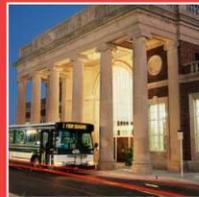
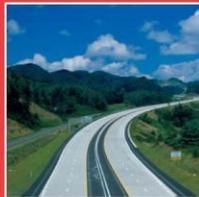




# UNION CROSS ROAD

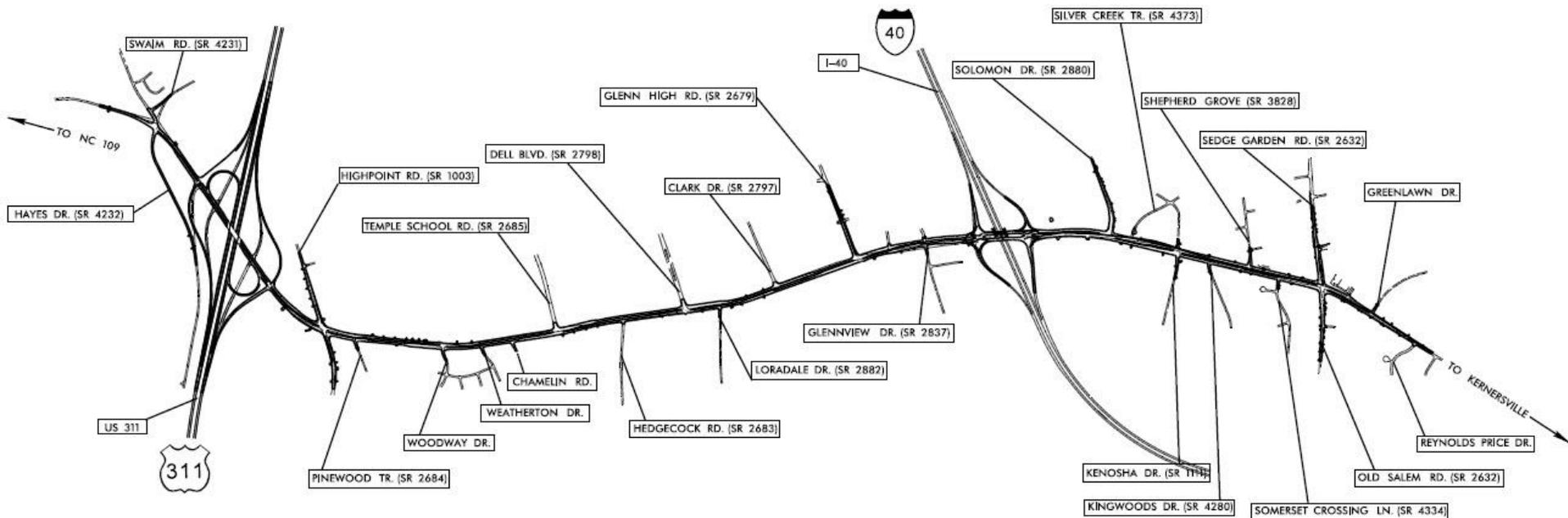
## WIDENING PROJECT

Citizens Project Update Meeting



## UNION CROSS ROAD

# PROJECT OVERVIEW





## UNION CROSS ROAD

# GENERAL PROJECT INFORMATION

Start Date: April 16, 2012

Completion Date: November 1, 2015

Location: Union Cross Road from U.S. 311 to Sedge Garden Road

Length: 4.2 Miles

Type of Work: Widening work, which involves grading, drainage, paving, signals, and structures

Cost: \$30.3 Million

Contractor: LARCO Construction (A Division of Branscome Inc.)

NCDOT Resident Engineer: Wright Archer, P.E.

NCDOT Assistant Resident Engineer: Joseph Thomas

NCDOT Project Inspector: James Meachum



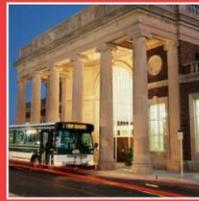


## UNION CROSS ROAD

# CONSTRUCTION DETAILS

- **200,000 Tons of Asphalt**
  - **11,000 Dump trucks of Asphalt**
- **7,800 Cubic Yards of Concrete**
  - **Enough concrete for 6 Radar Bases**
- **210 Tons of Steel**
  - **The weight of 150 cars**
- **290,000 Cubic Yards of Earth Work**
  - **Completely fill 3 Wal-Mart's full of dirt**



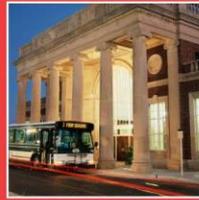
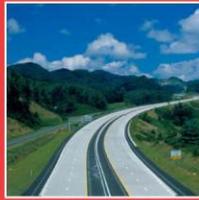


