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16. Abstract

The Texas Department of Transportation's (TxDOT) District 3 personnel are in the process of evaluating the proposed improvement of U.S. Highway 287 which is located in Wichita Falls, Texas. This highway passes through Wichita Falls a few blocks from the Central Business District and is a major route to Fort Worth to the east and Amarillo to the west. Presently, the highway is a freeway on each side of town. The two freeway sections end in the downtown area and traffic is routed on to two one-way streets for a distance of 0.65 mile or seven blocks before becoming a freeway again, thus causing a design gap in a principal highway system. Five route alternatives are evaluated, three being bypass alternatives, and the other two follow the existing route through the gap area. Of the latter, one is an elevated express lane section, and one is a depressed express lane section, both of which follow the two city streets that would become service roads. Two of the bypass alternative routes follow varying sections of State Highway 240 and tie into U.S. Highway 287 at major highway interchange on each side of Wichita Falls. These two bypass alternatives would pass through strip of commercial and residential developments, but the other bypass alternative would be mostly on new location in a sparsely populated area.

Each of the above route and design alternatives are evaluated to estimate the economic impacts resulting from implementing each alternative. The results are needed as supporting information in the environmental assessment (EA) for U.S. Highway 287.

The study objective is to estimate the economic impacts of the proposed route and/or design alternatives for U.S. Highway 287. The following impacts are to be estimated: (1) impact on existing businesses, distinguishing between traffic-serving and other types of businesses, (2) impact on new development, (3) impact on employment, including that due to construction expenditures and loss of clientele, (4) impact on municipal tax revenues, and (5) impact on highway users. Data from previous studies, TxDOT, Texas State Comptroller's Office, and the City of Wichita Falls are used to estimate these impacts. Also abutting businesses, residents, public/nonprofit organizations, and real estate sales persons and appraisers were interviewed to obtain their opinions of the five route alternatives. A total economic benefits-costs ratio is developed.

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ECONOMIC ASSESSMENT OF THE PROPOSED IMPROVEMENT OF U.S. HIGHWAY 287 IN WICHITA FALLS, TEXAS

by

J.L. Buffington
L.M. Crane
K.N. Womack
R. Salleh

Research Report 1915-1F
Research Study 2-3D-89/90-1915

for

The Texas Department of Transportation

June 1, 1991

Texas Transportation Institute
Texas A&M University System
College Station, Texas

METRIC (SI*) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
in	inches	2.54	centimetres	cm
ft	feet	0.3048	metres	m
yd	yards	0.914	metres	m
mi	miles	1.61	kilometres	km
AREA				
in^2	square inches	645.2	centimetres squared	cm^2
ft^2	square feet	0.0929	metres squared	m^2
yd^2	square yards	0.836	metres squared	m^2
mi^2	square miles	2.59	kilometres squared	km^2
ac	acres	0.395	hectares	ha
MASS (weight)				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams	Mg
VOLUME				
fl oz	fluid ounces	29.57	millilitres	mL
gal	gallons	3.785	litres	L
ft^3	cubic feet	0.0328	metres cubed	m^3
yd^3	cubic yards	0.0765	metres cubed	m^3

NOTE: Volumes greater than 1000 L shall be shown in m^3.

TEMPERATURE (exact)

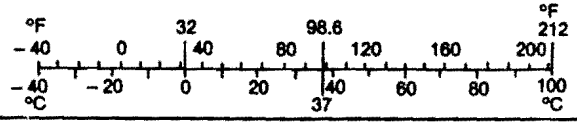
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
mm	millimetres	0.039	inches	in
m	metres	3.28	feet	ft
m	metres	1.09	yards	yd
km	kilometres	0.621	miles	mi
AREA				
mm^2	millimetres squared	0.0016	square inches	in^2
m^2	metres squared	10.764	square feet	ft^2
km^2	kilometres squared	0.39	square miles	mi^2
ha	hectores (10 000 m^2)	2.53	acres	ac
MASS (weight)				
g	grams	0.0353	ounces	oz
kg	kilograms	2.205	pounds	lb
Mg	megagrams (1 000 kg)	1.103	short tons	T
VOLUME				
mL	millilitres	0.034	fluid ounces	fl oz
L	litres	0.264	gallons	gal
m^3	metres cubed	35.315	cubic feet	ft^3
m^3	metres cubed	1.308	cubic yards	yd^3

TEMPERATURE (exact)

°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



These factors conform to the requirement of FHWA Order 5190.1A.

* SI is the symbol for the International System of Measurements

ABSTRACT

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KEY WORDS

Economic impact; route alternatives; business gross sales impact; land value, land use and development impacts; employment impacts; highway user benefits-costs; highway and building construction impacts; city tax revenue impact; total economic benefits-costs ratio.

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DISCLAIMER

The contents of this report reflect the views of the authors who are responsible for the facts and accuracy of the data presented within. The contents do not necessarily reflect the views or policies of the Texas Department of Transportation. This report does not constitute a standard, specification or regulation. It is not intended for construction, bidding or permit purposes. The report was prepared by Jesse L. Buffington, Laurence M. Crane, Katie N. Womack and Rohani Salleh.

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

Below is a summary of findings that cover all of the areas researched to fulfill the objectives of the study. The findings represent only the direct effects on abutting property, businesses and residents for each of the proposed route alternatives evaluated. They do not represent the indirect and/or net effects on all other property, businesses and residents located in the City of Wichita Falls. Only the highway construction expenditure and user cost impacts would include some indirect effects. Hopefully, the study procedures developed in this study will be useful to the TxDOT in estimating business, land use, land value, tax revenue, relocation and employment, highway user benefit-cost and total economic benefit-cost impacts of proposed highway improvements. The proposed improvement of the study segment of U.S. Highway 287 presents a very interesting and complex problem, that is, having to estimate the different impacts of five route alternatives, three of which are bypass alternatives and two are existing route (elevated versus depressed express lanes) alternatives. In addition, the elevated express lane alternative has three design options, elevated ramps and/or express lane tie-in with the existing freeway at one end of the proposed improvement.

The findings of this study are summarized in two major parts. The first part is based on analyses using data from prior studies and various estimating procedures, and the second part is based on opinion surveys conducted in Wichita Falls.

Impacts Based on Prior Findings and Various Analytical Procedures

Tables S-1 and S-2 summarize the various impacts indicated from all of the analyses based on prior findings and various analytical procedures. These tables do not summarize in detail the various impacts estimated in this report, such as the before versus during or after construction period impacts, specific location of businesses, residents, and other abutting properties. However, some of these impacts will be discussed in general where necessary. The major types of impacts addressed in Table S-1 are discussed separately below:

Impact on Business Activity. Estimates are made of the impact that each proposed route alternative would have on the gross sales of abutting businesses during and after

Table S-1. Summary of Before Versus After Construction Impacts by Type of Impact Route Alternative.

TYPE OF IMPACT	ALT. 1	ALT. 2	ALT. 3	ALT.4	ALT.5[1]
Business gross sales					
Dollar change ($ mil)	+8.5	+5.9	+17.1	-1.9	+1.2
Percentage change	+14	+10	+29	-3	+2
Land use (abutting)					
Impr. properties (no.)	-8	-10	+39	+14	+21
Impr. properties (%)	-3	-4	+18	+8	+12
Total acreage (no.)	-173	-257	-380	-3	-3
Total acreage (%)	-45	-54	-63	-2	-3
Land value (abutting)					
Dollar change ($ mil)	+35.4	+32.9	+37.3	+39.6	+41.7
Percent change	+30	+22	+32	+36	+37
Tax Revenues					
Gross sales ($ 000)	+14.4	+8.7	+47.9	-17.8	-0.1
Property ($ 000)	+194.7	+172.7	+199.1	+206.7	+239.7
Relocation					
Businesses (no.)	-10	-12	-1	-6	-7
Businesses (%)	-3	-9	NIL	-6	-7
Residents (no.)	-35	-38	-13	0	0
Residents (%)	-34	-35	-13	0	0
Employment					
Business (no.)	+183	+132	+199	+61	+101
Business (%)	+19	+14	+23	+10	+17
Hwy constr. (# 000)	+4.9	+6.7	+5.7	+3.6	+1.9
Bldg constr. (# 000)	+0.3	+0.3	+0.3	+0.3	+0.3
Income to economy					
Hwy constr. exp. ($ mil)	+381.4	+523.0	+447.0	+278.5	+194.3
Bldg constr. exp. ($ mil)	+26.2	+26.9	+20.9	+19.2	+29.9
Highway Users					
Benefits ($ mil)	+728	+658	+624	+952	+952
Benefit-cost ratio	6.4	4.1	5.0	12.2	22.7

[1]An average of alternatives 5A, 5B, and 5C.

Table S-2. Comparison of Total Selected Highway Benefits/Disbenefits Versus Costs by Type and Route Alternative.

TYPE OF BENEFITS/DISBENEFITS AND COSTS	ALT.1	ALT.2	ALT.3	ALT.4	ALT.5[1]
Benefits/Disbenefits[2]					
Business Sales ($ Mil.)	8.5	5.9	17.1	-1.9	1.2
Land Values ($ Mil.)	35.0	32.9	37.3	39.6	41.7
Sales Taxes ($ Mil.)	0.1	0.9	0.5	-0.2	Nil
Property Taxes ($ Mil.)	0.2	0.2	0.2	0.2	02
Income to Economy due to Hwy Constr. Exp. ($ Mil.)	381.4	523.0	447.0	278.5	194.3
Income to Economy due to Bldg. Constr. Exp. ($ Mil.)	27.2	26.9	20.9	19.2	29.9
Highway User ($ Mil.)	728.0	658.0	624.5	852.0	952.0
Total Economic Benefits/Disbenefits ($Mil)	1,179.4	1,247.8	1,147.5	1,287.4	1,219.3
Total Cost of Highway Improvement ($Mil)	113.9	159.3	125.3	78.1	42.1
Total Economic Benefits/Costs Ratio	10.35	7.83	9.16	16.48	28.98

[1] An average of alternatives 5A, 5B, and 5C.

[2]Benefits on accruing directly to highway users.

construction. Although the impacts on businesses of the retail and service types are analyzed separate from those of the wholesale and manufacturing types in the body of the report, the impacts of each route alternative on all types of businesses combined are summarized in Table S-1. This table shows that the three bypass route alternatives 1, 2, and 3, and the existing route alternative 5, would have a positive impact on business gross sales. On the other hand, existing route alternative 4 would have a negative impact. A new bypass, especially route alternative 3, would stimulate enough new business activity along the bypass and even along the existing route to offset the negative effects of some businesses being displaced and some being bypassed.

Generally, traffic serving businesses would be more negatively or positively impacted than the nontraffic serving businesses. Traffic serving businesses would be impacted the most during the construction period on the route where the highway is taking place and then after construction on a portion of the existing route being bypassed by a bypass route. During construction of the bypass, the traffic serving businesses are negatively affected for various reasons, mainly inconvenience and disruption of easy access, parking, etc. for their customers. The other businesses which are considered nontraffic serving businesses are usually larger in number than the traffic serving group, and, consequently, how they are impacted will dominate the total business sales for a particular route alternative. These types of businesses thrive more along thoroughfares that are not so congested with traffic mainly passing through town. Therefore, their increased sales help offset the loss of business by the displaced and bypassed traffic serving businesses.

Finally, it should be noted that the existing route's depressed freeway alternative 4 would produce the most negative effects on business sales. Also, the bypass alternative 3 (the out of town loop type of route) would impact overall business sales, especially from new business and the existing route's new nontraffic serving businesses, more positively than either of the other two bypass alternatives 1 and 2. More businesses would be displaced along the Eastside Drive bypass routes than by the outside loop bypass.

Impact on Land Uses and Development. Estimates are made of the abutting land use impact of each route alternative. This effort not only involves estimating future land use but also the reduction in the different land uses due to the taking right of way to

provide a path for the new highway improvement. All three of the proposed bypass route alternatives 1, 2, and 3 would require a large amount of right of way. As a result, significant land use changes are mandated from the start. Even though significant new commercial and residential development is estimated, so much commercial and residential land would be taken that the new development would be completely absorbed, causing a net reduction in those two land uses. The route analysis confirms this finding, as summarized in Table S-1, showing the existing route's alternative 4 and 5 faring the best with respect to abutting land use impacts. Route alternative 5 would have an even more positive impact than route alternative 4.

Impact on Property Values. Estimates are made of the abutting property value impacts of each route alternative. These estimates are affected greatly by the estimated value of the right of way that would be required for any of the three bypass route alternatives 1, 2, and 3. Between the before and after periods, new developments along these routes would add to property values enough to show an overall increase land values. This is apparently what would happen to route alternatives 1, 2, and 3 and put them almost even with the existing route's route alternatives 4 and 5, which has higher land values in the before construction period.

Once again, route alternative 5 has a slight edge over route alternative 4, as well as the three other route alternatives. This is the case for both the dollar increases and percentage increases.

Impact on Tax Revenues. An indirect benefit to communities whose land values have been significantly increased as a result of a highway improvement is the subsequent effect on the tax base and corresponding tax revenues. Similarly, communities whose gross business sales have been increased as a result of a highway improvement can enjoy the subsequent sales tax revenues. The tax effects are summarized for both sales tax effects and property tax effects.

Sales Tax Impact. The estimated retail sales tax impacts are based on the estimated impacts on the gross sales discussed above. The gross taxable sales impacts almost parallel those outlined for the impact on gross sales. The three bypass route alternatives 1, 2, and 3 would produce an increase in sales tax revenues, but the two existing route alternatives

4 and 5 would show a decrease in tax revenues from business gross sales. Route alternative 3 would produce the greatest increase and route alternative 4 would produce the greatest decrease in revenues from gross sales. Route alternative 5 would cause a lightly negative impact on sales tax revenues.

Property Tax Impacts. The construction of one of the route alternatives would have the greatest positive impact on property tax revenues if route alternative 5 is selected and the least impact if route alternative 2 is selected. Route alternative 4 would produce about as much property tax revenues as route alternatives 1 and 3. The property tax revenue impacts parallel closely those presented in the property value section of this report as explained above.

Impact on Relocation, Employment and Income. Since so many businesses and residents would be displaced on route alternatives 1 and 2, the relocation costs would be significant compared to such costs for route alternatives 3,4 and 5. Even route alternative 3 would have quite a few rural residential displacements. Route alternatives 4 and 5 would have only business displacements, but not as many as route alternatives 1 and 2.

Relocation costs, which includes moving expenses, would increase in proportion to the number of relocatees along each route. The number of new businesses and residents brought into existence due to each of the proposed routes is more than enough to replace all of those that were displaced.

The new abutting businesses will bring about additional business employment for all five of the route alternatives. Table S-1 shows that there would be significantly more business employment in the after construction period than in the before construction period. Route alternative 3 would have the largest increase and route alternative 4 would have the smallest increase in business employment. Some additional employment would be generated from highway construction expenditures, and an insignificant amount would be added due to new and remodeled building construction. All of the route alternatives rank fairly evenly in helping bring about new employment, with route alternative 3 generating the most and route alternative 4 generating the least.

Construction expenditures to build the new highway and abutting buildings also would produce an output or total demand effect on the general economy, part of it local. For

highway construction expenditures, route alternative 2 would produce the greatest effect on output to the economy, and route alternative 5 would produce the least amount of output to the economy. In fact, all of the bypass route alternatives would produce more output to the economy than the existing route alternatives. For building construction expenditures, route alternative 5 would produce the greatest impact on the economy and route alternative 4 would produce the least impact on the economy.

Impact on Highway User Costs. Highway user impacts are very important in deciding which route alternative to choose, if any. Time or delay costs, vehicle operating costs and accident costs are costs combined to makeup what is called highway user cost. If a particular highway improvement lowers any of these user costs, then user cost benefits are generated. The two existing route's alternatives 4 and 5 would produce the most total user benefits, and the bypass route alternative 3 produces the least of such benefits. Route alternative 5 would also cost the least to build and route alternative 2 would cost the most to build. Therefore, route alternative 5 is clearly the most economically feasible to build of the five route alternatives. Consequently, route alternative 5 would have the highest benefit-cost ratio, and the route alternative 2 would have the smallest benefit-cost ratio.

Total Economic Benefits Versus Costs. The estimated changes in abutting business gross sales, property values, tax revenues and income to the economy due to highway and building construction could be considered as economic benefits and/or disbenefits of each of the proposed route alternatives. At least, they could be considered as gross measures of such benefits or disbenefits. When added together and/or added to highway user benefits/disbenefits, there is a danger of double counting some of the benefits/disbenefits of a highway improvement. Yet, if different benefits accruing from the same sources are added together to compare the proposed alternatives for a particular highway improvement, such as U.S. Highway 287, double counting may not present a significant problem. Therefore, the above mentioned economic benefits/disbenefits, all measured in dollars, are added together and divided by the estimated total cost of the highway right of way, relocation and construction to generate a total economic benefit-cost ratio.

The results of this analysis are shown in Table S-2. The results show that route alternative 4 would produce the greatest amount of dollar benefits, and route alternative 3

would produce the least amount such benefits. Although route alternative 4 would produce the most dollar benefits, route alternative 5 would cost the least. Therefore, route alternative 5 produces a much larger overall economic benefit-cost ratio. In fact, route alternative 5 produces the largest ratio, and route alternative 2 produces the smallest.

Impacts Based on Opinion Surveys

A brief summary is given here of the results from several interview and mail surveys conducted in Wichita Falls to obtain the opinions of directly affected businesses, residents and public and nonprofit organizations concerning the route alternatives for improving U.S. Highway 287 in Wichita Falls. Also, several real estate sales persons and appraisers were interviewed to obtain their opinions of current property values along the proposed route alternatives, and also their opinions were solicited concerning trends in property values in Wichita Falls and probable impacts of the proposed route alternatives on abutting property values.

Table S-3 shows the answers given by the different types of interview or mail survey respondents to commonly asked questions. The findings presented in this table should provide the reader with a representative sample of answers given to appropriate questions concerning the before versus after construction of any of the proposed U.S. Highway 287 improvement alternatives. These findings are discussed below:

Preferred Route. Table S-3 shows the answers to a question asked the respondents concerning which route alternative that they preferred. As can be seen, the abutting businesses and residents are in close agreement in choosing the existing route alternative 5 (the elevated express lane option) as their preferred alternative. The public/nonprofit organizations leaned toward the depressed express lane alternative 4 or the outer bypass loop alternative 3.

Reduction of U.S. Highway 287 Traffic Volumes. The respondents were asked how each route alternative would affect traffic volumes on U.S. Highway 287. Again, the business and resident respondents were in agreement that the shortest bypass alternative 1 which follow part of Eastside Dr. would reduce traffic on U.S. Highway 287 more than the other route alternatives.

Table S-3. Summary of Before Versus After Construction Impacts Based on Opinions of Those Interviewed or Surveyed by Mail.

