

# West Main Street & Experiment Farm Road / South Stanfield Road Improvements Council Presentation

June 24, 2026

MIA-SR41-11.72; PID 121678



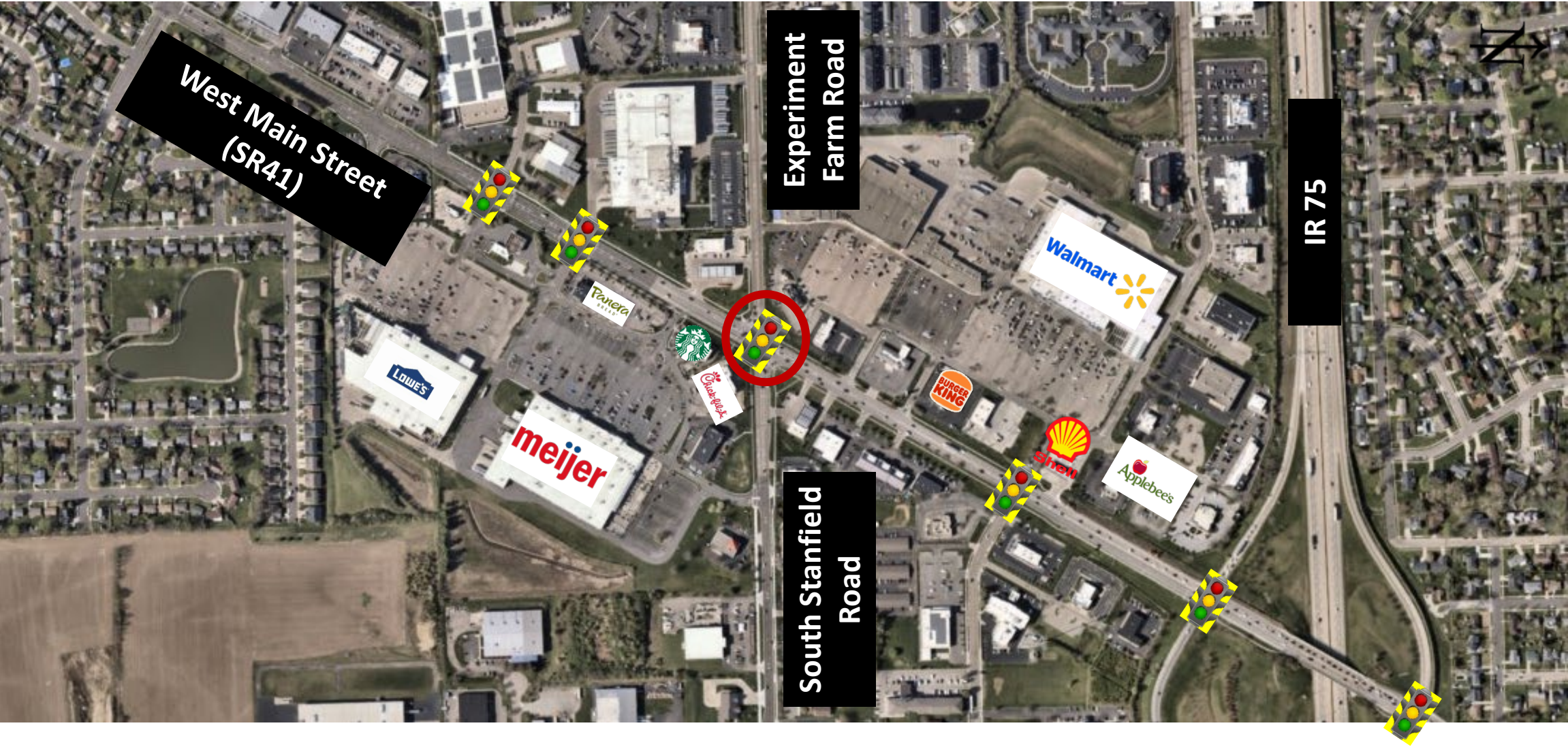
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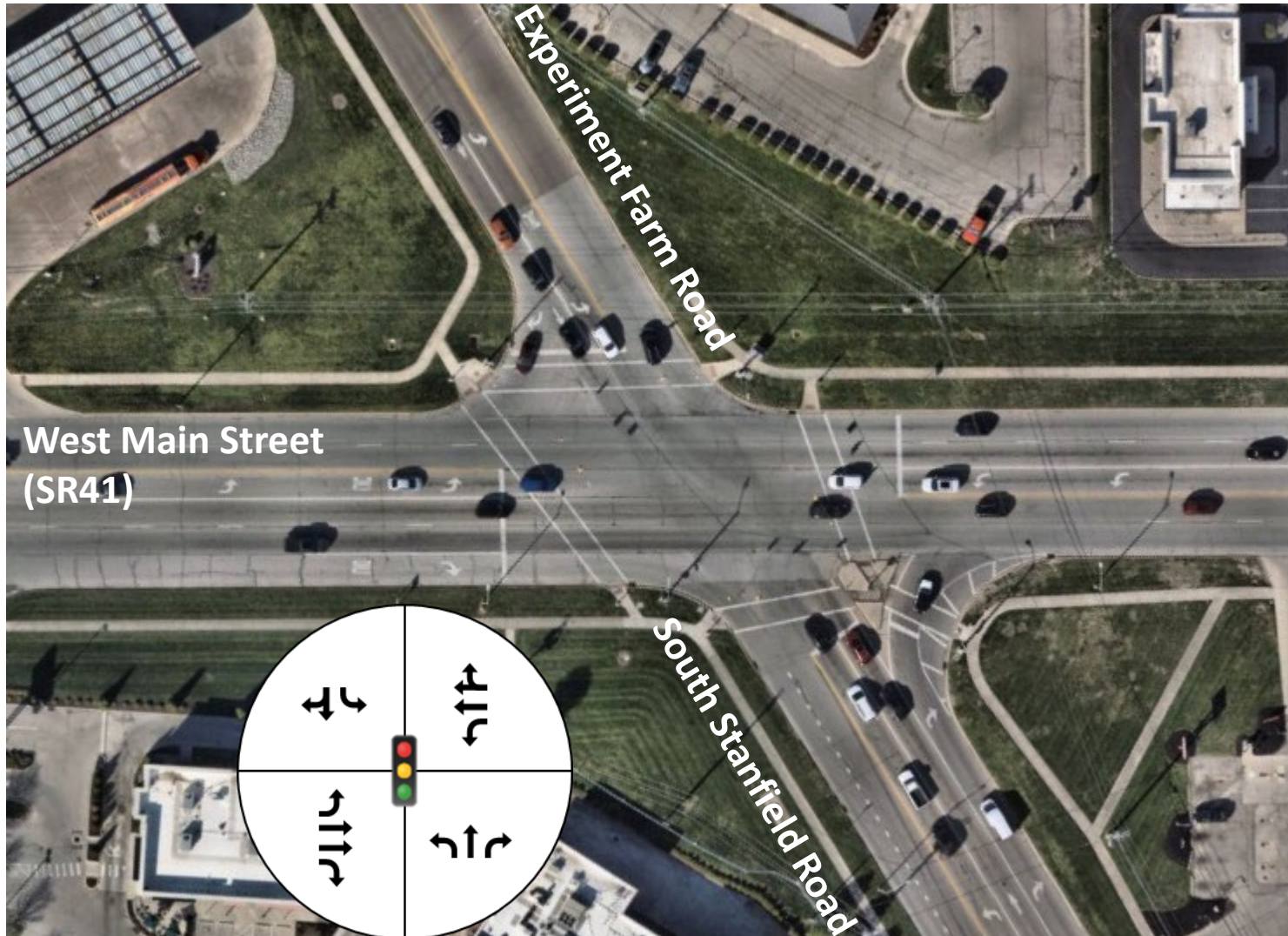
# Project History to Date



