

# West Maple Avenue & Bridgetown Pike Intersection Improvements

May 30, 2012

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Michael Baker Jr., Inc.

**Baker**



# Meeting Agenda:

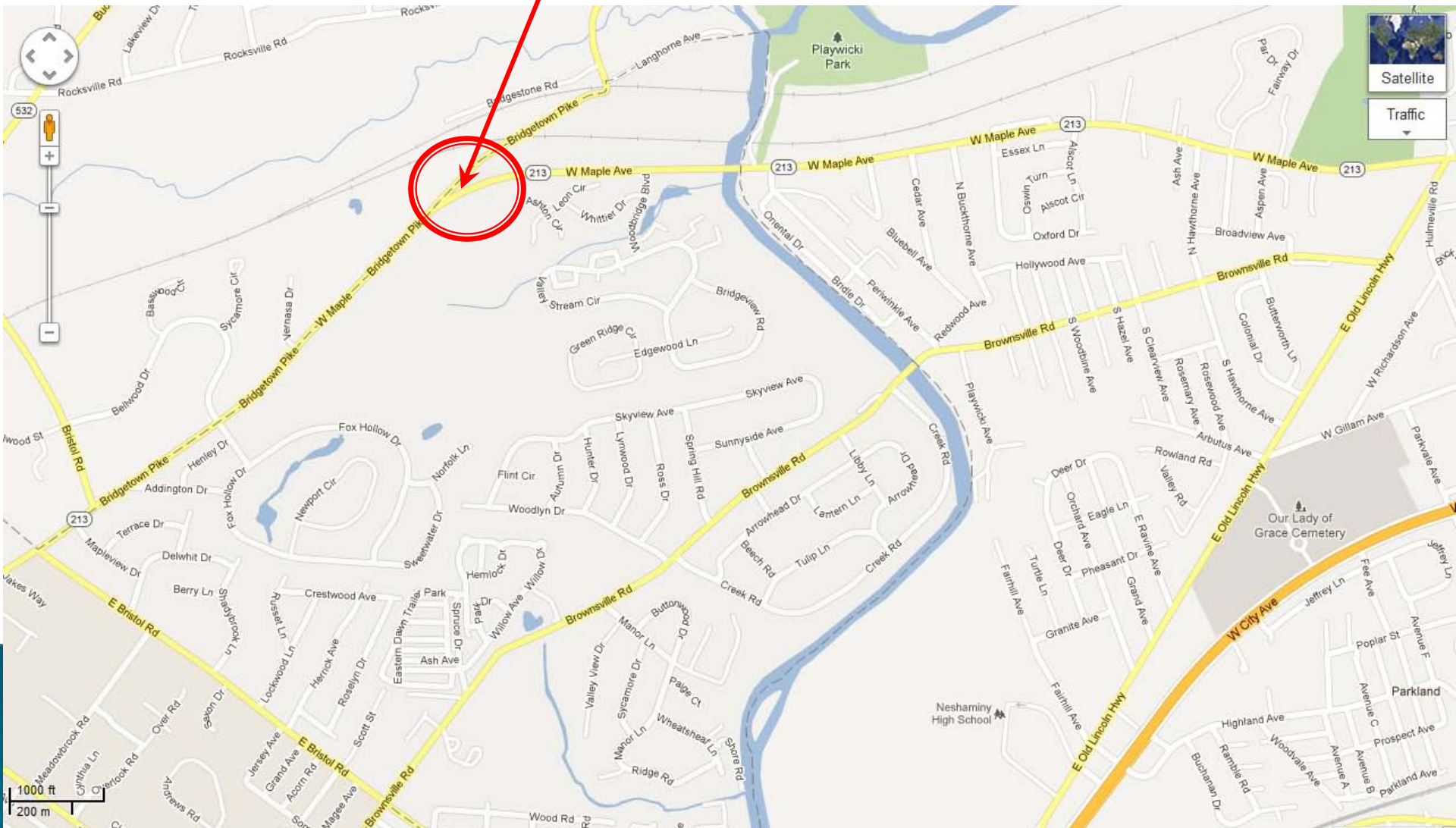
6:00–6:30 PM Open Plans Display

6:30–7:15 PM Presentation

7:15–8:00 PM Open Plans Displays &  
Individual Questions and  
Answers

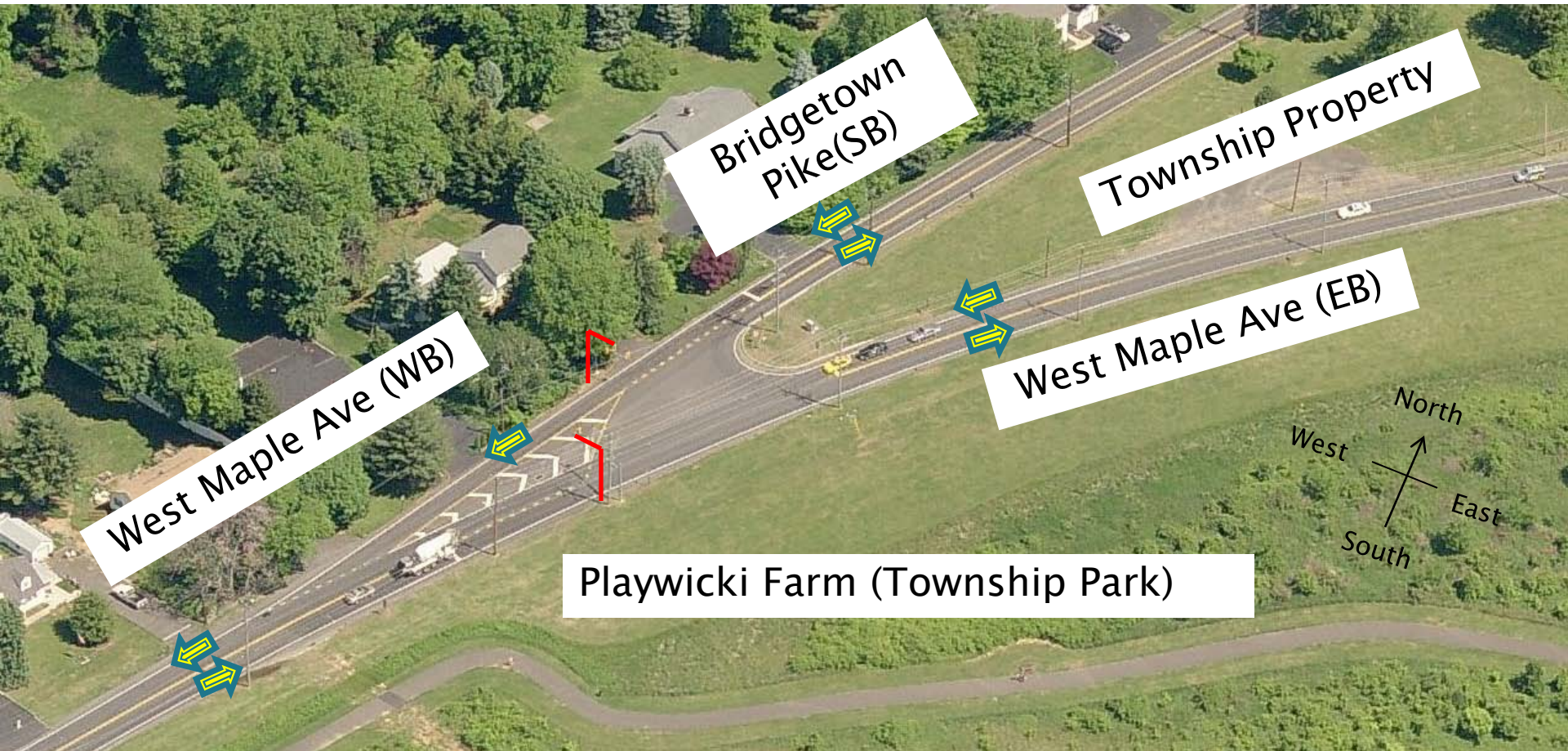


# Location





# Existing Conditions





# Traffic Level of Service (LOS)

- Measure of traffic operations from A (best) to F (worst)



LOS "A" (best)



LOS "C"

# Traffic Level of Service (LOS)

- Measure of traffic operations from A (best) to F (worst)



LOS "D"



LOS F"(worst)

# Existing Conditions

- West Maple Avenue carries 13,200 vehicles per day
- Bridgetown Pike carries 9,900 vehicles per day
- During PM Rush Hour
  - SB Bridgetown Pike – LOS F (152 sec. of delay / 1400' backup)
  - EB West Maple Avenue – LOS E (63 sec. of delay / 3235' backup)
  - Overall intersection – LOS E (60 sec. of delay)
- Recommendation: Evaluate need for EB left turn lane

