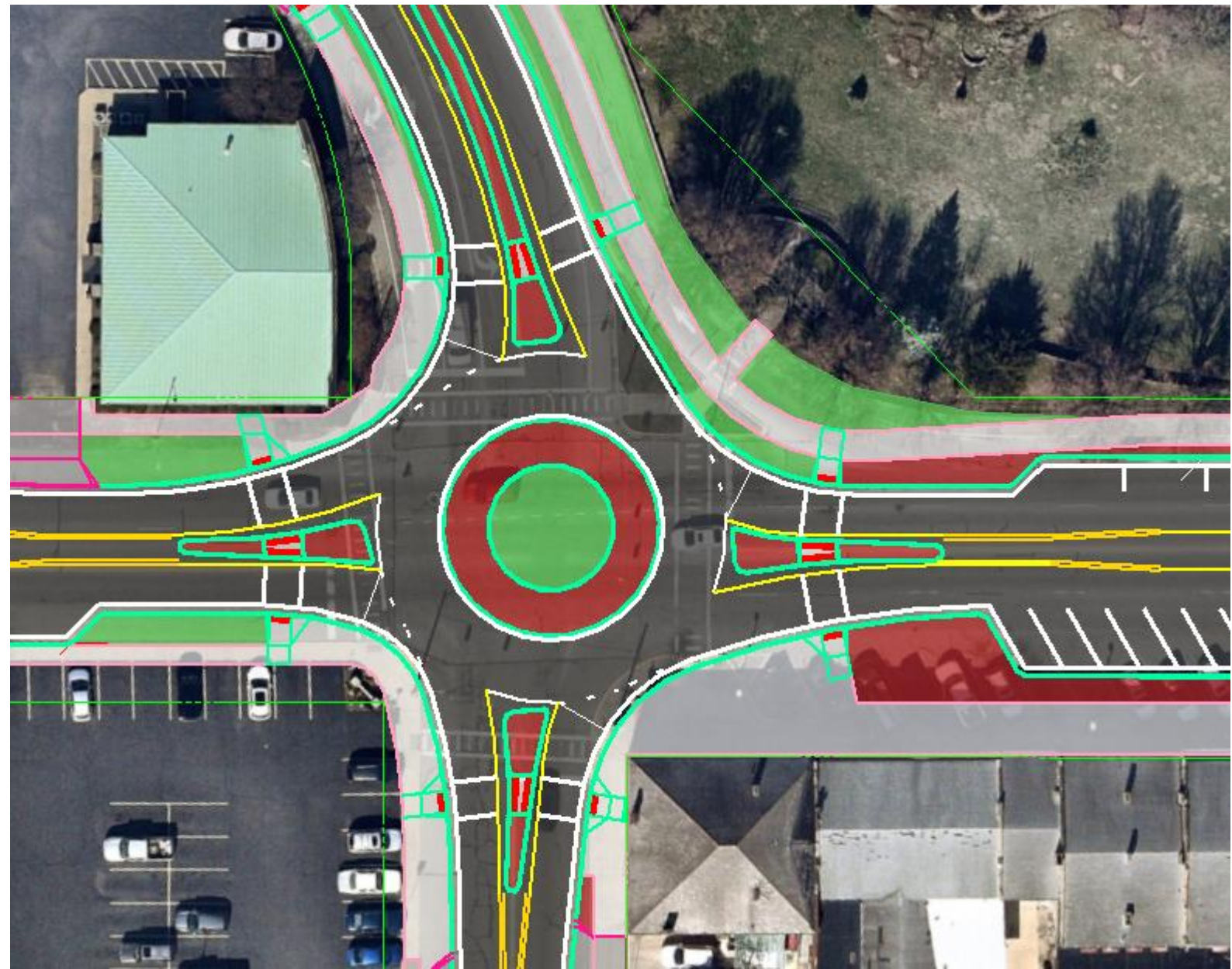
- Single lane entry/exit lanes
- 100' Inscribed Diameter
- 17' Circulating Lane
- 10' Truck Apron
- Rapid Flashing Beacons at crosswalks
- Opens back up to 4 lanes to the north at the school intersection



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Water St and Yoctangee Pkwy

- Single lane entry/exit lanes
- 95' Inscribed Diameter
- 17' Circulating Lane
- 12' Truck Apron
- Rapid flashing beacon at crosswalks
- Bike lane entry north of roundabout