## UNION CROSS ROAD

# SCOPE OF WORK

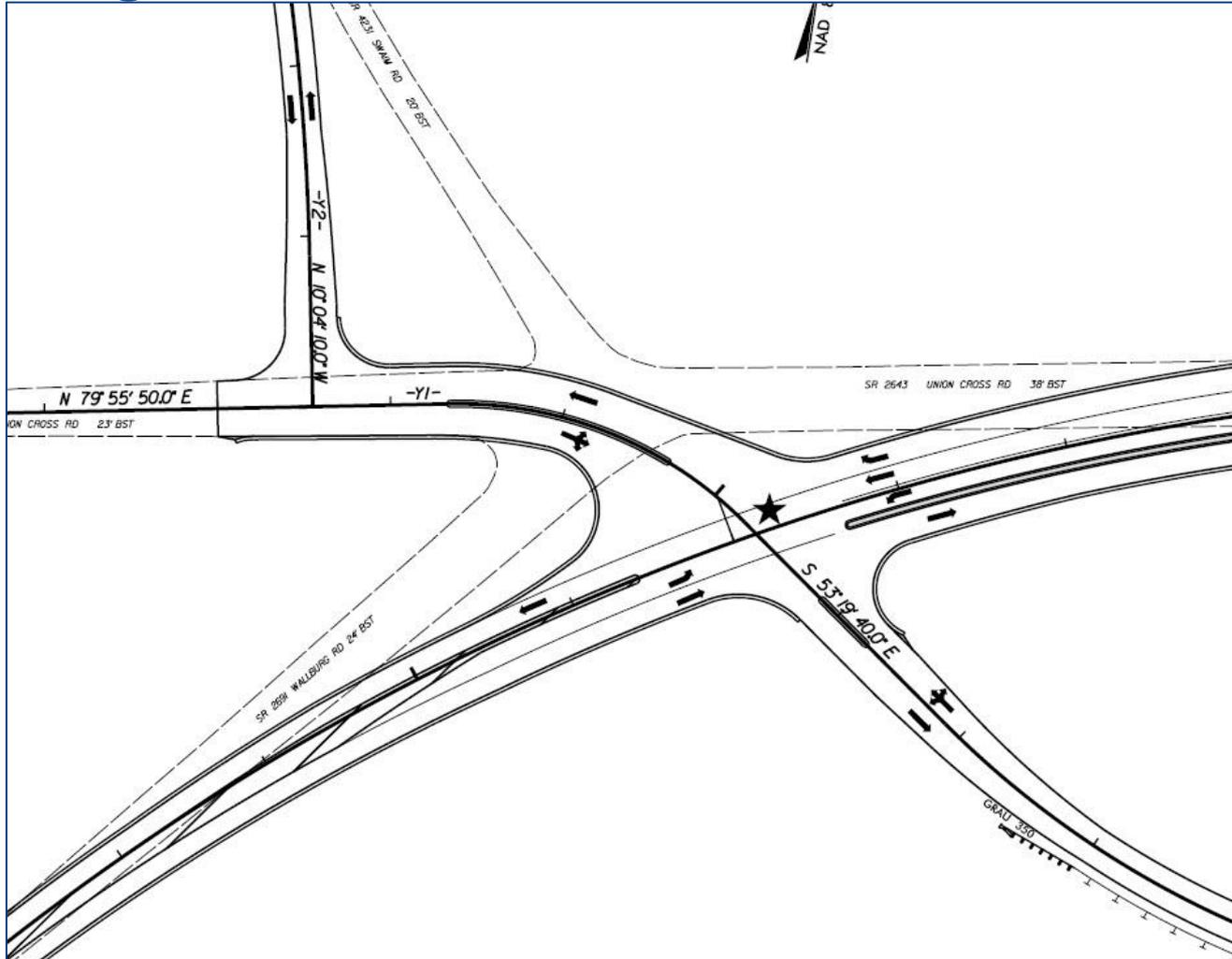
- Multi-lane roadway from U.S. 311 to Sedge Garden Road
- Sidewalk throughout entire project
- Concrete or grass islands in median of Union Cross Road
- New signals and signs
- New Intersections and Interchanges
  - Wallburg Road Intersection
  - High Point Road Intersection
  - Glenn High Road Intersection
  - Solomon Drive
  - Sedge Garden Road / Old Salem Road
  - U.S. 311 and I-40





