

ROUNDABOUTS

AROUND DISTRICT ONE



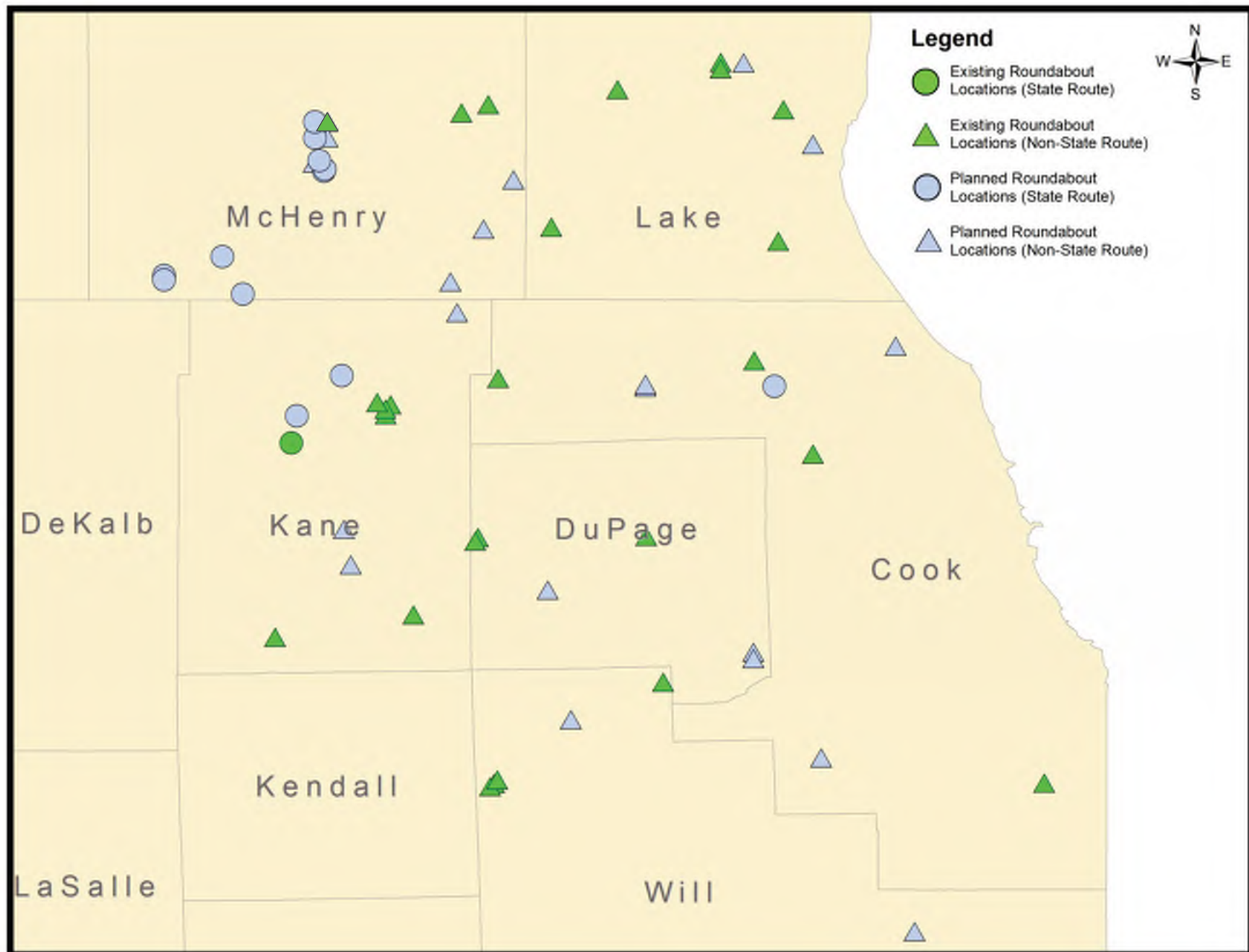
Presenters & Content

- Where & Why?
- IDOT Policy
- Examples
- Lessons Learned

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WHERE are they in District One?



WHY are they considered by IDOT

Roundabouts vs. Signalized Intersections

Operation Benefits

56% Reduction in Vehicle Stops

89% Reduction in Vehicle Delays

30% Reduction in Fuel Consumption

30-50% Increase in Traffic Capacity

\$5,000/year Saved in Maintenance Costs

From Federal Highway Administration



- Another tool in the engineering toolbox
- Safety benefits
- Capacity benefits
- Business Access & Economic Benefits
- Other benefits
- Public acceptance

IDOT Policy On Roundabouts

- Lighting requirement
- Lighting jurisdiction
- Lighting construction cost
- Cost of Roadway Construction
- Bicycle/Pedestrian Accommodations
- Typically a Context Sensitive Solutions or strong Public Involvement

IL 47 at Burlington Road



- Kane County Local Lead on IDOT Roadway

IL 47 at Burlington Road

Not an Ideal Place for a Signal:

- Required Long auxiliary lanes
- High-volume through and left turn movement
- Signal design was not financially feasible
- ROW footprint
- Design Exceptions for LOS
- Corridor Continuity