- Alt. #1 – Left Turn Lane within existing footprint



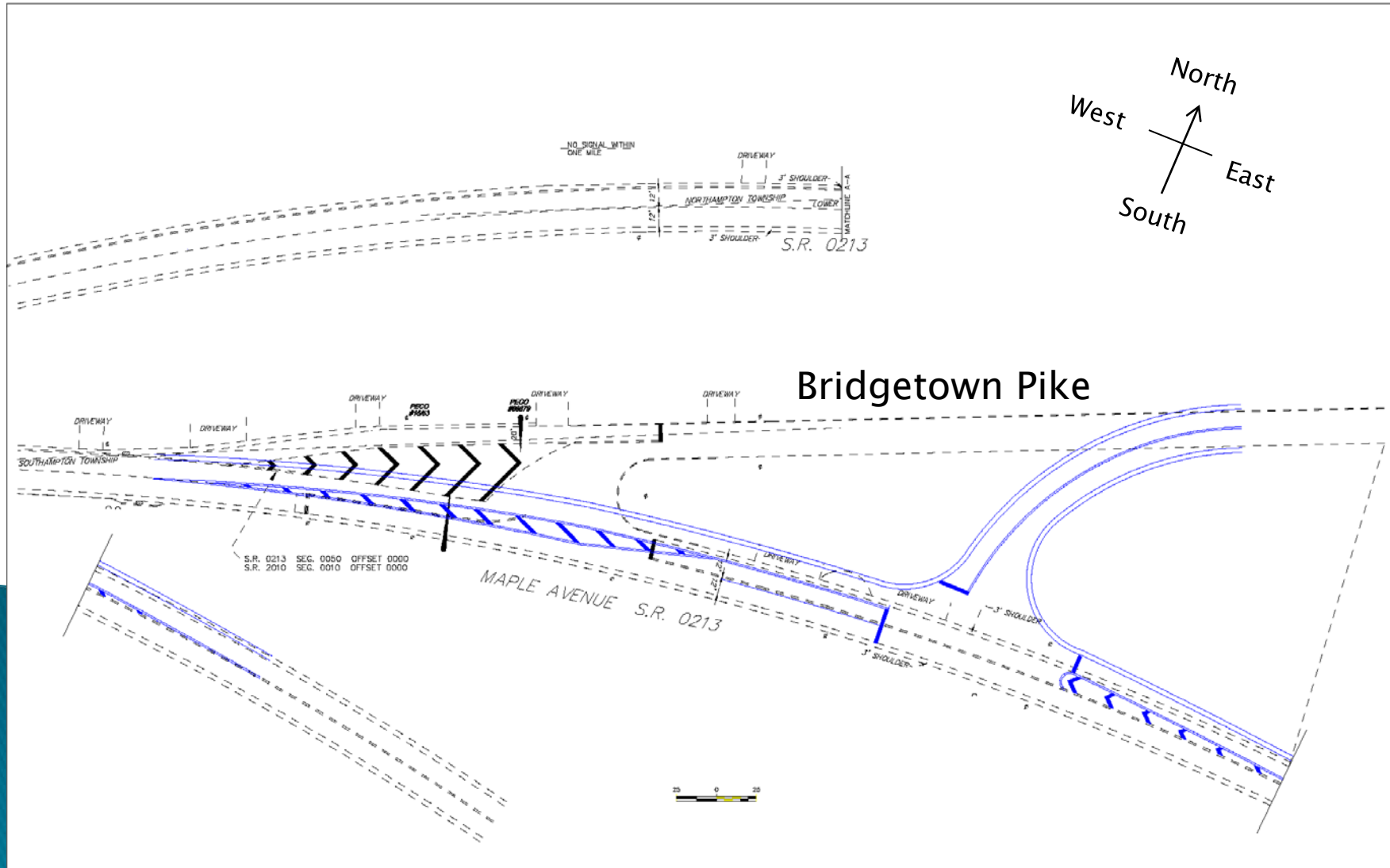


# Improvement Options

Alternative	Pros	Cons
Alternate #1 – Left Turn Lane in Existing Intersection Footprint	<ul style="list-style-type: none"><li>• Option with least amount of additional paving</li><li>• Provides left-turn lane</li><li>• Anticipated to operate an acceptable LOS</li></ul>	<ul style="list-style-type: none"><li>• Retain large skewed intersection</li><li>• Impacts to driveways</li><li>• ROW impacts anticipated in the NW and NE quadrants</li><li>• Reduced taper length</li></ul>