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Water Street



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Water Street



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Water Street



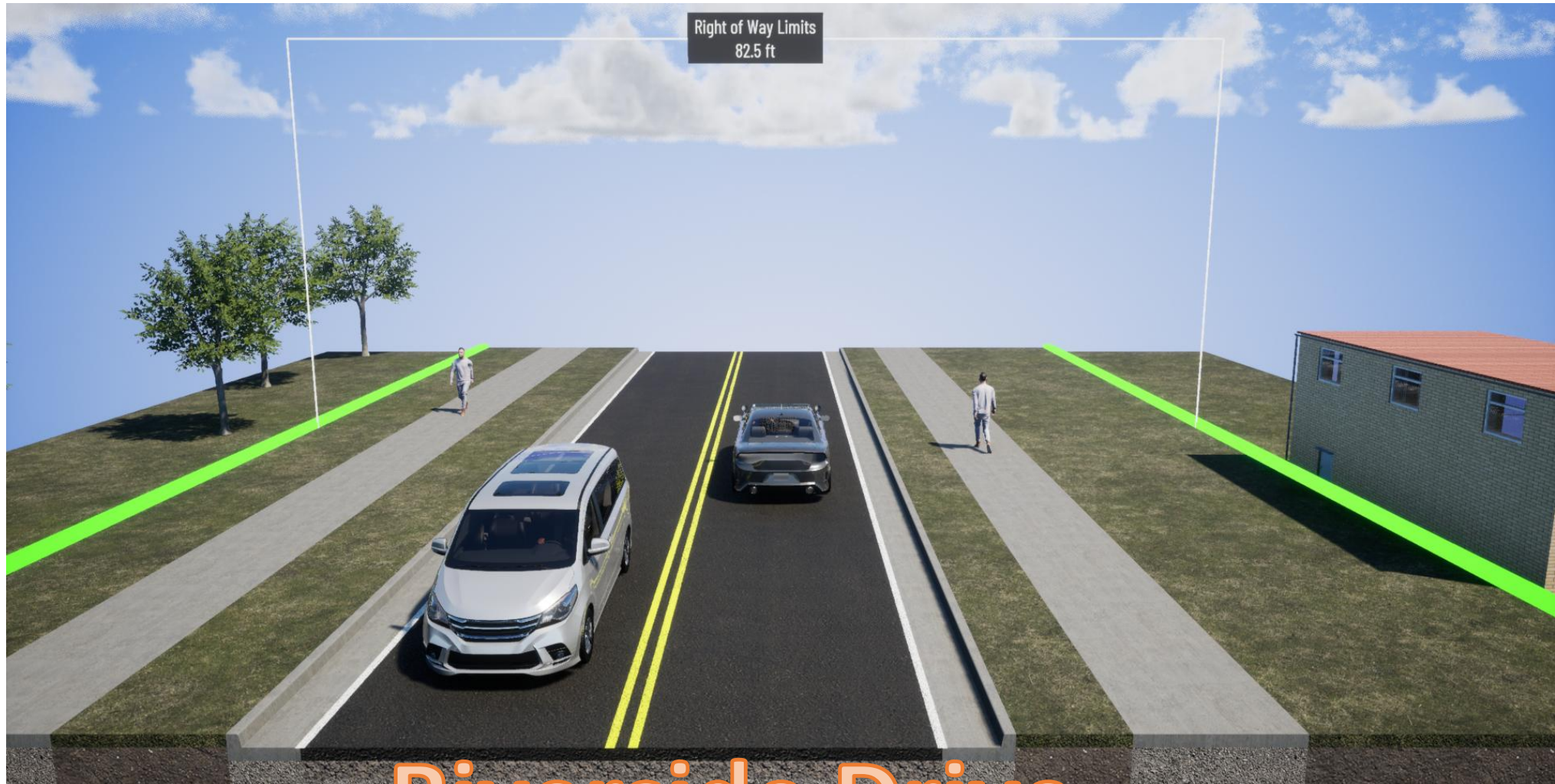
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Mulberry Street