Traffic Signal would Restore High-Speed Movement through the Intersection

IL 58 at Wolf Road / State Street & Broadway Street



IL 58 at Wolf Road / State Street & Broadway Street

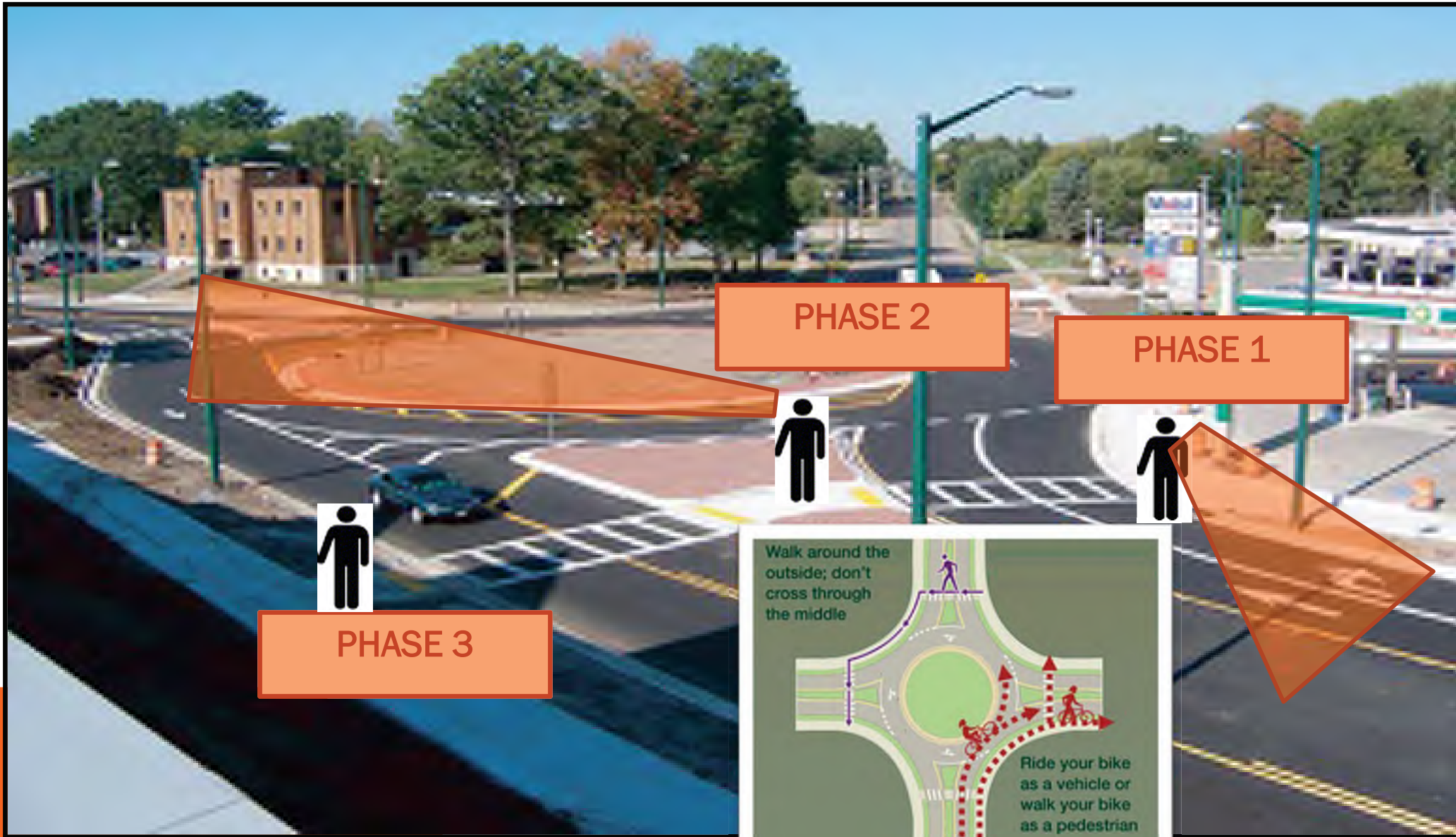
Improving the safety and mobility

- Clearly defined lane assignments
- Appropriate number of circulating lanes
- Improved signage
- Proper entry angles on each leg
- Defined pedestrian and bicyclist crossings
- Improve the drainage within the project limits

