

**KANSAS CITY,
MISSOURI
TO
SHREVEPORT,
LOUISIANA
HIGHWAY
FEASIBILITY
CORRIDOR
STUDY**

PREPARED IN RESPONSE TO
SECTION 166 OF
THE FEDERAL-AID HIGHWAY
ACT OF 1987

APRIL 1988

Kansas City, Missouri to Shreveport, Louisiana
Highway Feasibility Corridor Study

Prepared in Response to Section 166 of
The Federal-Aid Highway Act of 1987

This corridor traverses the States of
Arkansas, Louisiana, Missouri, and Texas

Data furnished by:
Arkansas State Highway and Transportation Department
State of Louisiana Department of Transportation and Development
Missouri State Highway and Transportation Department
Oklahoma Department of Transportation
Texas State Department of Highways and Public Transportation

Report prepared by:
Arkansas State Highway and Transportation Department
in cooperation with
U.S. Department of Transportation
Federal Highway Administration

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TABLE OF CONTENTS

Section	Page
I. Study Synopsis.	1
II. Characteristics of the Region and Highway Corridor.	15
Regional Population	15
Principal Corridor.	15
Economic Characteristics and Potential.	18
Internal and External Transportation and Commercial Ties	20
Major Defense, Commerce, Employment, Resources, and Recreation	21
Terrain and Land Use.	24
Areas of Special Concern.	29
Development Plans	30
III. Transportation Systems and Service in the Corridor.	33
Overview.	33
Highways.	35
Railways.	35
Airlines.	37
Waterways	40
Pipelines	40
Conclusion.	40
IV. Selection of Alternatives	41
V. Route Improvement Standards, Costs and Benefits.	48
General Alignment	48
Cost Estimates.	49
Benefits vs. Costs.	56
Appendix A - Full Access Control	
Appendix B - States' Synopsis	
Appendix C - Support Letters	

LIST OF FIGURES

Figure		Page
1.	Study Corridor Location.	2
2.	Route Alternatives	3
3.	Interstate Gap Location.	9
4.	National Defense Installations	22
5.	Major Employment Centers	25
6.	Mineral Resources.	26
7.	Recreational Areas	27
8.	Physical Features - Terrain.	28
9.	Areas of Special Concern	31
10.	Other Transportation Modes	36
11.	Educational Institutions	43

LIST OF TABLES

Table	Page
1. Multi-State Route Description	4
2. Comparative Cost Estimates of Route Alternatives	12
3. Multi-State Total Route Summary Data	13
4. Principal Corridor Population-Existing and Projected	16
5. Metropolitan Statistical Area Principal Corridor Population	17
6. Principal Corridor Per Capita Personal Income	18
7. Principal Corridor Labor Force - 1986 Employment and Unemployment Rate.	18
8. Route Summary Data.	50
9. Cost-Effectiveness Analysis	57
10. Annualized Construction Costs	62
11. Route Section Data.	Appendix B

SECTION I
STUDY SYNOPSIS

This document was prepared in response to Section 166 of the Federal-Aid Highway Act of 1987, which directed the Secretary of Transportation to report to the Congress of the United States on the feasibility and necessity of constructing a proposed highway to appropriate standards from Kansas City, Missouri to Shreveport, Louisiana (refer to Figure 1). The document is the product of a cooperative effort by the Arkansas, Louisiana, Missouri and Texas State Highway Departments.

Two alternative routes for the proposed north-south highway were identified and studied. Figure 2 shows the study route alternatives by sections and Table 1 describes the routes on a multi-state level. Major topography features such as the Arkansas River, the Ouachita and Ozark Mountains limited the number of alternatives that could be considered. The two alternative routes are designated as 01 and 01A, their alignments are identical except in the vicinity of Texarkana where Alternative 01 loops to the west of the city and Alternative 01A to the east. Due to environmental constraints, cost consideration, and possible right-of-way acquisition problems, the east Alternative 01A was considered less favorable.

The preferred route of Alternative 01 begins at Kansas City, Missouri at the junction of I-435 and follows a southerly direction to the Missouri-Arkansas State Line north of

