



Planning For The Future:

DATA-DRIVEN MOBILITY AND FREEWAY CORRIDOR
DEVELOPMENT IN COLLIN COUNTY

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Introductions



Josh Robertson, PE
Operations Manager
jrrobertson@burnsmcd.com
214-924-9449



Tim Cope, PE, PTOE
Traffic Section Manager
tbcupe@burnsmcd.com
816-652-2546





- Project Team and Roles

- **Client:** Collin County
- **Prime:** Burns & McDonnell
- **Travel Demand and Future Technology:** Kimley-Horn & Associates
- **Lamb Star:** Survey
- **The Rios Group:** SUE & Utility
- **Terracon:** Geotech



Schematic Design & Engineering



Traffic & Safety Analysis



Environmental Studies



Stakeholder Outreach and Public Engagement

Agenda

01 // CONTEXT AND CHALLENGES

02 // PROJECT OVERVIEW

03 // METHODOLOGIES

04 // STRATEGIC PLANNING & IMPLEMENTATION

05 // OUTCOMES AND RECOMMENDATIONS

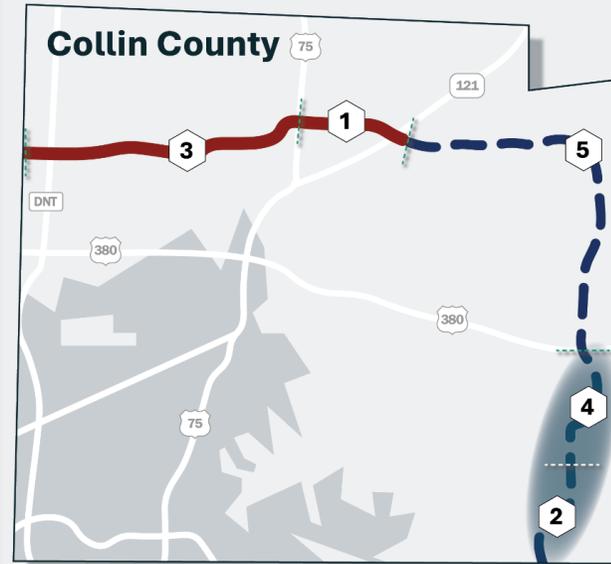
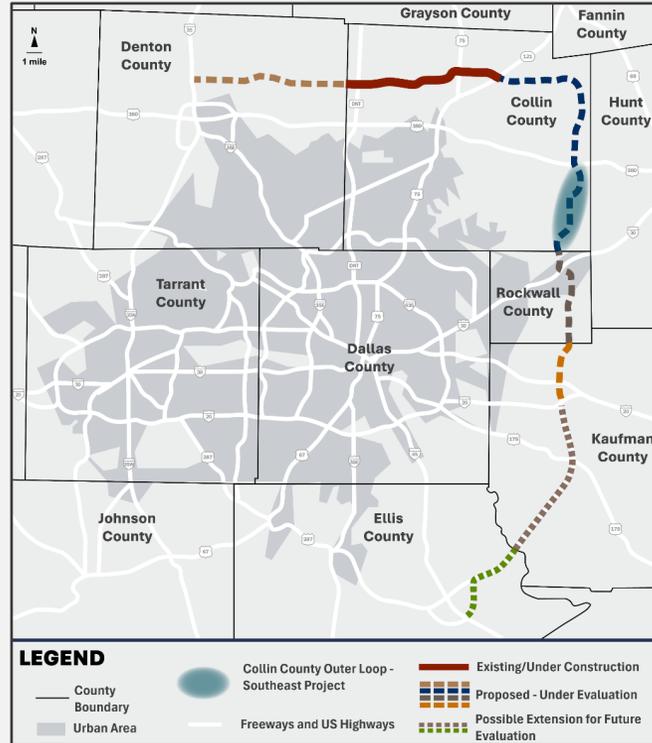


01

CONTEXT AND CHALLENGES

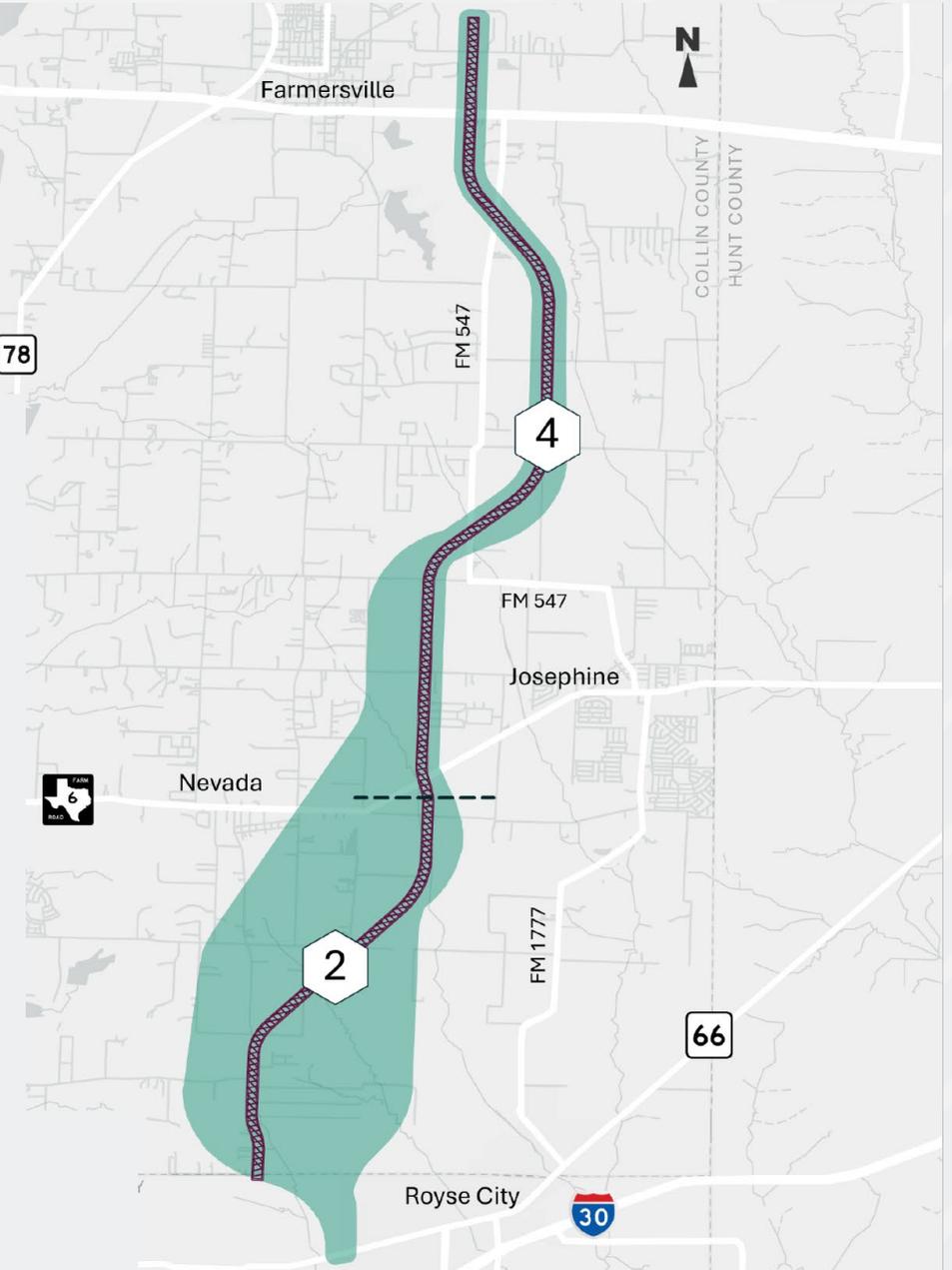


- Outer Loop
 - Regional, County, and Local Project Area
 - Process to Define Study Area