IL 58 at Wolf Road / State Street & Broadway Street



IL 58 at Wolf Road / State Street & Broadway Street



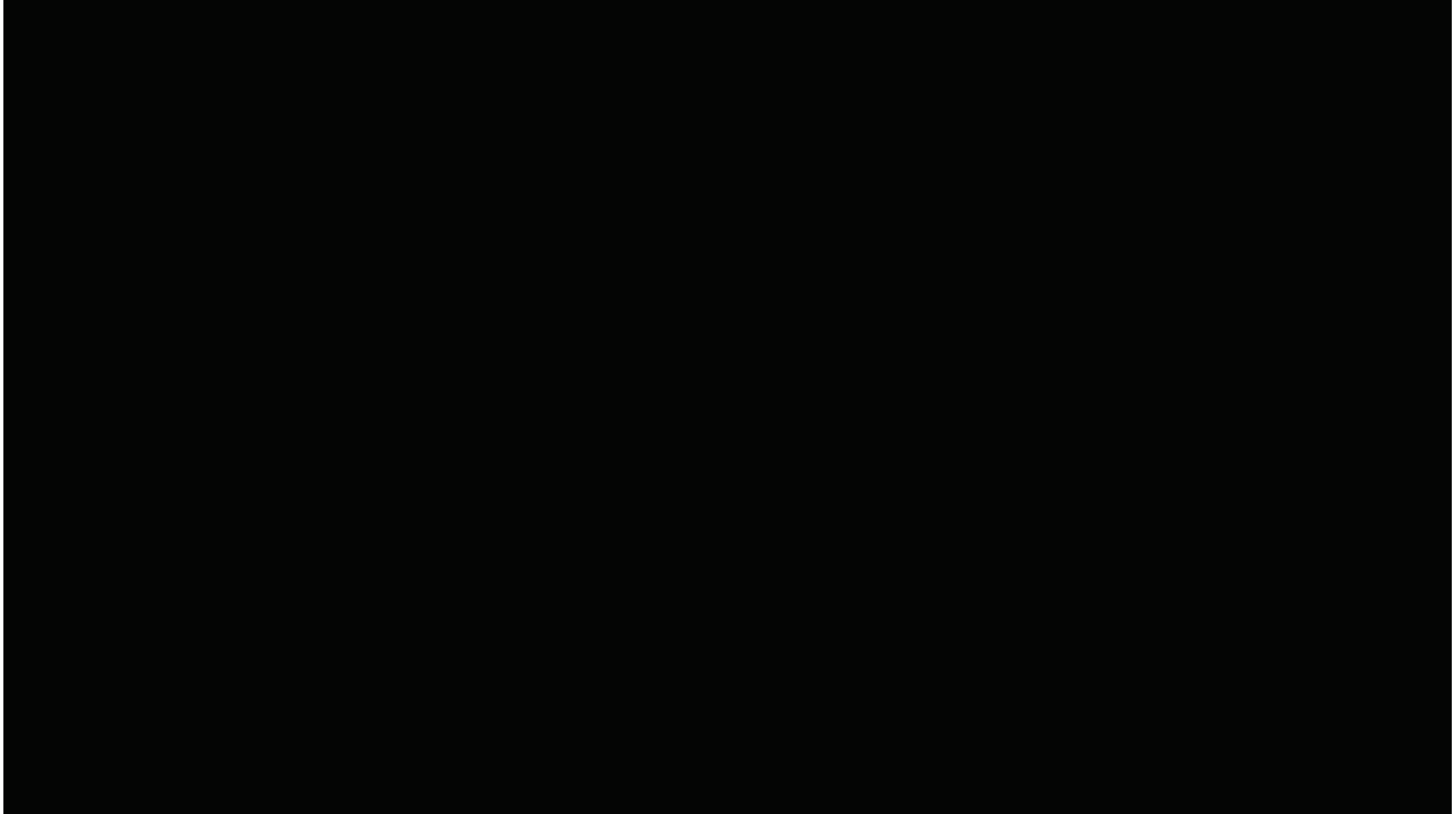
IL 47 at Plato Road



IL 23 at Harmony Road / I-90 Ramps



IL 23 at Harmony Road / I-90 Ramps



Video

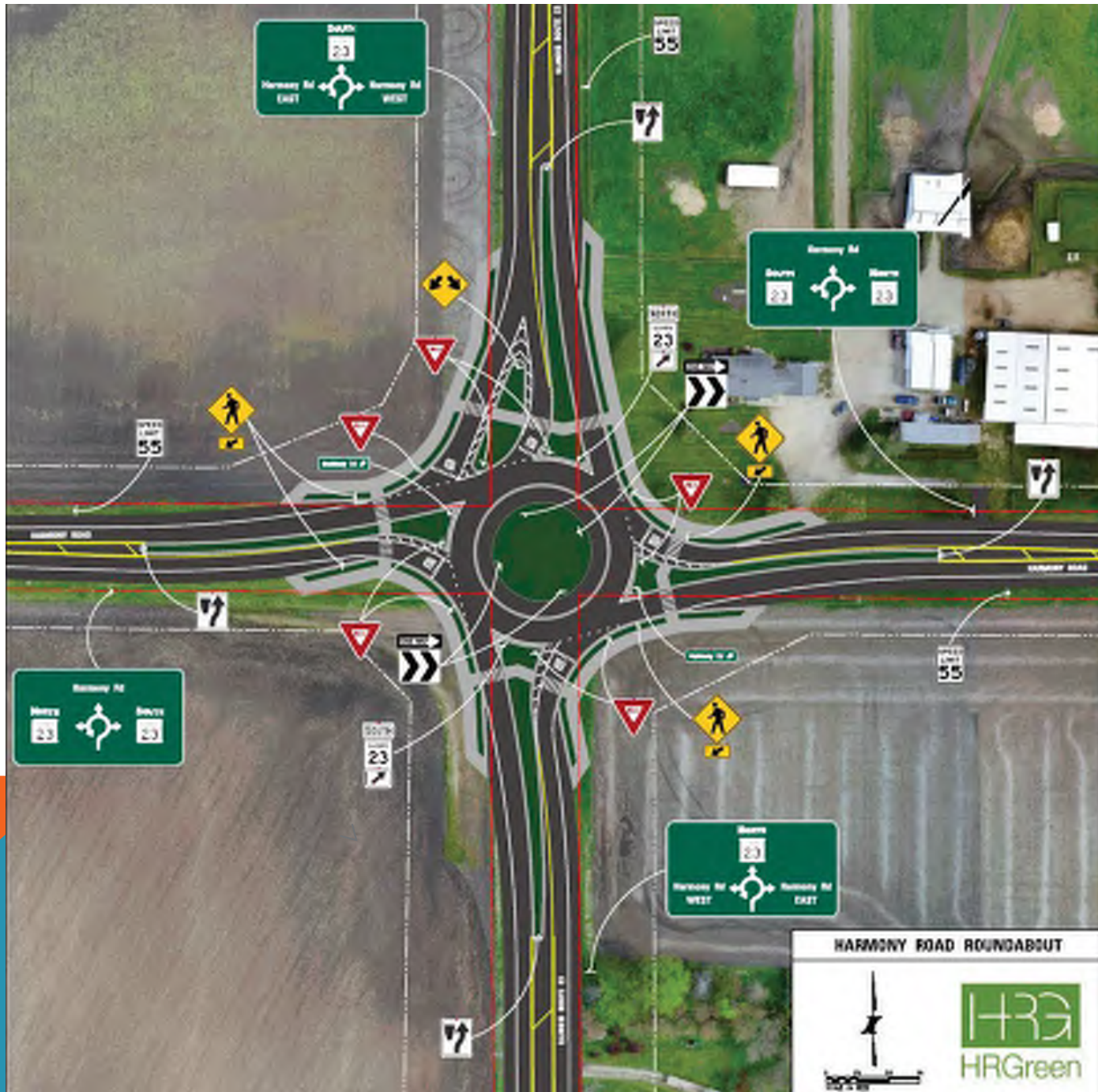
IL 23 at Harmony Road / I-90 Ramps



IL 23 at Harmony Road / I-90 Ramps



IL 23 at Harmony Road / I-90 Ramps



US 20 at Reinking Road



US 20 at Reinking Road

- Existing y-intersection
- From 2012 – 2017: 14 crashes & one fatal crash in 2015
