



Lubbock Outer Route Study

Final Report

November 2014

Table of Contents

EXECUTIVE SUMMARY.....	vi
1. Introduction.....	1
2. Background.....	3
2.1 Feasibility Study.....	3
3. Need and Purpose.....	6
3.1 System Linkage.....	6
3.2 Transportation Demand.....	8
3.3 Safety.....	8
3.4 Economic Development.....	9
3.5 Multimodal Considerations.....	10
4. Current Route Study.....	11
4.1 Stakeholder Group.....	11
4.2 Study Area.....	11
4.3 Route Options.....	13
4.3 Facility Type.....	17
5. Public Involvement.....	19
5.1 Stakeholder Meetings.....	19
June 25, 2013 Stakeholder Meeting.....	20
October 30, 2013 Stakeholder Meeting.....	20
January 15, 2014 Stakeholder Meeting.....	21
April 8, 2014 Stakeholder Meeting.....	21
May 29, 2014 Stakeholder Meeting.....	24
July 17, 2014 Stakeholder Meeting.....	25
5.2 Public Meetings.....	26
February 4, 2014 Public Meeting (Postponed).....	26
February 25, 2014 Public Meeting	26

June 17, 2014 Public Meeting.....	28
August 21, 2014 Public Meeting.....	29
5.3 <i>Other Public Input Opportunities</i>	30
6. Options Analysis.....	31
6.1 <i>Evaluation Criteria</i>	31
6.1.1 <i>Mobility and Congestion</i>	31
6.1.2 <i>Safety</i>	31
6.1.3 <i>Socio-Economic Impacts</i>	32
6.1.4 <i>Environmental Impacts</i>	32
6.1.5 <i>Engineering</i>	34
6.1.6 <i>Public Input</i>	34
6.2 <i>Evaluation of Options</i>	35
7. Conclusions and Next Steps.....	39

Figures:

Figure ES.1: Proposed Typical Cross Sections for Outer Route.....	vi
Figure ES-2: Preferred Route Option Segments.....	vii
Figure 1.1: Lubbock Regional Map.....	2
Figure 2.1: Map of Sections A through E as studied in the Feasibility Study.....	3
Figure 2.2: Corridor Alternatives in the Feasibility Study.....	4
Figure 3.1: Crash Rate Comparison with Statewide Averages.....	9
Figure 4.1: Share of Agricultural Land.....	12
Figure 4.2: Preliminary Route Options from October Stakeholder meeting.....	13
Figure 4.3: Preliminary Route Options from February Public Meeting.....	14
Figure 4.4: Revised Route Options (with Recommended Option) from June Public Meeting.....	15
Figure 4.5: Revised Route Options (with Preferred Option) from August Public Meeting.....	16
Figure 4.6: Revised Preferred Option for Lubbock Outer Route.....	17
Figure 4.7: Interim and Ultimate Configurations for Lubbock Outer Route.....	18
Figure 5.1: October 2013 Stakeholder Meeting.....	20
Figure 5.2: Stakeholder Meeting April 2014 Segment 1 Options.....	22
Figure 5.3: Stakeholder Meeting April 2014 Segment 2 Options.....	23
Figure 5.4: Stakeholder Meeting April 2014 Segment 3 Options.....	23
Figure 5.5: Stakeholder Meeting April 2014 Segment 4 Options.....	24
Figure 5.6: May 2014 Stakeholder Meeting.....	24
Figure 5.7: Presentation at the February 2014 Public Meeting.....	27
Figure 5.8: Open House at the June 2014 Public Meeting.....	28
Figure 5.9: Project Webpage.....	30
Figure 6.1: Evaluation Score Range.....	35
Figure 7.1: Project Development Stages.....	39

Tables:

Table ES-1: Comparison of Lubbock Outer Route Segments.....	viii
Table 1.1: Population Change for Cities in Lubbock County, 1980 -2010.....	1
Table 2.1: Project Ranking from Feasibility Study.....	5
Table 3.1: Lubbock County Population 1960-2010.....	7
Table 3.2: Lubbock County Population Projections 2010-2050.....	7
Table 3.3: Traffic Compound Annual Growth Rate.....	8
Table 4.1: List of Stakeholders during the Route Study.....	11
Table 6.1: Evaluation Criteria to address Mobility and Congestion.....	31
Table 6.2: Evaluation Criteria to address Safety.....	31
Table 6.3: Evaluation Criteria to measure Socio-economic Impacts.....	32
Table 6.4: Evaluation Criteria to measure Environmental Impacts.....	33
Table 6.5: Evaluation Criteria for Engineering Factors.....	34
Table 6.6: Evaluation Criteria to measure Public Input.....	34

Table 6.7: Segment 1 Rankings June 2014.....	35
Table 6.8: Segment 2 Rankings June 2014.....	35
Table 6.9: Segment 3 & 4: Combinations June 2014.....	36
Table 6.10: Segment 1 Rankings August 2014.....	37
Table 6.11: Segment 2 Rankings August 2014.....	37
Table 6.12: Segment 3 & 4: Combinations August 2014.....	37
Table 7.1: Comparison of Lubbock Outer Route Segments.....	40

Appendixes:

Appendix A: Stakeholder Meeting Summaries.....	A.1
Appendix B: Public Meeting Summaries	B.1
Appendix C: Travel Demand Model Report.....	C.1
Appendix D: Evaluation Summaries.....	D.1
Appendix E: Preferred Route Option Maps	E.1
Appendix F: Environmental Study.....	F.1
Appendix F-1: HazMat Report	F.2
Appendix G: Mailing List and Right of Entry Requests.....	G.1
Appendix H: Preliminary Cost Estimate Assumptions.....	H.1
Appendix I: Route Option Nomenclature.....	I.1

Executive Summary

This study was conducted to identify a preferred, but generalized alignment for the Lubbock Outer Route, and advance prioritized segments for further project development. A stakeholder committee comprised of local leaders and elected officials provided input to the study process as it moved from a series of preliminary options to recommended options and finally preferred options. Seven stakeholder meetings were conducted during the 18-month timeframe of the study. Additionally, three public meetings were conducted over the same time period.

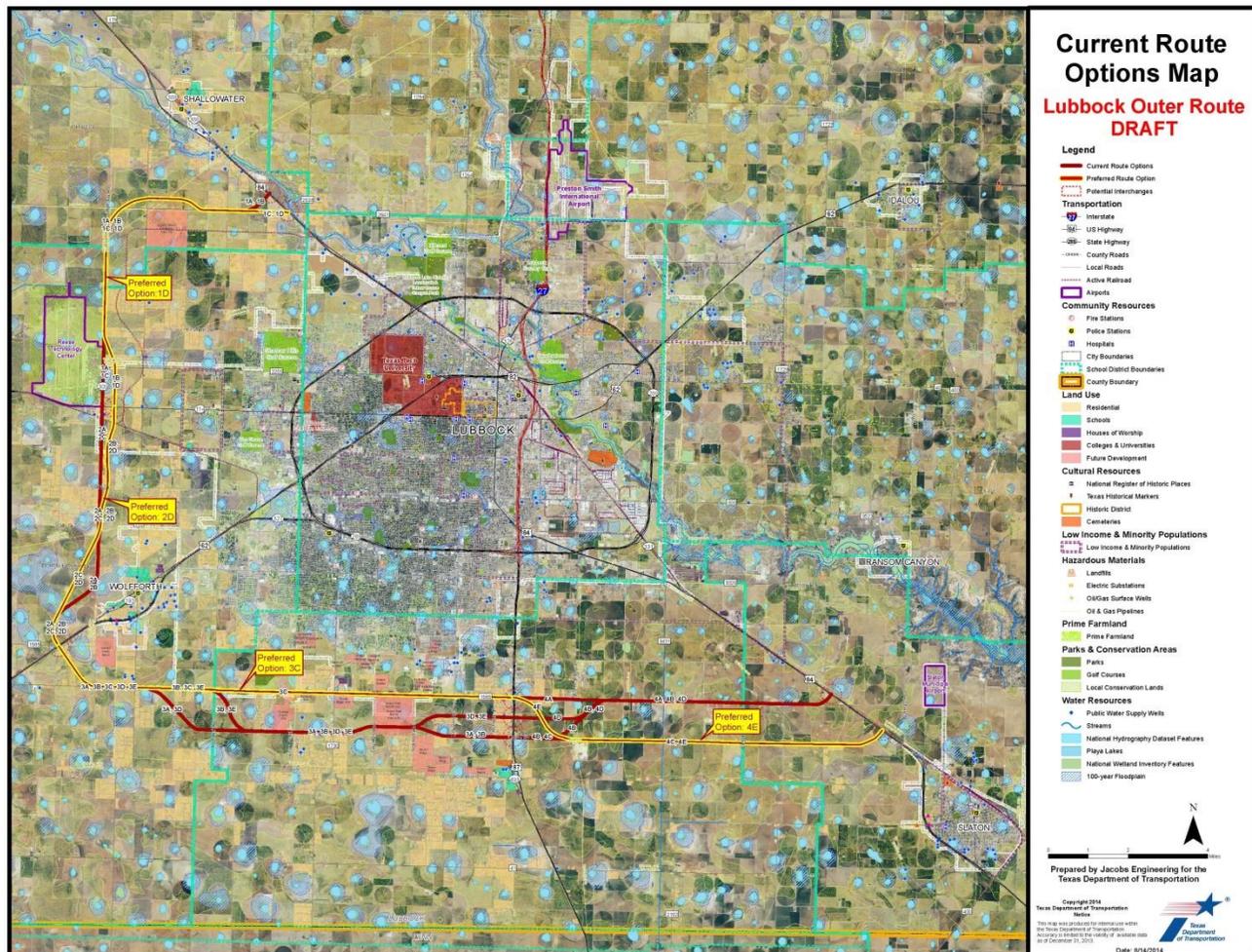
The current route study includes an interim-build and ultimate-build scenario within an assumed 400-foot right-of-way. The interim-build design includes a four-lane divided highway, which would retain at-grade access to adjoining properties. Based on future demand, the highway could later be upgraded to include a freeway facility in the median. Thus, the ultimate facility is designed with four (4) access-controlled lanes along with four (4) frontage lanes converted from the interim-build scenario. In the ultimate scenario, grade separated interchanges are assumed at all major intersections along the proposed route, including US 84 (north and south), US 87, US 82/62, and SH 114. The interim and ultimate build configurations are shown in **Figure ES.1**.

Figure ES.1 Proposed Typical Cross sections for Outer Route



The preferred route option for each segment was selected based on the evaluation of all options using a range of criteria including mobility, safety, socio-economic impacts, environmental impacts, engineering impacts, and public input. These meetings began in February with public review of preliminary route options. This feedback on impacts that would be created by some options led to a number of adjustments in each possible solution. The public feedback received on the recommended options presented during the June 2014 public meeting led to further, but minor changes to Segment 1 option and route revisions for Segments 3 and 4. These changes were then presented as preferred route options at the August public meeting, and received strong support. The preferred route options for the Lubbock Outer Route are identified in the **Figure ES-2** below and summarized on **Table ES-1**.

Figure ES-2: Preferred Route Option Segments



Construction of the interim improvement strategy appears reasonable based on the **Table ES-1** forecasts and the need to provide system continuity between major transportation facilities such as US 82, US 84 and I-27 as well as the International Airport by the Year 2040. The information on

Table ES-1 suggests a need to begin the development of frontage roads along Segment 3 as quickly as the remainder of the project development process can be completed. The interim improvements along other segments appear less pressing from a capacity needs standpoint today.

Table ES-1: Comparison of Lubbock Outer Route Segments

Segment	Average Traffic Demand (2040)	Interim Construction Cost (2014 \$)*	Ultimate Construction Cost (2014 \$)*
Segment 1	5,000 - 6,000	\$49 - 52M	\$181 - 186M
Segment 2	11,000 - 12,000	\$36 - 37M	\$117 - 119M
Segment 3	24,000 - 25,000	\$54 - 72M	\$198 - 219M
Segment 4	15,000 - 16,000	\$32 - 51M	\$142 - 172M
Total	5,000 - 25,000	\$171 - 212M	\$638 - 696M

By the Year 2040, traffic demands on Segment 3 will require additional capacity to maintain good levels of service to the public. Therefore, it is likely that the four-lane freeway portion of the Outer Route is developed here first. Additional segments of the freeway portion can be added at a later date as demand on the existing facilities or interim improvements justify the additional expense of freeway facilities.

The entire interim construction of two frontage roads in each direction of travel throughout the 38 miles of the Lubbock Outer Route could be developed over the next 25 years at a cost of \$171-212 million. The cost for the four freeway lanes in the median of the interim construction would likely occur as needed and funds become available, beginning with Segment 3 towards the end of the 2040 Planning Horizon.

This report was presented on November 14th, 2014 by TxDOT's Lubbock District at the Joint Meeting of the Transportation Policy Committee and the Transportation Advisory Committee of the Lubbock Metropolitan Planning Organization.

