

# **Welcome**

## **to the US 24 & Judge Orr Road**

### **Intersection Improvements**

#### **Open House**



# Why US 24 & Judge Orr Road?



## Current & Future Congestion

Traffic at US 24 and Judge Orr Road is already pushing the operational limits of the intersection. This is anticipated to get worse as traffic continues to increase.



## Safety

Safety has been a frequent concern due to the growing traffic volumes, Blue Gill Drive access proximity, and frequent speeding in the area.



## Speed Management

Speeding along US 24 is a problem. One of the long-term goals of this project is to slow traffic through the Falcon area.



## Growth & Development

Growth is accelerating in the area. It is important that the roadway network is able to safely handle the extra traffic.



## Regional Planning

Based on regional planning analyses, the US 24 East corridor is anticipated to expand to two lanes in each direction at a future date to accommodate projected traffic volumes through Falcon.





# Traffic Operations Congestion

- Traffic volumes on US 24 and on Judge Orr Road are projected to nearly double by 2047

Existing and Future Average Daily Traffic (ADT)

Roadway	2024	2027 (Future Projection)
US 24	15,300	27,600
Judge Orr Road	4,100	7,100

- Congestion and delay at the traffic signal are projected to degrade significantly by 2047

Existing Traffic Condition

Peak Hour	Level of Service (LOS)	Average Delay (Sec/Vehicle)
Morning	LOS D	37.5
Evening	LOS D	38.4

Projected (2047) Traffic Condition

Peak Hour	Level of Service (LOS)	Average Delay (Sec/Vehicle)
Morning	LOS F	143.0
Evening	LOS F	103.7

## Improved Traffic Operations

A roundabout at US 24 & Judge Orr Road provides better projected traffic operations than an improved signalized intersection.

Improved Traffic Signal Operations - 2047

Peak Hour	Level of Service (LOS)	Average Delay (Sec/Vehicle)
Morning	LOS C	24.1
Evening	LOS C	27.0

