CR 18 @ CR115/CR13
Intersection Improvement

<u>Public Information Meeting</u>

- Crossroads Community Church
- Thursday, September 12, 2019
- 6:00 p.m.

ELKHART COUNTY HIGHWAY

troyer group
Together, We Will

Welcome

- Purpose/explanation of public information meeting
- Informational handouts
- Post meeting follow up
- Project display area

troyer group
Together, We Will

C.R. 18 at C.R. 115/C.R. 13

Introductions

Elkhart County
- Project Owner

Troyer Group
- Consultant

- Notice Publishing:
  Elkhart Truth, September 6
- A meeting notice was mailed to known property owners within project area
- Sign-in at attendance table to be added to project mailing list
- A copy of the presentation and project documentation will be available on-line via Elkhart County Highway website

Project Stakeholders

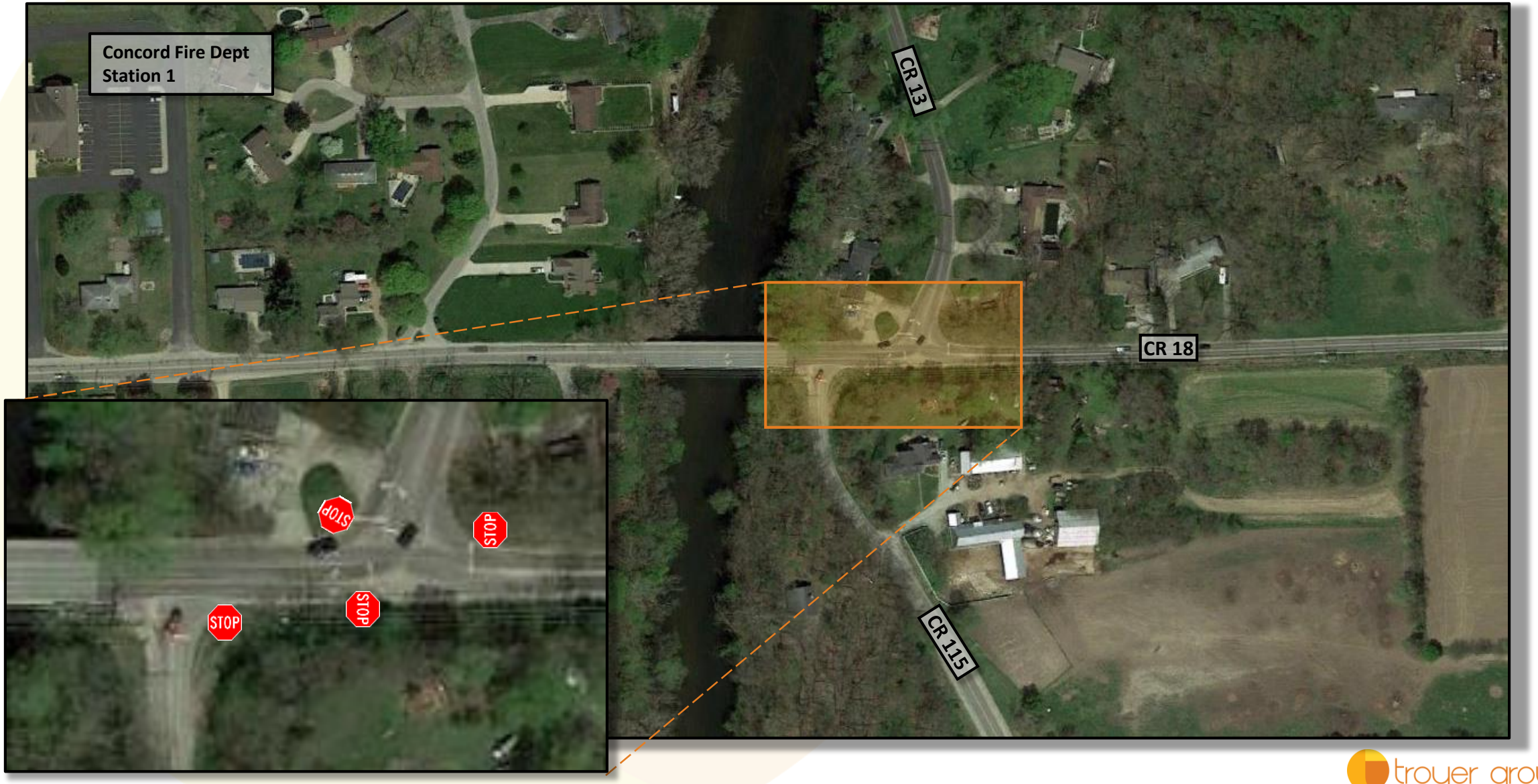
- Elkhart County Highway Department
- Elected & Local Officials
- Residents and Citizens
- Commuters
- Businesses
- Emergency Services, including Concord Fire Department
- Schools, including Concord East Side Elementary School
- Churches
- Community Organizations

Project Resource Locations

- **Elkhart County Highway Department**
  610 Steury Ave, Goshen, IN 46528
  - http://elkcohwy.dreamhosters.com/
  - Contact: Kent Schumacher
    Phone: 574-533-0538
    Email: eng@elkcohwy.org
- **Elkhart Public Library – Dunlap Branch**
  58485 CR 13, Elkhart, IN 46516
  - Phone: (574) 875-3100
- **Elkhart County Government**
  117 N. Second St., Goshen, IN 46526
  - Phone: (574) 534-3541 (switchboard number)
- **Troyer Group**
  550 Union St, Mishawaka, IN 46544
  - Phone: (574) 259-9976

troyer group
Together, We Will

Existing Intersection



troyer group
Together, We Will

Need for Project

- Frequency of accidents occurring at/near intersection and level of service illustrate the need for intersection improvement
  - Accident data:
    - 17 total accidents between January 2014 to May 2016
    - Eight (47%) involve rear end collisions
    - Two (12%) involved side-swipe collisions
  - The probable cause of these crashes could be excessive speed, inadequate advanced warning signs for intersection, or a large total intersection traffic volume.

Need for Project

- Awareness of the intersection ahead may be a major concern, due to limited intersection sight distance and short storage lane on CR 18 between CR 115 and CR 13
- Delays at the intersection increase response times for nearby Concord Township Fire Department
- Traffic along CR 18 increasing