TYPE OF IMPACT AND SURVEY	ALT.1	ALT.2	ALT.3	ALT.4	ALT.5[1]
Preferred Route (%)					
Bus. interviewed	18	14	14	0	23
Bus. mail respondents	16	10	7	19	48
Res. mail respondents	0	6	25	0	69
Pub/nonprofit interviewed	17	0	33	33	17
US 287 Traffic Volume Reduced %					
Bus. interviewed	NA	NA	NA	NA	NA
Bus. mail respondents	-72	-71	-71	-12	-12
Res. mail respondents	-54	-47	-18	-18	-29
US 287 Bus Sales (% Decreased)					
Bus. interviewed	-33	-32	-44	-42	-50
Bus. mail respondents	-32	-42	-34	-22	-22
Res. mail respondents	-53	-53	-41	-47	-65
US 287 Prop Val (% Change)					
Bus. interviewed	-67	-67	-71	-75	-75
Bus. mail respondents	-80	-45	-81	-91	-70
Res. mail respondents	-18	-23	-12	-18	-35
Real est sales/appraisers	-16	-21	-22	+28	+26
US 287 Noise level change (%)					
Bus. interviewed	NA	NA	NA	NA	NA
Bus. mail respondents	-28	-57	-65	-74	-68
Res. mail respondents	-6	-35	-65	-18	-23
Attractiveness of City (% change)					
Bus. mail respondents	+29	+32	+19	+35	+45
Res. mail respondents	+48	+30	+30	+41	+24

[1]Includes alternatives 5a,5b and 5c.

Impact on U.S. Highway 287 Business Sales. The respondents were asked how each route alternative would affect the U.S. Highway 287's business gross sales. Once again, Table S-2 shows that the business and resident respondents are in agreement that the existing route alternative 5 would decrease the gross sales of abutting businesses more than any other route alternative.

Impact on U.S. Highway 287 Property Values. The respondents were asked how each route alternative would affect U.S. Highway 287's abutting property values. All of the respondent types are in agreement that any of the proposed route alternatives would depress abutting property values.

Impact on U.S. Highway 287 Noise Level. The respondents were asked how each of the proposed route alternatives would reduce the noise level along U.S. Highway 287. Both the business and resident respondent thought that any of the route alternatives would reduce the noise level along U.S. Highway 287.

Impact on Attractiveness of the City of Wichita Falls. The respondents were asked how each of route alternatives would affect the general attractiveness of the City of Wichita Falls. Again, the business and resident respondents are in agreement that any of the proposed route alternatives would increase the attractiveness of the City of Wichita Falls.

Conclusions and Recommendations

The following conclusions are reached from the study findings:

1. All of the proposed bypass route alternatives 1, 2, and 3 require a considerable amount of right of way which would lead to large numbers of displacements of businesses and residents, especially the first and second route alternative.

2. The study findings give only mixed support for bypass route alternatives 1, 2, 3, and 4. The findings give the strongest support for the existing route alternative 5 which is the elevated express lane alternative. The findings indicate that this proposed route alternative would produce the most positive overall economic impact on highway users and abutting businesses and residents of any of the five route alternatives considered. Of the impacts estimated on each route alternative, land use, land value, relocation, building

construction impact on the economy and highway user impacts favor route alternative 5. Also, the majority of the abutting businesses and residents favor this route alternative.

The recommendations are as follows:

1. Based on the findings of this study, route alternative 5, the elevated express lane alternative that would be built on the two existing one-way streets, is recommended for approval.

2. Heavy consideration should be give to selecting a route alternative that minimizes the taking of large amounts of right of way, especially alternatives that would displace large numbers of abutting businesses and residents. The recommended route alternative meets this objective.

3. Of the three design options of route alternate 5, it is recommended that the design option which places elevated ramps to and from 5th and 6th streets be added.

4. If and when this highway improvement is approved and ready for construction, it is recommended that the project be studied to determine the actual construction and after construction economic impacts on abutting businesses and residents.

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ESTIMATED ECONOMIC IMPACT OF THE PROPOSED IMPROVEMENT OF U.S. HIGHWAY 287 IN WICHITA FALLS, TEXAS

INTRODUCTION

Economic Impacts of Highway Improvements

General Assessment Overview

Highway improvements, whether they are for new highways or only improvements in old existing routes, create changes in the local economy and how it functions. Some of these changes are temporary, lasting only during the relatively short construction period, whereas, some of these functional changes are long term because they result from the characteristics of the new facility itself. These changes can be either beneficial, adverse, or both beneficial and adverse. Rarely is an economic impact clearly all positive or all negative within a community.

The economic impacts from highway changes and construction improvements are not easily measured. Of those that are measurable, some are easier to quantify. For example, the decrease in operating cost and travel time resulting from traveling a shorter new route is easier to quantify than the resulting impacts on the abutting business and property values. Furthermore, because there are so many interacting relationships between different aspects of a highway improvement and the local and the general economies of the surrounding areas it is usually infeasible to measure precisely the partial or total effects of any highway improvement. However, reasonable estimates can be obtained by looking at comparable improvements at other locations and the effects they had on their economies.

Economic benefits that are generated from highway projects are often divided into six general classifications in the literature. The six classifications are: (1) economic growth and development, (2) property values, (3) health and safety improvements, (4) improved efficiency in public and private services, (5) resource substitution, and (6) operational effects.

Growth and development is primarily concerned with the accessibility and the employment, income, and economies of scale that result from highway projects. Most of these benefits are direct benefits to the users of the system. The employment and income

effects are both direct and indirect. Increases during the construction period are direct economic benefits, whereas, the multiplier effect that is felt by other nonusers of the system and over a longer period of time is considered an indirect effect.

Property values are composed of both land values and improvements. The change in the value of the land results from the improved accessibility and opportunity for using the land in a more productive use than it was in the past. Improvements don't change in value as a result of a highway, but the types of improvements appropriate for the land may change as the land is put to a higher use. For example, two service stations that cost the same to build may not be priced the same. The difference in price would be attributed to the locational value of the lots or the land upon which these identical improvements were built. Furthermore, the value of the improvements would be affected only if the highway improvement created a situation where the value of the land had increased sufficiently that a service station was not the highest and best use for this property but some other type of business.

An indirect benefit to communities whose land values have been increased as a result of a highway improvement is the resulting increase in the value of the tax base, and the subsequent increase in the amount of tax revenue. Tax revenues will increase even if the assessment mill rate remains unchanged because of the higher property valuation of the land, and the increase in improvements that are made to the land.

The benefits that result from improved health and safety, resource allocation, and that result from improved efficiency in providing public and private services, are somewhat similar in nature. They are not explicitly measured in this study but mentioned here to acknowledge that there are benefits in these general areas that result from highway improvements. Presumably, the greatest of these benefits would be benefits resulting from the decrease in injury accidents and fatalities. These benefits are some of the most obvious and lasting. Safety savings include not only the immediate out-of-pocket costs for repairs and medical bills, but also the lost productivity cost of disabilities, long convalescent periods, and the inconveniences and sorrows that can last a life time. Other health benefits are those that result from improved delivery of health care services and improved access by fire and emergency services. These benefits are closely related to those benefits that result from

increased public and private services such as, postal, public transit, education, disaster relief, and civil defense.

Resource substitution deals with the benefits to society that result from using materials in the construction of highways that otherwise would not be used, such as mining and demolition solid wastes. The operational effects of highway improvements includes reduced congestion, effects on local street maintenance and repair, bypass and relocation effects, and energy savings. Bypasses are those relatively short segments of new highway that reroute through traffic around a downtown area but leave the intercity route unchanged. There are two main effects that result from the construction of a bypass: (1) reduced congestion on local streets, and (2) the effects on the local businesses. The reduced congestion on local street is a long-run and indirect effect from the construction of a bypass. Less congestion results in an increase in convenience for the local patrons. There is less noise and pollution, more parking,shorter waits for service, fewer accidents, safer pedestrian conditions, and reduced risk of major dangers from hazardous materials traveling through the downtown area. Also, reduced traffic downtown usually results in a decrease in the local highway maintenance costs.

The effects felt by the local businesses are brought about by changes in accessibility when a bypass is constructed and diverts traffic away from the downtown area. These effects are not felt equally by the various establishments in the business community. Those businesses that cater to the transient motorist will be adversely affected, while those who cater to the local clientele most likely will not be as adversely affected, and may be affected beneficially. Bypasses like any large development or capital improvement will affect some in a positive manner and others in a negative manner, but ultimately are constructed because they provide net benefits to society as a whole.

Guidelines for Assessing Economic Impacts

In assessing the above mentioned impacts of highway improvements there are several important guidelines to follow:

1. *Consider all of the relevant highway and area characteristics in assessing the economic impacts.* The design, location, capacity, and number of interchanges are important to know. The following area characteristics also need to be considered:

population density, level of income, type of abutting and nearby land use, land use controls, adequacy of area's streets and roads and how they interact with the planned highway improvement, and distance to the central business district of a large city.

2. *Determine which of the above characteristics are significant variables in measuring economic impacts.* Some research studies have been conducted to sort out the most important variables to consider in trying to assess economic impacts that might be caused by a new highway improvement. All of the above mentioned characteristics have been found to be important to consider in estimating economic impacts.

3. *Consider the techniques available for estimating economic impacts.* Researchers have developed various techniques and models to measure and/or estimate the economic impacts of highway improvements. They have done land use, land value, user cost/benefit, and highway expenditure impact modeling to name a few. The majority of the economic impact type of measurement techniques utilize what is called the "before - after" approach. In this approach, economic data from a time period prior to the highway improvement is compared with similar data collected after the completion of the improvement to determine the amount of impact. The before and after approach used to measure land use and land value impacts is costly and time consuming. Consequently, it is not very practical for highway planners to conduct such studies, but they can apply the findings of these studies to comparable proposed highway improvements and estimate the impacts. The Texas Transportation Institute (TTI) researchers are using the findings of previous before - after studies to estimate the economic impacts of the proposed improvements being evaluated here.

4. *Collect sufficient data on the characteristics of the proposed highway improvement to use in selecting the most comparable findings of prior studies to estimate economic impacts.* At a minimum, data from previous studies must be comparable in the following ways:

* type of highway improvement (design and route location)
* dominant abutting land use

* stage of land development in area (percent developed).

When ideally comparable case study findings can't be found, the highway planner may need to use judgement in adjusting the impact estimates of the proposed improvement that may be indicated by the findings of available studies.

5. *Adjust the findings of previous case studies to fit the proposed improvement area and route characteristics.* The approach used by real estate appraisers is a good approach to apply. They adjust their "comparable" sales data to the subject property. They adjust for differences in the location and property characteristics before arriving at a final estimate of value.

Problem Statement and Background

The Texas Department of Transportation's (TxDOT) District 3 personnel are in the process of evaluating the proposed improvement of U.S. Highway 287 in Wichita Falls, Texas. This highway passes very close to the middle of the Midtown area and is improved as a freeway on the north and south ends. Interstate Highway 44 (IH 44) merges into U.S. Highway 287 from the north end, and U.S. Highways 82, 277 and 281 merges into U.S. Highway 287 from the south end. The two freeway sections of U.S. Highway 287 end suddenly in the Midtown area and the traffic is routed onto two city streets(Broad and Holliday) for a distance of .65 miles, or 7 blocks, before the highway becomes a freeway again. Therefore, a "design gap" exists in a principal highway system, creating serious traffic problems. Broad Street carries the northbound traffic and Holliday Street carries the southbound traffic with the traffic on both streets having to stop at several stop lights before it can get back on the freeway.

To further complicate matters, U.S. Highway 82 is being improved as a freeway and ties into U.S. Highway 287 at the south end of this gap. The average daily traffic (ADT) volume on U.S. Highway 287 is over 40,000 on each side of this gap. Travelling motorists don't expect to find such a gap in the highway system and tend to keep driving as if they are still on a freeway; that is, driving faster, weaving from lane to lane, running red lights, or not slowing enough to get into sequence with the stop lighting system used in this gap. Finally, a large number of heavy trucks use this highway and have a difficult time stopping at the first stop light encountered. These trucks also cause some increased weaving of the traffic.

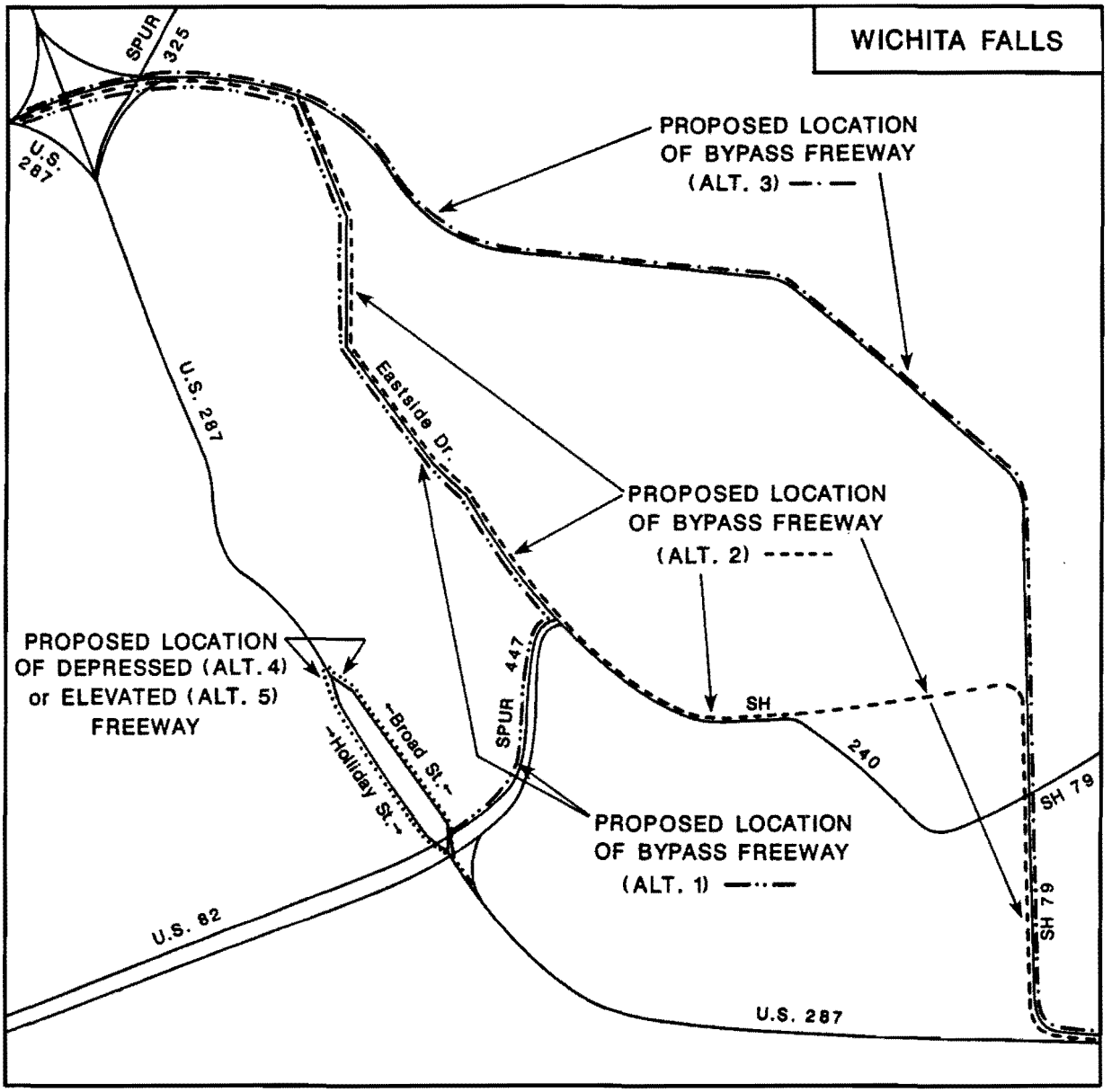
The above described situation has caused a very large number of accidents on Broad and Holliday Streets and involve many of the local residents. Between 1986 and 1989, 873 accidents (one every other day) occurred. Those accidents have resulted in 420 injuries and 4 fatalities, the highest rate of injuries and fatalities in Wichita Falls. As traffic volumes increase, the accident rate in this gap continues to worsen. Also, the required slowing of traffic in this gap increases the travel time and vehicle operating costs to both through and local motorists alike. Even the abutting businesses may have been negatively impacted by the high rate of accidents and through motorists trying to speed and weave until they get through this gap in the highway system. The excessive amount of stopping and starting by large trucks increases the noise and air pollution levels.

To alleviate these traffic problems, several facility route and/or design alternatives have been proposed. Figure 1 is a map that shows the location and type of these proposed facilities and routes. Three of the improvement alternatives are routes on new location, or what are commonly called bypass routes. Although these new routes would follow existing streets where possible, considerable right-of-way would be have to be purchased and would displace some businesses and residences. Two of these bypass routes would follow along portions of State Highway 240 (Eastside Drive), while the third would be essentially all new location. The other two primary improvement alternatives would construct either a split depressed one-way section or an elevated one-way section on Holliday and Broad Streets to carry the through traffic, leaving part of the existing roadway of these streets to carry the local traffic.

Presently, Broad and Holliday Streets are 4-lane facilities with undivided, at-grade and one-way sections that have no restrictions on access. The elevated section alternative is broken down into three secondary alternatives that deal with whether or not to construct ramps to two cross streets (5th and 6th Streets) and with the potential effects of the alignment on the north end of the project on a park and on traffic control.

The above alternatives would impact motorists, businesses and properties, and the local community in varying amounts, depending upon the alternative chosen. Also, their cost and construction time would vary considerably.

Figure 1. Map of Wichita Falls, Texas, Showing Five Alternative Improvement Routes for U.S. Highway 287.



Study Objective

The study objective is to estimate the economic impacts of the proposed route and/or design alternatives for U.S. Highway 287 in Wichita Falls, Texas. Indirect and net effects are virtually impossible to measure, and costly to estimate. While acknowledging that there may be other indirect effects, they are assumed to be neutral across all of the possible mutually exclusive alternatives analyzed in this research study. Consequently, the following impacts are to be estimated:

1. Impact on existing businesses, distinguishing between traffic-serving and other types of businesses,
2. Impact on new development,
3. Impact on employment, including that due to construction expenditures and loss of clientele,
4. Impact on municipal tax revenues, and
5. Impact on highway users.

Data Sources and General Methodology

The primary data source is what is reported in the transportation economics literature, and publications by various departments of the City of Wichita Falls. Also, data collected by the TxDOT's District 3 personnel, and the Texas Transportation Institute's (TTI) personnel through personal interviews and mail questionnaires, are used as part of the data base for the study. Limited data were collected from other sources, such as the U.S. Bureau of Census, Texas Almanac, chambers of commerce and city offices.

Before doing the literature search and review, "key" descriptive data (as shown in Table 1) were collected on the study area, including the existing and proposed routes. The descriptive data includes the design of existing and proposed routes, average daily traffic (ADT) of existing and proposed routes, number and types of existing route businesses, dominant abutting land use along existing and proposed routes, distance to Wichita Falls' central business district (CBD) and the current population.