1. Introduction

Over the last decade the Lubbock region has experienced substantial population growth, particularly toward neighborhoods south and west of the city center. In fact, Lubbock County added over 36,000 residents between 2000 and 2010, more than were added in the previous two decades combined (see **Table 1.1** and **Figure 1.1**). Coupled with that growth has been an increase in traffic congestion along key corridors, including Slide Road, University Avenue, 82nd Street, Interstate 27 (I-27), United States (US) Highway 82/62, and State Loop (SL) 289. In response to the development and traffic trends, Texas Department of Transportation (TxDOT) commissioned a feasibility study in 2009 that would determine whether conditions warrant an outer route. After the feasibility study showed favorable results upon its release in 2010, TxDOT moved into the second phase, in the form of a route study, in 2013.

Table 1.1 Population Change for Cities in Lubbock County, 1980 -2010

Jurisdiction	1980	1990	2000	2010
City of Lubbock	173,979	186,206 (7.0%)	199,564 (7.2%)	229,573 (15.0%)
Town of Ransom Canyon	561	750 (33.7%)	1,011 (34.8%)	1,096 (8.4%)
City of Shallowater	1,932	1,708 (-11.6%)	2,086 (22.1%)	2,484 (19.1%)
City of Slaton	6,804	6,078 (-10.7%)	6,109 (0.5%)	6,121 (0.2%)
City of Wolfforth	1,701	1,941 (14.1%)	2,554 (31.6%)	3,670 (43.7%)
Lubbock County	211,651	222,636 (5.2%)	242,628 (9.0%)	278,831 (14.9%)

(Source: U.S. Census Bureau)

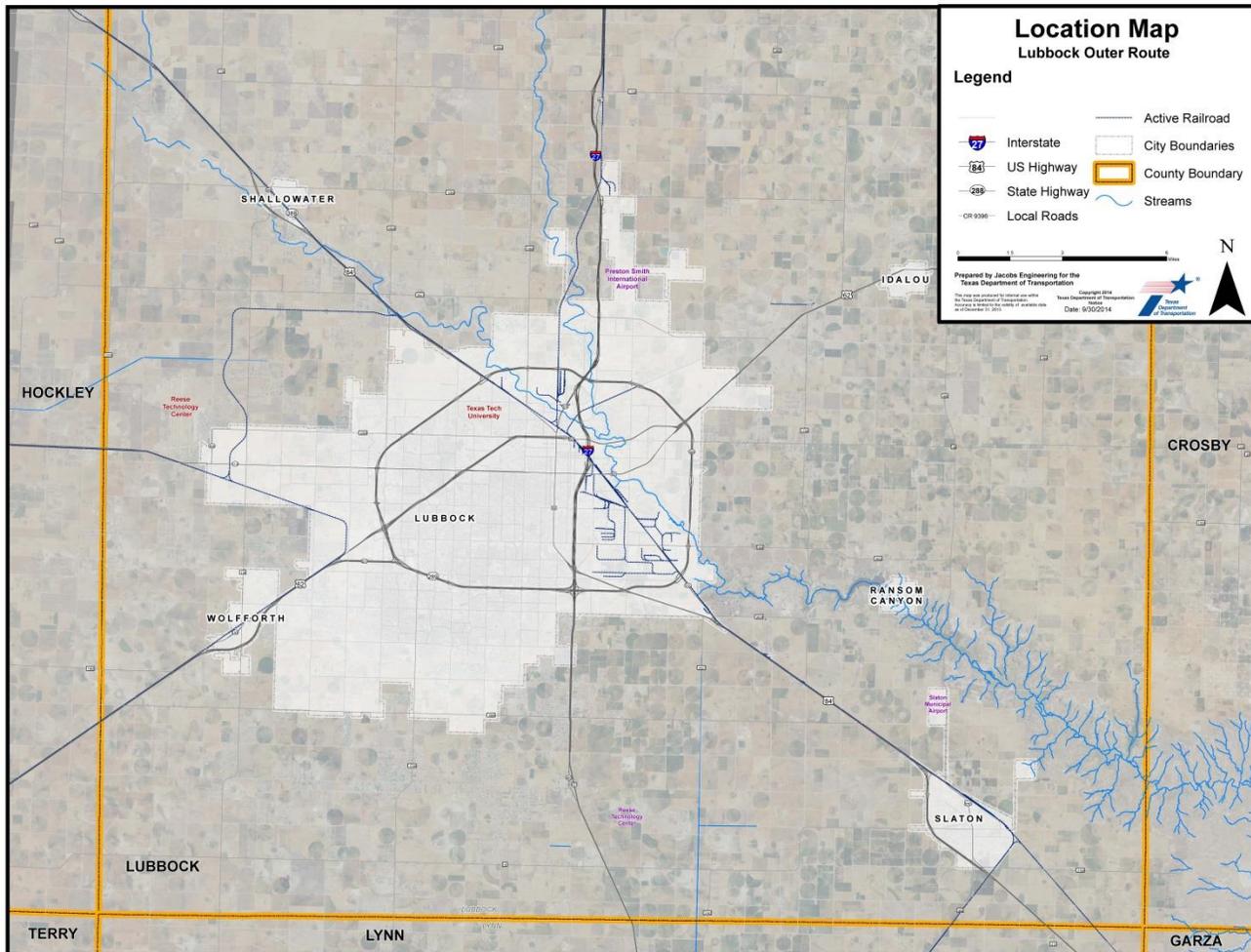
(Number in parentheses represents percent change from previous decade)

This route study was performed during 2013 and 2014, with this final report being published in October of 2014. The following report will:

- Review the purpose and need for the Lubbock Outer Route,
- Review results from the earlier feasibility study and confirm findings,
- Identify environmental sensitivities along potential route options,
- Measure local support for proposed route options,
- Identify route options with the least negative impacts,

- Develop preliminary cost estimates, and
- Identify a preferred route to advance to the next phase of the project.

Figure 1.1 Lubbock Regional Map



2. Background

After several years of discussion within the community regarding the potential for an outer loop in Lubbock, TxDOT commissioned a feasibility study for such a project beginning in 2009.

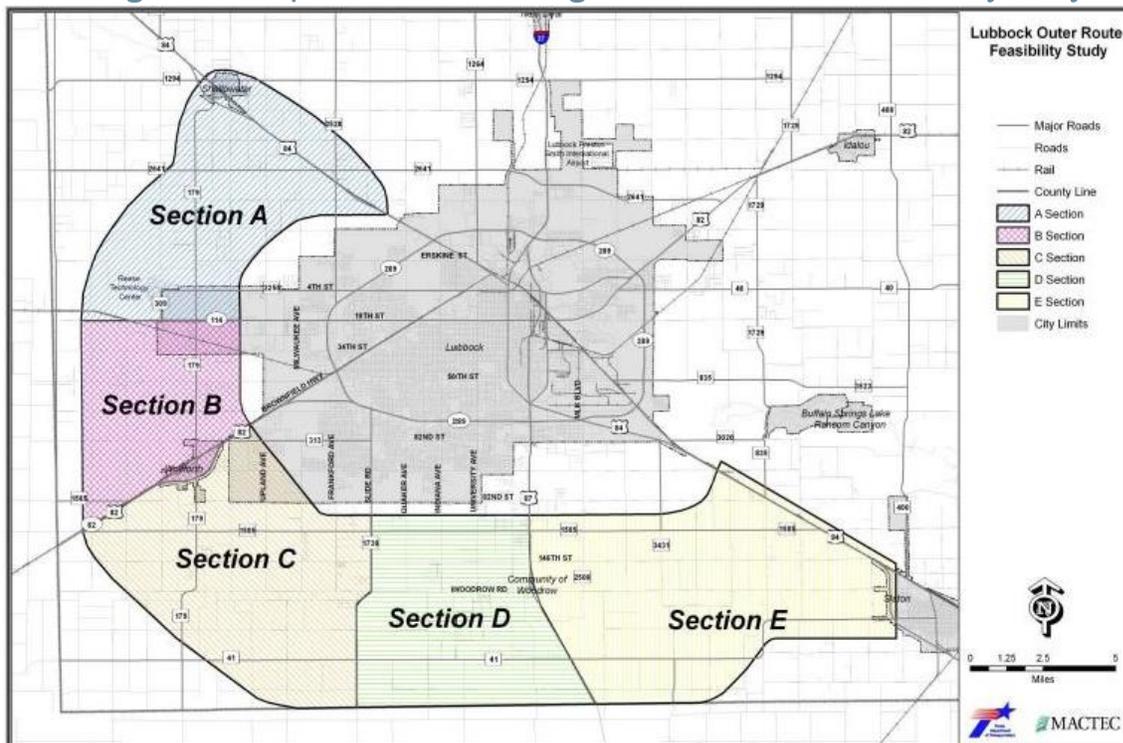
2.1 Feasibility Study

The initial vision was for a second loop outside of Loop 289 to serve the entire metropolitan area. Early in this planning process, it was determined that traffic demands for the northern and eastern portions of the circumferential highway would be extremely low due to the lack of development pressure and the available capacity of the existing highway network north and east of US 87. Therefore, the north and eastern portions of the loop concept were eliminated from further discussion, and the Outer Loop became an Outer Route.

An initial study area was developed for the feasibility study, which encompassed approximately 200 square miles within Lubbock County. The study area was segmented into five sections, identified in **Figure 2.1** as A, B, C, D, and E:

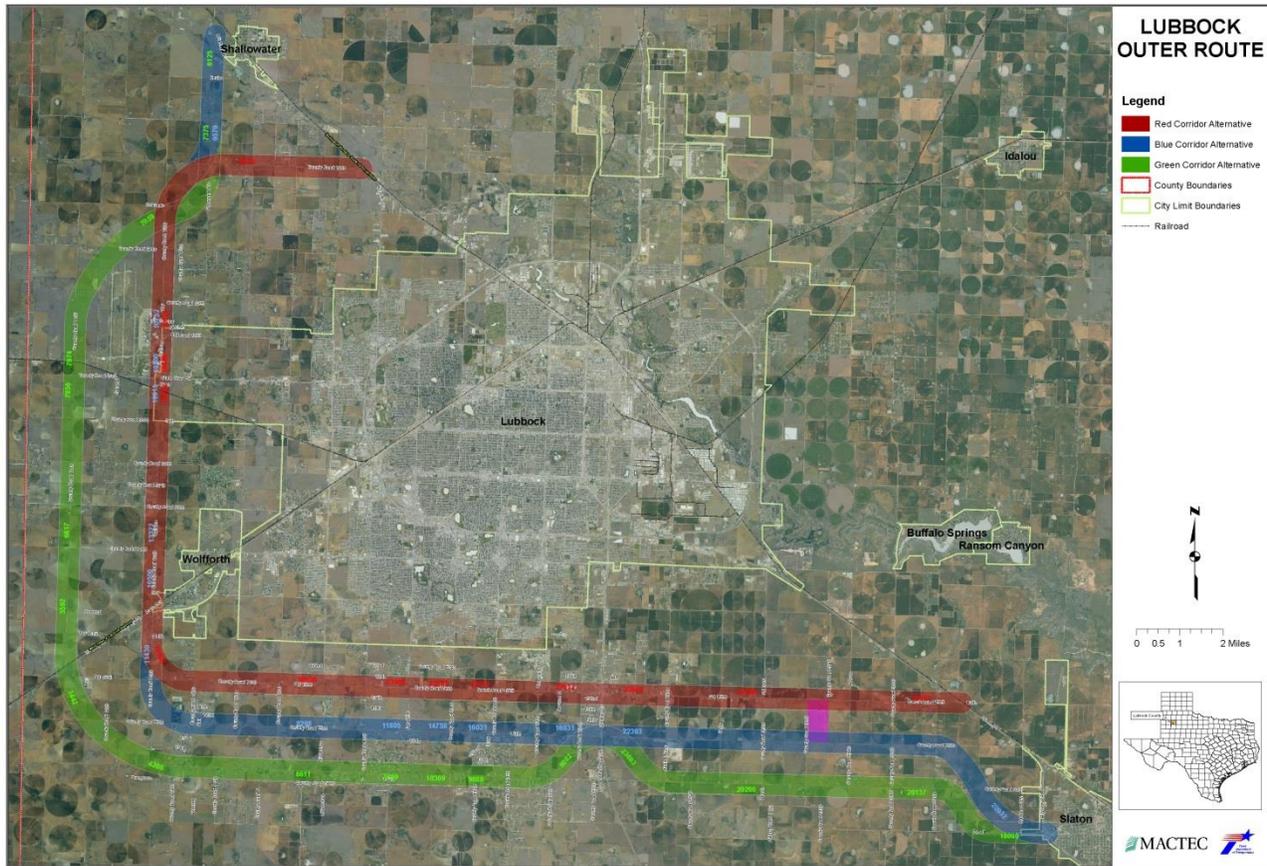
- **Section A:** Includes the area from US Highway 84 near Shallowater to SH 114 to the south
- **Section B:** Includes the area from SH 114 to US Highway 82/62
- **Section C:** Includes the area from US Highway 82/62 to Slide Road to the east
- **Section D:** Includes the area from Slide Road to US 87
- **Section E:** Includes the area from US 87 to US 84 near Slaton

Figure 2.1 Map of Sections A through E as studied in the Feasibility Study



Along with a no-build scenario, three (3) half-mile-wide corridor alternatives were generated during the study, labeled as Red, Blue, and Green (see **Figure 2.2** below). Each alternative generally follows a north-south route between Shallowater and Wolfforth, then turning east-west toward Slaton.