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Riverside Drive



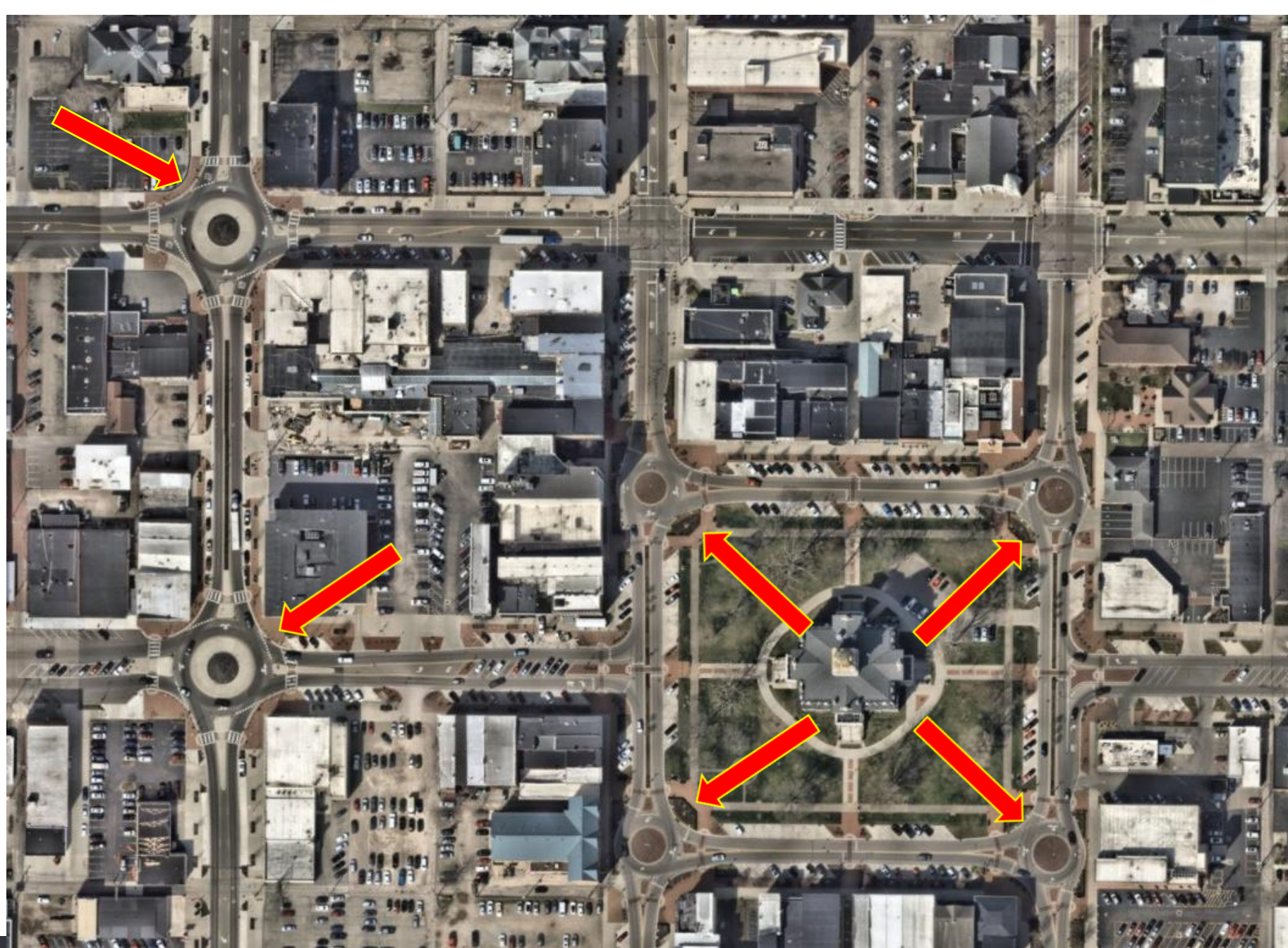
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NEWARK, OHIO

4th Street and Downtown
Square projects

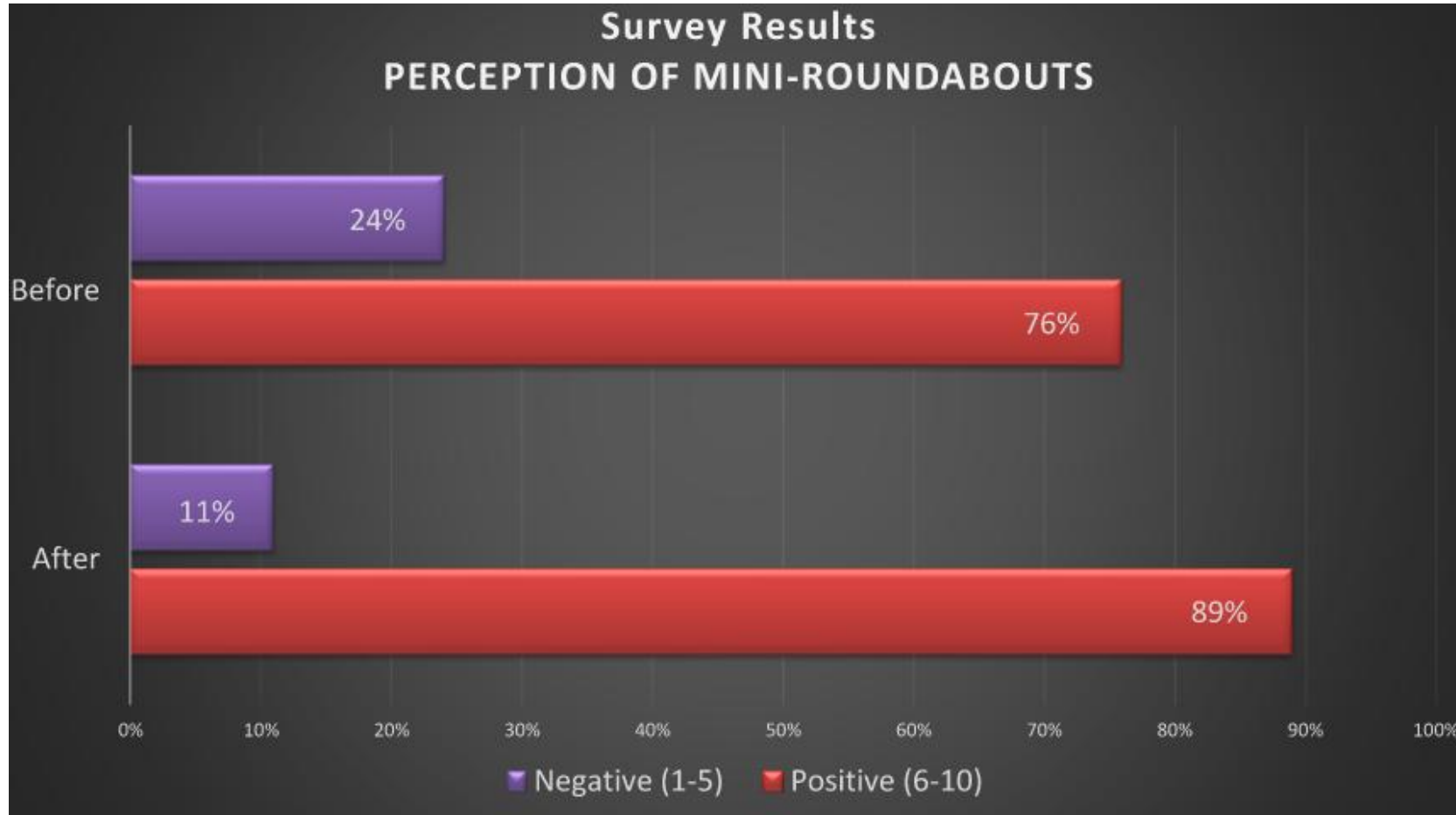
Converted traditional
signalized intersection to
roundabouts