Roundabout Operations - 2047

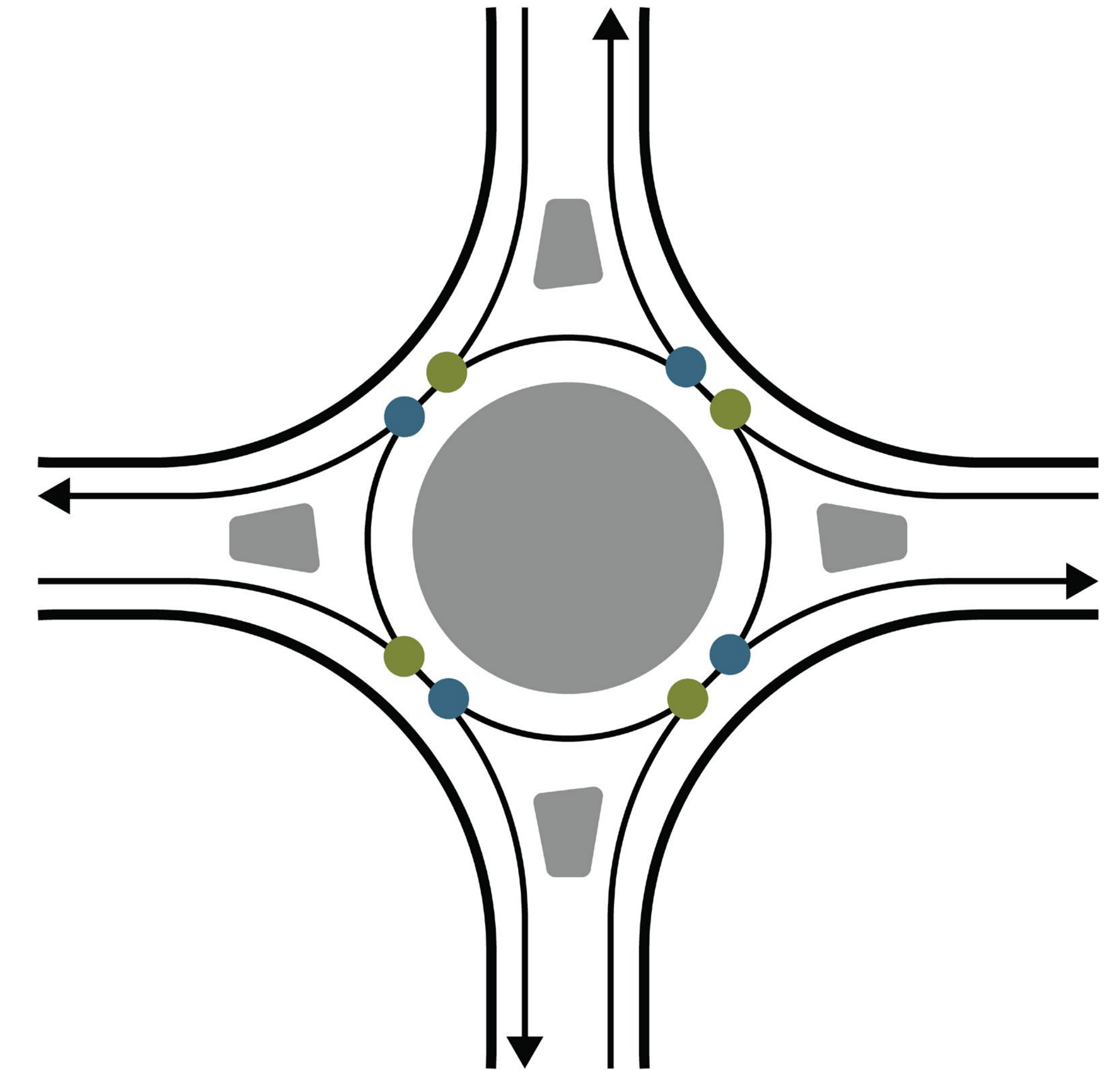
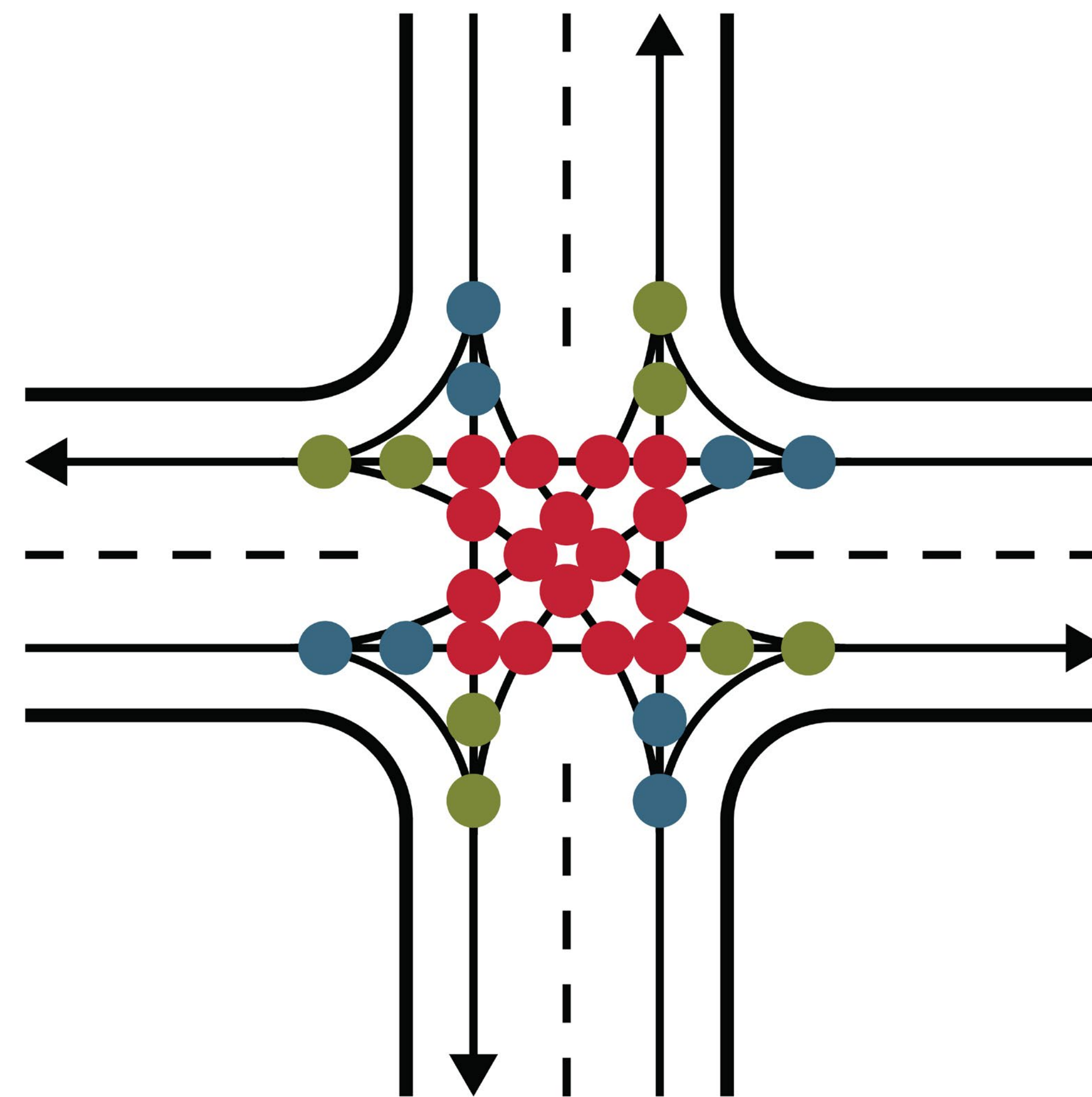