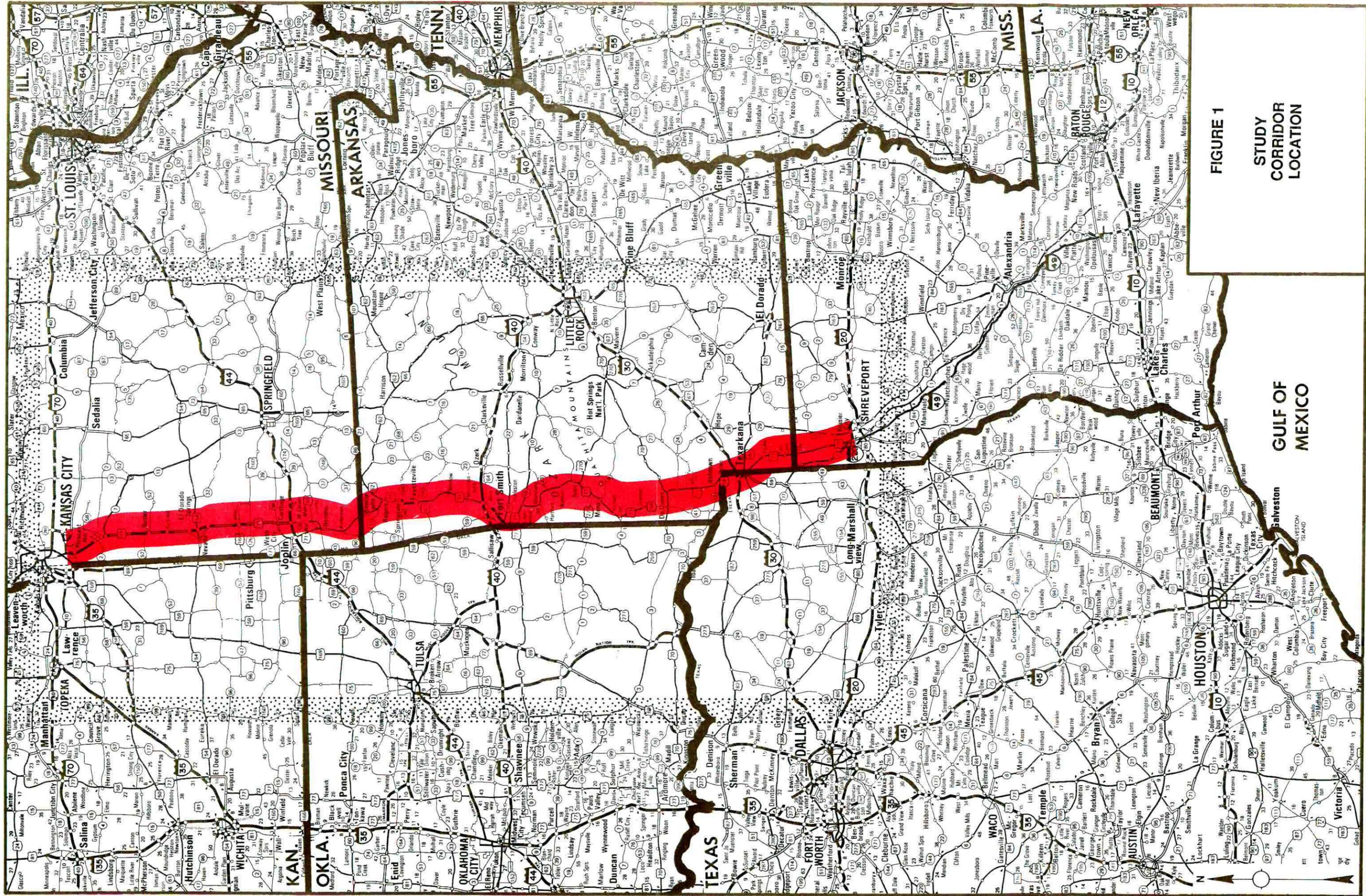


FIGURE 1
STUDY
CORRIDOR
LOCATION

GULF OF
MEXICO

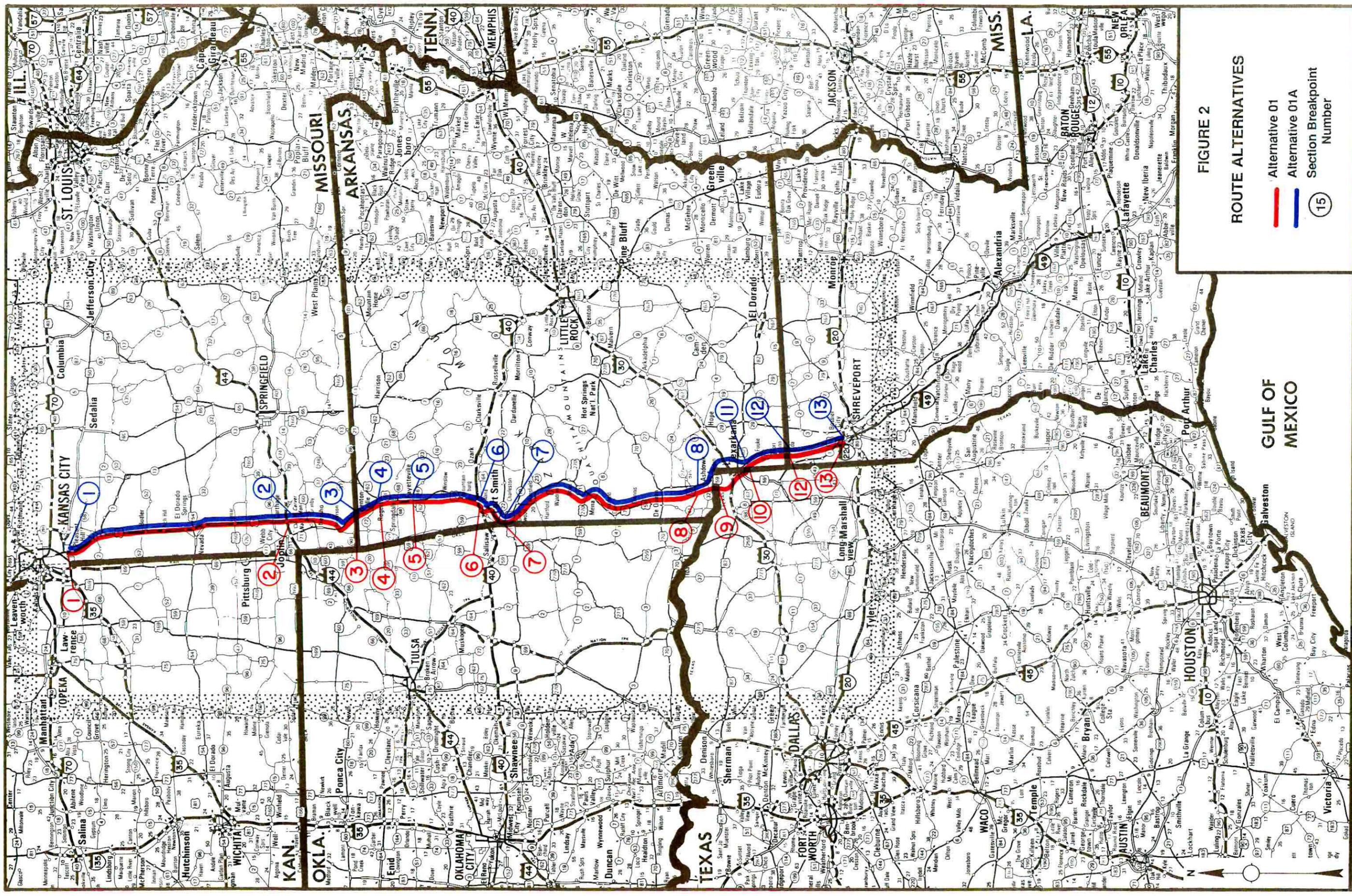


FIGURE 2

ROUTE ALTERNATIVES

- Alternative 01
- Alternative 01A
- 15 Section Breakpoint Number

GULF OF MEXICO



MULTI-STATE

TABLE 1 - ROUTE DESCRIPTION

OMB No. 04-S-74006

Sheet 1 of 3 Sheets

Route and Alternative Number	Breakpoint Sequence and Number	Route Description	Length	
			Section	Route
01	01	From the Junction of U.S. 71 and I-435 in Kansas City, Missouri, south via U.S. 71 and A71 on existing location to	137.5	
	02	Junction of A71 and I-44, south of Carthage, then via Missouri A-71, U.S. 60 and U.S. 71 on existing and new location to	47.7	
	03	Missouri-Arkansas State Line, near Bella Vista Village, southeasterly on existing alignment and new location to	9.7	
	04	Arkansas U.S. 71 west of Rogers, via Arkansas U.S. 71 on existing alignment to	24.6	
	05	Junction of Arkansas S.H. 471 southwest of Fayetteville, then via on new location parallel to Arkansas U.S. 71 to	43.6	
	06	Junction of Arkansas I-40 near Alma, then southwesterly through Fort Smith via Arkansas I-40 and Arkansas I-540 to	16.8	
	07	Junction of Arkansas U.S. 271 and Arkansas S.H. 253, southwest of Fort Smith near the Oklahoma State Line, then via on new location parallel to Arkansas U.S. 71 to	120.6	
	08	Sevier-Little River County Line, northwest of Ashdown, south on new location to	20.1	

MULTI-STATE

TABLE 1 - ROUTE DESCRIPTION

OMB No. 04-S-74006

Sheet 2 of 3 Sheets