Figure 2.2 Corridor Alternatives in the Feasibility Study



Source: 2010 Lubbock Outer Loop Feasibility Study

Two scenarios were developed for each corridor:

- A four-lane divided highway and
- A four-lane freeway with one-way frontage roads.

A four-lane divided highway is defined as a rural, at-grade roadway with two travel lanes in each direction, separated by a median and access to roadway adjacent properties provided via driveways. A freeway is similar to a four-lane divided highway, but restricts access to adjacent properties. Travelers must exit the main lanes via a ramp, accessing properties either near freeway interchanges or along frontage roads constructed adjacent to the main lanes.

Each of the scenarios and the no-build alternative were evaluated using 24 criteria and then ranked (from 1 to 5, with 1 being the most desirable) based on outputs that included potential

change in vehicle miles traveled (VMT), vehicle hours traveled (VHT) change in total travel delay, volume-to-capacity (V/C) ratio, and cost to build. The results of the project ranking are shown in **Table 2.1** Project Ranking from Feasibility Study.

Table 2.1 Project Ranking from Feasibility Study

Scenario	VMT Rank	VHT Rank	Total Delay Rank	Speed Rank	V/C Rank	Link Delay Rank	Cost Rank	Total	Final Rank
Red Freeway	4	1	1	1	3	2	1	13	1 st
Blue Freeway	5	2	4	2	2	1	4	20	2 nd
Red 4-lane Divided	2	3	3	4	6	6	3	27	3 rd
No-Build	1	4	2	6	7	7	2	29	4 th
Green Freeway	7	6	6	3	1	3	6	32	5 th
Blue 4-lane Divided	3	5	5	5	5	5	5	33	6 th
Green 4-lane Divided	6	7	7	7	4	4	7	42	7 th

Source: 2010 Lubbock Outer Loop Feasibility Study

The ranking exercise revealed that a freeway scenario for the Red corridor earned the best score, while the Green four-lane divided highway ranked last. However, it was determined that traffic volumes may not support a freeway facility until 2050; therefore, the report recommended construction of an interim four-lane divided highway that could later be converted to a freeway with one-way frontage roads.

Based on the results of the feasibility study, the Red corridor was the most preferred, while the Blue corridor was also deemed feasible. The Green corridor was recommended for elimination from further review.

3. Need & Purpose

The purpose of the Lubbock Outer Route is to develop a corridor that will meet future transportation needs and to facilitate the safe movement of goods and people. Given the long range nature of this need, a recommended corridor needs to be established now, so that local governments can ensure it is possible to build these improvements at a future date using corridor preservation efforts.

The route objectives are defined as follows:

- Increase access to portions of the metropolitan area that are expected to grow over the next 40 years.
- Address growing transportation needs through the provision of additional capacity.
- Improve the safety and efficiency of travel.
- Foster economic development in areas by providing increased accessibility.

The study objectives align with TxDOT statewide goals of:

- Working proactively to minimize congestion on existing transportation corridors.
- Reducing safety concerns associated with the expected traffic growth in the area.
- Improving accessibility to developing areas of the region without compromising environmentally sensitive areas or existing quality of life.
- Enhancing infrastructure that supports economic activity.

The Lubbock Outer Route is identified within the Lubbock MPO Transportation Plan 2040 as one of three main corridors for future development. In accordance with the plan, a feasibility study was performed and a final report was released in 2010. Results from the feasibility study led to the current Route Study.

In an effort to prepare for current and anticipated needs the Lubbock Outer Route Study has identified the following areas of need to be addressed:

- System linkage,
- Transportation demand,
- Safety,
- Economic development, and
- Multimodal considerations.

3.1 System Linkage

Change in Lubbock County's population has been difficult to predict, as growth has occurred at a varied pace over the past 50 years. In fact, population growth over the last decade occurred at a rate not seen in the county since the 1970s.

Table 3.1 summarizes the population and percent change over the last five decades, signaling a positive if uneven growth.

Table 3.1: Lubbock County Population 1960-2010

Year	Population	% Change
1960	156,271	N/A
1970	179,295	14.73%
1980	211,651	18.05%
1990	222,636	5.19%
2000	242,628	8.98%
2010	278,831	14.92%

Source: Lubbock Outer Route Feasibility Report (2010); US Census Bureau

Table 3.2 illustrates projected population growth for Lubbock County through 2050 based on data from two sources: the Texas State Data Center and the Texas Water Development Board. The Texas State Data Center projections use the one-half 2000-2010 migration scenario, which assumes the rate of net migration will be half of that experienced between 2000 and 2010. Based on this calculation, Lubbock County can expect to add approximately 116,238 residents by 2050, equating to a nearly 42 percent increase in the county’s population in 40 years. The Texas Water Development Board projection was developed as part of the 2016 Regional Water Plan, created as an aid in planning for the management of the state’s water resources. The Texas Water Development Board dataset predicts slightly higher population growth than the Texas State Data Center projections, with an expected population increase of close to 49 percent by 2050.

Table 3.2: Lubbock County Population Projections 2010-2050

Year	TSDC Data (One-half 2000-2010 Scenario)		2016 TWDB Regional Water Plan	
	Population	% Change	Population	% Change
2010	278,831	N/A	278,831	N/A
2020	307,066	10.13%	309,769	11.10%
2030	337,364	9.87%	343,977	11.04%
2040	366,131	8.53%	378,320	9.98%
2050	395,069	7.90%	414,938	9.68%

Source: Texas State Data Center, University of Texas at San Antonio; Texas Water Development Board; US Census Bureau

Most of the projected growth, as well as some redistribution of the existing population, is expected to be accommodated in the western, southern and southwestern portions of the county.

3.2 Transportation Demand

Transportation demand needs are assessed using the local Metropolitan Planning Organization (MPO) travel demand model. Using their regional travel demand model, the Lubbock MPO has identified a regional increase of 3.4 million vehicle miles of travel (VMT) per day from the base year of 2006 to the forecast year of 2040. This would represent a 56% increase in VMT over a 34-year period. A considerable part of this increase is in the southwest portion of Lubbock, where the Lubbock Outer Route is proposed.

In keeping with existing growth trends, other special traffic generators and activity centers like Reese Technology Center, Frenship ISD and Lubbock-Cooper ISD have been identified toward the city’s southwest in response to observed growth west of US 87 and south of SH 114. Evidence of increasing population outside Loop 289 is also given by the recent development of other trip generators including the Lubbock Youth Sports Complex and several new public schools.

Roadway and Highway Network Inventory (RHiNo) traffic forecasts data in 2012 suggest a compound annual growth rate (CAGR) of 1.7% for Loop 289 and along US 84 signaling a steady climb in the demand for both roads over the next 20 years. **Table 3.3** summarizes these records.

Table 3.3: Traffic Compound Annual Growth Rate

Road	2012 Traffic Counts	Forecasted 2032 Demand	Compound Annual Growth Rate Range 2012-2032
SL 289 near Quaker Avenue	70,000	97,700	1.7%
US 84 North near SL 289	9,300	13,000	1.7%
US 84 South near SL 289	14,700	20,600	1.7%

Source: TxDOT RHiNo Data (2012)

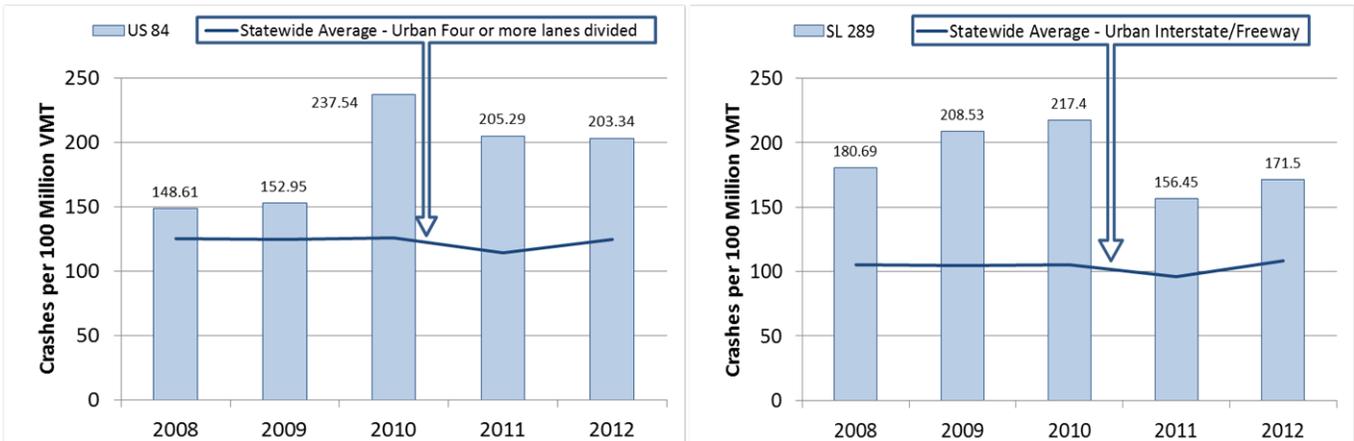
3.3 Safety

The northern and southern portions of US 84 and the western half of Loop 289 form a bypass for traffic otherwise required to travel through central Lubbock. Crash rates along both roads are well above the statewide average for roads of similar classification and safety concerns are expected to increase over the coming decades given traffic projections. Average crash rates for both road sections along with statewide averages are displayed in **Figure 3.1**.

SL 289 is a controlled access facility, similar to an interstate, and is therefore compared with the urban interstate crash rates, as compared to the State Highway crash rates, since the State Highways include facilities that are not controlled access. Similarly, US 84 is a multi-lane divided

highway, and is compared to the statewide average of an urban four or more lane divided facility. Both facilities have much higher crash rates for each year studied than the comparable statewide average for the same year.

Figure 3.1: Crash Rate Comparison with Statewide Averages



Source: TxDOT Crash Records Information System

US 84 and SL 289 are major facilities currently in use today. With the construction of an Outer Route, it is reasonable to assume some traffic would divert from these existing facilities to the new route. Using more modern design standards in a “greenfield” alignment will permit the creation of a safer facility with lower potential crash rates. Therefore, the frequency of crashes with the Outer Route included in the highway network could be expected to be less than the frequency of crashes without such a facility.

Existing safety concerns coupled with an expected increase in demand (See **Table 3.3**) will require alternatives to the current road system making roads such as Lubbock Outer Route not only feasible but necessary.

3.4 Economic Development

The majority of projected population growth in the Lubbock area is expected to be concentrated in the southwest portion of Lubbock County. Therefore, the Lubbock Outer Route Study is being conducted in response to that forecasted growth.

In the last decade alone, growth in the western, southern, and southwestern portions of Lubbock County have corresponded with significant development activity. This includes the construction of public schools including Lubbock-Cooper West Elementary, Lubbock-Cooper Central Elementary School, Lubbock-Cooper Laura Bush Middle School, as well as additions to existing Frenship ISD campuses. Activity also includes the redevelopment of the former Reese Air Force Base into Reese Technology Center, construction of the Covenant Southwest Medical Park, opening of new locations for United’s Market Street grocery store and Kohl’s department store, as well as development of

several new home communities including Kelsey Park, Timber Ridge Estates, and Cooper Ranch. While the direct economic impact of the proposed Outer Route is difficult to measure, the proposed facility is expected to improve access to over 4,000 acres of land.

3.5 Multimodal Considerations

While the study area generally lacks facilities for transit, pedestrians and bicyclists, it is likely that accommodations for these modes will be considered in the design of the Lubbock Outer Route. The following section addresses the modes that may be incorporated.

Lubbock's local bus system, Citibus, operates nine regular routes, ten routes for Texas Tech University, and two special service routes. Its regular routes average 30-minute headways during peak periods, while its Texas Tech routes feature headways as short as five minutes during the fall and spring semesters. Only three of the system's routes currently run outside of Loop 289, with its closest routes to the study corridors being about three miles away.

The 2007 Lubbock Area Bike Plan indicates that Farm-to-Market (FM) 1585 is an existing bike route. Bike route designation signals to motorists through signage that bicyclists may be present; however, separated bike lanes or other bicycle treatments are not provided at this time. In the 2007 Plan, bike route designation was proposed for the following streets that intersect FM 1585: FM 179, Upland Avenue, and Avenue P.

4 Current Route Study

Following the feasibility study, a route study was launched in 2013 to determine a preferred route for the project.