- Ex. Alignment confusing to drivers as US 20 NB curves through intersection. Truck traffic sometimes misses this and continues north on to Reinking Road.
- Signalized T-intersection initially considered
- Roundabout chosen to maintain traffic flow through intersection.

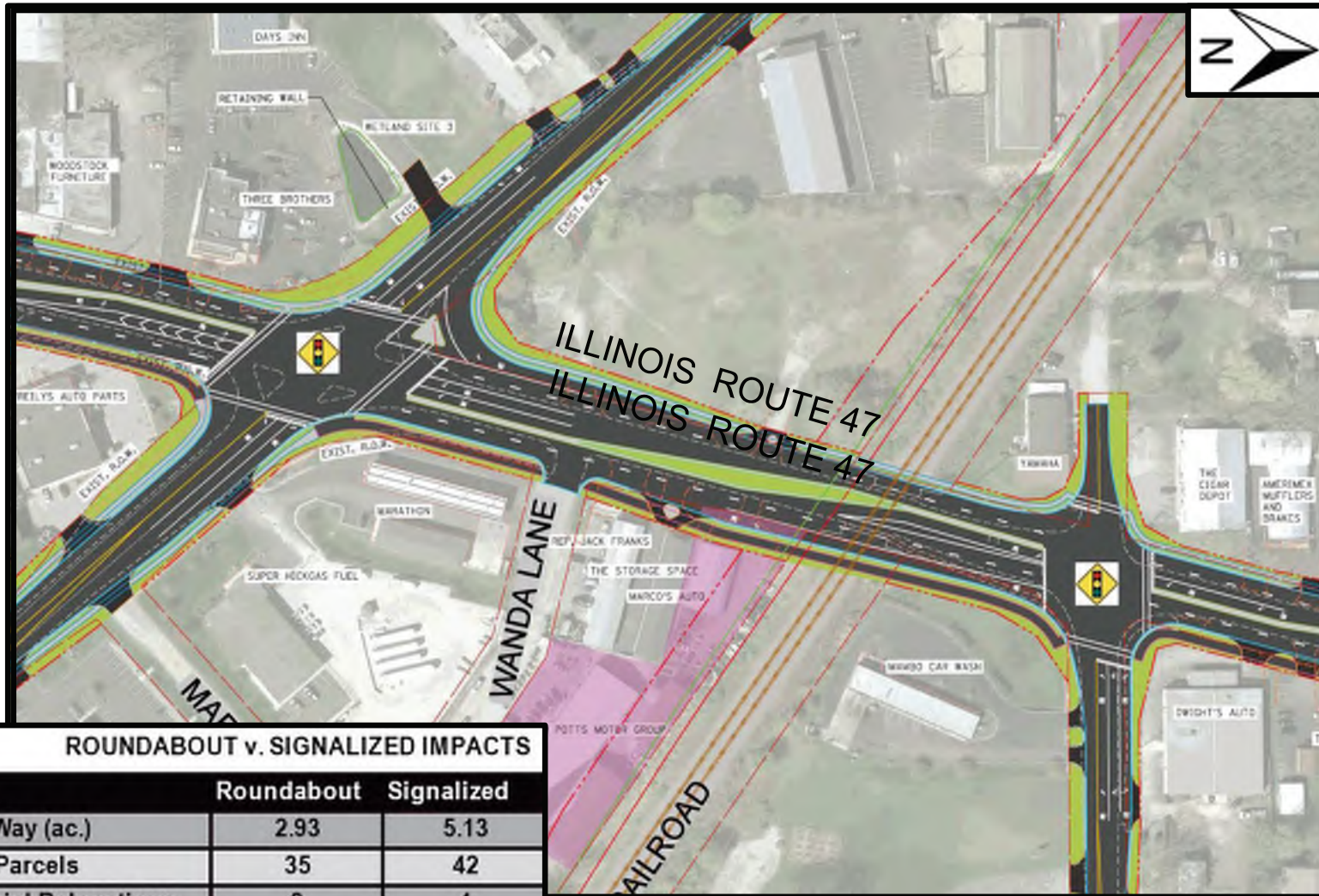
Some of the design considerations for the roundabout were as follows:

- Full-access to Outpost Tavern - accommodate delivery & emergency vehicles
- Maintained parking availability at Outpost Tavern & building setbacks
- Full access entrance for resident NE Reinking Road
- US 20 will accommodate WB-55 trucks

