

US-81 York to Columbus Expressway

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NEBRASKA

Good Life. Great Journey.

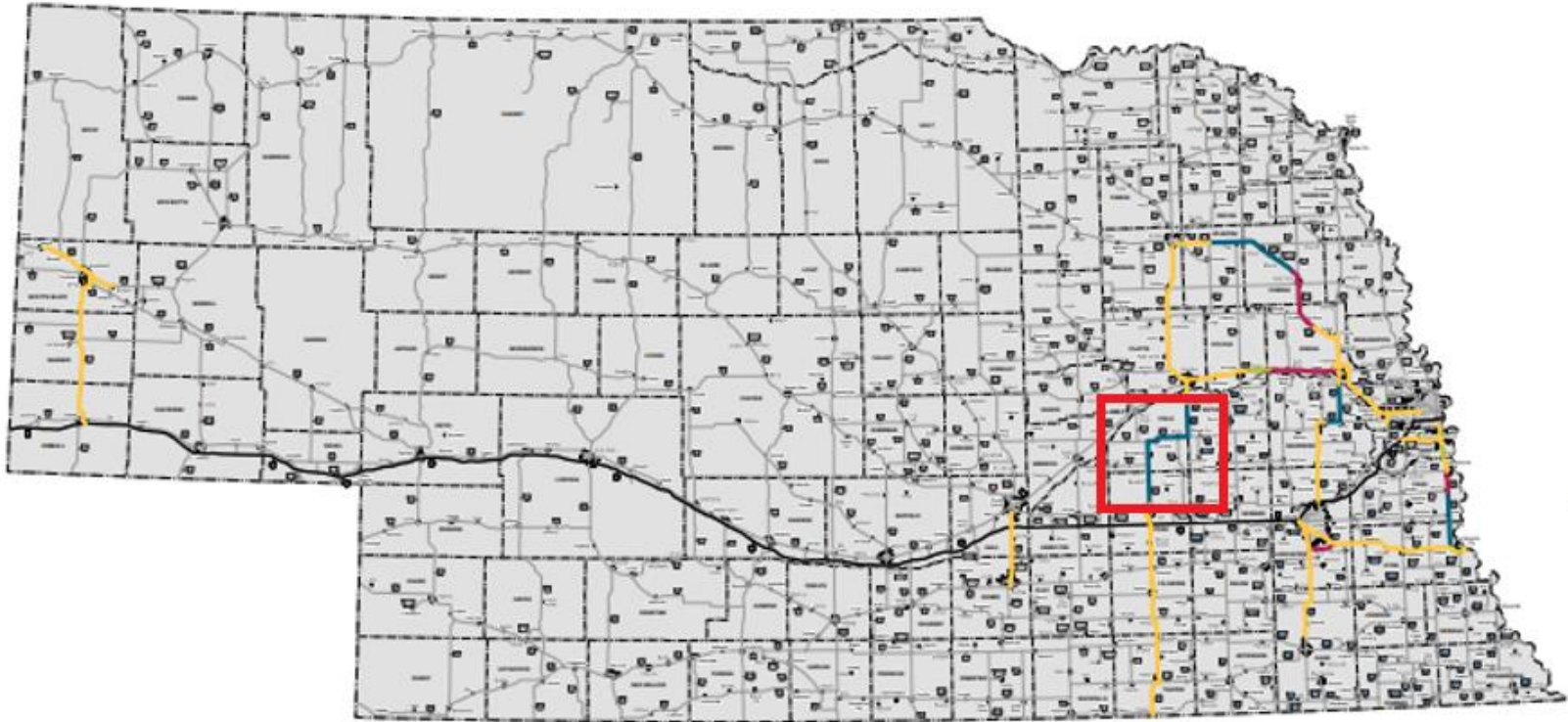
DEPARTMENT OF TRANSPORTATION



1988 Nebraska Expressway System

Original Nebraska Expressway System (1988)

Current Status
Revised September 2016



Legend

- Complete, 424 Miles
- Under Construction or Contract, 10 Miles
- Funded for Construction, 62 Miles
- Funded for Design, 104 Miles