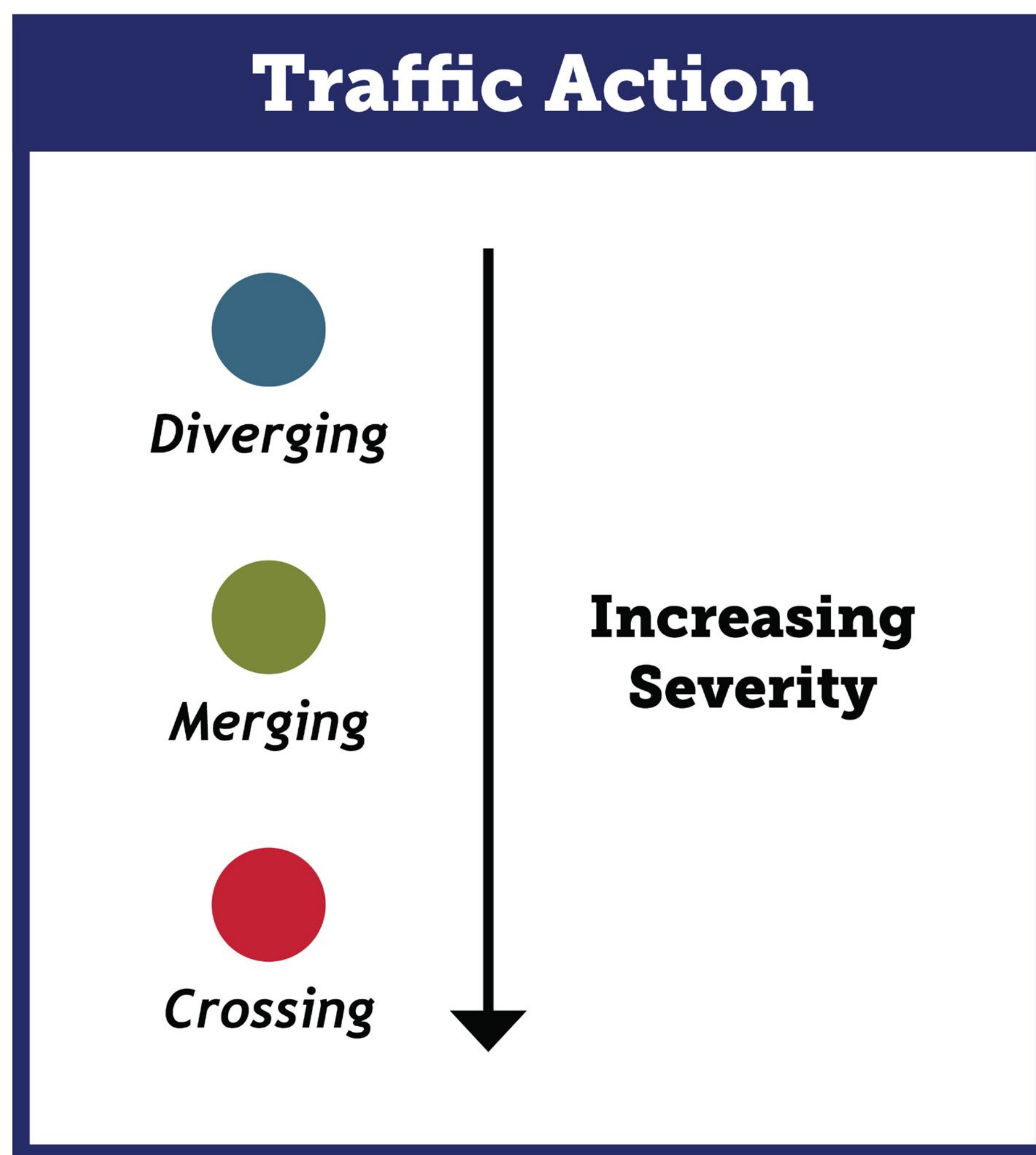
Peak Hour	Level of Service (LOS)	Average Delay (Sec/Vehicle)
Morning	LOS B	18.5
Evening	LOS C	25.1