Converted 4 lane roadways
into 3 lane road diets



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Survey results conducted by the city of Newark after improvements were fully completed. Surveyed 111 area residents and business owners

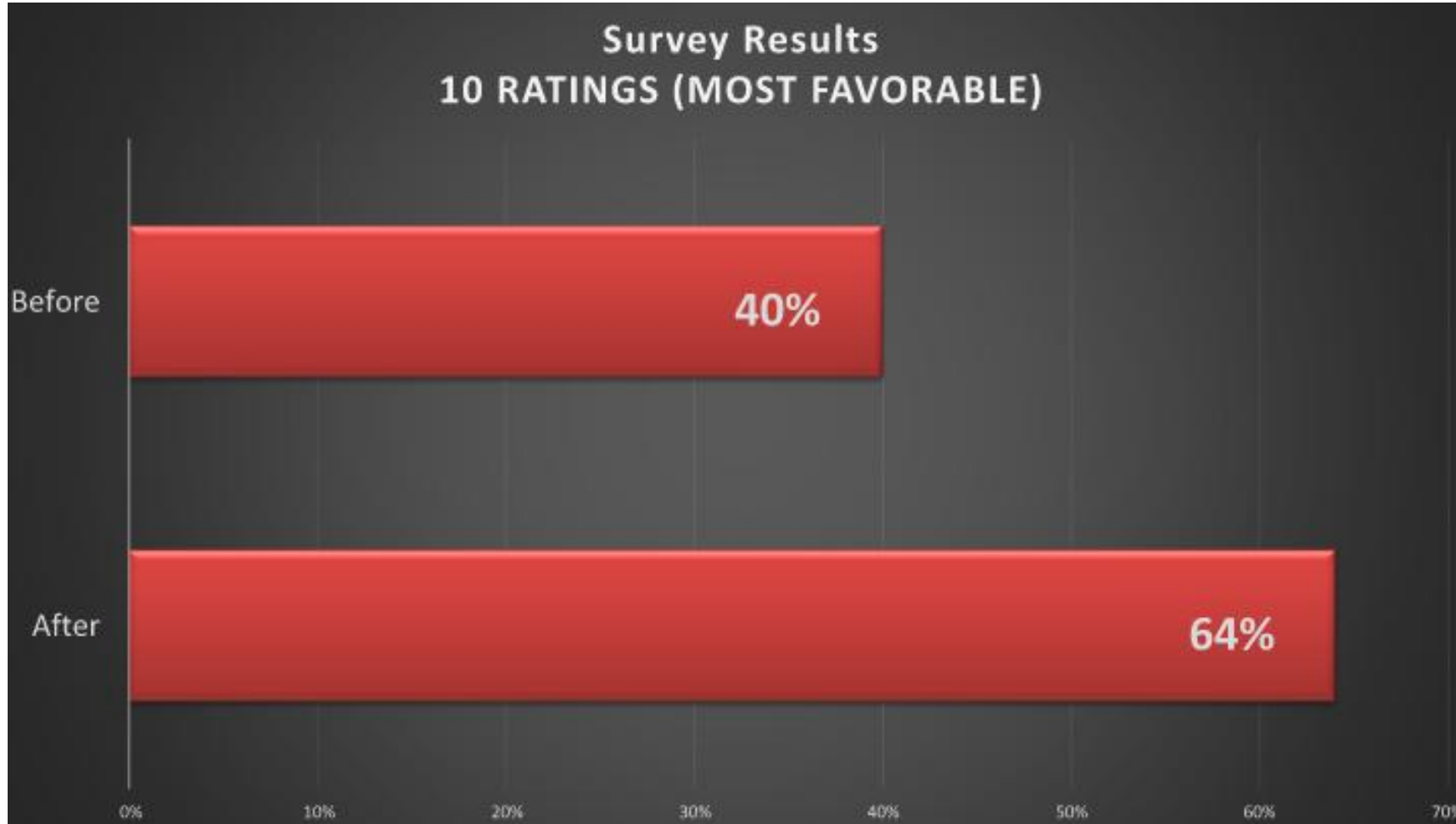


On a scale from 1 to 10, how receptive were you to the plan of convert the traffic signals to roundabouts?