UNION CROSS ROAD

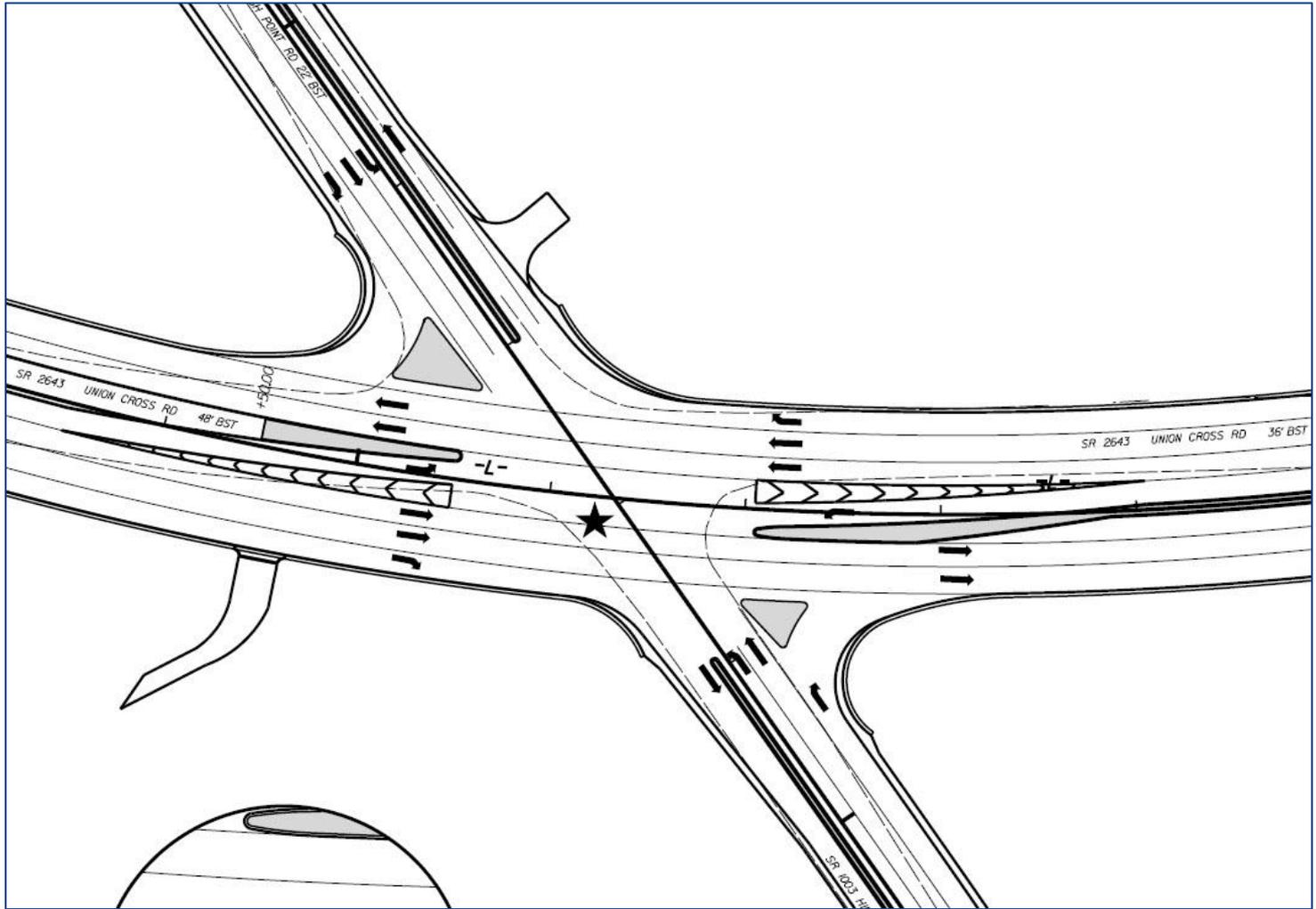
# Wallburg Rd. / Union Cross Rd. Intersection





UNION CROSS ROAD

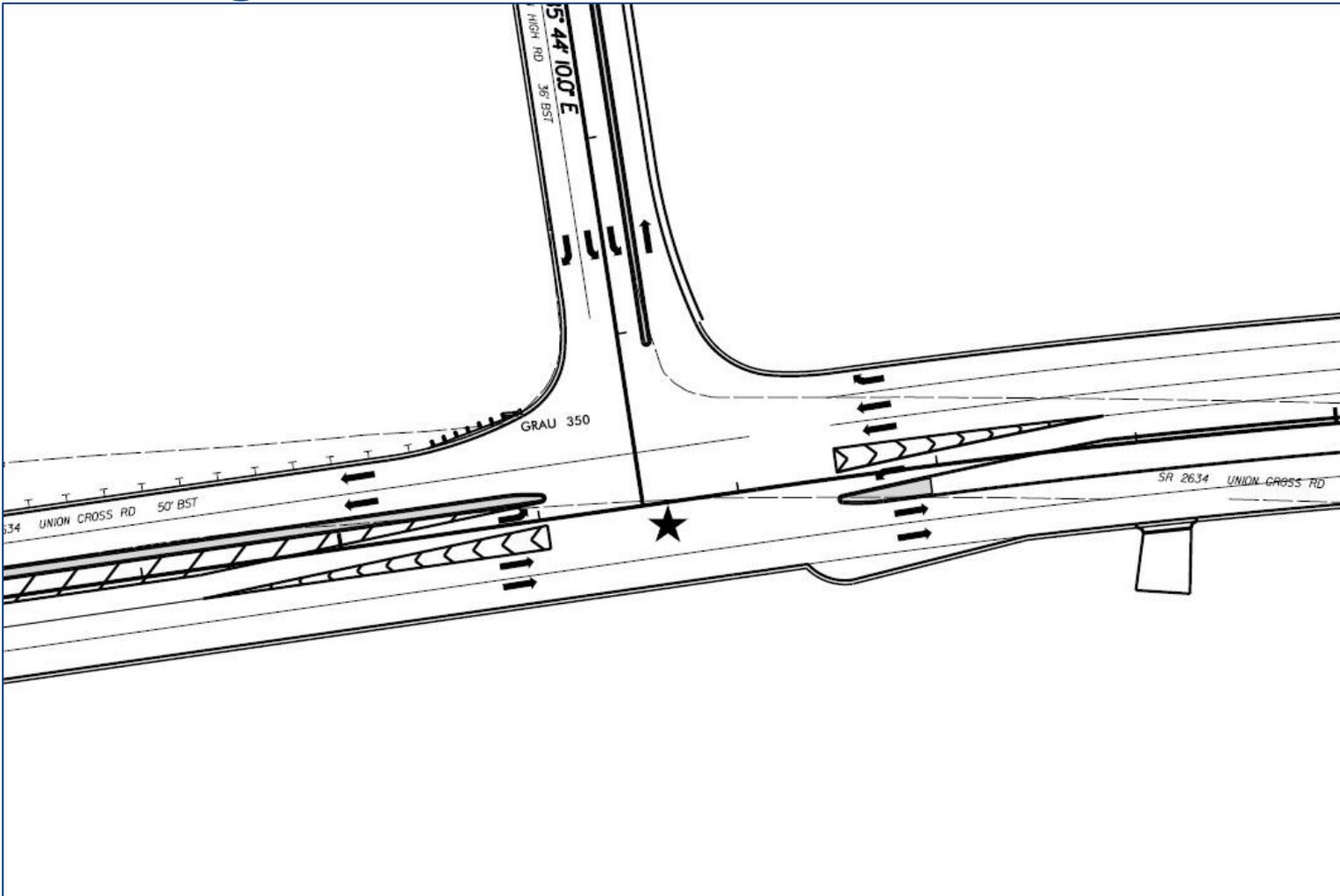
# High Point Rd. / Union Cross Rd. Intersection





