US 81 CORRIDOR STUDY
FROM NORTH OF UNION CITY SOUTH TO SH 19 SOUTH OF CHICKASHA
CANADIAN AND GRADY COUNTIES, OKLAHOMA

EXECUTIVE SUMMARY

JULY 2007

PREPARED BY THE RESEARCH AND PLANNING DIVISION
OKLAHOMA DEPARTMENT OF TRANSPORTATION

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INTRODUCTION

Background

The scope of this Corridor Study is to evaluate US 81 for improvement to four lanes along an approximate 30-mile segment from the existing reconstruction of US 81 just north of Union City to south of SH 19 in Chickasha. The Corridor Study also evaluates the need for bypasses in the communities of Union City, Minco, Pocasset, and Chickasha. The project extents are illustrated on Figure E-1. The approximate 30-mile segment of US 81 which is the subject of this Corridor Study will be divided into two (2) distinct sections for purposes of analysis. This report will refer to these two sections as the Northern Section and the Chickasha Section.

Northern Section Description

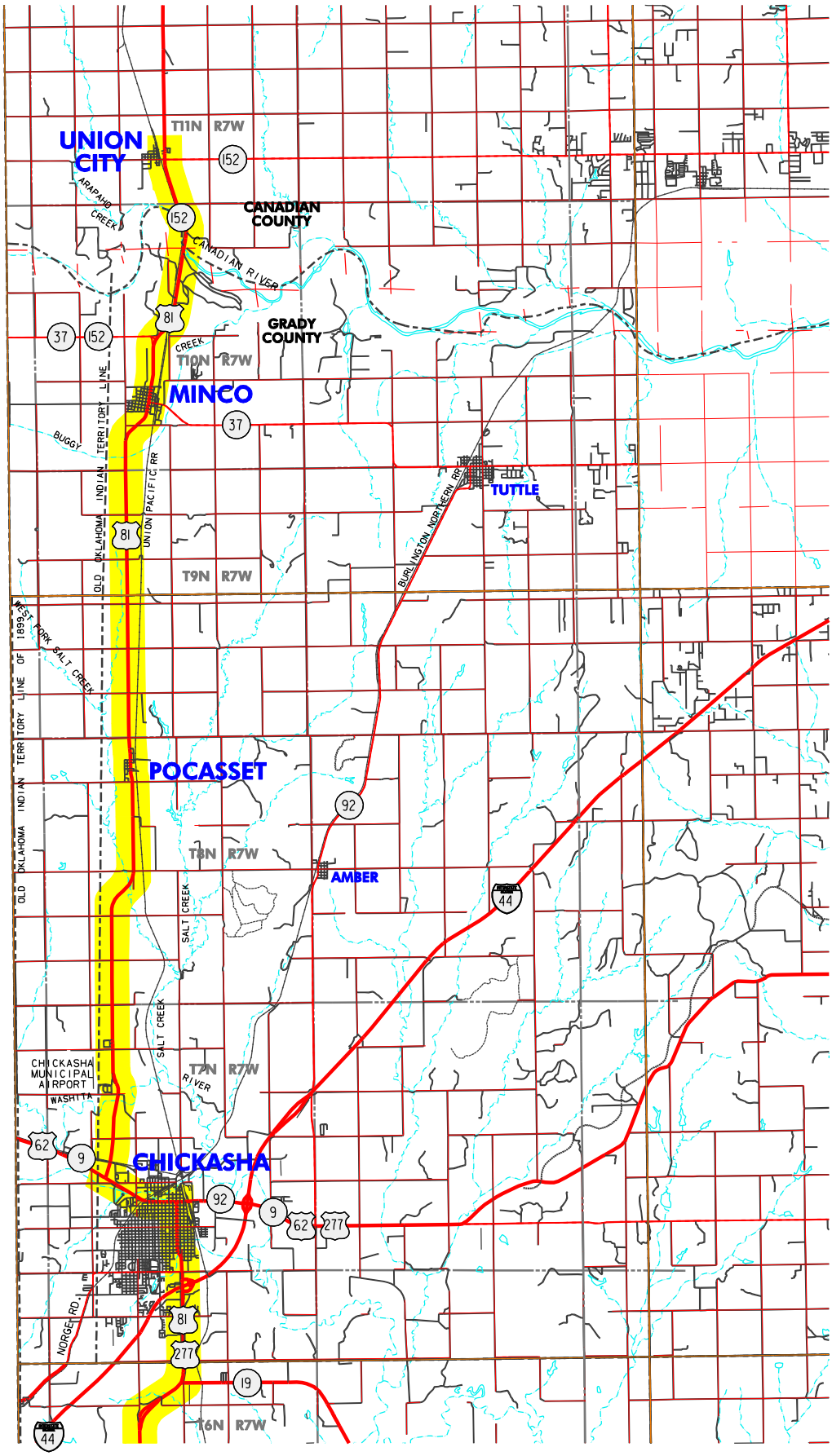
The Northern Section extends from the existing reconstruction of US 81 just north of Union City and proceeds southerly approximately 26 miles to the US 62 and US 81 junction northwest of Chickasha. Three (3) towns are located along this section of US 81: Union City, Minco, and Pocasset.

Chickasha Section Description

The Chickasha Section of US 81 begins at the US 62 and US 81 junction northwest of Chickasha, proceeds east for two miles, then continues south through the City of Chickasha approximately four miles to just south of the US 81 and SH 19 junction south of Chickasha.

Summary of Previous Studies

A report prepared by ODOT's Rural Transportation Planning Branch in 1978 titled "Preliminary Background Report on US 81 (Chickasha Bypass) in Grady County" indicated that a proposed west US 81 bypass of Chickasha was not a justifiable expenditure of public funds at that time. However, the report concluded that "…if traffic volumes continue to increase, the bypass may prove to be a feasible investment in the



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US 81 CORRIDOR

FIGURE E–1

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Figure E-1.dgn

future." A subsequent ODOT report dated 1992 and titled "Feasibility Study for a US 81 Bypass Route in Chickasha, Oklahoma" indicated that a West Bypass of Chickasha should be considered for programming when funding became available.

EXISTING ROADWAY CHARACTERISTICS

Surface Width and Type

The Northern Section of the US 81 study corridor is primarily a two-lane, 24-foot wide asphaltic concrete facility. Through the developed areas of Union City, Minco, and Pocasset, the roadway sections range from two-lane to four-lane wide asphaltic concrete facilities.

The Chickasha Section of the US 81 study corridor is constructed as both a divided section and an undivided section roadway. The undivided section is generally located in the downtown Chickasha area, beginning at 11th Street and proceeding easterly to 4th Street, then continuing southerly to Grand Avenue. This undivided section is predominantly a four-lane, 48-foot wide asphalt facility. US 81 has been widened to five-lane cross sections at some of the downtown intersections to accommodate left turn bays. The remaining roadway in the Chickasha Section is divided. The divided section located west of 11th Street is constructed mostly as an asphaltic concrete facility with two 12-foot lanes in each direction and a 40-foot median. The divided section roadway located south of Grand Avenue is constructed as a Portland cement concrete facility, consisting of two 12-foot lanes in each direction and a 16-foot or 24-foot median.

Shoulder Width and Type

In the Northern Section, paved outside shoulders varying in width from 8 to 10 feet exist along most of the roadway corridor. Some roadway sections have curbs on both sides in place of a shoulder. Through the developed areas of Union City, Minco, and Pocasset, curbs often replace the paved shoulders for the widened segments of US 81.

In the Chickasha Section northwest of Chickasha, shoulders are 10 feet on the outside and 4 feet along the inside. In the downtown area and south of Chickasha, shoulders are paved or curb and gutter is present.

Existing Right-of-Way Widths

Various right-of-way (ROW) widths exist along US 81 within the study corridor limits. Most of US 81 is a two-lane facility and has a ROW width ranging from 100 to 160 feet. The ROW through the developed areas of Union City, Minco, and Pocasset is 80 feet. From the US 81 and US 62 split northwest of Chickasha proceeding northerly to south of the Chickasha airport, the ROW width is 300 feet or greater.

Access Control

There is currently no access control along US 81. No access control is defined as a facility for which the number of points of ingress and egress onto the roadway are unlimited, except for control over the placement and geometrics of connections as necessary for the safety of the traveling public. In contrast, facilities with full control of access provide connections only at grade-separated interchanges, thus prohibiting at-grade crossings and direct private driveway connections.

Sufficiency Ratings

Review of the 2005 needs study and sufficiency rating report indicates that most of the roadways within the US 81 corridor limits are rated as Adequate. Only a short extent within Chickasha has a lower rating of Tolerable. The only structure within the corridor that is not rated Adequate is the Canadian River bridge, located north of SH 37 on US 81.

Environmental Analysis

Letters soliciting comments relative to anticipated social, economic, and environmental effects of improvement to the US 81 corridor were issued April 26, 2005 to tribal, local, state, and federal agencies. A database search was also conducted for known environmental issues as reported by Federal, State and/or Local regulatory agencies. Environmental Data Resources, Inc. (EDR) located in Southport, Connecticut, performed the database search and prepared reports of all available environmental information for the corridor, including Leaking Underground Storage Tanks (LUSTs) sites and hazardous and solid waste management sites. Lastly, a windshield survey of the corridor was conducted to note sensitive areas and facilities. The information

collected from the agencies responses, the EDR reports, and the windshield survey were compiled to prepare environmental constraints maps, using aerial base maps of the corridor. Selected environmental considerations within the study corridor of approximately 600 feet wide were depicted on these maps. During the public meetings, the public was encouraged to review and comment on the constraints maps. Pertinent information provided by the public was used to finalize the maps.

EXISTING TRAFFIC EVALUATION

Baseline Traffic Conditions

Baseline (2004) traffic conditions along the US 81 Corridor Study area (i.e., traffic volumes, accident data, roadway capacity and level-of-service) were established for the Northern Section and Chickasha Section.

Table E-1 summarizes the average daily traffic (ADT) measured at seven vehicle count locations along the Northern Section.

