



I-40/Douglas Boulevard Bridge Replacement and Interchange Reconstruction Oklahoma County

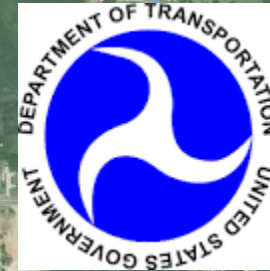
Public Meeting

January 17, 2017



Stakeholders

I-40/Douglas Improvements



S.E. 29TH ST

Project Location

DOUGLAS BLVD



Meeting Purpose

I-40/Douglas Improvements



- Purpose and Need for Project
- 3 Interchange Alternatives Considered
- Public Input/Feedback



Project Location & The Surrounding Area

I-40/Douglas Improvements



HRUSKOCY GATE
(TINKER)

Project Location

S.E. 29TH ST

S.E. 29TH ST



INDUSTRIAL BLVD

ENGLE RD BRIDGE
(Closed)

TO HRUSKOCY GATE

DOUGLAS BLVD



ST ANTHONY
HEALTHPLEX
EAST
(ER)

RENNY RD



STAFF DR

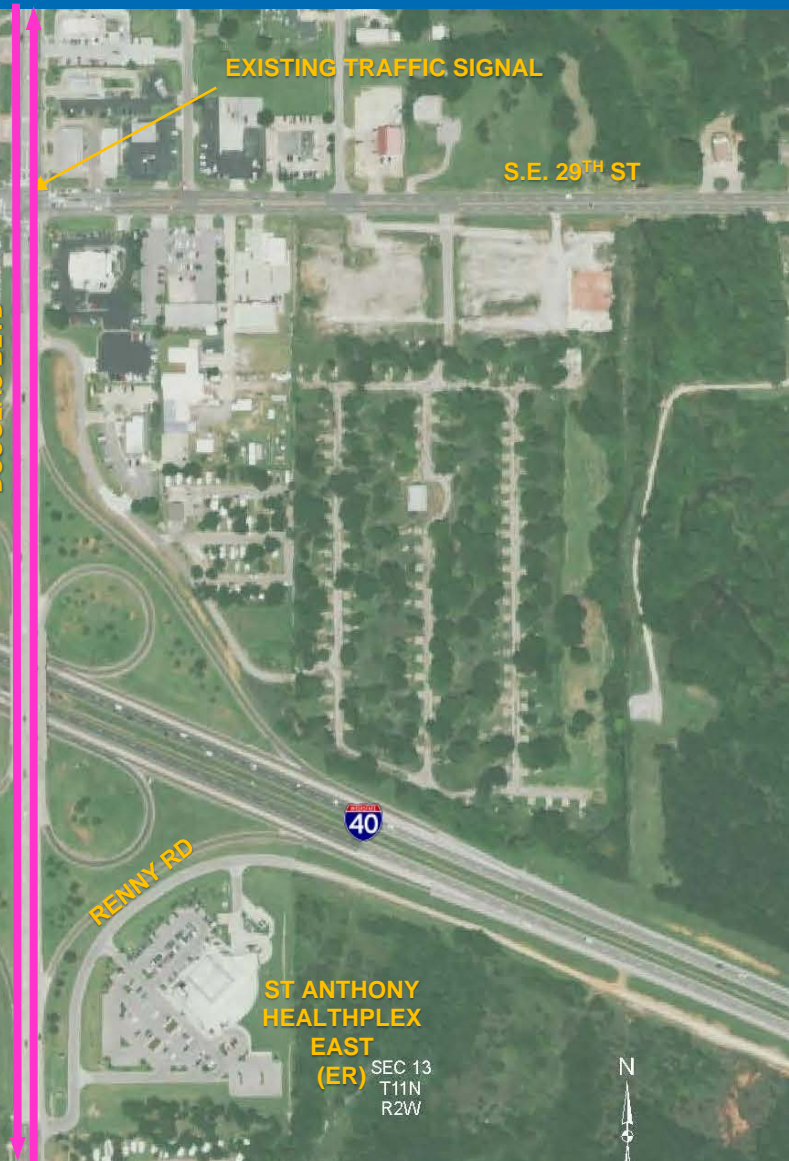


LANCER GATE



Existing Douglas Boulevard and Bridge

I-40/Douglas Improvements

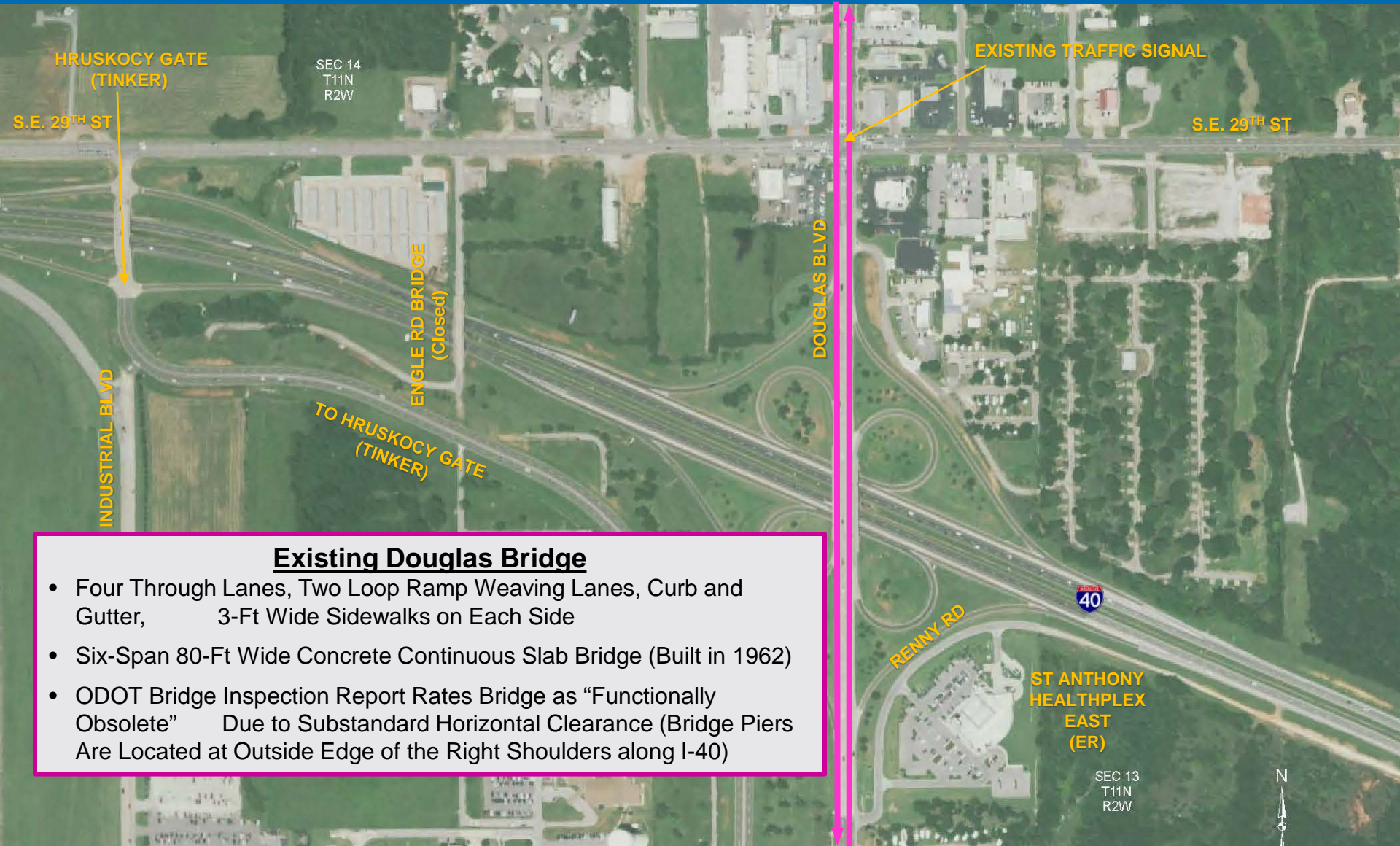


Existing Douglas Boulevard

- Four 12-Ft Wide Lanes, with Additional Left-Turn and Right-Turn Lanes