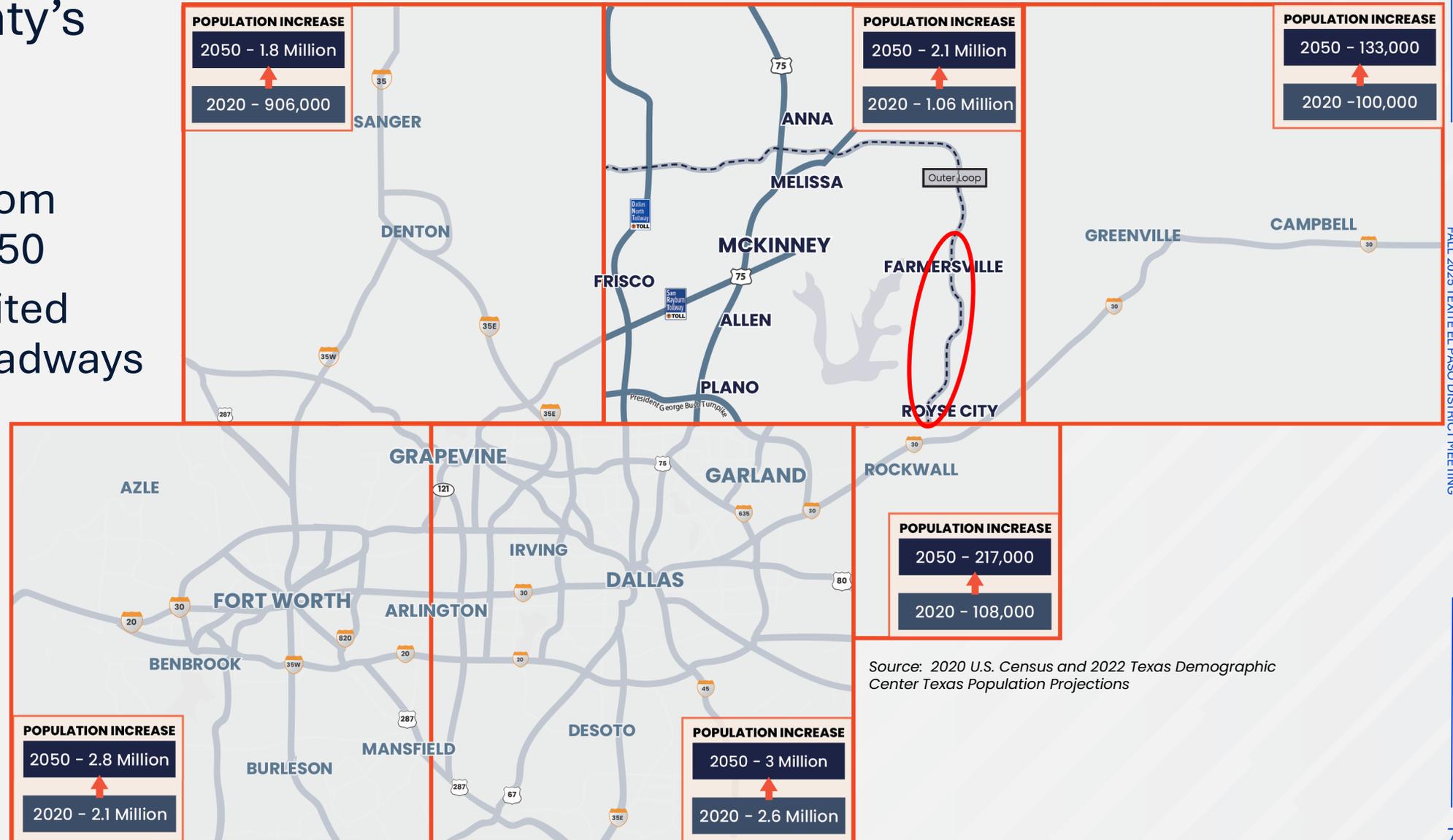
LEGEND

-  Collin County Outer Loop - Southeast Project
-  Existing/Under Construction
-  Proposed - Under Evaluation



Collin County's Population Trajectory

- **Double** from 2020 → 2050
- Fewer limited access roadways



Source: 2020 U.S. Census and 2022 Texas Demographic Center Texas Population Projections

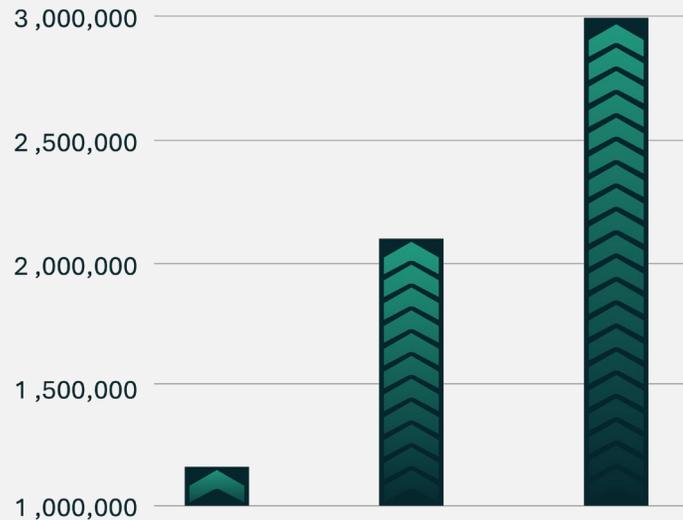
FALL 2023 TEXITE EL PASO DISTRICT MEETING



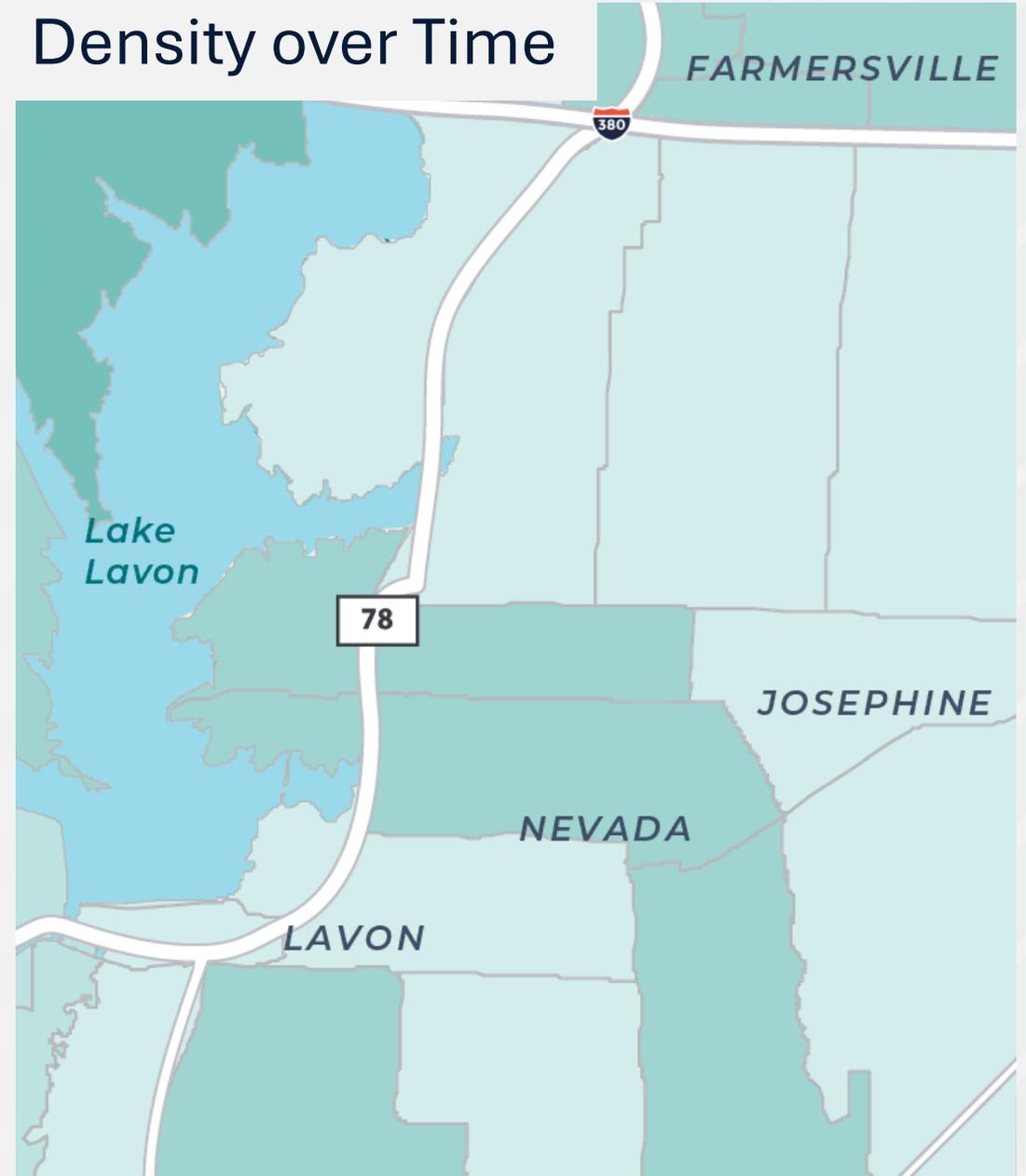
- **Densification in Development**

- Collin County's rapid population growth is anticipated to continue through 2050
- Projections show the **build-out** population is expected to increase from ~ 1 million to **3.4 million**.