UNION CROSS ROAD

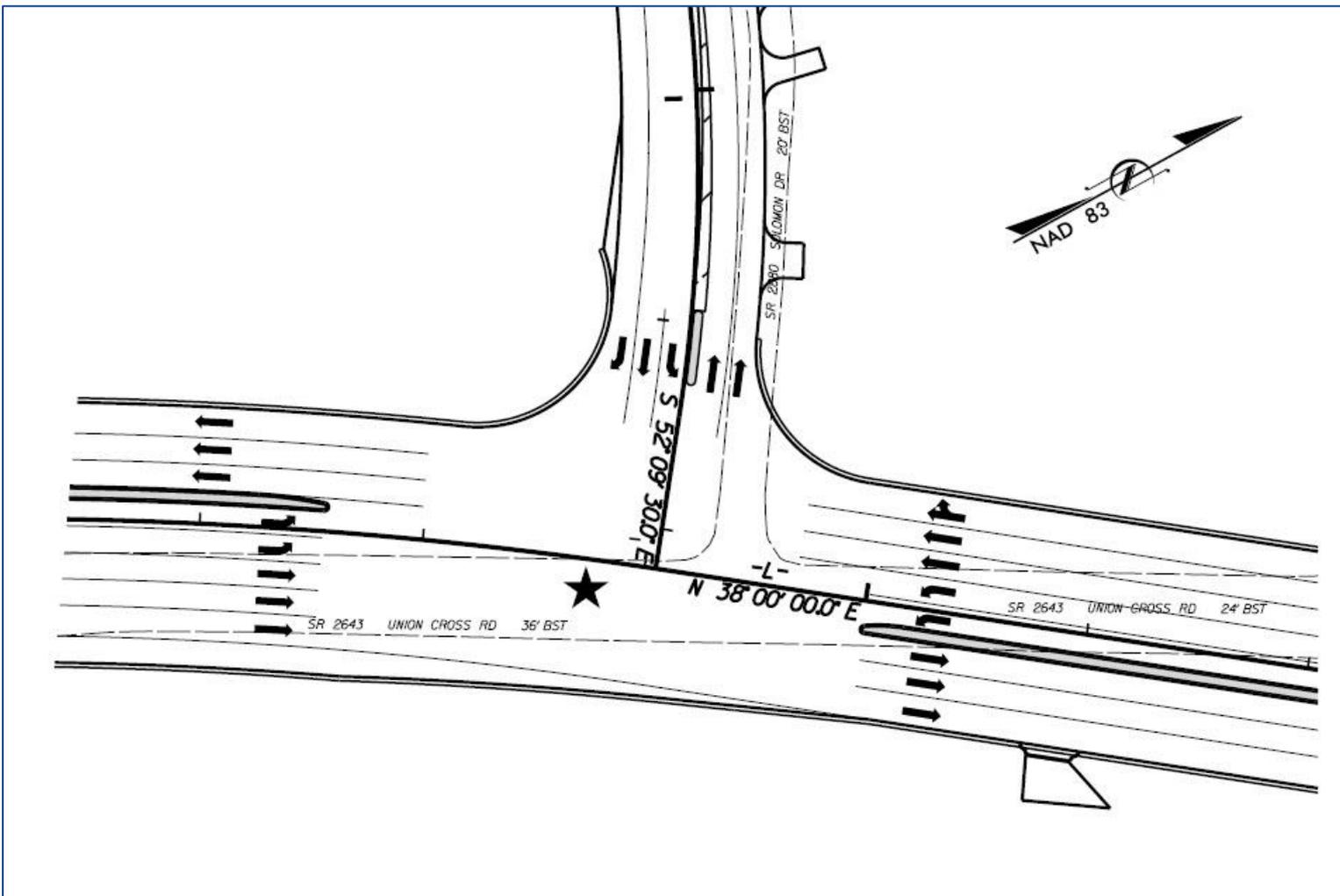
# Glenn High Rd. / Union Cross Rd. Intersection