- Existing Annual Average Daily Traffic is 26,100 vehicles per day (vpd)
- Traffic Signal @ S.E. 29th Street
- Traffic Signal South of Interchange @ Lancer Gate

Existing Douglas Boulevard and Bridge

I-40/Douglas Improvements



HRUSKOCY GATE
(TINKER)

SEC 14
T11N
R2W

S.E. 29TH ST

INDUSTRIAL BLVD

ENGLE RD BRIDGE
(Closed)

TO HRUSKOCY GATE
(TINKER)

DOUGLAS BLVD

EXISTING TRAFFIC SIGNAL

S.E. 29TH ST

RENNY RD

ST ANTHONY
HEALTHPLEX
EAST
(ER)

SEC 13
T11N
R2W

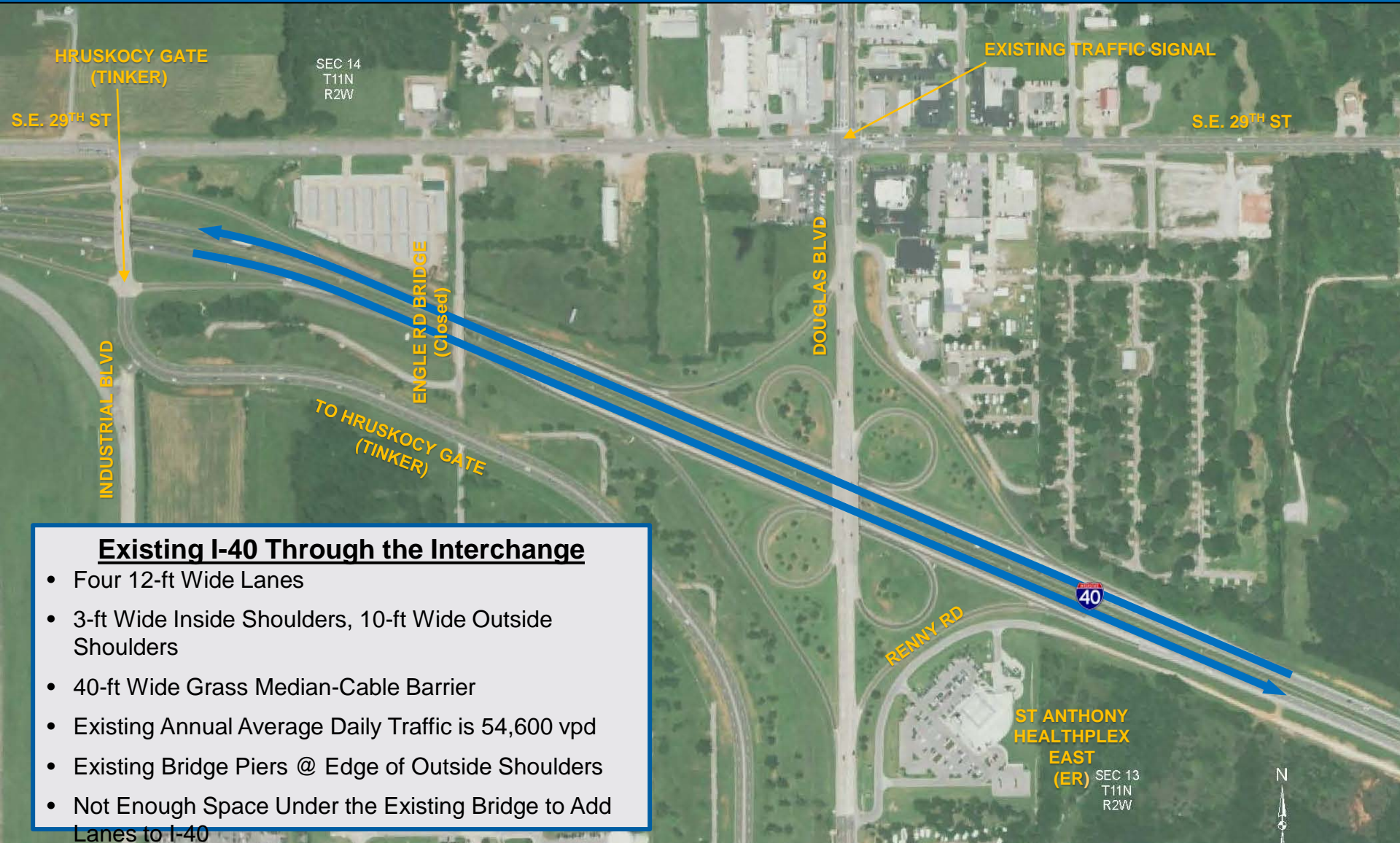


Existing Douglas Bridge

- Four Through Lanes, Two Loop Ramp Weaving Lanes, Curb and Gutter, 3-Ft Wide Sidewalks on Each Side
- Six-Span 80-Ft Wide Concrete Continuous Slab Bridge (Built in 1962)
- ODOT Bridge Inspection Report Rates Bridge as “Functionally Obsolete” Due to Substandard Horizontal Clearance (Bridge Piers Are Located at Outside Edge of the Right Shoulders along I-40)