Table E-1: 2004 Average Daily Traffic Summary, Northern Section

		2004 Average Daily Traffic (ADT)	
Station	Location	Weekday	Weekend
N-1	US 81, South of Pocasset	4,050	2,700
N-2	US 81, South of Minco	3,300	2,400
N-3	SH 37E, East of Minco	2,050	1,800
N-4	US 81, North of Minco*	4,600	-
N-5	US 81, South of Union City	5,400	4,200
N-6	SH 152E, East of Union City	3,000	2,450
N-7	US 81 North of Union City	5,700	4,800

* Source: ODOT 2004 Annual Average Daily Traffic (AADT) Map

Vehicle Classification: Manual classification counts were performed at two locations along US 81 to study the different classes of vehicles that use the study corridor. The classification counts were conducted at the intersections of US 81 and SH 37E in Downtown Minco and US 81 and SH 152E in Union City. The counts were performed

during the morning peak hours between 6:00 AM and 9:00 AM and evening peak hours between 3:00 PM and 6:00 PM. The manual classification counts showed a heavy vehicle factor of 9% during the AM peak and 8% during the PM peak hour along US 81 between Union City and Minco.

Heavy vehicle percentage data furnished by the ODOT Planning & Research Division indicated a heavy vehicle factor of 24% for the Design Hour Volume (DHV) along US 81 from Chickasha to Union City, which is significantly higher than the observed heavy vehicle factor. It is possible that heavy vehicles may be avoiding US 81 due to the current highway construction work north of Union City, causing the observed heavy vehicle percentage for the corridor to be lower than normal. In order to assess a worse-case scenario, the 24% heavy vehicle percentage furnished by ODOT was used instead of the observed value to perform intersection capacity analyses.

Accident Summary: The ODOT Collision Rate Analysis for Statewide Highways for the years 2003-2005 indicates that there are no reported areas with high crash rates north of US 81/US 62.

Chickasha Section

Four (4) methods of traffic data collection were used for the US 81 Chickasha Section:

- 24-Hour Vehicle Counts and Oklahoma Turnpike Authority (OTA) Toll Collection Volumes and Classification
- License Plate Survey
- Vehicle Classification
- Accident Summary

- 24-Hour Vehicle Counts: 24-hour vehicle counts were conducted at eight (8) locations which account for the majority of traffic entering or leaving the Chickasha area. The counts were conducted for a 2-week period from Monday, November 29, 2004 through Friday, December 10, 2004. These counts were utilized, along with results of the O-D study, to identify the percentage of traffic that would benefit from using a North or a West Bypass of Chickasha.

Table E-2 presents the weekday, weekend, and combined average daily traffic (ADT) for all the eight (8) locations measured during the traffic counts.

Table E-2: 2004 Average Daily Traffic Summary, Chickasha Section

		2004 Average Daily Traffic (ADT)	
Station	Location	Weekday	Weekend
1	US 62 west of US 62/US 81	8,350	5,750
2	US 81 north of US 62 /US 81	4,300	3,350
3A	WB I-44 off-ramp at US 62	2,750	2,750
3B	EB I-44 off-ramp at US 62*	1,200	1,050
3C	WB I-44 on-ramp at US 62*	1,200	1,050
3D	EB I-44 on-ramp at US 62	4,100	2,800
4	US 62 east of I-44	9,650	7,200
5A	WB I-44 off-ramp at US 81	3,200	3,600
5B	WB I-44 on-ramp at US 81	750	650
5C	EB I-44 off-ramp at US 81	800	650
5D	EB I-44 on-ramp at US 81	4,000	3,550
6	SH 19 east of US 81	5,650	3,850
7	US 81 south of SH 19	8,800	8,550
8	Norge Road south of Country Club Road	3,200	2,350

* Traffic counts provided by OTA.

License Plate Survey: License plate surveys were conducted at twenty (20) locations surrounding Chickasha. License plate surveys were conducted on Thursday, December 2, 2004 from 6:30 AM to 9:30 AM and from 2:30 PM to 5:30 PM. Data collected from the survey, as well as the ADT from the non-US 81 count locations were used to conduct the O-D study.

Vehicle Classification: Manual classification counts were performed as part of the license plate survey for two locations along US 81 to study the different classes of vehicles that use the study corridor. The classification counts were conducted along US

81 north of US 62 / US81 and US 81 south of SH 19. The counts were performed during the morning peak hours between 6:30 AM and 9:30 AM and evening peak hours between 2:30 PM and 5:30 PM. The manual classification counts showed a heavy vehicle factor of 5% during the AM peak and 8% during the PM peak hour along US 81 south of SH 19 in Chickasha.

Heavy vehicle percentage data furnished by the ODOT Planning & Research Division indicated a heavy vehicle factor of 24% for the Design Hour Volume (DHV) along US 81 from Chickasha to Union City, which is significantly higher than the observed heavy vehicle factor. In order to assess a worse-case scenario, the 24% heavy vehicle percentage furnished by ODOT was used instead of the observed value to perform intersection capacity analyses.

Accident Summary: The ODOT Collision Rate Analysis for Statewide Highways for the years 2003-2005 indicates that one (1) segment located in the Chickasha Section of the US 81 corridor has a collision rating that is critically high. This segment is described as US 81 from SH 19 north, then west to US 81/US 62 junction. "Critically High" segments are defined by the number of collisions per 100 million vehicle miles traveled, as compared to all other like roadway segments in the state.

Baseline Roadway Capacity Analysis

Capacity and LOS analyses were also performed for the highway segments along US 81 in both the Northern and Chickasha Sections to determine the operation of the existing roadway under current demand.

Northern Section

The existing US 81 highway segments in the Northern Section, north of Chickasha to Union City, are mostly two-lane roadway sections in the rural areas, with some four-lane roadway sections along the urban areas of Pocasset, Minco, and Union City. The Northern Section was divided into four different segments for analysis purposes, based on the collected traffic volumes and heavy vehicle percentages. Table E-3 summarizes the LOS calculations for the Northern Section roadway segments.

Table E-3: Baseline Roadway LOS Summary, Northern Section

Highway Segment	Capacity Units	Capacity (AM/PM)
US 81, North of US 62 and SH 9 – [T]	Percent Time Spent Following	54.9 / 57.8
	Average Travel Speed, mph	55.7 / 56.1
	Overall LOS	C / C
US 81, Just South of Pocasset - [T]	Percent Time Spent Following	58.0 / 62.1
	Average Travel Speed, mph	56.1 / 55.7
	Overall LOS	C / C
US 81, Just South of Minco - [T]	Percent Time Spent Following	44.9 / 57.5
	Average Travel Speed, mph	56.6 / 56.2
	Overall LOS	B / C
US 81, Just South of Union City - [T]	Percent Time Spent Following	61.5 / 63.9
	Average Travel Speed, mph	54.7 / 54.2
	Overall LOS	C / C
US 81, Just North of Union City - [T]	Percent Time Spent Following	60.6 / 60.1
	Average Travel Speed, mph	55.5 / 55.7
	Overall LOS	C / C

Note: [T] = Two-Lane Highway

Chickasha Section

The segments analyzed in the Chickasha Section include US 81 and other intersecting highways within the study corridor. The roadways are mostly four-lane divided highways through the rural and urban areas of Chickasha and five lane sections with left-turn lanes at intersections in the downtown area. Table E-4 summarizes the results of the roadway analyses for the Chickasha Section segments.

Table E-4: Baseline Roadway LOS Summary, Chickasha Section

Highway Segment or Intersection	Capacity Units	Capacity (AM/PM)
US 81, South of SH 19 – [M]		
Eastbound	LOS/Density	A(3.3) / A(3.3)
Westbound	LOS/Density	A(1.5) / A(2.6)

Highway Segment or Intersection	Capacity Units	Capacity (AM/PM)
US 81/4th St, South of US 62/SH 9– [M]		
Northbound	LOS/Density	--- / B(12.4)
Southbound	LOS/Density	--- / A(10.1)
US 81, South of Grand Ave. – [M]		
Northbound	LOS/Density	--- / B(17.1)
Southbound	LOS/Density	--- / B(13.9)
US 81, South of I-44 – [M]		
Northbound	LOS/Density	--- / B(13.6)
Southbound	LOS/Density	--- / B(16.6)
US 81, North of SH-19 – [M]		
Northbound	LOS/Density	--- / A(10.1)
Southbound	LOS/Density	--- / A(8.2)
Norge Road, South of Country Club Road - [T]	Percent Time Spent Following	52.6 / 53.5
	Average Travel Speed, mph	54.7 / 53.5
	Overall LOS	C / C
US 62 and SH 9, West of US 81 – [M]		
Eastbound	LOS/Density	A(3.8) / A(5.7)
Westbound	LOS/Density	A(3.6) / A(4.1)
US 62/US 277/SH 9, East of I-44 [M]		
Eastbound	LOS/Density	A(3.0) / A(6.0)
Westbound	LOS/Density	A(6.3) / A(4.6)
SH 19, East of US 81 – [M]		
Eastbound	LOS/Density	A(3.8) / A(3.3)
Westbound	LOS/Density	A(3.8) / A(2.9)

Note: [M]=Multi-Lane Highway; [T]=Two-Lane Highway; and Density=passenger cars/mile/lane

Baseline Traffic Operations Summary

The Northern and Chickasha Sections of the US 81 study corridor, when analyzed for intersection capacity and roadway flow characteristics, exhibit no major congestion problems. Sections of US 81 that have been improved to multi-lane segments report the greatest LOS, thereby offering room for future traffic growth. Sections of US 81 that are still two-lane are less accommodative to future traffic growth, and are operating at a LOS that may be approaching conditions that could lead to unstable flows and increased delay in the future.

Baseline Intersection Capacity Analysis (Northern Section)

Capacity analyses for this Study were performed using Synchro 6, Traffic Signal Coordination Software. A summary of the results of the intersection capacity analyses performed as part of this Study are found in Table E-5.

US 81 at SH 37E, Downtown Minco

The intersection of US 81 and SH 37E in downtown Minco is a four-legged unsignalized intersection with NW Main Street as the west leg. The intersection is stop controlled with flashing red signals at all approaches. The US 81 northbound and southbound approaches provide a shared thru/right-turn lane and a shared thru/left-turn lane. The NW Main Street eastbound and SH 37E westbound approaches provide a shared thru/right/left-turn lane.