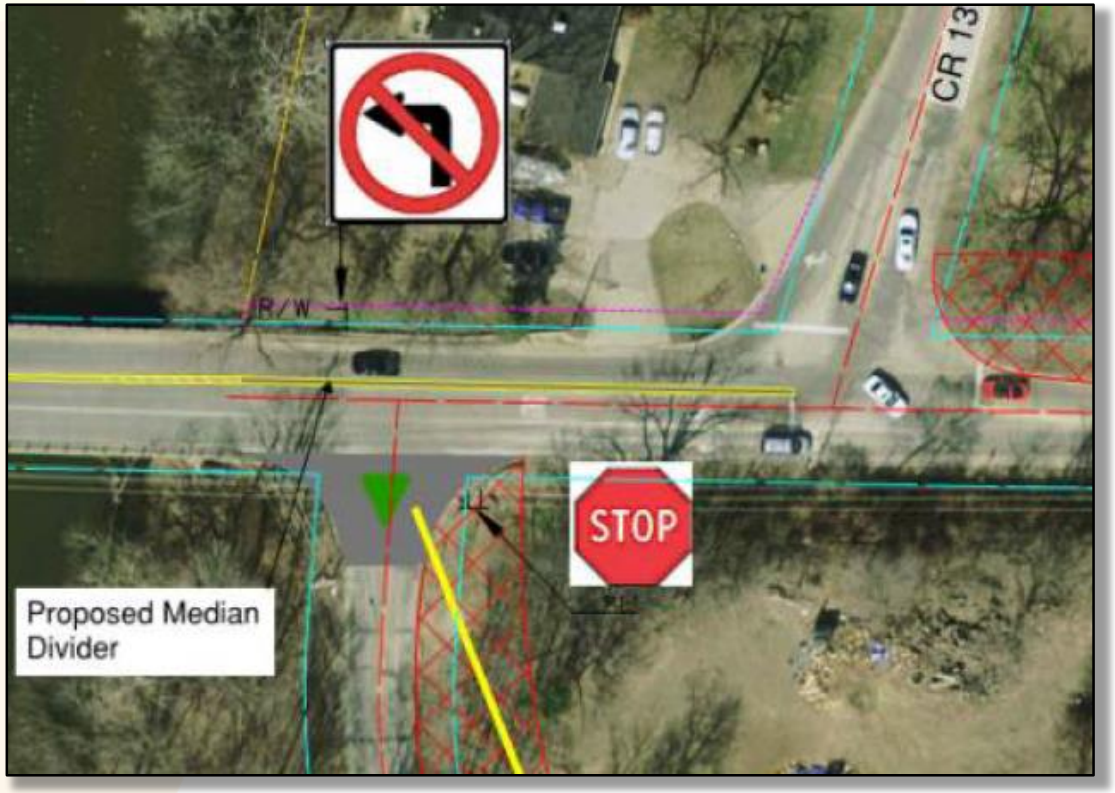
Project Purpose

Increasing the operational safety at the intersection by replacing the existing unsignalized intersection with a safer alternative while still maintaining, or improving, operational capacity for the projected traffic volume.

Alternatives Considered

#1 - Unsignalized Intersection with CR 115 Right-In/Right-Out (RI/RO)

- Installation of a median on CR 18 to eliminate the left-turn movement onto CR 115
- CR 18 westbound left turn traffic and southbound thru traffic from CR 13 onto CR 115 would be rerouted to use Old CR 17 to the east



Alternative #1

*Images and Alternatives from *Final Engineer's Assessment Report*, dated February 2018, prepared by DLZ

troyer group
Together, We Will

Alternatives Considered

#2 - Unsignalized Intersection with Realignment of CR 115

- CR 115 would be realigned parallel to the US 20 Bypass, turning north and intersecting with CR 18 at Apple Ridge Way
- Level of Service would improve by cutting down delays
- Significant right-of-way would need to be acquired

Alternative #2

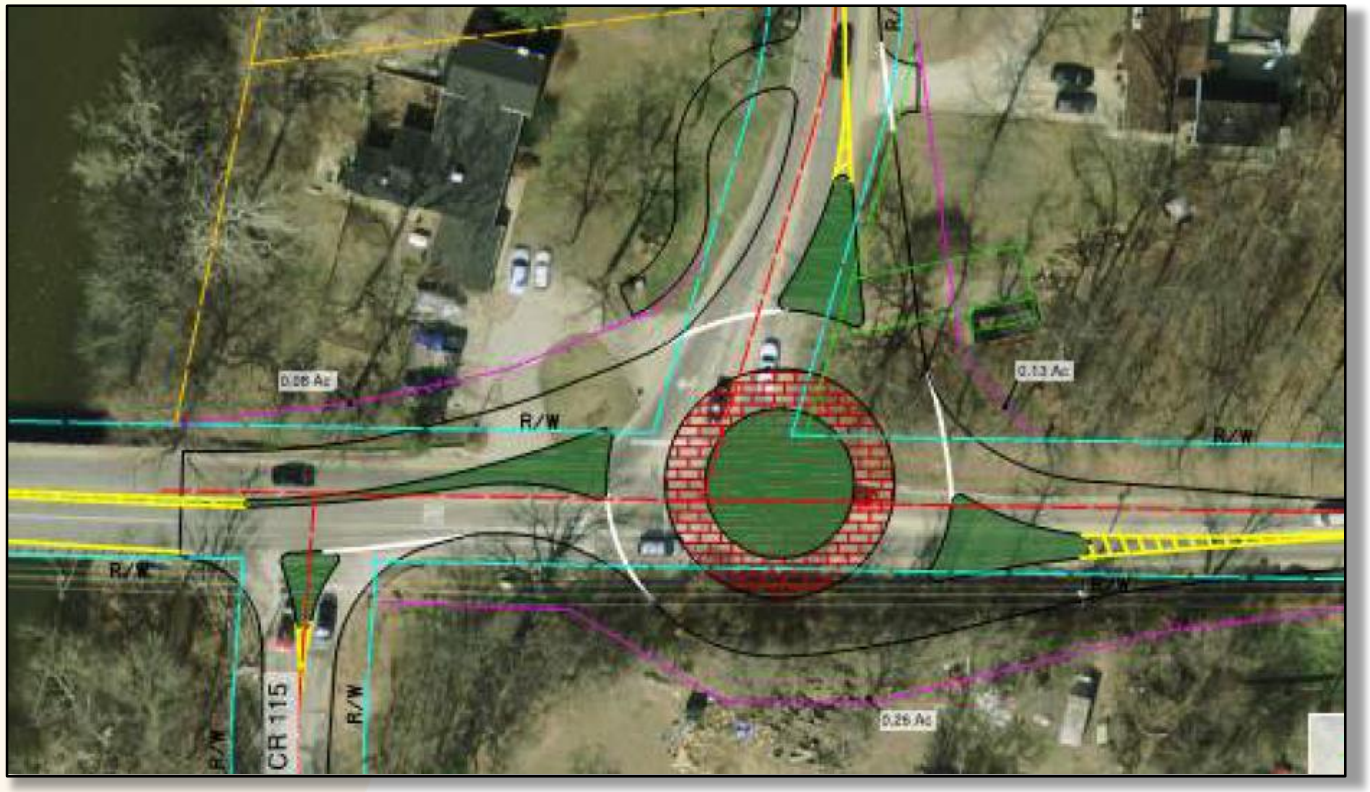
*Images and Alternatives from *Final Engineer's Assessment Report*, dated February 2018, prepared by DLZ

troyer group
Together, We Will

Alternatives Considered

#3 - Roundabout with Two Intersections

- The intersection of CR 13 and CR 18 would be converted to a roundabout
- CR 115 approach would be like the first alternative as RIRO
- Intersection safety would be improved by reducing rear end collisions on CR 18



Alternative #3

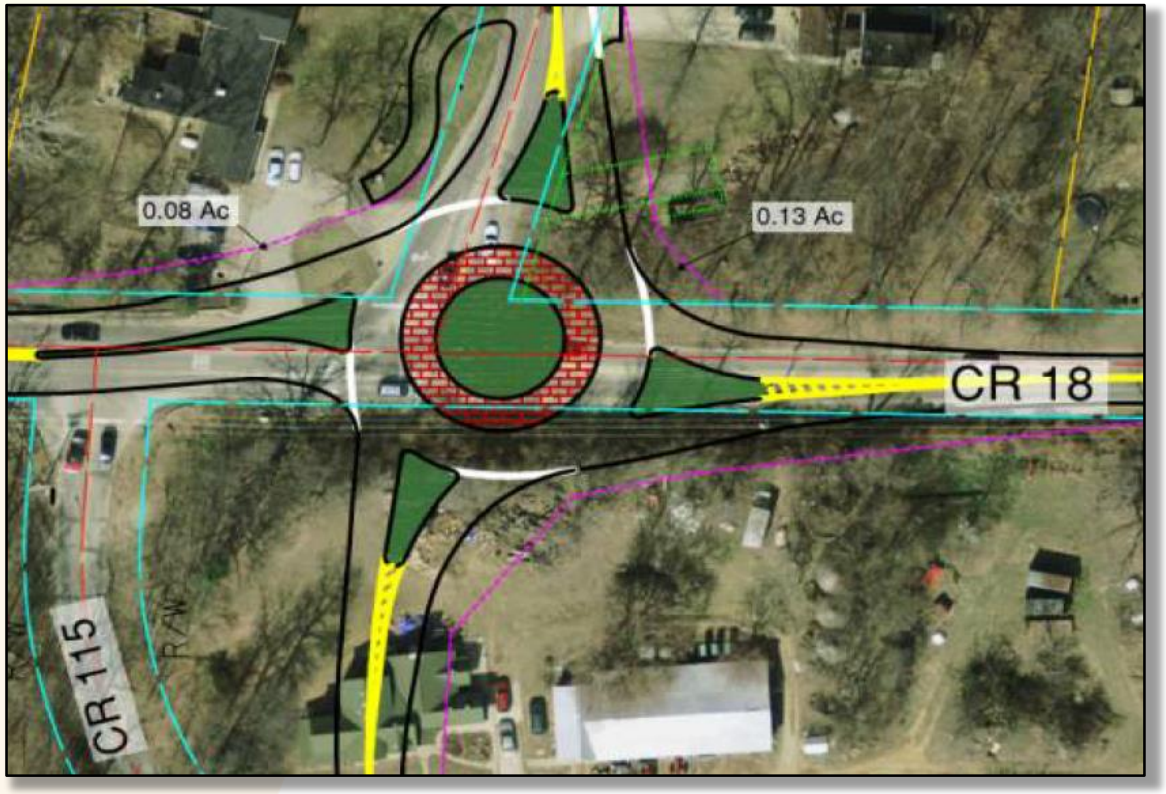
*Images and Alternatives from *Final Engineer's Assessment Report*, dated February 2018, prepared by DLZ