Existing I-40

I-40/Douglas Improvements

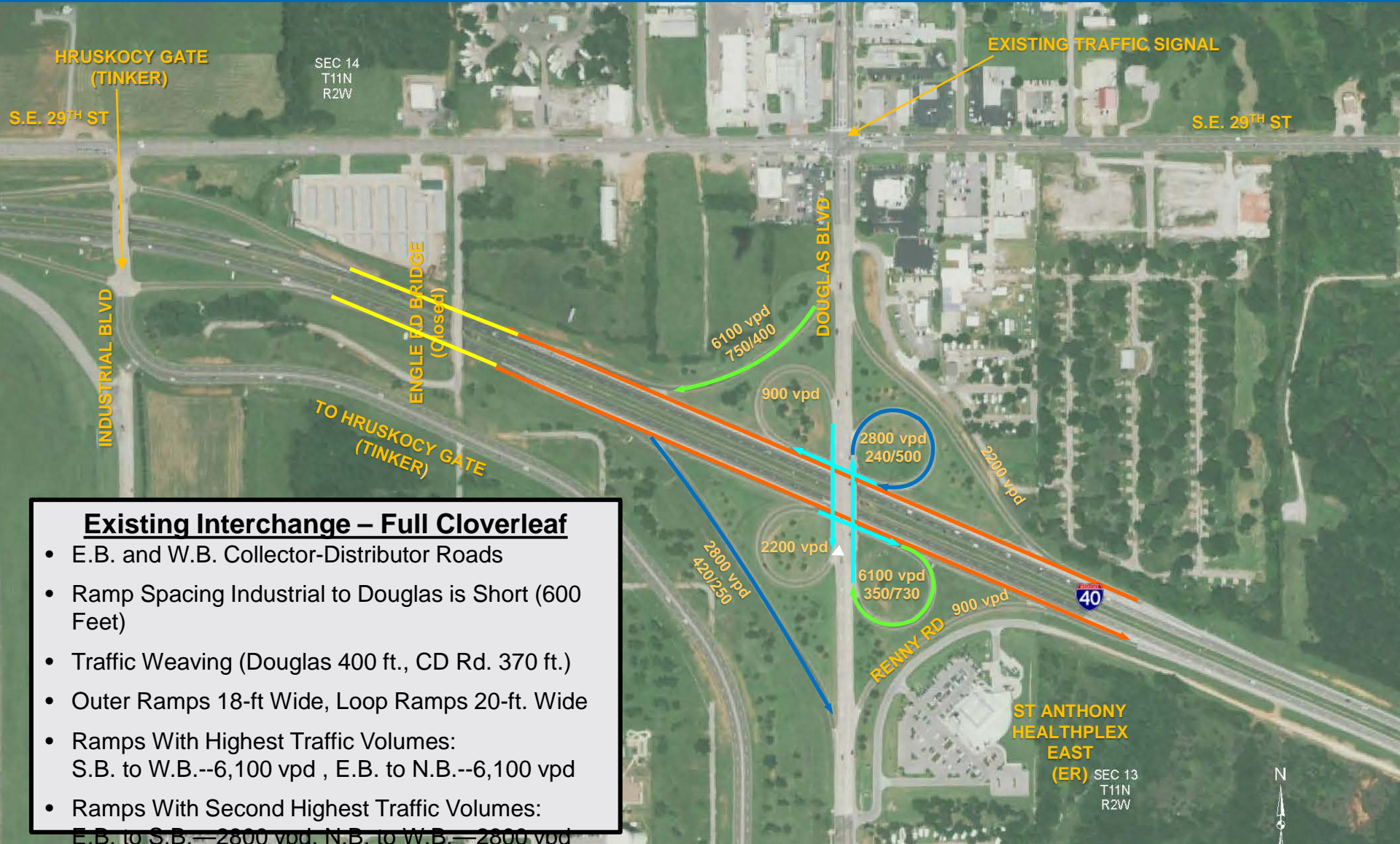


Existing I-40 Through the Interchange

- Four 12-ft Wide Lanes
- 3-ft Wide Inside Shoulders, 10-ft Wide Outside Shoulders
- 40-ft Wide Grass Median-Cable Barrier
- Existing Annual Average Daily Traffic is 54,600 vpd
- Existing Bridge Piers @ Edge of Outside Shoulders
- Not Enough Space Under the Existing Bridge to Add Lanes to I-40

Existing I-40/Douglas Interchange

I-40/Douglas Improvements



Existing Interchange – Full Cloverleaf

- E.B. and W.B. Collector-Distributor Roads
- Ramp Spacing Industrial to Douglas is Short (600 Feet)
- Traffic Weaving (Douglas 400 ft., CD Rd. 370 ft.)
- Outer Ramps 18-ft Wide, Loop Ramps 20-ft. Wide
- Ramps With Highest Traffic Volumes:
S.B. to W.B.--6,100 vpd , E.B. to N.B.--6,100 vpd
- Ramps With Second Highest Traffic Volumes:
E.B. to S.B.—2800 vpd, N.B. to W.B.—2800 vpd

Collision History

I-40/Douglas Improvements



Collision Summary

Nov. 2006 – Oct. 2016

- 450 Collisions Within the Cloverleaf Ramp Extents
- Fatality – 0
- Incapacitating Injury – 10
- Non-Incapacitating Injury – 45
- Possible Injury – 69
- Property Damage 324