Route and Alternative Number	Breakpoint Sequence and Number	Route Description	Length	
			Section	Route
	<u>09</u>	<p>Arkansas-Texas State Line, northwest of Texarkana, then southeasterly, crossing Texas I-30 west of Texarkana, then south on Texas U.S. 59 and east on Loop 151 to</p> <p>South of Texarkana at the <u>Arkansas-Texas State Line</u>, southeast, via new location parallel to <u>Arkansas U.S. 71</u> to</p> <p><u>Arkansas-Louisiana State Line</u>, near Ida, south on new location to</p> <p><u>Junction of Louisiana I-220 at Shreveport, Louisiana</u></p>	16.2	
	<u>10</u>		32.2	
	<u>12</u>		34.2	
	<u>13</u>		<u>503.2</u>	
01A	01			
	02			
	03			
	04			
	05			
	06			
	07			

MULTI-STATE

TABLE 1 - ROUTE DESCRIPTION

OMB No. 04-S-74006

Sheet 3 of 3 Sheets

Route and Alternative Number	Breakpoint Sequence and Number	Route Description	Length	
			Section	Route
	08	Then southeasterly, via new location parallel to Arkansas U.S. 71, crossing Arkansas I-30 east of Texarkana to	38.8	<u>505.7</u>
	<u>11</u>	Junction of Arkansas U.S. 71, south of		
	12	Texarkana to		
	13			

Fayetteville, Arkansas; the route continues south crossing the western edge of Arkansas to the Arkansas-Texas State Line, north of Texarkana; then circles Texarkana to the west through Texas and remains on a southerly direction to I-220 at Shreveport, Louisiana, a distance of 503.2 miles. The route alignment maximizes access along the corridor to major employment and retail areas, population centers, Department of Defense installations, recreational sites, and farming, forestry and mining operations.