UNION CROSS ROAD

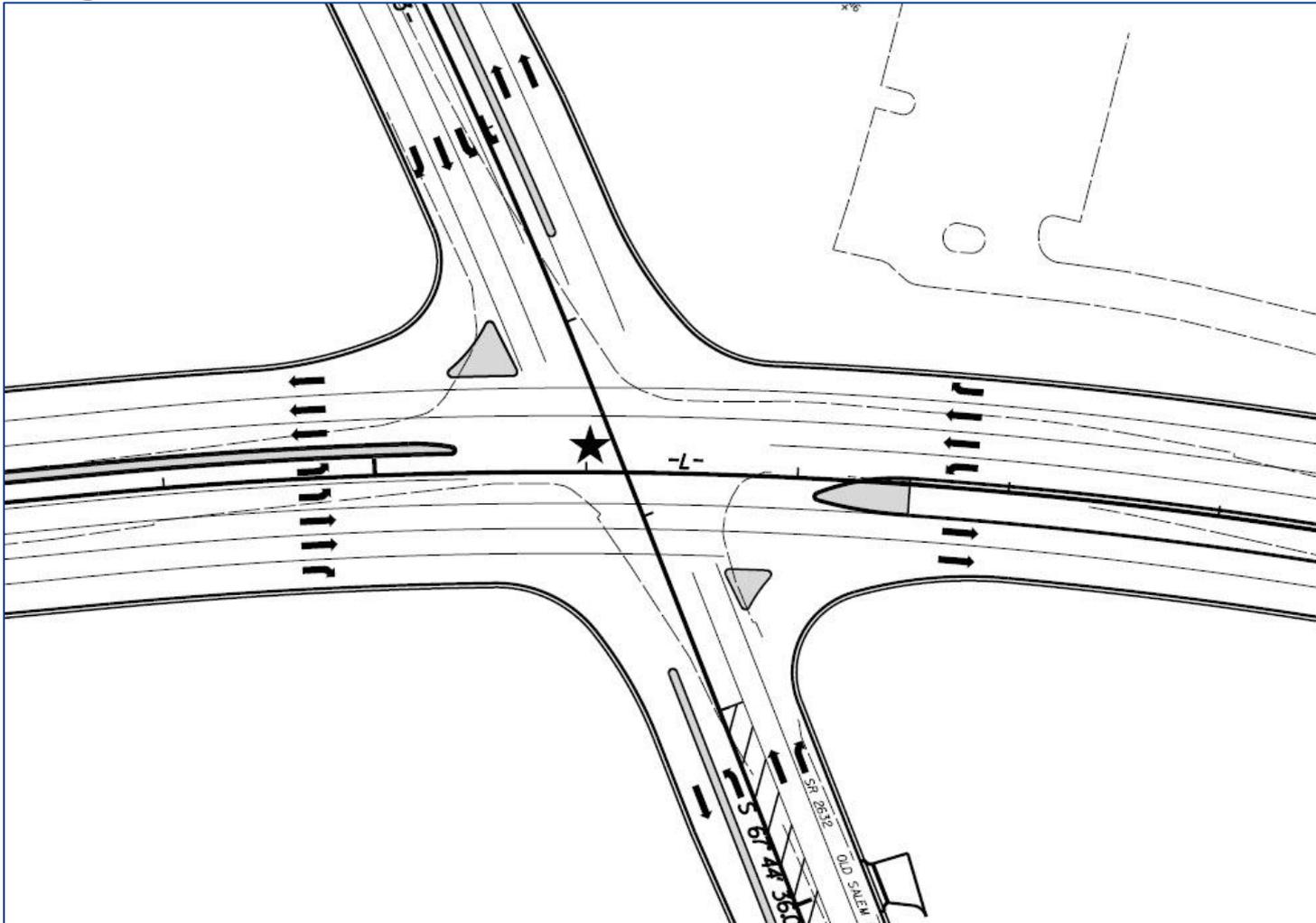
# Solomon Dr. / Union Cross Rd. intersection





UNION CROSS ROAD

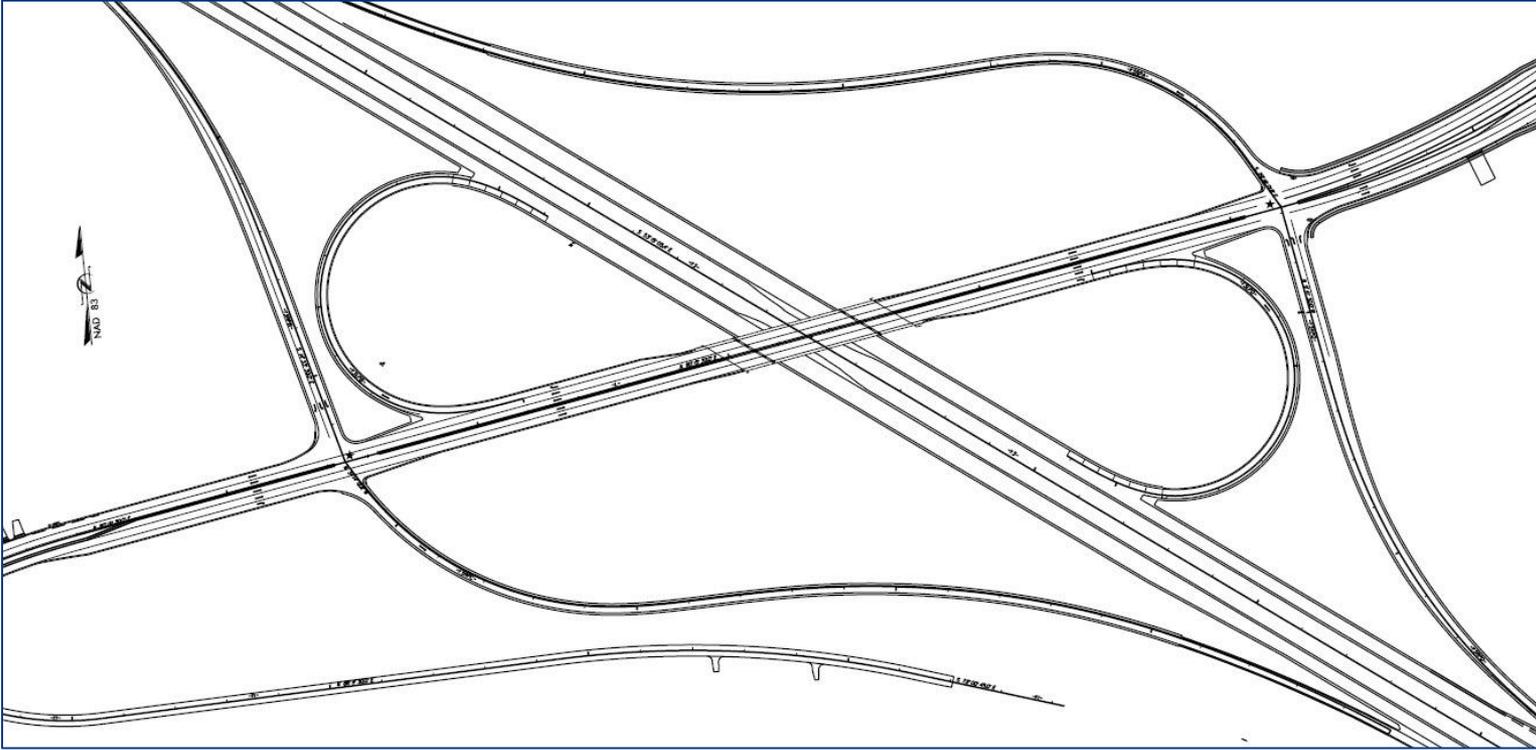
# Sedge Garden Rd. / Union Cross Rd. Intersection