Purpose and Need

I-40/Douglas Improvements



- Correct Functionally Obsolete Douglas Boulevard Bridge
- Improve Safety



Proposed Project

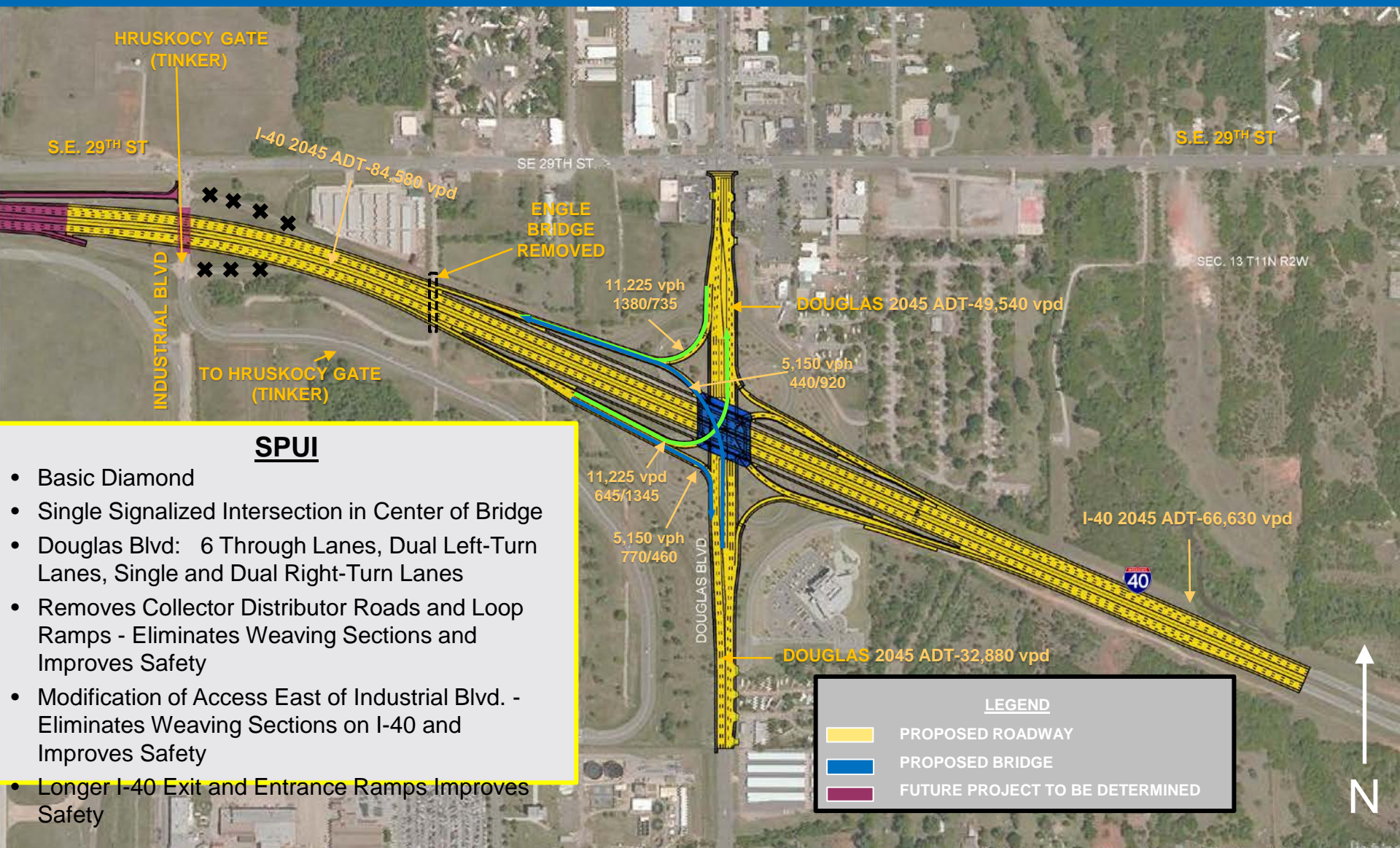
I-40/Douglas Improvements



- Replace Douglas Boulevard Bridge
- Widen I-40 from 4 Lanes to 6 Lanes
- Improve I-40/Douglas Boulevard Interchange
- 3 Interchange Alternatives
 - Single Point Urban Interchange (SPUI)
 - Tight Urban Diamond Interchange (TUDI) with Future Flyover
 - Cloverleaf Reconstruction
- Remove Engle Road Bridge Over I-40
- Modify Access At I-40 and Industrial Blvd. Interchange to Improve Safety and Operations between Industrial Blvd. and Douglas Blvd.






Alternative 1 Single Point Urban Interchange (SPUI)



SPUI

- Basic Diamond
- Single Signalized Intersection in Center of Bridge
- Douglas Blvd: 6 Through Lanes, Dual Left-Turn Lanes, Single and Dual Right-Turn Lanes
- Removes Collector Distributor Roads and Loop Ramps - Eliminates Weaving Sections and Improves Safety
- Modification of Access East of Industrial Blvd. - Eliminates Weaving Sections on I-40 and Improves Safety
- Longer I-40 Exit and Entrance Ramps Improves Safety

LEGEND	
	PROPOSED ROADWAY
	PROPOSED BRIDGE
	FUTURE PROJECT TO BE DETERMINED

Alternative 1 Single Point Urban Interchange (SPUI)

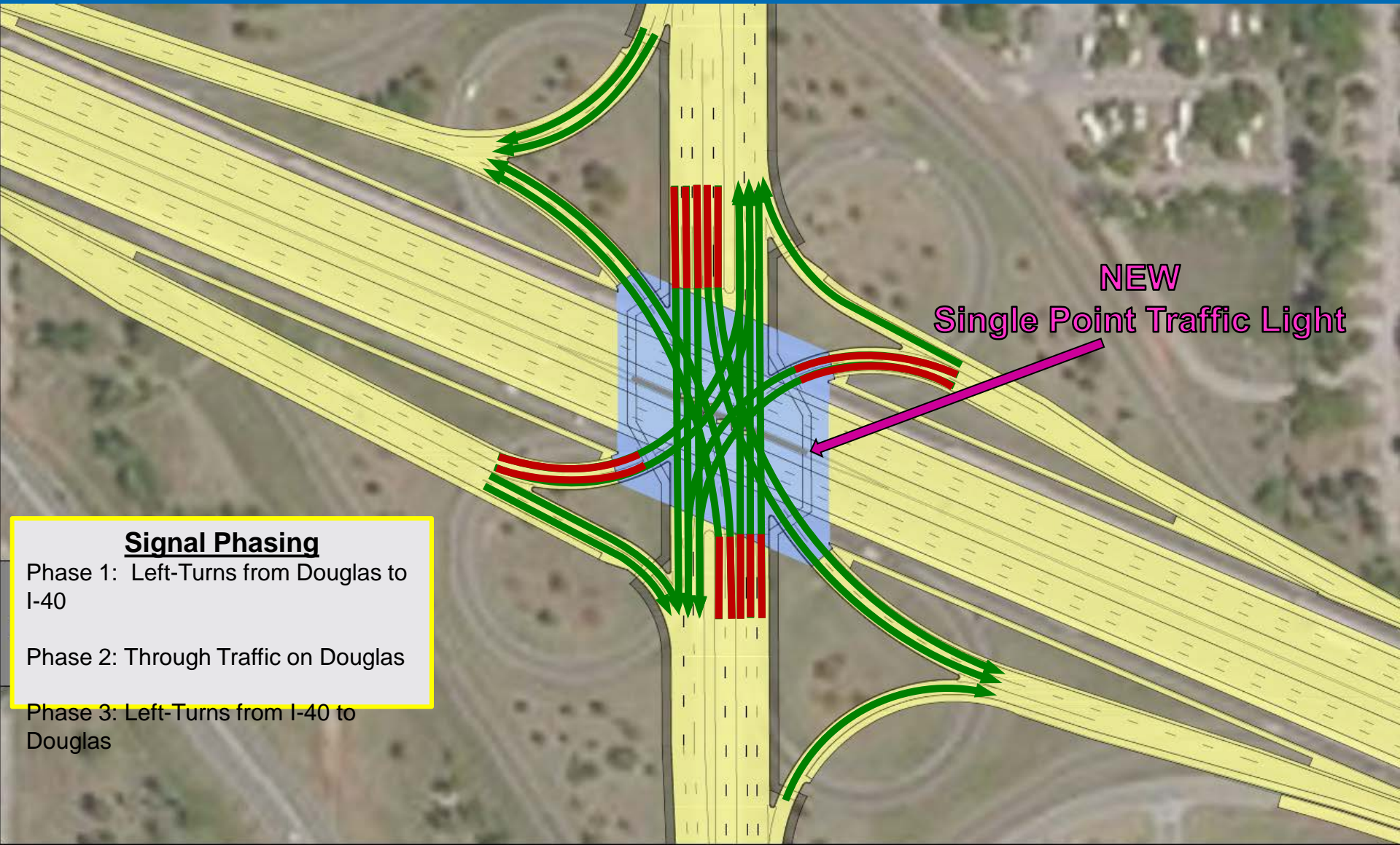


What is a SPUI?