The study evaluated the needs and advantages of providing full access control to the entire length of the proposed facility. Based on the analysis, it was concluded that the total length of the proposed highway should be fully access controlled. This geometric feature was adopted to ensure that the facility would provide a high quality of service and for continuity of design. Specific factors considered were motorists' safety, the forecasts of travel demands, the mountainous terrain in sections of the corridor, the need to complement the planned highway improvements, protection of National Forest lands, overall travel speeds, possible legal problems, and future construction costs in upgrading from partial access control to fully controlled access.

The proposed highway directly traverses a four-state area - Missouri, Arkansas, Texas and Louisiana and would serve motorists from Kansas and Oklahoma since its alignment parallels the eastern edge of these states. The Highway would also benefit the entire central states area; states of Iowa, Minnesota, North

Dakota, South Dakota and Nebraska along with sections of Canada by providing a continuous north-south route for the movement of grains and manufactured goods to southern market areas and the Gulf of Mexico ports for international trade shipments.

In Louisiana, I-49 is now under construction from I-10 at Lafayette to I-20 in the city of Shreveport and with the proposed freeway northward to Kansas City, a continuous freeway route from Canada through the central states to the Gulf of Mexico would be possible. Currently, a gap exists for a north-south freeway between I-35 in central Oklahoma and I-55 along the Mississippi River (see Figure 3). The distance between these two Interstates is approximately 500 miles. The proposed freeway would fill this gap and augment the Interstate System serving the midwest and central states area. The facility would also complement the east-west Interstate system already in place within the study corridor - I-70 and I-44 in Missouri, I-40 and I-30 in Arkansas, Oklahoma and Texas and I-20 through Louisiana and Texas.

The proposed facility would foster millions of dollars in land development, increase property values, improve access between rural areas with high unemployment to urban employment centers, and enhance motorists' safety. It would also assist in attracting new commercial and industrial activities to the region and decrease travel time between major population centers. Existing travel time from Kansas City to Shreveport is approximately eleven hours. On the proposed new freeway the travel time would be eight hours, a savings of three hours.