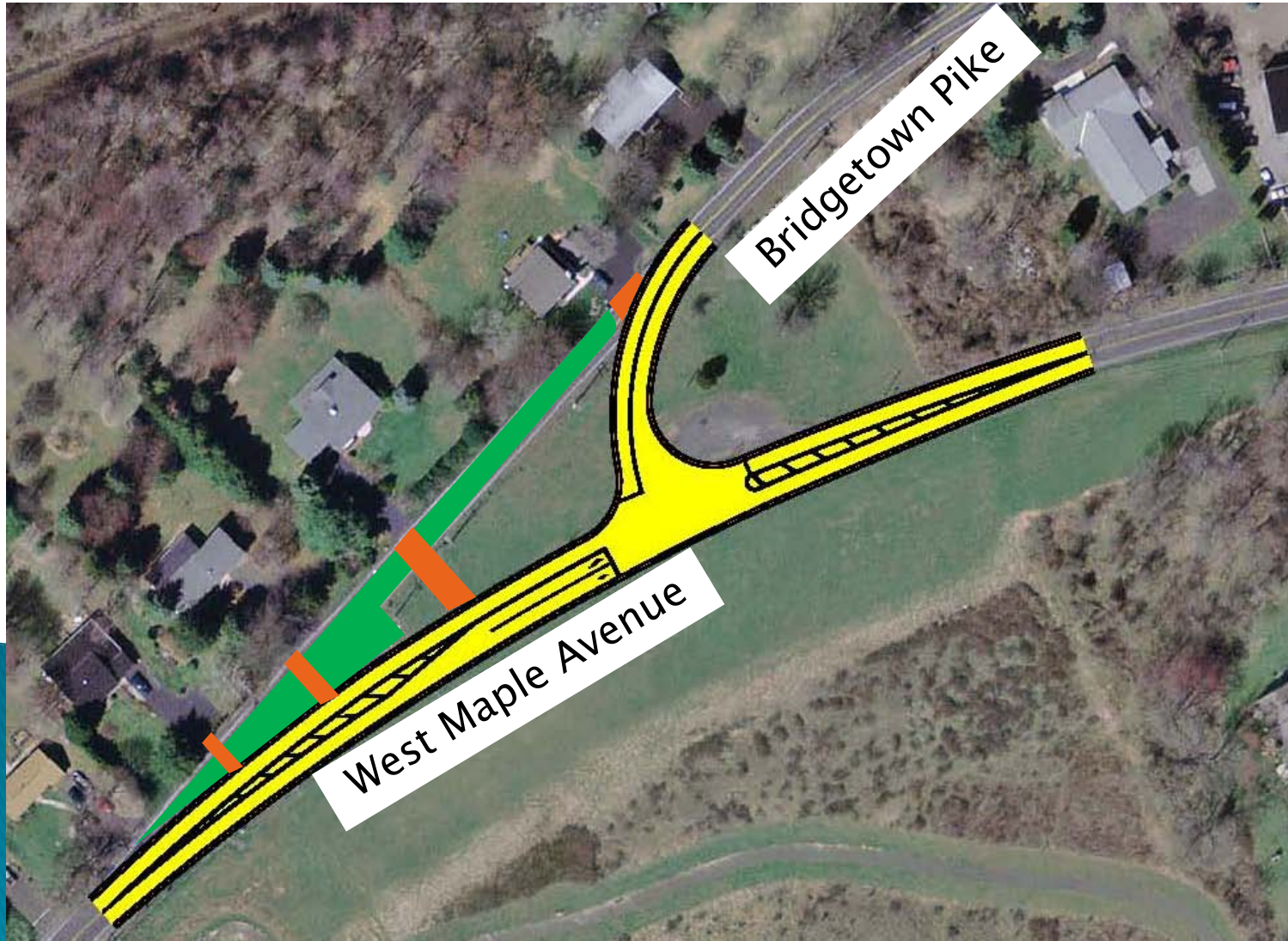
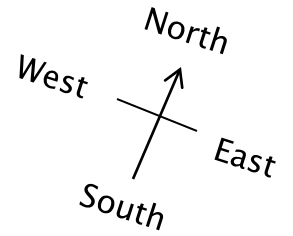
# Improvement Options

- Alt. #2 – Intersection Re-alignment



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- Alt. #2 – Intersection Re-alignment