troyer group
Together, We Will

Alternatives Considered

#4 - Consolidated Roundabout

- Similar to alternative #3, however CR 115 would be realigned to be included in the roundabout.
- Would require significant right-of-way acquisition



Alternative #4

*Images and Alternatives from *Final Engineer's Assessment Report*, dated February 2018, prepared by DLZ

troyer group
Together, We Will

Alternatives Considered

#5 - Traffic Signal

- CR 115 would be converted to RI/RO
- Existing alignments would be maintained for all approaches, the driveway in the northwest corner would need to be relocated.

Alternative #5

*Images and Alternatives from *Final Engineer's Assessment Report*, dated February 2018, prepared by DLZ

troyer group
Together, We Will

Alternatives Considered

#6 - Coordinated Traffic Signals

- All existing approaches and movements maintained
- Signals coordinated by a single controller
- Additional signal heads and raised signal heads would account for sight distance.
- Signal would function similar to Oakland Ave – Indiana Ave.

Alternative #6

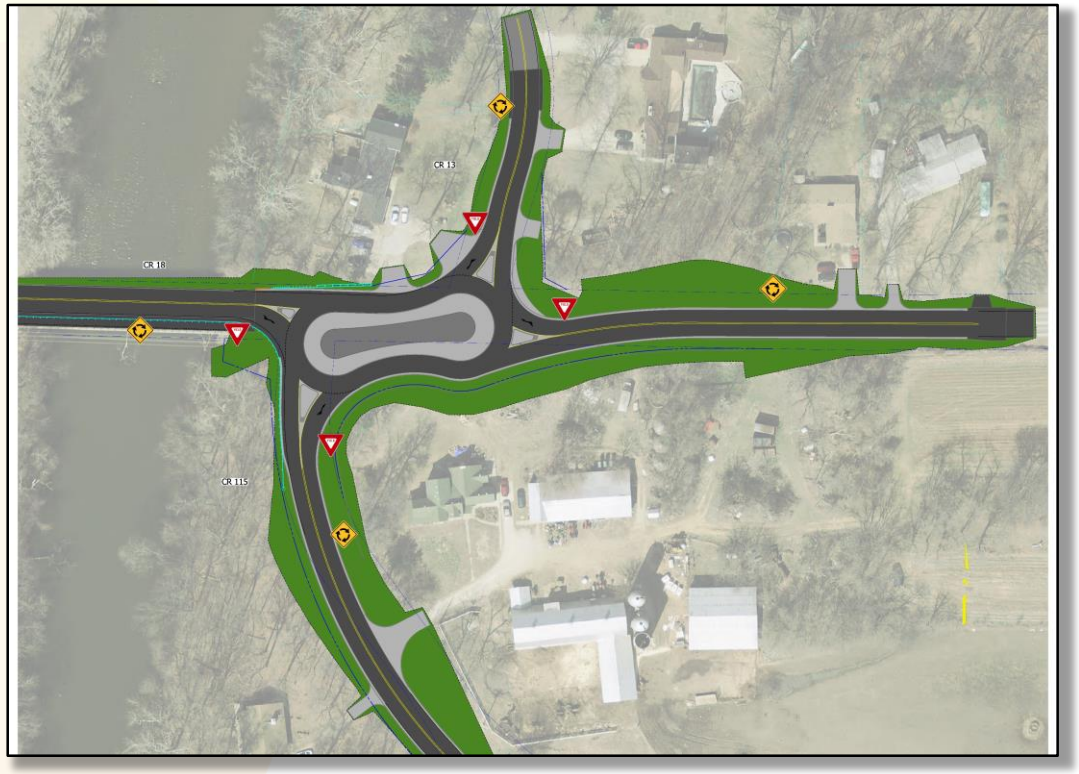
*Images and Alternatives from *Final Engineer's Assessment Report*, dated February 2018, prepared by DLZ

troyer group
Together, We Will

Alternatives Considered

#7 – Peanut Roundabout

- Elongated roundabout to include all four approaches
- Would require significantly less right-of-way acquisition than Alternative #4



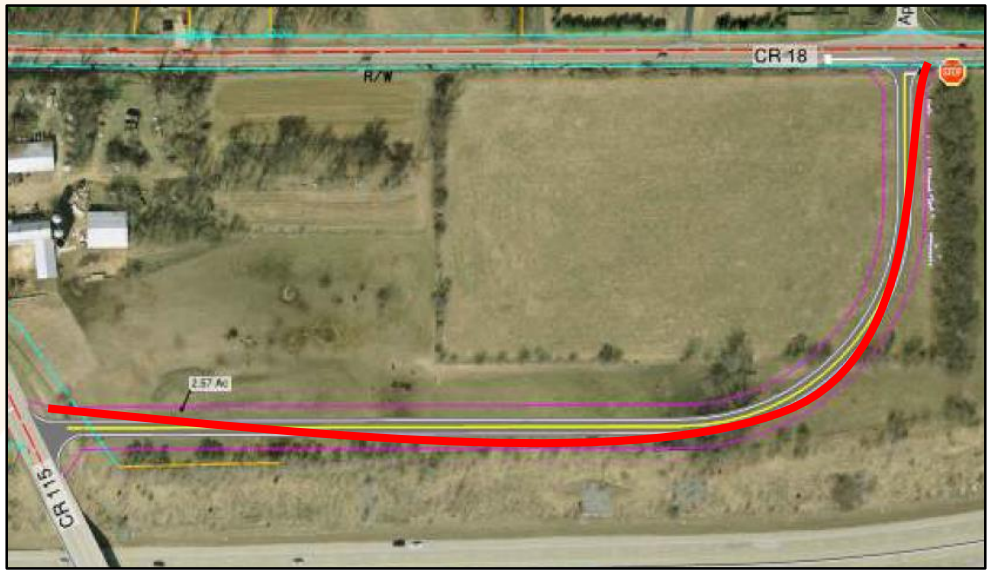
Alternative #7

*Images and Alternatives from *Final Engineer's Assessment Report*, dated February 2018, prepared by DLZ