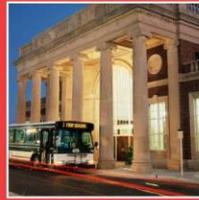
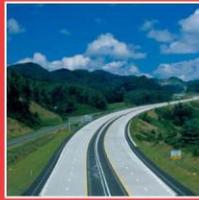




UNION CROSS ROAD

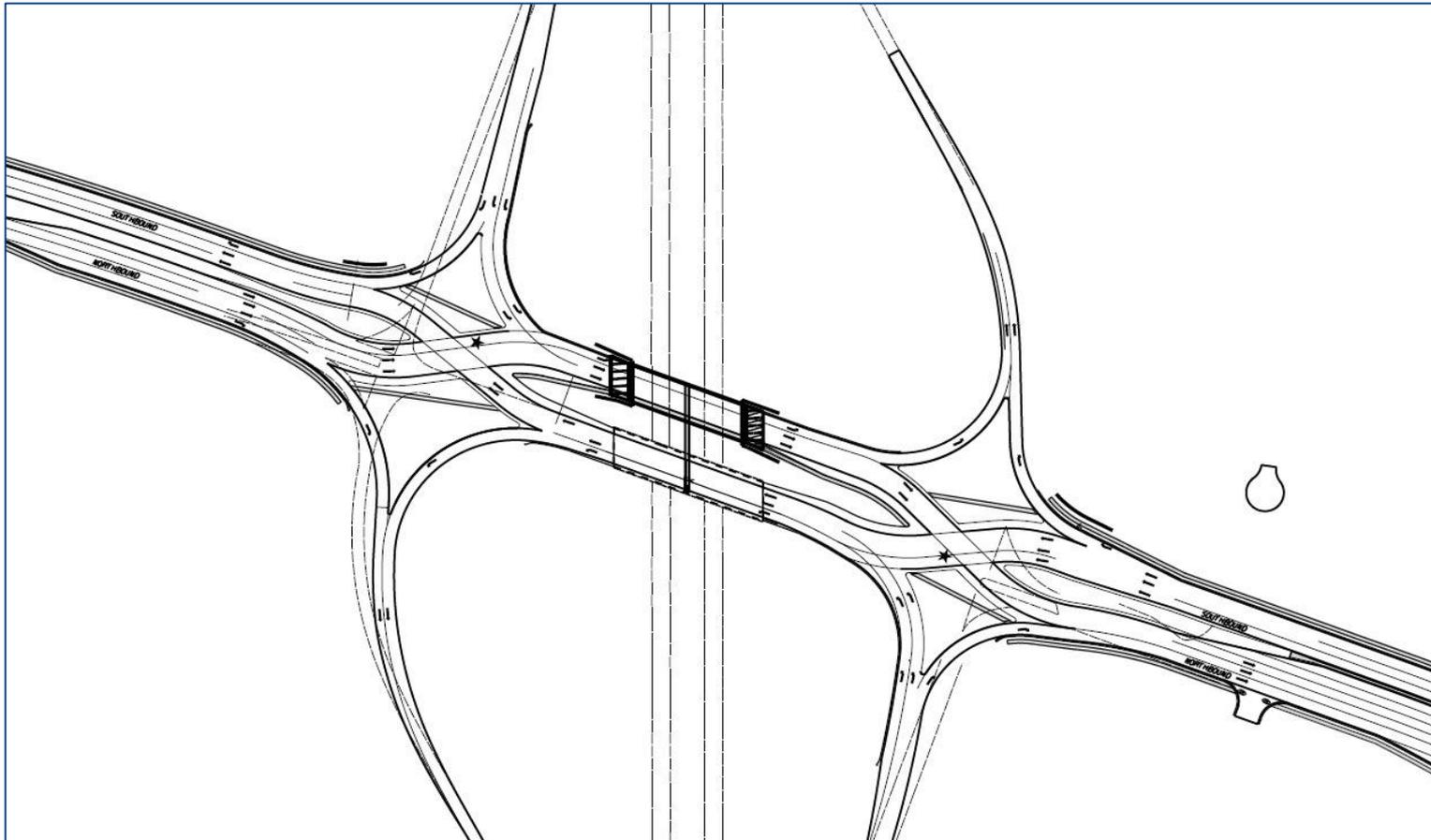
# U.S. 311 / Union Cross Rd. Interchange