The above descriptive data was used in the literature search and review to select comparable case studies for use in estimating the various impacts described in this study. It was originally desired that enough comparable case studies could be found to reflect the

varying lengths of time lapse between the date of construction, and the date of study, in order that short-term and long-term estimates could be made more directly. Unfortunately, this proved to be an unrealistic prospect. Most of the relevant studies reflect 5-10 years of after construction impact.

Percentage changes in the number of businesses, amount of gross sales, property uses and values, etc. compiled from the comparable literature were used to estimate the various impacts. In the case of business impacts, separate estimates are made to indicate the impact on traffic-serving businesses and other nontraffic-serving retail/service businesses, and also on business relocation.

The literature also contains general studies that estimate the relationship between highway construction expenditures and employment. Findings from the general studies supplement and further support the case study findings. Separate estimates are made to indicate the employment impact resulting from highway construction expenditures, replacement building expenditures and loss or gain of existing businesses' clientele.

The business and property impact estimates are used as the basis for estimating the impact on municipal tax revenues. Separate estimates are made for each of the alternative routes, and the current tax rate is applied directly to these estimates to calculate the revenue.

Historical traffic data obtained from the TxDOT's Division 10 and District 3 personnel, were used to develop input data for the third version of The Highway Economic Evaluation Model (HEEM-III) computer program to estimate the highway user costs projections of each alternative route. Then, the differentials between the alternatives are used to estimate the user cost impact of choosing one route over another. Also, the user cost impact of choosing the no-build option is calculated. More specific details of the data base and estimating methodology are presented in the respective impact sections.

A total economic benefit-cost ratio is calculated which includes all impacts estimated in dollars; including highway user benefits. This total economic benefit-cost ratio is helpful in comparing route alternatives of a particular highway improvement. Double counting is not a significant problem with this procedure.

A series of surveys were conducted to aid in the analysis of the proposed highway

improvements. On site personal interviews with selected realtor/appraisal firms, businesses along Holliday and Broad streets, and with nonprofit organizations and institutions were conducted by professional TTI personnel. Mail questionnaires were sent to the other businesses that would be affected, and all residents located along the proposed routes to collect their opinions of how the proposed alternatives would affect them and their properties. The results of these analyses, interviews, and questionnaires are summarized later in this report.

STUDY HIGHWAY

Existing Route Characteristics

As described above, IH 44 merges into the existing route, U.S. Highway 287, from the north end and U.S. Highways 82, 277 and 281 merge into U.S. Highway 287 from the south end. The two freeway sections of U.S. Highway 287 end suddenly in the Wichita Falls midtown area and the traffic is routed onto the two city streets, Broad and Holliday, for 7 blocks before the highway becomes a freeway again. Broad Street carries the northbound traffic, and Holliday Street carries the southbound traffic, with the traffic on both streets having to stop at several stop lights before it can get back onto the freeway.

Based on growth rates calculated for different locations along U.S. Highway 287 in Wichita Falls, the existing route on Holliday and Broad Streets between 9th and 10th Streets is projected to carry approximately 45,000 vehicles per day in the beginning analysis year 1992, and 75,000 vehicles per day in 2012. Presently, the Broad and Holliday Street portions of the existing route are 4-lane facilities with undivided, at-grade and one-way sections that have no restrictions on access. Table 1 shows these and other characteristics of the existing route that were used in the literature review in selecting comparable study data.

Proposed Route Characteristics

There are five proposed route alternates being considered for improving the through-town traffic problem along the study section of U.S 287, between Spur 325 and S.H. 79. Three of the improvement alternatives, *alternatives 1, 2, and 3*, are routes on new location, or what are commonly called *bypass* routes. Two of these bypass routes, alternatives 1 and 2, would follow along portions of State Highway 240 (Eastside Drive), while the third, alternative 3, would be essentially all new location. The other two primary improvement alternatives, *alternatives 4 and 5*, would construct either a split depressed one-way section or an elevated one-way section on Holliday and Broad Streets to carry the through traffic, leaving part of the existing roadway of these streets to carry the local traffic.

Alternative 1 is to build a bypass freeway with service roads that will leave Highway 287 beginning at Spur 325, follow Eastside Drive, and connect back with Highway 287 at Spur 447. Figure 2 shows this bypass option, where part (a) is an example of the type of road that would be built, and part (b) shows the route of the proposed bypass.

Table 1. Characteristics of U.S. Highway 287 Proposed Route Alternatives.

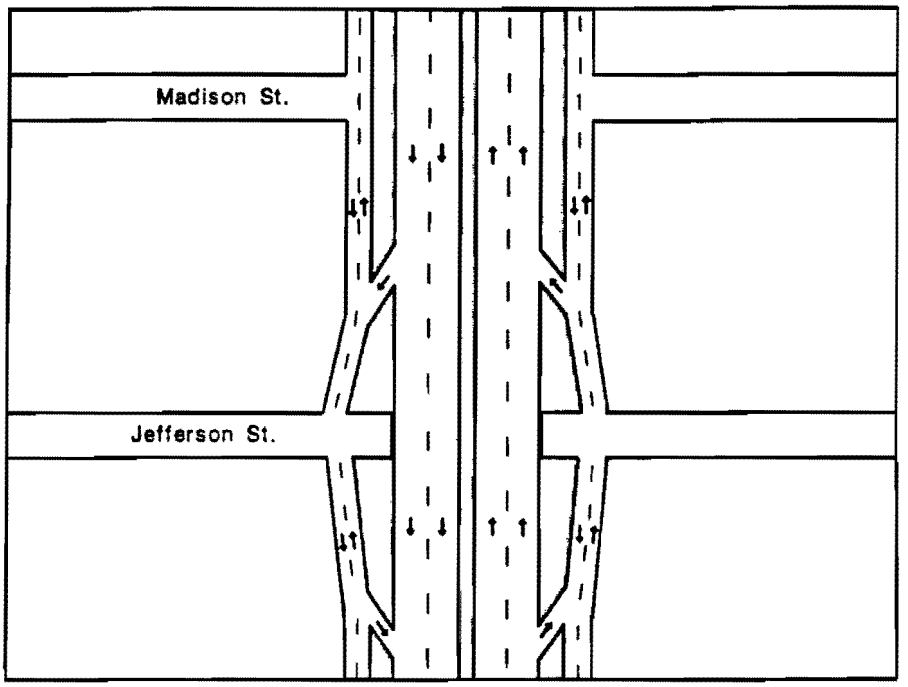
CHARACTERISTIC	QUANTITY/DESCRIPTION BY ROUTE[1]					
		BYPASS ALTERNATIVES				
	EXISTING	1	2	3	4	5A, 5B, 5C
Main lanes	4 to 8	4 to 6	4 to 6	4 to 6	6	6
Divided/undivided	divided	divided	divided	divided	depressed	elevated
Frontage roads (lanes)	0-4	4	4	4	6	6
Access (direct/limited)	mixed	limited	limited	limited	limited	limited
Length in miles	7.85	9.32	8.40	8.59	7.85	7.85
Greatest distance from existing route	N/A	1.09	1.74	2.97	0	0
Distance to CBD	0.5	0.4	.04	2.25	0.5	0.5
Current ADT (1992)	44,460	26,670	31,120	31,120	44,460	44,460
Projected ADT (2012)	75,010	49,120	57,310	57,310	81,870	81,870
Dominant abutting land use	comm	comm	comm	vacant	comm	comm
Business displacements[2]	N/A	10	12	1	6	6, 6, 7
Residential displacements[2]	N/A	35	38	13	0	0

[1] Based on data projections made from historical traffic data furnished by the TxDOT.

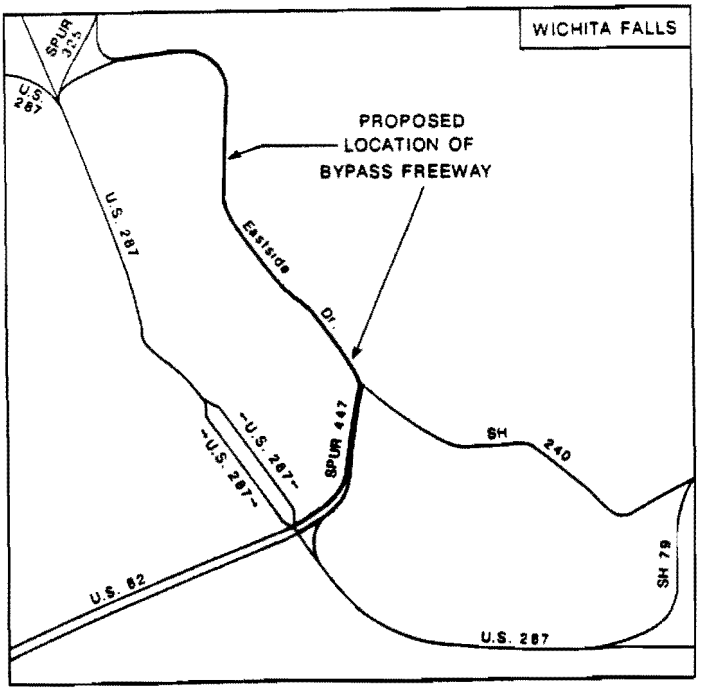
[2] Displacements which take the main building and/or whole property, thus requiring the business to relocate on another property or further back on the same property.

Figure 2. Alternative 1 Showing (a) the Bypass Freeway with Service Roads, and (b), the Proposed Location of the Bypass Along Eastside Drive Between Spurs 325 and 447.

(a)



(b)



A second bypass option to handle Highway 287 through-town traffic, *alternative 2,* is to build a bypass freeway with service roads that will leave Highway 287 at Spur 325, follow Eastside Drive, and connect back with Highway 287 at State Highway 79. Figure 3 shows this bypass option, where part (a) is an example of the type of road that would be built, and part (b) shows the route of bypass alternative 2.

Alternative 3 is to build a new freeway with service roads, essentially all on new location, that will bypass the City of Wichita Falls. This new freeway bypass would begin at the intersection of Highway 287 and Spur 325 and connect back with Highway 287 at State Highway 79. Figure 4 shows this bypass alternative option, where part (a) is an example of the type of freeway that would be built, and part (b) shows the proposed route of this new bypass.

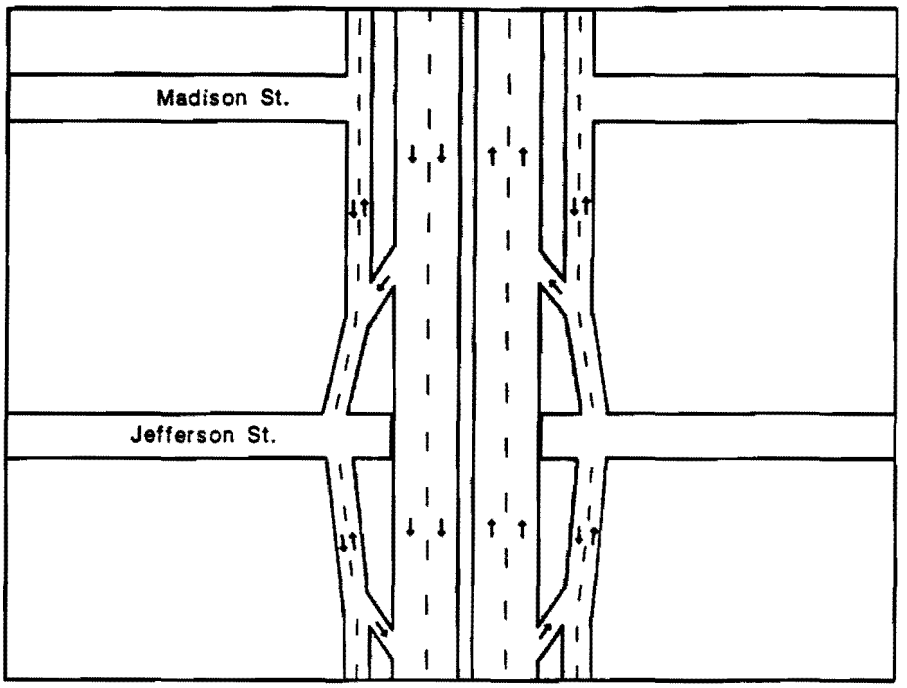
Alternative 4 is to build a **depressed expressway** with service roads on U.S. Highway 287 along Broad and Holliday Streets. Figure 5 shows this existing route alternative option, where part (a) is an example of the type of depressed freeway that would be built, and part (b) shows the location where this depressed expressway would be built.

Alternative 5 would handle Highway 287 through-town traffic by building an **elevated expressway** with service roads on U.S. Highway 287 along Broad and Holliday Streets. Figure 6 shows this route alternative, where part (a) is an example of the type of elevated expressway that would be built, and part (b) shows the location where this elevated expressway would be constructed.

There are three different ways proposed in which Alternative 5 could be connected to the existing expressway portions of U.S. 287. *Alternative 5A* would be a traditional connection with no additional access ramps. *Alternative 5B* would connect across the top of the existing access ramps, with no additional access ramps constructed. *Alternative 5C* would have a modified traditional connection, with additional direct access ramps to 5th and 6th streets. Figure 7 shows the alternative 5C traditional connection with the additional direct access ramps to 5th and 6th streets.

Figure 3. Alternative 2 Showing (a) the Bypass Freeway with Service Roads, and (b), the Proposed Location of the Bypass Along Eastside Drive Between Spur 325 and State Highway 79.

(a)



(b)

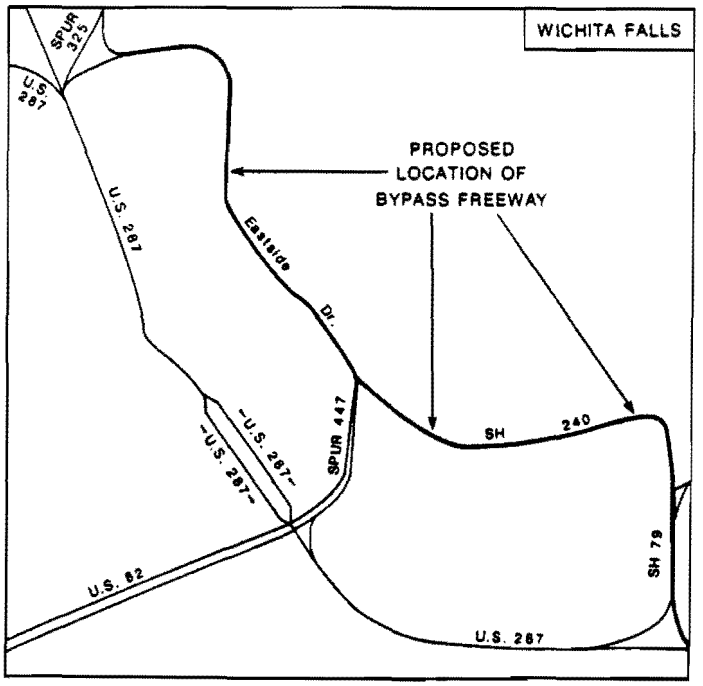
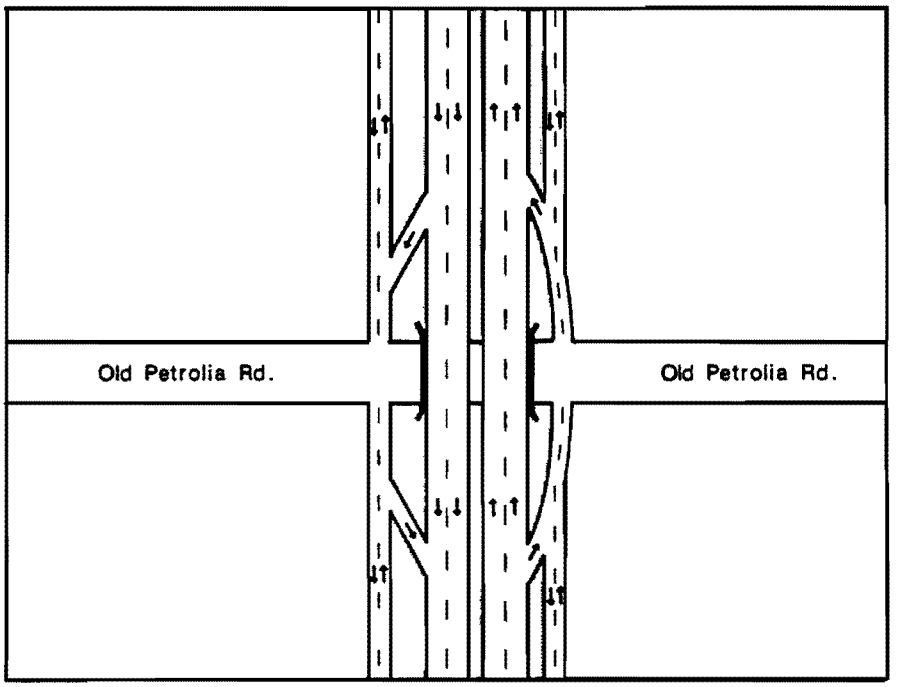


Figure 4. Alternative 3 Showing (a) the Bypass Freeway with Service Roads, and (b), the Proposed Location of the Bypass Along a New Location Bypassing Wichita Falls Between Spur 325 and State Highway 79.