US 81 at SH 152E, Union City

The intersection of US 81 and SH 152E in Union City is a four-legged intersection with West Division Street as the west leg. The intersection is unsignalized with stop control at all approaches. The US 81 northbound approach provides a shared thru/left-turn lane, an exclusive through lane, and a yield controlled exclusive right-turn lane. The US 81 southbound approach provides a shared thru/right-turn lane and a shared thru/left-turn lane. The SH 152E westbound approach provides a shared thru/left-turn lane with a yield controlled exclusive right-turn lane. The West Division Street eastbound approach provides a shared thru/right/left-turn lane.

Table E-5: Baseline Intersection LOS Summary

Intersection and Direction of Approach	Calculated LOS
US 81 and SH 37E – [N]	
Eastbound	A/A
Westbound	A/A
Northbound	A/A
Southbound	A/A
US 81 and SH 152E – [N]	
Eastbound	A/A
Westbound	A/A
Northbound	A/A
Southbound	A/A

Note: [N] = Non-Signalized Intersection

US 81 at SH 37W and SH 152W

The intersection of US 81 with SH 37W/SH 152W is three-legged and is located north of its intersection with SH 37E in Minco and south of its intersection with SH 152E in Union City. The intersection is stop controlled along the eastbound minor street (SH 37W/SH 152W) approach and free along the major street (US 81) approaches. US 81 at SH 37W/SH 152W is a two-lane highway with exclusive left and right turn lanes from the northbound and southbound approaches to SH 37W/SH 152W. SH 37W/SH 152W is a two-lane highway with an exclusive right turn lane at the intersection approach to southbound US 81. The primary traffic in conflict is the left turns from the SH 37W/SH 152W westbound approach. Site observations revealed adequate gap between the major street traffic for the entry of minor street vehicles with minimum or no delay. Based on the site observations, intersection geometry, location and traffic control, an intersection capacity analysis was not considered necessary and hence no peak hour turning movement counts were conducted.

Origin-Destination Study

The Origin-Destination (O-D) study was conducted only for the Chickasha Section. An O-D study was not conducted for the Northern Section as it is assumed that the majority of traffic would be through traffic and would thereby make use of any proposed bypass. In the Chickasha area, the license plate surveys were conducted to determine the amount of traffic that could potentially make use of a Chickasha bypass.

A rationale for traffic travel in the Chickasha area was developed in order to identify plausible origin and destination points for vehicles that would potentially make use of a proposed Chickasha bypass. This rationale was based on the assumption that vehicles would deviate from using US 81 through town and use one of the proposed bypasses instead and that they did not have a secondary destination within Chickasha. The proposed bypass alternatives include:

- A proposed West Bypass having a southern terminus near the intersection of US 81 and SH 19 and a northern terminus at the US 81 and US 62/SH 9 intersection (herein referenced as ‘West Bypass’).

OR

- A proposed North Bypass having an eastern terminus along I-44, north of US 62/US 277/ SH 9 interchange and a western terminus along US 81 north of the US 81 and US 62/ SH 9 intersection (herein referenced as 'North Bypass').

Data Analysis

Following the license plate survey data collection effort, recorded data was compiled in a database for analysis. Data was analyzed via a computer module to determine the number of vehicles traveling "from" or "to" specific locations in the Chickasha area. Results from this analysis were used to develop matrices summarizing the potential traffic volumes for the west and North Bypasses (Table E-6). "Total Matched" is the total number of matched license plates between the Origin and Destination points for each proposed bypass travel route. As indicated by Table E-6, 35% of the total surveyed vehicles would use the West Bypass, while only 12% of the total surveyed vehicles would use the North Bypass.

Table E-6: Proposed Bypass Routes Trip Distribution Summary-2004 ADT

2004 ADT SUMMARY							
TOTAL 'ORIGIN' POINT VEHICLES	**TOTAL MATCHED**		**PERCENT (%) MATCHED**		**PERCENT (%) MATCHED vs. TOTAL VEHICLES**		**BYPASS TRAVEL**
29,087	4,592	10,120	34%	75%	16%	35%	N on W bypass
	5,528		41%		19%		S on W bypass
	1,826	3,430	13%	25%	6%	12%	W on N bypass
	1,604		12%		6%		E on N bypass
	13,550						

West Bypass Analysis

As an additional analysis effort, a segmental analysis of the West Bypass was performed to determine the amount of Chickasha area traffic that would benefit from each segment of the West Bypass. The analyzed segments include:

- Segment 1 – Proposed West Bypass from its northern terminus at the US81/US62 intersection and southern terminus at the Norge Road/Country Club Road intersection
- Segment 2 – Northern terminus at the Norge Road/Country Club Road intersection and southern terminus at the proposed I-44/West Bypass interchange near Cottonwood Road
- Segment 3 – Northern terminus at the I-44/West Bypass interchange and southern terminus at US81 south near the US81/SH19 intersection

Plausible Origin and Destination points for vehicles that would potentially make use of each segment of the West Bypass were identified. The license plate survey data was analyzed via a computer module to determine the number of vehicles that would travel each segment of the West Bypass if the bypass existed. The results (Table E-7) indicate that the percent of total surveyed vehicles which would use Segment 1, 2, or 3 range from 25 to 28%.

Table E-7: Proposed West Bypass Routes Trip Distribution Summary-2004 ADT

2004 ADT SUMMARY			
WEST BYPASS	**TOTAL VEHICLES**	**TOTAL MATCHED**	**PERCENT (%) MATCHED vs. TOTAL VEHICLES**
Segment 1	17,128	4,724	28%
Segment 2	26,349	6,628	25%
Segment 3	25,096	6,389	25%

Origin-Destination Findings

The Origin-Destination study results for the proposed West and North Bypasses indicated that a significantly high percentage of traffic is estimated to travel the West Bypass, while the estimated percentage of traffic likely to travel the North Bypass is low.

The exclusive West Bypass analysis indicates that an approximate 25% to 28% of the 'External through' traffic would bypass downtown Chickasha by traveling the West Bypass.

The O-D study results indicate that the North Bypass is likely to reduce the total traffic traveled on US 81 through Chickasha by approximately 8% in the AM, 13% in the PM, and 12% daily. If traffic traveling only on I-44 and/or US 62 (e.g., a vehicle westbound on US 62 east of Chickasha destined for northbound US 81 north of Chickasha) is removed from this analysis, only 6% to 7% of 'external through' traffic would bypass downtown Chickasha by traveling the North Bypass.

Based on these results, a West Bypass is chosen for further evaluation to improve travel time through the US 81 corridor and decrease fuel consumption and emissions. The North Bypass will be eliminated from any additional evaluations.

IMPROVEMENT ANALYSIS

Future Traffic Analysis, No-Build Alternative

The purpose of the Study includes improving the operations of the study corridor to accommodate the existing and future demand. Future traffic demand was developed for the No-Build Alternative and the LOS was determined to assess the operational conditions of the study corridor.

Future Traffic Demand

Northern Section: Table E-8 presents the existing (2004) and future (2030) average daily traffic volumes for all the segments in the Northern Section for the No-Build Alternative.

Table E-8: Projected Average Daily Traffic Volumes, US 81 Corridor, Northern Section, No-Build Alternative

US 81 Segment	Existing Traffic Volume (2004)	No-Build Alternative Projected Traffic Volume (2030)
US 81, North of Chickasha	4,100	7,300
US 81 at Pocasset	3,500	5,300
US 81, South of Minco	4,600	7,000
US 81, North of Minco	5,100	7,850
US 81, South of Union City	5,600	8,500
US 81, North of Union City	5,900	9,750

Chickasha Section: Table E-9 presents the existing (2004) and future (2030) ADT along US 81, major intersecting highways, and impacted intersections for the No-Build Alternative.

Table E-9: Projected Average Daily Traffic Volumes, US 81 Corridor, Chickasha Section, No-Build Alternative

Arterial Description	Existing Traffic Volume (2004)	No-Build Alternative Projected Traffic Volume (2030)
US 62/SH 9, West of US 81	8,300	12,500
US 81, North of US 62/SH 9	4,300	8,900
US 62/US 277/SH 9, East of I-44	9,200	21,200
US 81/4th Street, South of US 62/SH 9	20,350	46,750
US 81 at Grand Avenue	28,000	49,850
US 81, South of I-44	27,300	47,850
US 81, North of SH 19	16,550	31,600
SH 19, East of US 81	5,500	9,400
US 81, South of SH 19	8,900	15,400

Future Roadway Capacity Analysis

Capacity and LOS analyses were performed for the US 81 study corridor in both the Northern and Chickasha Sections for the No-Build Alternative to determine the roadway capacity for future 2030 traffic demand

Northern Section: The future 2030 traffic demand on the No-Build Alternative was used to determine the future roadway capacity and LOS. Table E-10 presents the results of the LOS and capacity analysis for the Northern Section under the No-Build Alternative.

Table E-10: Future 2030 Capacity and LOS Analysis, US 81 Corridor, Northern Section, No-Build Alternative

No	Arterial Description	2030 ADT	% Trucks	Percent Time Spent Following	Average Travel Speed (mph)	v/c Ratio	LOS
1	US 81, North of Chickasha	7,300	23	71.4	53.1	0.33	D
2	US 81 at Pocasset	5,300	23	62.6	54.1	0.28	C
3	US 81, South of Minco	7,000	10	65.1	54.0	0.29	D
4	US 81, North of Minco	7,850	10	68.1	53.3	0.32	D
5	US 81, South of Union City	8,500	11	75.2	51.2	0.43	D
6	US 81, North of Union City	9,750	11	78.8	49.8	0.49	D

The capacity analysis indicates that the LOS for the Northern Section US 81 segments would deteriorate under the No-Build Alternative.

Chickasha Section: The future 2030 traffic demand for the No-Build Alternative was used to determine the future roadway capacity and LOS. Table E-11 summarizes the results of the LOS and capacity analysis for the four-lane Chickasha Section US 81 study corridor under the No-Build Alternative. The capacity analysis indicates that the LOS for the US 81 Chickasha Section would deteriorate under the No-Build Alternative.