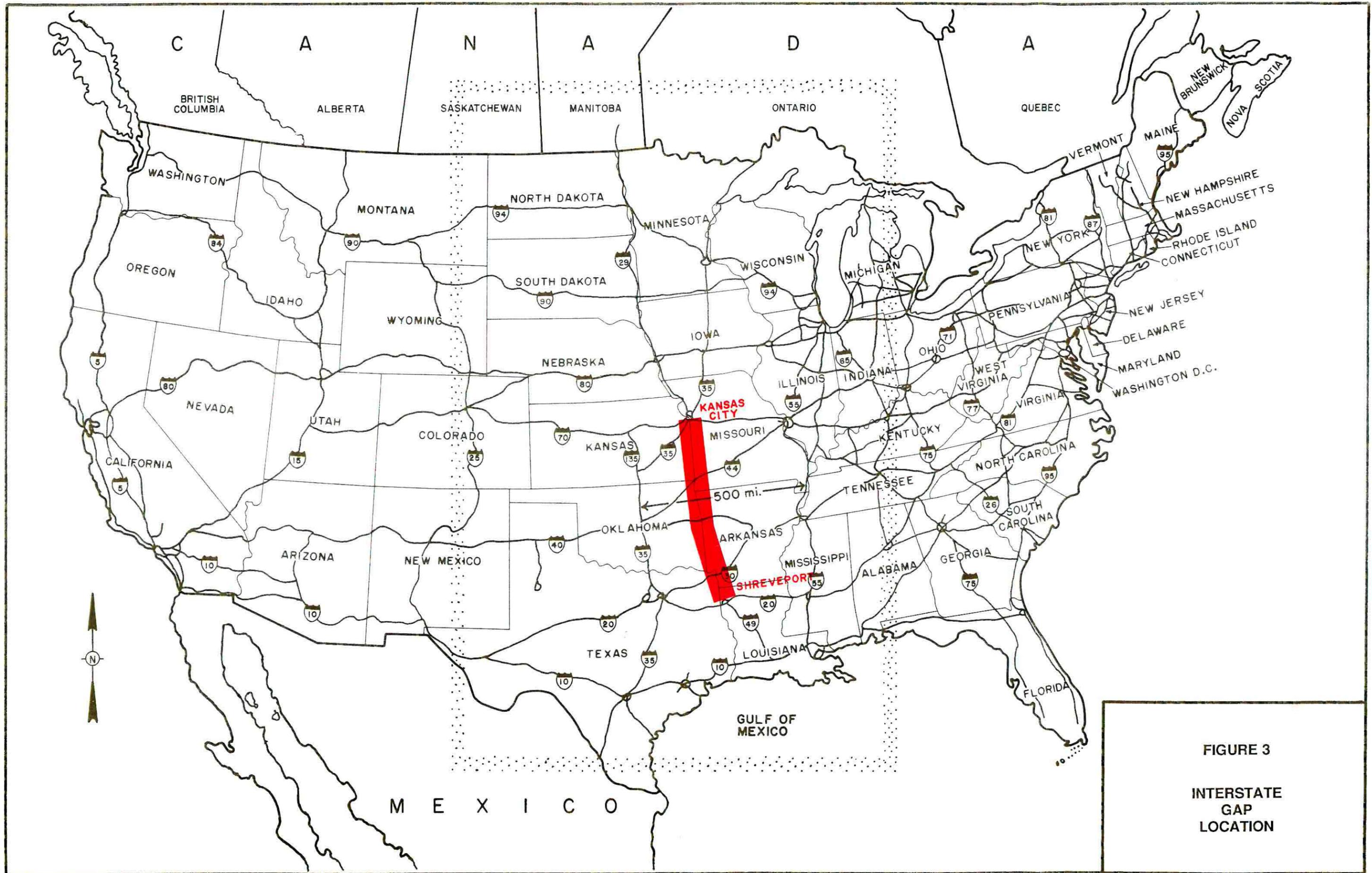


FIGURE 3
 INTERSTATE
 GAP
 LOCATION

A cost-effectiveness analysis showed that the preferred route would provide nearly \$154 million dollars annually in road user benefits resulting from decreased travel time and accident rate reduction. A benefit/cost ratio of 1.29 is derived when the road user benefit is compared to construction costs.

There are thirteen Department of Defense installations within a 50 mile range of the proposed highway corridor that would benefit from improved access and a reduction in response time; they include, Whiteman Air Force Base, Missouri and the Barksdale Air Force Base, Louisiana; Fort Chaffee, Arkansas; Camp Crowder and Camp Clark, Missouri; the Richards-Gebaur Military Airport, Missouri; and the Army Ammunition Plants of Longhorn, Red River and Lone Star, Texas, Kansas, and Sunflower, Kansas; Lake City, Missouri, and Louisiana AAP, Louisiana. There are ten additional Department of Defense installations within a 100 mile range of the proposed highway alignment; they include, Lake Charles, Louisiana Naval Station; Fort Polk, Louisiana; Fort Leonard Wood, Missouri; Fort Riley, Kansas; Little Rock Air Force Base, Arkansas; Camp Robinson, Arkansas; Camp Maxie, Texas; Pine Bluff Arsenal, Arkansas; Conway Defense Fuel Supply Point, Arkansas; and the McAlester, Oklahoma Army Ammunition Plant. The highway corridor between Kansas City, Kansas and Lake Charles, Louisiana is presently included in the Strategic Highway Corridor Network (STRAHNET). This corridor is supported by The Department of Defense because it would strengthen defense strategic mobility by adding flexibility for units mobilizing to staging areas and

deploying to air and sea ports of embarkation. It would also aid during readiness exercises and defense emergencies as well as adding to the safety and convenience of military personnel, dependents, and civilians living and working in the corridor.

The existing north-south highways in this region are primarily two-lane facilities with high traffic volumes, insufficient passing sight distance and undesirable alignment. The mountainous terrain in sections of the study corridor restrict normal traffic flow. Motorists must negotiate 90 degree turns, steep inclines and contend with segments of highway that have a narrow surface width of 10 feet per lane and no shoulders. Motorists' safety is a major issue on these existing north-south routes with over 800 personal injury accidents and thirty-four fatalities occurring annually. A new freeway will reduce the accident and fatality rates between 30 and 76 percent based on the American Association of State Highway and Transportation Officials (AASHTO) Policy of Geometric Design of Highways and Streets.

State funds are insufficient to reconstruct these routes to four lanes with full access control under present levels of funding. This is shown in Table 2 and detailed in Table 3 which reveal that the states are able to obligate only a restricted amount of funds to improve the existing north-south routes by the Year 2000. This amount, \$408 million, is not sufficient to construct the safe, efficient facility required to satisfy the

TABLE 2
Comparative Cost Estimates
of Route Alternates

Route	Alternate Route Numbers	Length		Weighted ADT (2010)	AASHTO Standards		Year 2000 Current Program	
		Non Interstate	Total		Cost Estimate	Average Per Mile	Cost*	Average Per Mile
01	MO - 01 AR - 01 TX - 01 LA - 01	486.4	503.2	21,280	1,700,161	3,495	408,732	840
01A	MO - 01 AR - 01A LA - 01	488.9	505.7	20,800	1,752,061	3,584	357,832	732

NOTE: The only column containing Interstate data is total length column.

* Estimated costs for programmed improvement to the Year 2000.