troyer group
Together, We Will

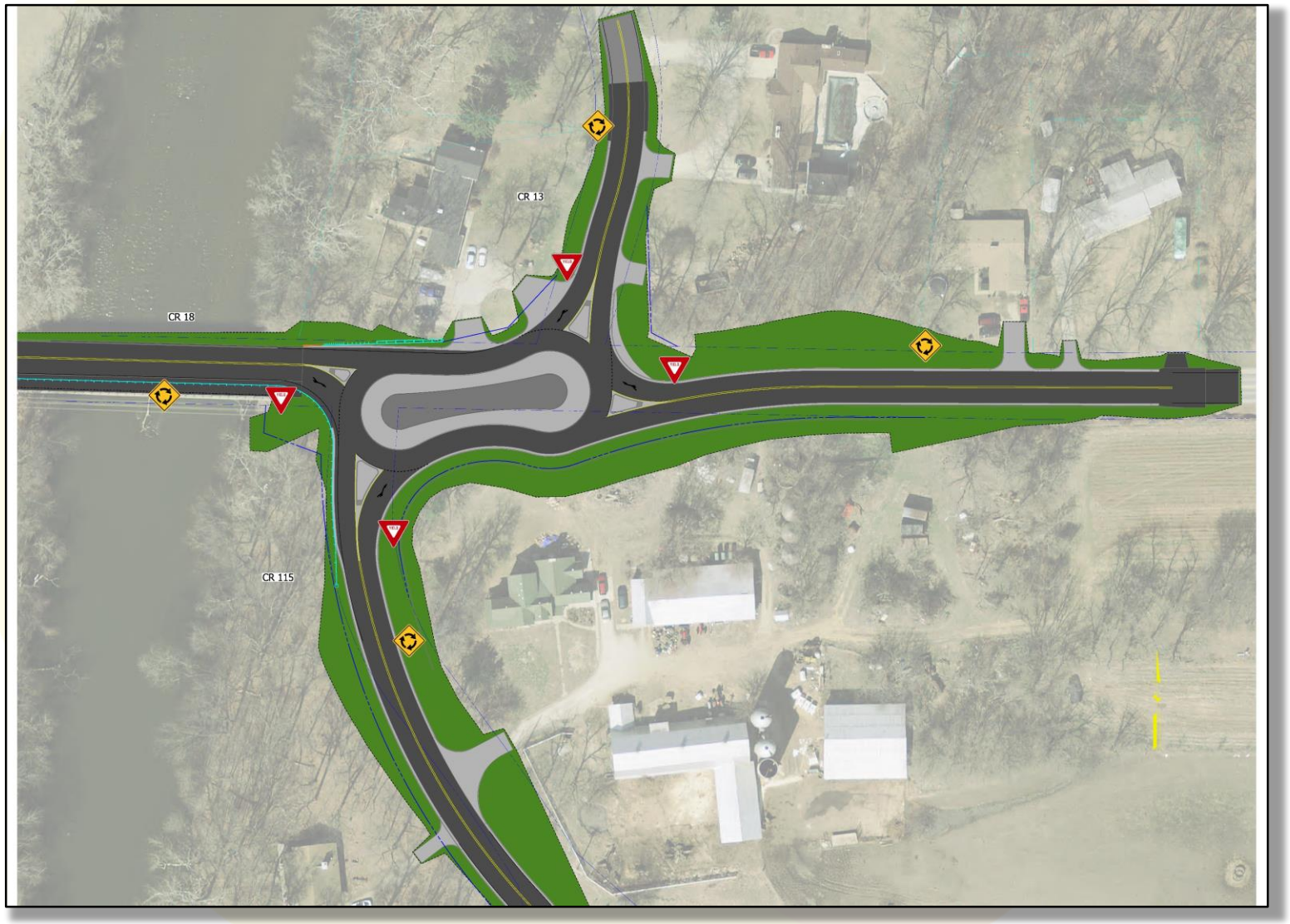
Analysis Considerations

- Sight Distance
  - Alternatives #1, 2, 5, & 6 do not correct the inadequate sight distances near the intersection due to significant grades
- Right-of-Way Acquisition
  - Alternatives #2 and #4 require significant acquisition, which increases project cost
- Traffic Patterns
  - Alternatives #1, 3, & 5 significantly alter existing traffic patterns by limiting CR 115 to RI/RO



troyer group
Together, We Will

Preferred Alternative – Peanut Roundabout



Peanut Roundabout

- Improves safety and capacity
- Allows for adequate sight distance
- Allows for all traffic movements
- Minimizes right-of-way acquisitions

troyer group
Together, We Will

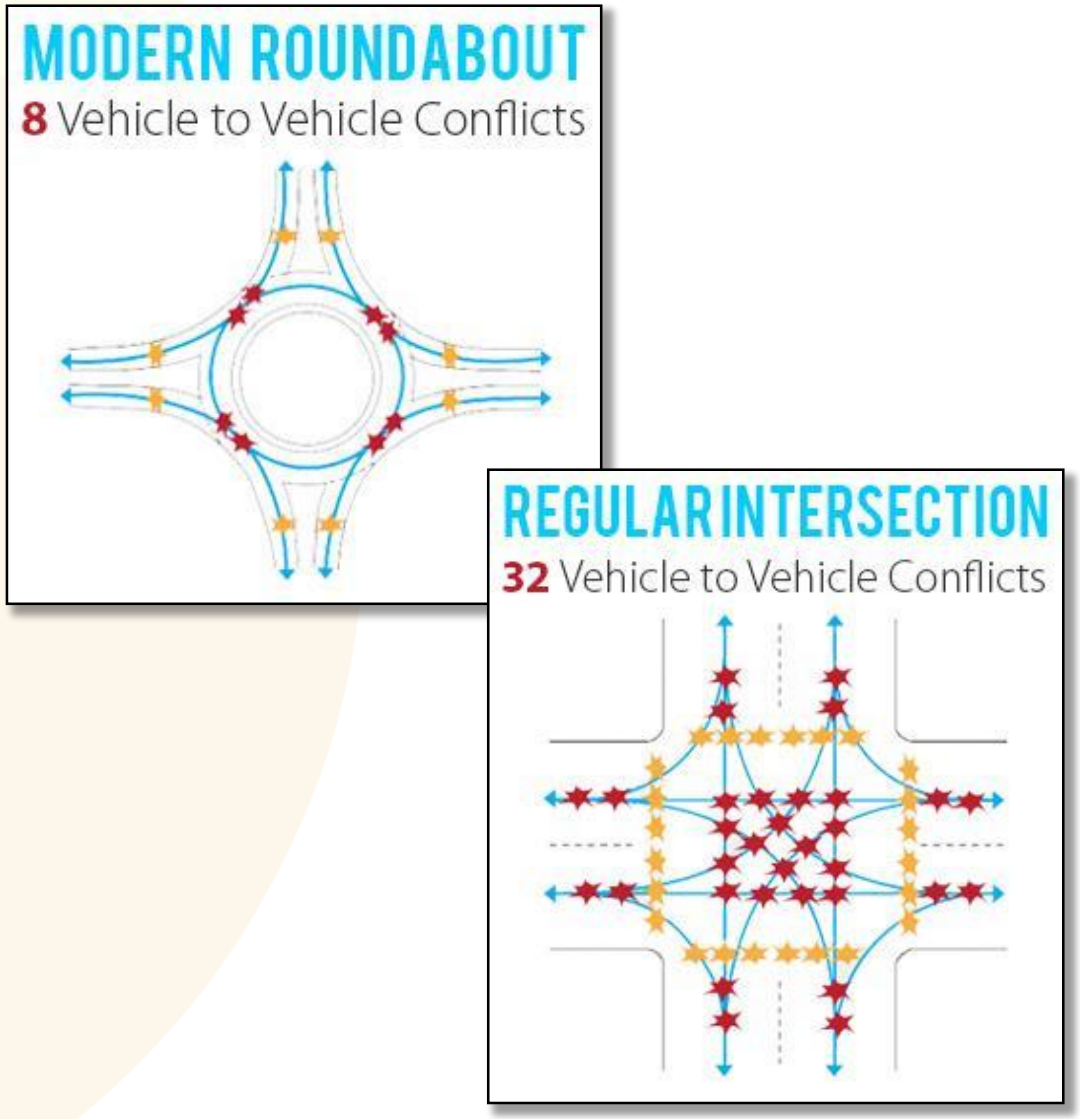
Roundabout Elements

- Meets purpose & need of project
- Enhances safety by:
  - Reducing the number of potential vehicle conflict points
  - Reduce the severity of traffic accidents
- Enhances operational efficiency at the intersection
- One-way circular intersection
- Traffic flows counter-clockwise around a center island
- Yield at entrance
- No Parking
- No “activity” in center island