On a scale from 1 to 10, how receptive are you to roundabouts now?

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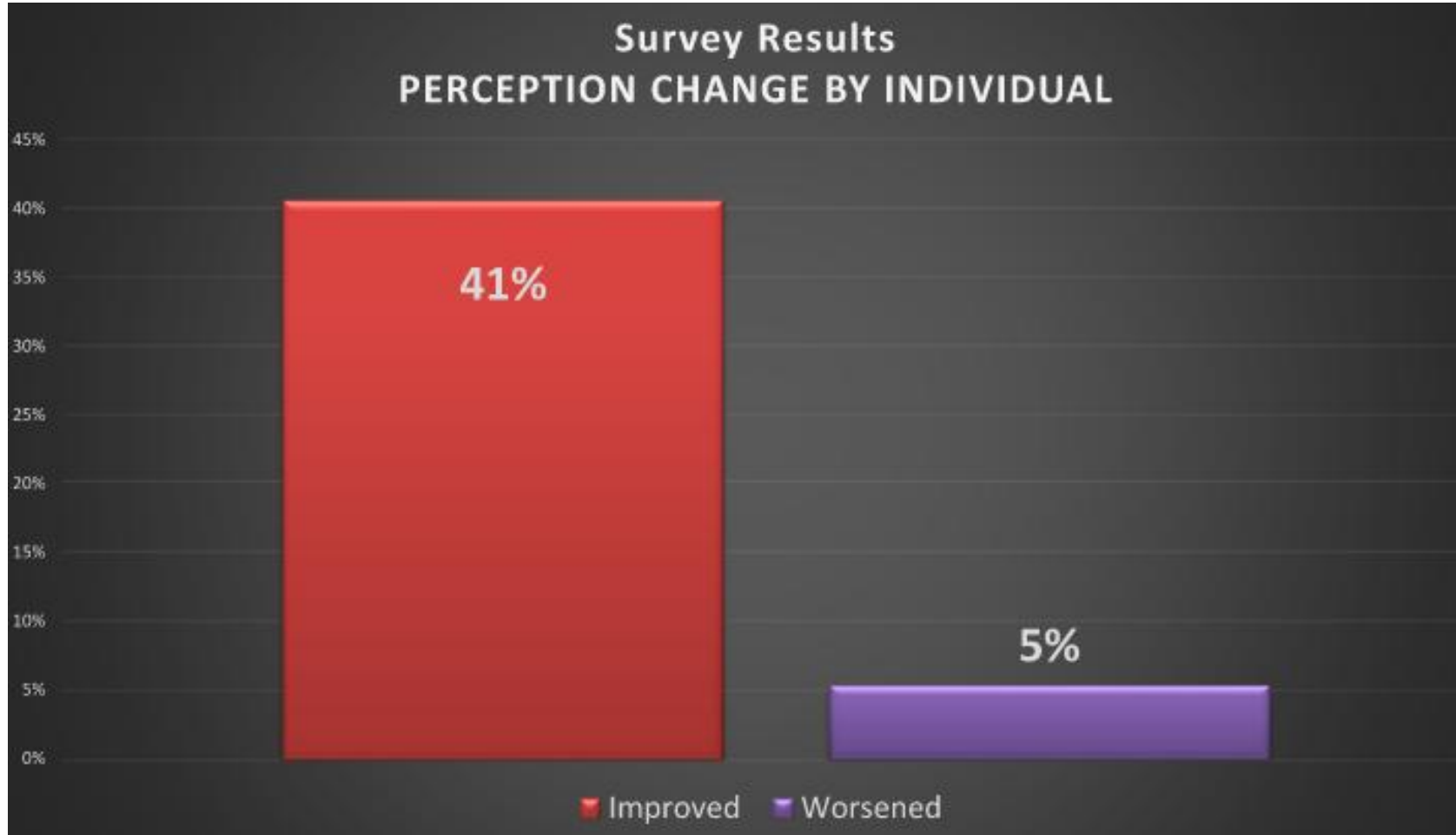