NOTE: LOS is a term used to qualitatively describe the operating conditions of an intersection based on delay. The LOS is designated with a letter A to F with LOS A representing nearly free-flow travel and LOS F representing highly-congested conditions with intolerable delays and long queues



# Significantly Improved Safety

Safety on the highway system is paramount to CDOT given the increased number of fatal crashes over the last decade. Improved safety at roundabouts is related to reduced conflict points:



**FHWA research shows a 78% reduction in fatal and injury crashes with conversion of an intersection from a traffic signal to a roundabout**

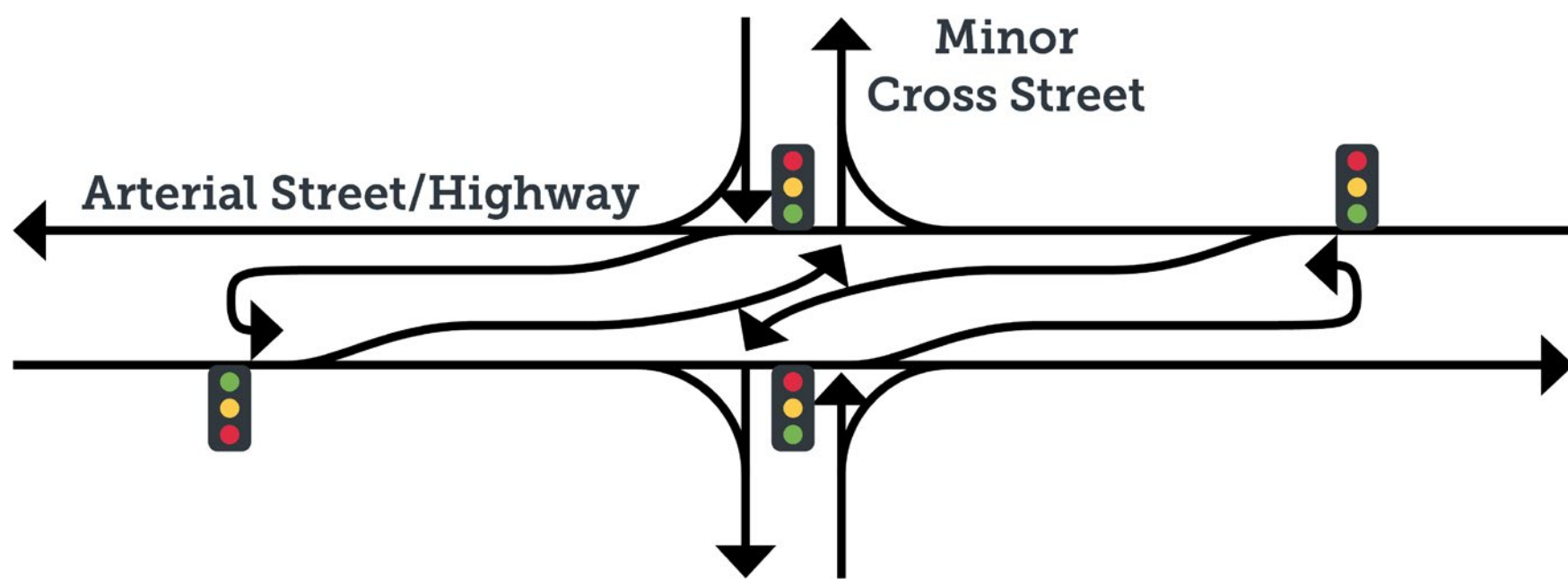




# Intersection Alternatives Evaluation

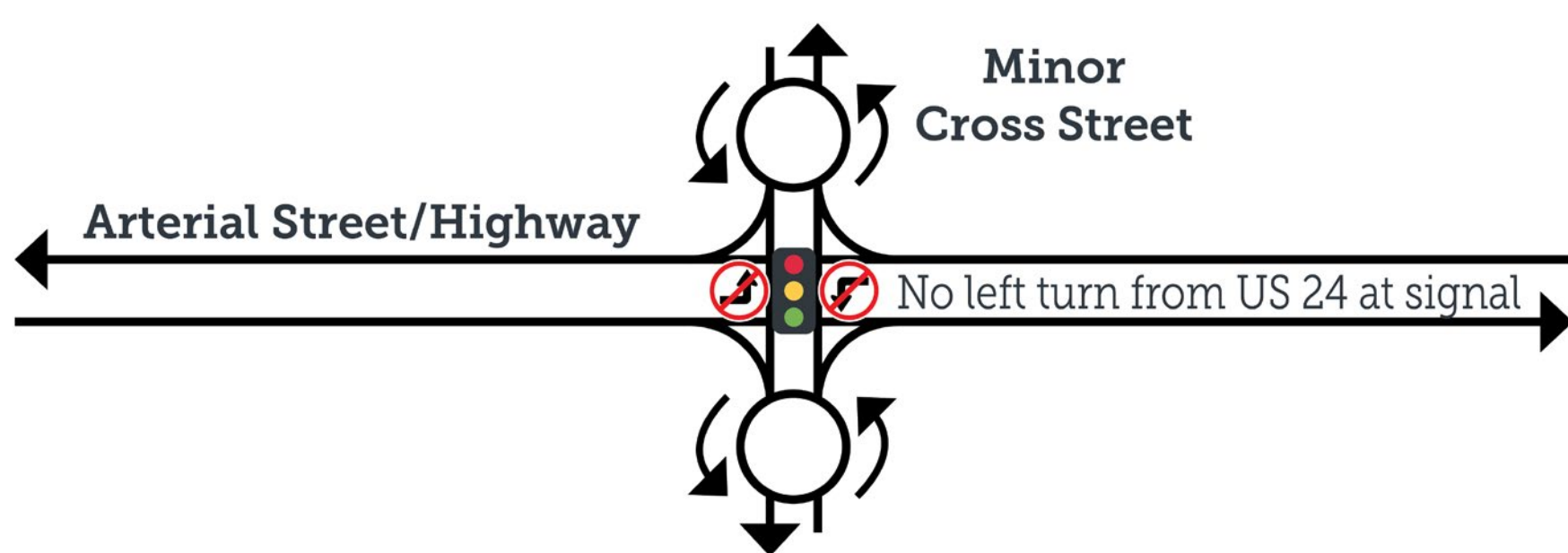
## Stage 1 Alternatives Explored but Eliminated