Table E-11: Future 2030 Capacity and LOS Analysis, US 81 Corridor, Chickasha Section, No-Build Alternative

No	Arterial Description	2030 ADT	% Trucks	Density (pc/mi/ln)		LOS	
				NB	SB	NB	SB
1	US 81/4th Street South of US 62/SH 9	46,750	15	24.2	30.6	C	D

2	US 81 South of Grand Avenue	49,850	10	26.3	33.5	D	D
3	US 81 South of I-44	47,850	15	25.4	32.3	C	D
4	US 81 North of SH 19	31,600	15	16.5	20.2	B	C
5	US 81 South of SH 19	15,400	15	8.2	10.0	A	A

Development of Build Alternatives

Northern Section

Because the future average daily traffic volumes and roadway LOS for the Northern Section indicate that the facility's ability to effectively handle future traffic will deteriorate to an unacceptable level under the No-Build Alternative, three build alternatives for the Northern Section were developed for evaluation, as follows:

- Alternative 1 is the improvement of US 81 to four lanes along the existing alignment.
- Alternative 2 would be the same as Alternative 1, except at the south edge of Minco, where the existing facility would be realigned to eliminate the three and four degree curves.
- Similarly to Alternative 2, Alternative 3 would be the same as Alternative 1, except for bypasses around Pocasset, Minco and Union City.

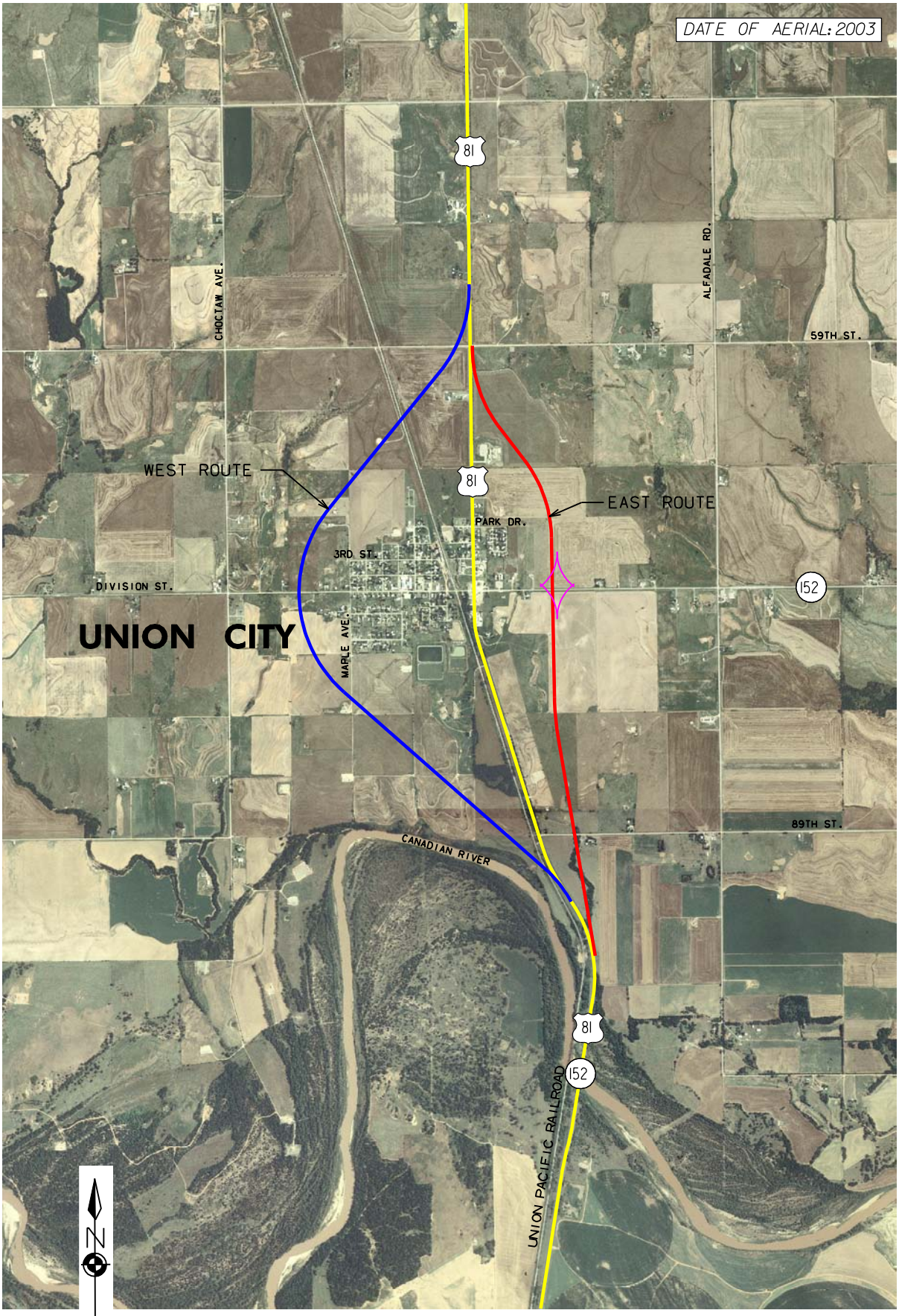
The realignment of US 81 in Alternative 2 is located slightly east of the existing alignment, starting on the south at County Road 1200 and proceeding north to South Street in Minco, where the original US 81 alignment would be resumed. Alternative 3 includes a bypass either to the east or to the west of each city. Descriptions of each bypass alignment are provided in the following text.

Union City: General alignment of the west bypass began on the south at approximately one quarter mile south of 89th Street, traversing Union City to the west of Maple Avenue to a point approximately one half mile north of 59th Street. The general alignment of the eastern bypass began on the south at one half mile north of 89th Street, traversing

Union City to the east to approximately 59th Street. The Union City bypass alignments are indicated on Figure E-2.

Minco: The general alignment of the west bypass began near the US 81 and Clayton Road intersection, traversing Minco to the west of West 9th Street to a northern terminus near the intersection of US 81 with SH 37 and SH 152. The general alignment of the eastern bypass began south of Clayton Road, traversing Minco to the east of Buggy Creek and Cemetery Road, to a northern terminus north of SH 37 and SH 152. The Minco bypass alignments are indicated on Figure E-3.

Pocasset: The general alignment of the west bypass began roughly a half-mile south of Cardinal Street, traversing Pocasset to the west of the City's boundary to a point north of Dutton Road. The eastern bypass general alignment began roughly a quarter-mile south of Cardinal Street, traversing Pocasset to the east of the City's boundary to a point north of Dutton Road. The Pocasset bypass alignments are indicated on Figure E-4.



UNION CITY BYPASS ALIGNMENTS

FIGURE E-2

OKLAHOMA DEPARTMENT OF TRANSPORTATION

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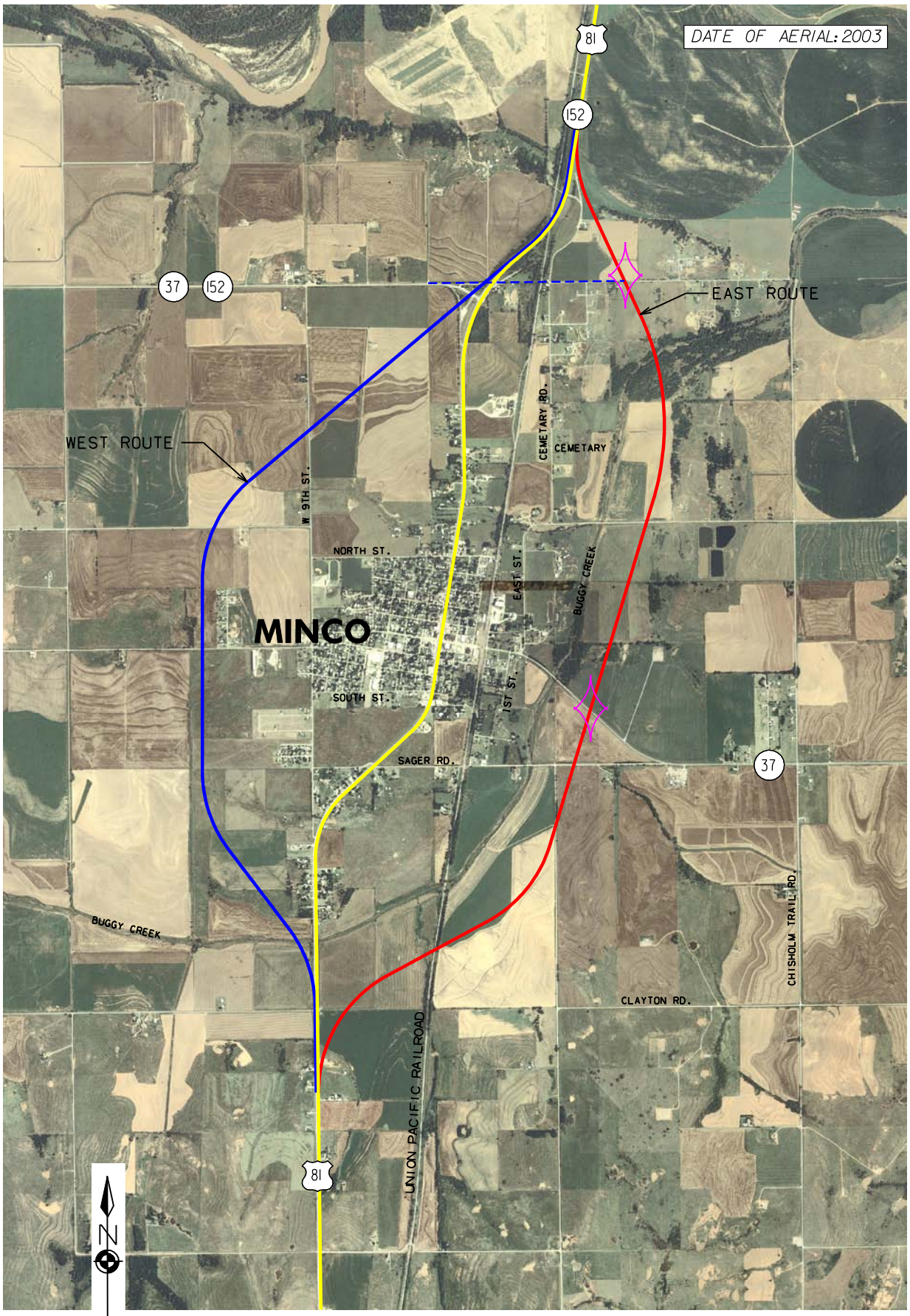

MINCO BYPASS ALIGNMENTS

FIGURE E-3

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Chickasha Section

Similarly, traffic analysis of the Chickasha Section indicates that its ability to effectively handle future traffic will deteriorate to an unacceptable level under the No-Build Alternative. Therefore, West and North Bypass alignments for the Chickasha Section were developed for evaluation. Either bypass would be a 4-lane, divided facility. The general alignment for the West Bypass was from a southern terminus point connecting to US 81 near SH 19, proceeding west of Chickasha to a northern terminus point with US 62 near US 81, with access proposed to I-44, Norge Road, Grand Avenue, and Idaho Street. Figure E-5 depicts the West Bypass alignment.