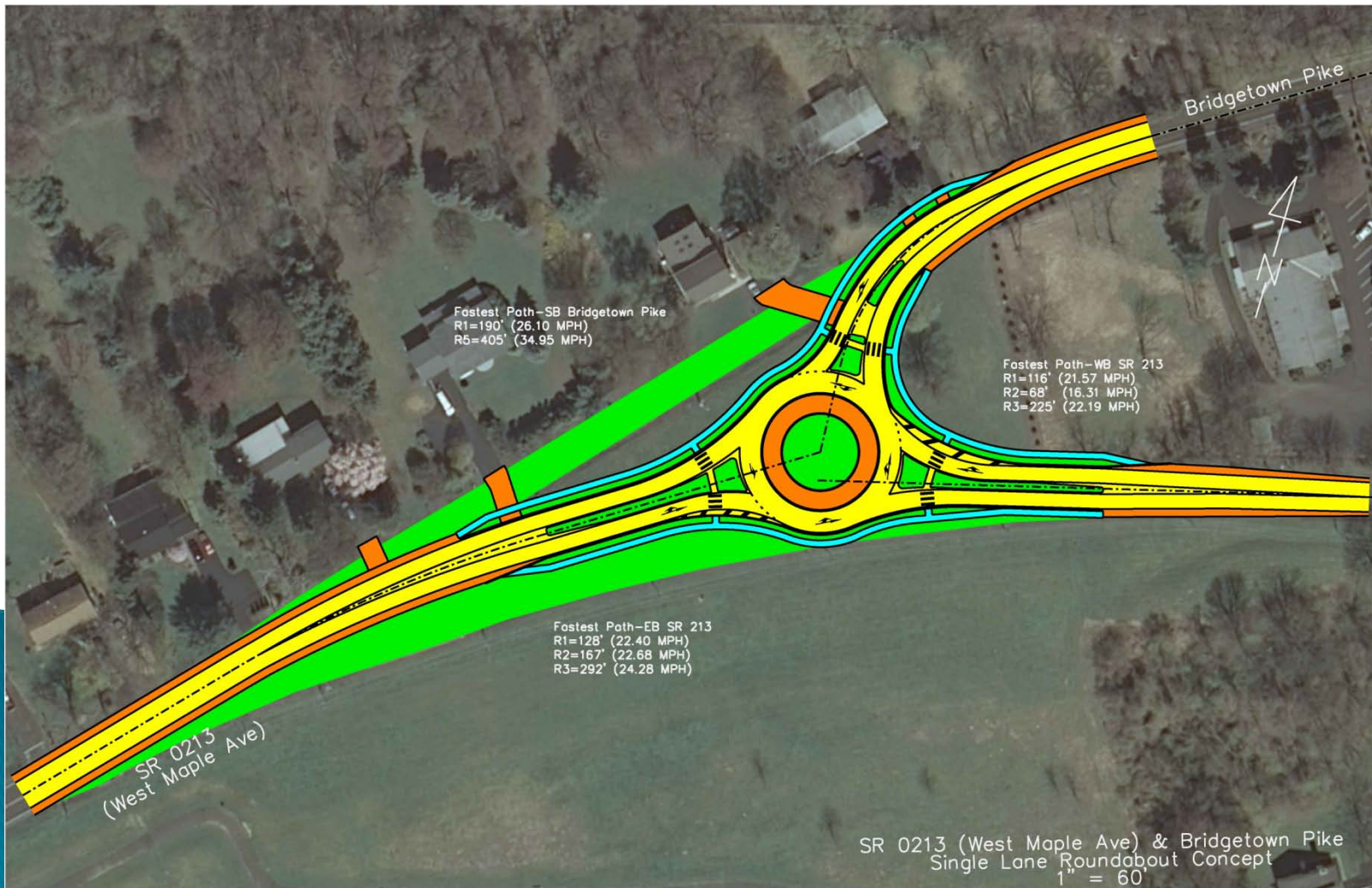


# Improvement Options

Alternative	Pros	Cons
Alternate #2 – Intersection Re-alignment	<ul style="list-style-type: none"><li>• No ROW impacts anticipated in NW quadrant</li><li>• Provides left-turn lane</li><li>• Anticipated to operate at an acceptable LOS</li></ul>	<ul style="list-style-type: none"><li>• ROW impacts anticipated in NE quadrant</li><li>• Reduced taper length</li></ul>

# Improvement Options

- Alt. #3 –One Lane Modern Roundabout



# Improvement Options

Alternative	Pros	Cons
Alternate #3 – One Lane Modern Roundabout	<ul style="list-style-type: none"><li>• Provides traffic calming/improved safety</li><li>• No ROW impacts anticipated in NW quadrant</li><li>• Anticipated to operate at very good LOS</li></ul>	<ul style="list-style-type: none"><li>• Full take of parcel in NE quadrant</li><li>• Impacts to residential driveways</li></ul>