COLLIN COUNTY POPULATION



Density over Time



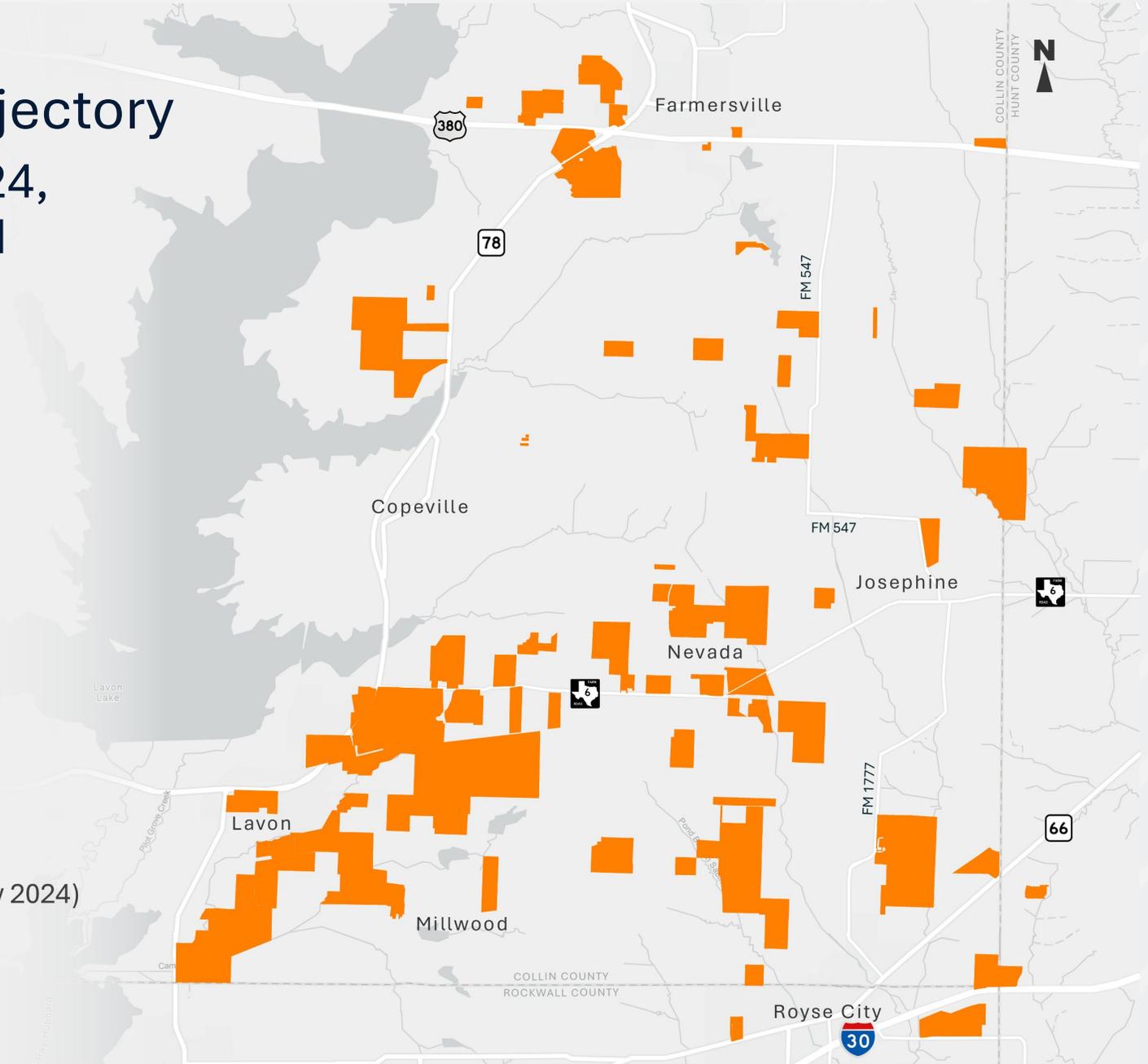


- Collin County's Growth Trajectory

- Between 2021 and early 2024, almost **10,000 acres** of land was identified as **newly developed or planned for development** in the southeast portion of Collin County

LEGEND

 New and Planned Development (2021 to early 2024)





• NEPA-Lite

- Streamlined process due to no state or federal funding
- Ability to establish steps and time frames at the County level
- Opportunity to expedite local document development

	TRADITIONAL NEPA	NEPA-LITE
PROCESS	<p>Steps and time frames set by TxDOT/ FHWA in conformance with NEPA and CEQ Guidance</p> <p>Must formally engage cooperating or participating agencies</p>	<p>Steps and time frames set by the County in conformance with NEPA and CEQ Guidance</p> <p>No engagement with cooperating or participating agencies needed</p>
OUTSIDE AGENCY COORDINATION	<p>Section 106 of NHPA - formally engage THC and ACHP</p> <p>Section 4(f) of DOT Act - coordination with THC, TPWD, potential consulting parties and officials with jurisdiction; include Section 6(f) and Chapter 26 (TPWD) protected properties</p>	<p>Texas Antiquities Code replaces Section 106 - coordination with THC</p> <p>Section 4(f) not applicable Team needs to consider avoidance/ minimizing impacts to public lands and those protected under Section 6(f) and Chapter 26</p>
REVIEWERS	<ul style="list-style-type: none"> • County • TxDOT (District & ENV) <p><i>TxDOT sets standard time frames established for each document stage, including technical reports</i></p>	<p><i>County reviews and sets time frames for document and technical reports</i></p>
LEVEL OF DETAIL	<p>Defined by TxDOT ENV Toolkits, based on state and Federal regulations and guidance</p>	<p>Based on coordination with outside review and regulatory agencies, TxDOT ENV Toolkits used as a guide</p>

02

PROJECT OVERVIEW

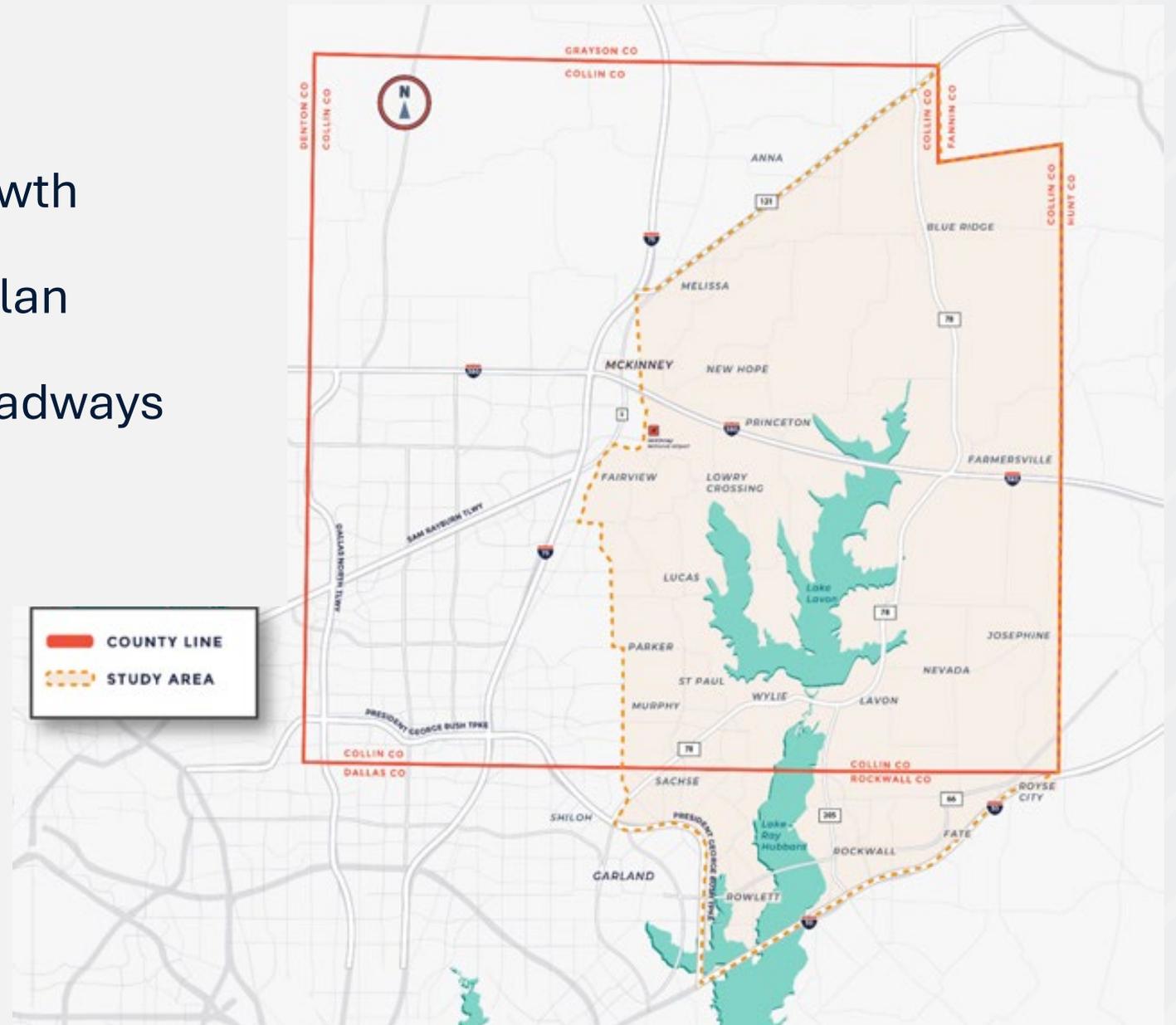
- Collin County Mobility Study
- Collin County Outer Loop
(Seg 2 & 4)