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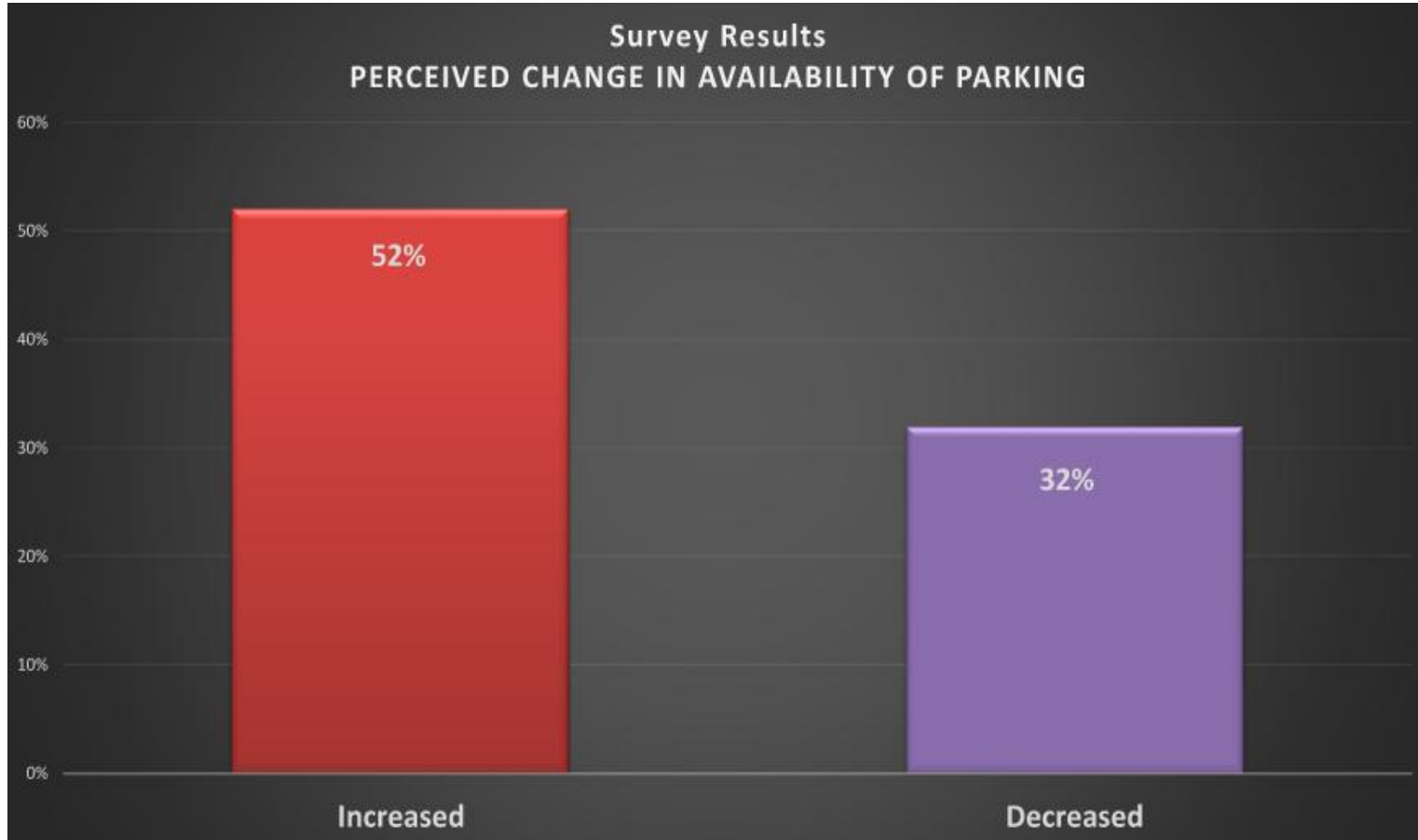
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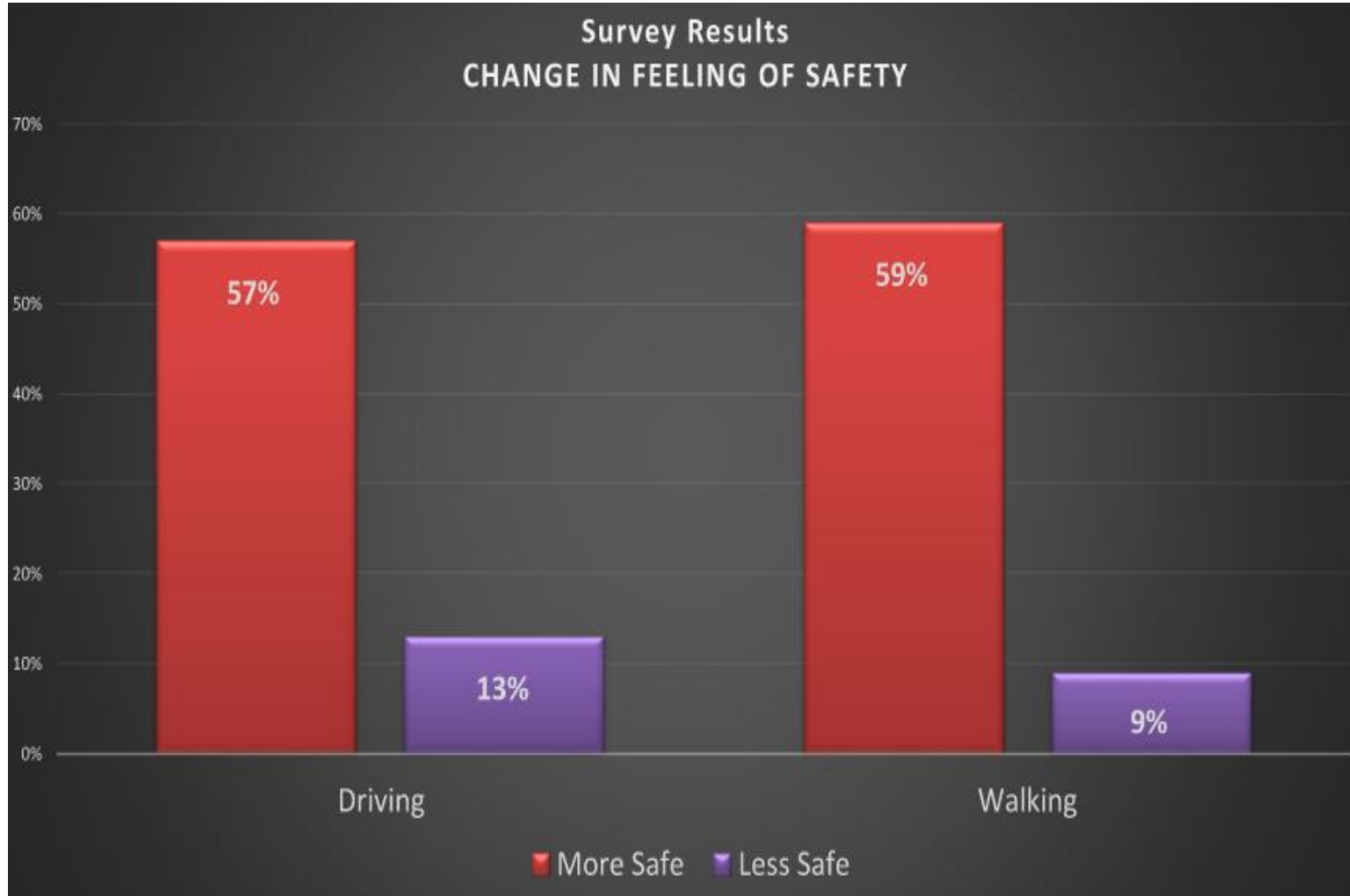