4.1 Stakeholder Group

A stakeholder group was established as a means to guide the study of the Outer Route and to determine the best route option to proceed into next phase of project development. The stakeholder group comprised representatives from the community, including city and county officials and, school district leaders, as well as representatives from the agricultural and development industries. The following stakeholders were involved throughout the route study:

Table 4.1: List of Stakeholders during the Route Study

Name	Organization
Brian Baker	South Plains Community Action Association
Mark Heinrich	Lubbock County
Pat Henderson	Lubbock-Cooper ISD
H. David Jones	Lubbock MPO
Mike Lamberson	City of Slaton
George McMahan	West Texas Home Builders Association
Darrell Newsom	City of Wolfforth
Nick Olenik	Lubbock County
Drew Paxton	City of Lubbock
Mayor Glen Robertson	City of Lubbock
Stacy Smith	Plains Cotton Growers
Dr. David Vroonland	Frenship ISD
Neil Welch	City of Lubbock
Mayor Robert Olmsted, Jr.	City of Shallowater

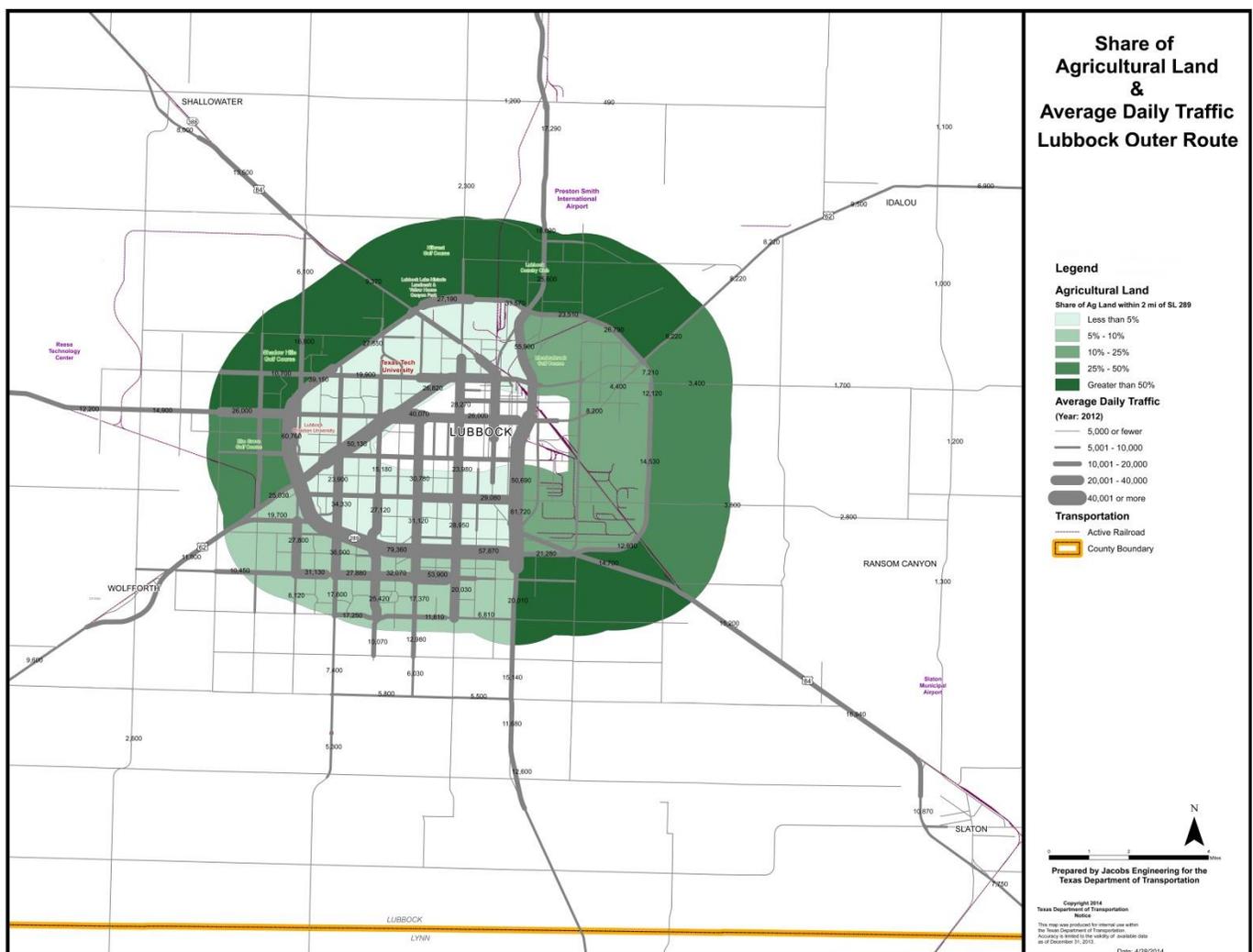
4.2 Study Area

As with the feasibility study, the area evaluated during the route study includes the majority of Lubbock County. Specifically, the route options focused on the areas southwest of US Highway 84.

Areas north and east of central Lubbock were eliminated from further study during the 2010 feasibility study due to sluggish population growth, limited development, and low traffic demands.

Census tracts located north and east of SL 289 have relatively low populations and either experienced slow population growth rates of less than 10 percent (between 2000 and 2010) or actually lost population. This is further evidenced by the undeveloped land that surrounds the existing loop, SL 289, north and east of the city center. In fact, more than one-third of the land within a 2-mile radius of SL 289 to the north and east remains classified as agricultural by the Lubbock County Appraisal District as depicted in **Figure 4.1**. Conversely, census tracts to the south and west have experienced population growth of at least 25 percent during the 2000s. Land within a 2-mile radius of SL 289 between US 82/62 and I-27 includes just 5.3 percent agricultural acreage. Traffic along SL 289 also remains low when measured east of I-27. Average daily traffic (ADT) along the eastern portions of SL 289 ranged between 7,000 and 27,000 cars in 2012. West of I-27, SL 289 ranged between 27,000 and 79,000 vehicles daily.

Figure 4.1: Share of Agricultural Land



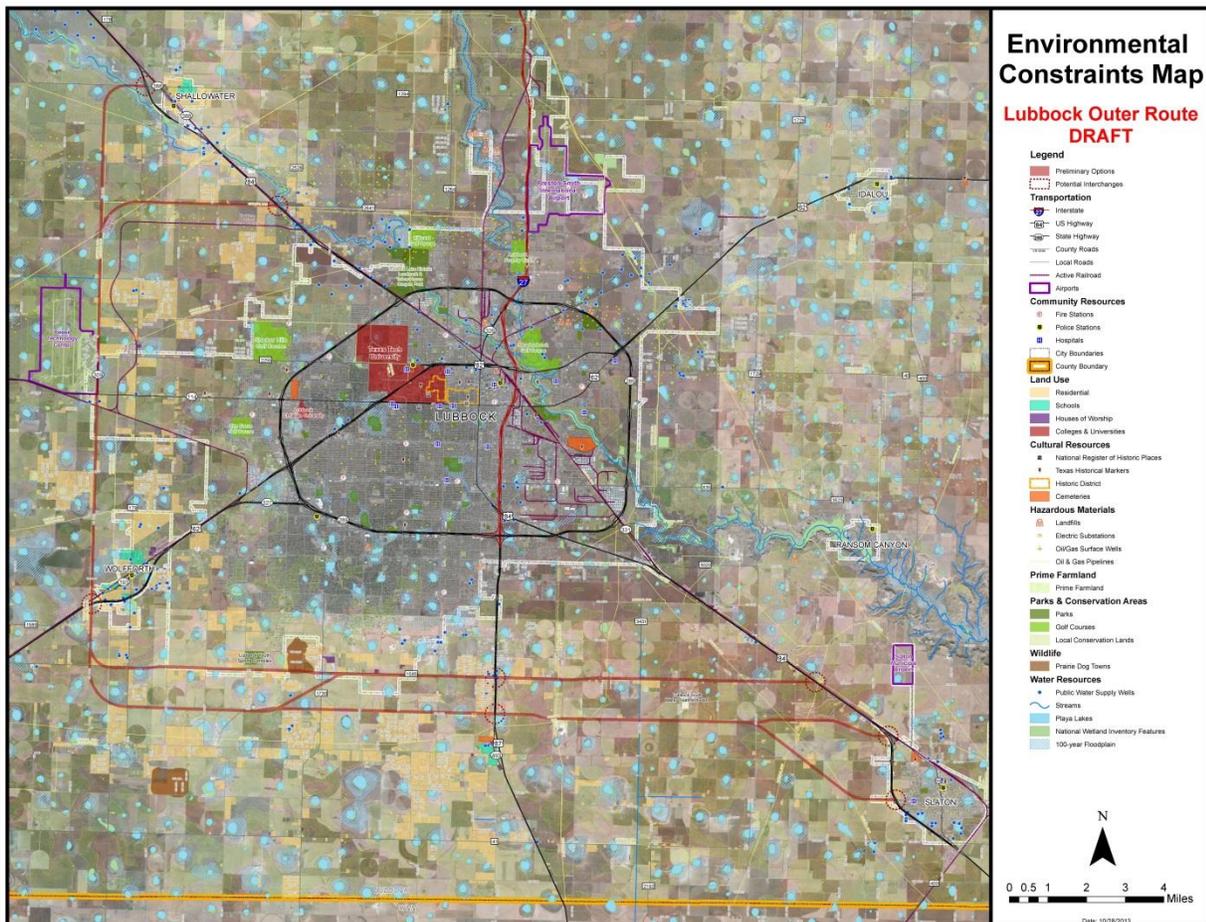
4.3 Route Options

Options for the Lubbock Outer Route evolved throughout this phase of the study, but have consistently retained the following general boundaries:

- **Segment 1:** US 84 south of Shallowater to SH 114 east of Reese Technology Center
- **Segment 2:** SH 114 to US 62/82 southwest of Wolfforth
- **Segment 3:** US 62/82 to US 87 north of Woodrow
- **Segment 4:** US 87 to US 84 north of Slaton

Technical staff worked with TxDOT to identify initial route options that follow the corridors carried over from the feasibility study. Based on engineering criteria as well as basic constraints identified from desktop research and outlined by the stakeholder group, a set of preliminary route options was presented to stakeholders in October 2013, as shown in **Figure 4.2**. The options included a north-south route along existing County Road 1300/Research Blvd. with two termini at US 84 near Shallowater, curving around Wolfforth to two east-west routes—one along FM 1585 and the other along 146th Street—with three termini at US 84 near Slaton.

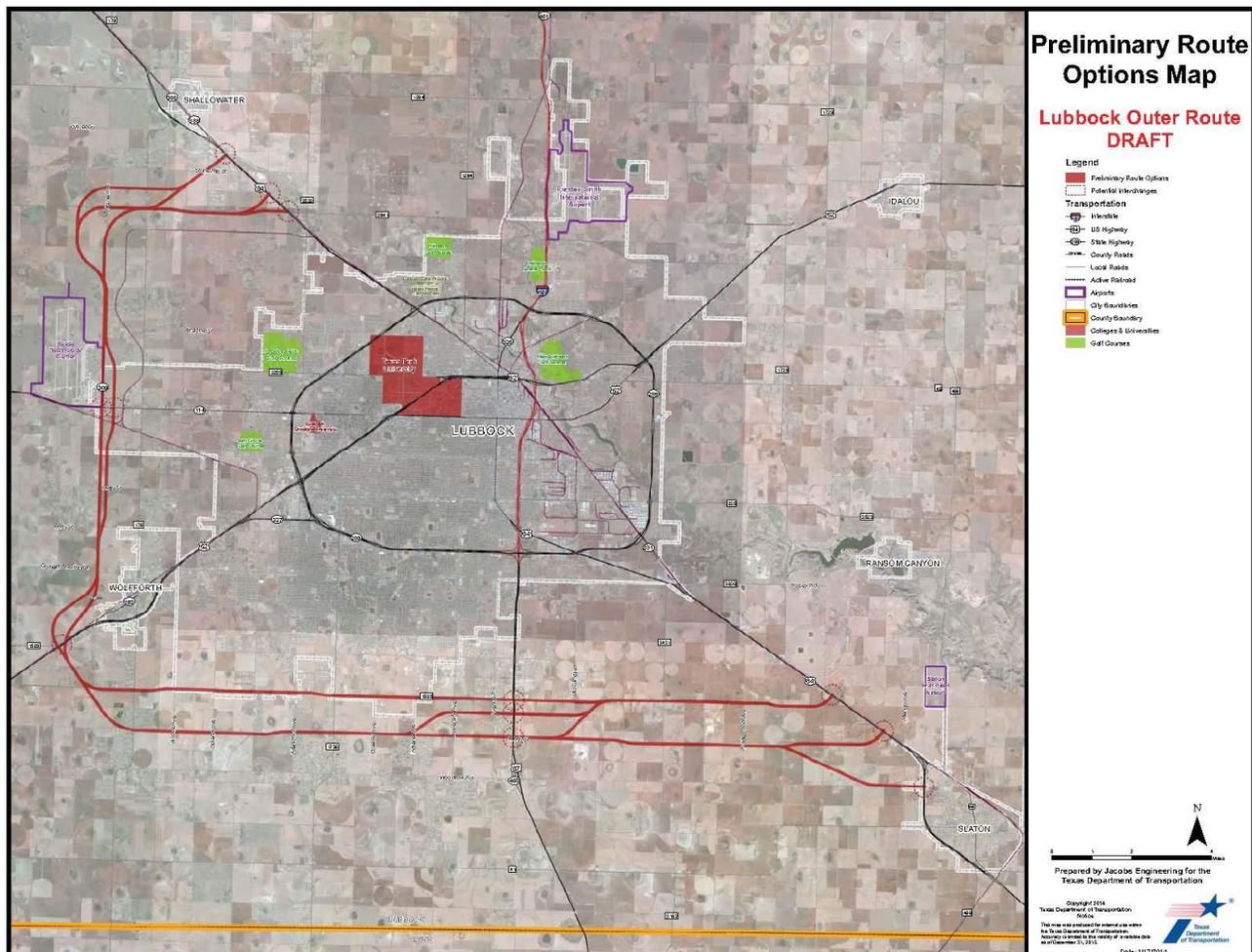
Figure 4.2: Preliminary Route Options from October Stakeholder meeting



Based on input received from stakeholders at the October meeting, the preliminary route options were revised to account for factors including environmental constraints, areas of new and existing development, as well as potential right-of-way concerns.