# Project Area Map



# Existing Conditions



## Average Daily Traffic

- W Main Street: 23,390 vehicles per day
- Experiment Farm Road: 7,310 vehicles per day
- South Stanfield Road: 9,810 vehicles per day

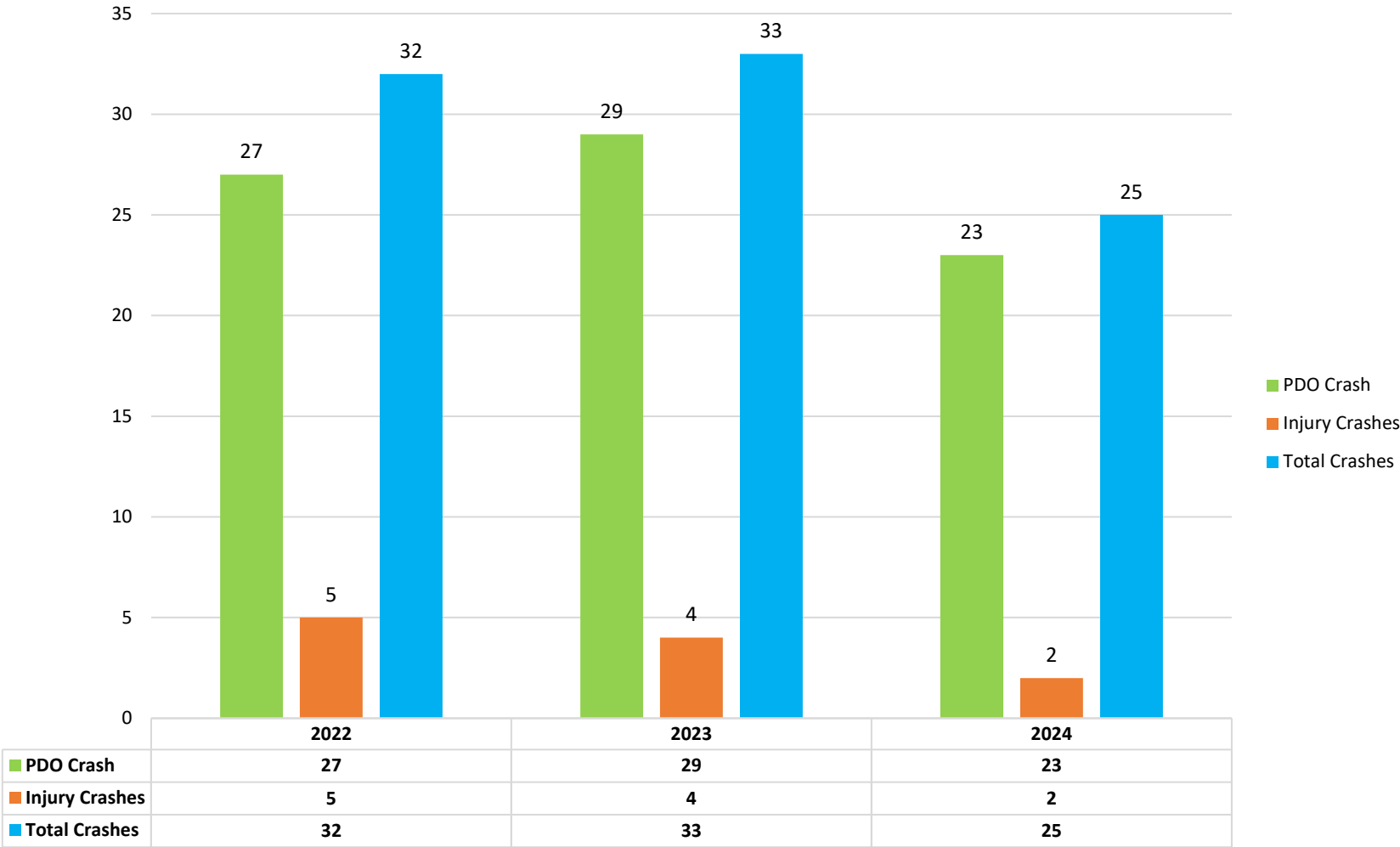
## Speed Limit

- W Main Street: 40 mph
- Experiment Farm Road: 35 mph
- South Stanfield Road: 35 mph