- Collin County Mobility Study

- Population & Employment Growth
- Update Master Thoroughfare Plan
- Recommend Possible New Roadways
- Stakeholder Engagement
- Modal Analysis



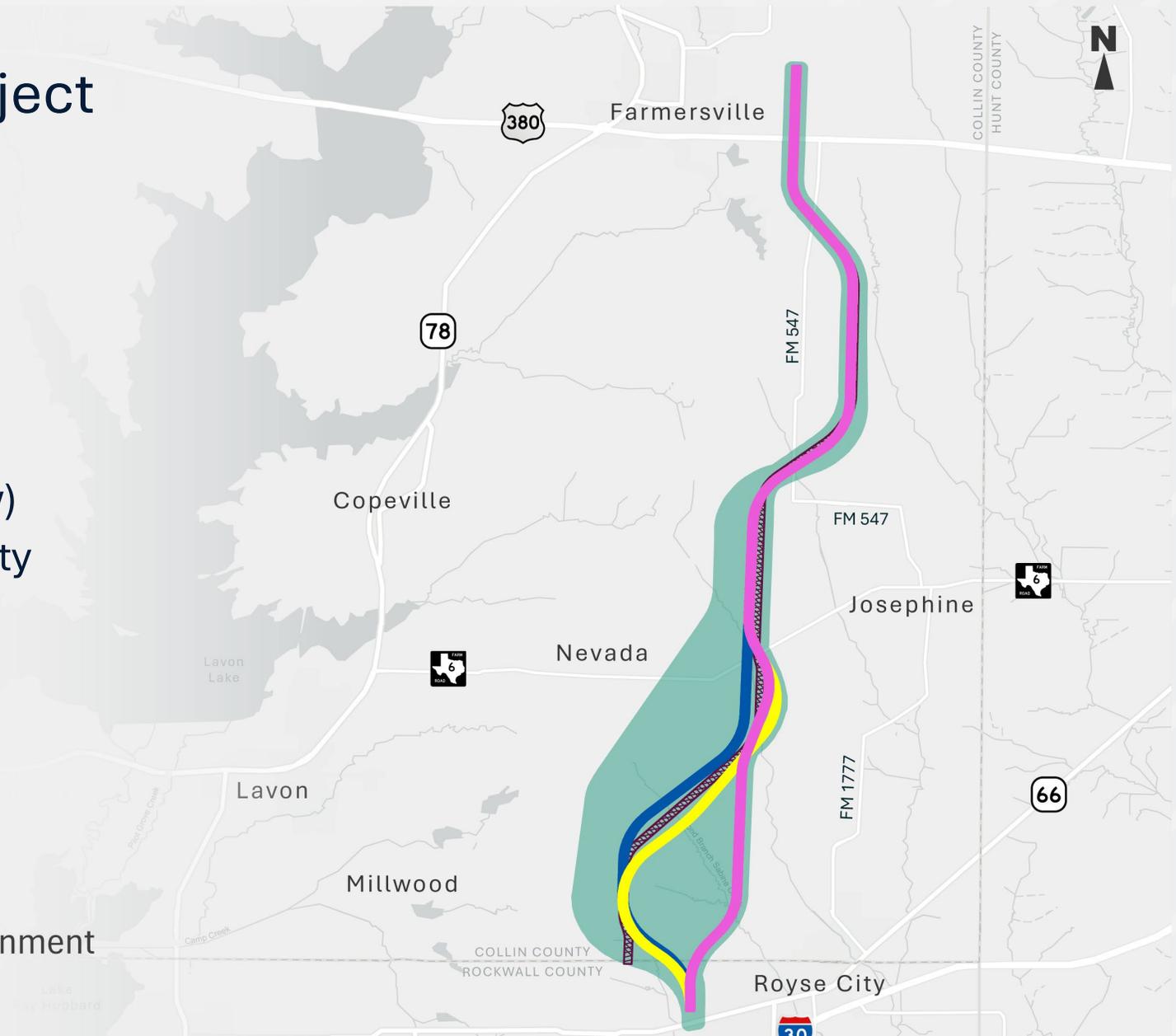


- Transition to Outer Loop Project

- Traffic and Safety Studies
- Stakeholder Engagement
- NEPA-Lite
- PS&E for Interim Condition
- Assess:
 - Interim Conditions Needs (now)
 - Traditional Year 2050 Conformity
 - Collin County Full-Build Out Demographics

LEGEND

-  Pink Alignment
-  Yellow Alignment
-  Blue Alignment
-  Previously Technically Preferred Alignment
-  Project Area





Project Purpose:



Increase connectivity with an improved North-South connection in Collin County.



Enhance safety for all road users.



Manage Congestion by increasing capacity of the road network.

Study Goals:

Plan for future growth and land development.

Preserve roadway corridor for future transportation needs.

Minimize impacts to the natural and built environment.

Enhance travel safety of the overall road network.