Nebraska Expressway System -2022 update



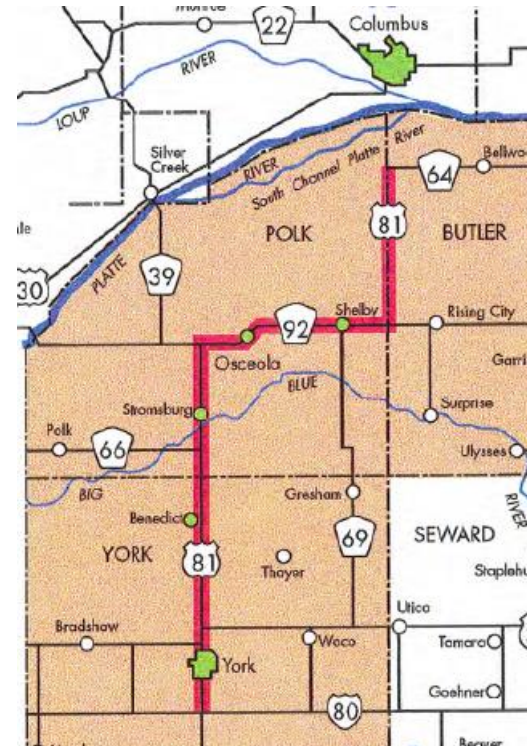
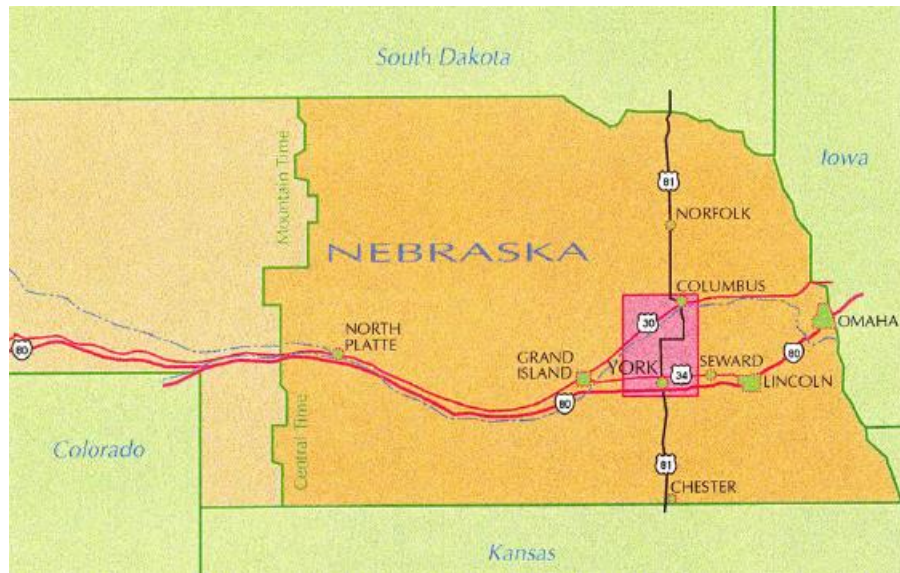
- Complete
- Under Construction
- In Design
- In Planning

Under Construction or Contract	Estimate (millions)
① US-275 Scribner to West Point 4-Lane Divided Expressway	\$144
② US-30 North Bend to Fremont 4-Lane Divided Expressway on New Alignment	\$97
③ N-2 Lincoln South Beltway 4-Lane Divided Expressway on New Alignment	\$461
④ US-34/US-75 Murray to Plattsmouth 4-Lane Divided Expressway	\$55
⑥ US-77 Fremont Southeast Beltway 4-Lane Divided Expressway on New Alignment	\$76

In Design	Estimate (millions)
⑤ US-77 Lincoln West Beltway Interchanges at Warlick Blvd. & Pioneers Blvd.	\$35.5
⑨ US-81 York to Columbus 4-Lane Divided Expressway	\$296
⑩ US-275 West Point to West of Pilger 4-Lane Divided Expressway	\$201