- Grade Separated Two Level Diamond
- One Large Intersection Instead of Two Separate Diamond Ramp Intersections
- At-Grade Intersection is Located at the Center of the Interchange and is Signalized
- All Through Arterial Traffic and All Traffic Turning Left Onto or From the Interchange Ramps is Controlled with the Signal
- The Right Turn Movements May Be Free-Flow (Merge or Yield) or Signalized. Right-Turns Do Not Pass Through the Central Signal
- For Left Turns, Opposing Traffic is on the Right



Alternative 1 Single Point Urban Interchange (SPUI)



Signal Phasing

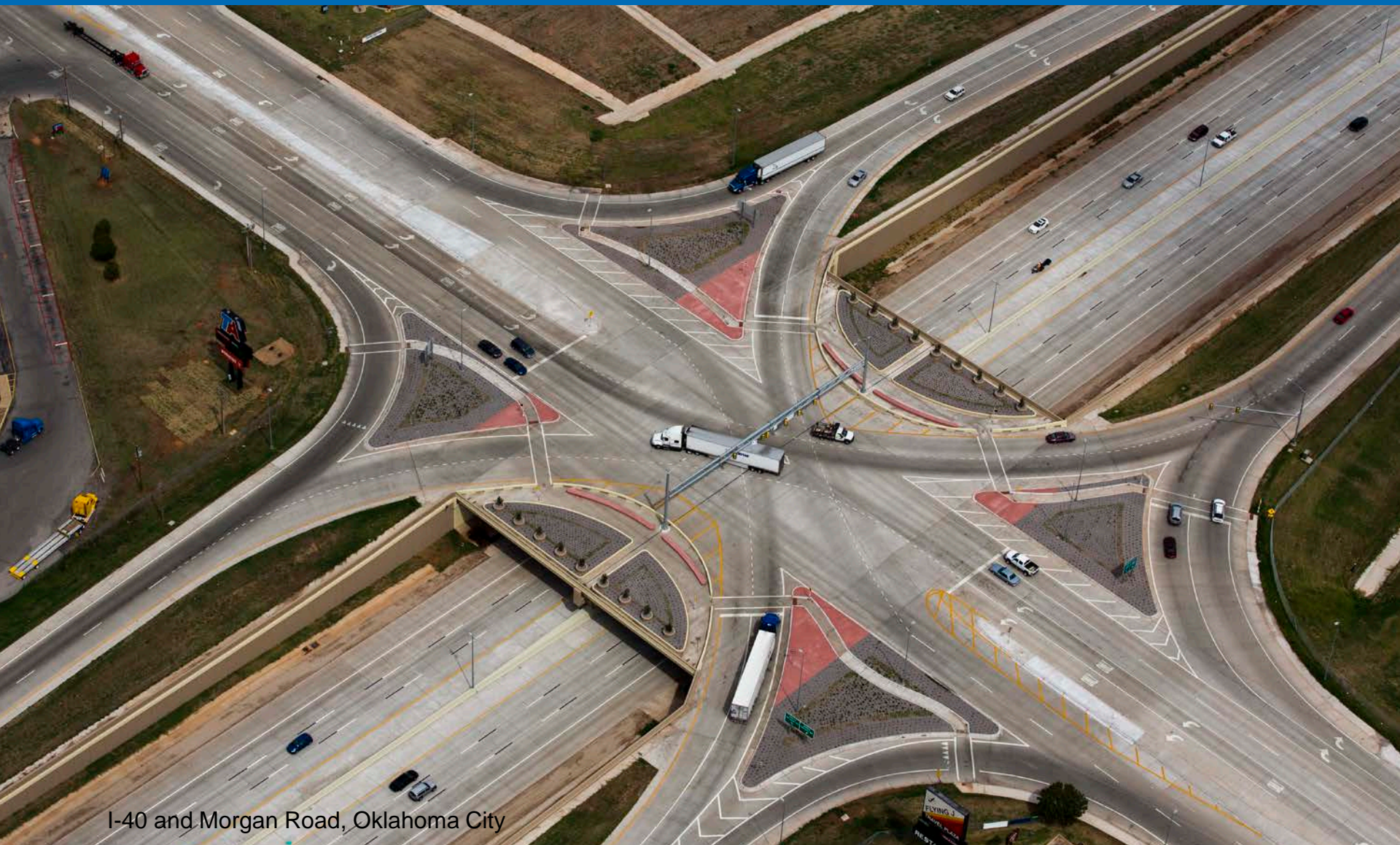
Phase 1: Left-Turns from Douglas to I-40

Phase 2: Through Traffic on Douglas

Phase 3: Left-Turns from I-40 to Douglas



Alternative 1 Single Point Urban Interchange (SPUI)



I-40 and Morgan Road, Oklahoma City

Alternative 1 Single Point Urban Interchange (SPUI)



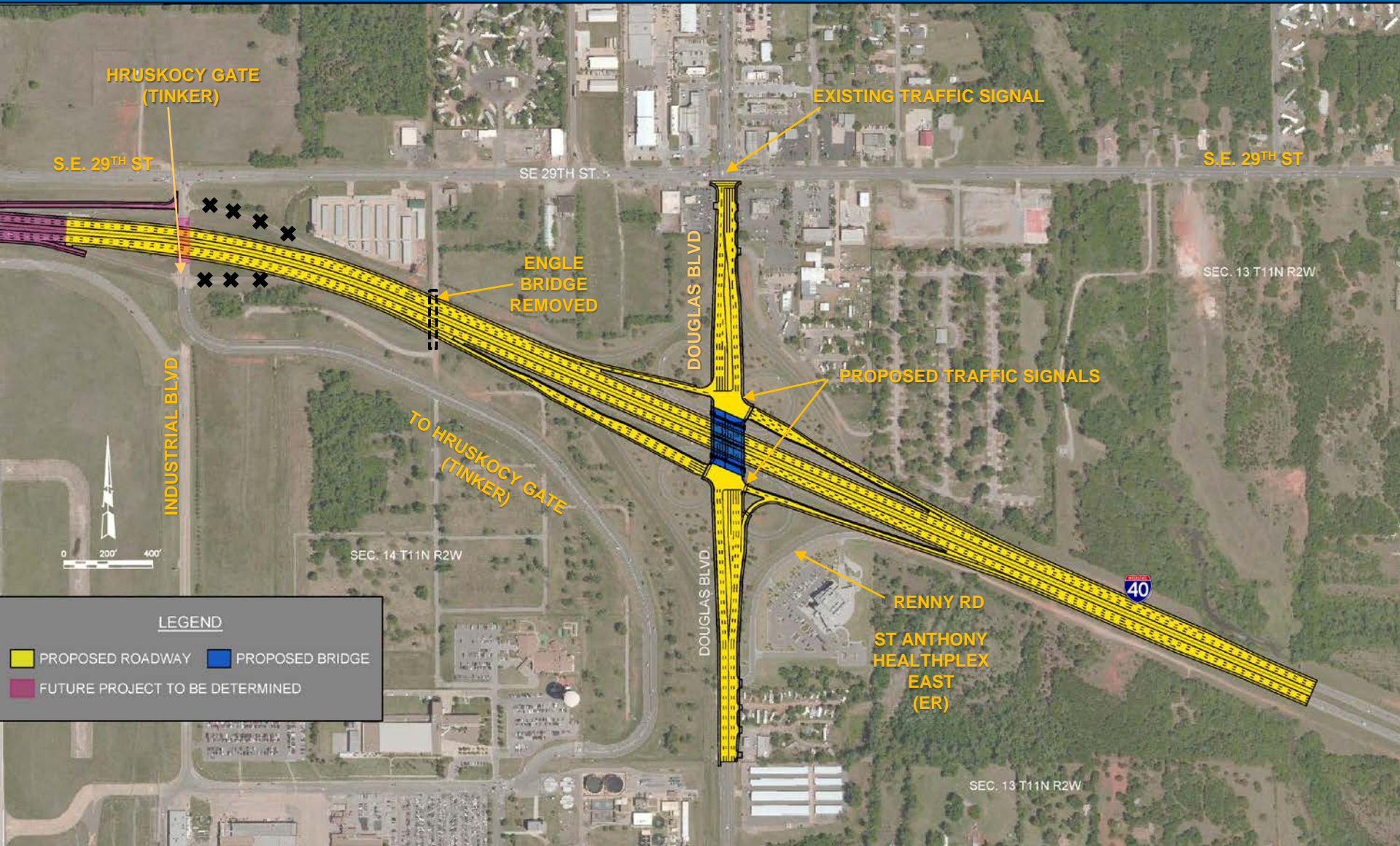
When To Consider a SPUI?