03

INNOVATIVE --- METHODOLOGIES



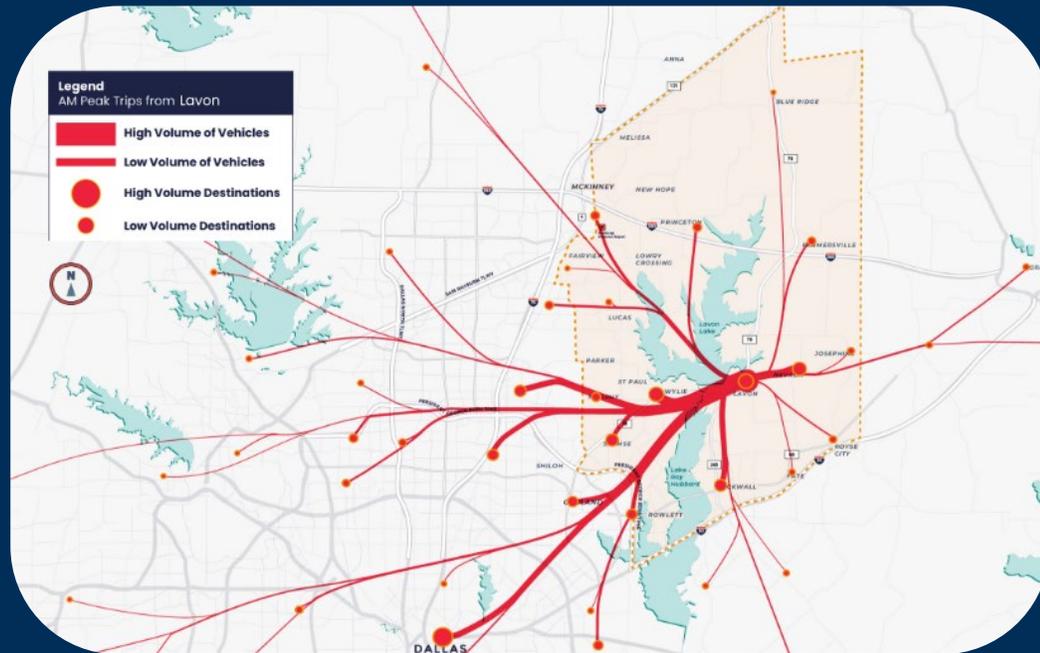


- Regional Origin-Destination

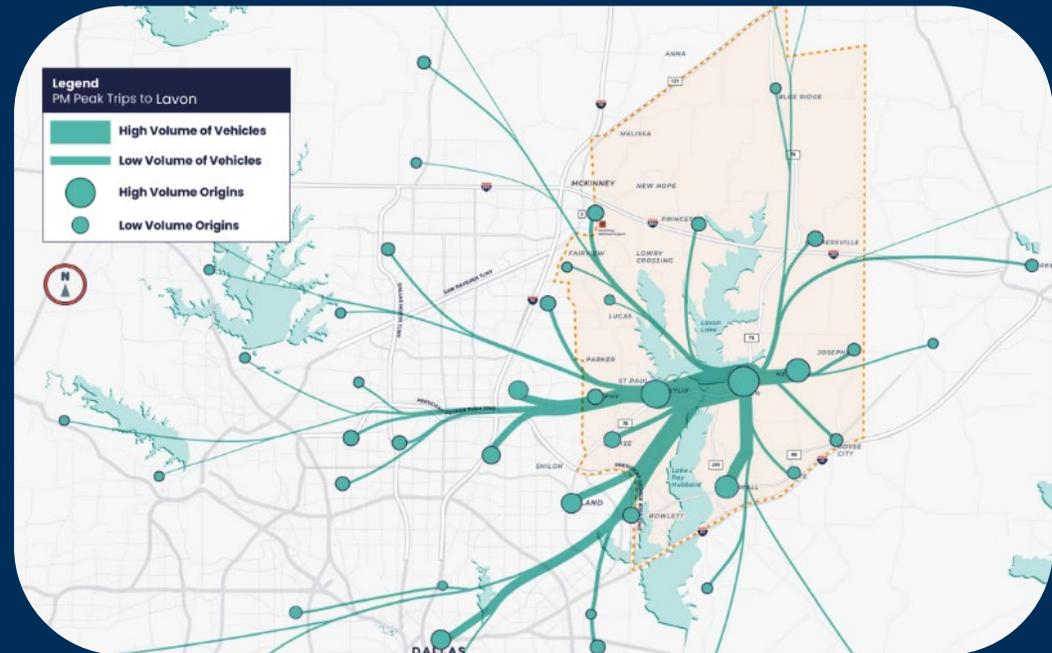
- Big Data and Origin-Destination
- Master Thoroughfare Plan Update

- Big Data

- Pre-COVID: September/October 2019
- Post-Shutdowns: April 2020
- All vehicles traveling within NCTCOG region



Morning Trips from Lavon



Evening Trips to Lavon

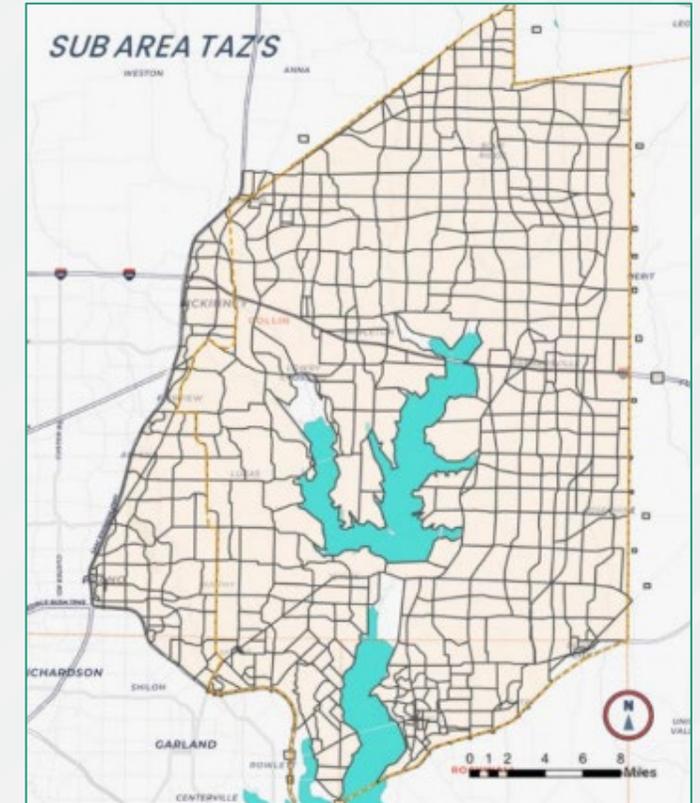
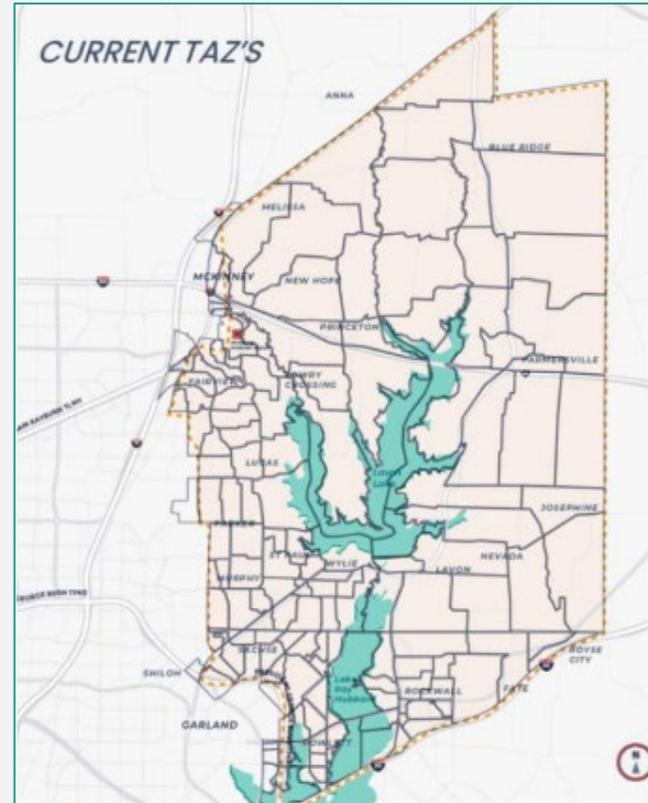


- Travel Demand Modeling *[performed by Kimley-Horn & Associates]*

- NCTCOG Model
- Additional TAZs
- Full-Build Out Demographics
 - 3.4M Collin County Population