## Traffic Control

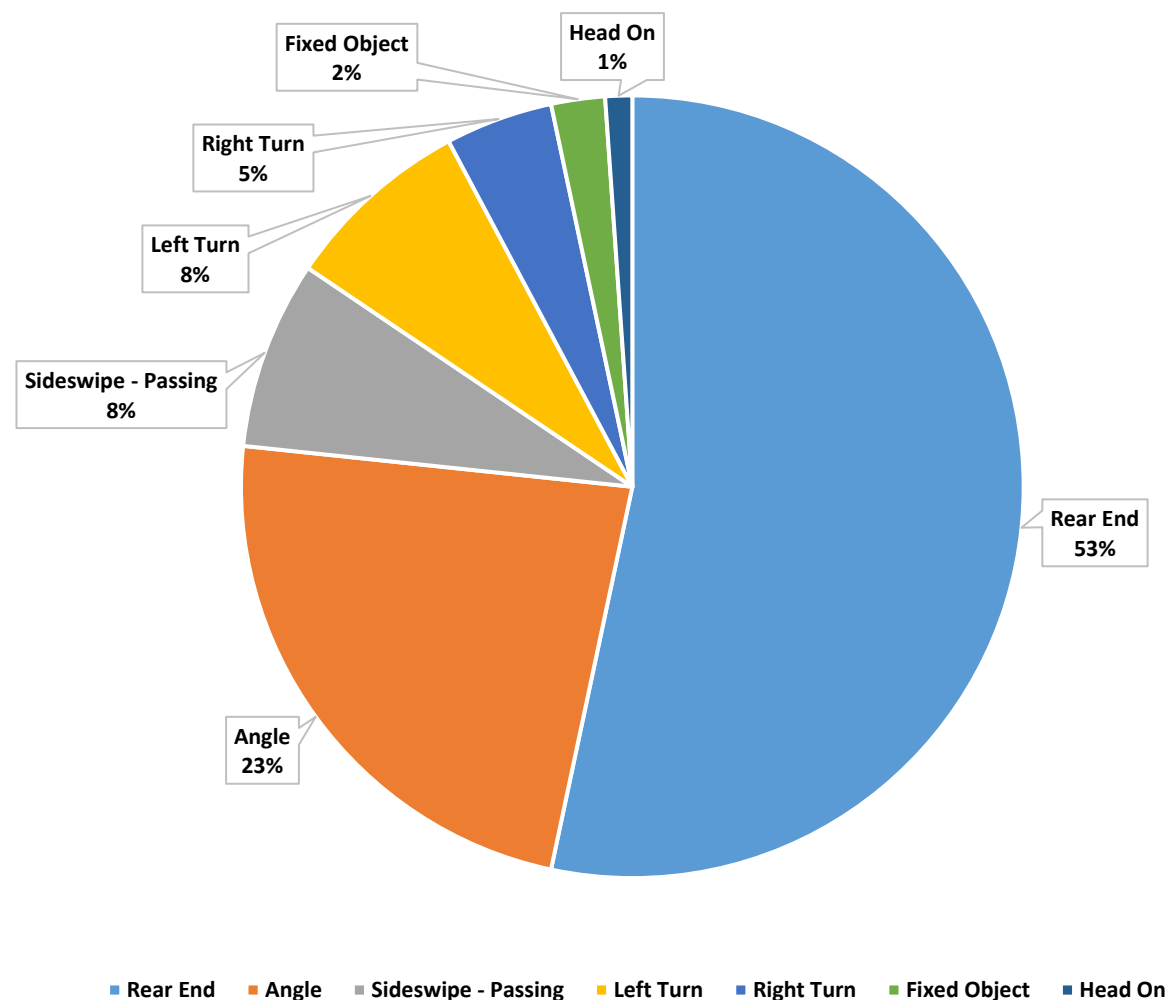
- Signalized Intersection (Span wire) without backplates

# Existing Crash Data



**Existing crashes in the project area broken down by Severity per Year**

# Existing Crash Data



**Existing crashes in the project area broken down by Type**

# Existing Collision Diagram



Ohio statewide

**22%**

of all crashes are rear-end

Troy citywide

**27%**

of all crashes are rear-end

W Main St and Experiment Farm Road  
Intersection

**53%**

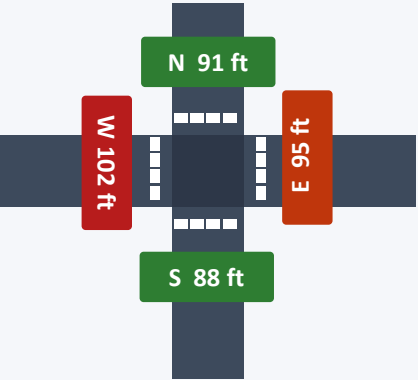
of all crashes are rear-end

**2.4x the statewide average**

# Existing Conditions – Pedestrian Crossing



Crossing lengths by leg



|       |       |        |       |
|-------|-------|--------|-------|
| N     | E     | W      | S     |
| 91 ft | 95 ft | 102 ft | 88 ft |

Exposure to Pedestrian per leg

25 – 35 seconds

Avg. walking speed: 3 – 4 ft / sec

# Congestion

**PROJECT BENEFIT:** Travel time through the corridor drops from 106 to 81 seconds — saving 25 seconds per trip during peak hours



# Purpose and Need

## Purpose Statement:

The purpose of this project is to improve safety and reduce congestion for the traveling public at the intersection of West Main Street and Experiment Farm Road/South Stanfield Road in Troy, Miami County, Ohio.