The general alignment for a North Bypass was from the intersection of US 81 and County Road 1320, proceeding east along County Road 1320 for approximately 2 ½ miles, continuing east through unimproved land for another 2 ½ miles before joining I-44 with a new interchange. The North Bypass would then follow I-44 south to just south of Pikes Peak Road, then exit via a new Toll Plaza and I-44 interchange, proceeding southeast back to existing US 81. This alternate will require construction of two new interchanges with I-44, and some method of payment for the “lost” tolls associated with bypass traffic’s use of I-44. Figure E-6 depicts the North Bypass alignment.

The O-D study results indicated that only 6% - 7% of total US 81 traffic would use a North Bypass of Chickasha. Based on this evaluation, further consideration of the North Bypass was not conducted. Therefore, the following build alternative was selected for further evaluation:

- West Bypass Alternative, which would be a West Bypass of Chickasha with proposed interchanges at US 62, Idaho Avenue, Grand Avenue, Norge Road, I-44, and US 81 south of SH 19

Several alignments were evaluated for a West Bypass of Chickasha. A total of six (6) potential alignments which had been identified in the previous bypass studies conducted in 1978 and 1992 were further evaluated during this Corridor Study. Two (2) additional alignments were considered further west of the previous alignments, due to the degree of development which had occurred on the west side of Chickasha since the

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CHICKASHA WEST BYPASS ALIGNMENT

FIGURE E-5

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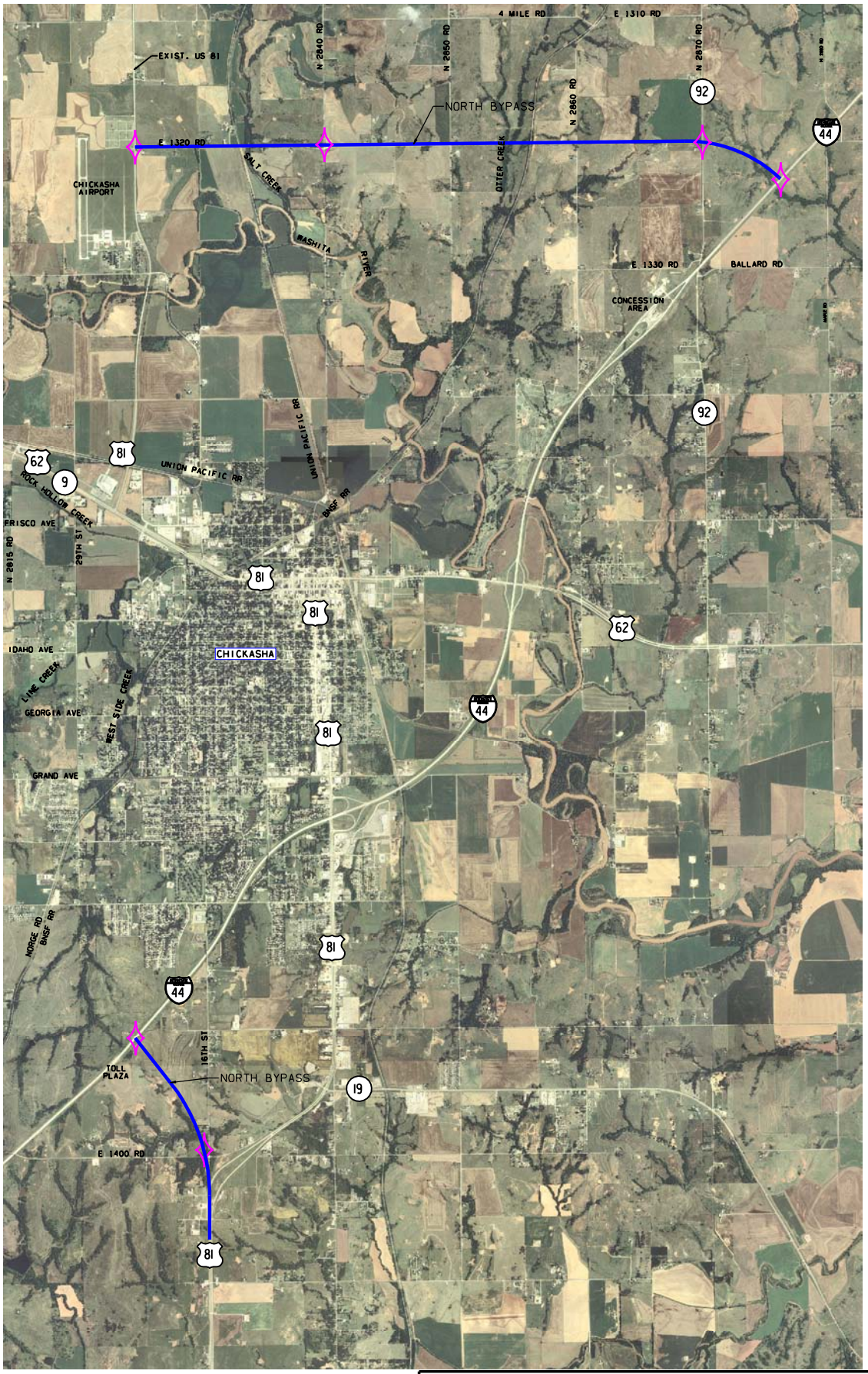
Figure E-5.dgn



LEGEND :

POSSIBLE INTERCHANGES

0 1000' 2000' 3000'

DATE OF AERIAL: 2003

CHICKASHA NORTH BYPASS ALIGNMENT

FIGURE E-6

OKLAHOMA DEPARTMENT OF TRANSPORTATION

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12/18/2006

Figure E-6.dgn

previous studies. Therefore, a total of eight (8) potential alignments for the West Bypass were evaluated.

Traffic Analysis, Build Alternatives

Future Traffic Demand

Northern Section: Table E-12 presents the existing (2004) and future (2030) average daily traffic volumes for the Northern Section three build alternatives.

Table E-12: Projected Average Daily Traffic Volumes, US 81 Corridor, Northern Section, Alternatives 1, 2, and 3

Ref No.	US 81 Segment	Existing Traffic Volume (2004)	Projected Traffic Volume (2030)		
			Alternative 1	Alternative 2	Alternative 3
1	US 81, North of Chickasha	4,100	7,700	7,700	8,050
2	US 81 at Pocasset	3,500	5,600	5,600	5,850
3	US 81, South of Minco	4,600	7,400	7,400	7,750
4	US 81, North of Minco	5,100	8,300	8,300	8,650
5	US 81, South of Union City	5,600	8,950	8,950	9,400
6	US 81, North of Union City	5,900	10,250	10,250	10,750

Note: Alternatives are defined on Page 19.

Chickasha Section: The impact of the West Bypass Alternative on the existing US 81 in the future design year (2030) was studied to identify the reduction in average daily traffic (ADT) and level of service (LOS). Traffic volumes and capacity at the existing intersections that are proposed to be future bypass interchanges were also studied. Table E-13 presents the Existing (2004) and future (2030) ADT along the US 81 study corridor, major intersecting highways and impacted intersections for the West Bypass Alternative in the Chickasha Section.

Table E-13: Projected Average Daily Traffic Volumes, US 81 Corridor, Chickasha Section, West Bypass Alternative

Ref No.	Arterial Description	Existing Traffic Volume (2004)	Projected Traffic Volume (2030) West Bypass Alternative
1	US 62/SH 9, West of US 81	8,300	15,700
2	US 81, North of US 62/SH 9	4,300	12,100
3	US 62/US 277/SH 9, East of I-44	9,200	21,200
4	US 81/4th Street, South of US 62/SH 9	20,350	40,290
5	Existing 29th Street/ Proposed US 81 Bypass at Idaho	4,500	11,000
6	US 81 at Grand Avenue	28,000	40,450
7	Existing 29th Street/Proposed US 81 Bypass at Grand Ave.	4,650	13,000
8	US 81, South of I-44	27,300	34,000
9	Proposed US 81 Bypass at I-44	-	13,900
10	Existing Norge Road at Country Club Road & Proposed US 81 Bypass at Norge Road	3,150	15,900
11	US 81, North of SH 19	16,550	29,000
12	SH 19, East of US 81	5,500	9,400
13	US 81, South of SH 19	8,900	10,700

Future Roadway Capacity Analysis

Capacity and LOS analyses were performed for the US 81 study corridor in both the Northern and Chickasha Sections for the various build alternatives to determine the roadway capacity for future 2030 traffic demand.

Northern Section: The future 2030 traffic demand for the build alternatives was used to determine the future roadway capacity and LOS. Table E-14 summarizes the results of the capacity and LOS analysis for the Northern Section segments under Alternatives 1,

2, and 3. All the Northern Section roadway segments operate at acceptable LOS A under the future 2030 traffic demands.

Table E-14: Future 2030 Capacity and LOS Analysis, US 81 Corridor, Northern Section, Alternatives 1, 2, and 3

No	Arterial Description	2030 ADT	% Trucks	K	Design Hour Volume (veh/h)*	LOS
1	US 81, North of Chickasha	7,700	24	0.1	462	A
2	US 81 at Pocasset	5,600	24	0.1	336	A
3	US 81, South of Minco	7,400	13	0.1	407	A
4	US 81, North of Minco	8,300	13	0.1	456	A
5	US 81, South of Union City	8,950	15	0.1	447	A
6	US 81, North of Union City	10,250	15	0.1	512	A

*: Design Hour Volume for Alternative 3 is 5% greater, due to induced traffic.