- Traffic Volumes are High and There is Major Congestion
- Left Turn Volumes are High
- Right-of-Way is Restricted
- Truck Volumes are High

In Most Cases When We Consider A SPUI as an Interchange Alternative, We Also Evaluate a Tight Urban Diamond Interchange (TUDI) as an Alternative as Well.



Alternative 2 Tight Urban Diamond Interchange (TUDI)



HRUSKOCY GATE
(TINKER)

S.E. 29TH ST

SE 29TH ST

EXISTING TRAFFIC SIGNAL

S.E. 29TH ST

ENGLE
BRIDGE
REMOVED

DOUGLAS BLVD

PROPOSED TRAFFIC SIGNALS

SEC. 13 T11N R2W

INDUSTRIAL BLVD

TO HRUSKOCY GATE
(TINKER)

DOUGLAS BLVD

RENNY RD

ST ANTHONY
HEALTHPLEX
EAST
(ER)



SEC. 14 T11N R2W

SEC. 13 T11N R2W

LEGEND

- PROPOSED ROADWAY
- PROPOSED BRIDGE
- FUTURE PROJECT TO BE DETERMINED



Alternative 2 Tight Urban Diamond Interchange (TUDI) With Future Ramp Flyover



What is a TUDI?

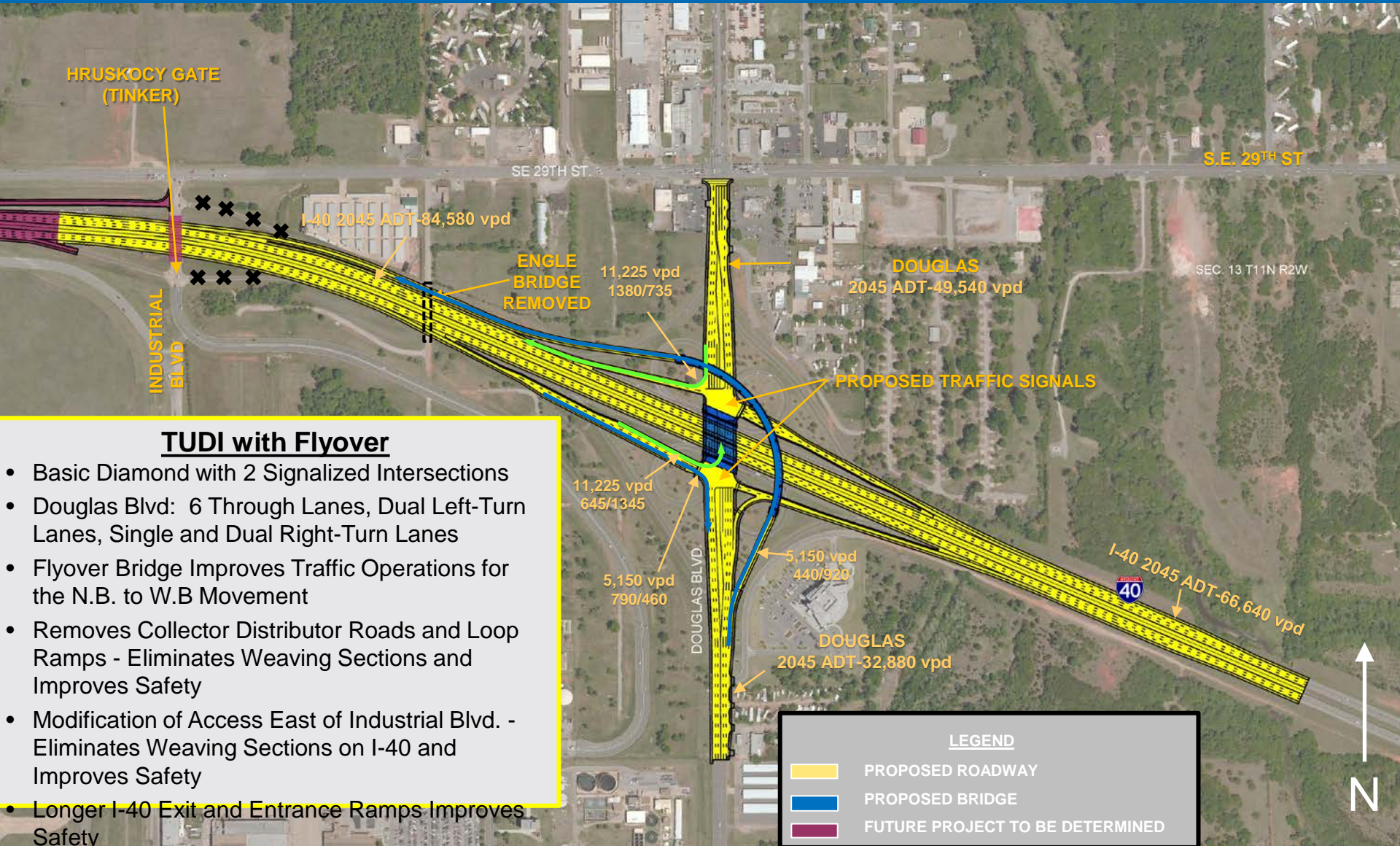
- Grade Separated Two Level Diamond
- Two Separate Diamond Ramp Intersections
- Ramp Spacing 250'-400' (Operates Better Than Wider Diamonds)
- Two Continuous Left-Turn Lanes for Each Direction Between Signals
- Typically Costs Less Than a SPUI Due to Smaller Bridge
- Good Option When Right-of-Way is Restricted
- Accommodates High Traffic Volumes

Initial Construction is the TUDI.