### CURRENT CONDITIONS



Safety Concerns



Traffic Delays



Congestion



Public Impacts



### PROJECT OUTCOME



Safer Intersection



Improved Traffic Flow



Reduced Travel Delays



Better User Experience

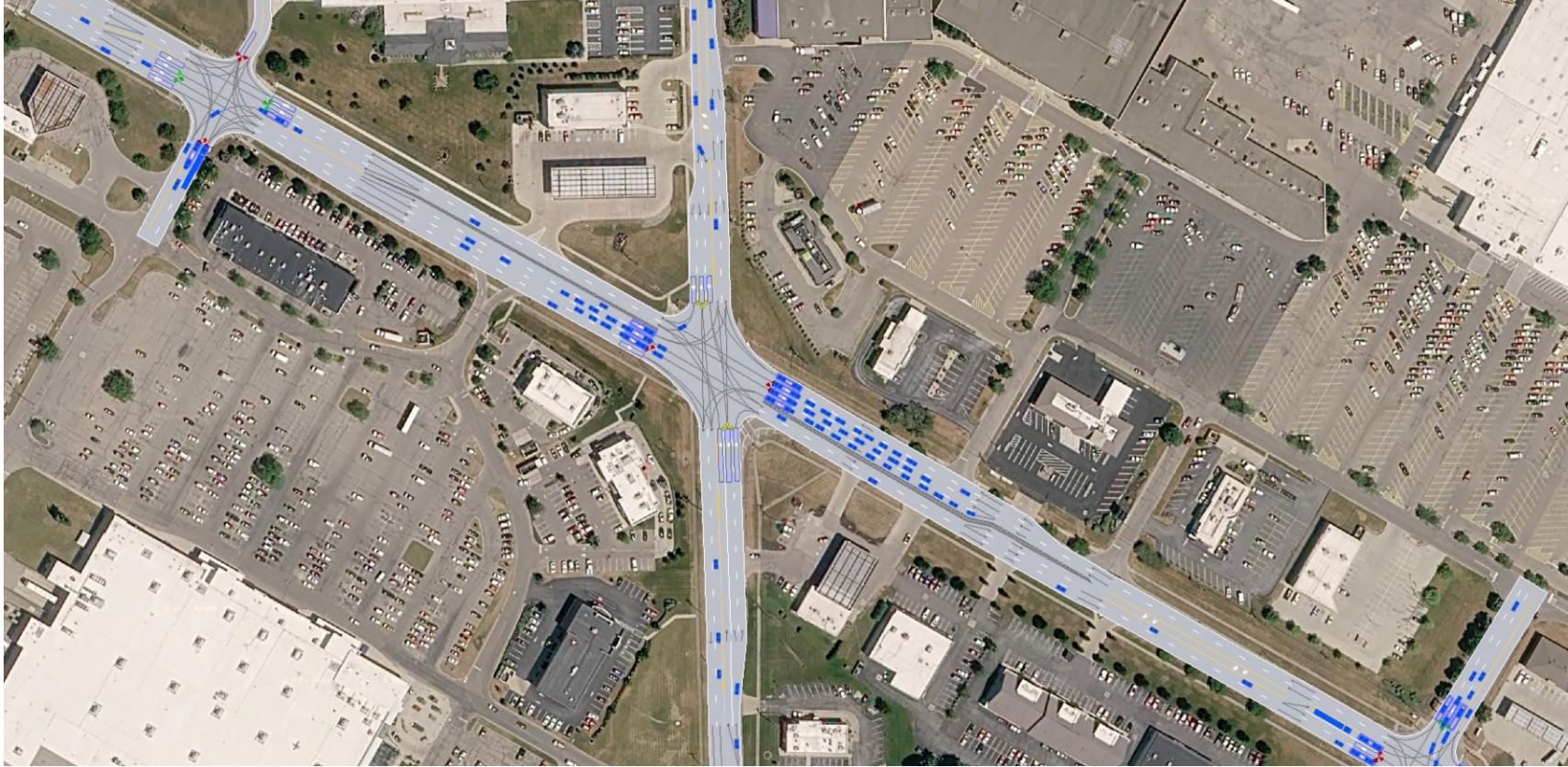
# Proposed Capacity Improvements

| Vehicle Delay by Approach — PM Peak Hour (Design Year 2049) |              |               |                 |               | Design Year (2049) PM Peak       |            |
|-------------------------------------------------------------|--------------|---------------|-----------------|---------------|----------------------------------|------------|
| Intersection                                                | Approach     | No Build      | Improved Signal | Roundabout    | Delay Reduction vs No Build (PM) |            |
|                                                             |              | Delay (s/veh) | Delay (s/veh)   | Delay (s/veh) | Improved Signal                  | Roundabout |
| W Main Street & Experiment Farm Rd / Stanfield Road         | EB Approach  | 18.0 s        | 24.4 s          | 36.1 s        |                                  |            |
|                                                             | WB Approach  | 17.6 s        | 17.6 s          | 19.4 s        |                                  |            |
|                                                             | NB Approach  | 67.4 s        | 42.5 s          | 26.5 s        | -37%                             | -61%       |
|                                                             | SB Approach  | 35.6 s        | 28.1 s          | 28.2 s        | -21%                             | -21%       |
|                                                             | Intersection | 28.2 s        | 25.0 s          | 27.0 s        | -11%                             | -4%        |