### Median U-Turn or Superstreet



Criteria	Pros	Cons
Property/ Right-of-Way Impacts		Significant right-of-way acquisition along US 24. Rock Island Trail and creek would be negatively impacted.
Judge Orr Connectivity		Lose Judge Orr as arterial connection
Speed Reduction		No speed reduction characteristics
Traffic Operations		Increase travel times for Judge Orr traffic

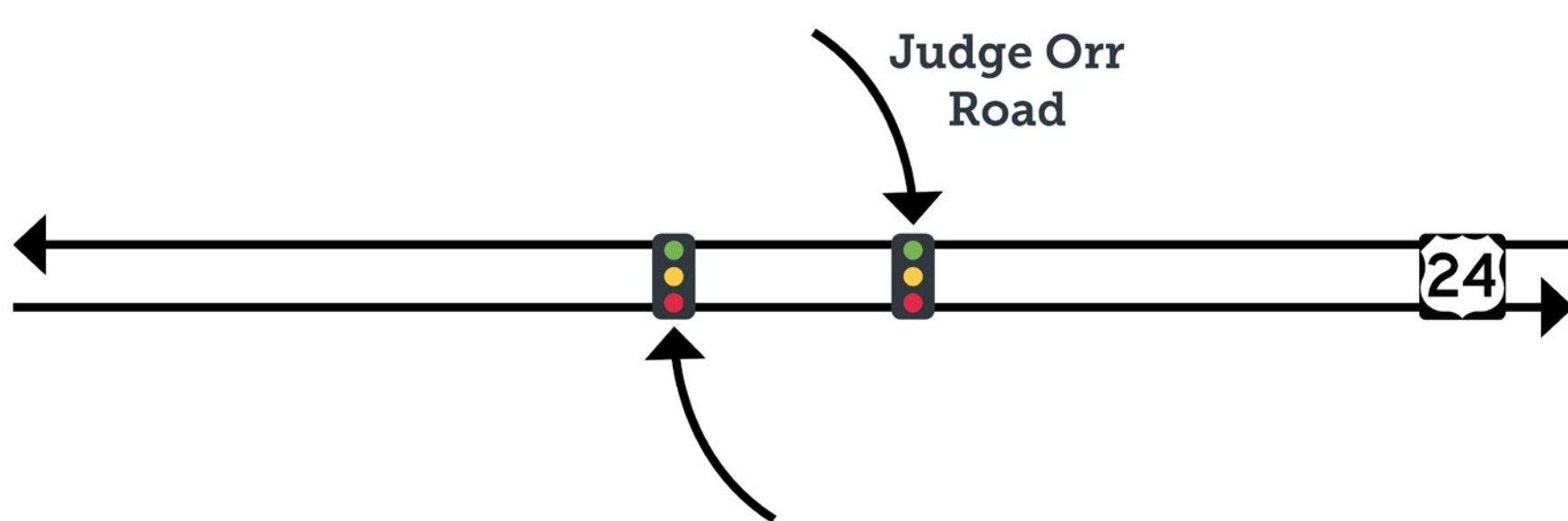
### Bow Tie



Criteria	Pros	Cons
Property/ Right-of-Way Impacts		Significant right-of-way acquisition; Construction in runway protection zone
Judge Orr Connectivity		Excessive travel times for Judge Orr traffic
Speed Reduction		No speed reduction characteristics