IL 47 from US 14 to Charles Road



IL 47 at Lake Avenue & McConnell Road

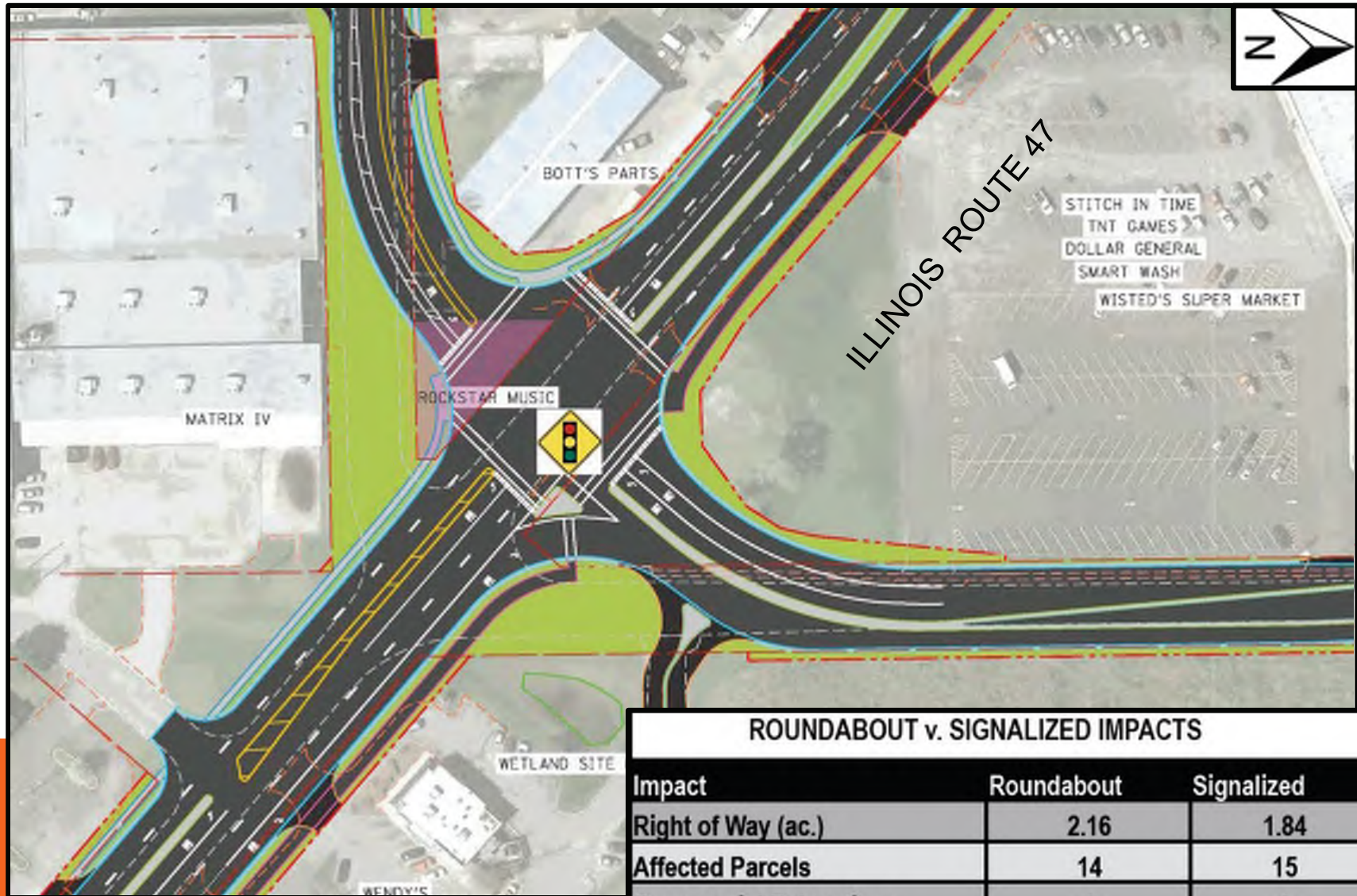


ROUNDAABOUT v. SIGNALIZED IMPACTS

Impact	Roundabout	Signalized
Right of Way (ac.)	2.93	5.13
Affected Parcels	35	42
Commercial Relocations	2	4
Residential Relocations	0	2
Wetland Impacts (ac.)	0.008	0
Delay - Lake (s)	20.7 -C	37.4-D
Delay - McConnell (s)	11.1-B	18.5-B
Cost	\$\$	\$\$\$\$\$

 Potential Relocation

IL 47 at Judd Street/Irving Avenue



 Potential Relocation

ROUNDABOUT v. SIGNALIZED IMPACTS		
Impact	Roundabout	Signalized
Right of Way (ac.)	2.16	1.84
Affected Parcels	14	15
Commercial Relocations	1	1
Residential Relocations	0	1
Operational Delay (s)	11.1-B	30.4-C