**Roundabout: NB Approach delay reduced by 61%**

from 67.4 s (No Build) to 26.5 s (Roundabout) — PM Peak

# Signal Simulation



Design Year (2049) PM Peak

# Roundabout Simulation



Design Year (2049) PM Peak

# Proposed Safety Improvements

| Expected Crash Reduction by Severity — Crashes Per Year |                        |                                                          |                  |                 |            |                                             |            |
|---------------------------------------------------------|------------------------|----------------------------------------------------------|------------------|-----------------|------------|---------------------------------------------|------------|
| Severity                                                | Description            | Typical Meaning                                          | Crashes Per Year |                 |            | Expected Crash Reduction vs Existing Signal |            |
|                                                         |                        |                                                          | Existing Signal  | Improved Signal | Roundabout | Improved Signal                             | Roundabout |
| K + A                                                   | Fatal / Serious Injury | Fatal crash or severe injury requiring hospitalization   | 0.1871           | 0.1356          | 0.0631     | -27.50%                                     | -66.30%    |
| B                                                       | Suspected Minor Injury | Visible injuries such as bruises, cuts, or minor sprains | 1.0406           | 0.7449          | 0.5302     | -28.40%                                     | -49.10%    |
| C                                                       | Possible Injury        | Complaint of pain or discomfort with no visible injury   | 1.7021           | 1.1783          | 0.6567     | -30.80%                                     | -61.40%    |
| O                                                       | Property Damage Only   | No injuries; vehicle or property damage only             | 20.1376          | 5.3302          | 5.9886     | -73.50%                                     | -70.30%    |
|                                                         |                        | Total                                                    | 23.0574          | 7.389           | 7.2386     | -67.90%                                     | -68.60%    |

68.6% fewer total crashes

Roundabout vs. Existing Signal (all severity levels)

66.3% reduction in fatal/serious injury crashes (K+A severity)

### Proposed Improvements:

- Additional WB right turn lane
- Extended EB left turn lane
- Additional SB right turn lane
- Extended SB left turn lane
- Access management via median islands

SIGNAL

### Proposed Improvements:

- Shorter pedestrian crossings lengths
- Reduction of turn lanes
- Access management median islands
- Advance signage for lane assignments
- Pedestrian crossing enhancements

ROUNDAABOUT

# Project Costs

|  <b>SIGNAL ALTERNATIVE<br/>PRELIMINARY COST ESTIMATE</b> |             |
|-------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| DESCRIPTION                                                                                                                               | TOTAL \$    |
| ROADWAY SUBTOTAL                                                                                                                          | \$247,182   |
| EROSION CONTROL SUBTOTAL                                                                                                                  | \$72,825    |
| DRAINAGE SUBTOTAL                                                                                                                         | \$861,184   |
| PAVEMENT SUBTOTAL                                                                                                                         | \$951,480   |
| LIGHTING SUBTOTAL                                                                                                                         | \$225,000   |
| TRAFFIC CONTROL SUBTOTAL                                                                                                                  | \$319,986   |
| Subtotal                                                                                                                                  | \$2,677,657 |
| 20% Contingency                                                                                                                           | \$535,531   |
| 24.9% Inflation (estimated construction in 2028)                                                                                          | \$800,084   |
| Total Construction Cost                                                                                                                   | \$4,013,273 |
| INCIDENTAL SUBTOTAL                                                                                                                       | \$266,698   |
| TOTAL PROJECT COST                                                                                                                        | \$4,279,970 |

|  <b>ROUNDBOUT ALTERNATIVE<br/>PRELIMINARY COST ESTIMATE</b> |             |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| DESCRIPTION                                                                                                                                    | TOTAL \$    |
| ROADWAY SUBTOTAL                                                                                                                               | \$400,526   |
| EROSION CONTROL SUBTOTAL                                                                                                                       | \$89,465    |
| DRAINAGE SUBTOTAL                                                                                                                              | \$998,644   |
| PAVEMENT SUBTOTAL                                                                                                                              | \$874,182   |
| LIGHTING SUBTOTAL                                                                                                                              | \$180,000   |
| TRAFFIC CONTROL SUBTOTAL                                                                                                                       | \$62,237    |
| LANDSCAPING SUBTOTAL                                                                                                                           | \$30,000    |
| Subtotal                                                                                                                                       | \$2,635,054 |
| 20% Contingency                                                                                                                                | \$527,011   |
| 24.9% Inflation (estimated construction in 2028)                                                                                               | \$787,354   |
| Total Construction Cost                                                                                                                        | \$3,949,420 |
| INCIDENTAL SUBTOTAL                                                                                                                            | \$348,692   |
| TOTAL PROJECT COST                                                                                                                             | \$4,298,111 |

# Project Costs

## Signal Alternative

Total Construction Cost                      \$4.279 Million

Annualized Maintenance Cost

- Signal Power
  - Bulb Replacement
  - Regular Timing Updates
  - Lighting
- \$10,000/year