In Planning	Estimate (millions)
⑦ US-75 Nebraska City to Murray 4-Lane Divided Expressway	\$156
⑧ US-77 Wahoo to Fremont 4-Lane Divided Expressway	\$116

1995 York – Columbus Corridor



Project Study Overview

- 40+ Mile Corridor
- Multiple Communities / High Stakeholder Interest
- 2+2 configuration
 - Minimize Crossovers
- 3-lane urban sections thru communities
- Alignment Alternatives and Preliminary Design
- Environment Requirements/permitting (including Environment Assessment)
- Selection of Preferred Alternative



Typical Rural Section (2+2)

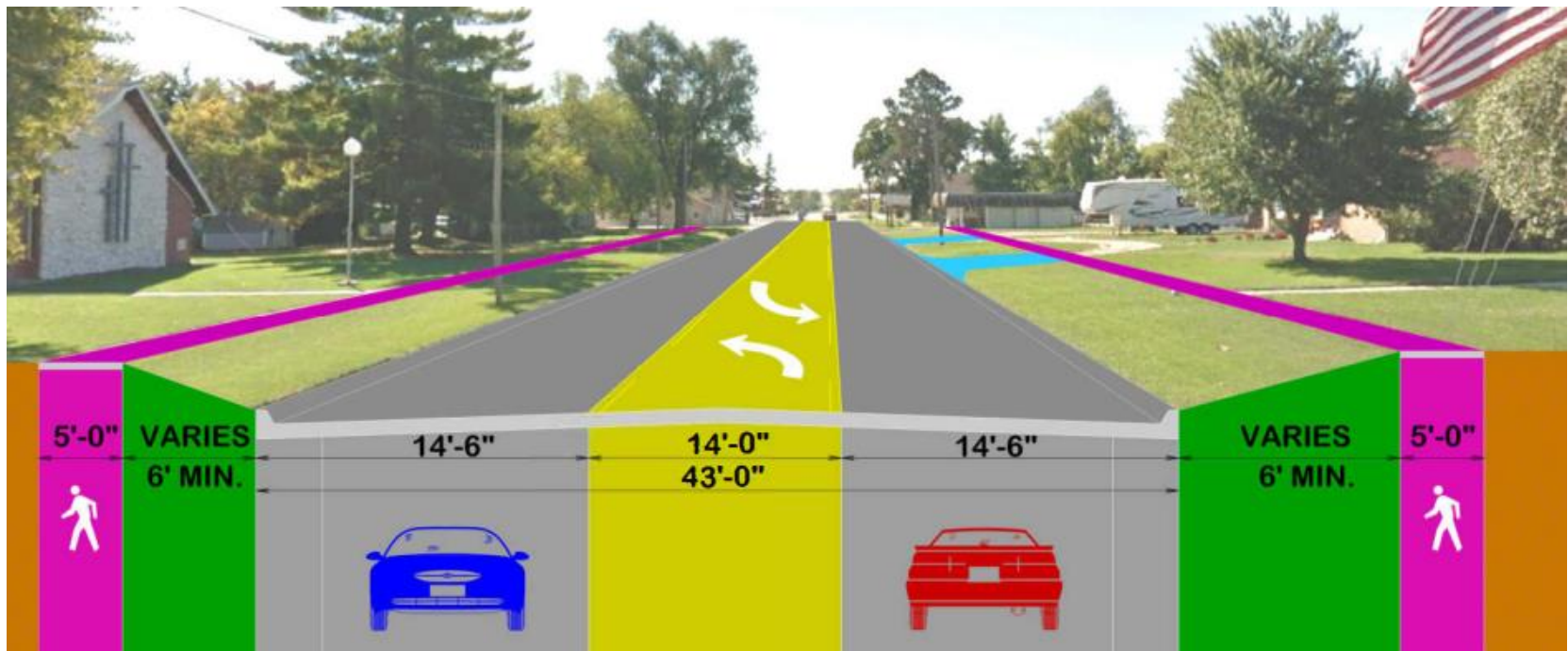


New Lanes

**Existing Lanes
(Resurfaced Pavement)**



Typical 3-Lane Urban Section



Challenges/Considerations

• Challenges

- Multiple Cities
- Multiple Highway Junctions
- Transitions
- Multiple Access Points
- School
- Hydraulics
 - FEMA Floodway
 - 23 streams/rivers
- Phasing