(a)



(b)

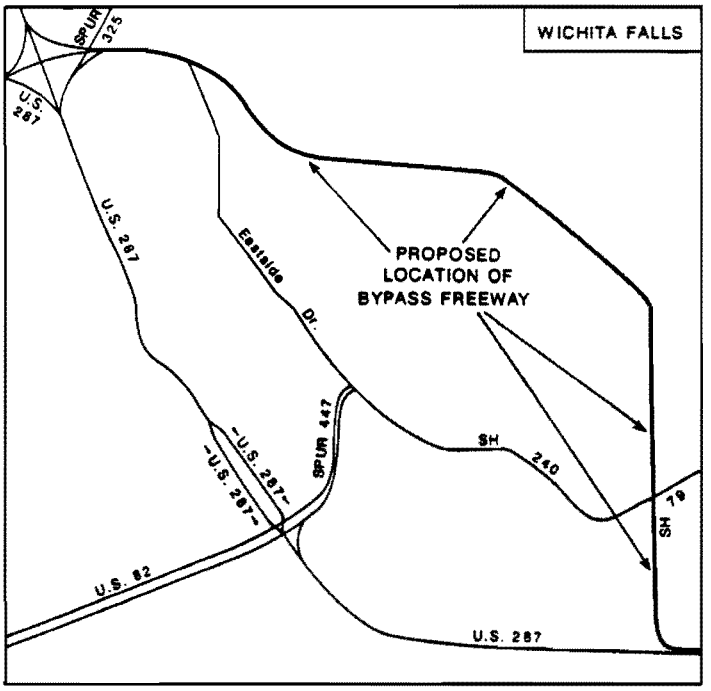
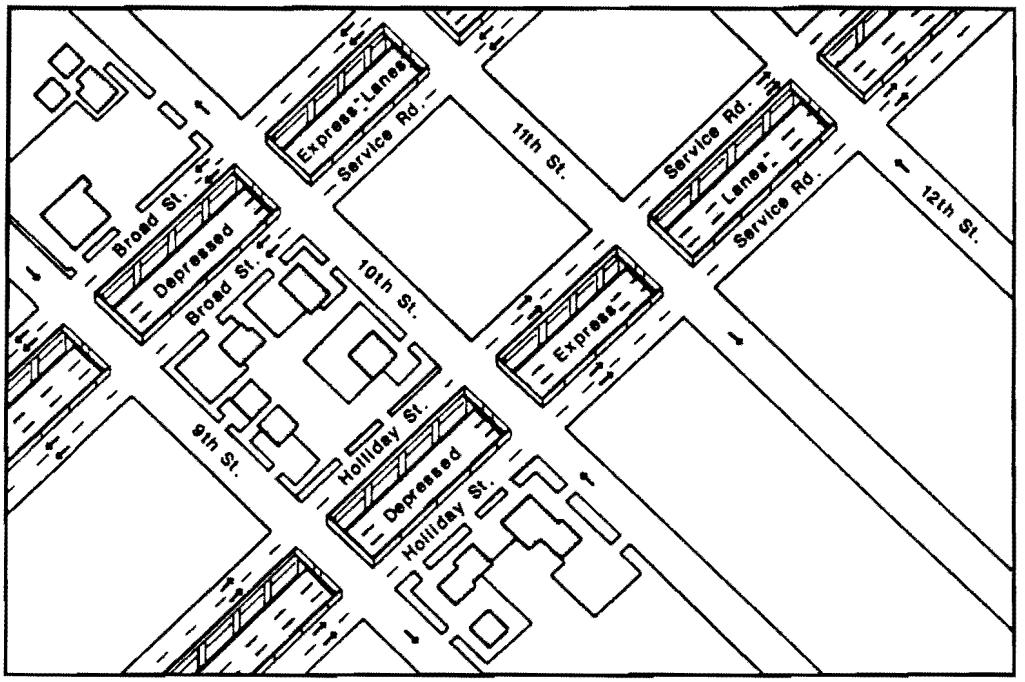


Figure 5. Alternative 4 Showing (a) the Depressed Expressway with Service Roads, and (b), the Proposed Location on U.S. Highway 287 Along Broad and Holliday Streets.

(a)



(b)

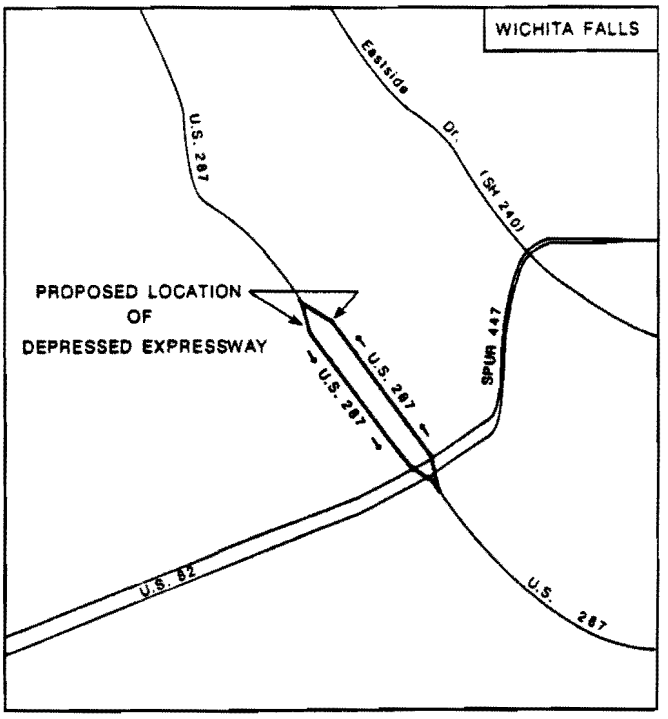
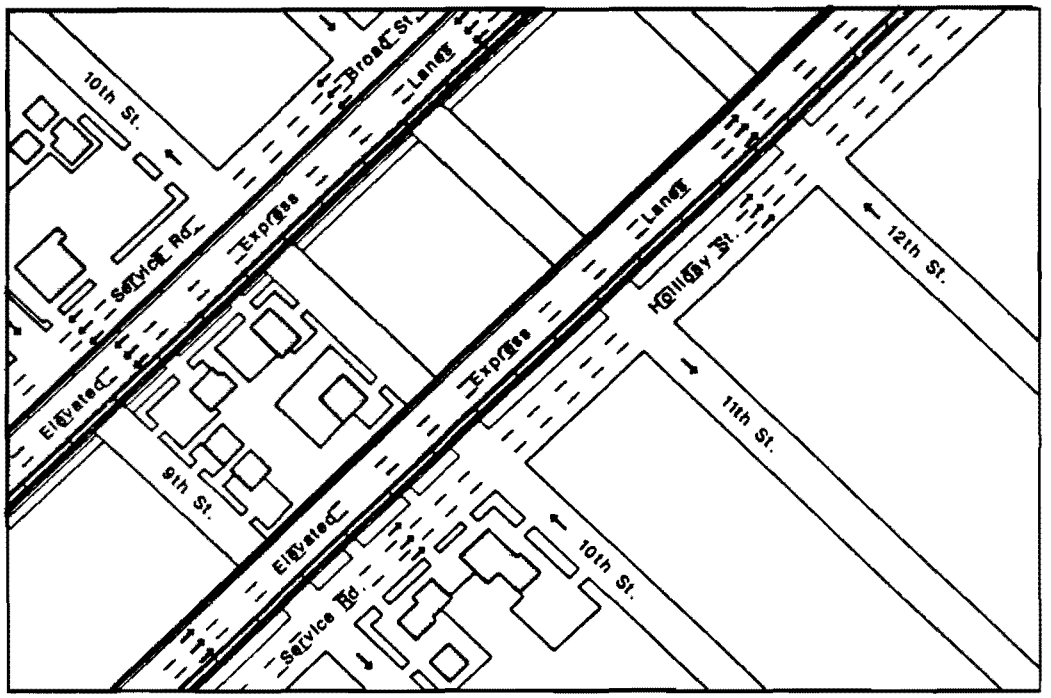


Figure 6. Alternative 5 Showing (a) Elevated Expressway With Service Roads on U.S. Highway 287 Along Broad and Holliday Streets, and (b), Proposed Location of this Elevated Expressway.

(a)



(b)

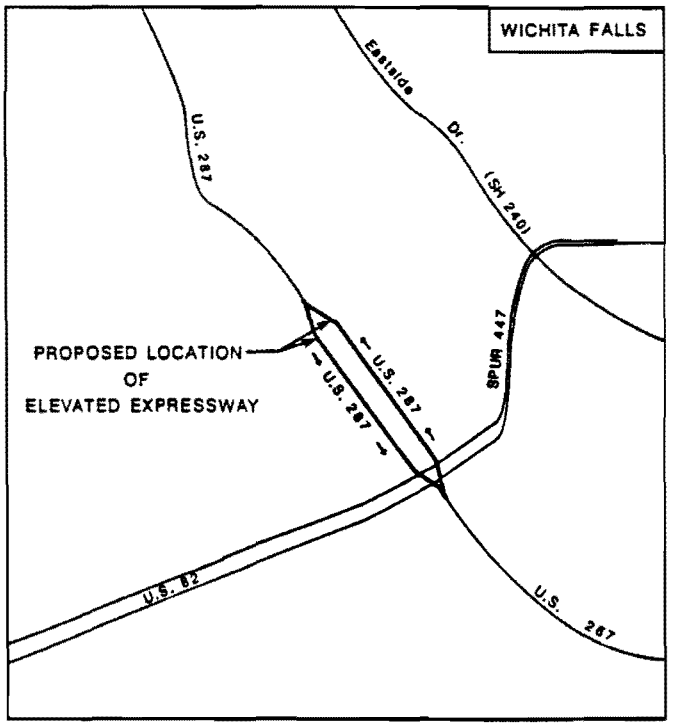
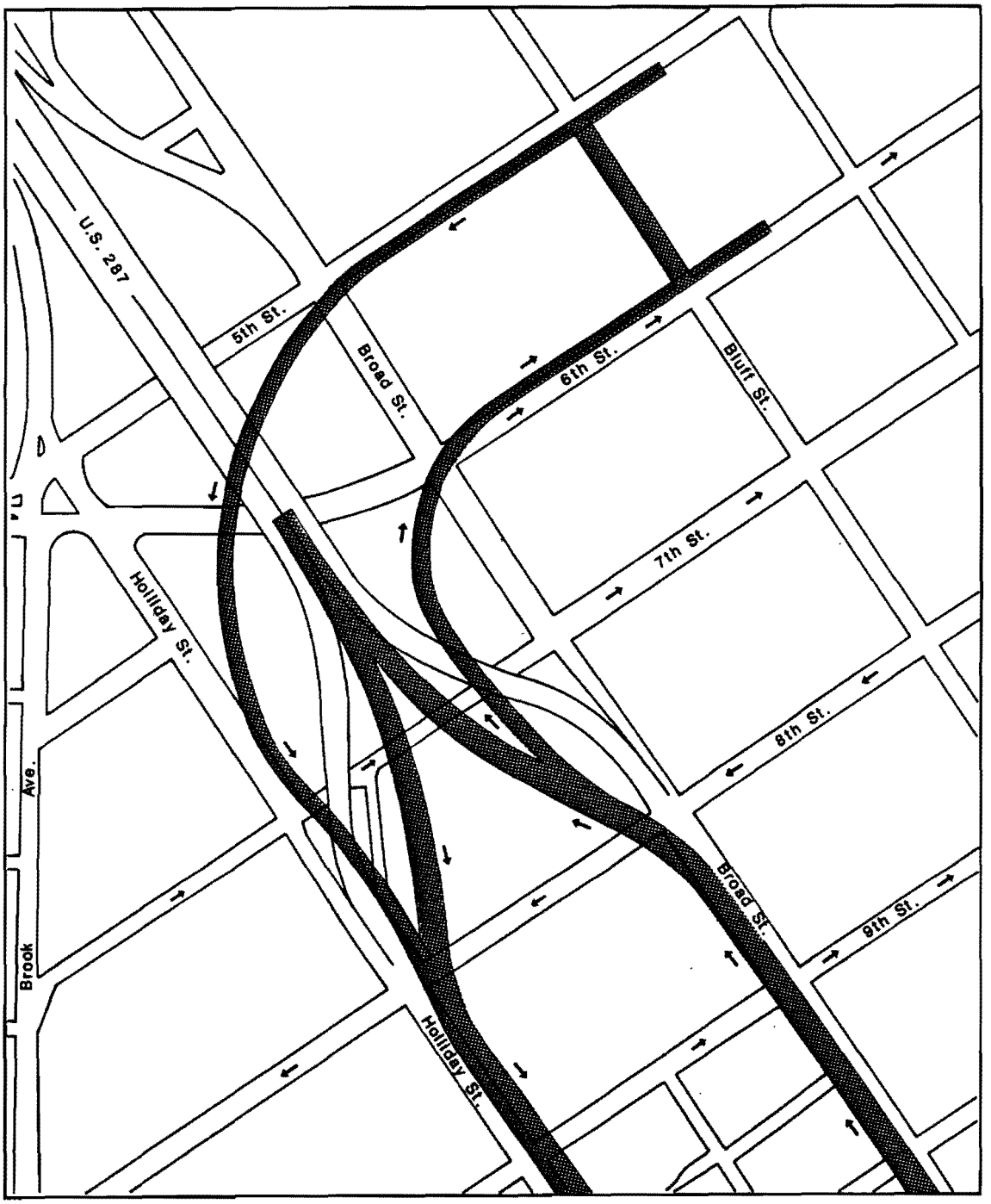


Figure 7. Alternative 5C Elevated Expressway Following Broad and Holliday Streets with Connection to Existing U.S. 287 and Direct Access Ramps to 5th and 6th Streets.



STUDY AREA

Existing Characteristics

The City of Wichita Falls is located in the southeast corner of Wichita County. Wichita County is bordered by Archer County on the south, and Clay County on the east. Wichita Falls has long been the business center of retail and wholesale trade, services and employment of the tri-county region. The population of Wichita Falls accounts for approximately 70 percent of the tri-county population. Table 2 is a summary of the population for Wichita Falls and the tri-county area for selected years from 1950-1990. These population numbers are plotted in Figure 8, graphically showing the relative magnitudes of the populations in the tri-county area.

Table 3 summarizes the electric, water, gas, and telephone utility connections for the City of Wichita Falls from 1980-1989. Figure 9 shows the relationship of the Wichita Falls population to the number of city water connections. Table 4 lists the gross sales and the gross taxable sales, and the number of reporting outlets for Wichita Falls from 1984-1989. The business gross sales is plotted in Figure 10 showing the trend in sales from 1984-1989. This information is provided to give a base on which to compare the size of the affected business with the total number of reporting businesses in Wichita Falls. There were only 117 retail, and 16 wholesale/manufacturing firms, of these 2,310 businesses that were identified to be directly affected by the construction of one of the proposed improvements to U.S. 287.

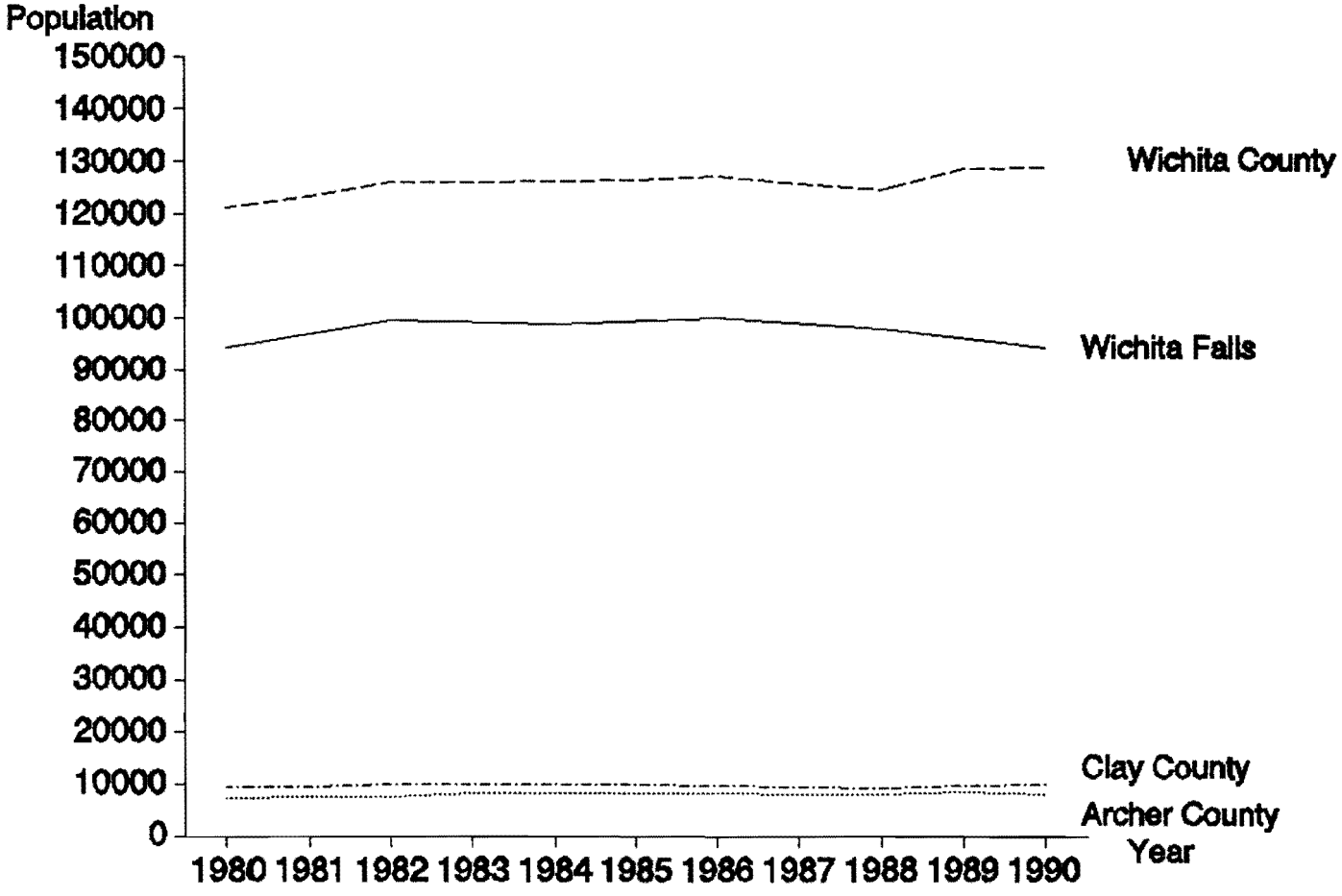
Table 5 shows the calculation of the total property tax levy for Wichita Falls for 1989. Table 6 is the summary of the civilian labor force and employment in Wichita County from 1980-1989. Figure 11 shows the trend between total civilian employment and the total county population. These civilian employment numbers do not include the military persons employed at Sheppard Air Force Base.

Table 2. Population Summary for Wichita, Archer, and Clay Counties, and the City of Wichita Falls, Texas, for selected years from 1950-1990.

Year	City	County		
	Wichita Falls	Wichita	Archer	Clay
1990	94,200	128,790	8,020	10,010
1989		128,642	8,538	9,868
1988	97,870	124,600	8,000	9,400
1987		125,700	8,000	9,500
1986	99,940	127,100	8,200	9,700
1985		126,300	8,200	10,000
1984	98,899	126,200	8,300	10,000
1983		125,900	8,200	10,000
1982	99,555	126,000	7,500	9,900
1981		123,300	7,500	9,600
1980	94,201	121,082	7,266	9,582
1970	96,265	120,563	5,759	8,079
1960	101,724	123,528	6,110	8,351
1950	68,042	98,493	6,816	9,896

Source: Growth Trends, 1990, and Tri-County Growth Trends, 1990, Planning Department, City of Wichita Falls, Texas.

FIGURE 8. POPULATION OF WICHITA, ARCHER, AND CLAY COUNTIES, AND THE CITY OF WICHITA FALLS.