Signal equipment service life              10 years

## Roundabout Alternative

Total Construction Cost                      \$4.298 Million

Annualized Maintenance Cost

- Landscaping
  - Lighting
- \$1,500/year

Roundabout service life                      20 years

# Recommendation

✓ RECOMMENDED ALTERNATIVE

## Traditional Roundabout

**68.6%**  
fewer total crashes

**66.3%**  
fewer fatal/serious injuries

**61%**  
less NB approach delay (PM)

### Safety

- ✓ Proven countermeasure — reduces crash severity
- ✓ Mitigates historic rear-end & angle crash patterns
- ✓ 68.6% fewer crashes vs existing signal

### Pedestrians

- ✓ Shorter crossing distances on all legs
- ✓ Less exposure time to moving traffic
- ✓ Eliminates right-on-red conflicts

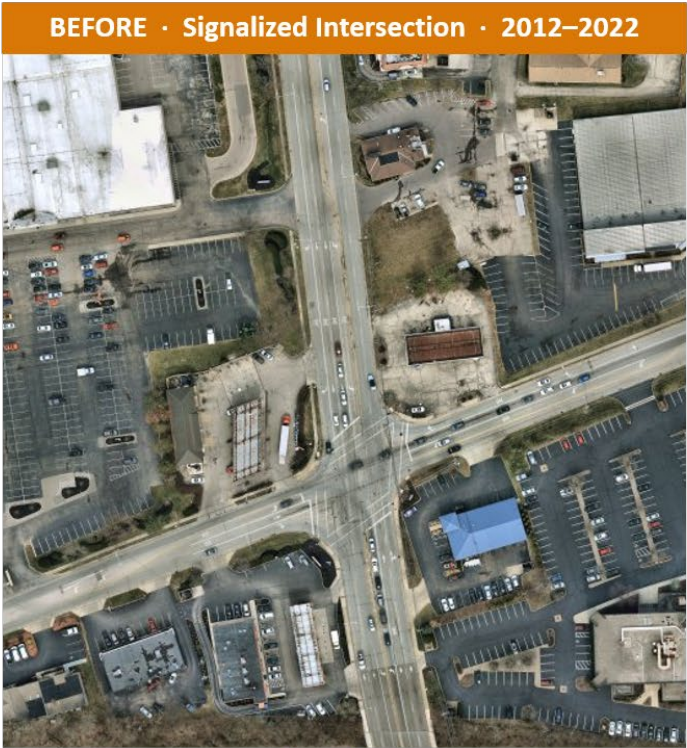
### Traffic Flow

- ✓ Roundabout geometry naturally slows vehicles
- ✓ Balances traffic flow across all four legs
- ✓ 61% reduction in NB approach delay (PM Peak)

### Maintenance

- ✓ Lower long-term costs vs signal equipment
- ✓ No signal hardware or electrical dependency
- ✓ Operates fully during power outages

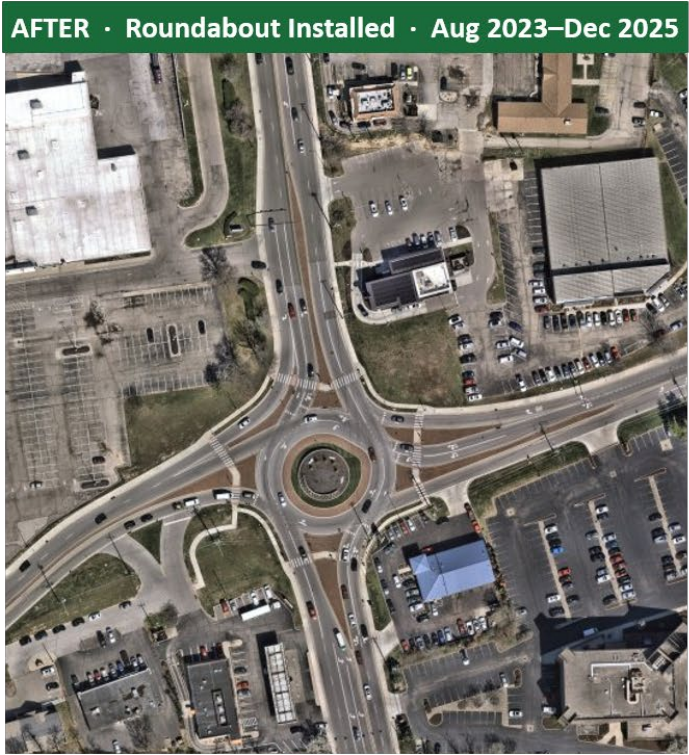
# Comparable Intersection: Plainfield Road & Hunt Road, Blue Ash, Ohio