How do you feel on street parking has changed since the completion of the project?



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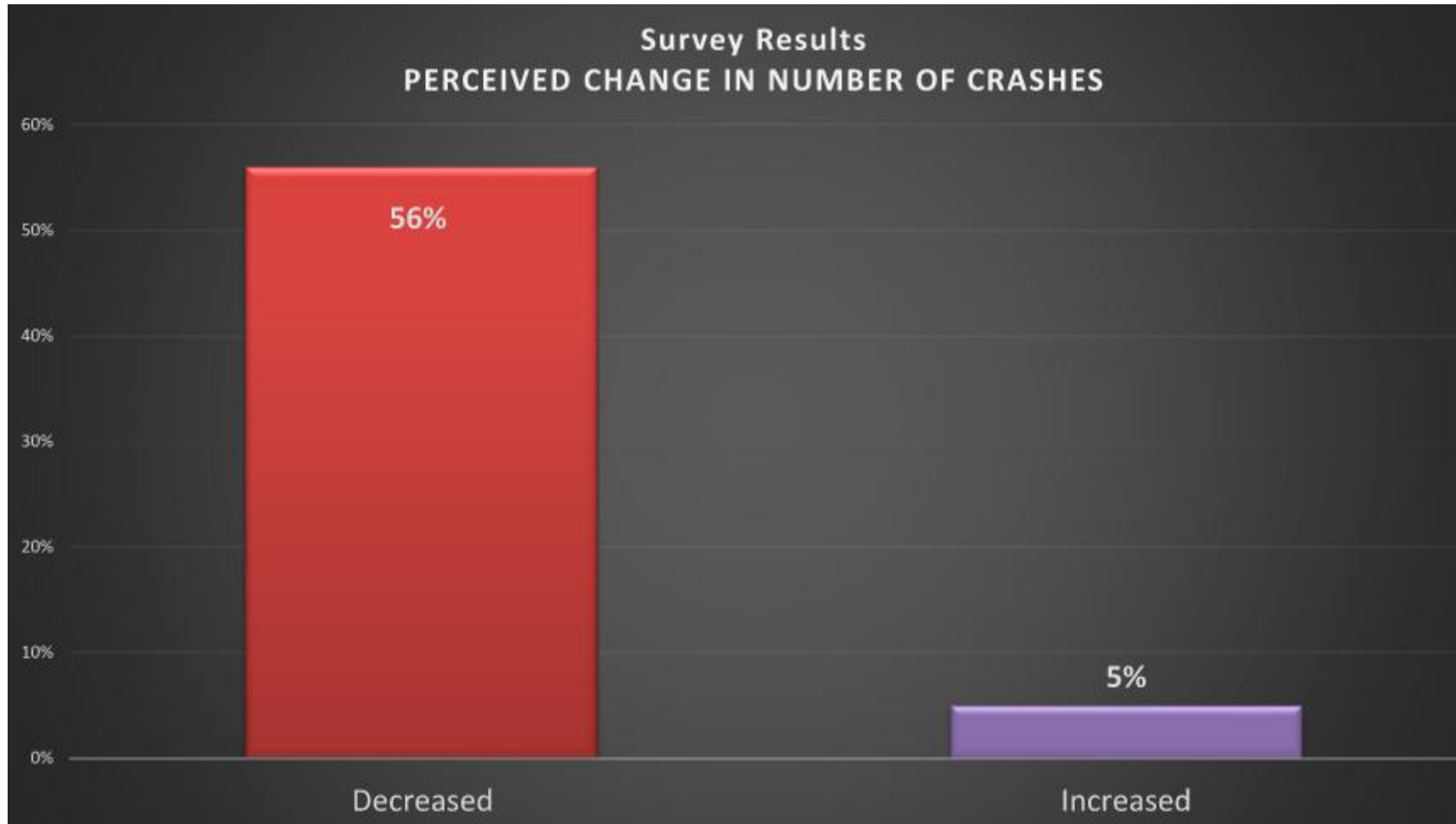
Survey results conducted by the city of Newark after improvements were fully completed. Surveyed 111 area residents and business owners