Traditional Roundabout

Benefits of Roundabouts

- Enhances Safety
  - Roundabouts reduce the number of potential accident points within an intersection
  - 75% fewer conflict points than four-way intersections
  - Significantly reduces the potential for “head-on” and “T-bone” collisions
- Slower vehicle speeds
  - Reduces the severity of crashes
- Efficient traffic flow
  - Reduces need for turn lanes
  - Improves traffic flow
- Community benefits
  - Reduces congestion
  - Aesthetic landscaping



troyer group
Together, We Will

Roundabouts Enhance Safety

US DOT Federal Highway Administration Statistics

Traditional intersections account for:

- 45% of all crashes - *FHWA*
- 33% of all traffic fatalities - *FHWA*

Compared to traditional intersections roundabouts:

- Require vehicles to travel at lower speeds
- Reduce fatalities and injuries by 82% - *FHWA*
- Reduce total crashes by 44% - *FHWA*

For more information:
http://safety.fhwa.dot.gov/intersection/innovative/roundabouts/

Collisions at traditional intersections can be severe because of high speeds and acute angles of Impact.

troyer group
Together, We Will

Approaching the Roundabout (example)

troyer group
Together, We Will

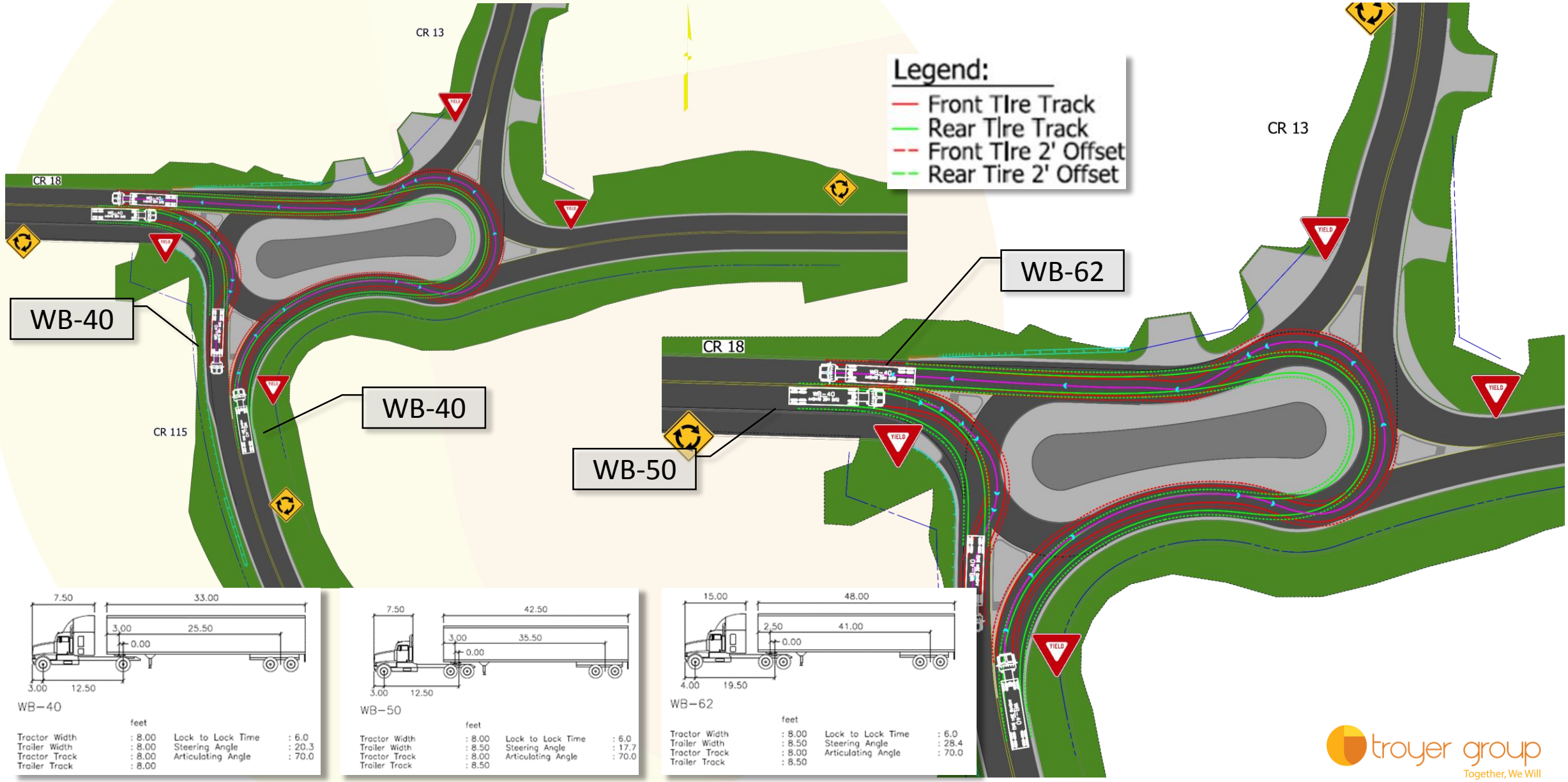
Approaching the Roundabout (example)

troyer group
Together, We Will

Approaching the Roundabout (example)

troyer group
Together, We Will

Tractor-Trailer Turning Movements



WB–40

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.00	Steering Angle	: 20.3
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.00		

WB–50

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 17.7
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.50		