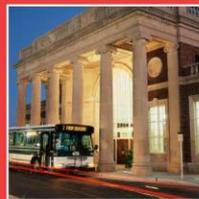
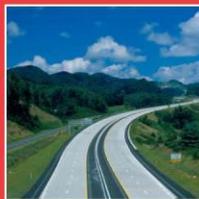




UNION CROSS ROAD

# I-40 / Union Cross Rd. Interchange





UNION CROSS ROAD

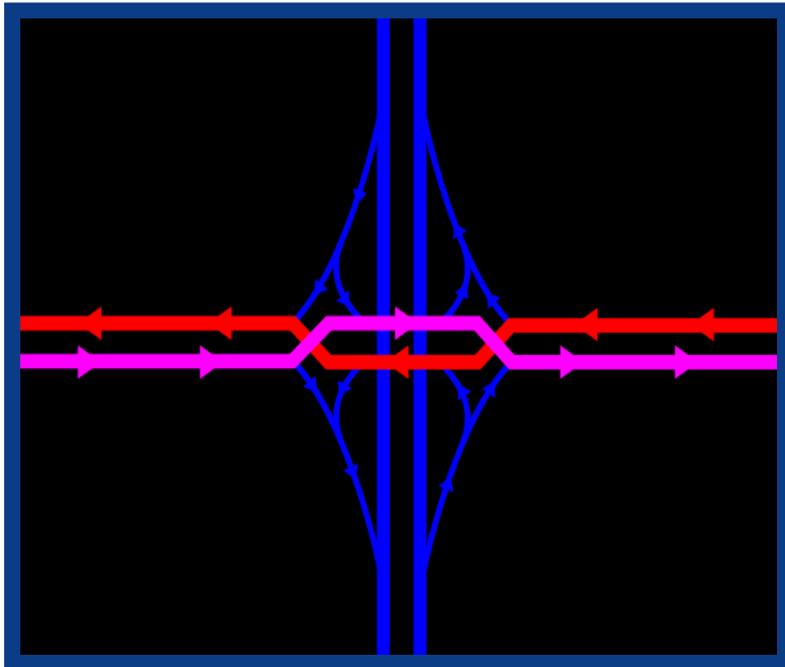
# DIVERGING DIAMOND INTERCHANGE





# What is a Diverging Diamond Interchange?

The diverging diamond interchange known as a DDI is designed to allow two directions of traffic to temporarily cross to the opposite side of the roadway to provide easier access on and off the freeway.



## FEATURES

- Limits number of traffic signal phases required to move motorists through the interchange
- Movements on and off of the freeway have fewer conflict points and can be free-flowing
- Moves high volumes of traffic without increasing the number of lanes in an interchange





## UNION CROSS ROAD

# History

Where are Diverging Diamond Interchanges?

- France
- USA



US 60 in Springfield, Missouri



I-15 in American Fork, Utah





## UNION CROSS ROAD

# What are the Benefits?

## Safety

- Fewer conflict points (18 for DDI, 30 for conventional)
- Better sight distance at turns
- Wrong way entry to ramps extremely difficult
- Virtually no driver confusion (FHWA study)

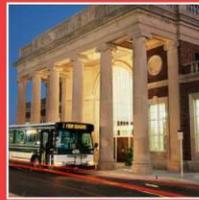
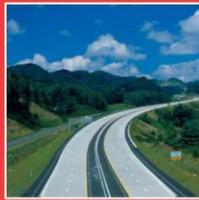
## Operations

- Simple left and right turns from all directions
- Increases left turn lane capacity without adding lanes
- Two phase signals with shorter cycle lengths reduces delay
- Better storage between the ramp terminals

## Costs (For new interchanges)

- Usually requires less lanes than other interchange types
- Less bridge structure
- Less right-of way than a cloverleaf

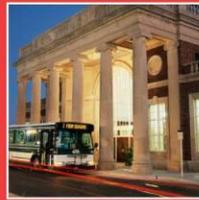
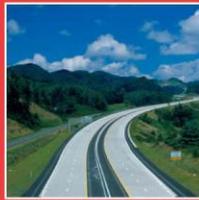