# What is a Modern Roundabout?

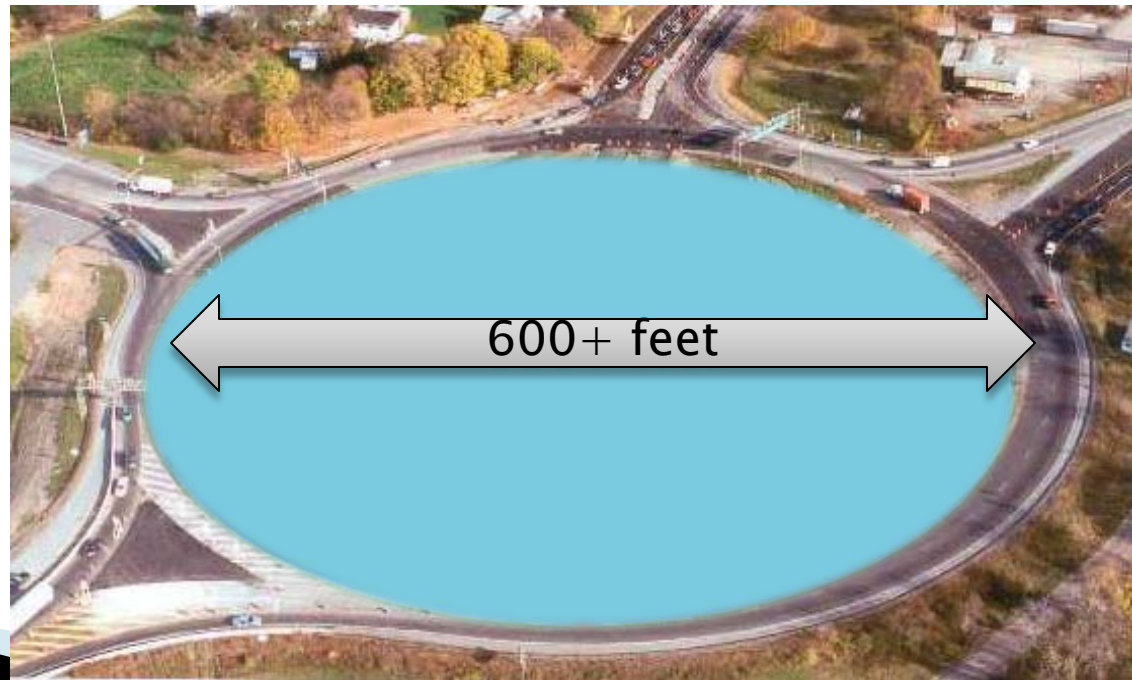
- Compact circular intersection where traffic flows counter-clockwise around a center island
- Entering traffic yields
- Raised splitter islands to deflect traffic into a proper entry path
- Designed to slow down vehicles and operate at 20–25 mph



# Roundabouts vs. Traffic Circles

- Low Speeds
- Small footprint
- Entering vehicles yield to traffic inside the roundabout
- No stop signs or traffic signals

- High Speeds
- Large footprint
- Vehicles inside circle yield to entering vehicles
- Can include stop signs or traffic signals