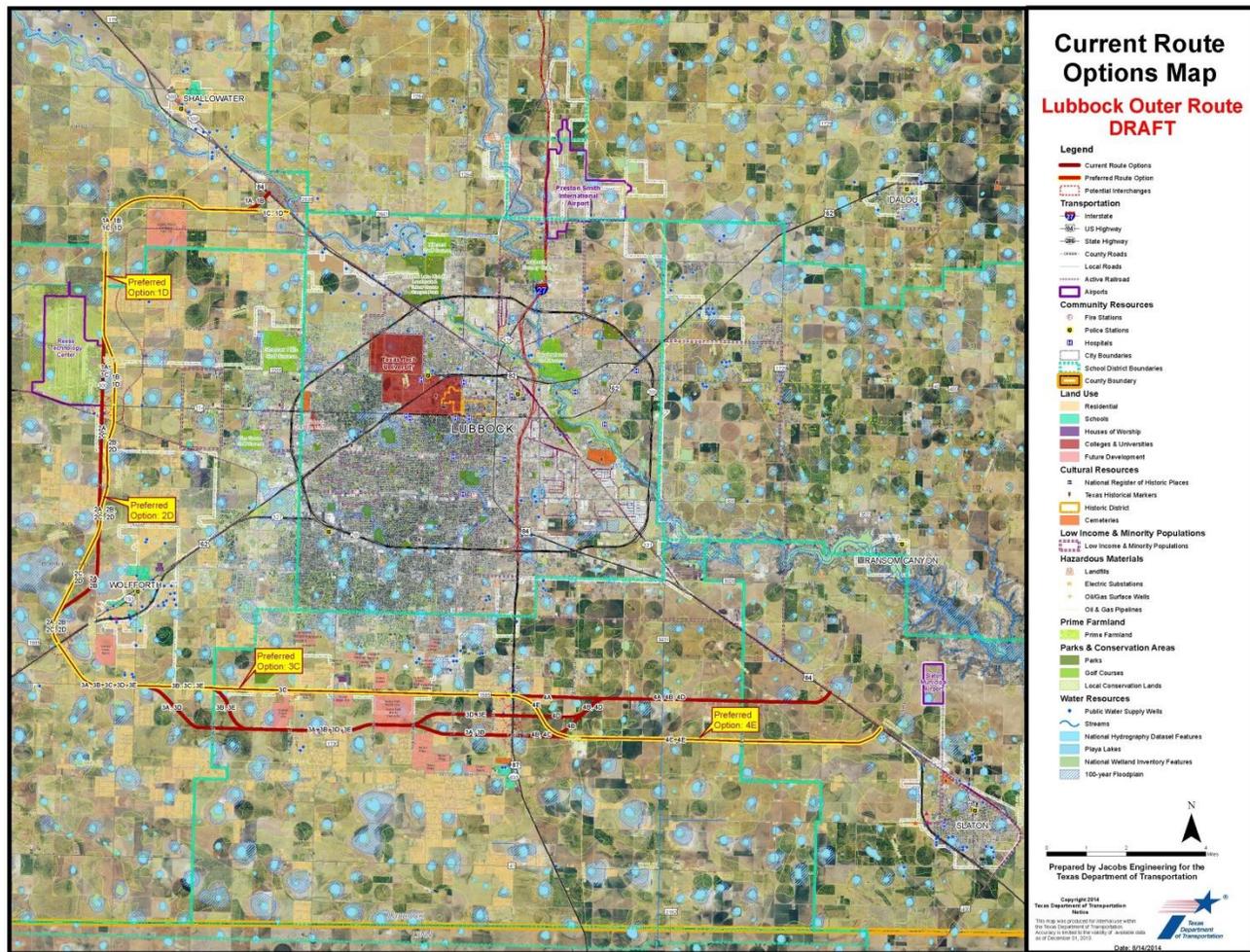
A total of 29 route options were presented to the public for the February public meeting, including 14 options for Segment 1, four options for Segment 2, six options for Segment 3, and five options for Segment 4. The options shown at the February meeting are shown in **Figure 4.3**.

Figure 4.3 Preliminary Route Options from February Public Meeting



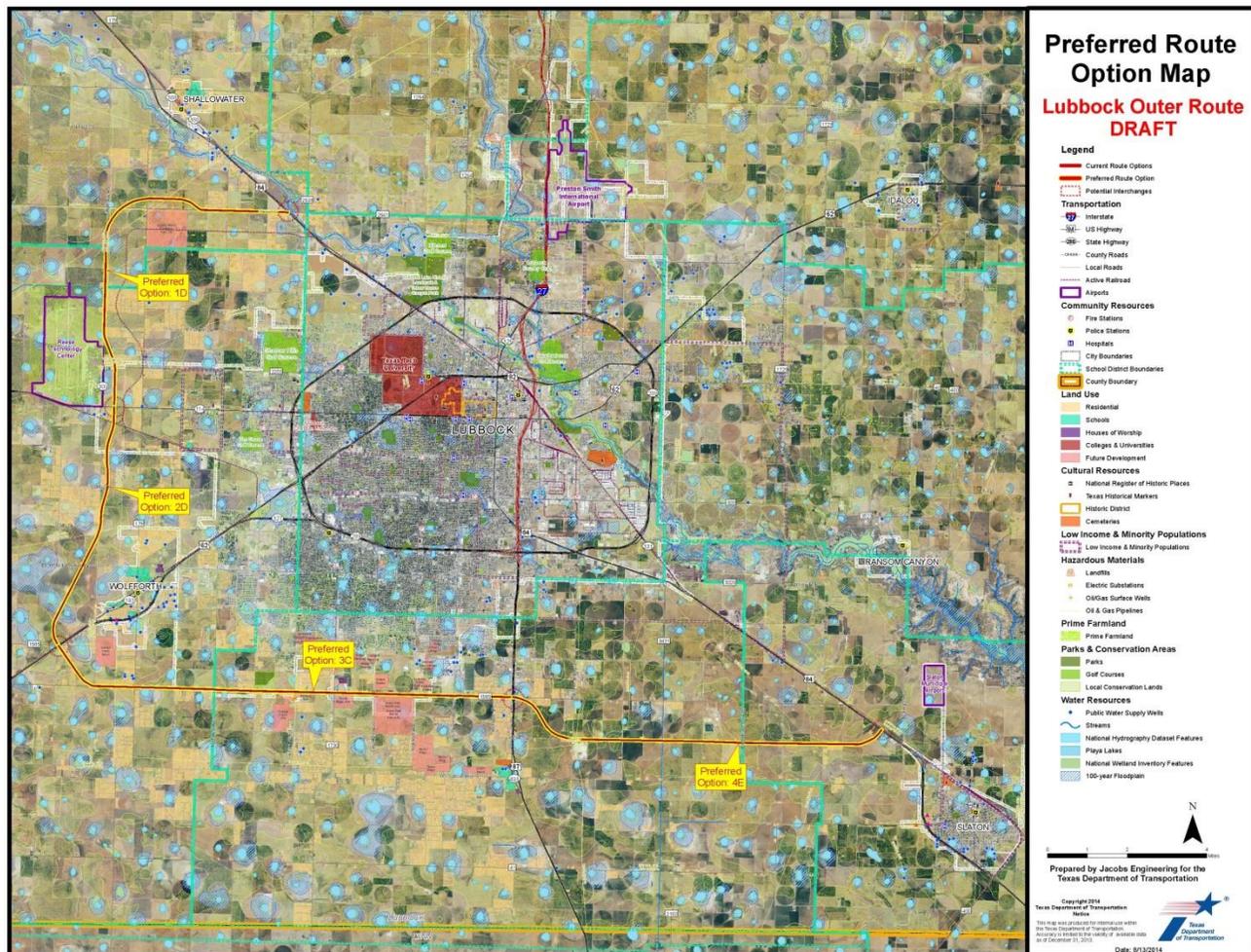
Based on combined feedback from the public and stakeholders, the preliminary route options were revised during the April stakeholder meeting and evaluated based on a set of technical criteria prior to the May stakeholder meeting. The revisions resulted in a reduction from 29 route options to 17 options, including four options for Segment 1, four options for Segment 2, five options for Segment 3, and four options for Segment 4. These route options were evaluated using the criteria for safety, mobility, socio-economic impacts, environmental impacts, and engineering impacts. Stakeholders

Figure 4.5: Revised Route Options (with Preferred Option) from August Public Meeting



Following the August public meeting, the comments received were mostly positive, and the public generally approved of the preferred options. A minor change was made to Segment 4, where the connection of Segment 4 to US 84 was modified. The revised preferred route options are shown in *Figure 4.6*.

Figure 4.6: Revised Preferred Option for Lubbock Outer Route



4.3 Facility Type

The current route study includes an interim-build and ultimate-build scenario within an assumed 400-foot right-of-way. The interim-build design includes a four-lane divided highway, which would retain at-grade access to adjoining properties. Based on future demand, the highway could later be upgraded to include a freeway facility in the median. Thus, the ultimate facility is designed with four (4) access-controlled lanes along with four (4) frontage lanes converted from the interim-build scenario. In the ultimate scenario, grade separated interchanges are assumed at all major intersections along the proposed route, including US 84 (north and south), US 87, US 82/62, and SH 114. The interim and ultimate build configurations are shown in **Figure 4.7**.

Figure 4.7 Interim and Ultimate Configurations for Lubbock Outer Route



5. Public Involvement

Proactive engagement of the public has been a high priority throughout the Lubbock Outer Route Study, and feedback from the public and community stakeholders informed decisions regarding this future corridor. Public involvement for this study maintained the following goals:

- Establish and maintain the credibility of TxDOT
- Build on and provide continuity with previous and current communication strategies and tactics.
- Clearly communicate the issues and challenges being addressed in this study
- Educate the public about the Lubbock Outer Route project, and its reliance on transportation funding challenges and solutions
- Demonstrate that TxDOT is addressing the issues and challenges responsibly, reasonably, and with concern for the people, businesses, and environment that could be affected by the project
- Demonstrate that the alternatives developed during the study are the most reasonable options and reflect public input.
- Execute a public involvement program that is flexible, responsive, and adaptable to the information needs of the public, TxDOT, and the consultant team
- Achieve informed consent for the study's findings and recommendations from the stakeholder group

At the start of the route study, four stakeholder meetings and two public meetings were planned. In response to the high levels of attendance at earlier meetings, however, it was determined that additional opportunities for public involvement should be included. Thus, a total of six (6) stakeholder meetings and three (3) public meetings were held. Detailed summaries of the stakeholder meetings and public meetings are provided in **Appendix A** and **Appendix B** respectively.

Additionally, a special meeting for homeowners in the Indiana South neighborhood was held on July 2, 2014 at the TxDOT Lubbock District office. This meeting was held at the request of representatives from the neighborhood who attended the June 17, 2014 public meeting, with a view of giving additional residents from the community an opportunity to share their concerns.

5.1 Stakeholder Meetings

Stakeholder meetings were held at the TxDOT Lubbock District Office at the following times:

- June 25, 2013 at 9:30 a.m.
- October 30, 2013 at 10 a.m.
- January 15, 2014 at 2 p.m.
- April 8, 2014 at 10 a.m.
- May 29, 2014 at 2 p.m.

- July 17, 2014 at 10 a.m.