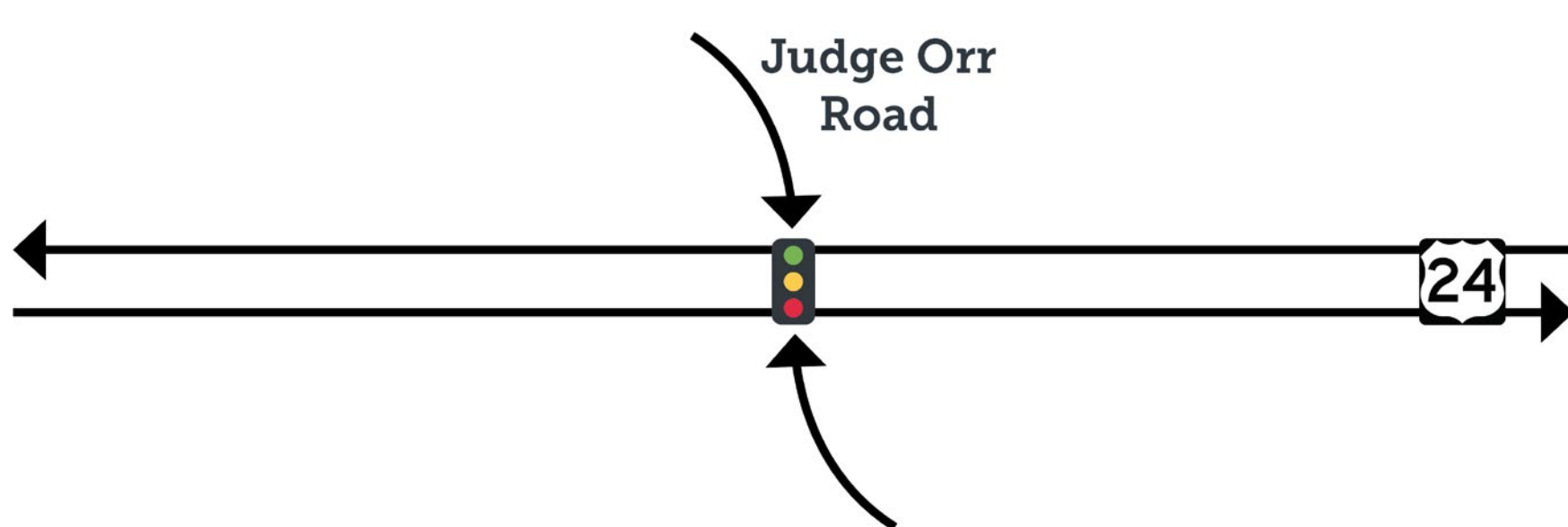
## Stage 2 Alternatives Explored

### Signalized Offset T



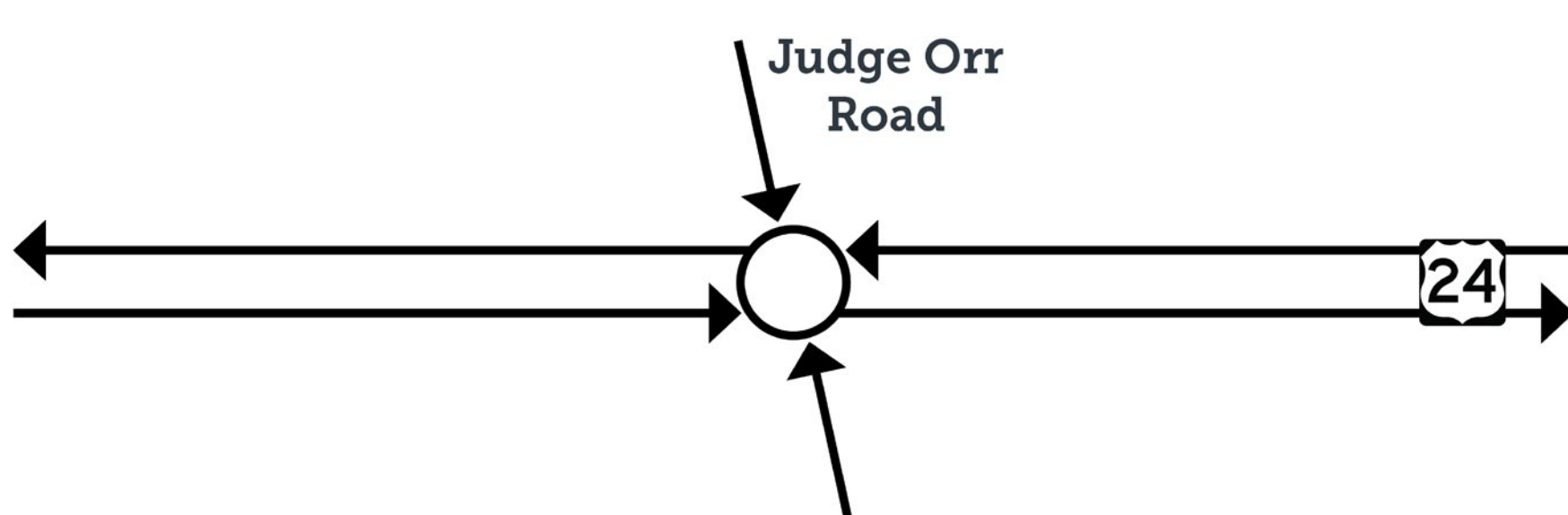
Criteria	Pros	Cons
Property/ Right-of-Way Impacts	Minor right-of-way acquisition	
Traffic Operations	AM Level of Service: C	
Safety		Conflict points: 18 total; angle crashes remain a high probability
Speed Reduction		No speed reduction characteristics
Cost		\$16.7 million - over budget

### Signalized with Skew Correction



Criteria	Pros	Cons
Property/ Right-of-Way Impacts		Significant right-of-way acquisition
Traffic Operations	AM Level of Service: C	
Safety		Conflict points: 24 total; angle crashes remain a high probability
Speed Reduction		No speed reduction characteristics
Cost	\$8.5 million - within budget	

### Roundabout



Criteria	Pros	Cons
Property/ Right-of-Way Impacts	Minor right-of-way acquisition	
Traffic Operations	AM Level of Service: B	
Safety	Conflict points: 12 total; 78% reduction in serious and fatal crashes	
Speed Reduction	Speed reduction on US 24 as traffic navigates roundabout	
Cost	\$9.5 million - within budget	