How do you feel driving/walking has changed since the completion of the project?

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How do you think the number of traffic accidents have changed?



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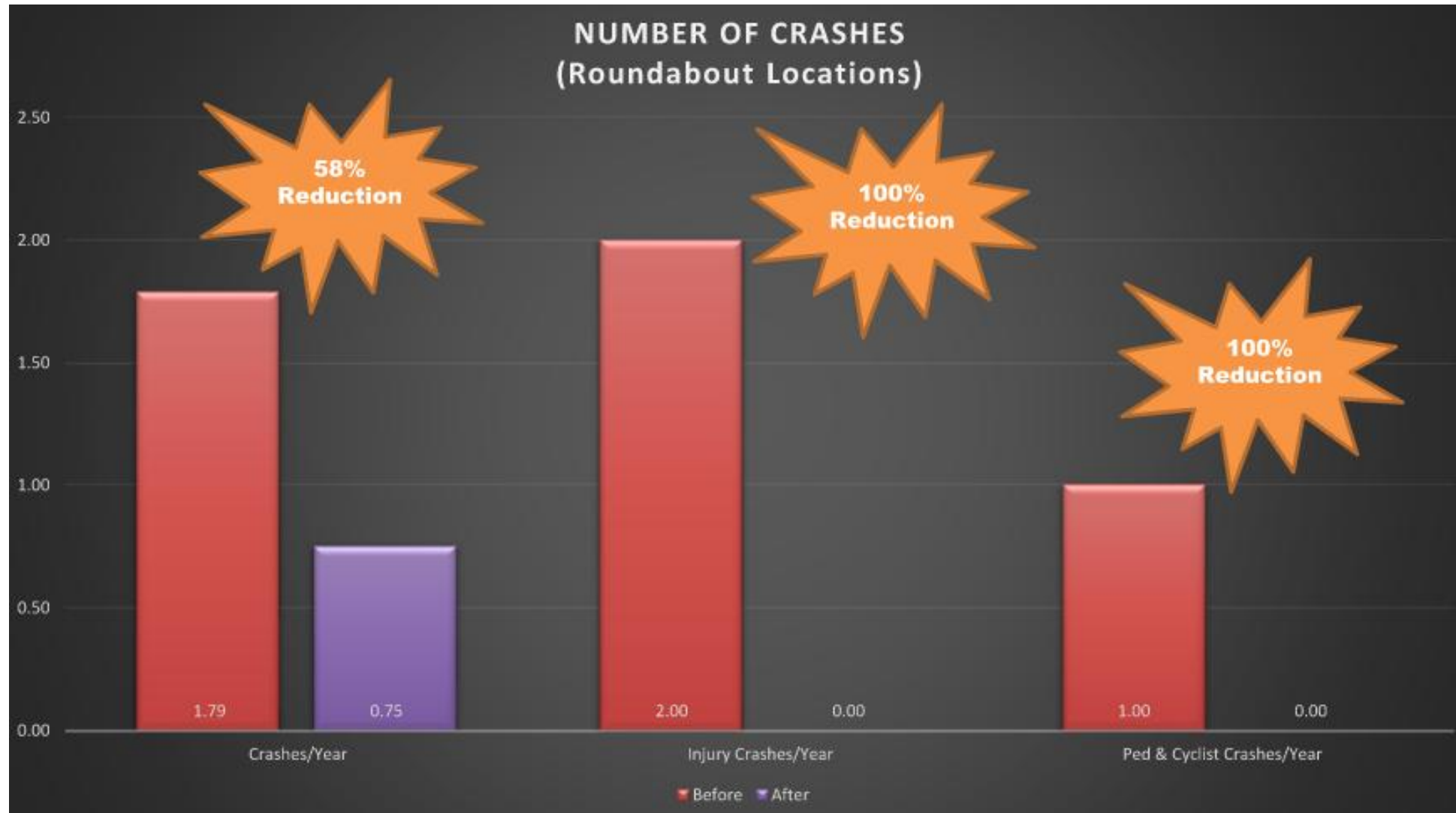
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How do you think your property values have changed as a result of the project?

Do you feel the project has had a positive impact on the economic vitality of downtown?

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