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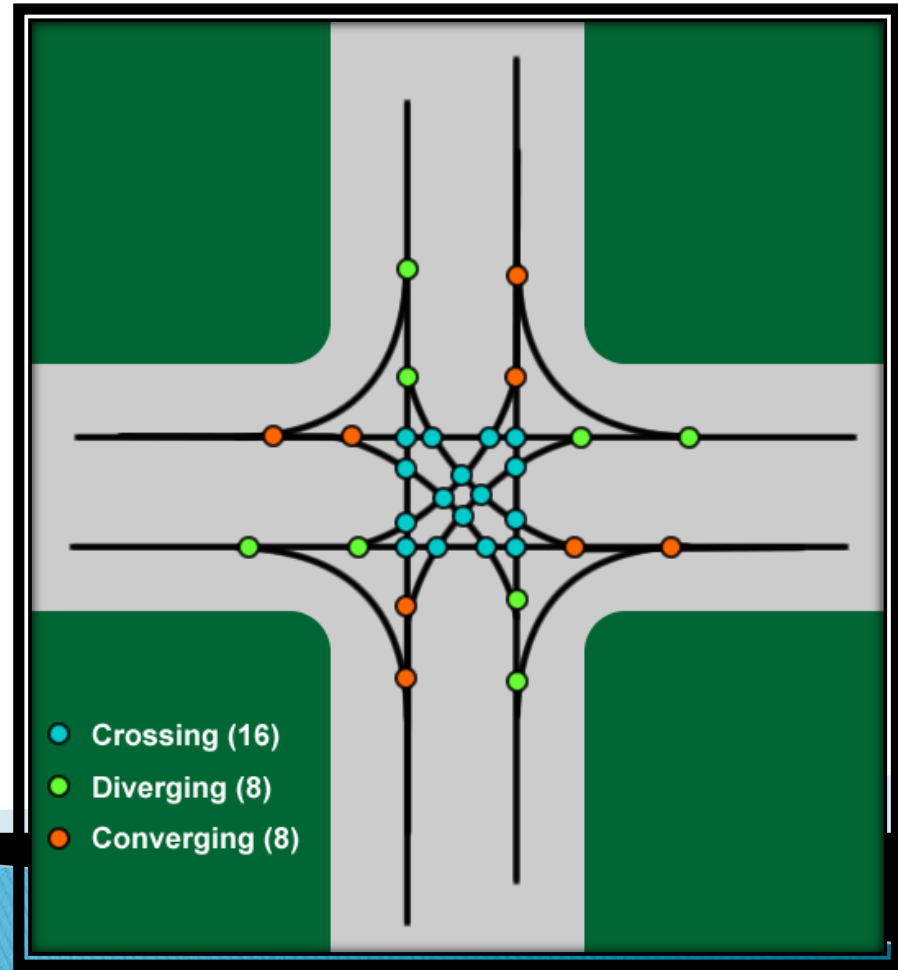
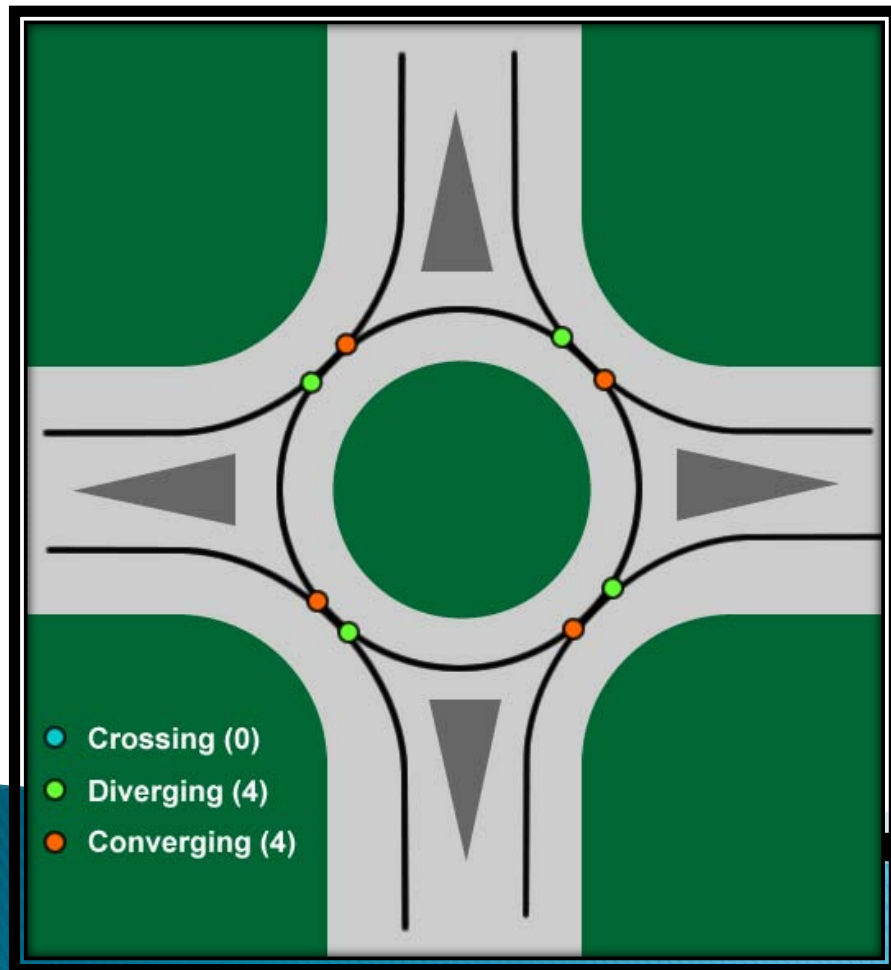


# Signing and Marking



Proper signing helps drivers navigate the roundabout.