• Potential Conflicts

- Electrical Substation
- Hog Operation
- Pivots
- Farming Operations
- Homes and Buildings
- Irrigation wells adjacent to ROW



US-81/N-92 East and West Junctions

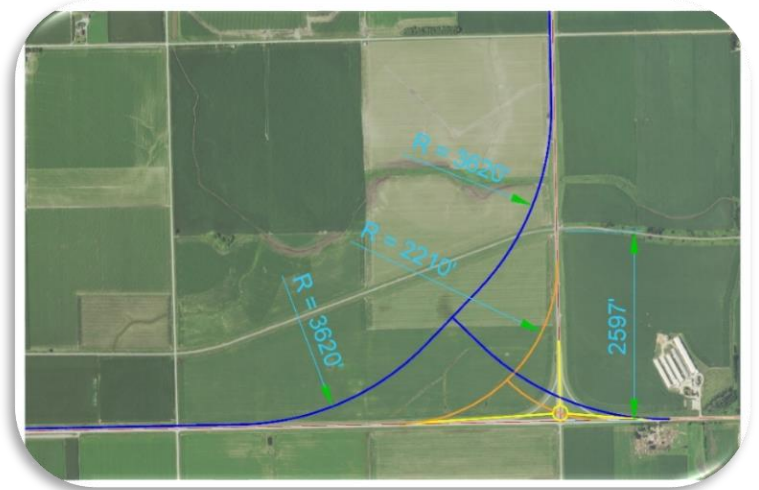
- Existing Conditions



Alternative Alignment Designs for US-81/N-92



- Conduct alternatives analysis
- Minimize impacts while maximizing traffic operations
- T-Intersection, Sweeping Curve, Roundabout



Transitions to Urban 3-lane Sections

- Standard tapers per design criteria
- Speed transition from expressway speed to urban
- Minimize Impacts



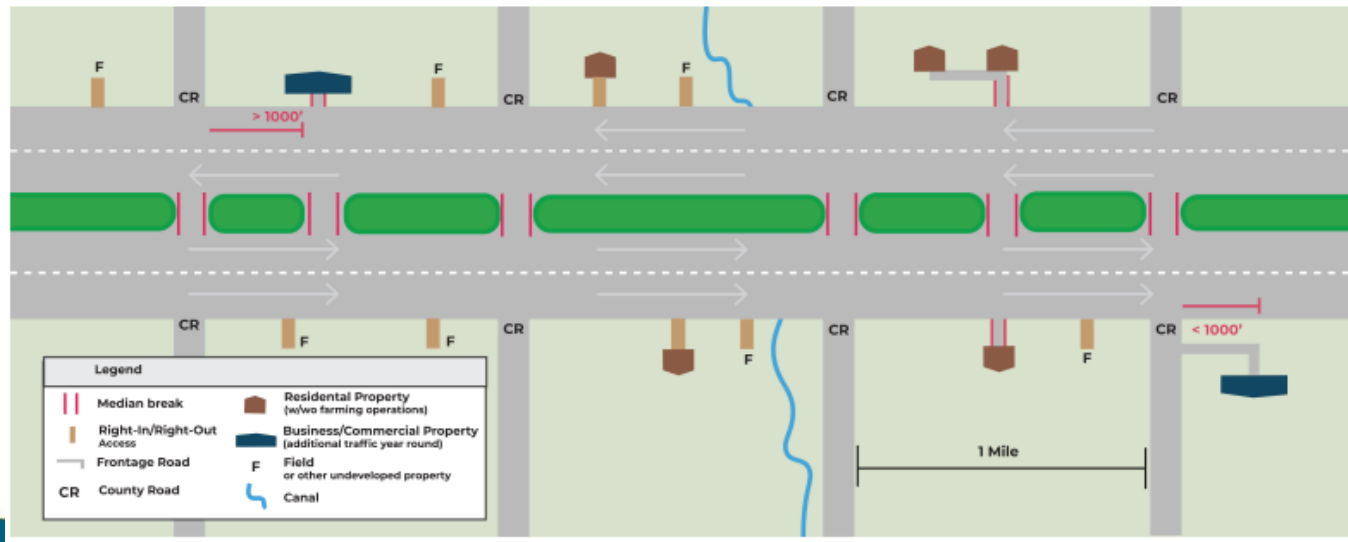
Some Items to be considered:

- Floodway/Floodplain
- Drainage issues
- Adjacent properties & businesses
- Private Golf Course (Osceola)
- Campground & Park (Stromsburg)



Rural Accesses

- Provide access to all properties
- Limit number of access points to the highway for safety
- Minimize median breaks for safety and reduce costs
- Minimize Frontage Roads to reduce costs
- Types of Access
 - Median break
 - Right-in / Right-out



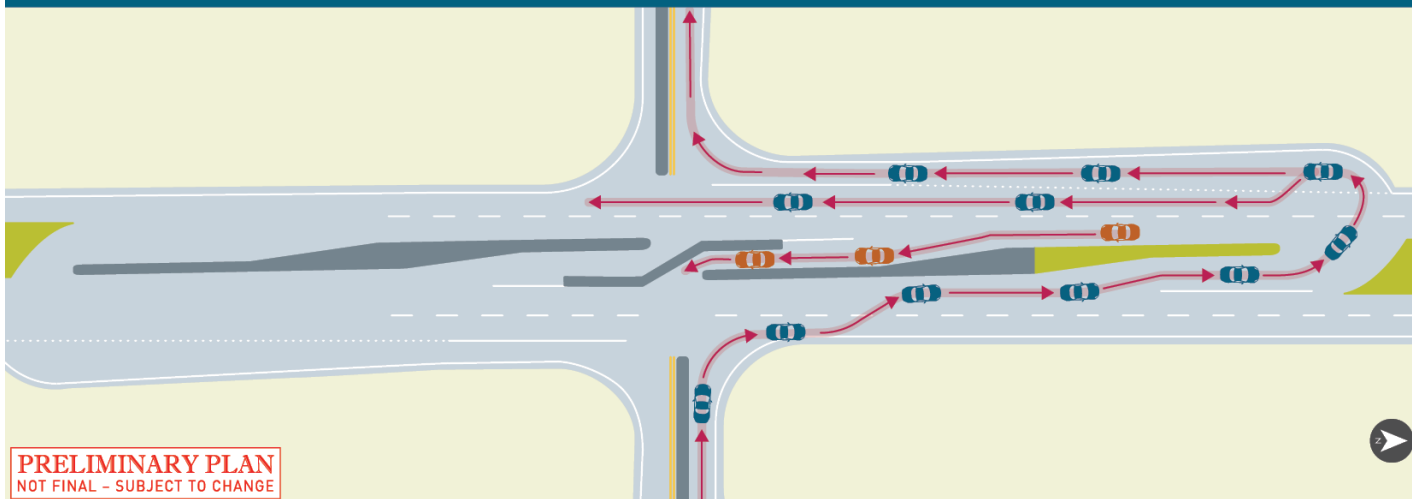
US-81 & N-66

- Cross County High School
- Intersection alternatives evaluated:
 - Standard intersection
 - Roundabout
 - RCUT - Restricted Crossing U-Turn Intersection