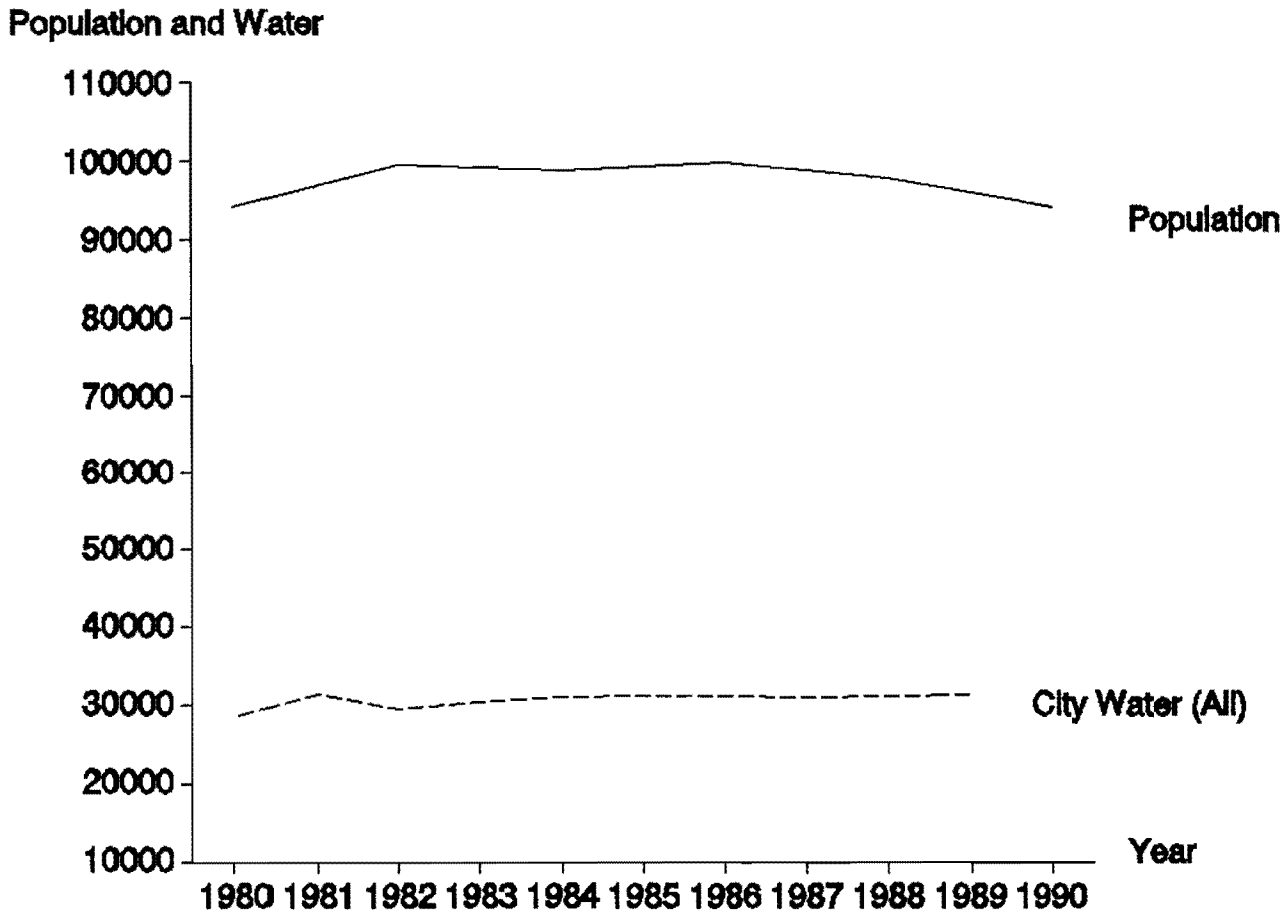
Source: Growth Trends, 1990, and Tri-County Growth Trends, 1990, Planning Department, City of Wichita Falls, Texas.

Table 3. Summary of Utility Connections in Wichita Falls, Texas, 1980-1989.

Year	T.U. Electric		City Water		SW Bell Telephone		Lone Star Gas
	All	Residential	All	Residential	All	Residential	All
1989	39,215	34,068	31,373	27,837	52,560	37,117	26,841
1988	39,344	34,222	31,207	27,660	51,664	37,117	27,113
1987	39,341	34,193	31,074	27,499	51,043	36,844	27,181
1986	39,639	34,485	31,233	25,980	51,554	37,395	27,352
1985	39,464	34,332	31,130	25,589	50,982	36,573	27,118
1984	39,261	34,167	30,993	26,965	50,580	36,617	27,490
1983	38,823	34,844	30,416		49,829		27,557
1982	37,971	33,156	29,488		49,829		27,963
1981	N/A	N/A	31,306		48,923		27,291
1980	35,729	31,045	28,568		47,075		28,127

Source: Growth Trends, 1990, Planning Department, City of Wichita Falls, Texas.

FIGURE 9. POPULATION AND WATER CONNECTIONS FOR CITY OF WICHITA FALLS.



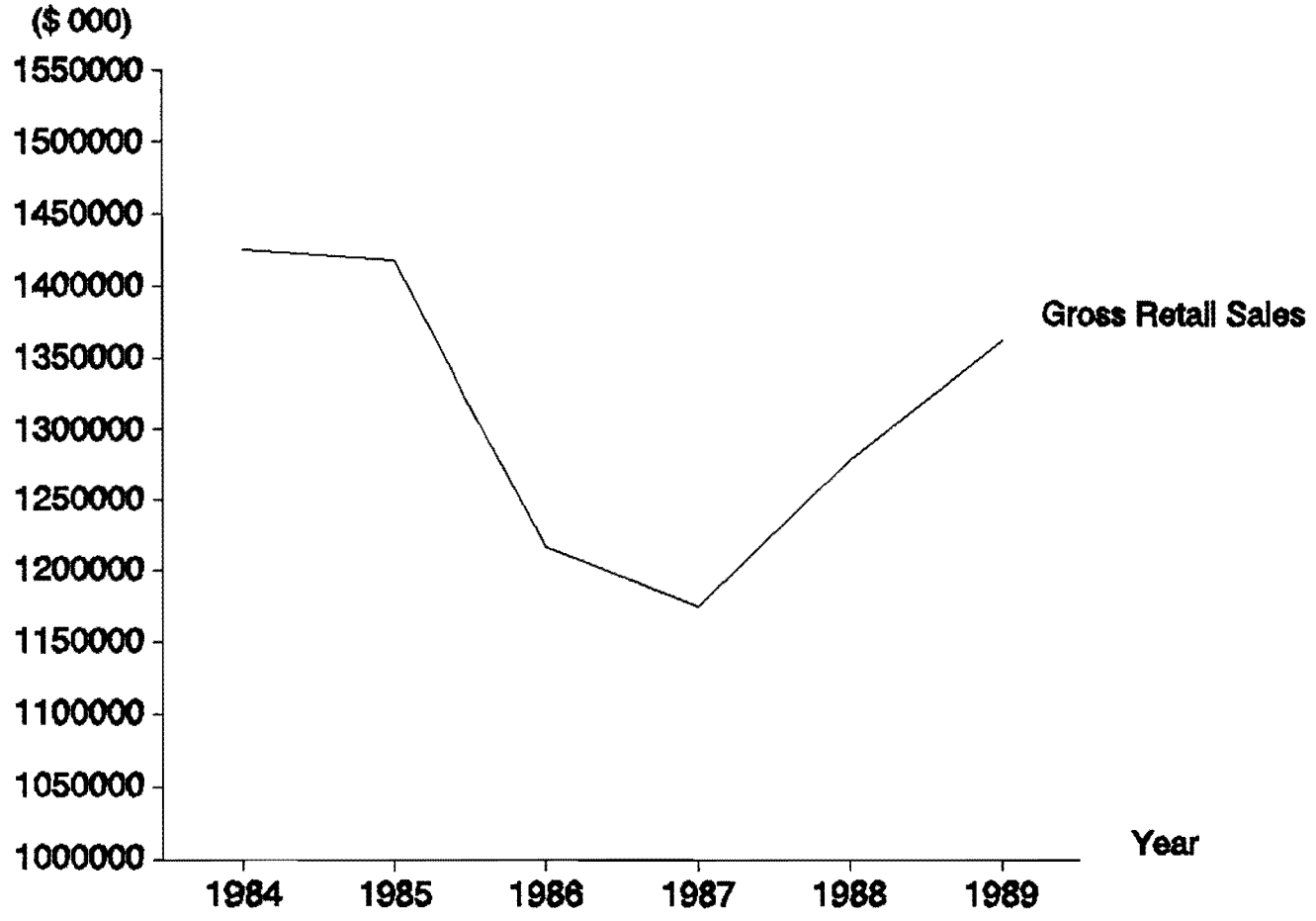
Source : Planning Department, City of Wichita Falls, Texas.

Table 4. Gross Sales and Gross Taxable Sales of Retail, Service, Wholesale, and Manufacturing Businesses in the City of Wichita Falls, Texas, 1984-1989.

Year	Gross Sales ($)	Gross Taxable Sales ($)	Reporting Outlets
1989	1,362,005,852	592,899,124	2,310
1988	1,278,863,819	563,729,027	2,416
1987	1,175,495,583	528,727,578	2,405
1986	1,217,022,982	543,515,303	2,418
1985	1,417,581,194	596,045,112	2,467
1984	1,424,543,816	566,618,816	2,561

Source: Data from the Office of the Texas State Comptroller of Public Accounts.

FIGURE 10. BUSINESS GROSS RETAIL SALES TREND FOR CITY OF WICHITA FALLS.



Source: Office of the Texas State Comptroller of Public Accounts.

Table 5. City of Wichita Falls, Texas, 1989 Report of Property Value .

Total Appraised Value of Tax Roll Before All Partial Exemptions and Reductions for Productive Valuation.	2,414,705,725
Less: Total Appraised Value Lost to Local, Optional Over-65 or Disabled Homestead Exemptions.	95,968,454
Less: Total Appraised Value Lost to Local, Optional Percentage Homestead Exemptions.	0
Less: Total Appraised Value Lost to Disabled and Deceased Veterans' Exemptions.	2,850,825
Less: Total Reduction in Appraised Value Because of Productive Valuation of Agricultural Land.	0
Less: Total Reduction in Appraised Value Because of Productive Valuation of Open-space Land and Timberland.	6,671,241
Less: Total Appraised Value Lost to Solar- and Wind-Powered Energy Device Exemptions.	0
Less: Total Appraised Value Lost Because Property is Exempted from Taxation under the Property Redevelopment and Tax Abatement Act.	0
Less: Captured Appraised Value of Property in a Reinvestment Zone Created under the Tax Increment Financing Act.	0
Total Appraised Value for City Tax Purposes.	2,309,215,205

CITY TAX	RATE
Maintenance and Operations	0.5517
Interest and Sinking Fund	0.0962
Total	0.6479

Calculated Property Tax Levy (Total Appraised Value x Tax Rate x .01)	14,961,405

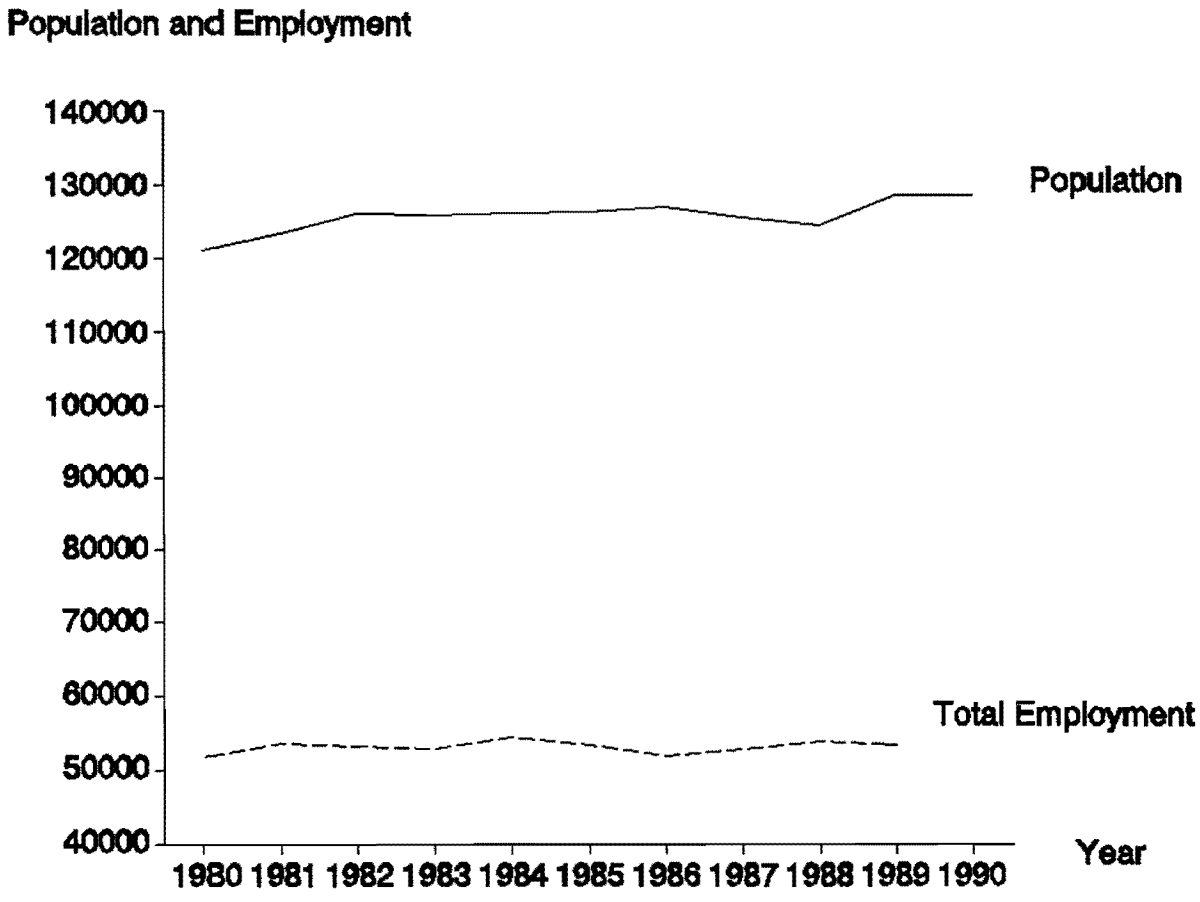
Source: Data from the Texas State Property Tax Board.

Table 6. Average Annual Civilian Labor Force and Employment in Wichita County, Texas, 1980-1989.

Year	Civilian Labor Force	Total Employment	Total Unemployment	Unemployment Rate (%)
1989	56,800	53,300	3,500	6.2
1988	57,500	53,900	3,600	6.3
1987	57,300	52,800	4,500	7.9
1986	56,600	51,900	4,700	8.3
1985	56,800	53,400	3,400	6.0
1984	57,300	54,400	2,900	5.1
1983	57,200	52,900	4,300	7.5
1982	57,400	53,100	4,300	7.5
1981	56,500	53,600	2,900	5.1
1980	54,400	51,800	2,600	4.8

Source: Tri-County Growth Trends, 1990, Planning Department, City of Wichita Falls, Texas.

FIGURE 11. POPULATION AND TOTAL EMPLOYMENT TRENDS FOR WICHITA COUNTY.



Source: Planning Department, City of Wichita Falls, Texas.

IMPACT ON BUSINESS ACTIVITY

Estimating Methodology

A review of the existing literature was conducted to help compile a range of impacts that have been experienced by the business communities in various Texas cities where highway improvements have been made. Primarily, there were two types of impacts that needed to be identified: (1) those that occurred *during* the construction period itself, and (2) those impacts that occurred *after* construction was completed and the new highway facility was operational. These two impacts, during and after construction, affect businesses differently, depending upon both location and business type classifications. For example, the impact on businesses where highway construction occurs on the highway in front of, or abutting their business, is different from the impact on businesses located such that the improvement occurred on a highway facility affecting only the accessibility of their business to potential customers. These impacts are complicated further depending upon whether the business is classified primarily as traffic serving, or classified as another retail or service type of business.

Traffic Serving Businesses are those businesses that generally receive a considerable amount of business from the traveling public. They are as follows: gasoline service stations (including the toll type), eating and drinking establishments, and motels, hotels and other temporary lodging places. *Nontraffic Serving Businesses* are all other retail trade and service industry businesses as classified by the U.S. Census Bureau.

The methodology most often used in the literature to measure these impacts was the before-and-after approach. Briefly, the before-and-after research procedure is to analyze an area under an original set of conditions, construct a highway improvement, and then reanalyze the area to determine the impact of the improvement. In the reviewed studies the before period includes a period 2 - 7 years prior to the highways construction, and the after period includes a 2 - 7 year period after construction is completed. In order to minimize the effect of factors external to the highway construction, a control area is often used to measure the general economic effects that are occurring, independent of the construction project. An effort was made to concentrate on those studies in the literature that were fortunate enough to have benefit of control in their research.

Table 7 is a summary of percentage impacts on gross sales that resulted from upgrading an existing highway system, as reported in the literature. The "during construction" column represents the percentage change in gross business sales that was determined to have occurred while the abutting highway facility was under construction. The "before vs after" column represents the impact that occurred after the construction was completed. In both cases mean and range values are reported. By viewing these columns, it should be clear there is considerable variation in the range of impacts, among comparable studies. Thus, it was not obvious what values of change are appropriate to apply to the business sales volume in this research study. Because these studies considered were not all closely comparable, it was concluded that the comparative weighted mean value was an appropriate measure to use in the calculation of estimated gross sales change in this report. The comparative weighted mean is based on a scaled judgement of the characteristics of the types of businesses involved on each route, and its comparability to the cases cited in each of the reports in the literature.

Likewise, Table 8 is a summary of the abutting business gross sales percentage impact resulting from bypassing an existing highway with a limited access freeway as reported in the literature and weighted as described above. There is a large body of published literature published about the effect of bypasses on business communities, however the variation in the range of impacts is similarly large for the various studies.

The *Bypassed Businesses* are those businesses located on the existing route of U.S. Highway 287 which would be completely bypassed by the proposed bypass routes, alternatives 1, 2, and 3. The *Remaining Businesses* are those businesses located on the existing route that would be abutting the proposed improved facility during and after construction of the selected route, but have limited construction activity in front of their property. *Partially Displaced Businesses* are those businesses which would have some property taken for right of way. It could be land only or land and buildings. Some of these businesses could continue to operate without moving back at the same location or moving to a new location. *Displaced Businesses* are those businesses which would have enough land and buildings taken for right of way to completely remove them from their present location. If they have enough remaining abutting land, they could build a new building and

Table 7. Summary of Abutting Business Gross Sales Impact Resulting from Upgrading an Existing Highway System, as reported in the Literature.

STATUS AND TYPE OF BUSINESS ACTIVITY	PERCENTAGE CHANGE			
	DURING CONSTRUCTION[1]		BEFORE VS AFTER CONSTRUCTION[2]	
	RANGE	WEIGHTED MEAN	RANGE	WEIGHTED MEAN
Remaining Businesses				
Traffic serving	-46 to +15	-11	-26 to +27	-6
Other retail/service	-32 to +10	-5	-39 to +19	-5
Partially Displaced Businesses				
Traffic serving	-43 to +17	-12	-23 to +5	-11
Other retail/service	-35 to +31	-4	-97 to +73	-2
Displaced Businesses				
Traffic serving	N/A	N/A	N/A	N/A
Other retail/service	N/A	N/A	N/A	N/A
Abutting Businesses				
Traffic serving	-45 to +16	-11	-25 to +18	-9
Other retail/service	-34 to +19	-5	-67 to +48	-4
Closed Businesses				
Traffic serving	N/A	N/A	-43 to +17	-12
Other retail/service	N/A	N/A	-35 to 31	-4
New Businesses				
Traffic serving	-43 to +17	-12	-23 to +5	-11
Other retail/service	-35 to +31	-4	-97 to+73	-2

[1]Based on the following literature references: 12,17,18,19

[2]Based on the following literature references: 12,17,18,19

Table 8. Summary of Abutting Business Gross Sales Impact Resulting from Bypassing an Existing Highway With a Limited Access Freeway, as reported in the Literature.