UNION CROSS ROAD

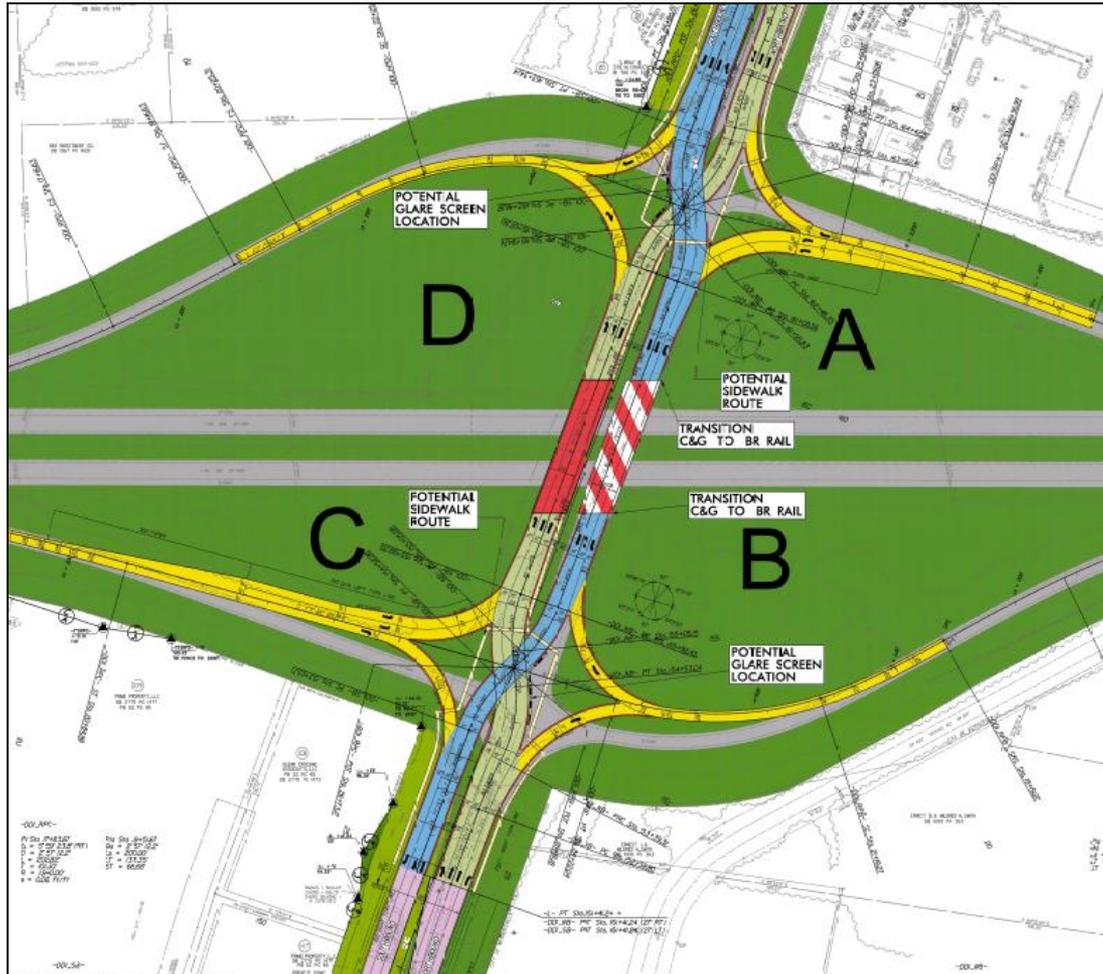
# Single Point Urban Interchange (SPUI)





UNION CROSS ROAD

# Diverging Diamond Interchange (DDI)





**UNION CROSS ROAD**

# Proposed North Carolina DDI Projects

**Asheville**                      **I-26 at NC 280 (Asheville Airport)**

**Concord**                      **I-485 at Mallard Creek Road \***  
**I-85 at Poplar Tent Road \***  
**I-85 at NC 73 \***  
**I-85 at US 29-601**

**Cornelius**                      **I-77 at Catawba Avenue**

**Mooresville**                      **I-77 at NC 150**

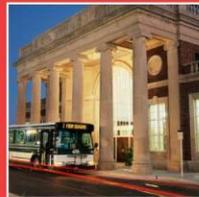
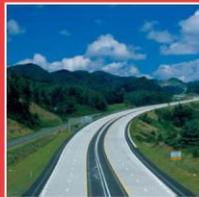
**Kernersville**                      **I-40 at Union Cross Road \***

**Lumberton**                      **I-95 at US-301 (Fayetteville Road)**

**Leland**                              **US 17 at NC 133 (River Road)**

**\* Denotes project under contract**





# UNION CROSS ROAD



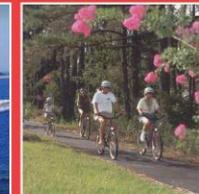
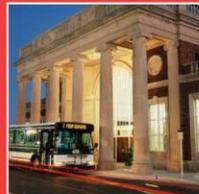
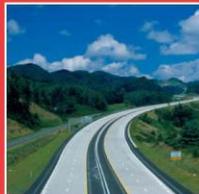


## UNION CROSS ROAD

# TRAFFIC

- **Lane Closures / Shoulder Closures** – With closures in place, motorists will be able to maneuver around work zones safely and efficiently throughout the entire project.
- **Detours** – Detours will re-route traffic in the fastest and safest way around road work so crews can complete the construction required in a speedy manner.
- **Temporary Pavement Markings** – Traffic will be moved around while widening is taking place on Union Cross Road. Temporary pavement markings will show motorists the correct route to take through the project.
- **Time Restrictions** – NCDOT Contract restricts road work on Union Cross Road, U.S. 311, and I-40 during heavy traffic hours and major events in the area.





## UNION CROSS ROAD

# PROJECT TIMELINE

## Project split into 4 Phases

- **Phase I** (Spring, 2012 – Spring, 2014)
  - Widening (Left)
  - Intersections
  - U.S. 311 / I-40
- **Phase II** (Spring, 2014 – Spring, 2015)
  - Widening (Right)
  - Intersections
  - I-40
- **Phase III** (Spring, 2015 – Summer, 2015)
  - Tie-Ins
  - I-40
- **Phase IV** (Summer, 2015 – Winter, 2015)
  - Islands / Final Asphalt





## UNION CROSS ROAD

# PROJECT MILESTONES

- **Solomon Dr. / Cul-de-sac of Pecan Ln. and Silver Creek Tr.**
  - **Summer, 2012**
- **Traffic switched to new western bridge for DDI at I-40**
  - **Spring, 2013**
- **New Wallburg Rd. / Union Cross Rd. Intersection open to traffic**
  - **Fall, 2013**
- **New U.S. 311 Interchange open to traffic**
  - **Fall, 2013**
- **New I-40 DDI open to traffic**
  - **Summer, 2015**





# Question and Answer