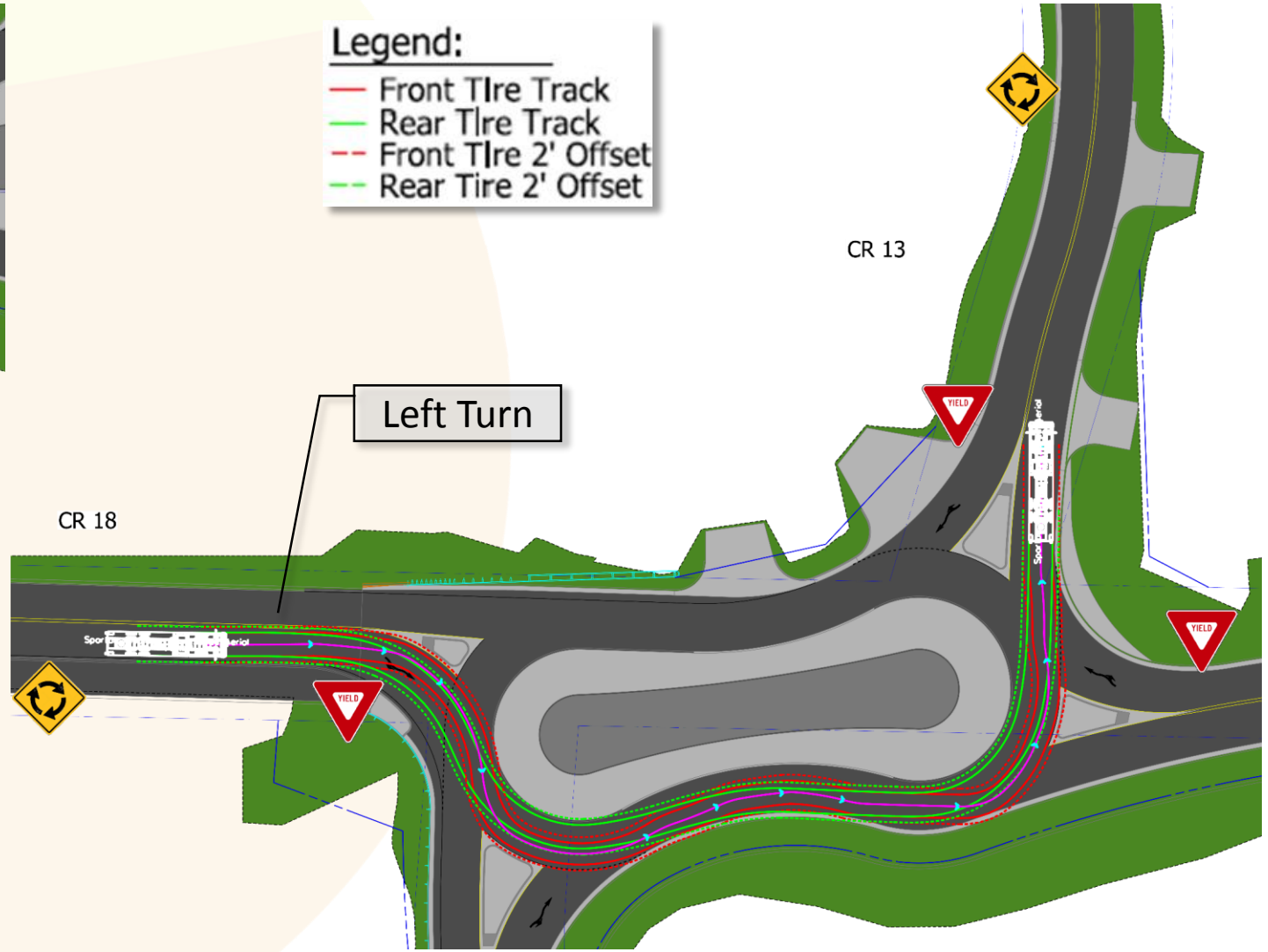
WB–62

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.50		

troyer group
Together, We Will

Fire Truck Turning Movements



Fire Truck

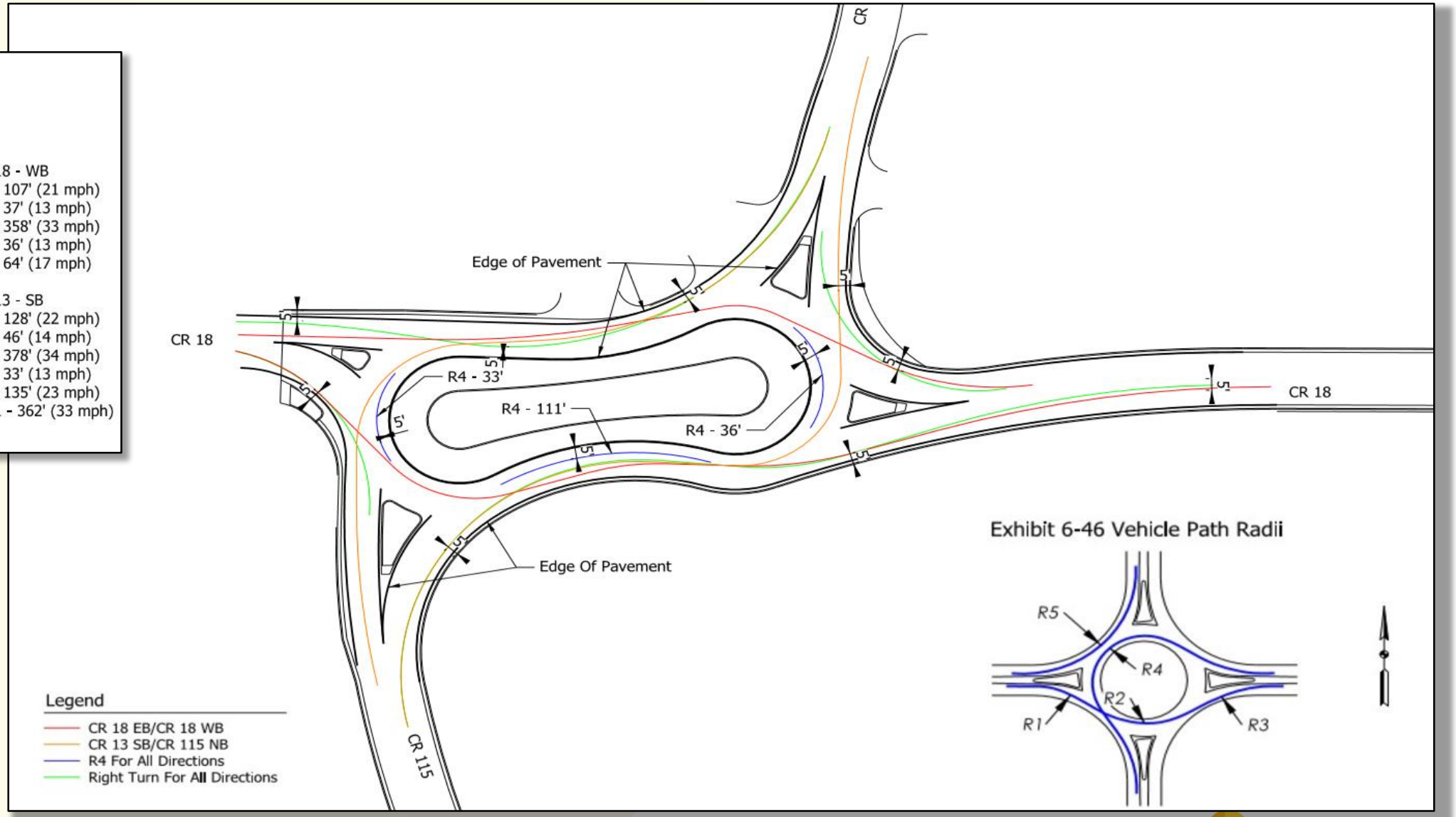
	feet
Width	: 8.25
Track	: 7.87
Lock to Lock Time	: 6.0
Steering Angle	: 46.3