STATUS AND TYPE OF BUSINESS ACTIVITY	PERCENTAGE CHANGE			
	DURING CONSTRUCTION[1]		BEFORE VS AFTER CONSTRUCTION[2]	
	RANGE	WEIGHTED MEAN	RANGE	WEIGHTED MEAN
Bypassed Businesses				
Traffic serving	N/A	N/A	-65 to +39	-11
Other retail/service	N/A	N/A	-15 to +55	+10
Remaining Businesses				
Traffic serving	-46 to +15	-11	-13 to +49	+9
Other retail/service	-32 to +10	-5	-13 to +49	+9
Partially Displaced Businesses				
Traffic serving	-43 to +17	-12	-23 to +5	-11
Other retail/service	-35 to +31	-4	-97 to +73	-2
Displaced Businesses				
Traffic serving	N/A	N/A	N/A	N/A
Other retail/service	N/A	N/A	N/A	N/A
Abutting Businesses				
Traffic serving	-45 to +16	-11	-19 to +26	-2
Other retail/service	-34 to +19	-5	-43 to +66	+6
Closed Businesses				
Traffic serving	N/A	N/A	-13 to +49	+9
Other retail/service	N/A	N/A	-13 to +49	+9
New Businesses				
Traffic serving	N/A	N/A	-13 to +49	+9
Other retail/service	N/A	N/A	-13 to +49	+9

[1]Based on the following literature references: 12, 17, 18, 19.

[2]Based on the following literature references: 1,2,3,7,8,9,10,11,12,14,17,18,19.

begin operating again at the same address. It should be noted that in the business analysis and tax revenue analysis sections of this report, the displaced business category includes only those businesses that were open and operating at the beginning of the study. The number of displaced businesses, as reported in the parenthesis in the various tables, does not include those business facilities that were closed and not in operation when the study commenced, but were physically displaced as a result of the highway construction. The *Abutting Businesses* are those businesses located on a proposed route that would be abutting the proposed improved facility during and after construction, where construction activity would occur in front of their property. Those businesses classified as *Other Businesses* are those businesses located in the study area that would be directly affected by one or more of the proposed routes, but not directly affected by the route under consideration. Those businesses classified as *Closed Businesses* are those businesses that either closed before construction or closed during and remained closed after construction of one of the proposed routes. *New Businesses* are those startup businesses that open to business activity during and after construction of one of the proposed routes.

An important component of the business analysis was to determine the number of businesses that would close, and the number of new business ventures that would open. Moreover, the number of businesses that would be displaced, either partially or totally needed to be estimated. Table 9 is a summary of business status changes compiled from reviewing both FHWA and TTI published reports. The results from the research projects summarized in this table indicated a need to estimate the number of closing and opening businesses in this report for each site alternative. The more detailed TTI studies were used in preparing Table 10. This table was used to estimate the number of businesses that would close, and the number of new businesses that would open.

There was no clear procedure addressed in the literature with regards to determining how many of the opening businesses were new construction as opposed to existing businesses that were closed, but began operating after the commencement of the study period. For this reason, it was assumed in this report that existing businesses that were closed, remained closed throughout the study period. The only exception is for those businesses that were

Table 9. Comparative Analysis of Change in Status of Previously Studied Businesses During Study Period for Combined Old and New Routes.

STATUS OF BUSINESS	PERCENT OF BEFORE CONSTRUCTION BUSINESSES	
	TTI[1]	FHWA[2]
Remaining Businesses	85	79
Closing Businesses	15	21
Opening Businesses	35	63

[1] Based on following 8 Texas Transportation Institute (TTI) studies: 4,5,7,8,9,10,14 and 15.

[2] Based on 16 bypass studies analyzed in Federal Highway Administration's (FHWA) 1976 report referenced as 13.

Table 10. Comparative Analysis of Change in Status of Businesses Previously Studied by Route Location.[1]

TYPE AND STATUS OF BUSINESS	PERCENT OF BEFORE CONSTRUCTION BUSINESSES	
	RANGE	WEIGHTED MEAN
OLD ROUTE BUSINESSES		
Traffic Serving Businesses		
Remaining businesses	64-100	82
Closing businesses	0-36	18
Opening businesses	3-33	17
Nontraffic Serving Businesses		
Remaining businesses	75-100	87
Closing businesses	0-25	13
Opening businesses	0-86	34
NEW ROUTE BUSINESSES		
Traffic Serving Businesses		
Remaining businesses	0-3	.4
Closing businesses	0-3	.4
Opening businesses	0-27	11
Nontraffic Serving Businesses		
Remaining businesses	0-8	1
Closing businesses	0-8	1
Opening businesses	0-17	6
COMBINED ROUTE BUSINESSES		
Traffic Serving Businesses		
Remaining businesses	64-100	82
Closing businesses	0-36	18
Opening businesses	7-60	29
Nontraffic Serving Businesses		
Remaining businesses	75-100	88
Closed businesses	0-25	12
Opening businesses	0-88	40

[1]Based on following Texas Transportation Institute by studies: 4,5,7,8,9,10,14 and 15.

vacant or closed at the commencement of the study that would be totally displaced during the construction period. For obvious reasons, these closed businesses were subtracted from the *after* closed business totals. Therefore, those that were opening, were truly new business constructions and not merely existing closed business that began operations or existing businesses that changed ownership.

As mentioned in the introductory section, these findings from the literature review would be relied on heavily in estimating the business impact of the proposed route alternates. Also as previously stated, the data from TxDOT, the State Comptroller's Office, and to a limited extent U.S. Bureau of Census reports, would be used to estimate the 1989 annual gross sales of existing businesses affected by the proposed route alternates. Accordingly, the estimating methodology contains several steps in estimating business gross sales impact as follows:

Step 1. The first step in estimating the impacts on gross business sales of constructing a new highway was to classify the businesses in the study according to business type. Business type refers to whether they were primarily traffic serving, or primarily nontraffic serving retail and/or service oriented businesses. A business classification as either traffic serving or nontraffic serving was independent of the proposed routes. The number of businesses located along U.S. 287, and along or in the right of way of the three proposed bypass route alternates, is classified according to SIC code. TxDOT District 3 personnel were very helpful in furnishing the necessary data for this step.

Step 2. The second step was to classify each business according to its location, and to determine its comparability to the case studies in the literature. This was done for each of the proposed route alternatives. For instance, the status of each business is determined according to which route alternate is constructed. Some of the businesses would be bypassed completely if any one of the three bypass alternatives were implemented. Others would remain abutting the new freeway. Still others would be displaced or partially displaced. Finally, others would still be closed. The list of businesses and how each business would be affected, aerial maps, and proposed route design schematics furnished by the District 3 personnel were needed

to complete this step.

Step 3. The third step was to estimate the average gross sales per business for all businesses of each SIC code. This was done by using 1989 gross sales data obtained from the State Comptroller' Office.

Step 4. In this step, the number of businesses by type and status, as determined in Steps 1 and 2, is multiplied by the average gross sales per business of the corresponding type, as determined in Step 3, to generate the total gross sales of all businesses of that type and status.

Step 5. The next step was to adjust the gross sales amounts and number of businesses to account for closing businesses and for new opening businesses, as well as for those businesses either totally or partially displaced. The data summarized in Tables 9 and 10 were used to estimate these effects. The number of new businesses generated were allocated according to existing sales volume, and adjusted according to the lengths of the old and new highway segments.

Step 6. As the last step, the appropriate percentage change amounts from Tables 7 and 8 were then applied to these gross sales figures calculated in Steps 4 and 5. The result of these calculations were the estimated percentage changes and estimated actual amounts that would occur both during and after construction. This step was repeated for each business classification, each alternative route location, and each status classification.

This concludes the discussion of the methodology used in estimating the impact on business activity. The estimated impact on business activity is presented in the following two sections. The retail and service gross sales impacts are presented first, followed by the impacts on the manufacturing and wholesale firms.

Impact on Gross Sales of Retail and Service Businesses

The estimated route impacts are shown in Tables 11 - 22. These are gross impacts for the specific study area only, and do not account for any net impacts on the city as a whole. The different business status and type classifications are defined in the Definition of Terms section of this report. All of these tables show the estimated annual total gross sales *before* construction of any proposed route alternative by the status and type of business

Table 11. Estimated Retail Business Gross Sales Impact During Construction of Alternative 1.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	10,526(36)	9,579(33)	-947	-9
	Other retail/service	15,521(40)	14,590(38)	-931	-6
	Total	26,047(76)	24,168(70)	-1,879	-7
Remaining Businesses	Traffic serving	336(2)	269(2)	-67	-20
	Other retail/service	3,005(10)	2,674(9)	-331	-11
	Total	3,341(12)	2,943(11)	-398	-12
Partially Displaced Businesses	Traffic serving	308(1)	243(1)	-65	-21
	Other retail/service	3,788(5)	3,409(5)	-379	-10
	Total	4,096(6)	3,653(6)	-443	-11
Displaced Businesses	Traffic serving	1,654(5)	00(0)	-1,654	-100
	Other retail/service	1,370(5)	00(0)	-1,370	-100
	Total	3,024(10)	00(0)	-3,024	-100
Abutting Businesses	Traffic serving	654(2)	523(2)	-137	-21
	Other retail/service	3,180(8)	2,862(8)	-318	-10
	Total	3,834(10)	3,385(10)	-455	-12
Other Businesses	Traffic Serving	168(1)	168(1)		
	Other retail/service	444(2)	444(2)		
	Total	612(3)	612(3)		
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(4)		
	Total	00(0)	00(8)		
New Businesses	Traffic serving	00(0)	1,752(4)	+1,752	
	Other retail/service	00(0)	5,641(12)	+5,641	
	Total	00(0)	7,394(16)	+7,394	
All Businesses	Traffic serving	13,646(47)	12,534(46)	-1,118	-8
	Other retail/service	27,308(70)	29,621(77)	+2,313	+8
	Total	40,954(117)	42,155(123)	+1,194	+3

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 12. Estimated Retail Business Gross Sales Impact After Construction of Alternative 1.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	10,526(36)	6,421(30)	-4,105	-39
	Other retail/service	15,521(40)	15,055(35)	-466	-3
	Total	26,047(76)	21,476(64)	-4,571	-18
Remaining Businesses	Traffic serving	336(2)	306(2)	-30	-9
	Other retail/service	3,005(10)	2,885(9)	-120	-4
	Total	3,341(12)	3,191(11)	-150	-5
Partially Displaced Businesses	Traffic serving	308(1)	188(1)	-120	-39
	Other retail/service	3,788(5)	3,220(4)	-568	-15
	Total	4,096(6)	3,408(5)	-688	-17
Displaced Businesses	Traffic serving	1,654(5)	00(0)	-1,654	-100
	Other retail/service	1,370(5)	00(0)	-1,370	-100
	Total	3,024(10)	00(0)	-3,024	-100
Abutting Businesses	Traffic serving	654(2)	497(2)	-157	-24
	Other retail/service	3,180(8)	2,894(7)	-286	-9
	Total	3,834(10)	3,391(9)	-443	-12
Other Businesses	Traffic Serving	168(1)	00(1)		
	Other retail/service	444(2)	229(2)		
	Total	612(3)	229(3)		
Closed Businesses	Traffic serving	00(0)	00(7)		
	Other retail/service	00(0)	00(8)		
	Total	00(0)	00(15)		
New Businesses	Traffic serving	00(0)	3,504(8)	+3,504	
	Other retail/service	00(0)	11,552(23)	+11,552	
	Total	00(0)	15,056(31)	+15,056	
All Businesses	Traffic serving	13,646(47)	10,916(50)	-2,562	-19
	Other retail/service	27,308(70)	35,834(88)	+8,741	+32
	Total	40,954(117)	46,750(138)	+6,179	+14

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 13. Estimated Retail Business Gross Sales Impact During Construction of Alternative 2.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	11,030(39)	10,037(35)	-993	-9
	Other retail/service	19,075(52)	17,931(49)	-1,145	-6
	Total	30,105(91)	27,968(84)	-2,137	-7
Remaining Businesses	Traffic serving	0	0	0	0
	Other retail/service	222(1)	198(1)	-24	-11
	Total	222(1)	198(1)	-24	-11
Partially Displaced Businesses	Traffic serving	308(1)	243(1)	-65	-21
	Other retail/service	3,912(6)	3,521(6)	-391	-10
	Total	4,220(7)	3,764(7)	-456	-11
Displaced Businesses	Traffic serving	1,654(5)	00(0)	-1,654	-100
	Other retail/service	2,533(6)	00(0)	-2,533	-100
	Total	4,187(11)	00(0)	-4,187	-100
Abutting Businesses	Traffic serving	654(2)	523(2)	-137	-21
	Other retail/service	1,566(5)	1,409(5)	-157	-10
	Total	2,220(7)	1,933(7)	-294	-13
Other Businesses	Traffic Serving	00(0)	00(0)		
	Other retail/service	00(0)	00(0)		
	Total	00(0)	00(0)		
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(4)		
	Total	00(0)	00(8)		
New Businesses	Traffic serving	00(0)	1,774(4)	+1,774	
	Other retail/service	00(0)	5,735(12)	+5,735	
	Total	00(0)	7,509(16)	+7,509	
All Businesses	Traffic serving	13,646(47)	12,578(46)	-1,075	-8
	Other retail/service	27,308(70)	28,793(76)	+1,485	+5
	Total	40,954(117)	41,371(122)	+410	+1

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 14. Estimated Retail Business Gross Sales Impact After Construction of Alternative 2.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	11,030(39)	6,728(32)	-4,302	-39
	Other retail/service	19,075(52)	18,503(45)	-572	-3
	Total	30,105(91)	25,231(77)	-4,874	-16
Remaining Businesses	Traffic serving	0	0	0	0
	Other retail/service	222(1)	213(1)	-9	-4
	Total	222(1)	213(1)	-9	-4
Partially Displaced Businesses	Traffic serving	308(1)	188(1)	-120	-39
	Other retail/service	3,912(6)	3,325(5)	-587	-15
	Total	4,220(7)	3,513(6)	-707	-17
Displaced Businesses	Traffic serving	1,654(5)	00(0)	-1,654	-100
	Other retail/service	2,533(6)	00(0)	-2,533	-100
	Total	4,187(11)	00(0)	-4,187	-100
Abutting Businesses	Traffic serving	654(2)	497(2)	-157	-24
	Other retail/service	1,566(5)	1,425(4)	-141	-9
	Total	2,220(7)	1,922(6)	-298	-13
Other Businesses	Traffic Serving	00(0)	00(0)		
	Other retail/service	00(0)	00(0)		
	Total	00(0)	00(0)		
Closed Businesses	Traffic serving	00(0)	00(8)		
	Other retail/service	00(0)	00(8)		
	Total	00(0)	00(16)		
New Businesses	Traffic serving	00(0)	3,548(8)	+3,548	
	Other retail/service	00(0)	11,742(24)	+11,742	
	Total	00(0)	15,290(32)	+15,290	
All Businesses	Traffic serving	13,646(47)	10,961(50)	-2,685	-20
	Other retail/service	27,308(70)	35,209(88)	+7,901	+29
	Total	40,954(117)	46,170(138)	+5,216	+9

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 15. Estimated Retail Business Gross Sales Impact During Construction of Alternative 3.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	11,030(39)	10,037(35)	-993	-9
	Other retail/service	19,075(52)	17,931(49)	-1,145	-6
	Total	30,105(91)	27,968(84)	-2,137	-7
Remaining Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	222(1)	00(0)	-222	-100
	Total	222(1)	00(0)	-222	-100
Abutting Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Other Businesses	Traffic Serving	2,616(8)	2,616(8)		
	Other retail/service	8,011(17)	8,011(17)		
	Total	10,627(25)	10,627(25)		
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(3)		
	Total	00(0)	00(7)		
New Businesses	Traffic serving	00(0)	1,075(4)	+1,075	
	Other retail/service	00(0)	3,039(9)	+3,039	
	Total	00(0)	4,115(13)	+4,115	
All Businesses	Traffic serving	13,646(47)	13,729(51)	+2,699	+20
	Other retail/service	27,308(70)	28,981(78)	+9,684	+35
	Total	40,954(117)	42,710(129)	+12,383	+30

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 16. Estimated Retail Business Gross Sales Impact After Construction of Alternative 3.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	11,030(39)	6,728(32)	-4,302	-39
	Other retail/service	19,075(52)	18,503(45)	-572	-3
	Total	30,105(91)	25,231(77)	-4,874	-16
Remaining Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	222(1)	00(0)	-222	-100
	Total	222(1)	00(0)	-222	-100
Abutting Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Other Businesses	Traffic Serving	2.616(8)	2,616(8)		
	Other retail/service	8,011(17)	8,011(17)		
	Total	10,627(25)	10,627(25)		
Closed Businesses	Traffic serving	00(0)	00(7)		
	Other retail/service	00(0)	00(7)		
	Total	00(0)	00(14)		
New Businesses	Traffic serving	00(0)	2,151(7)	+2,151	
	Other retail/service	00(0)	6,223(18)	+6,223	
	Total	00(0)	8,374(25)	+8,374	
All Businesses	Traffic serving	13,646(47)	11,495(54)	465	3
	Other retail/service	27,308(70)	32,737(87)	+13,440	+49
	Total	40,954(117)	44,232(141)	+13,905	+53

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 17. Estimated Retail Business Gross Sales Impact During Construction of Alternative 4 (Depressed Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	4884(19)	3907(17)	-977	-20
	Other retail/service	11,018(22)	9,806(21)	-1212	-11
	Total	15,902(41)	13,713(38)	-2189	-14
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	1,188(6)	00(0)	-1,188	-100
	Total	1,188(6)	00(0)	-1,188	-100
Abutting Businesses	Traffic serving	6,146(20)	3,688(18)	-2,458	-40
	Other retail/service	6,764(24)	5,411(23)	-1353	-20
	Total	12,910(44)	9,099(41)	-3811	-30
Other Businesses	Traffic Serving	2,616(8)	2,616(8)		
	Other retail/service	8,338(18)	8,338(18)		
	Total	10,954(26)	10,954(26)		
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(3)		
	Total	00(0)	00(7)		
New Businesses	Traffic serving	00(0)	662(2)	+662	
	Other retail/service	00(0)	1,897(4)	+1,897	
	Total	00(0)	2,559(6)	+2,559	
All Businesses	Traffic serving	13,646(47)	10,873(49)	-2,773	-20
	Other retail/service	27,308(70)	25,452(68)	-1,856	-7
	Total	40,954(117)	36,325(117)	-4,629	-12