June 25, 2013 Stakeholder Meeting

The kickoff meeting held on June 25, 2013 served as an overview of the Route Study, outlining future planned meetings and establishing action items aimed at encouraging stakeholder involvement throughout the year-long process. Three stakeholder members were present at this meeting. Action items identified at the June meeting included:

- Encouraging absent stakeholder members to attend future meetings.
- Inviting representatives from Frenship ISD, Lubbock-Cooper ISD, and South Plains Community Action Association to serve as stakeholders.
- Considering environmental and economic constraints in preparation for the October meeting, to include cemeteries, historic resources, low-income and/or minority areas, water features, endangered species habitat, parks, golf courses, churches, schools, etc.
- Developing draft constraints maps to review and discuss at the October meeting.
- Developing public outreach materials such as a fact sheet, talking points, comment card, frequently asked questions, and website content.

October 30, 2013 Stakeholder Meeting

The purpose of the October 30, 2013 Stakeholder meeting was to identify preliminary options for route evaluation as part of the Route Study. A total of 14 members were present for the meeting. After TxDOT explained the preliminary options to stakeholders, the committee then reviewed the options, marking the maps with information related to future growth, parcel ownership information, as well as known utilities and easements. The markings made by stakeholders would then be incorporated into revisions of the route options and reviewed by the committee and TxDOT staff prior to the first scheduled public meeting. The next meeting was tentatively scheduled for January 2014, approximately two weeks prior to the public meeting.

Figure 5.1: October 2013 Stakeholder Meeting



January 15, 2014 Stakeholder Meeting

The January 15, 2014 Stakeholder meeting was held to review the changes made to the route options based on feedback from the October meeting, as well as to prepare for the February public meeting. A total of 10 members were present for the meeting. A summary of the changes to the route options reviewed at this meeting are as follows:

- Segment 1
 - Included a north-south option for Segment 1 that runs east of Research Boulevard to provide adequate distance from the Frenship ISD alternative school.
 - Reintroduced a north-south route option that follows the existing Research Boulevard.
- Segment 2
 - Included a north-south option that runs east of Research Boulevard to ensure a more functional interchange with 19th Street that does not conflict with the existing railroad crossing.
- Segment 3
 - While utilizing existing pavement along FM 1585 was seen by the stakeholders as more practical than an alignment on 146th Street, the group agreed to maintain east-west options along both routes.
 - A mid-section crossing between FM 1585 and 146th Street at US 87 was added.
- Segment 4
 - The southernmost terminus at the intersection of Woodrow Road and US 84 was eliminated due to high levels of development there.

During the January 15 meeting, TxDOT staff also addressed the need to prioritize segments before going into the Environmental Study/National Environmental Policy Act (NEPA) process, as it is likely the Lubbock Outer Route would not be constructed in its entirety at once. At the conclusion of the meeting the stakeholders were reminded that the upcoming public meeting was scheduled for February 4th. The notice of the February 4th meeting was published in the Lubbock Avalanche-Journal on January 19, 2014 and posted on the TxDOT website, www.txdot.gov.

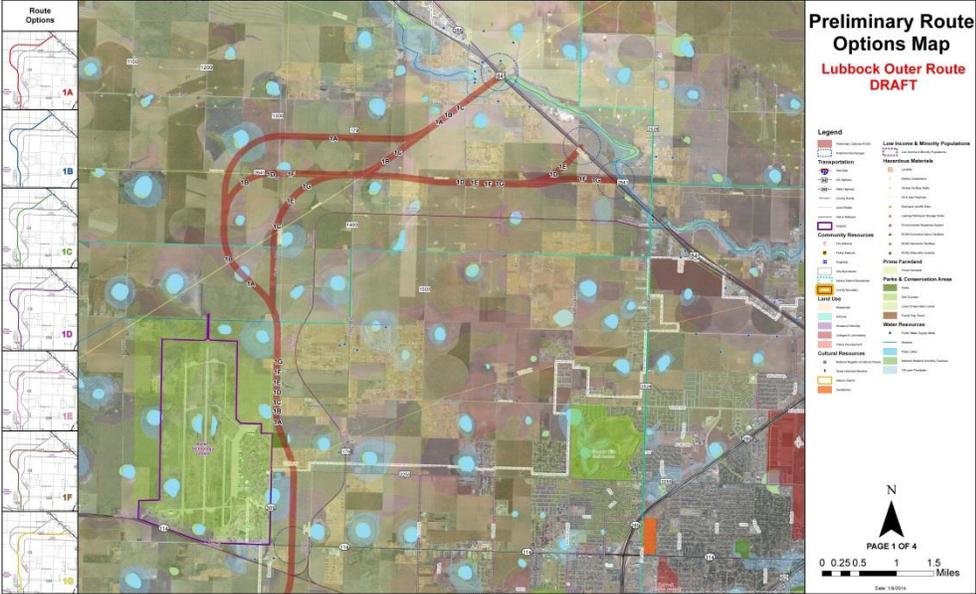
April 8, 2014 Stakeholder Meeting

The April 8, 2014 Stakeholder Meeting was held to review public input received on the preliminary route options presented at the February public meeting and to refine the route options. A total of 12 stakeholders were present. The February 4th meeting was postponed because of ice. Stakeholders reviewed comments from the public that were registered at both the postponed February 4th public meeting and the re-scheduled February 25st public meeting. After discussing the comments and issues raised by the public, as well as additional limitations, the stakeholder group modified the route options as follows:

- Segment 1

The group eliminated options 1A, 1B, 1C, 1D, and 1F. The group preference was for a terminus at US 84 that utilized FM 2641 in the event a future connection to the airport was desired or demand for eastern expansion was necessary. The group also modified options 1E and 1G to run slightly north of FM 2641 before connecting back to FM 2641 near the intersection with Alcove Avenue/CR 1500. A total of four options remained in Segment 1 (1Ew, 1Ee, 1Gw, and 1Ge). See Figure 5.2. or for more details see Appendix E Route Options.

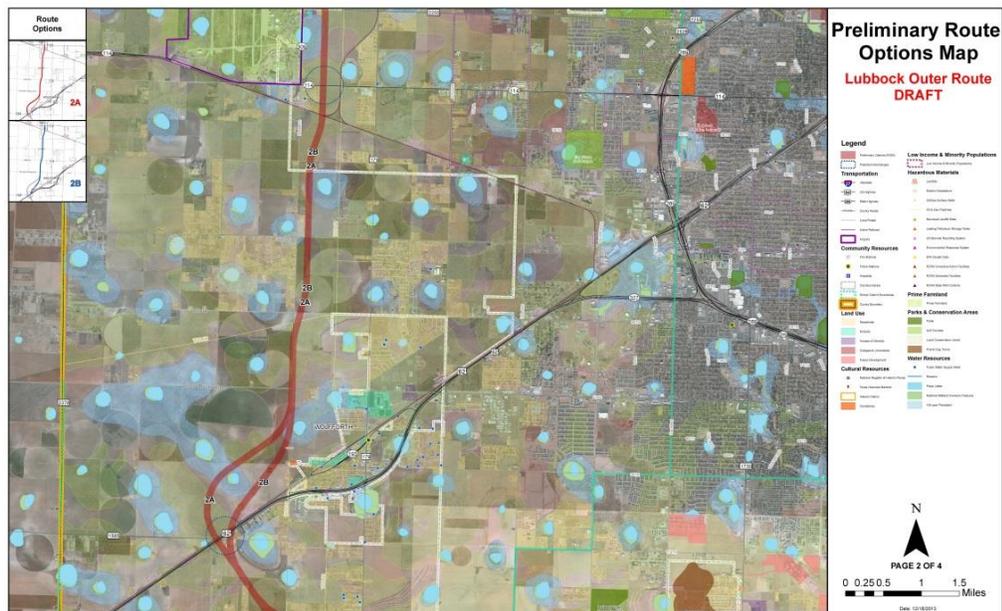
Figure 5.2: Stakeholder Meeting April 2014: Segment 1 Options



- Segment 2

- The group eliminated option 2B based on public comments and due to engineering challenges associated with the skewed intersection at US 62/82. Option 2A was maintained, but an additional option was added that provides a more direct connection to US 62/82. A total of four options remained in Segment 2 (2Aw, 2Ae, 2Cw, and 2Ce). See Figure 5.3 or for more details see Appendix E Route Options.

Figure 5.3: Stakeholder Meeting April 2014: Segment 2 Options



- Segment 3
 - The group eliminated options 3A, 3B and 3E as a result of the elimination of option 2B. Option 3C remained unchanged. The remaining options were substantially modified and, therefore, renamed. The mid-section connection with US 87 was also shifted to meet at approximately the halfway point between FM 1585 and 146th Street. A total of five options were carried over in Segment 3 (3C, 3G, 3H, 3I, and 3J). See Figure 5.4 or for more details see Appendix E Route Options.

Figure 5.4: Stakeholder Meeting April 2014: Segment 3 Options



- Segment 4
 - The group eliminated option 4D due to the difficulty of expanding the route to the east if needed. Option 4E was modified slightly to meet the adjusted mid-section

connections of options 3I and 3J at US 87. Options 4A, 4B, and 4C were unchanged, with a total of four options remaining in Segment 4 (4A, 4B, 4C, and 4E). See Figure 5.5 or for more details see Appendix E Route Options.

Figure 5.5: Stakeholder Meeting April 2014: Segment 3 Options



It was also announced during the April 8th meeting that environmental field work was beginning that week and that local public safety officials were informed of the work. Consultant staff planned to have this work completed by the end of May. The evaluation of the route options modified at this meeting would also be completed prior to the next stakeholder meeting, which was tentatively scheduled for mid-June.

May 29, 2014 Stakeholder Meeting

Based on the perceived need for additional meetings and opportunities for public input, the mid-June stakeholder meeting was moved up to May 29, 2014. The purpose of the meeting was to review the evaluation of the route options and select recommended options to present at the second public meeting. A total of nine stakeholders were present. Steve Warren of the TxDOT Lubbock District started by reviewing the evaluation criteria originally approved by the stakeholder group in an earlier meeting, and then reviewing how scoring of the

Figure 5.6 May 2014 Stakeholder Meeting



options was conducted. A complete discussion of the evaluation and the resulting scores is discussed in the Options Analysis section on **pages 31 to 38**.

A group discussion of the route options and their scores followed the evaluation presentation. Stakeholders considered future airport connectivity, rail crossings, existing structures, engineering aspects, environmental impacts, socioeconomic impacts, such as potential residential displacements, and social input. The stakeholder group also recommended renumbering the route options for simplicity. The route options were renumbered as shown in **Appendix I**. Based on the scores calculated in the evaluation, as well as stakeholder discussion, the following segments were recommended for future development:

- Option 1D
- Option 2D
- Option 3D
- Option 4D

TxDOT staff emphasized at the meeting that funding beyond the Route Study has not been identified, and that phasing of the project will likely be necessary. The next public meeting was scheduled to take place at the Lubbock-Cooper Performing Arts Center, with a tentative date set for mid-June.

July 17, 2014 Stakeholder Meeting

The July 17, 2014 stakeholder meeting was held to review the feedback from the June public meeting. A total of 41 comments were received, with a significant number of them coming from the Indiana South Neighborhood Association.

The meeting focused on reviewing three segments of the route. The first, a portion of Segment 1, located near the intersection of FM 2641 and CR 1500, in addition to Segment 3 and Segment 4. Minor changes were made to Segment 1 in an effort to minimize the route proximity to residential land uses while providing potential for commercial frontage.

Segment 3 was reviewed based on public input and various factors to be further considered including rapid growth in the area, impacts to existing land uses and current perceptions of the public on the loop's location.

Since Segments 3 and 4 are dependent on each other based on the location of proposed interchanges, options were put up to stakeholder vote as groups. FM 1585 in Segment 3, then transitioning down to 146th Street east of US 87 for Segment 4 obtained the most preferences from stakeholders.

Although some members expressed disagreement, options 3C and 4E were selected by general consensus as the preferred option for the southern portion of the loop.

The stakeholders scheduled the next public meeting, at the same location as previous ones, for August 21, 2014 at 5:30 pm.

5.2 Public Meetings

Public meetings were held at the following times:

- February 4, 2014 (officially postponed due to inclement weather; however, TxDOT staff were available to record comments and answer questions from those who did not receive notification of the cancellation)
- February 25, 2014
- June 17, 2014

February 4, 2014 Public Meeting (Postponed)

The public meeting scheduled for February 4, 2014 was officially postponed due to freezing inclement weather conditions early in the day. While notices of the cancellation were published in the Lubbock Avalanche-Journal, posted to the TxDOT website, and emailed to persons on the project mailing list, some members of the public were unaware of the change, prompting local TxDOT staff to continue with an informal open house.

A total of 52 area residents attended the open house, and four attendees submitted comment cards at that time. Five comments were received via email and USPS after the open house. Concerns stated in these comments included displacing and bisecting a family estate located at CR 1540 and CR 6100 as well as potential impacts to the Texas Horned Frogs and livestock. Additional comments included a suggested route utilizing CR 7500 on the western edge to connect to FM 1585 and FM 179. This proposed route would minimize impacts to a City of Wolfforth Section 19 sewage effluent application area as well as an established pecan orchard. The final comment was received on behalf of the Reese Technology Center. This comment inquired about a previously considered (in the Feasibility Study) route option outside or West of the center. A summary of the comments received at this open house, as well as throughout the Route Study, are included in **Appendix B**.