Chickasha Section: The future 2030 traffic demand for Alternative 1 was used to determine the future roadway capacity and LOS. The design hour volumes at the intersections of US 81 and US 62, 29th Street & Future Idaho Avenue, 29th Street & Grand Avenue, Norge Road and Country Club Road, US 81 and I-44 ramps, and US 81 and SH 19 were used to make future projections at the proposed bypass interchanges. Table E-15 summarizes the results of the LOS analysis for the West Bypass Alternative.

Table E-15 indicates that the proposed bypass facility west of downtown Chickasha operates at acceptable LOS A for future 2030 traffic demand, thus enabling the external through traffic along US 81 to operate at higher capacity.

Table E-15: Future 2030 Capacity and LOS Analysis, US 81 Corridor, Chickasha Section, West Bypass Alternative

No	Arterial Description	2030 Design Hour Volume	% Trucks	Density (pc/mi/ln)		LOS	
				NB	SB	NB	SB
1	US 81 Bypass b/w US 62 and Idaho Interchanges	11,000	20	8.0	6.5	A	A
2	US 81 Bypass b/w Idaho and Grand Interchanges	13,000	20	9.4	7.7	A	A
3	US 81 Bypass b/w Grand and Norge Road Interchanges	15,900	20	11.6	9.4	B	A
4	US 81 Bypass b/w Norge Road and I-44 Interchanges	13,900	20	10.1	8.2	A	A
5	US 81 Bypass b/w I-44 and SH 19 Interchanges	15,300	20	11.1	9.1	A	A

One benefit of the West Bypass Alternative should be an improved LOS along existing US 81 in downtown Chickasha. For that reason, the impact of the proposed bypass on the existing US 81 was studied for capacity and LOS using the daily traffic volumes shown in Table E-16.

Table E-16: Future 2030 Capacity and LOS Analysis, US 81 Corridor, Chickasha Section, Existing US 81 after Construction of West Bypass Alternative

No	Arterial Description	2030 Design Hour Volume After Improvement	% Trucks	Density (pc/mi/ln)		LOS	
				NB	SB	NB	SB
1	US 81/4th Street, South of US 62/SH 9	40,290	5	19.2	22.7	C	C
2	US 81, South of Grand Avenue	40,450	5	19.3	22.7	C	C
3	US 81, South of I-44	34,000	5	16.2	19.1	B	C
4	US 81, North of SH 19	29,000	5	13.9	16.2	B	B
5	US 81, South of SH 19	10,700	5	5.2	5.9	A	A

Intersection Warrant Analysis

A summary of intersection capacity analyses was performed for the future 2030 traffic conditions for the Northern Section as shown in Table E-22. The analyzed intersections include US 81 and SH 37 in Minco and US 81 and SH 152 in Union City.

The intersection of US 81 and SH 37 in Minco failed to meet the requirements of the eight (8) MUTCD signal warrants. Hence, signalization of the intersection is not recommended.

The intersection of US 81 and SH 152 in Union City meets the requirements of MUTCD signal warrants 1, 2 and 3 for the future 2030 traffic demand. Signal warrant analysis also revealed no traffic signal justification until the year 2029. Hence, signalization is recommended for the future design year 2030 to reduce the delay experienced by the minor street traffic and improve the overall intersection capacity. However, since the signalization is not required until after 2029, this improvement is not recommended in this report and the associated cost is not included.

Selection of Recommended Alternative

Northern Section, Rural Areas

Construction Costs: The construction cost associated with adding two additional lanes to the east or to the west of the existing lanes was considered to be approximately the same.

Environmental Analysis: Expansion to the west side of the existing facility through the rural areas could potentially impact two cemeteries, a church, municipal water well, and a residence eligible for the National Register of Historic Places (NRHP). The Union Pacific Railroad located immediately west of the existing facility north of Minco and south of Union City is another constraint to expansion to the west. Expansion to the east side would result in fewer environmental impacts, with the most substantial impact being one residence eligible for the NRHP. Noise sensitive receptors along the rural areas of the Northern Section are widely scattered; therefore, noise mitigation is not likely to be reasonable or feasible.

Recommended Improvement: Addition of a median and two additional lanes to the east side of the existing lanes, with reconstruction of the existing lanes, is the recommended improvement in rural areas. Along those stretches of the US 81 corridor between cities, the roadway will be improved to a divided 4-lane roadway with paved shoulders. The 4-lane facility will consist of two sets of two 12-foot traffic lanes, with 10-foot outside and 4-foot inside shoulders, and a median of varying width. Drainage from the roadway will be carried away by open ditches located in the median and beyond the outside shoulders. Typically, a minimum of 250' of ROW is required to construct this section, depending upon adjacent terrain, design requirements, utilities, and other factors.

Northern Section, Through Cities

Construction Costs and LOS Comparison: The construction costs and LOS for Alternative 3 (bypasses) were compared to the costs and LOS associated with Alternatives 1 (existing) and 2 (realignment south of Minco). LOS would be improved to LOS A by any of Alternatives 1, 2, or 3. The estimated construction costs for either Alternative 1 or 2 were approximately 35% less than for Alternative 3. Further comparison of Alternatives 1 and 2 indicated that Alternative 1 would be less expensive than Alternative 2 and would still provide a high level of service.

Environmental Analysis: The majority of public input received supported Alternative 1 over either Alternative 2 or 3. Alternative 1 is not anticipated to have any substantial environmental impacts. The increased traffic anticipated through the cities along the improved facility is not anticipated to have any noise impacts.

Recommended Improvement: Any of the three Build Alternatives would provide a LOS of A. Alternative 1 (existing) would cost less to construct than Alternative 2 (realignment south of Minco) or Alternative 3 (bypasses), and Alternative 1 received greater public support than Alternatives 2 and 3. There were no substantial environmental impacts associated with any of the Build Alternatives. Based upon these factors, Alternative 1 was selected as the recommended improvement of US 81 through Pocasset, Minco, and Union City.

Based upon consideration of the criteria for a 5-lane facility through Union City, Minco, and Pocasset, a 5-lane undivided facility was not recommended. The typical 4-lane facility would consist of an undivided 4-lane roadway with paved shoulders, with the lanes being 12-feet wide. A drainage system with curb inlets would also be required through the downtown areas. The curbed section would require at least 120' of ROW to allow for placement of utilities and other appurtenances behind the curb.

Through Union City, the recommended improvement alternate is to widen the existing 2-lane facility to a 4-lane facility, and add curb and gutter where needed. It is anticipated that the existing ROW may be adequate to allow a 4-lane facility, and that minimal ROW may be needed in areas to add the curb and gutter. For that portion of US 81 through Union City that is currently 4-lane, the recommended improvement will be to mill and overlay the existing facility. It is anticipated that little or no additional ROW will be needed to implement these improvements.

Through Minco, the recommended improvement is to mill and overlay the existing 4-lane facility. Little or no additional ROW will be needed for this improvement.

Through Pocasset, the recommended improvement is to widen the existing 2-lane facility to a 4-lane facility, and add curb and gutter where needed. It is anticipated that the existing ROW may be adequate to allow a 4-lane facility, and that minimal ROW may be needed in areas to add the curb and gutter.

Chickasha Section

As discussed previously, the West Bypass Alternative is preferred, due to the unacceptable deterioration of service experienced in the Chickasha Section under the No-Build Alternative. Of eight (8) potential alignments initially considered, six (6) alignments were eliminated as infeasible. Therefore, two (2) potential alignments remained for evaluation. These bypass alignments were referred to as West Bypass Alternate 3 and West Bypass Alternate 4.

Environmental Analysis: Review of the environmental constraints maps indicated a number of known environmental constraints in the vicinity of West Bypass Alternates 3 and 4. These included a City of Chickasha water tower, a rest home, oil and gas production sites, several residential additions, a small manufacturing facility, an electrical substation, and churches. Input from local stakeholders revealed additional constraints in the vicinity of West Bypass Alternates 3 and 4, including current construction of a new church and a 100-acre parcel currently being platted for residential development. It was determined from further evaluation and public comment that features of West Bypass Alternates 3 and 4 could be combined to avoid the environmental constraints, and the resulting recommended alignment was referred to as the West Bypass 3-4 Hybrid Alternate. By avoiding densely-populated residential areas and sensitive areas such as churches, the only noise sensitive receptors along the West Bypass are widely scattered. Therefore, noise mitigation is not likely to be reasonable or feasible.

Recommended Improvement: The recommended improvement for the Chickasha Section is construction of a 4-lane, divided bypass west of Chickasha via an alignment referred to as the West Bypass 3-4 Hybrid Alternate. The final alignment of the recommended West Bypass will be determined during the National Environmental Policy Act (NEPA) process to follow.

Project Segment Identification, Costs, and Prioritization

Programmed Projects along US 81 Corridor

Improvement of the segment of US 81 north of Union City and construction of a new 2-lane bridge just east of the existing Canadian River Bridge north of Minco are currently in ODOT's eight-year construction program.