- Insights gained from travel patterns

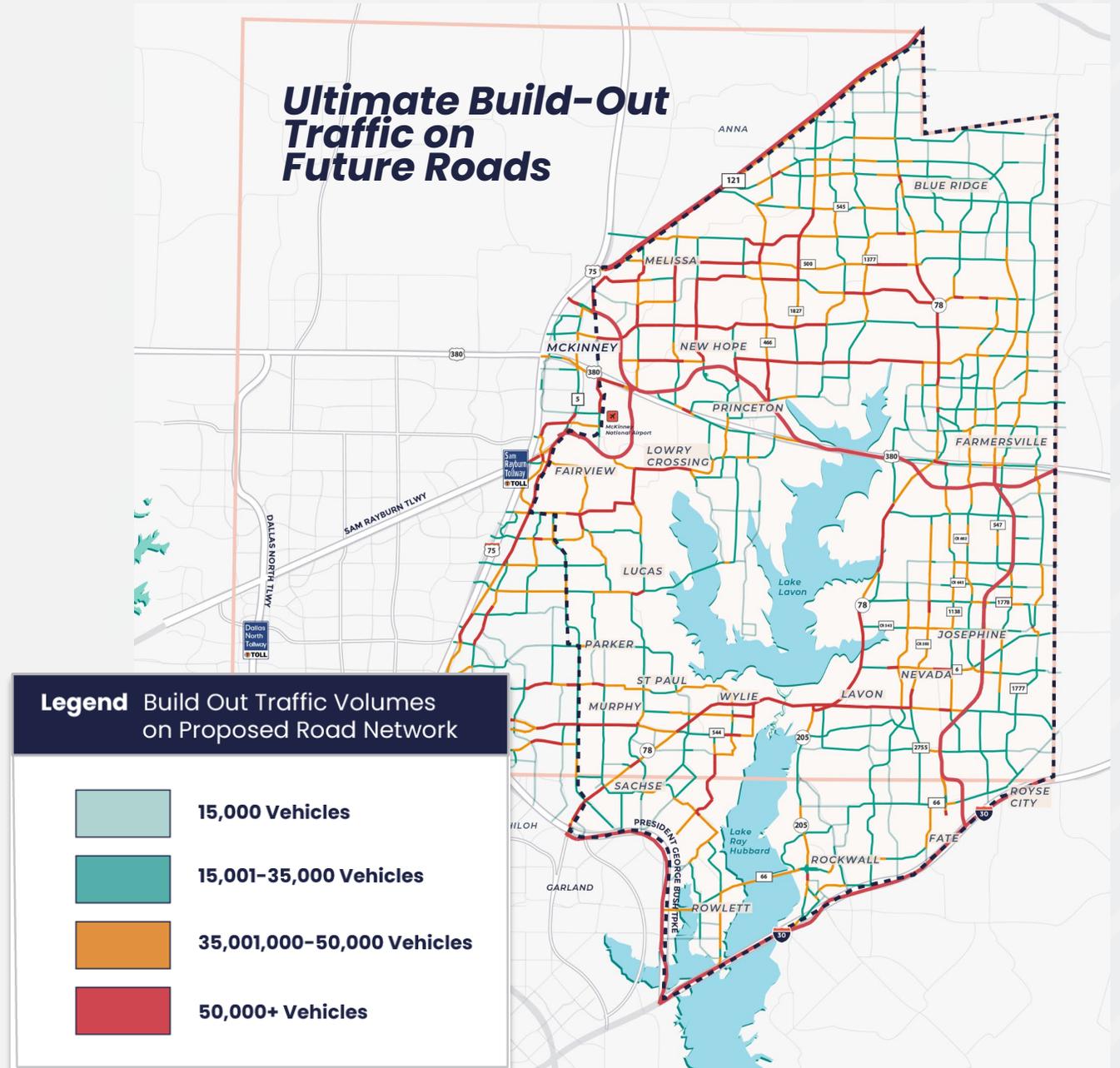
- Focus Areas for Outer Loop
 - SH 78
 - Master Thoroughfare Plan
 - US 380





• What We Learned

- Modeling shows that proposed roadways will greatly improve future mobility
- Exceptions:
 - SH 78
 - East-West Arterials in North Collin County
- Emphasized Need for Collin County Outer Loop



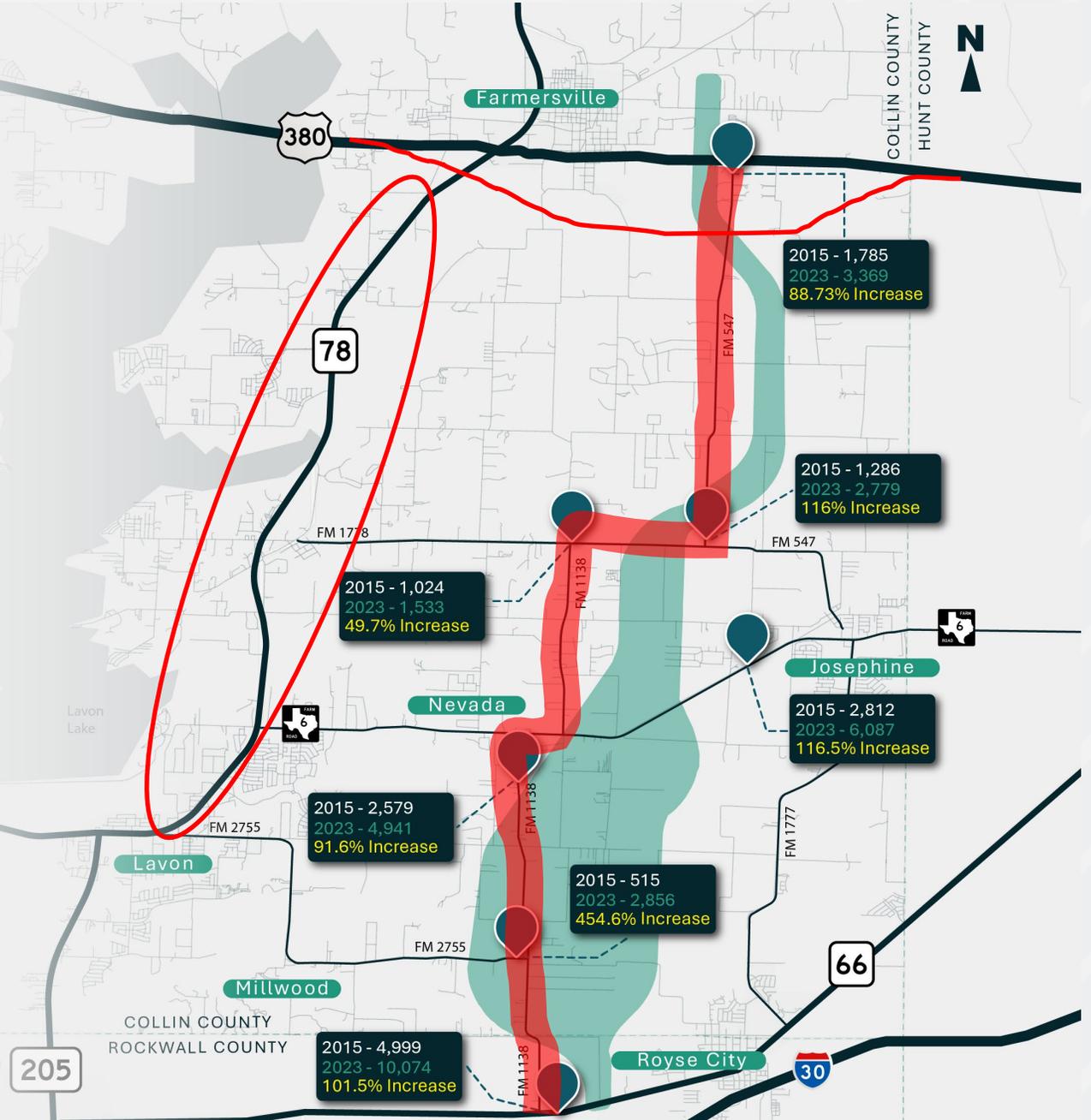


- Pulling data into the Collin County Outer Loop Project

- Evaluation with constraints:

- SH 78
- US 380
- North-South Connectivity

Historic 2015 Average Daily Traffic Volumes
 Current 2023 Average Daily Traffic Volumes
 Volume Percentage Increase





• Traffic Analysis Results

- Significant improvement to North-South Arterials
- Assists Southern Collin County East-West Arterials
- Does not provide significant relief to SH 78