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 18. Estimated Retail Business Gross Sales Impact After Construction of Alternative 4 (Depressed Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	4,884(19)	4,444(16)	-440	-9
	Other retail/service	11,018(22)	10,577(19)	-441	-4
	Total	15,902(41)	15,022(35)	-880	-6
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	0	0	0	0
	Other retail/service	1,188(6)	00(0)	-1,188	-100
	Total	1,188(6)	00(0)	-1,188	-100
Abutting Businesses	Traffic serving	6,146(20)	2,889(16)	-3,257	-53
	Other retail/service	6,764(24)	4,667(21)	-2,097	-31
	Total	12,910(44)	7,556(37)	-5,354	-41
Other Businesses	Traffic Serving	2,616(8)	2,1600(8)		
	Other retail/service	8,338(1)	8,338(18)		
	Total	10,954(26)	10,954(26)		
Closed Businesses	Traffic serving	00(0)	(7)		
	Other retail/service	00(0)	(6)		
	Total	00(0)	(13)		
New Businesses	Traffic serving	00(0)	1,434(4)	+1,434	
	Other retail/service	00(0)	3,225(9)	+3,225	
	Total	00(0)	4,659(12)	4,659	
All Businesses	Traffic serving	13,646(47)	11,383(51)	-2,263	-17
	Other retail/service	27,308(70)	26,807(73)	-501	-2
	Total	40,954(117)	38,190(123)	-2,764	-18

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 19. Estimated Retail Business Gross Sales Impact During Construction of Either Alternative 5A or Alternative 5B (Elevated Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	4,884(19)	3,907(17)	-977	-20
	Other retail/service	11,018(22)	9,806(21)	-1212	-11
	Total	15,902(41)	13,713(38)	-2189	-14
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	1,188(6)	00(0)	-1,188	-100
	Total	1,188(6)	00(0)	-1,188	-100
Abutting Businesses	Traffic serving	6,146(20)	4,197(18)	-1,291	-21
	Other retail/service	6,764(24)	6,088(23)	-676	-10
	Total	12,910(44)	11,004(7)	-1,967	-15
Other Businesses	Traffic Serving	2,616(8)	2,616(8)		
	Other retail/service	8,338(18)	8,338(18)		
	Total	10,954(26)	10,954(26)		
Closed Businesses	Traffic serving	00(0)	00(4)	0	0
	Other retail/serv	00(0)	00(3)	0	0
	Total	00(0)	00(6)	0	0
New Businesses	Traffic serving	00(0)	882(3)	+882	
	Other retail/service	00(0)	2,087(6)	+2,087	
	Total	00(0)	2,969(9)	+2,969	
All Businesses	Traffic serving	13,646(47)	12,322(50)	-1,385	-10
	Other retail/service	27,308(70)	26,318(70)	-990	-4
	Total	40,954(117)	38,641(120)	-2,375	-6

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 20. Estimated Retail Business Gross Sales Impact After Construction of Either Alternative 5A or Alternative 5B (Elevated Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	4,884(19)	4,444(16)	-440	-9
	Other retail/service	11,018(22)	10,577(19)	-441	-4
	Total	15,902(41)	15,022(35)	-880	-6
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	1,188(6)	00(0)	-1,188	-100
	Total	1,188(6)	00(0)	-1,188	-100
Abutting Businesses	Traffic serving	6,146(20)	4,671(16)	-1,475	-24
	Other retail/service	2,507(5)	6,155(21)	-609	-9
	Total	3,161(7)	10,826(37)	-2,084	-16
Other Businesses	Traffic Serving	2,616(8)	2,616(8)		
	Other retail/service	8,338(18)	8,338(18)		
	Total	10,954(26)	10,954(26)		
Closed Businesses	Traffic serving	00(0)	00(7)		
	Other retail/service	00(0)	00(6)		
	Total	00(0)	00(13)		
New Businesses	Traffic serving	00(0)	1,655(5)	+1,655	
	Other retail/service	00(0)	3,225(13)	+3,225	
	Total	00(0)	4,879(18)	+4,879	
All Businesses	Traffic serving	13,646(47)	13,386(52)	-260	-2
	Other retail/service	27,308(70)	28,295(77)	+987	+4
	Total	40,954(117)	41,681(129)	+129	+2

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 21. Estimated Retail Business Gross Sales Impact During Construction of Alternative 5C (Elevated Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	4,716(18)	3,773(16)	-943	-20
	Other retail/service	11,018(22)	9,806(21)	1,212	-11
	Total	15,734(40)	13,579(37)	-2,155	-14
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	1,410(7)	00(0)	-1,410	-100
	Total	1,410(7)	00(0)	-1,410	-100
Abutting Businesses	Traffic serving	6,314(21)	5,051(19)	-1,326	-21
	Other retail/service	6,542(23)	5,888(22)	-654	-10
	Total	12,856(44)	10,939(41)	-1,980	-15
Other Businesses	Traffic Serving	2,616(8)	2,616(8)		
	Other retail/service	8,338(18)	8,338(18)		
	Total	10,954(26)	10,954(26)		
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(3)		
	Total	00(0)	00(7)		
New Businesses	Traffic serving	00(0)	882(3)	+882	
	Other retail/service	00(0)	2,087(6)	+2,087	
	Total	00(0)	2,969(9)	+2,969	
All Businesses	Traffic serving	13,646(47)	12,322(50)	-1,387	-10
	Other retail/service	27,308(70)	26,119(69)	-1,189	-4
	Total	40,954(117)	38,441(119)	-2,576	-6

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 22. Estimated Retail Business Gross Sales Impact After Construction of Alternative 5C (Elevated Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	4,716(18)	4,292(15)	-424	-9
	Other retail/service	11,018(22)	10,577(19)	-441	-9
	Total	15,734(40)	14,869(34)	-865	-5
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	1,410(7)	00(0)	-1,410	-100
	Total	1,410(7)	00(0)	-1,410	-100
Abutting Businesses	Traffic serving	6,314(21)	4,799(17)	-1,515	-24
	Other retail/service	6,542(23)	5,953(20)	-589	-9
	Total	12,856(44)	10,752(37)	-2,104	-16
Other Businesses	Traffic Serving	2,616(8)	2,616(8)		
	Other retail/service	8,338(18)	8,338(18)		
	Total	10,954(26)	10,954(26)		
Closed Businesses	Traffic serving	00(0)	00(7)		
	Other retail/service	00(0)	00(6)		
	Total	00(0)	00(13)		
New Businesses	Traffic serving	00(0)	1,655(7)	+1,655	
	Other retail/service	00(0)	3,225(18)	+3,225	
	Total	00(0)	4,879(24)	+4,978	
All Businesses	Traffic serving	13,646(47)	13,361(54)	-285	-2
	Other retail/service	27,308(70)	28,093(81)	+785	+3
	Total	40,954(117)	41,454(134)	+500	+1

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

in the first column. Tables 11, 13, 15, 17, 19, and 21 also show the estimated *during* construction gross sales in the second column, the actual or absolute amount of change *during* construction in the third column, and the percentage change *during* construction in the last column. Table 11 reports this information for the alternative 1 bypass. Table 13 reports this information for the alternative 2 bypass. And, Table 15 reports this information for the alternative 3 bypass route. For instance, Table 11 summarizes the abutting business gross sales impact during construction on alternative 1, by business type; Table 13 summarizes the abutting business gross sales impact during construction on the alternative 2 route; and, Table 15 summarizes the abutting business gross sales impact during construction on the alternative 3 route. The during construction impact on businesses of constructing the depressed route, route alternative 4, is shown in Table 17. The during construction impact on businesses of constructing the elevated route, alternatives 5A, 5B, and 5C, are shown in Tables 19 and 21. As stated in the earlier portion of the report detailing the differences between the proposed route alternatives (see pages 11-19 and Figures 2-7), the only difference between the three versions of alternative 5 are the manner in which the new highway is connected to the existing highway and the accompanying method of access.

Recall, alternative 5A would be a traditional connection with no additional access ramps; alternative 5B would connect across the top of the existing access ramps, with no additional access ramps constructed; and alternative 5C would have a modified traditional connection, with additional direct access ramps to 5th and 6th streets. Consequently the construction impact on alternatives 5A and 5B would be the same. These impacts of the during construction period are summarized in Table 19. Table 21 summarizes them for alternative 5C.

Tables 12, 14, 16, 18, 20, and 22 show the estimated *after* construction gross sales in column 2, the actual or absolute amount of change *after* construction in column 3, and the percentage change *after* construction in column 4. Table 12 summarizes this information for the bypass alternative 1. Table 14 shows this information for the bypass alternative 2 route. And Table 16 shows this information for the bypass alternative 3 route. Again, for

illustration, Table 12 summarizes the abutting business gross sales impact after construction on the alternative 1 route by business type; Table 14 summarizes the abutting business gross sales impact after construction on the alternative 2 route; and, Table 16 summarizes the abutting business gross sales impact after construction on the alternative 3 route. Table 20 shows the after construction impacts for alternatives 5A and 5B, whereas, Table 22 shows the impacts for alternative 5C.

Tables 23 and 24 show the combined totals by type of business for each route alternative. Table 23 shows the before versus during construction estimated gross sales, and Table 24 shows the before versus after construction estimated gross sales. These two tables are summaries of the "All Businesses" totals at the bottom of Tables 11 - 22.

A review of these tables indicates that the before construction gross sales estimates for each route varies depending upon how the 117 retail and service businesses are grouped within the six possible categories. The six categories are defined in detail in the definitions section of this report. The "other business" type category is for those businesses that are not directly impacted by that particular alternative but are affected by one or more of the other alternatives. Of course, the total gross sales estimates during and after construction are different due to the differential effects brought about by choosing a different route alternative. These differential effects are more clearly shown in the route alternative summary tables, Tables 23 and 24.

Table 23 shows that the proposed depressed route, alternative 4, would be impacted more negatively than the other proposed alternatives. Also it is not surprising that in all alternatives, traffic serving businesses would be affected more negatively than the nontraffic serving businesses, especially for the non bypass alternatives. During construction all of the bypass routes are expected to show positive impacts on gross sales, whereas, all of the downtown alternatives are expected to experience a decrease in sales. This decrease would seem to be a result of the increased construction congestion and inconvenience to business patrons. The depressed route would cause the greatest inconvenience and the most congestion because it is anticipated that traffic would be detoured from the immediate construction area for considerable lengths of time. These overall results in expected changes during construction are presented graphically in Figure 12.

Table 23. Summary of Estimated Abutting Business Gross Sales Impact During Construction, by Location Alternative and Type of Business.

CITY AND TYPE OF BUSINESS	ESTIMATED GROSS SALES		ESTIMATED CHANGE	
	BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Alternative 1 Businesses				
Traffic serving	13,646(47)	12,534(46)	-1,118	-8
Other retail/service	27,308(70)	29,621(77)	+2,3136	+8
Total	40,954(117)	42,155(123)	+1,1941	+3
Alternative 2 Businesses				
Traffic serving	13,646(47)	12,578(46)	-1,075	-8
Other retail/service	27,308(70)	28,793(76)	+1,478	+5
Total	40,954(117)	41,371(122)	+410	+1
Alternative 3 Businesses				
Traffic serving	13,646(47)	13,729(51)	+2,699	+20
Other retail/service	27,308(70)	28,981(78)	+9,684	+35
Total	40,954(117)	42,710(129)	+12,383	+30
Alternative 4 Businesses				
Traffic serving	13,646(47)	10,873(49)	-2,773	-20
Other retail/service	27,308(70)	25,452(68)	-1,856	-7
Total	40,954(117)	36,325(117)	-4,629	-12
Alternative 5A or 5B Businesses				
Traffic serving	13,646(47)	12,322(50)	-1,385	-10
Other retail/service	27,308(70)	26,318(70)	-990	-4
Total	40,954(117)	38,641(120)	-2,375	-6
Alternative 5C Businesses				
Traffic serving	13,646(47)	12,322(50)	-1,385	-10
Other retail/service	27,308(70)	26,119(69)	-1,189	-4
Total	40,954(117)	38,441(119)	-2,576	-6

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 7, 8, 10, and 11.

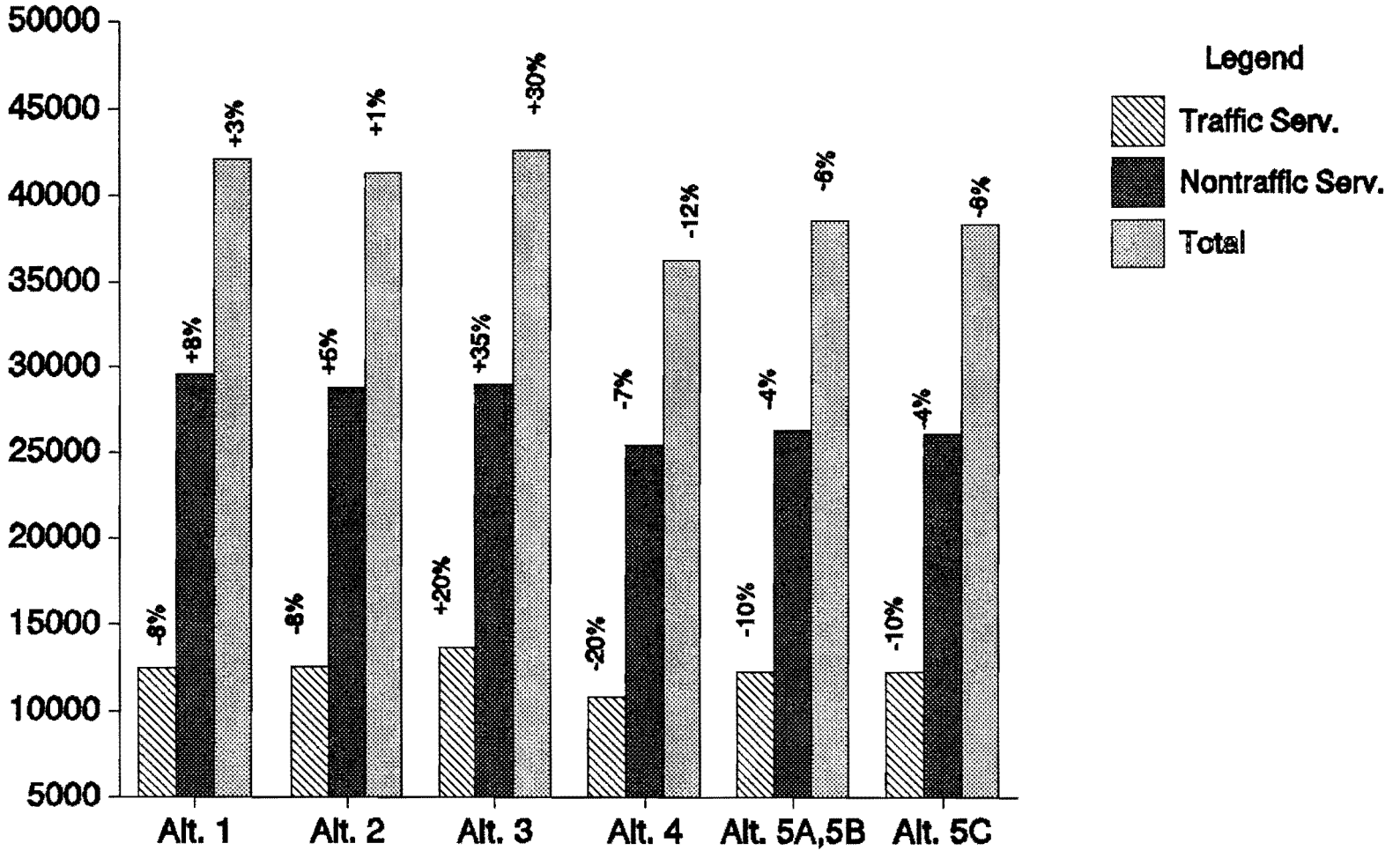
Table 24. Summary of Estimated Abutting Business Gross Sales Impact After Construction, by Location Alternative and Type of Business.

CITY AND TYPE OF BUSINESS	ESTIMATED GROSS SALES		ESTIMATED CHANGE	
	BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Alternative 1 Businesses				
Traffic serving	13,646(47)	10,916(50)	-2,562	-19
Other retail/service	27,308(70)	35,834(88)	+8,741	+32
Total	40,954(117)	46,750(138)	+6,179	+14
Alternative 2 Businesses				
Traffic serving	13,646(47)	10,961(50)	-2,685	-20
Other retail/service	27,308(70)	35,209(88)	+7,901	+29
Total	40,954(117)	46,170(138)	+5,216	+9
Alternative 3 Businesses				
Traffic serving	13,646(47)	11,495(54)	+465	+3
Other retail/service	27,308(70)	32,737(87)	+13,440	+49
Total	40,954(117)	44,232(141)	+13,905	+53
Alternative 4 Businesses				
Traffic serving	13,646(47)	11,383(51)	-2,263	-17
Other retail/service	27,308(70)	26,807(73)	-501	-2
Total	40,954(117)	38,190(123)	-2,764	-18
Alternative 5A or 5B Businesses				
Traffic serving	13,646(47)	13,386(52)	-260	-2
Other retail/service	27,308(70)	28,295(77)	+987	+4
Total	40,954(117)	41,681(129)	+129	+2
Alternative 5C Businesses				
Traffic serving	13,646(47)	13,361(54)	-285	-2
Other retail/service	27,308(70)	28,093(81)	+785	+3
Total	40,954(117)	41,454(134)	+500	+1

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 7, 8, 10, and 11.

FIGURE 12. ESTIMATED GROSS SALES (1989) IMPACT DURING CONSTRUCTION BY TYPE OF BUSINESS AND PROPOSED ROUTE.



Note: Percent (%) represents percentage change based on before construction sales.

Source: Estimate based on average sales per firm in each SIC classification by study route in question as reported by the State Comptroller.

The after construction total impact as shown in Table 24 is much more positive for all the proposed route alternatives except for alternative 4. This depressed route is expected to show a negative impact of 18 percent, compared to the negative 12 percent decrease during construction as just discussed. The elevated routes show a slight positive increase regardless of the method of connection and the level of access. All three of the bypass alternatives are expected to have overall positive impacts on gross business sales, even though the traffic serving businesses are expected to be negatively affected 19 percent for alternative 1, and 20 percent for alternative 2. Figure 13 graphically shows these after construction impact changes by route and business type classifications.