# Roundabouts & Rural Highways

63 crashes at intersection



**Crash Data  
2020-2025**



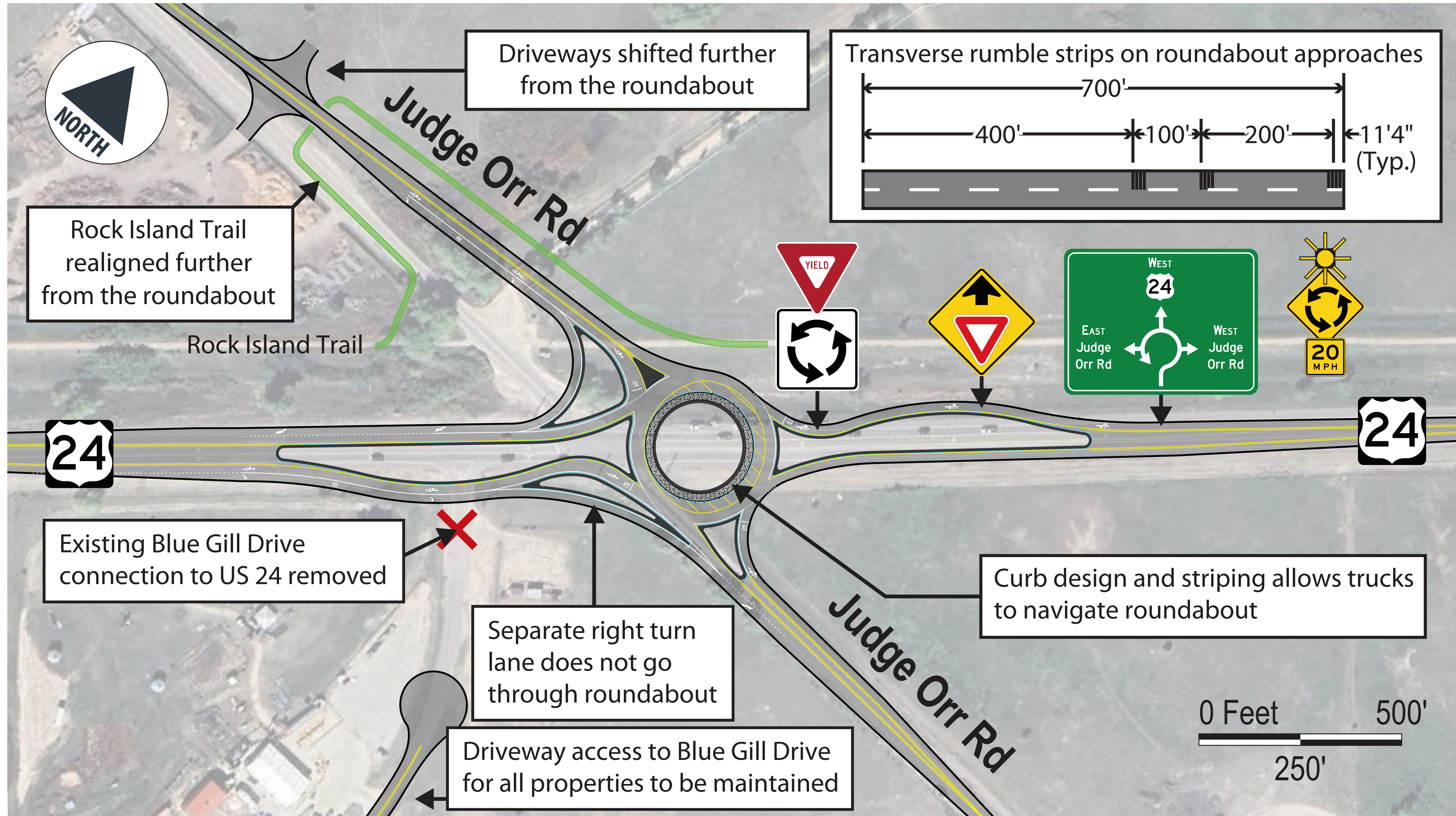
27 injury crashes  
(43% total)

Common Problems/Concerns	Why Consider a Roundabout	Real World Results
Crashes at rural intersections often involve high speeds, which tend to result in severe injuries or fatalities. Roughly 1/3 of annual intersection fatalities in the U.S. occur along rural, two-lane highways.	Roundabouts are geometrically designed for drivers to negotiate the intersection at speeds in the range of 15-25 mph, regardless of the posted speed limits on approaches.	Roundabouts constructed at intersections along high-speed, two-lane rural highways reduced overall crashes by up to 68% and reduced injury crashes by up to 88%.
For a driver turning left across oncoming traffic, it can sometimes be difficult to judge the speed of the approaching vehicle, resulting in misjudged gaps, and potentially severe crashes.	With roundabouts, there is no need to make a turn across opposing traffic. Entering vehicles yield to traffic already in the circle, and proceed when there is a safe gap.	There were 11 fatal crashes in the 5 year "before" period and ZERO fatal crashes in the 5 year "after" period at 19 roundabouts constructed along high-speed, two-lane rural highways in six different states (KS, MD, MN, OR, WI, and WA).
It doesn't seem like people would slow down for a roundabout along rural highways. Motorists will just drive into or over the roundabout because they won't be able to slow down in time.	High-speed approaches to roundabouts include advance signing, pavement marking and raised channelization. With proper design, drivers adjust their speeds, slow on approach, and navigate the roundabout safely.	Researchers compared traffic speeds of approaches to roundabouts and stop-controlled intersections. At 100 feet before the yield or stop lines, the speed of traffic at the roundabouts was 2.5 mph lower than at the stop-controlled locations.
Why build something "different", when all that is needed is a traffic signal?	Improvements like signals, while very familiar, aren't always the safest choice. With intersections representing about one-quarter of annual U.S. traffic fatalities and roughly half of all injury crashes, safer designs are needed that improve mobility while saving lives.	Since the late 1990s, an ever growing number of State DOTs and local road agencies are finding that roundabouts work in their jurisdictions. Their potential for saving lives is too significant to ignore.