MULTI-STATE TOTAL
TABLE 3- ROUTE SUMMARY DATA

1. Study Route Number	01				01A			
	MO-01, AR-01, TX-01, LA-01	Small Urban	Urbanized	Total	MO-01, AR-01A, LA-01	Small Urban	Urbanized	Total
2. State								
5. Total Length	Rural 418.6	22.3	62.3	503.2	Rural 422.3	22.0	61.4	505.7
6. Interstate Mileage Included (Note: Exclude data on this mileage for all subsequent lines)	3.8	--	13.0	16.8	3.8	--	13.0	16.8
7. (a) 1987 Weighted ADT (DVMT/Mile)	7,200	10,980	27,160	9,400	7,030	10,990	22,590	8,700
(b) 2010 Weighted ADT (DVMT/Mile)	17,360	23,410	53,330	21,280	17,220	23,450	50,580	20,800
8. (a) Average Annual Injuries (1984-1986)	389	63	392	844	384	63	399	846
(b) Average Annual Fatalities (1984-1986)	23	2	9	34	22	2	9	33
9. Present Road Type Mileage	(a) <4 Lanes 266.5	5.4	0.2	272.1	275.6	5.4	0.2	281.2
(b) 4 or More W/O FAC 1/	88.1	11.0	7.8	106.9	82.7	10.7	13.7	107.1
(c) Freeways	60.2	5.9	41.3	107.4	60.2	5.9	34.5	100.6
10. Condition - Miles Critically Deficient	220.0	7.6	3.0	230.6	229.2	7.6	--	236.8
11. Mileage of (a) AASHTO Standards Proposed	166.1	6.0	40.0	212.1	166.1	6.0	36.2	208.3
(1) Existing Location	248.7	16.3	9.3	274.3	252.4	16.0	12.2	280.6
(2) New Location								
(b) 2000 Plan								
(1) Existing Location	359.4	15.1	42.7	417.2	364.2	14.8	44.2	423.2
(2) New Location	55.4	7.2	6.6	69.2	54.3	7.2	4.2	65.7
12. Future Road Type Mileage								
(a) AASHTO Standards	--	--	--	--	--	--	--	--
(1) <4 Lane	--	--	--	--	--	--	--	--
(2) 4 or More W/O FAC 1/	400.3	19.7	33.4	453.4	404.0	19.4	34.8	458.2
(3) Freeways - 4 lane	14.5	2.6	15.9	33.0	14.5	2.6	13.6	30.7
6 or More								
(b) 2000 Plan								
(1) <4 Lane	165.5	4.3	--	169.8	178.6	4.3	--	182.9
(2) 4 or More W/O FAC 1/	111.8	8.8	2.1	122.7	103.5	8.5	8.0	120.0
(3) Freeways - 4 Lane	137.5	9.2	35.7	182.4	136.4	9.2	31.2	176.8
6 or More	--	--	11.5	11.5	--	--	9.2	9.2
13. Improvement Costs (\$000)	(a) AASHTO Standards 1467450	53,323	179,388	1,700,161	1525931	58,230	168,238	1,752,061
(b) 2000 Plan	333,657	18,479	56,596	408,732	319,357	18,479	19,996	357,832
Weighted Average Truck ADT - 2010	4,170	5,620	12,800	5,110	4,130	5,630	12,140	4,990

For Non-Interstate Section Mileage Only

1/ W/O FAC - Without Full Access Control
Items 3 and 4 intentionally omitted from this form for line number consistency with table 3.

corridor travel demands. Traffic forecasts showed that a freeway facility through the study corridor would average 21,280 (weighted) vehicles per day by the Year 2010, of which 24 percent would be truck traffic. The cost for constructing the proposed freeway to appropriate AASHTO standards is approximately \$1.7 billion.

No major environmental or social impediments were identified along the proposed corridor except that public water supplies of several small urban areas are to be avoided.

SECTION II

CHARACTERISTICS OF THE REGION AND HIGHWAY CORRIDOR

The proposed north-south multi-state highway directly traverses a four-state area - Missouri, Arkansas, Texas and Louisiana. The study corridor is comprised of these four states plus the states of Kansas and Oklahoma. Motorists from Kansas and Oklahoma will benefit from the proposed facility due to its alignment which parallels the eastern edge of these states. The highway would also serve the entire central states area of Iowa, Minnesota, North Dakota, South Dakota, and Nebraska by providing a continuous north-south route for the movement of goods and products from this region to the southern states and the Gulf of Mexico ports. This is achieved by the proposed freeway-type facility connecting with I-29 and I-35 via I-435 at Kansas City and with I-49 at Shreveport.

Regional Population:

The 1980 population of the midwest/central states area is 40.9 million people or 22 percent of the nation's population. For the period 1970 to 1980, the eleven-state population increased 10.5 percent as compared to a national increase of 11.4 percent.

Principal Corridor:

Corridor Population

The 1986 estimated principal corridor population (the area

directly served by the proposed Highway) is almost 3.1 million persons (refer to Table 4). The population of the Corridor is expected to reach 3.8 million persons by the Year 2010, a 25 percent increase. Urbanized areas will experience the greatest growth with a 30.6 percent increase. Small urban areas are expected to increase by 10.1 percent and rural areas by 4.3 percent.