February 25, 2014 Public Meeting

The February 25, 2014 public meeting was formatted to include an open house, a formal presentation, and an open comment period. A total of 190 members of the public registered at the meeting, as well as representatives from three local media outlets. Located at Lubbock-Cooper Performing Arts Center, exhibits pertaining to the Route Study were posted throughout the foyer and in the auditorium of the facility, with TxDOT and consultant staff available to answer questions during the open house. Steven Warren the TxDOT's Lubbock District conducted a short presentation on the current status of the Route Study as well as the results of the previous feasibility study. During his presentation, Warren emphasized that the route options being

presented were conceptual, and that the purpose of the Route Study is to identify a recommended route to progress into the environmental phase of the study at a yet-undetermined date. He also reiterated that funding has not been identified for construction, and that the Outer Route is likely many years away from being built.

Figure 5.7 : Presentation at the February 2014 Public Meeting



Thirteen attendees signed up and offered public comments after Warren’s presentation. Comment cards were collected at the meeting as well as received by TxDOT Lubbock District. Eighty-four (84) comment cards, emails, and letters were received.

The various route options were outlined on the comment cards, responders were asked to select the route option(s) they were most willing to support as well as the reasons behind their selection. The proposed route alternatives were divided into four segments with various alternatives within each segment. The two alternatives for each segment that garnered the most support are stated below. Each of the route alternatives is illustrated on the attached presentation.

The first segment was divided by east and west. The east and west route had seven alternatives for each. Of 31 responses on the eastern alternative, 16 selected segment “1Ae”, followed by eight selecting “1Fe”. On the western segment, 29 responses were returned and 17 of them supported the “1Aw” alternative. The second segment was divided by east and west with two alternatives each. Seven responses were collected with the eastern segment showing four preferring the “2Ae” route and three showing preference for “2Be”. Thirty-six (36) responses were collected on the western segment with a 18/18 split between “2Aw” and 2Bw. The third segment presented six options. Of the 87 responses collected, “3C” –received 33, followed by 27 responses supporting “3A”. The fourth segment presented five options and received 54 responses. Of the 54, 20 supported the “4A” option and 19 supported the “4C” option.

Reasons for supporting the selected options mostly involved reducing potential displacement of homes, property, utility relocation, and environmental impacts (playa lakes and wildlife). Additional reasons included direct access to the airport as well as Slaton, current development patterns, particularly commercial development, and utilizing an existing roadway to make the connections. A full summary of comments received during and after the public meeting are included in **Appendix B**.

June 17, 2014 Public Meeting

The second public meeting was held on June 17, 2014 at the Lubbock-Cooper Performing Arts Center. As in February, this public meeting was scheduled to include an open house with available exhibits, a formal presentation by TxDOT, and a dedicated time for open public comments. A total of 148 members of the public signed in at the meeting, and four offered feedback during the open comment period.

At the June 17 meeting, Steve Warren of TxDOT addressed the process by which the route options were developed, refined, and evaluated, as well as presented the scoring and resulting recommended route options. He reiterated that the route options, including the recommended options, are not final. They were to remain open to public input, and could also change during the environmental study/NEPA process. He also announced that an additional public meeting would take place later in summer 2014.

Comment cards were collected at the meeting as well as received by TxDOT Lubbock District. By the end of the 10 -day comment period, 41 comment cards, emails, and letters have been received. Two contained Open Records request for information under the Texas Open Records Act related to the evaluation and recommendation of the proposed corridors as well as stakeholder committee personal contact information. In addition, two petitions were submitted for consideration. The first one was signed by 34 residents and farm owners east of US 87 showing preference for 146th Street/CR 7500 over FM 1585.

Figure 5.8 Open House at the June 2014 Public Meeting



Thirty five residents, farmers, and business operators with property west of US 87 signed the second petition requesting TxDOT to eliminate the 146th Street route and go forward with the FM 1585 segment.

The majority of the 41 comments received were opposed to using CR 7500/146th Street in Segment 3. The listed concerns of having the outer route on this segment included disruption to established

residences, safety issues with homes being so close to right-of-way, costs to relocate utility transmission lines, the resulting constrained right-of-way if transmission line is not relocated, a planned school at the corner of CR7500 and Quaker Avenue, natural environment impacts (Sandhill Cranes and horned lizards), destruction of farmland, and decreased residential property values. These commenters would prefer the outer route stay on FM 1585. It was suggested that FM 1585 would be a better alternative because there is existing commercial development, traffic, and existing pavement that supports heavy trucks. Adding overpasses to FM 1585 and connecting at FM 179 was also suggested. If the route stays on FM 1585, it was suggested to move it further north onto vacant property, tie in at Quaker Avenue or Slide Road, or create a noise and traffic buffer (or cul-de-sac) for the residential areas on 146th Street, 148th Street, and Indiana South. Some of these stakeholders did not agree with creating a disruption to their existing neighborhood to avoid Kelsey Park, a subdivision that is still under development.

Other comments included concerns over impacting drip irrigation fields on options 1B, 1C, and 1D, praise for proposing the use of FM 2641 south of Shallowater, and commending TxDOT for selecting a route option that is less invasive than that considered at the February public meeting.

August 21, 2014 Public Meeting

The final public meeting for the Route Study took place on August 21, 2014 at the Lubbock Cooper Performing Arts Center. The purpose of this public meeting was to present the preferred route options that addressed input from the stakeholders and the public. Approximately 235 members of the public registered at the meeting.

The meeting was formatted to provide the public an opportunity to preview the preferred option and get questions answered, receive a formal presentation, and provide verbal or written comments. Staff provided information and answered questions during the 30-minute open house and a court reporter was available to take verbal comments. Following the open house, Steve Warren with the TxDOT Lubbock District conducted a presentation explaining the study process, the evolution of the route options, next steps, and how to comment. Subsequently, the public was provided an opportunity to ask questions and provide verbal comments. Following verbal comments, the formal portion of the meeting was adjourned. The study team remained available to answer additional questions and take comments.

Comments were collected at the meeting and thereafter received by the TxDOT Lubbock District. By the end of the 10-day comment period, a combined total of seventy-five (75) comment cards, verbal comments, emails, petitions, and letters have been received. Three requested being added to the project database. Two petitions were submitted for consideration. Eighty-five (85) concerned citizens signed the first petition. It requested TxDOT consider using the half mile east of CR 3100 on E. CR 7500 as part of the outer route to avoid impacts to residents in this area. The second petition garnered support from 56 Highland Oaks residents stating support for the preferred route presented at the public meeting.

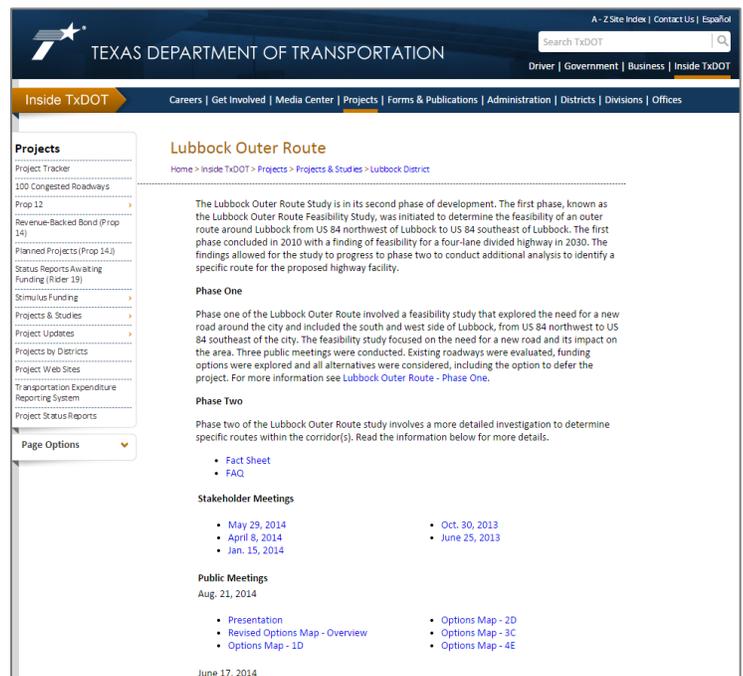
The majority (approximately 48) of the additional comments received supported the route utilizing FM 1585 on Segment 3. Comments also suggested the connection between Segment 2D and 3C be shifted east of Wolfforth or end at Wolfforth. The same comment suggested creating a cloverleaf at Marsha Sharp Freeway and I-27 for Segment 3C to work. Other suggestions were to consider FM 41, avoid FM 2641 as well as 138th Street from Avenue P to Highway 8. Six comments suggested avoiding FM 1585 on Segment 4 to minimize impacts to near-term business development, Kelsey Park, and existing businesses. Other comments included a suggestion to build the entire loop system, questions about why the outer route is needed, as well as questions about specifics related to the eventual design that are unknown at this time. One commenter wants the Marsha Sharp Freeway completed east of Loop 289. Nineteen (19) comments expressed gratitude toward TxDOT for the process of public input informing the decisions.

5.3 Other Public Input Opportunities

In addition to the stakeholder and public meetings, opportunities for public input were also provided via TxDOT's project-specific website (**Figure 5.9**). The site (<http://www.txdot.gov/inside-txdot/projects/studies/lubbock/outer-route.html>) provided information on the prior Feasibility Study and the current Route Study, as well as up-to-date summaries of both stakeholder and public meetings. Materials were uploaded to the website after each meeting, including meeting summaries, presentation materials, maps, and copies of exhibits. The site included copies of the project Fact Sheet, Frequently Asked Questions, and TxDOT local contact information.

A project mailing list was maintained and updated, providing a means to distribute public meeting information and solicit input from interested parties. Originally developed during the Feasibility Study, the mailing list was updated to include property owners along the study corridors as well as individuals who included contact information on meeting sign-in sheets or requested information.

Figure 5.9: Project Webpage



6. Options Analysis

Options analysis was conducted in collaboration with the stakeholder effort to identify the most appropriate route option for each segment. A set of evaluation criteria was considered for this effort, and detailed evaluation of the options for each segment was performed.

6.1 Evaluation Criteria

A set of evaluation criteria was presented at the stakeholder meeting in October 2013. These criteria consisted of factors to measure impacts to mobility and congestion, safety, socio-economic and environmental impacts, and engineering.

6.1.1. Mobility and Congestion

One of the primary purposes of the Lubbock Outer Route is to address existing and future growth in the south and west portions of Lubbock. Travel demand model runs were performed using the Lubbock MPO model to estimate demand for the year 2040. Due to the granularity of the travel demand model with larger zone sizes along the Lubbock Outer Route options, this factor was utilized as a segment prioritization component as compared to evaluating different options within the segment. **Table 6.1** describes the factors included in this evaluation criterion.

Table 6.1: Evaluation Criteria to address Mobility and Congestion

Category	Criteria	Description
Mobility & Congestion	Estimated demand in 2040	Estimated average vehicles per day along corridor in 2040
	Population served (within 2 miles)	Current (2010) population within a 2-mile radius of the route option

6.1.2 Safety

Safety is an important consideration in any transportation project. As discussed in **Chapter 3**, the existing facilities including SL 289 and US 84 experience crash rates higher than the statewide average for similar facilities. With additional growth in traffic by 2040, the number of crashes could be expected to be even higher. Data from TxDOT Crash Statistics was used for this analysis. **Table 6.2** describes the factor included for the safety evaluation criterion.

Table 6.2: Evaluation Criteria to address Safety

Category	Criteria	Description
Safety	Potential for reduction in crashes (2040)	Estimate of potential reduction in crashes in 2040 by reducing traffic on existing facilities including SL 289 and US 84

6.1.3 Socio-Economic Impacts

This factor evaluates the options within each segment for potential socio-economic impacts, including potential impact to tax rolls, ROW required, as well as displacements. Data collected from the Lubbock Central Appraisal District (Lubbock CAD) was primarily used for the evaluation of socio-economic impacts. **Table 6.3** lists the factors considered for socio-economic impacts.

Table 6.3: Evaluation Criteria to measure Socio-economic Impacts

Category	Criteria	Description
Socio-economic	Potential impact to tax rolls	Reduction in taxable property value of existing parcels, based on 2012 data from Lubbock CAD
	Number of intersecting parcels	Number of parcels (developed and undeveloped) that intersect the proposed 400-foot right-of-way
	Potential residential displacements	Number of residential buildings that could require acquisition for construction of route option, based on aerial photography
	Land Use (Residential)	Residential acres impacted by segment option (2012)
	Land Use (Commercial)	Commercial acres impacted by segment (2012)
	Land Use (Agricultural)	Agricultural acres impacted by segment (2012)
	Land Use (Other)	Other land acres impacted by segment (2012)

6.1.4 Environmental Impacts

The environmental analysis was conducted based on desktop survey and field observations, as described in **Appendix F**. A range of environmental factors are considered in evaluating options for the four segments of Lubbock Outer Route. **Table 6.4** lists the factors considered for evaluating environmental impacts.