IL 47 at Ware Road

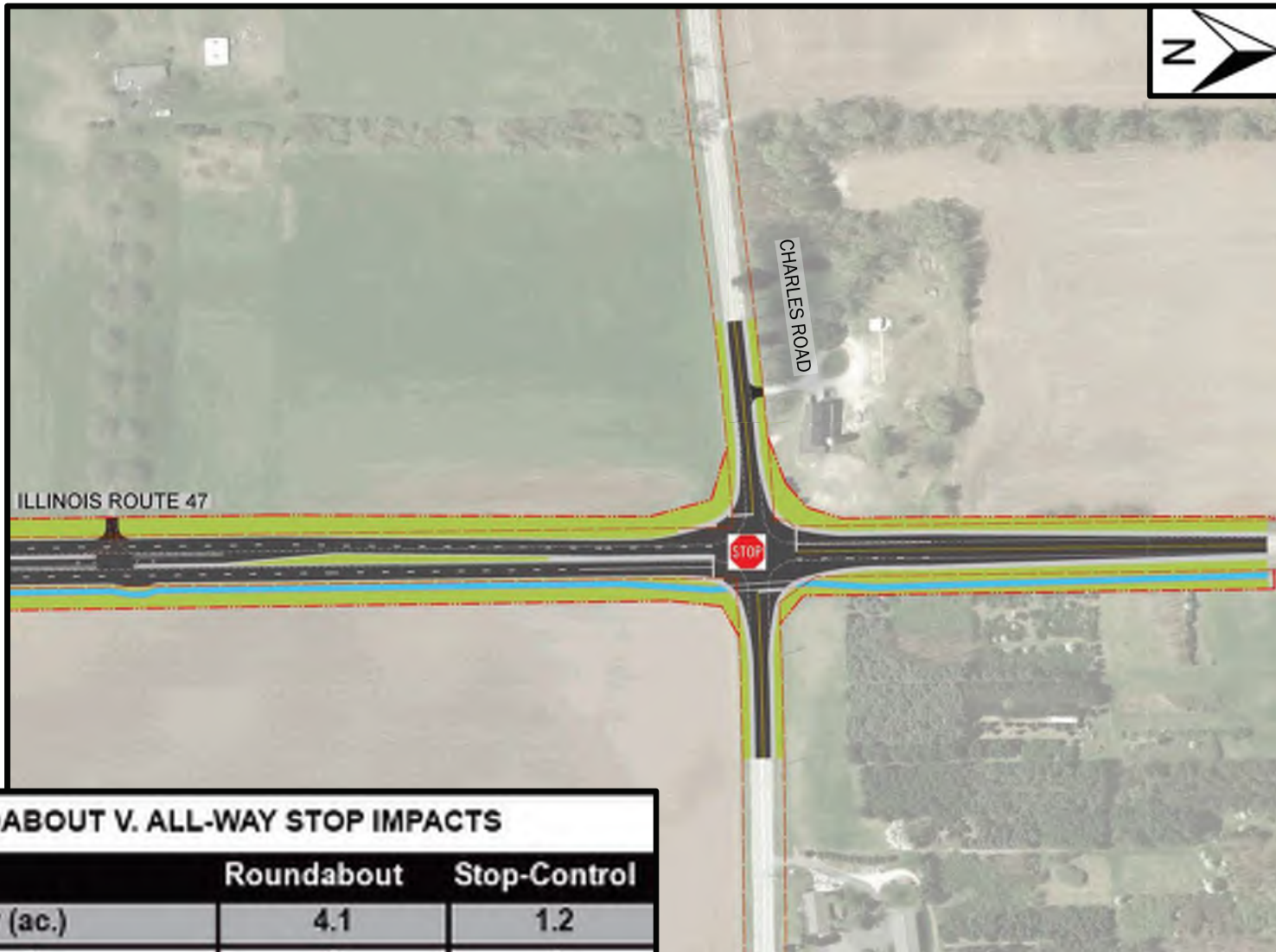


ROUNDAABOUT V. MINOR STREET STOP CONTROL

Impact	Roundabout	Minor Stop Control
Right-of-Way (ac.)	1.15	0.83
Affected Parcels	5	5
Potential Displacements	0	0
Operational Delay (s)	16 - B	>300 - F