TABLE 4
PRINCIPAL CORRIDOR POPULATION
EXISTING AND PROJECTED

Distribution	1986	2010	Percent Change
Rural (includes towns less than 4,999)	333,359	347,686	+4.3
Small Urban (5,000-49,999)	322,494	355,061	+10.1
Urbanized (50,000+)	2,427,703	3,171,228	+30.6
TOTAL	3,083,556	3,873,975	+25.6

Source: Statewide Planning Section, AHTD

Population Distribution

There are eight Metropolitan Statistical Areas located along the principal corridor. Their total estimated 1986 population is over 2 million people (see Table 5).

TABLE 5

METROPOLITAN STATISTICAL AREA
PRINCIPAL CORRIDOR POPULATION

Metropolitan Statistical Area -----	1986 Population -----
Kansas City, Missouri-Kansas	1,380,286
Joplin, Missouri	132,900
Fayetteville/Springdale, Arkansas	107,400
Fort Smith, Arkansas-Oklahoma	141,100
Texarkana, Arkansas-Texas	120,266
Shreveport, Louisiana	223,277
Longview/Marshall, Texas	170,366
Tyler, Texas	152,108

	2,427,703

Source: Bureau of Census

Income and Employment Statistics

Tables 6 and 7 shows income levels and employment statistics for the principal corridor. Sections of the corridor are substantially below the national average in per capita income (Arkansas is currently ranked 47th) and has an unemployment rate well above the national rate (the rate for the Louisiana portion is 11.9, the national rate is 6.0). These tables illustrate the strained economic situation within sections of the corridor; due in part to current low oil and gas prices, a major element of the corridor economy, and less than desirable highway transportation facilities. However, there are areas experiencing significant commercial and industrial growth. For example, national companies like Ford, General Motors and Western Electric have manufacturing plants in the metropolitan area of Kansas City.

TABLE 6

PRINCIPAL CORRIDOR
PER CAPITA PERSONAL INCOME

Arkansas Corridor Average	\$ 9,438
Texas Corridor Average	\$ 7,718
Louisiana Corridor Average	\$ 7,206
Missouri Corridor Average	\$10,484

National Average	\$12,772

Source: Employment Security Division

TABLE 7

PRINCIPAL CORRIDOR LABOR FORCE, 1986
EMPLOYMENT AND UNEMPLOYMENT RATE

State	Total Labor Force	Employment	Unemployment Rate
-----	-----	-----	-----
AR Corridor	214,100	200,775	7.3
TX Corridor	337,909	301,898	11.4
LA Corridor	129,800	114,300	11.9
MO Corridor	1,290,917	1,215,092	5.7

National			6.0

Source: Employment Security Division

Economic Characteristics and Potential:

The total corridor shares similar economic characteristics. Many of the manufacturing and commercial activities are inter-related with the agricultural operations and the region's natural resources such as gas, oil, lignite and timber. Commercial and

industrial activities have increased over the years and economic growth is expected to continue in the future decades. This expectation is predicated on the fact that the area is richly endowed with a wealth of natural resources, recreational opportunities, educational institutions, available labor force, and a favorable centralized geographic location.

The area is predominately rural and includes numerous small towns that are economically linked to farming, mineral production and forestry operations. Residents' livelihood depends directly upon the highway system and the area's economy suffers from existing deficiencies in the highway network.

One of the keys to future economic development of the area is the addition of a north-south freeway facility to the existing highway network. This facility would assist in the full development of both natural and human resources, the magnet to entice tourists to the numerous lakes and rivers within the region (tourism is Arkansas', Missouri's and Louisiana's second leading industry) and a possible stimulus for major manufacturing. Inquiries by the Arkansas Industrial Development Commission on the possible effects of a freeway-type facility on industrial development of the area revealed that existing major manufacturers would likely increase production and vend their products more intensely in the major market areas, especially the areas of Kansas City, St. Louis, Dallas and Houston.

Internal and External Transportation and Commercial Ties:

Reliance by industries on highways as the primary mode of transport has increased in recent years due to the impact of declining railroads and the numerous advantages of trucking in raw materials and trucking out the finished goods to market. The Interstate Highway System has accelerated this trend because industries tend to locate at that point where they will have the lowest aggregate transportation cost. Surveys conducted by the Arkansas Industrial Development Commission revealed that communities in this state that are served by a four-lane highway have significantly higher numbers of manufacturing plants than those communities not served by this type of highway. The Missouri Department of Economic Development has researched factors involved in manufacturing plants locating in that state. Their data shows that transportation is the third most important factor to companies considering a Missouri location, with available building site as number one and labor as number two.

The existing highway system is the principal mode by which goods are moved within, and out of, the corridor. Commodity flow studies conducted by the Arkansas State Highway and Transportation Department revealed that the highest commodity desire flow patterns through the state occur from St. Louis to Dallas and from the Kansas City area southbound toward the Gulf of Mexico. Kansas City is one of the largest Interior Foreign Trade Zones in the country. Research by the Missouri Department of Economic Development indicate that a major benefit from the

proposed north-south multi-state highway would be to increase the exporting of products produced in western Missouri and the central states to the Gulf of Mexico via the international port at New Orleans.