# US 24 & Judge Orr Road Roundabout





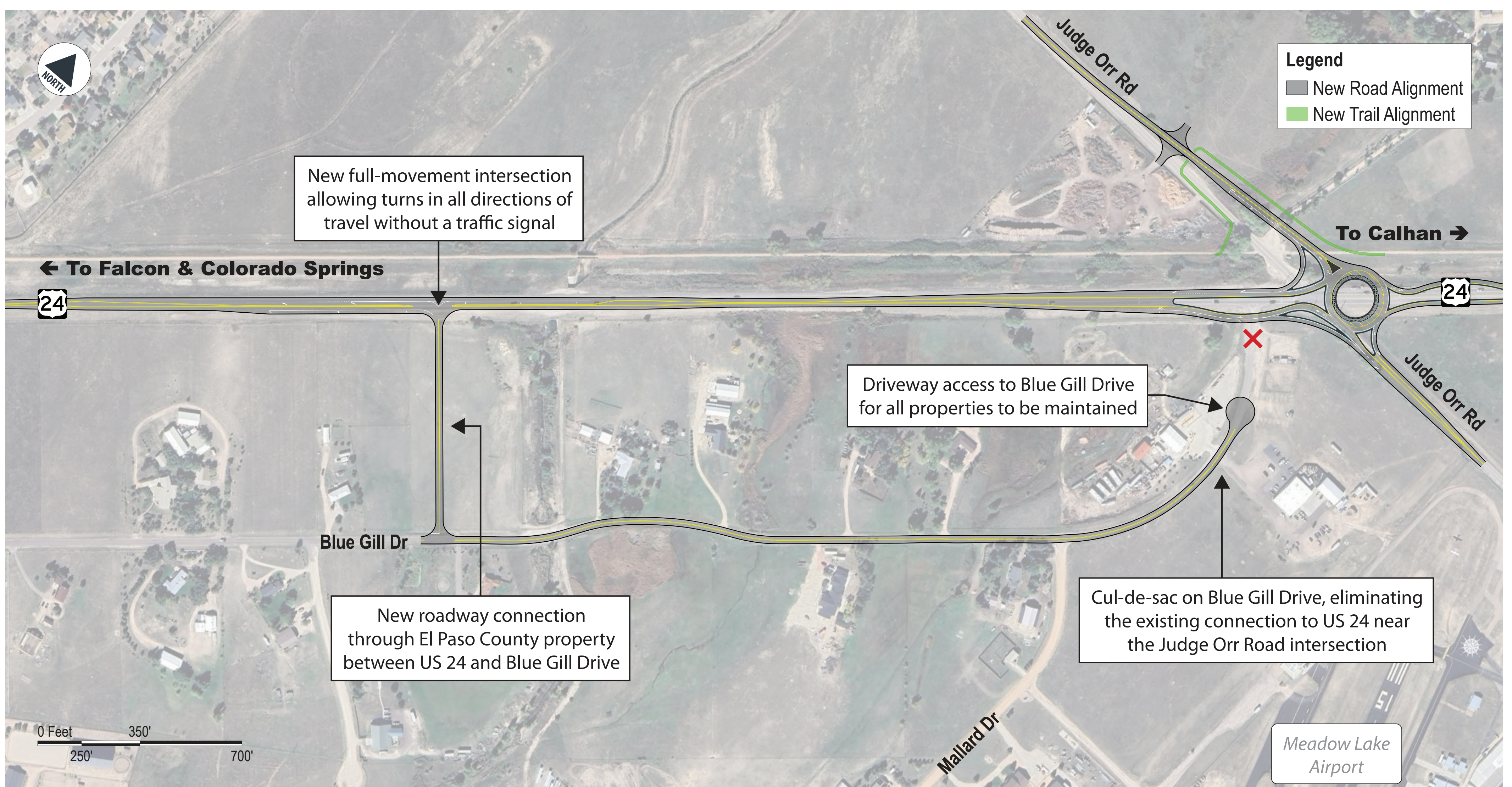
# Access Relocation

## US 24 Access Control

- Blue Gill Drive access location less than 200 feet from Judge Orr Road does not meet access control requirements and creates safety issues
- Existing delineator posts preventing drivers from turning left onto US 24 are only short-term solution

## New Blue Gill Road Access

- Located 1/2 mile southwest of US 24 & Judge Orr Road roundabout
- Maintains all existing property access to Blue Gill Road
- Uses parcel owned by El Paso County
- New Blue Gill Road access to Judge Orr Road was studied but eliminated
  - Safety concerns
  - Conflict with Meadows Lake Airport Runway Protection Zone (RPZ)



# Next Steps / Schedule

## Design

## Construction