Table 6.4: Evaluation Criteria to measure Environmental Impacts

Category	Criteria	Description
Environmental	Floodplains	Acres of 100-year floodplain intersected by proposed route option
	Additional impervious cover (Interim)	Square yards of additional impervious cover (pavement) estimated in interim scenario
	Additional impervious cover (Ultimate)	Square yards of additional impervious cover (pavement) estimated in ultimate build
	National Wetland Inventory	Acres of registered national wetlands
	Playa Lakes (Quantity; Acres)	Number and acreage of Playa lakes intersected by route option
	Water Wells (Quantity)	Number of public water wells within proposed right-of-way
	Stream Crossings	Number of stream crossings affected by route option
	Potential wildlife habitat	Acres of potential wildlife habitat, based on field observation
	Potential historic sites	Number of structures that may meet minimum age requirements for historic designation in 2030
	Cemeteries	Number of cemeteries impacted
	National Historic Register Sites	Number of sites/structures identified on the National Historic Register
	Recorded Texas Historic Landmarks	Number of Texas Historic Landmarks
	Official Texas Historical Markers	Number of Texas Historical Markers
	Parks	Number of active parks affected
	Acres with elevated potential for archaeological resources	Acres with potential for archaeological resources, based on field observation
	Potential hazmat sites	EPA-designated sites in corridor with potential hazardous materials
	Prime farmland	Acres of prime farmland (based on soil type)
	Potential traffic noise receptors	Number of structures within 500 feet of ROW, but not intersecting ROW
	Oil & gas wells	Number of oil/gas wells intersected by route option
	Oil & gas pipeline crossings	Number of oil/gas pipeline crossings made by route option

6.1.5 Engineering

Engineering factors included right-of-way required, estimated costs for interim and ultimate improvement, as well as the number of structures required and the segment length. **Table 6.5** lists the factors considered for evaluating engineering and ease of constructability.

Table 6.5: Evaluation Criteria for Engineering Factors

Category	Criteria	Description
Engineering	Amount of existing pavement utilized	Square yards of existing roadway that can be integrated into proposed ROW
	Total right-of-way required	Acres of ROW required for route option
	Construction cost (Interim)	Cost in 2014 dollars (excluding ROW acquisition)
	Construction cost (Ultimate)	Cost of combined interim and ultimate build scenarios in 2014 dollars (excluding ROW acquisition)
	Stream crossings	Number of stream crossings affected by route option
	Number of bridges	Number of bridges/overpasses required for construction of ultimate scenario only
	Segment length	Total length of segment option, in miles

6.1.6 Public Input

Public and stakeholder input were key in the evolution of the options, leading to the preferred option for each segment. This criterion measured the overall support and acceptance by the public and stakeholders for each option within the four segments. **Table 6.6** shows a detailed account of each criterion.

Table 6.6: Evaluation Criteria to Measure Public Input

Category	Criteria	Description
Public Input ¹	Public Support	Qualitative measure of public acceptance of the option
	Stakeholder Support	Qualitative measure of stakeholder acceptance of the option

¹ This criteria was utilized during the later stages of the evaluation and selection of the preferred route option

6.2 Evaluation of Options

A GIS analysis of each of the 17 route options revised at the April 2014 stakeholder meeting was conducted in order to rank the options according to their relative desirability, with each individual metric weighted equally in the final ranking. Each segment route option earned a score for each of the evaluation criteria, ranging from the least negative impact (“++”) to the most negative impact (“--”). For example, a segment route option with the greatest number of potential residential displacements earned a score of “--”, while a segment route option utilizing the most existing pavement earned a score of “++.” The route option for each segment with the greatest number of positive scores was ranked first, and the route option for each segment with the greatest number of negative scores was ranked last.



Figure 6.1 Evaluation Score Range

Based on this evaluation, the following rankings resulted:

Table 6.7: Segment 1 Rankings June 2014

	1A	1B	1C	1D
Congestion/ Mobility & Safety	0	0	+1	0
Socioeconomic	+1	+8	+1	+9
Environmental	+7	+21	+4	+19
Engineering	+8	+6	+6	+4
Overall Ranking	3rd	1st	4th	2nd

Table 6.8: Segment 2 Rankings June 2014

	2A	2B	2C	2D
Congestion/ Mobility & Safety	+2	+2	+1	+1
Socioeconomic	-8	+10	-8	+11
Environmental	+6	+15	+12	+24
Engineering	+4	+4	+8	+6
Overall Ranking	4th	2nd	3rd	1st

While Option 1B ranked highest in Segment 1, the stakeholders selected the closely-ranked Option 1D because of its potential for extension toward the existing airport and other eastern destinations in the future. Also, because the selection of a route option in Segment 3 or Segment 4 would affect the other due to the connection at US 87, the stakeholders determined that combining the scores of the two segments would be more logical. As a result, the rankings for the combined Segments 3 and 4 are below:

Table 6.9: Segment 3 & 4: Combinations June 2014

	1	2	3	4	5	6	7
Option in Segment 3	3C	3A	3A	3B	3B	3D	3E
Option in Segment 4	4A	4B	4C	4B	4C	4D	4D
Congestion/Mobility & Safety	+10	+6	+7	+7	+8	+7	+7
Socioeconomic	-12	-5	+14	-8	+11	-9	-12
Environmental	+12	+6	+5	+4	+3	+26	+19
Engineering	+20	+9	+4	+11	+6	+9	+15
Overall Ranking	2nd (tie)	6th	2nd (tie)	7th	4th	1st	5th

Therefore, based on the rankings and stakeholder discussion, the recommended route options were brought forward to the public at the June 17 public meeting as follows:

- Recommended Segment 1 Option: 1D
- Recommended Segment 2 Option: 2D
- Recommended Segment 3 Option: 3D
- Recommended Segment 4 Option: 4D

All 17 of the revised route options were included in the materials brought to the public meeting, with the recommended options highlighted to allow for clarity and to encourage public feedback.

Based on feedback from stakeholders and the public after the June 17 public meeting, the stakeholder group reviewed the route options and developed additional revisions. Minor route modifications were made in Segments 1 and 3, and an additional route option was added to Segment 4. The 18 resulting route options were re-evaluated using the criteria and methodology as the previous evaluation, but and including public and stakeholder input

Based on the updated evaluation, the following rankings resulted:

Table 6.10: Segment 1 Rankings August 2014

	1A	1B	1C	1D
Congestion/ Mobility & Safety	0	0	+1	0
Socioeconomic	+1	+8	+1	+9
Environmental	+6	+21	+4	+18
Engineering	+10	+8	+9	+8
Stakeholder/Public Support	0	0	+4	+4
Overall Ranking	4th	2nd	3rd	1st

Table 6.11: Segment 2 Rankings August 2014

	2A	2B	2C	2D
Congestion/ Mobility & Safety	+2	+2	+1	+1
Socioeconomic	-8	+10	-8	+11
Environmental	+10	+19	+14	+28
Engineering	+7	+7	+8	+6
Stakeholder/Public Support	0	0	0	0
Overall Ranking	4th	2nd	3rd	1st

Table 6.12: Segment 3 & 4: Combinations August 2014

	1	2	3	4	5	6	7	8
Option in Segment 3	3A	3A	3B	3B	3C	3C	3D	3E
Option in Segment 4	4B	4C	4B	4C	4A	4E	4D	4D
Congestion/Mobility & Safety	+6	+7	+7	+8	+10	+10	+7	+7
Socioeconomic	-2	+13	-5	+10	-12	-4	-7	-11
Environmental	+8	+3	+7	+2	+10	+7	+25	+17
Engineering	+12	+6	+13	+7	+20	+12	+13	+14
Stakeholder/Public Support	-6	0	-6	0	+2	+8	-6	-6
Overall Ranking	7th	4th	8th	5th	3rd	1st	2nd	6th

Therefore, based on the rankings and stakeholder discussion, the recommended route options chosen as the preferred route are as follows:

Preferred Segment 1 Option: 1D

Preferred Segment 2 Option: 2D

Preferred Segment 3 Option: 3C

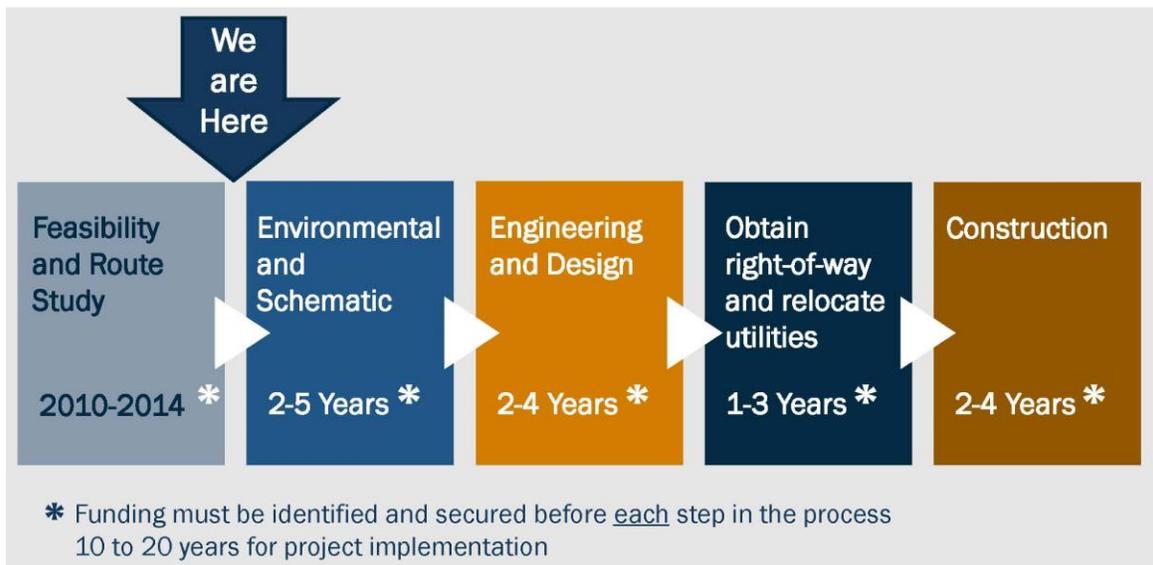
Preferred Segment 4 Option: 4E

7. Conclusion and Next Steps

Figure 7.1 outlines the steps of the Outer Route’s project development, beginning with the Feasibility Study in 2010. The second step in the process, Route Study, concludes with this report. Remaining efforts related to the environmental permitting process, final design, right-of-way acquisition and construction could take anywhere from seven to 16 years before the first elements of this project could be opened to traffic.

Most of the alignment of the Outer Route follows existing highways (Segment 1 could largely be built using FM 2641 and Research Blvd; Segment 2 would largely follow or parallel Research Blvd until the new alignment around Wolfforth; Segment 3 consists of the same alignment as FM 1585; and major portions of Segment 4 will follow 146th Street/CR 7500). Therefore, the existing facilities or proposed Interim Construction will adequately serve forecasted traffic from a capacity standpoint into the 2030 to 2040 time frame.

Figure 7.1: Project Development Stages



Following completion of this Route Study, TxDOT plans to continue into the environmental study and schematic design phase at a future date. The timing of progression into the environmental study and further phases is dependent on funding availability. **Table 7.1** provides a comparison of the potential future traffic and estimated construction cost for each of the segments.

Considering the Initial Construction phase for the entire Outer Route, the traffic demands suggest that improvements along Segment 3 should receive highest priority, with improvements likely to be required between five and 10 years from a capacity standpoint. Current volumes along FM 1585 and CR 7500 are extremely low, but based on traffic forecasts for Segment 4—which is likely to be associated with regional traffic desires for connectivity between US 82/Wolfforth/Southwestern Lubbock and US 84—the Initial Construction phase for this segment might become the second

highest priority from a systems architecture standpoint. Monitoring traffic levels and development plans around the Reese Technology Center will provide early warning of when Interim Construction improvements should begin to be required on Segment 2.

Table 7.1: Comparison of Lubbock Outer Route Segments

Segment	Average Traffic Demand (2040)	Interim Construction Cost (2014 \$)*	Ultimate Construction Cost (2014 \$)*
Segment 1	5,000 - 6,000	\$49 - 52M	\$181 - 186M
Segment 2	11,000 - 12,000	\$36 - 37M	\$117 - 119M
Segment 3	24,000 - 25,000	\$54 - 72M	\$198 - 219M
Segment 4	15,000 - 16,000	\$32 - 51M	\$142 - 172M
Total	5,000 - 25,000	\$171 - 212M	\$638 - 696M

As revealed in **Table 7.1**, Segment 3 will experience the highest demands from area motorists. The traffic forecast of 24,000 to 25,000 vehicles per day suggests that by the Planning Horizon of 2040, Segment 3 will require additional capacity to maintain good levels of service to the public. Therefore, TxDOT will likely construct the four-lane freeway portion of the Outer Route here first. Additional segments of the freeway portion can be added as demand on the existing facilities or interim improvements justify the additional expense of freeway facilities.

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