troyer group
Together, We Will

Fastest Paths

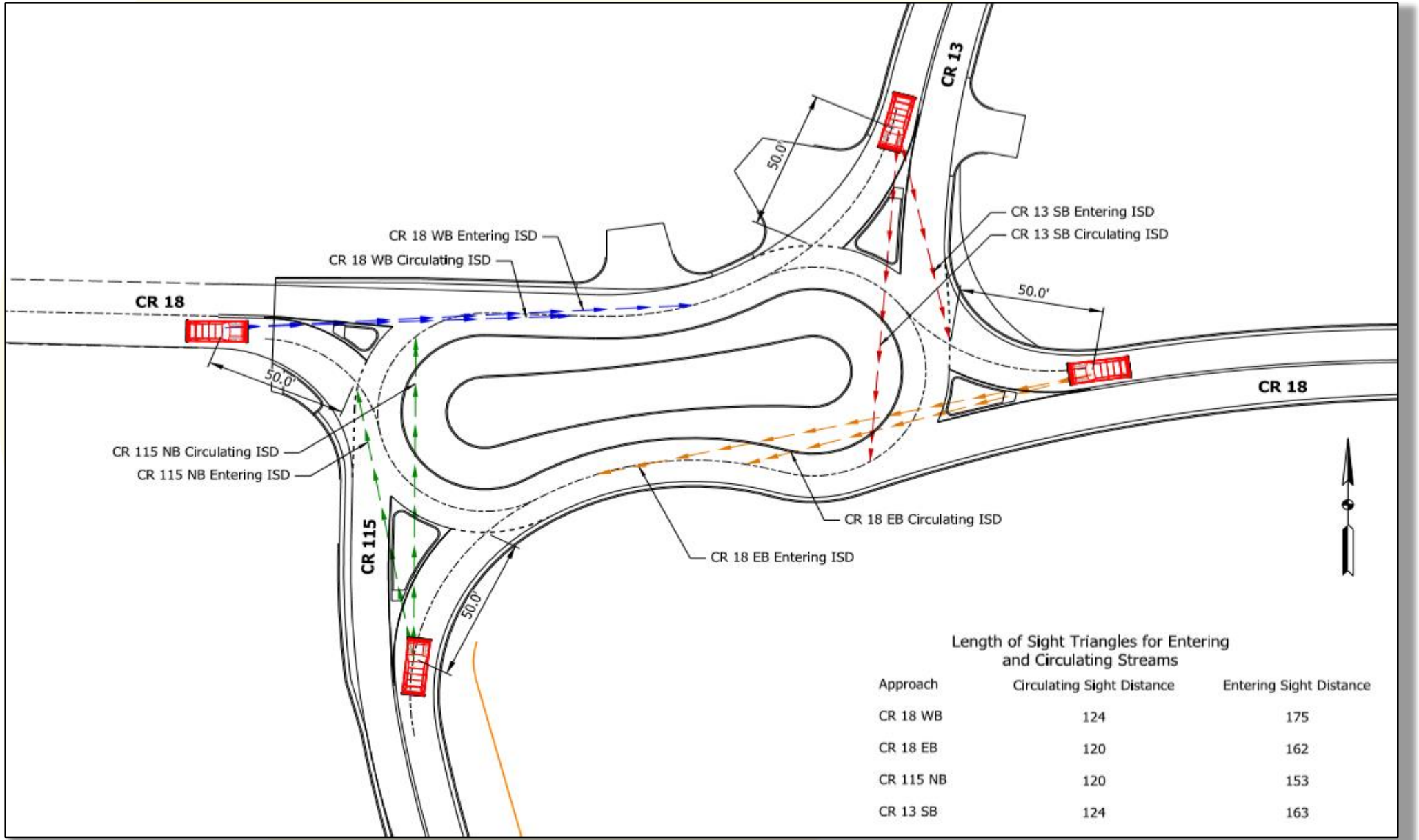
Vehicle Path Radii (Speed)
FHWA 6.7.1.2

CR 18 - EB	
R1 - 70' (18 mph)	
R2 - 46' (14 mph)	CR 18 - WB
R2-1 - 98' (19 mph)	R1 - 107' (21 mph)
R2-2 - 150' (22 mph)	R2 - 37' (13 mph)
R3 - 480' (37 mph)	R3 - 358' (33 mph)
R4 - 33' (13 mph)	R4 - 36' (13 mph)
R5 - 72' (18 mph)	R5 - 64' (17 mph)
CR 115 - NB	CR 13 - SB
R1 - 97' (20 mph)	R1 - 128' (22 mph)
R2 - 42' (14 mph)	R2 - 46' (14 mph)
R3 - 377' (34 mph)	R3 - 378' (34 mph)
R4 - 36' (13 mph)	R4 - 33' (13 mph)
R5 - 98' (20 mph)	R5 - 135' (23 mph)
R5-1 - 105' (21 mph)	R5-1 - 362' (33 mph)
R5-2 - 376' (34 mph)	



troyer group
Together, We Will

Sight Distance



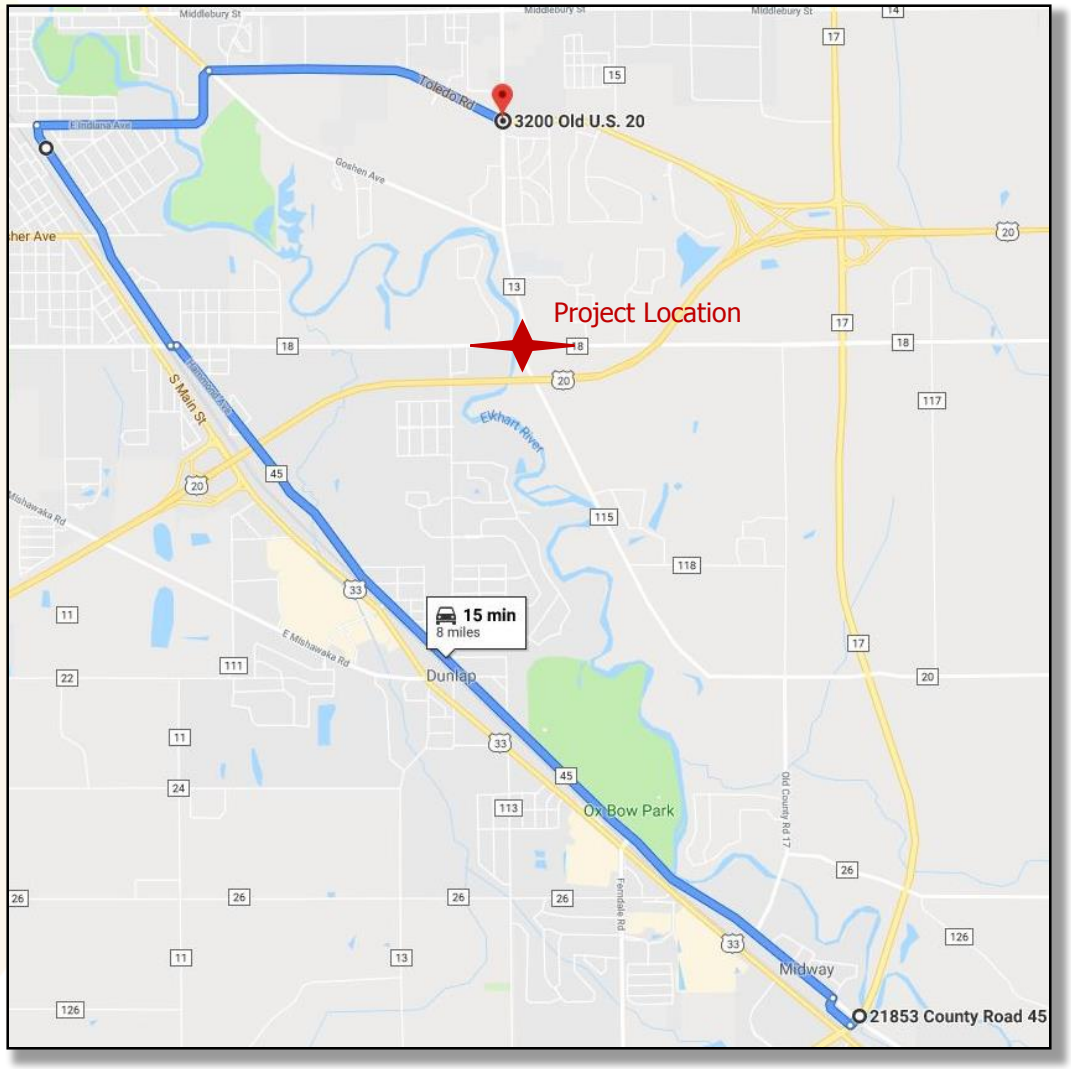
Length of Sight Triangles for Entering and Circulating Streams