Future Ramp Flyover Would Be Constructed In the Future

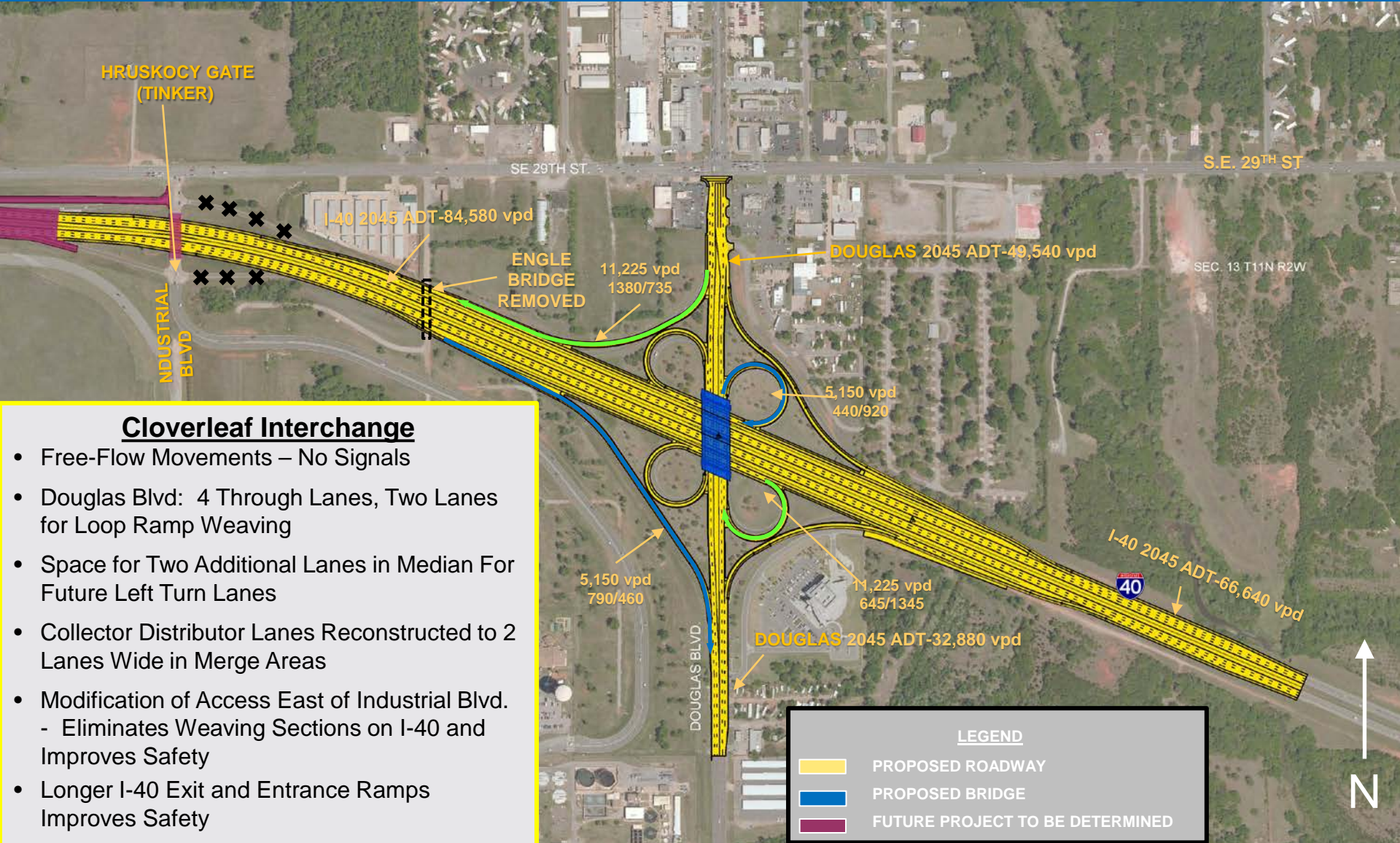
Alternative 2 Tight Urban Diamond Interchange (TUDI) With Future Ramp Flyover



TUDI with Flyover

- Basic Diamond with 2 Signalized Intersections
- Douglas Blvd: 6 Through Lanes, Dual Left-Turn Lanes, Single and Dual Right-Turn Lanes
- Flyover Bridge Improves Traffic Operations for the N.B. to W.B Movement
- Removes Collector Distributor Roads and Loop Ramps - Eliminates Weaving Sections and Improves Safety
- Modification of Access East of Industrial Blvd. - Eliminates Weaving Sections on I-40 and Improves Safety
- Longer I-40 Exit and Entrance Ramps Improves Safety

Alternative 3 Reconstruction of Cloverleaf Interchange



Cloverleaf Interchange

- Free-Flow Movements – No Signals
- Douglas Blvd: 4 Through Lanes, Two Lanes for Loop Ramp Weaving
- Space for Two Additional Lanes in Median For Future Left Turn Lanes
- Collector Distributor Lanes Reconstructed to 2 Lanes Wide in Merge Areas
- Modification of Access East of Industrial Blvd. - Eliminates Weaving Sections on I-40 and Improves Safety
- Longer I-40 Exit and Entrance Ramps Improves Safety