Northern Section

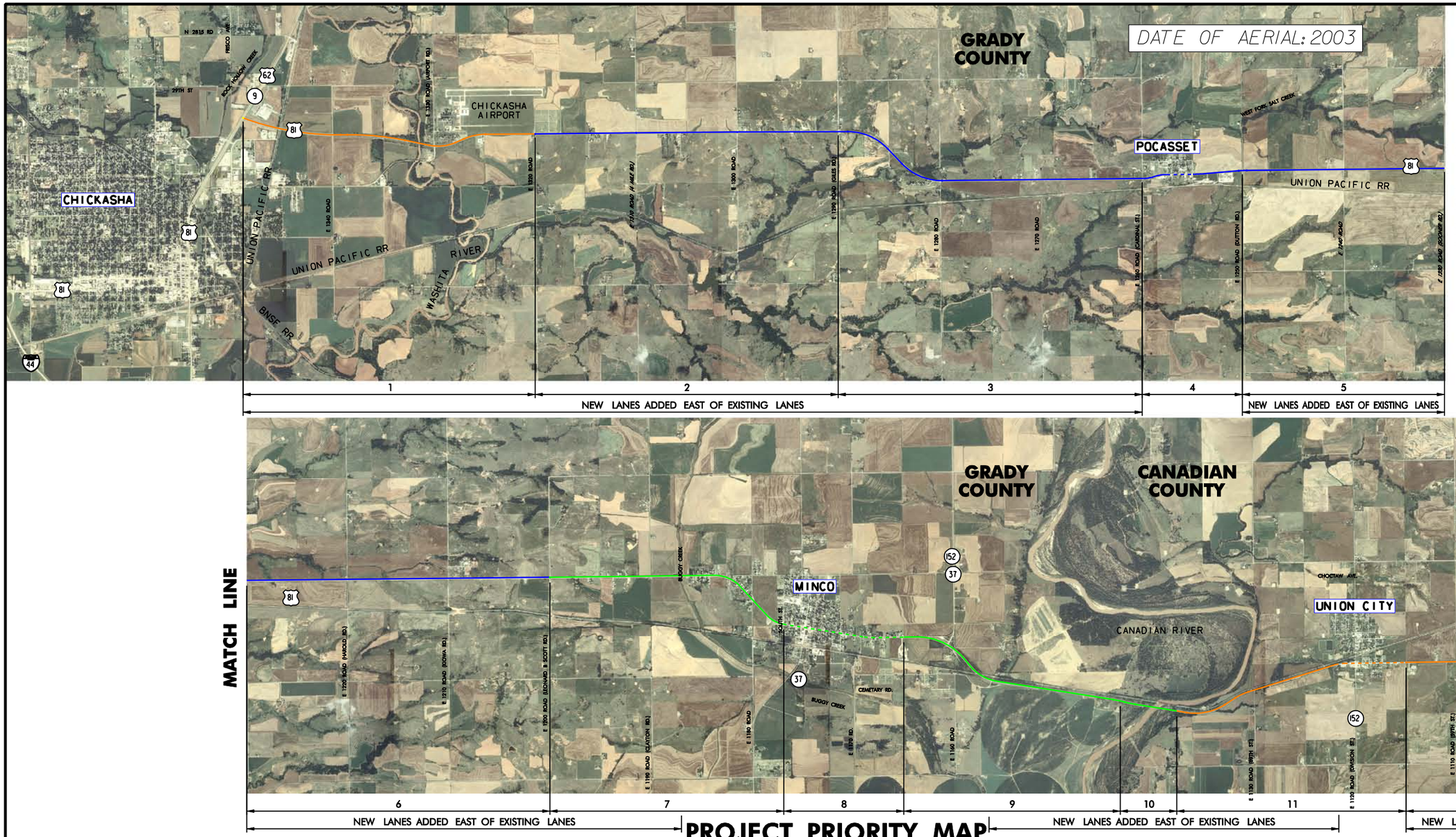
The Northern Section of the Corridor Study is approximately 26 miles long. As an aid to future programming of the recommended improvements, the Northern Section was divided into 12 construction segments. The goal was to identify a series of segments with individual maximum construction costs of approximately $10 million. The 12

segments, from south to north, are described briefly in the following table and illustrated in Figure E-7.

Table E-17: Construction Segment Summary, US 81 Corridor, Northern Section

Segment	Approximate Extents	Length (miles)
1	US 62 to E 1320 Road	2.94
2	E 1320 Road to E 1290 Road	3.00
3	E 1290 Road to E 1260 Road	3.17
4	Pocasset (E 1260 Road to E 1250 Road)	1.00
5	E 1250 Road to E 1230 Road	2.00
6	E 1230 Road to E 1200 Road	3.00
7	E 1200 Road to South Street in Minco	2.50
8	Minco (South Street to 1.2 miles north)	1.20
9	0.45 miles south of SH 37 West to Canadian River	2.30
10	Canadian River	0.57
11	Canadian River to 0.50 miles north of SH 152 East	2.36
12	0.50 miles north of SH 152 East to E 1090 Road	2.50
	Total Length	26.54

The total estimated costs for construction, right-of-way, and utility for each construction segment are presented in Table E-18. All costs have been estimated and expressed in 2006 dollars.



PROJECT PRIORITY MAP

Segment Identification	1	2	3	4	5	6	7	8	9	10	11	12
Project Length (miles)	2.94	3.00	3.17	1.00	2.00	3.00	2.50	1.20	2.30	0.57	2.36	2.50
Type of Improvement	AA	AA	AA	BB / CC	AA	AA	AA / BB	CC	AA / BB	AA	AA / CC	AA
Project Cost ($ Million)[1]	26.30	13.73	12.72	2.96	7.57	10.56	11.13	2.83	11.40	6.89	9.21	11.95
Priority Group	High	Low	Low	Low	Low	Low	Medium	Medium	Medium	Medium	High	High

1 Project Costs estimated are based on 2006 dollars

LEGEND

Type of Improvement
- AA — Add Median & 2 New Lanes, Reconstruct Existing Lanes
- BB — Widen from Existing 2–Lane to 4–Lane Undivided
- CC — Mill and Overlay Existing 4–Lane Undivided

- HIGH PRIORITY
- MEDIUM PRIORITY
- LOW PRIORITY
- ----- Existing 4 Lane Undivided

US 81 CORRIDOR CONST. SEGMENTS, NORTH SECTION

FIGURE E–7

OKLAHOMA DEPARTMENT OF TRANSPORTATION

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12/19/2006

Figure E-7.dgn

Table E-18: Construction Cost Estimates for 12 Construction Segments, US 81 Corridor, Northern Section

Segment	Preliminary Engineering $	Construction $	Right-of-Way $	Utilities $	Construction Engineering $	Totals $
1	1,117,157	22,343,132	914,330	216,812	1,787,451	26,378,881
2	484,925	9,698,493	1,746,400	1,320,719	775,879	14,026,416
3	538,541	10,770,819	283,890	520,063	861,666	12,974,978
4	124,187	2,483,744	35,894	345,938	198,699	3,188,462
5	297,351	5,947,012	386,340	646,250	475,761	7,752,713
6	447,923	8,958,468	187,954	450,063	716,677	10,761,085
7	454,480	9,089,597	604,560	554,000	727,168	11,429,805
8	125,333	2,506,662	0	0	200,533	2,832,528
9	472,871	9,457,417	296,488	627,156	756,593	11,610,525
10	0	6,446,930	123,600	318,270	0	6,888,800
11	337,181	6,743,623	949,464	925,594	539,490	9,495,352
12	0	8,597,520	1,825,295	1,523,436	0	11,946,251
Totals	4,399,948	103,043,416	7,354,215	7,448,301	7,039,917	**129,285,798**

Note: All costs are expressed in 2006 dollars.

The construction costs for Segment 1 are significantly greater than any other segment due to the earthwork costs associated with the north side of the future US 81/US 62 interchange, as well as the construction costs (including earthwork) for the Union Pacific Railroad overpass bridge.

Lastly, each construction segment was assigned a construction priority of High, Medium, or Low. These priorities were determined based upon traffic volumes, as well as input from ODOT personnel and the public. The priorities of the 12 construction segments are presented in the following table:

Table E-19: Construction Segment Priority, US 81 Corridor, Northern Section

Segment	1	2	3	4	5	6	7	8	9	10	11	12
Priority	High	Low	Low	Low	Low	Low	Medium	Medium	Medium	Medium	High	High

Chickasha Section

The proposed Chickasha West Bypass was considered as two segments for cost estimating purposes. The segments, C-1 and C-2, are illustrated in Figure E-8. The total estimated costs for construction, right-of-way, and utility for each construction

segment are presented in Table E-20. All costs have been estimated and expressed in 2006 dollars.

Table E-20: Construction Cost Estimates for Construction Segments, US 81 Corridor, Proposed Chickasha West Bypass

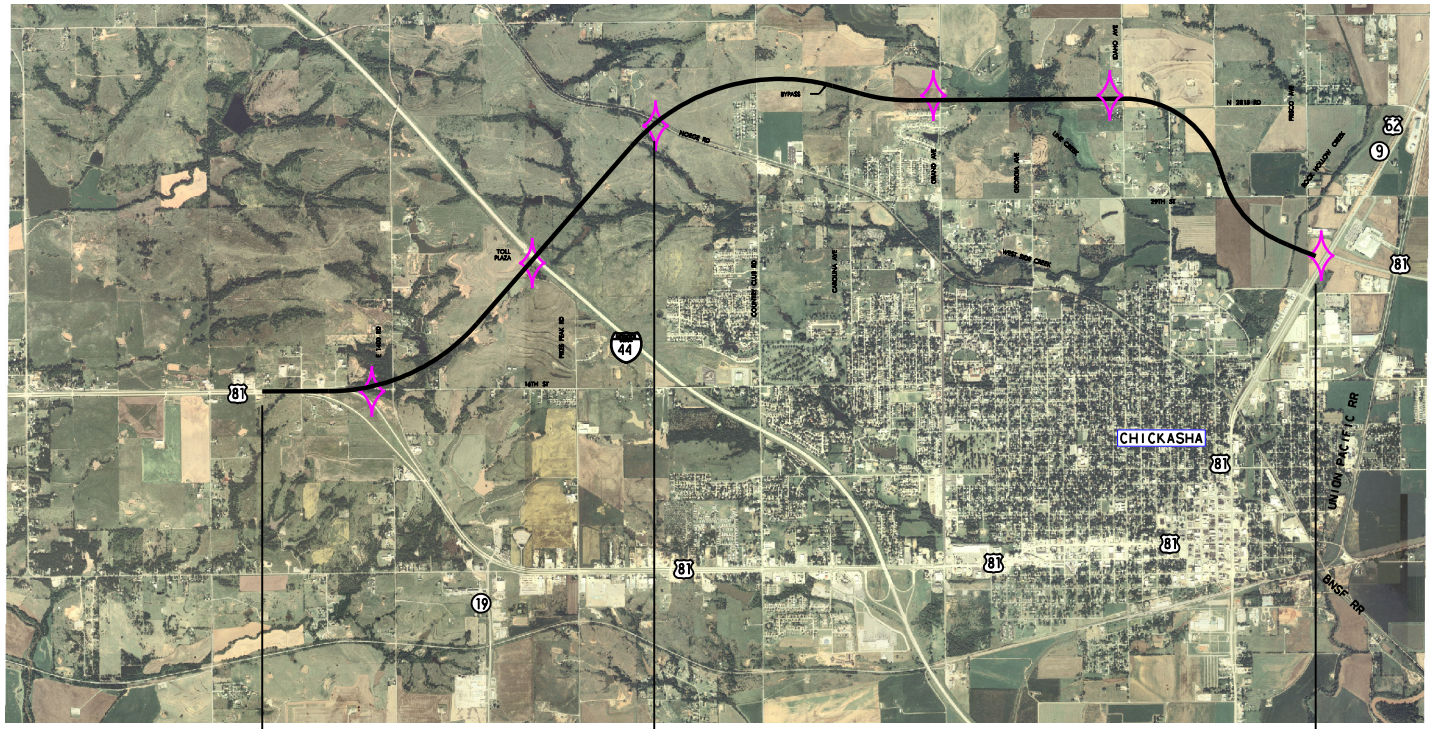
Segment	Preliminary Engineering $	Construction $	Right-of-Way $	Utilities $	Construction Engineering $	Totals $
C-1	3,795,534	75,910,674	1,520,470	536,813	6,072,854	87,836,345
C-2	3,860,425	77,208,502	1,676,096	1,148,525	6,176,680	90,070,229
Totals	7,655,959	153,119,177	3,196,566	1,685,338	12,249,534	**177,906,574**