<https://dot.nebraska.gov/news-media/transportation-tidbits/>

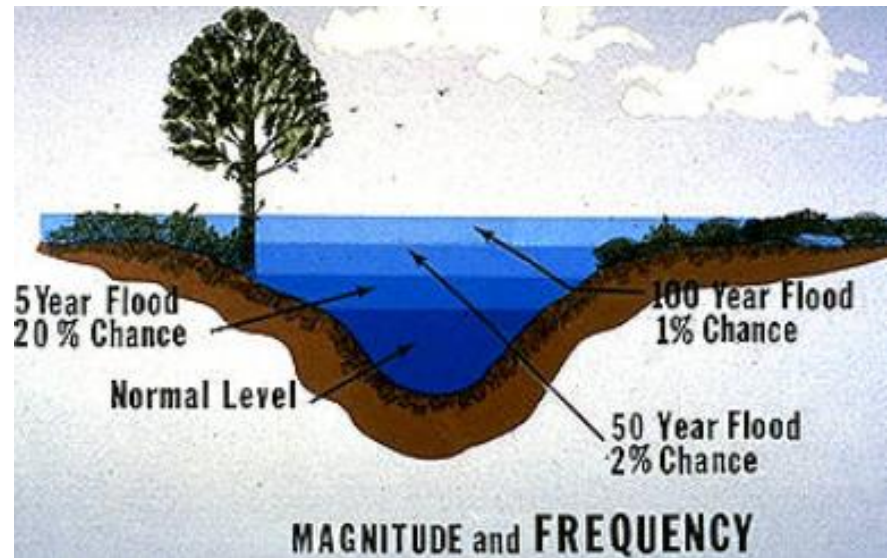
RCUT VEHICLE MOVEMENT



Hydrology & Hydraulics – Overtopping Hwy

- FEMA Floodways & Floodplains
 - 14 Structures within floodplains and floodways
- Design Year Flood Event for Expressways is 50-yr
- 50-yr flood means a flood that has a 2% probability of occurring in a given year
- The Design Year Flood Event will affect how often the highway will be overtopped
- Establishes highway elevations and size of drainage structures

Recurrence interval, In years	Probability of occurrence in any given year	Percent chance of occurrence in any given year
100	1 in 100	1
50	1 in 50	2
25	1 in 25	4
10	1 in 10	10
5	1 in 5	20
2	1 in 2	50



Hydraulic Challenges – Osceola

Existing Conditions

- US-81 runs East into Osceola and then Northeast through Osceola.
- Within the Floodplain
- Osceola: 25-year flood event – Overtopping with existing conditions
 - 4% chance of occurring in a given year



Hydraulic Challenges – Osceola

- Alternative alignment designs considered
 - Extending 3-lane section further West of Osceola
 - Constructing new lanes on the North
 - Constructing new lanes on the South



Other Challenges/Considerations

- Power lines along highway
- Electrical Substation



Other Challenges/Considerations

- Hog operation



Other Challenges/Considerations

- Homes
- Buildings
- RR crossings



Current Construction Project- In Stromsburg



- Existing 2 lane section with some curb and sidewalk
- New 3-lane urban section with curb, gutter, storm sewer and sidewalk
- Includes resurfacing from N of Stromsburg to the W junction of US-81 and N-92
- To be constructed in 2023-24

Similar 3-lane urban sections will be constructed in Osceola and Shelby.

Consultant Design and Environmental Team



- Benesch – Lead Consultant
 - Roadway Design from North of York to South of Stromsburg
- HDR
 - Roadway Design from South of Stromsburg to East of Osceola
 - Environmental Services including Environmental Assessment on the entire corridor
- Felsburg, Holt & Ullevig
 - Roadway Design from East of Osceola to N-64
 - Traffic Studies on the entire corridor

US-81 York – Columbus Corridor: Environmental and Preliminary Design

- Definition of Purpose and Need for improvements
- Environmental Resource Reviews such as:
 - Wetlands
 - Hazardous Materials
 - Community Impacts – Economic/Socioeconomic, Environmental Justice
 - Threatened and Endangered Species
 - Noise & Air Study
 - Section 106 - Historic properties & Archeological impacts
 - Section 4f and 6f – Parks and recreational facilities
 - Water Resources and Water Quality
- Alternative Alignment designs and development of Impacts Matrix



US-81 York – Columbus Corridor: Environmental and Preliminary Design

- Frequent coordination meetings/discussions with State, Consultant, FHWA and other Environmental Resource Agencies
- Public Involvement
- Selection of preferred alternative
- Final Environmental Assessment
- Final Design and Construction
 - Multiple Construction Packages



Drone Video





Questions?

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