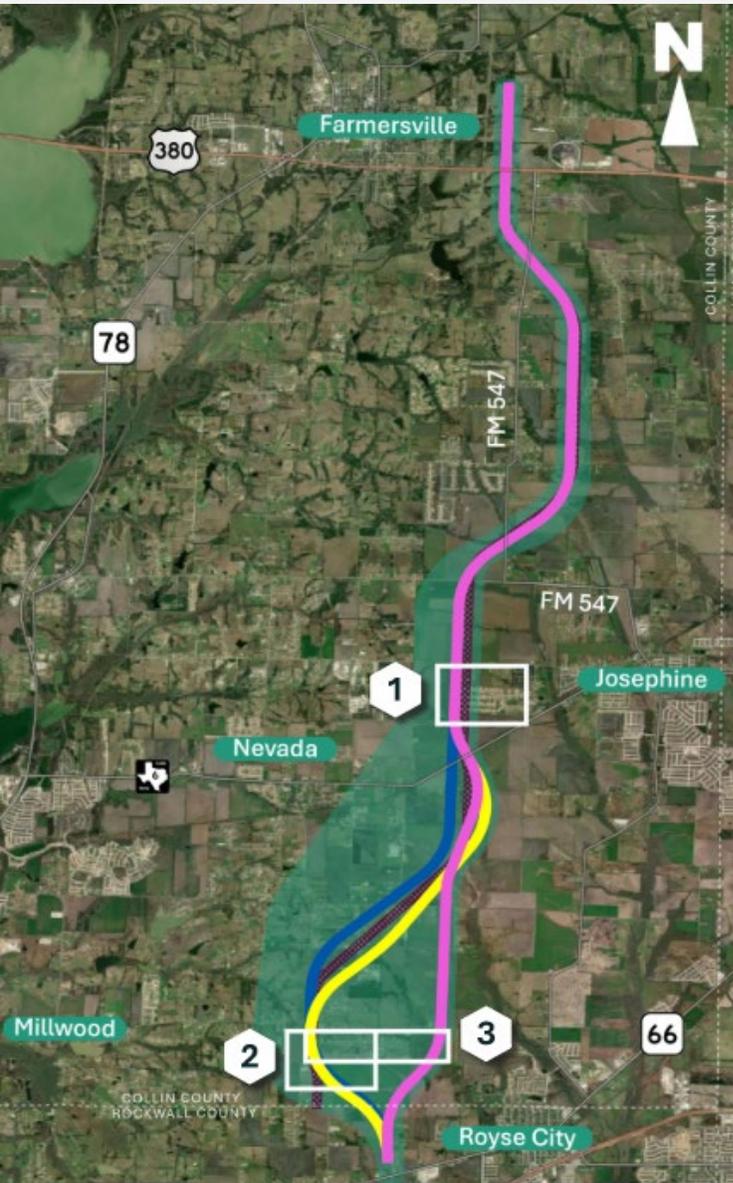
LEGEND

- LOS A
- LOS B
- LOS C
- LOS D
- LOS E
- LOS F

No-Build Collin County Outer Loop

Build Collin County Outer Loop





1 High Meadow Estates

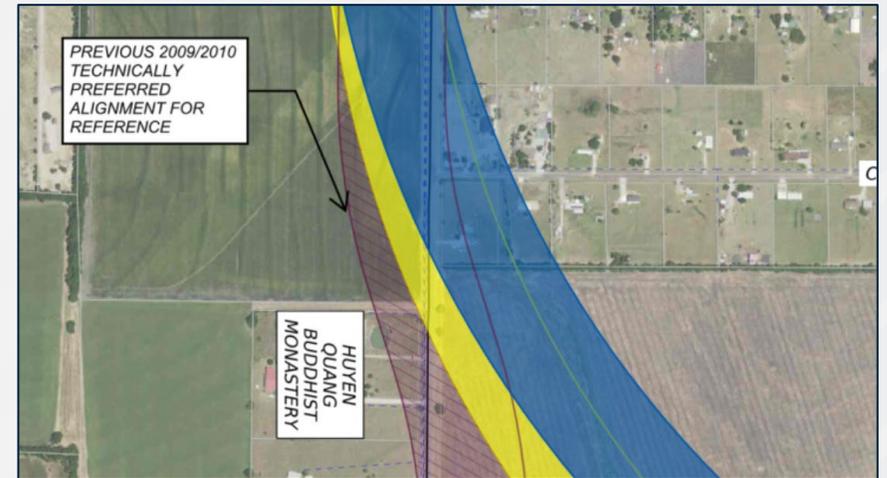
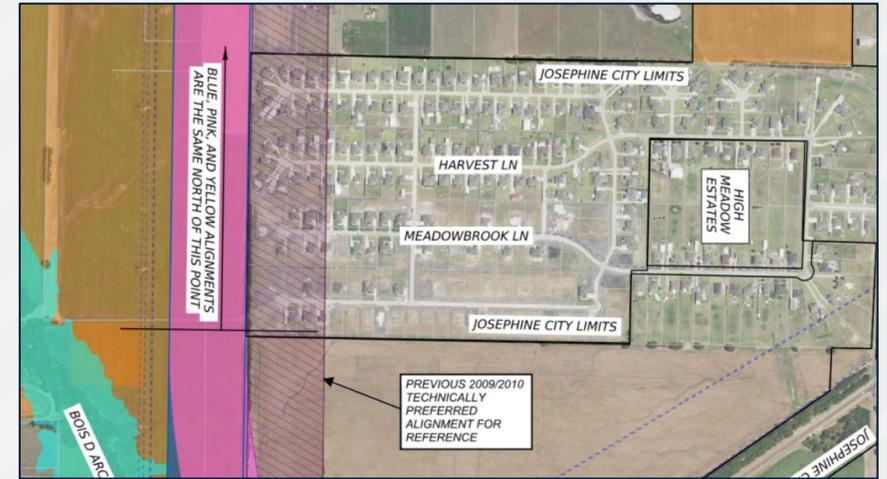
Shifted Alignment West to avoid direct displacements

2 Huyen Quang

Modified alignment curve to avoid direct displacement

3 Linrock Estates

Modified alignment curve to avoid direct displacement



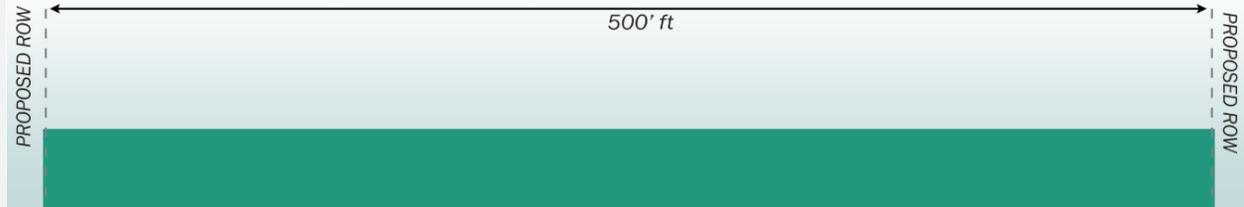
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STRATEGIC PLANNING & IMPLEMENTATION

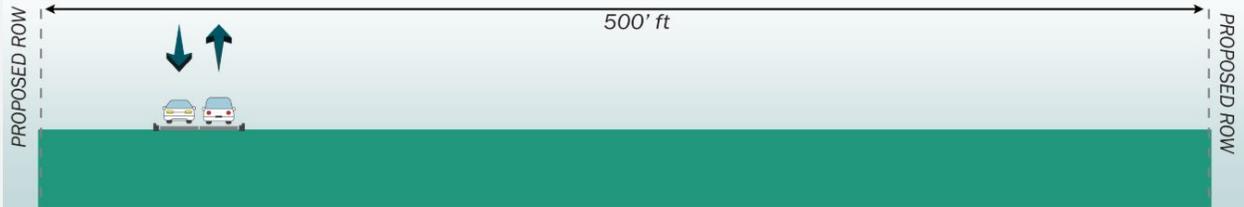




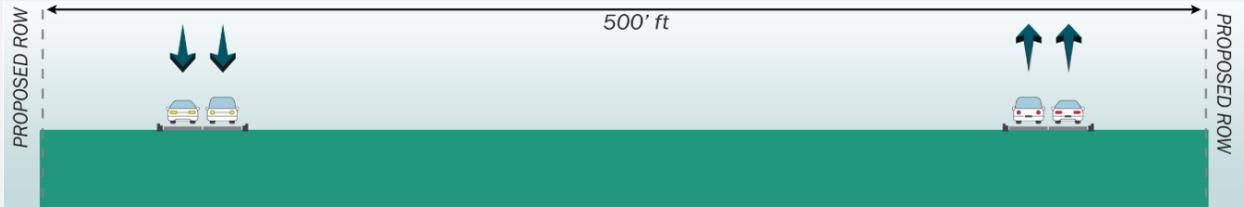
- Phase 1: Right-of-Way Acquisition



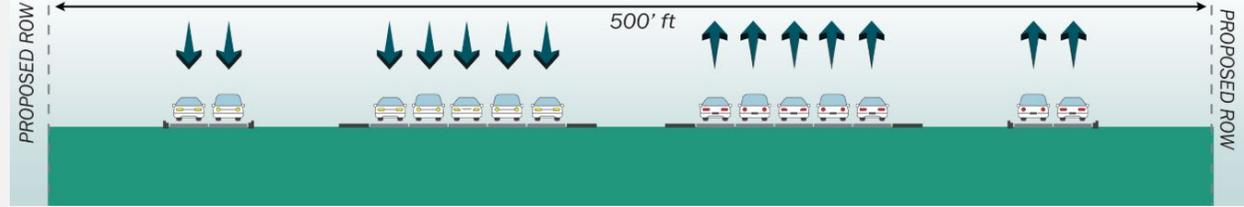
- Phase 2: Construction of One Frontage Road