A north-south freeway facility would strengthen the economic ties of the region by decreasing travel times between manufacturing centers and retail areas, and improve the transport of agricultural products to the market place. The facility would also complement existing inland river ports and rail terminals leading to increased trade with areas outside the region.

Major Defense, Commerce, Employment, Resources, and Recreation:

The highway corridor between Kansas City, Kansas and Lake Charles, Louisiana is presently included in the Strategic Highway Corridor Network (STRAHNET). This corridor is supported by the Department of Defense because it would strengthen defense strategic mobility by adding flexibility for units mobilizing to staging areas and deploying to air and sea ports of embarkation. It would also aid during readiness exercises and defense emergencies as well as adding to the safety and convenience of military personnel, dependents, and civilians living and working in the corridor.

There are twenty-three Department of Defense installations within a 100 mile range of the proposed study corridor (refer to Figure 4). The Whiteman Air Force Base in Missouri, the largest of the military installations and part of the Strategic Air

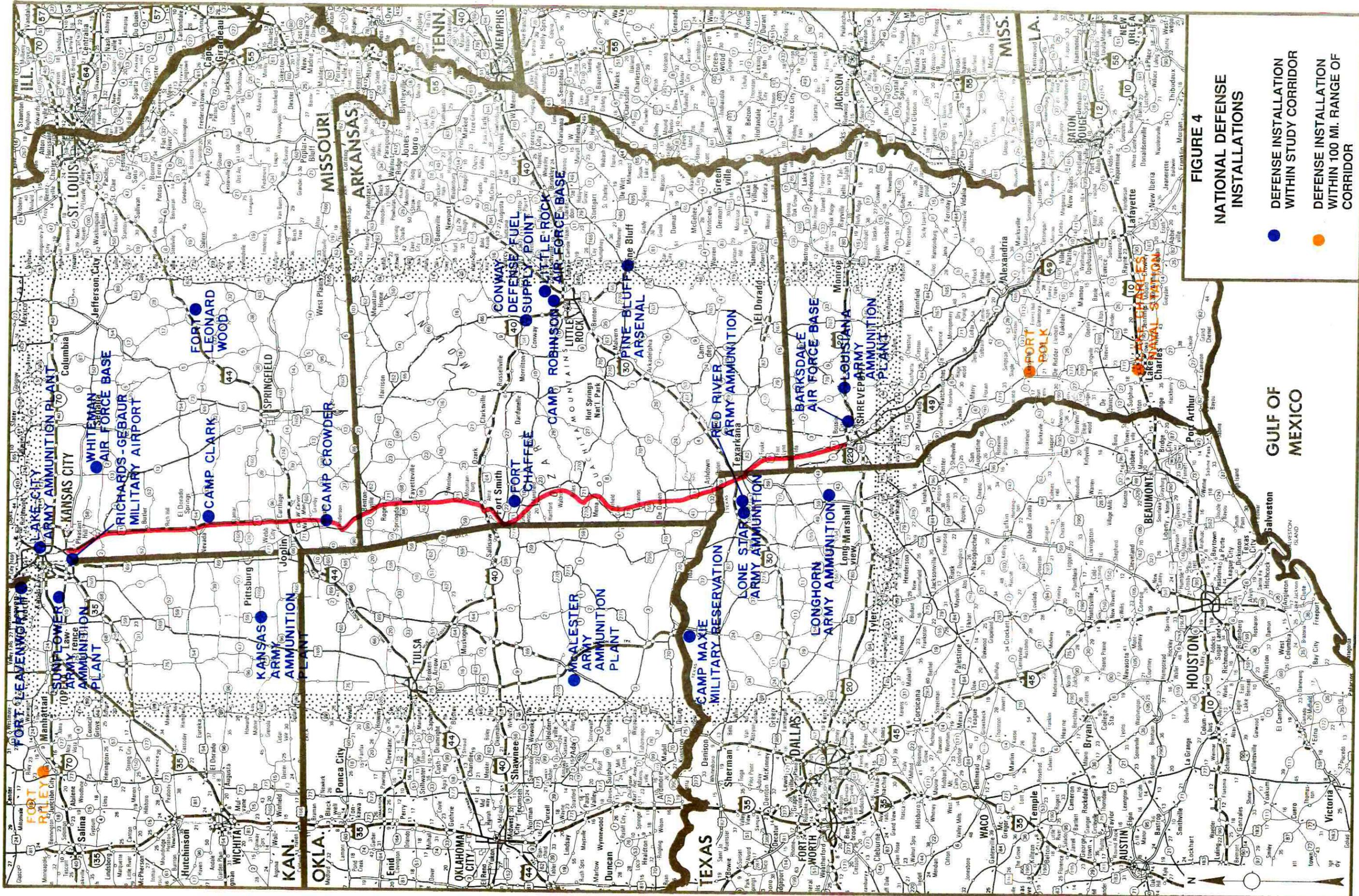


FIGURE 4

NATIONAL DEFENSE INSTALLATIONS

- DEFENSE INSTALLATION WITHIN STUDY CORRIDOR
- DEFENSE INSTALLATION WITHIN 100 MI. RANGE OF CORRIDOR

GULF OF MEXICO