 Potential Relocation

IL 47 at Charles Road

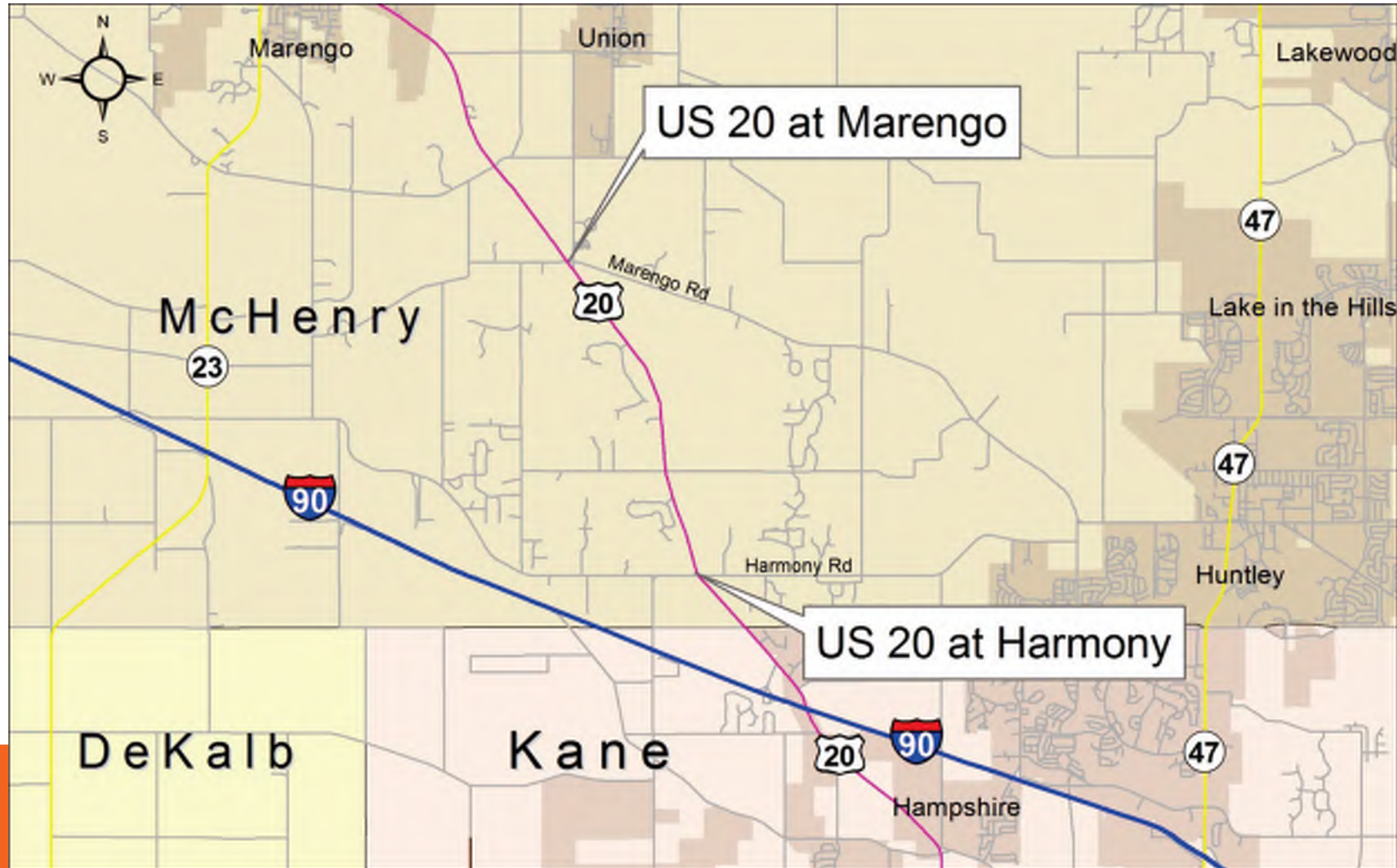


ROUNDABOUT V. ALL-WAY STOP IMPACTS

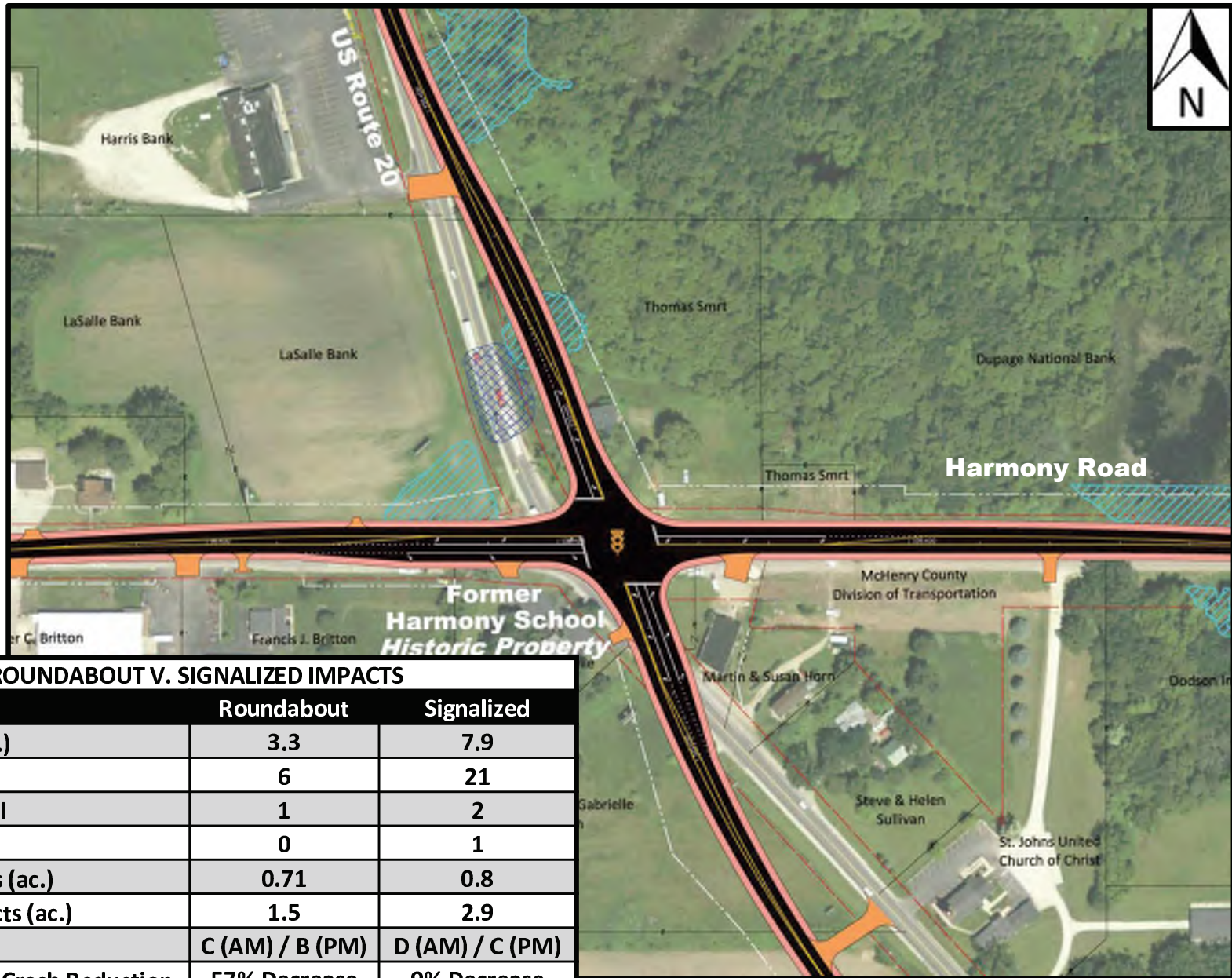
Impact	Roundabout	Stop-Control
Right of Way (ac.)	4.1	1.2
Affected Parcels	6	4
Potential Displacements	0	0
Operational Delay (s)	21.4-B	220-F