# Vehicle Conflict Points



# Safety Benefits

Convert signalized intersection to roundabout

48%

Reduction in all crashes

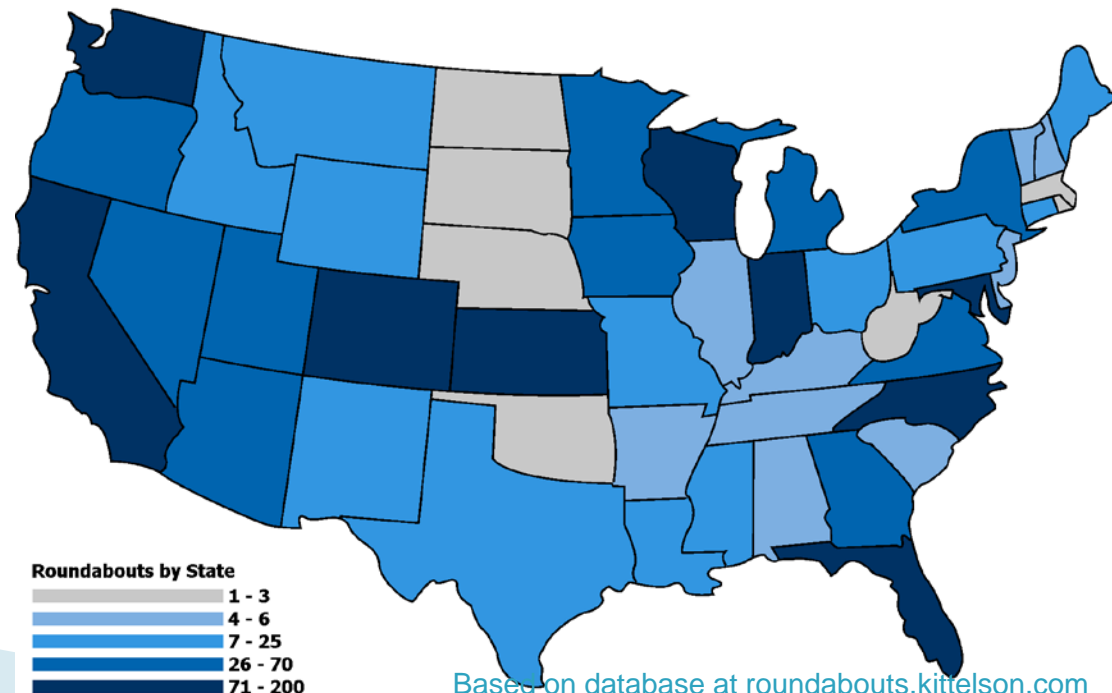
78%

Reduction in fatal/injury crashes



# Roundabouts Nationally

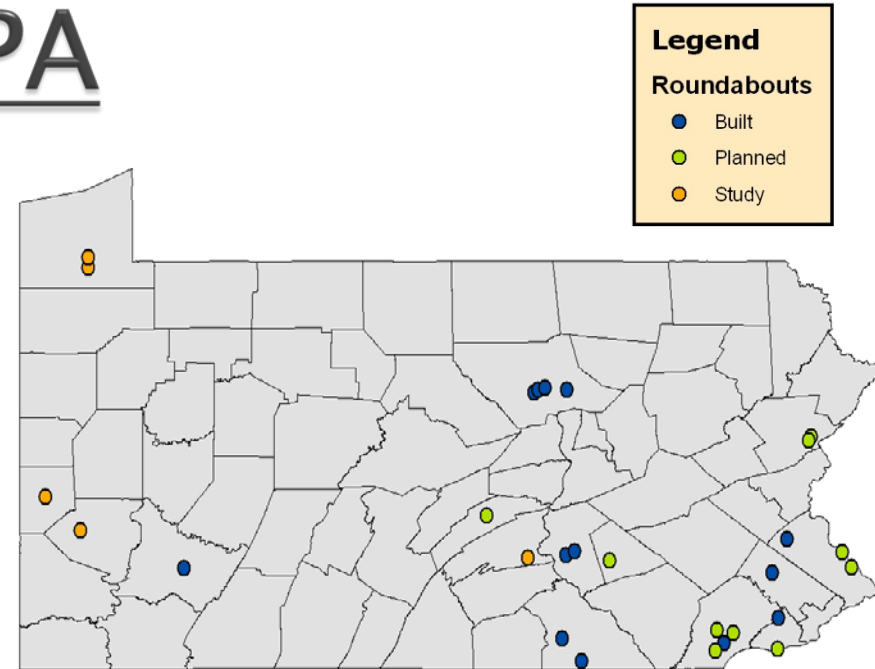
- Modern Roundabouts in nearby States
  - Maryland > 100
  - New York > 65
  - Virginia > 30
  - Ohio > 20
  - New Jersey > 4
- Most is Washington With ~ 200



# Roundabouts in PA

## ➤ Modern Roundabouts in PA (Since 2000)

- Built = 17
- Construction = 3
- Design = 20



Station Rd. & Old Bethlehem Pike  
Quakertown, Bucks County

# Traffic Analysis Results

Evening Rush Hour		Existing		Signalized Improvements		Roundabout Improvements	
		LOS (delay)	Backup	LOS (delay)	Backup	LOS (delay)	Backup
Eastbound SR 213	Left Turns	--	--	D (45.8)	149'	--	--
	Through	--	--	B (10.1)	981'	--	--
	Approach	E (62.4)	3235'	B (19.8)	--	C (15.5)	174'
Westbound SR 213	Through & Right Turns	B (10.4)	330'	D (47.2)	704'	B (14.2)	133'
Southbound Bridgetown Pike	Left & Right Turns	F (151.5)	1413'	D (46.2)	348'	B (11.8)	56'
Overall		E (59.9)	--	C (34.8)	--	B (14.4)	--

**Recommendation: Pursue final design and construction of a single lane roundabout.**



# Anticipated Educational Program:

- Additional Public Meetings
- Presentations to Schools
- Presentations at Community Centers/Events
- Presentations at Senior Centers
- Resources on PennDOT and Township Websites

# We want your Input!

- Fill out comment form and hand in tonight
- Fill out comment form and mail/fax/email to PennDOT