- Phase 3: Construction of Second Frontage Road



- Future Phase 4 (Ultimate): Construction of Main Lanes



SEGMENT 3B: PHASE 2 COMPLETE



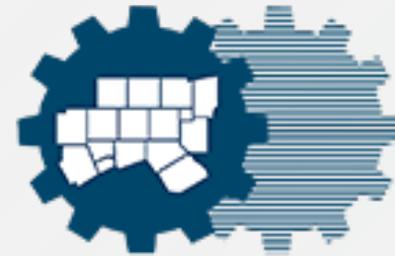
SEGMENT 3B & 3C: PHASE 2 COMPLETE



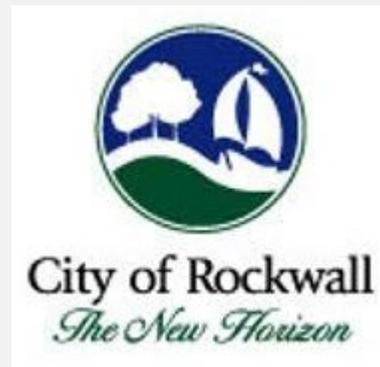
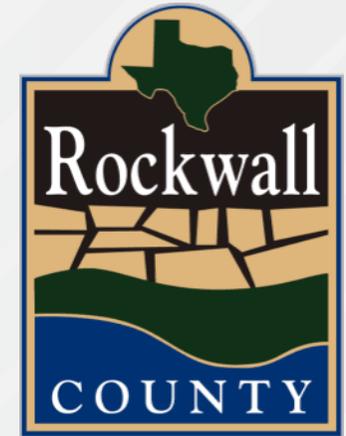
- **On-Going Master Thoroughfare Plan Realignment**

- Coordination with municipalities
 - Glue between the cities / cohesive planning
- Shared goal for right-of-way preservation and future planning

Partners:



North Central Texas
Council of Governments

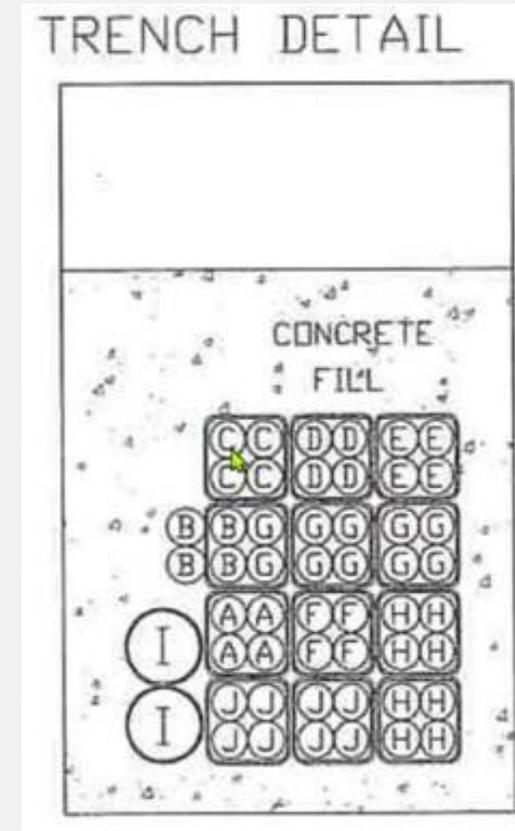




• Future Technology Considerations

- Smart/Technology Corridor
 - Digital Twinning
 - Regional Transportation Management Centers
 - Incident/breakdown management
- Power generation
- Transportation as a utility
- Monetize assets
 - *Lease Out Duct Bank*
 - *Fiber*
 - Data Security

UNDER DEVELOPMENT - TxDOT
Joint Duct Bank Details



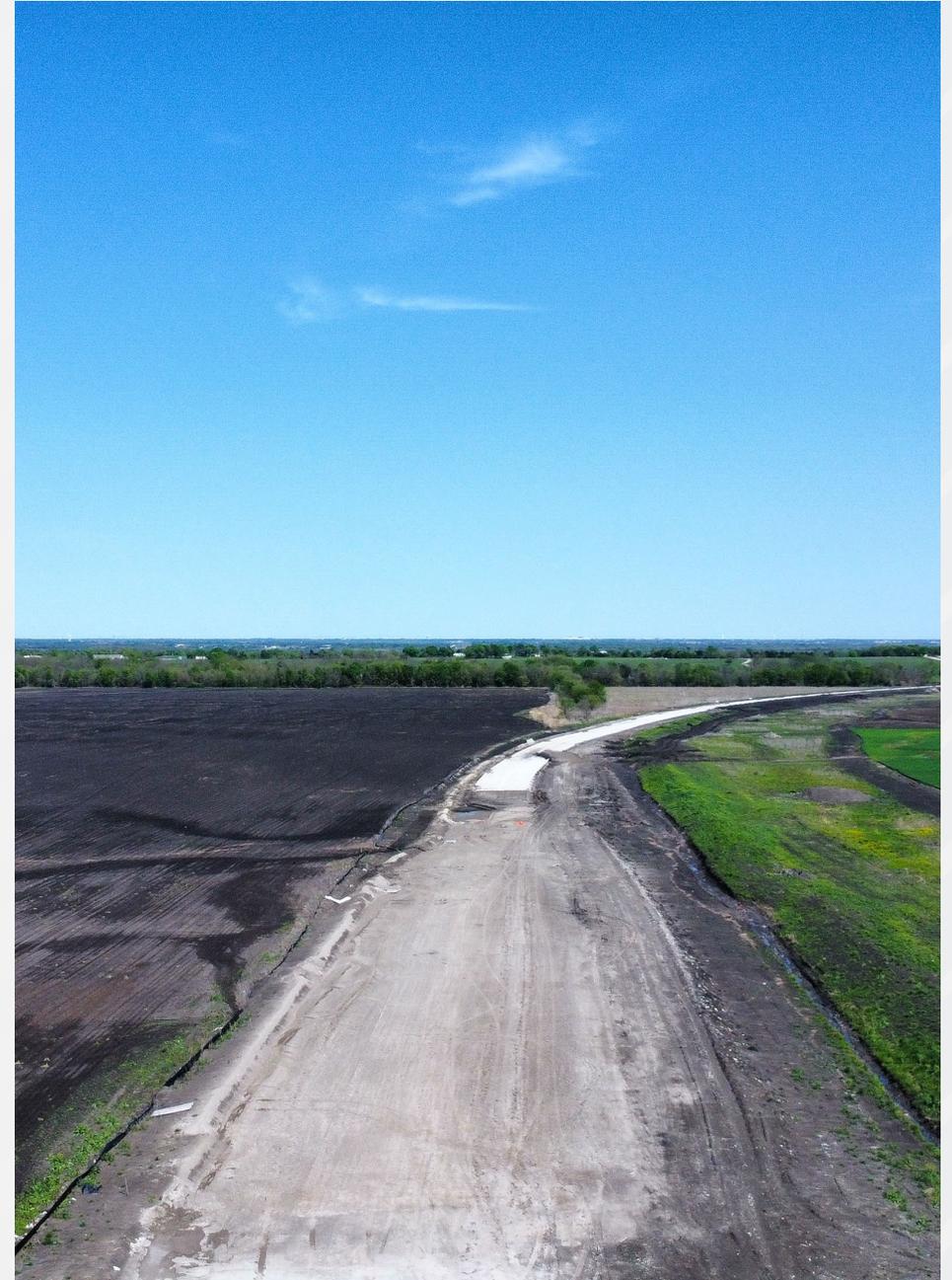
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OUTCOMES AND RECOMMENDATIONS





- Deliverables & Impact
 - Freeway corridor alignment that will sustain long-term growth
 - Potential Model for other fast-growing counties or corridors
- Flexible for Change
 - Funding landscape
 - Potential adaptation to the Traditional role of cities and counties in transportation
- Proactive step in county planning
 - Why – backbone of development
 - “Good infrastructure is the economic engine”





Thank You