20%  
Injury Crashes

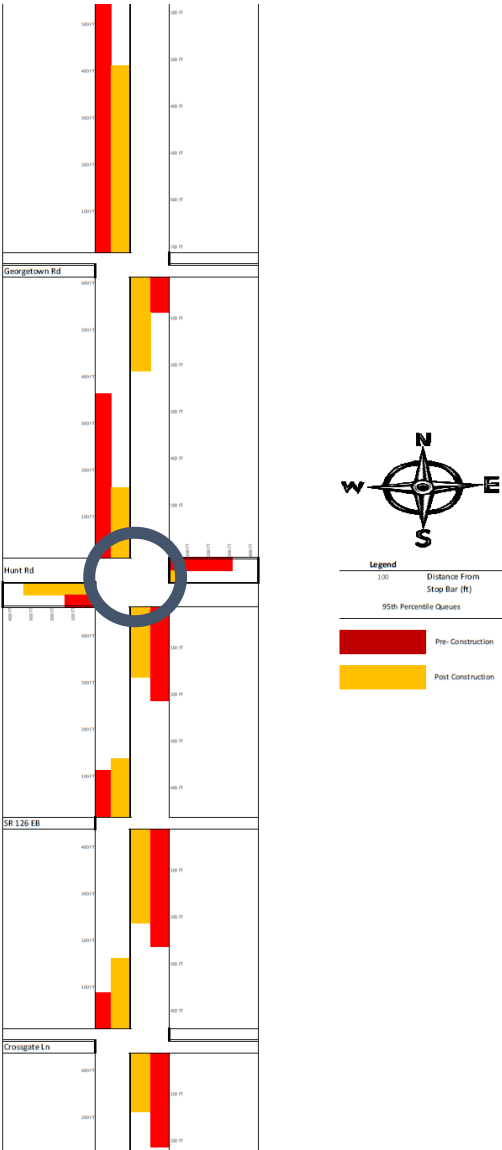
80%  
Property Damage Only

>>> 75%  
Less Injury  
Crashes



5%  
Injury Crashes

95%  
Property Damage Only



# Comparable Intersection: Boettler Road & Massillon Road, Green, Ohio

Before – Signalized Intersection



After – Roundabout w/ Ped Accommodations

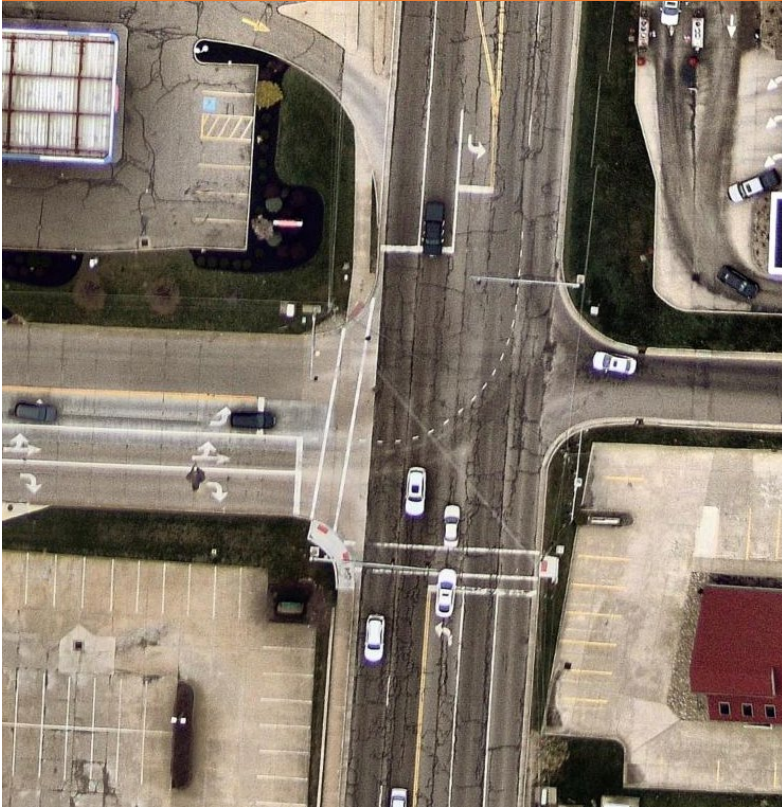


## Similar Improvements

- Shorter Pedestrian Crossings
- Balanced Traffic Flow
- Access Management

# Comparable Intersection: Corporate Woods Circle & Massillon Road, Green, Ohio

Before – Signalized Intersection



After – Roundabout w/ Ped Accommodations



## Similar Improvements

- Shorter Pedestrian Crossings
- Balanced Traffic Flow
- Access Management

# Questions??



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