 Potential Relocation

US 20 at Harmony Road & at Marengo Road



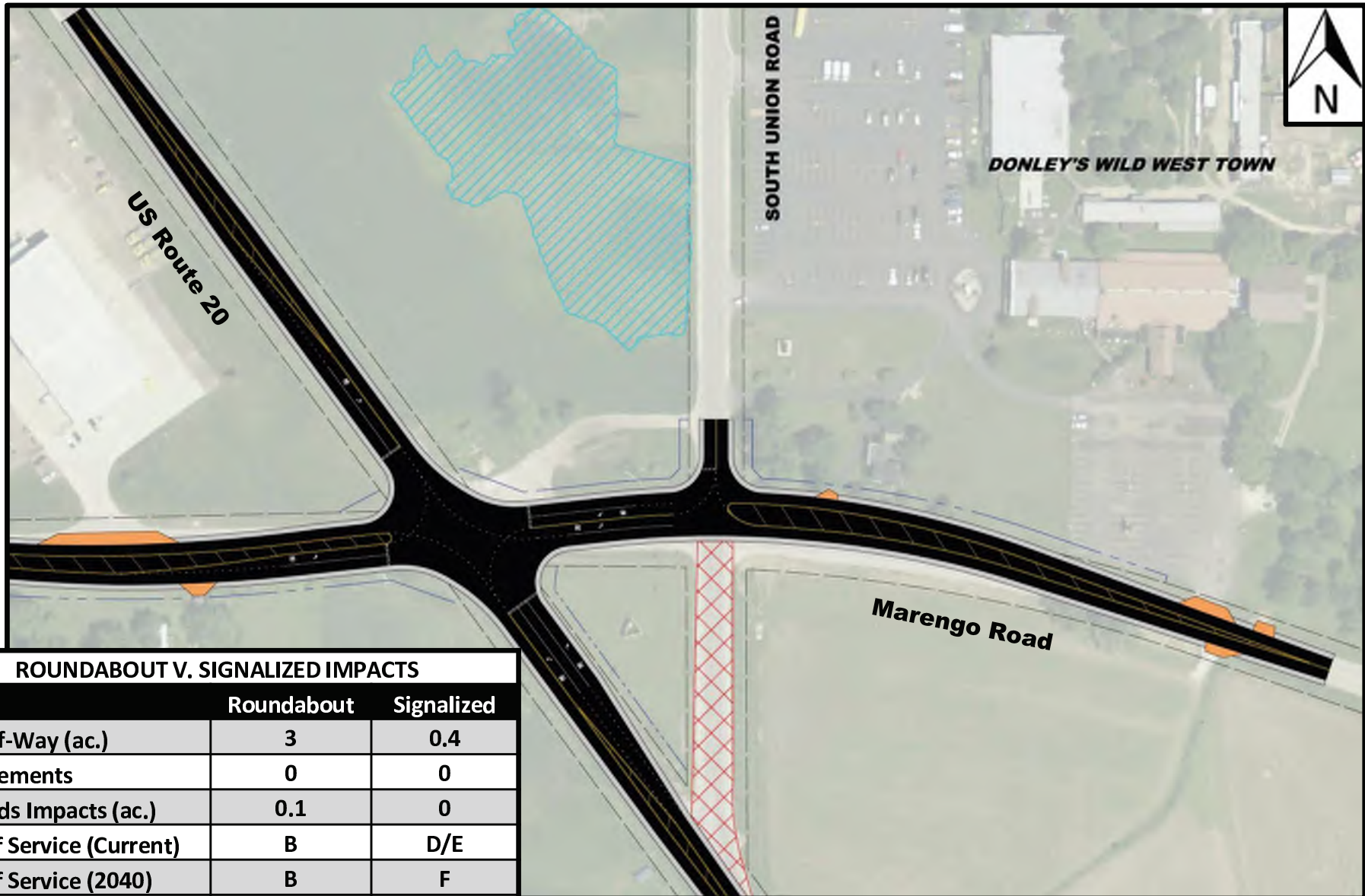
US 20 At Harmony Road



ROUNDBABOUT V. SIGNALIZED IMPACTS

Impact	Roundabout	Signalized
Right of Way (ac.)	3.3	7.9
Affected Parcels	6	21
Building Removal	1	2
Relocations	0	1
Wetland Impacts (ac.)	0.71	0.8
Woodland Impacts (ac.)	1.5	2.9
Level of Service	C (AM) / B (PM)	D (AM) / C (PM)
Expected Severe Crash Reduction	57% Decrease	9% Decrease
Construction Cost	\$5M	\$6.4M
Land Cost	\$0.38M	\$1.3M

US 20 At Marengo Road



ROUNDABOUT V. SIGNALIZED IMPACTS

Impact	Roundabout	Signalized
Right-of-Way (ac.)	3	0.4
Displacements	0	0
Wetlands Impacts (ac.)	0.1	0
Level of Service (Current)	B	D/E
Level of Service (2040)	B	F
Total Crash Reduction	70%	46%
Severe Crash Reduction	72%	53%
Project Cost	\$3.7M	\$2.4M

Lessons Learned

- Robust Public Involvement
- Major Stakeholder Buy-in
- Consult the FHWA or other specialists
- Strong meeting facilitation and visual aids
- Ensure that heavy vehicles are considered
- Quantify, quantify, quantify
- Consider Transportation Management Plan