LEGEND

- PROPOSED ROADWAY
- PROPOSED BRIDGE
- FUTURE PROJECT TO BE DETERMINED

Constraints Mapping

I-40/Douglas Improvements



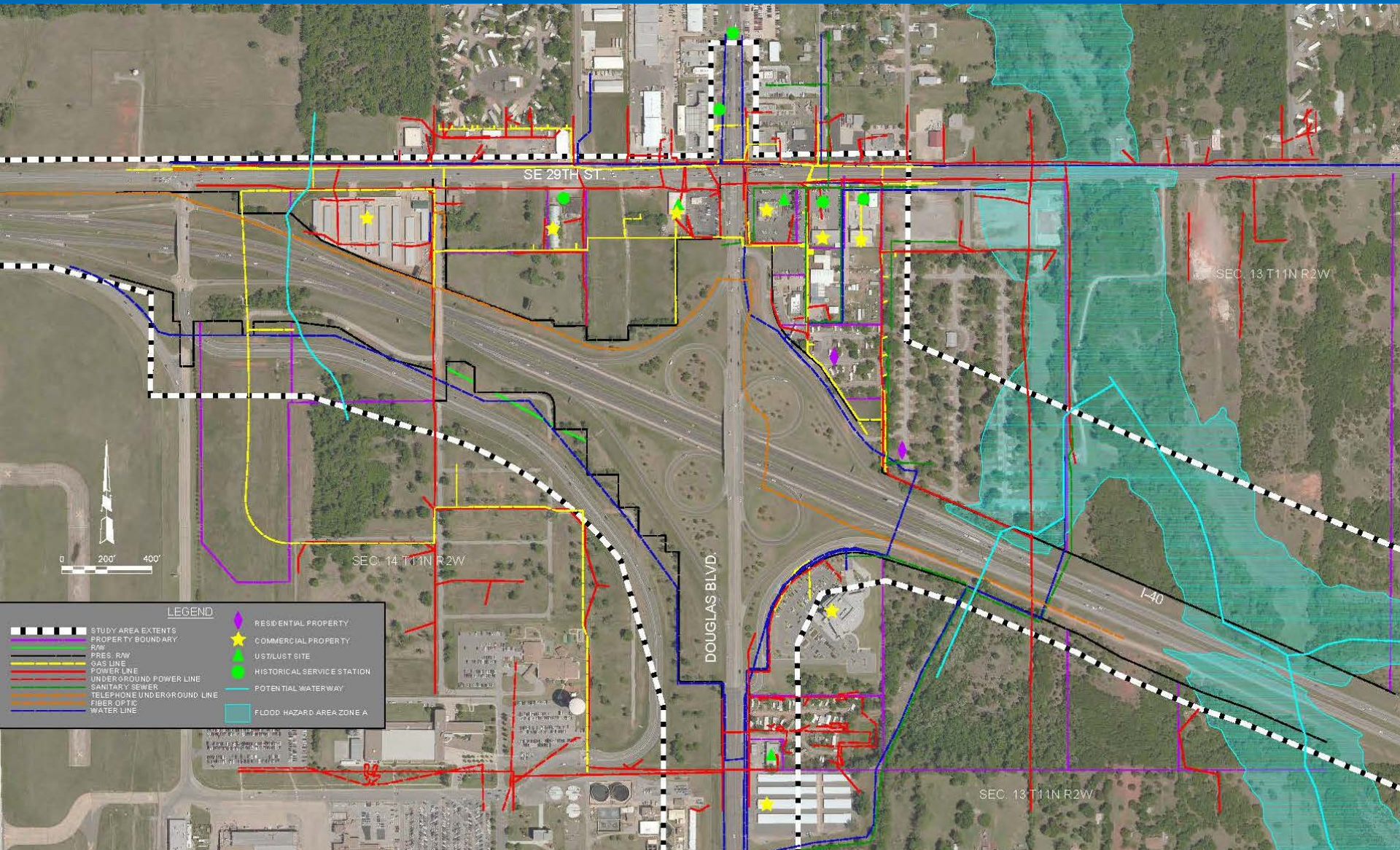
Reconnaissance Performed to Identify Constraints

- Wetlands and Waters
- Threatened & Endangered Species Critical Habitat
- Archeological Sites and Historic Properties
- Aboveground or Underground Storage Tanks
- Oil/Gas Wells
- Residences
- Commercial Facilities
- Tribal Properties
- Utilities



Composite Constraints Map

I-40/Douglas Improvements



LEGEND

- STUDY AREA EXTENTS
- PROPERTY BOUNDARY
- RES. R/W
- GAS LINE
- POWER LINE
- UNDERGROUND POWER LINE
- SANITARY SEWER
- TELEPHONE UNDERGROUND LINE
- FIBER OPTIC
- WATER LINE
- RESIDENTIAL PROPERTY
- COMMERCIAL PROPERTY
- UTILIST SITE
- HISTORICAL SERVICE STATION
- POTENTIAL WATERWAY
- FLOOD HAZARD AREA ZONE A

Comparison of Alternatives

I-40/Douglas Improvements



Comparison Parameters	Alternative 1 Single Point Urban Interchange (SPUI)	Alternative 2 Tight Urban Diamond Interchange (TUDI) with Future Ramp Flyover	Alternative 3 Cloverleaf Interchange Reconstruction
Traffic Operations¹	<ul style="list-style-type: none"> I-40 Facilities: Good 1 Interchange Signal on Douglas SPUI Operates Better than TUDI for All Movements Except NB to WB Movement 	<ul style="list-style-type: none"> I-40 Facilities: Good 2 Interchange Signals on Douglas NB to WB Movement Operates Better than SPUI (All Other Movements Operate Better With the SPUI) 	<ul style="list-style-type: none"> I-40 Facilities: Good No Interchange Signal on Douglas Traffic on Douglas Remains Free-Flow Weaving on Douglas and CD Roads Remains
Interchange Geometry	<ul style="list-style-type: none"> Ramp Design Speed 50 mph All Weaving Eliminated Flat Dual Left-Turn Curves Allow for Ease of Movement Between Ramps and Douglas 	<ul style="list-style-type: none"> Ramp Design Speed 35-50 mph All Weaving Eliminated Dual Left-Turns Between Ramps and Douglas Will Be at Slow Speed Due to Ramp Intersection Angles 	<ul style="list-style-type: none"> Ramp Design Speed 20 mph Loops and Weaving on Douglas and CD Roads Remain CD Roads Reconstructed 2 Lanes Wide in Ramp Merge Areas
Environmental Impacts²	Minimal Wetland and Stream Impacts	Minimal Wetland and Stream Impacts	Minimal Wetland and Stream Impacts
Utility Relocations	7 Utilities Impacted	7 Utilities Impacted	7 Utilities Impacted
Right-of-Way Impacts	Approx. 0.74 Acres S.W. Quadrant—Oklahoma County	Approx. 0.74 Acres S.W. Quadrant—Oklahoma County	Approx. 0.74 Acres S.W. Quadrant—Oklahoma County
Total Project Cost	\$47 million	\$56 million	\$45 million

Colors are to aid visual comparison only; i.e., green, yellow, and red indicate which alternate is better, neutral, and worse, respectively, for each parameter of comparison. The color scheme has relevance only to the comparison of Alternatives 1, 2, and 3, and is not meant to imply any parameter is “ideal”, as compared to other projects or situations.

Notes:

1: By 2045, the Douglas & 29th Street intersection will need additional lanes to ensure proper interchange operations. In addition, eastbound to northbound pm traffic will need an additional route alternative to ensure proper interchange operations.

2: No other environmental constraints identified.



What Happens Next? / Process

I-40/Douglas Improvements



- Consider Comments from Public Meeting
- Select a Preferred Interchange Alternative & Complete Preliminary Design Report
- Complete Detailed Environmental Studies and Design Plans
- 8-Year Construction Work Plan:
 - Right-of-Way (Year 2017)
 - Utilities (Year 2017)
 - Construction (Year 2020)



Submit Your Comments

I-40/Douglas Improvements



- Leave your written comments with us tonight.
- Download and submit a comment form at:
www.odot.org/publicmeetings
- Submit your written comments by mail to:
Oklahoma Department of Transportation
Environmental Programs Division
200 N. E. 21st Street
Oklahoma City, OK 73105
- Fax your written comments to:
(405) 522-5193
- Email your comments to:
Odot-environment@odot.org
- **Please submit your comments by January 31, 2017.**



I-40/Douglas Boulevard Improvements



*Thank
you!*