Various phases of the West Bypass construction were assigned priorities of High and Low. Due to the importance of protecting the proposed bypass corridor from future development and additional environmental constraints, right-of-way acquisition has been assigned a High priority. Utility relocation and construction have been assigned a Low priority. It is significant to note that these priorities were developed specifically for the Chickasha Section, and are not comparable to the priorities developed for the Northern Section. For example, a Northern Section segment with a Medium priority would not necessarily be considered a higher priority than a Chickasha bypass task assigned a Low priority. The Chickasha West Bypass alignment, with cost and priority information, is presented in Figure E-8.

Figure E-8.dgn

US 81 CORRIDOR CONST. INFO., CHICKASHA WEST BYPASS

FIGURE E-8



C–1 C–2

Segment	Project Length (miles)	Priority: Acquire ROW	Priority: Relocate Utilities; Construction	Preliminary Engineering $	Construction $	Right–of–Way $	Utilities $	Construction Engineering $	Totals $
C–1	2.76	High	Low	3,795,534	75,910,674	1,520,470	536,813	6,072,854	87,836,345
C–2	4.09	High	Low	3,860,425	77,208,502	1,676,096	1,148,525	6,176,680	90,070,229
Totals	6.85			7,655,959	153,119,177	3,196,566	1,685,338	12,249,534	177,906,574

Note: Estimated costs are based on 2006 dollars

LEGEND

Possible Interchanges

DATE OF AERIAL: 2003

9/26/2007

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PUBLIC INVOLVEMENT

Introduction

The public involvement process for the US 81 Corridor Study included two sets of informal stakeholder meetings at Minco and Chickasha, as well as two sets of public meetings at Minco and Chickasha. Also, a number of internal meetings were held at various times throughout the project to evaluate the Corridor Study status.

Informal Stakeholder Meetings

The first set of informal stakeholders meetings were held September 30, 2004 at the Chickasha Chamber of Commerce and the Minco City Hall. A powerpoint presentation was made to explain the purpose of the US 81 Corridor Study, and the stakeholders were encouraged to provide input, particularly on the issue of potential bypasses around the cities of Union City, Minco, Pocasset, and Chickasha.

At the Chickasha stakeholder meeting, general support of a Chickasha bypass was expressed. In addition to the concept of a West Bypass which had been studied by ODOT previously, several stakeholders suggested consideration of a North Bypass.

The second set of informal stakeholder meetings were held November 1, 2005 at the Chickasha Chamber of Commerce and the Minco Senior Citizens Center. The primary purpose of these meetings was to present the results of the evaluation of the various bypass alignments. At Chickasha, the results of the traffic count and license plate survey were presented. It was explained that because these evaluations indicated that the North Bypass would be used by only 6 to 7% of the traffic traveling through Chickasha on US 81, while the West Bypass would be used by 25 to 28% of the same US 81 traffic, the North Bypass would be eliminated from further study. Several stakeholders commented verbally and in writing that of the three West Bypass alternates presented, they favored the 3-4 Hybrid alternate.

At Minco, the potential bypasses of Union City, Minco, and Pocasset were reviewed, and stakeholder input on the bypasses was requested. Opposition to the bypasses was voiced at the meeting, as well as in later written comments. Members of the Minco

Planning Commission voiced their support of the alternate alignment south of Minco. This alignment was originally developed to correct the substandard curve on existing US 81, but was favored by the Minco Planning Commission in part due to the fact that it was also compatible with their wish to re-align SH 37 east of Minco to proceed west along existing Sager Road.

Public Meetings

The first set of public meetings was held on November 7, 2005 at the Minco Public School Auditorium and November 10, 2005 at the Grady County Fairgrounds Community Building in Chickasha. The purpose of these meetings was to present the following information:

- 2004 Traffic Volumes and Level of Service
- 2030 Traffic Volumes and Level of Service (both without and with improvements)
- Typical Cross Sections
- Potential Bypass Locations
- Environmental Constraints Maps

All graphical information from the meetings was also made available for subsequent review on the consultant's project website. The public was encouraged to provide comments and/or additional information relative to the Corridor Study. They were also informed that their comments would be considered in selecting the recommended improvements, which would be presented at the final set of public meetings.

Public comments received after the 2005 public meetings expressed opposition to bypasses of the small towns, and fairly equal support/opposition to the concept of a Chickasha bypass.

The second set of public meetings was held September 7, 2006 at the Grady County Fairground Community Building and September 19, 2006 at the Minco Public School Auditorium. The purpose of these meetings was to present the final recommended improvements. Environmental constraints maps were presented, as well as the associated costs and priorities associated with the Chickasha Section West Bypass and

the 12 construction segments identified in the Northern Section. The public had many questions regarding likely scheduling of the project.

Public comments received after the 2006 public meetings overwhelmingly addressed the West Bypass. More comments expressing opposition than support were received, with the greatest number (approximately 125) expressing concern over the West Bypass alignment and suggesting an alignment further to the west to avoid existing homes. Concern was also expressed over the proposed bypass interchange at Idaho Street, as in that area Idaho Street is narrow, primarily residential, and is not continuous to the east.

Public Involvement Summary

The public involvement process resulted in the definition and evaluation of a northern Chickasha bypass, and also was a factor in elimination of Union City, Minco, and Pocasset bypasses from further evaluation. Several residents expressed concern over the proposed location of the West Bypass. While this Corridor Study recommends construction of a West Bypass of Chickasha, it also recognizes that additional effort will be made during the NEPA process to identify its most advantageous and least intrusive alignment. In addition to identifying key issues and concerns voiced by the public, the Corridor Study's public involvement process has also yielded a comprehensive mailing/contact list of interested citizens, which will be used extensively during the NEPA project to follow.

CORRIDOR STUDY RECOMMENDATIONS

The recommendations of this US 81 Corridor Study include:

- **From south of US 81/SH 19 intersection to US 81/US 62 intersection:** Construct a controlled-access 4-lane divided West Bypass

- **From US 81/US 62 intersection north to Pocasset:** Add a median and 2 new lanes east of the existing lanes; reconstruct the existing lanes; resulting in a 4-lane divided facility

- **Through Pocasset:** Widen the existing 2 lanes to 4 lanes; add curb and gutter where lacking; resulting in a 4-lane undivided facility

- **From Pocasset to Minco:** Add a median and 2 new lanes east of the existing lanes; reconstruct the existing lanes; resulting in a 4-lane divided facility

- **Minco:** Mill and overlay the existing 4 lanes; add curb and gutter where lacking; resulting in a 4-lane undivided facility

- **From Minco to Union City:** Add a median and 2 new lanes east of the existing lanes; reconstruct the existing lanes; resulting in a 4-lane divided facility

- **Union City:** Widen the existing 2 lanes to 4 lanes; mill and overlay the existing 4 lanes; add curb and gutter where lacking; resulting in a 4-lane undivided facility

- **Union City to North Corridor End:** Add a median and 2 new lanes east of the existing lanes; reconstruct the existing lanes; resulting in a 4-lane divided facility

- **Public Involvement:** To ensure adequate public involvement in selecting the most advantageous and least intrusive alignment of the Chickasha West

Bypass, the comprehensive mailing list developed during the Corridor Study should be used during the future NEPA process to facilitate public involvement.

- **Future Consideration:** Appropriate consideration should be given to the potential realignment of SH 37 east of Minco along existing Sager Road to US 81 south of Minco as improvements to SH 37 east of Minco are planned.

- **Construction Segments, Northern Section:** As an aid to project programming, the Northern Section was divided into 12 construction segments. The cost estimate and priority developed for each segment is as follows:

Table E-21: Cost Estimates and Priorities for 12 Construction Segments, US 81 Corridor, Northern Section

Segment	Approximate Extents	Total Cost (million $)	Priority
1	US 62 to E 1320 Road	26.4	High
2	E 1320 Road to E 1290 Road	14.0	Low
3	E 1290 Road to E 1260 Road	13.0	Low
4	Pocasset (E 1260 Road to E 1250 Road)	3.2	Low
5	E 1250 Road to E 1230 Road	7.8	Low
6	E 1230 Road to E 1200 Road	10.8	Low
7	E 1200 Road to South Street in Minco	11.4	Medium
8	Minco (South Street to 1.2 miles north)	2.8	Medium
9	0.45 miles south of SH 37 West to Canadian River	11.6	Medium
10	Canadian River	6.9	Medium
11	Canadian River to 0.50 miles north of SH 152 East	9.5	High
12	0.50 miles north of SH 152 East to E 1090 Road	12.0	High

Note: See Table E-18 (page 36) for details.

- **Project Phases, Chickasha Section:** A cost estimate and priority for each phase of the Chickasha Section West Bypass was developed, as follows:

Table E-22: Cost Estimates and Priorities, US 81 Corridor, Proposed Chickasha West Bypass

Phase	Total Cost (million $)	Priority
Right-of-Way Acquisition	10.9	High
Utility Relocation and Construction	166.9	Low

Note: See Table E-20 (page 37) for details.