Approach	Circulating Sight Distance	Entering Sight Distance
CR 18 WB	124	175
CR 18 EB	120	162
CR 115 NB	120	153
CR 13 SB	124	163

troyer group
Together, We Will

Maintenance of Traffic

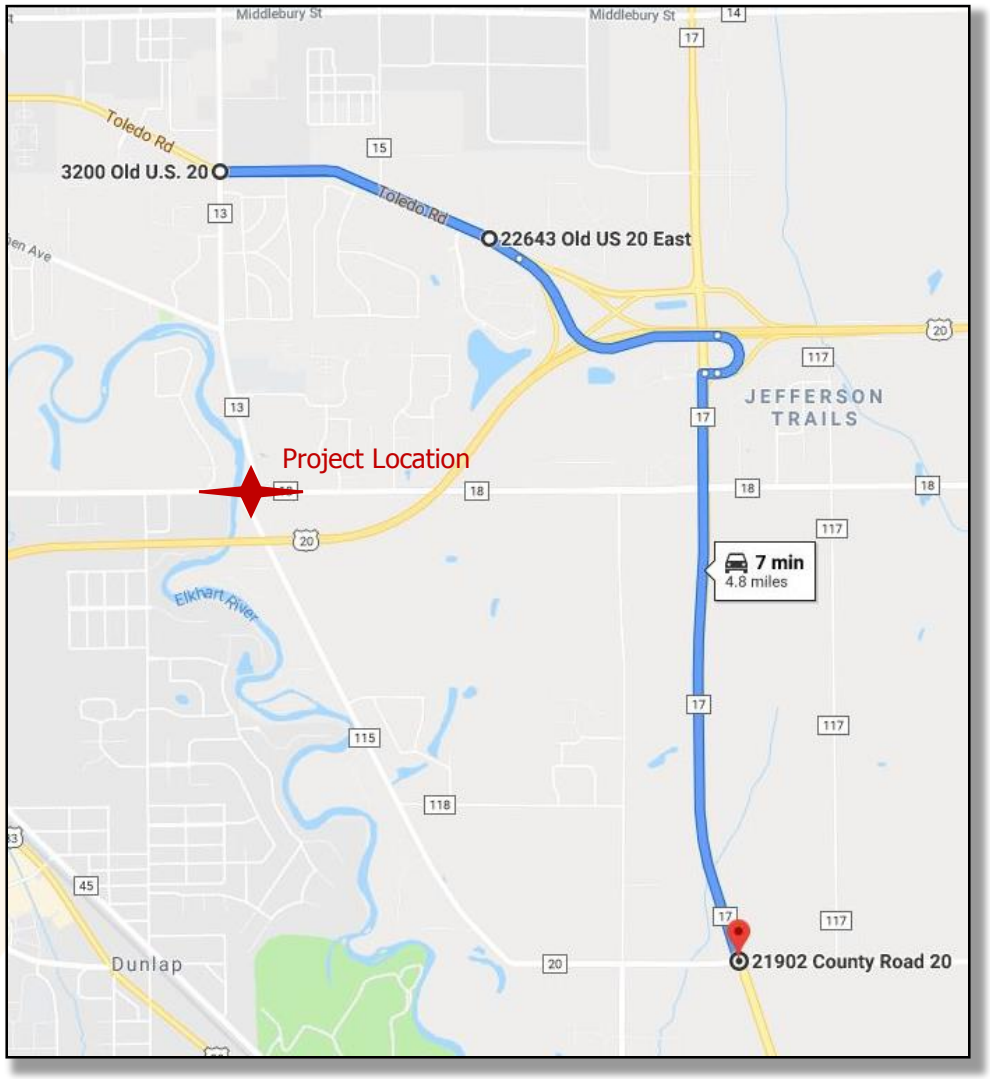
- Full Closure with Detour
  - Westbound CR 18 to Northbound CR 13
    - CR 18 to Sterling Ave to E Indiana Ave to Toledo Rd to CR 13
  - Westbound CR 18 to Southbound CR 115
    - CR 18 to Hammond Ave/CR 45 to CR 17
  - Westbound CR 18 through
    - Continue on Toledo Rd to CR 17 and head south to CR 18
    - Continue on CR 17 north to CR 18
    - Both detours are approximately 12 min or 7.5 miles



troyer group
Together, We Will

Maintenance of Traffic (cont.)

- Full Closure with Detour
  - Eastbound CR 18 to Northbound CR 13
    - CR 18 to CR 17 to Toledo Ave
  - Eastbound CR 18 to Southbound CR 115
    - CR 18 to CR 17
  - Eastbound CR 18 through
    - Continue on Toledo Rd to E Indiana Ave and then south on Sterling Ave
    - Continue on CR 17 to CR 45/Meridian Ave north
    - Both detours are approximately 12 min or 7.5 miles



troyer group
Together, We Will

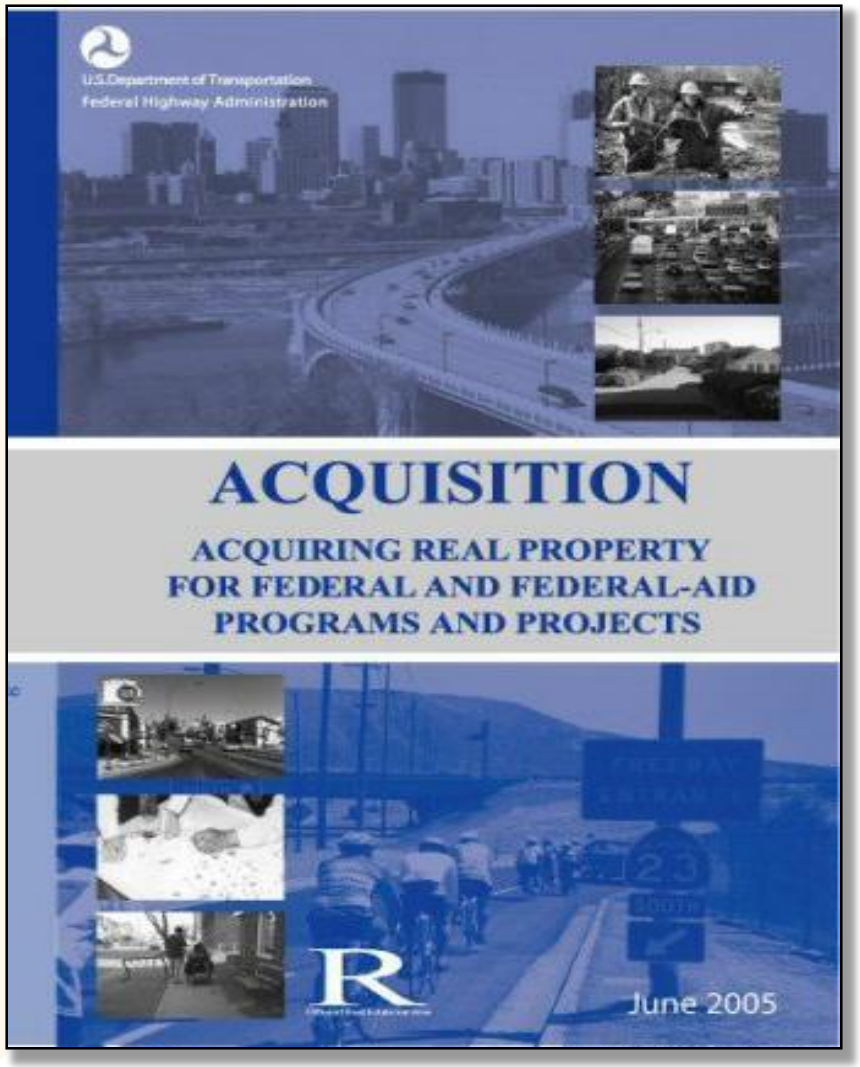
Project Schedule

- Public Information Meeting: September 12, 2019
- Public comments requested by COB 10/11/19
- Troyer Group review and consideration of comments – Winter 2019
  - Finalize environmental document
  - Finalize design
- Real estate acquisition phase – Spring 2020
- Construction: 2021

troyer group
Together, We Will

Real Estate Acquisition Process

- "Uniform Act of 1970"
  - All federal, state and local governments must comply
  - Requires an offer for just compensation
  - Project proposal requires acquisition from 6 parcels



Public Comment Session

- Please visit with County Troyer Group staff following the public comment session
- Project Open House
  - Project maps, displays, real estate acquisition table, project team, and informal Q & A

Thank You For Attending!