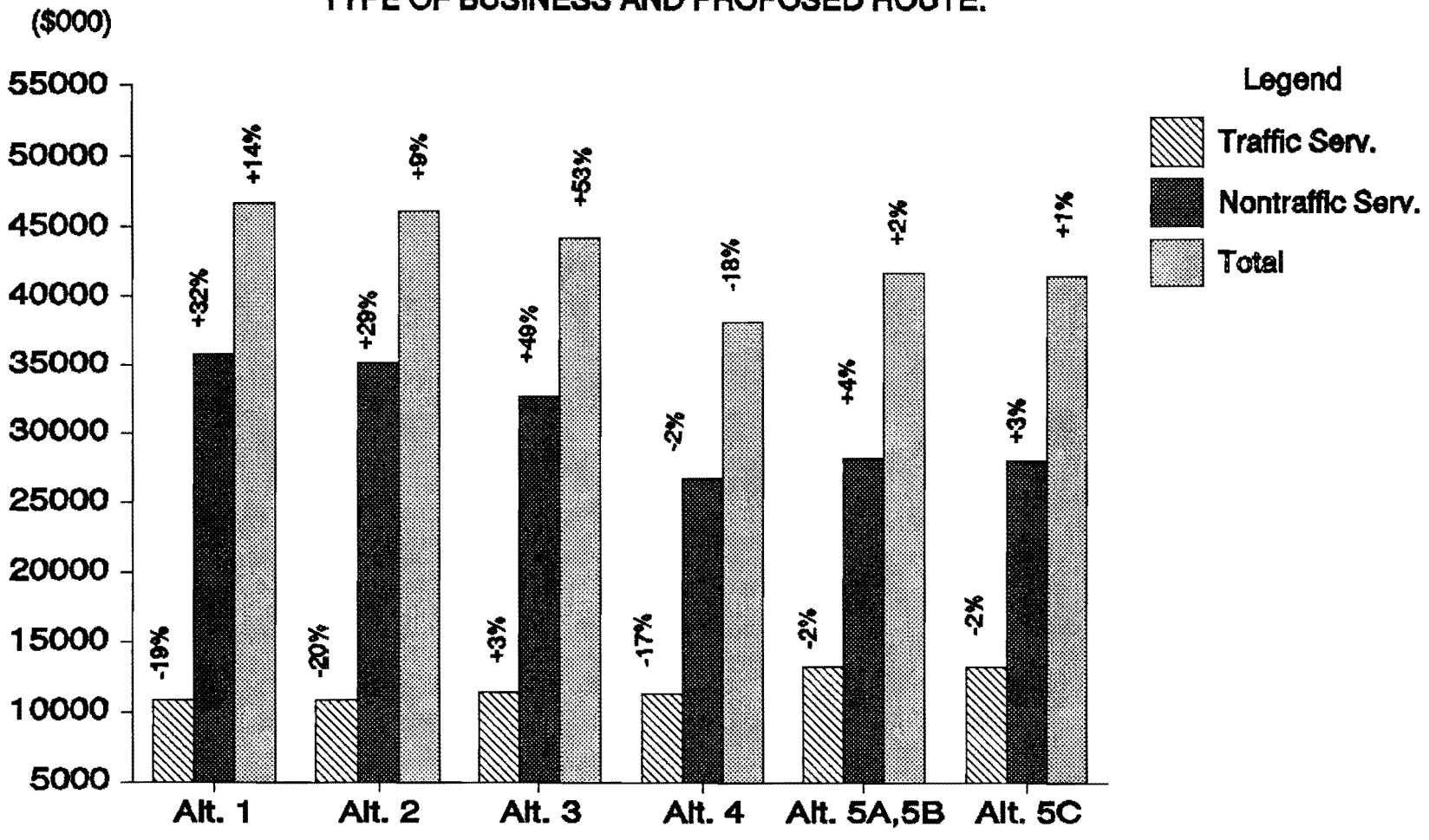
These results are consistent with the conventional wisdom discussed in the introductory section, that the existing traffic serving business are negatively impacted with the construction of a bypass because their potential customers are diverted away from their businesses. On the other hand, the existing non traffic serving businesses are positively affected by the construction of a bypass because of the decrease in congestion, increase in parking, etc. that is expected to follow.

Impact on Gross Sales of Wholesale and Manufacturing Businesses

In order to maintain privacy requirements, and not disclose sales information for any given business establishment, it was necessary to combine the sales data from businesses such that the sales from individual businesses could not be distinguishable. Table 25 is the business activity comparison of the study routes gross sales of wholesale and manufacturing businesses during construction. The results parallel those of the retail and service businesses, however the magnitude of the impacts are smaller because as a general rule manufacturing and wholesale firms are not as sensitive to highway improvements as are retail businesses.

The after construction impacts by route are shown in Table 26 for the wholesale and manufacturing firms. The results are positive regardless of the alternative constructed, with alternative 1 having the greatest impact at 13 percent and alternative 2 the least impact at 4 percent.

FIGURE 13. ESTIMATED GROSS SALES (1989) IMPACT AFTER CONSTRUCTION BY TYPE OF BUSINESS AND PROPOSED ROUTE.



Note: Percent (%) represents percentage change based on before construction sales.

Source: Estimate based on average sales per firm in each SIC classification by study route in question as reported by the State Comptroller.

Table 25. Estimated Gross Sales Impact on Wholesale and Manufacturing Firms During Construction.

ROUTE ALTERNATIVE AND TYPE OF IMPACT ON FIRM		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Route 1	Bypassed	4,532(4)	4,396(4)	-136	-3
	Partially Displaced	5,755(5)	5,467(5)	-288	-5
	Abutting	7,991(7)	7,671(6)	-320	-4
	Closed	00(0)	00(1)	0	
	New	00(0)	2,376(2)	+2,376	
	All Firms	18,278(16)	19,911(18)	+1,633	+9
Route 2	Bypassed	1,133(1)	1,1099(1)	-34	-3
	Remaining	1,133(1)	1,076(1)	-57	-5
	Partially Displaced	4,622(4)	4,391(4)	-231	-5
	Displaced	1,133(1)	00(0)	-1,133	-100
	Abutting	6,858(6)	6,584(5)	-274	-4
	Other	3,399(3)	3,399(3)	0	0
	Closed	00(0)	00(2)	0	0
	New	00(0)	1,934(2)	+1,934	
	All Firms	118,278(16)	18,483(17)	205	1
Route 3	Bypassed	16,012(14)	15,532(13)	-480	-3
	Abutting	2,266(2)	2,175(2)	-91	-4
	Closed	00(0)	00(1)	0	0
	New	00(0)	2,376(2)	+2,376	
	All Firms	18,278(16)	20,083(18)	+1,805	+10
Routes 4, 5A, 5B, 5C	Remaining	4,532(4)	4,305(4)	-227	-5
	Abutting	1,133(1)	1,088(1)	-45	-4
	Other	12,613(11)	12,613(11)	0	0
	New	00(0)	736(1)	+736	
	All Firms	18,278(16)	18,743(16)	+465	+3

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on the appropriate mean percentage gross sales impact shown in Tables 8 and 10. The number of new firms is based on the findings, summarized in Table 10, of seven bypass studies conducted in Texas.

Table 26. Estimated Gross Sales Impact on Wholesale and Manufacturing Firms After Construction.

ROUTE ALTERNATIVE AND TYPE OF IMPACT ON FIRM		ESTIMATED GROSS SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Route 1	Bypassed	4,532(4)	4,713(3)	+181	4
	Partially Displaced	5,755(5)	5,352(4)	-403	-7
	Abutting	7,991(7)	7,911(6)	-80	-1
	Closed	00(0)	00(3)	0	
	New	2,376(2)	2,614(3)	+2,614	
	All Firms	18,278(16)	20,590(19)	+2,312	+13
Route 2	Bypassed	1,133(1)	1,178(1)	+45	4
	Remaining	1,133(1)	1,167(1)	+34	3
	Partially Displaced	4,622(4)	4,298(3)	-324	-7
	Displaced	1,133(1)	00(0)	-1,133	-100
	Abutting	6,858(6)	6,789(5)	-69	-1
	Other	3,399(3)	3,399(3)	0	0
	Closed	00(0)	00(0)	0	0
	New	00(0)	2,128(2)	+2,128	
	All Firms	18,278(16)	18,960(15)	+682	+4
Route 3	Bypassed	16,012(14)	16,652(11)	+640	+4
	Abutting	2,266(2)	2,243(2)	-23	-1
	Closed	00(0)	00(1)	0	0
	New	00(0)	2,614(3)	+2,614	
	All Firms	18,278(16)	21,510(17)	+3,232	+8
Routes 4, 5A, 5B, 5C	Remaining	4,532(4)	4,668(3)	+136	+3
	Abutting	1,133(1)	1,122(1)	-11	-1
	Other	12,613(11)	12,613(11)	0	0
	New	00(0)	810(1)	+810	
	All Firms	18,278(16)	19,213(16)	+935	+5

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on the appropriate mean percentage gross sales impact shown in Tables 8 and 10. The number of new firms is based on the findings, summarized in Table 10, of seven bypass studies conducted in Texas.

IMPACT ON LAND USE AND DEVELOPMENT

There is a very close relationship between land uses and land values. If land values change very much, land uses are likely to change later. Previous studies have proven that a new freeway in an area, whether located along the existing route of an existing highway or on a new location that bypasses or parallels the existing highway for some distance, will change peoples's accessibility to the abutting or nearby property. The increased accessibility causes a change in the during and after construction period land values which will ultimately cause a change in land uses. The speed of such a change will largely depend upon the types of abutting and nonabutting use and how densely they are developed. Also, the presence of an adequate cross-street or road system that frequently interchanges with the new facility will heavily influence how far away from the new or improved highway that land values and land uses will be affected. Wichita Falls should be no exception to these general principles governing land value and use changes.

Estimating Methodology

Figure 14 shows the 1984 land use plan for the City of Wichita Falls, and the location of the proposed route alternatives for U.S. Highway 287 are also shown on this land use plan. In most cases, the actual land uses correspond closely with the planned land uses of land abutting or near the proposed routes. Therefore, this land use plan is assumed to be an accurate representation of the present land uses on the ground.

District 3 right of way personnel furnished an estimate of the amount of right of way that would be needed for each route alternative and which property improvements that would have to be taken by type of improved property. Prior studies were used to estimate the number of new improved properties of each type for each route alternative. Tables 27-29 show the estimates made from selected studies, most of which were conducted in Texas. Most of these studies are summarized different publications [11,13,22].

The estimated impact on the number of abutting acres in each type of land use involves a 300 foot width strip all along each side of the existing right of way of each route alternative for all uses, except that a 150 foot strip for residential use for alternatives 1,2,4 and 5. A 300 foot strip is used for rural residential tracts along alternative 3, because such

Figure 14.

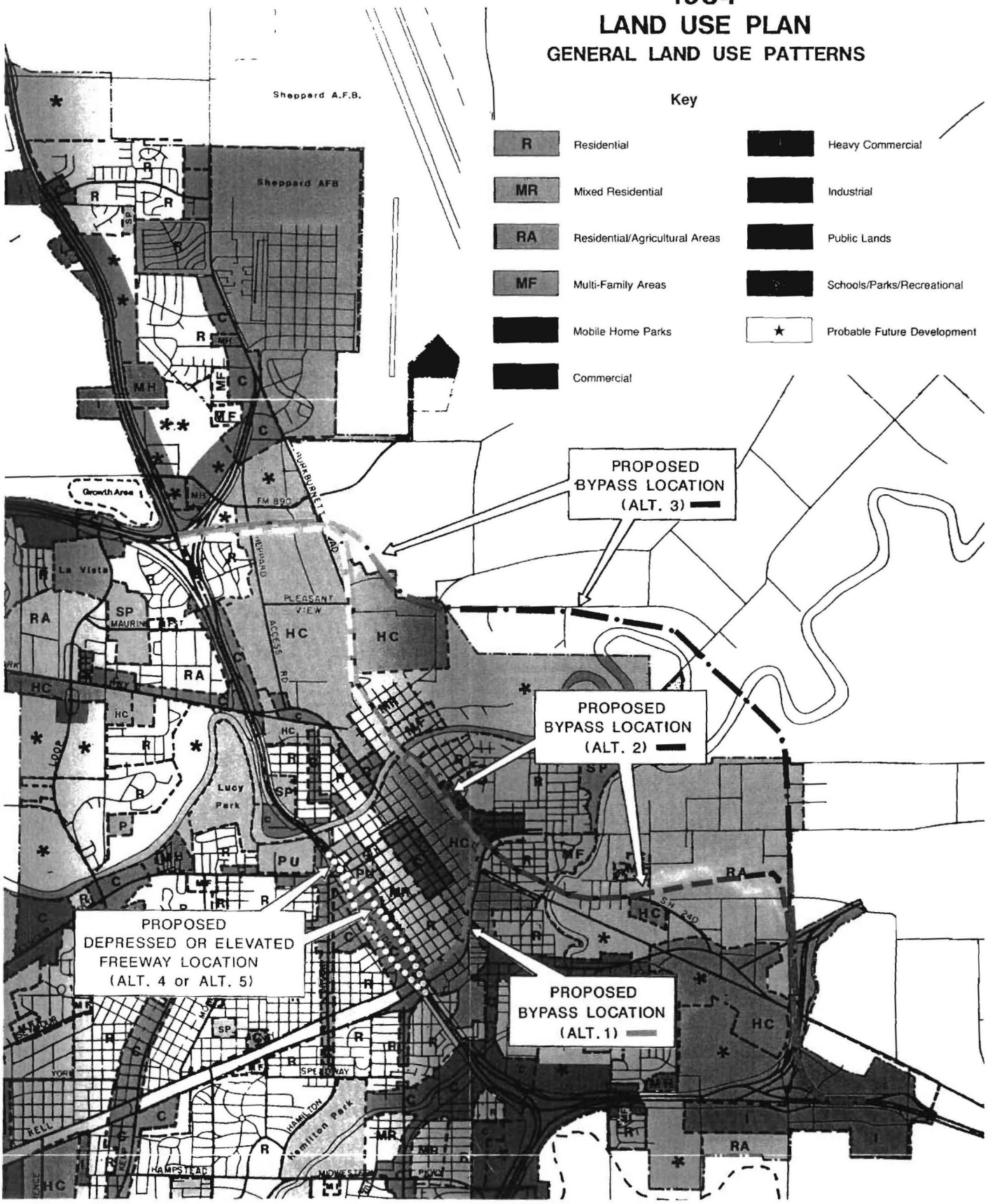

WICHITA FALLS
1984
LAND USE PLAN
GENERAL LAND USE PATTERNS
Key
R Residential
MR Mixed Residential
RA Residential/Agricultural Areas
MF Multi-Family Areas
Mobile Home Parks
Commercial
Heavy Commercial
Industrial
Public Lands
Schools/Parks/Recreational
Probable Future Development
Sheppard A.F.B.
Sheppard AFB
PROPOSED BYPASS LOCATION (ALT. 3)
PROPOSED BYPASS LOCATION (ALT. 2)
PROPOSED DEPRESSED OR ELEVATED FREEWAY LOCATION (ALT. 4 or ALT. 5)
PROPOSED BYPASS LOCATION (ALT. 1)
Growth Area
La Vista
Lucy Park
Hamilton Park
PLEASANT VIEW
ACCESS RD.
SH 240

Table 27. Percentage Changes Used to Estimate Number of New Abutting Improved Properties Resulting from Building a Limited Access Freeway Bypass Along S.H. 240 (Eastside Dr.) by Type of Land Use and Time Period.

LOCATION AND TYPE OF LAND USE	PERCENTAGE CHANGE BEFORE VS AFTER CONSTRUCTION[1]		
	RANGE	MEAN	PERCENT USED
Freeway on S.H. 240 (Alternative 1)			
Commercial/industrial	0 to +20	+8	+8
Residential	0 to +25	+8	+51
Public/nonprofit	0 to +50	+21	+18
Freeway on S.H. 240 (Alternative 2)			
Commercial/industrial	0 to +32	+7	+7
Residential	0 to +25	+8	+7
Public/nonprofit	0 to +50	+21	+20
Bypassed Section of U.S. 287 (Alternative 1)			
Commercial/industrial	+2 to +81	+37	+37
Residential	-7 to +21	-3	+1
Public/nonprofit	0 to +100	+29	+20
Bypassed Section of U.S. 287 (Alternative 2)			
Commercial/industrial	+1 to +73	+30	+30
Residential	-7 to +25	-0	+3
Public/nonprofit	0 to +100	+40	+30

[1] Based on percentages of impact on each land use as indicated by appropriate combinations of the following previous studies: [4, 5, 6, 7, 8, 9, 19, 14, 15].

Table 28. Percentage Changes Used to Estimate Number of New Abutting Improved Properties Resulting from Building a Limited Access Freeway Bypass on New Location by Type of Land Use and Time Period.

LOCATION AND TYPE OF LAND USE	PERCENTAGE CHANGE BEFORE VS AFTER CONSTRUCTION[1]		
	RANGE	MEAN	PERCENT USED
Freeway on New Location (Alternative 3)			
Commercial/industrial	0 to +20	+8	+8
Residential	+13 to +300	+78	+75
Public/nonprofit	0 to +50	+21	+20
Bypassed Section of U.S. 287 (Alternative 3)			
Commercial/industrial	+1 to +71	+29	+29
Residential	-7 to +21	-3	+1
Public/nonprofit	0 to +100	+40	+30

[1] Based on percentages of impact on each land use as indicated by appropriate combinations of the following previous studies: [4, 5, 6, 7, 8, 9, 10, 14, 15].

Table 29. Percentage Changes Used to Estimate Number of New Abutting Improved Properties Resulting from Building a Depressed or Elevated Limited Access Freeway Along Holliday and Broad Streets on U.S. Highway 287 by Type of Land Use and Time Period.

LOCATION AND TYPE OF LAND USE	PERCENTAGE CHANGE BEFORE VS AFTER CONSTRUCTION[1]		
	RANGE	MEAN	PERCENT USED
Depressed Freeway (Route 4)			
Commercial/industrial	+1 to +70	+29	+6
Residential	-7 to +25	0	+2
Public/nonprofit	0 to +100	+40	+30
Elevated Freeway (Route 5)			
Commercial/industrial	+1 to +71	+29	+27
Residential	-7 to +25	0	-3
Public/nonprofit	0 to +100	+40	+15
Existing Freeway (Routes 4 or 5)			
Commercial/industrial	+2 to +78	+37	+28
Residential	-7 to +21	-3	+5
Public/nonprofit	0 to +100	+29	+20

[1] Based on percentages of impact on each land use as indicated by appropriate combinations of the following previous studies; [4, 5, 6, 7, 8, 9, 10, 14, 15, 20].

tracts have greater depth than urban residential tracts along the other alternative routes. Also, where there is no exist street or road for the proposed route to follow, the two abutting study strips merge together.

From the above data, one can estimate the land use impact on abutting properties involved in each route alternate.

Estimated Impact on Abutting Property Use

The before and after construction land use impacts for each route alternate are presented below.

Impact on Number of Improved Properties

Tables 30-31 show the impact on the number of improved properties for each route alternative. The changes in the number and percentage of improved properties are shown in the two right hand columns. The magnitude of these changes varies by route alternative and by land use, even for each route. Only alternatives 1 and 2 would experience a net decrease in the number of improved properties, with alternative 2 showing the most decrease. These results mean that the displacement impact would be greater than the replacement impact for alternatives 1 and 2. For the other route alternatives, the opposite results would occur, with alternative 3 showing the greatest net increase in improved properties.

Only alternative 1 shows a decline in the number of improved properties by land use, with that decline being in residential and public/nonprofit uses. This total result would occur notwithstanding the significant increase in the number of commercial/industrial properties for this route alternative. Being one of the bypass route alternatives that passes through residential area, it would displace quite a few residences.

Impact on Abutting Acreage

Table 32 shows the impact of each route alternative on the abutting acreage in each land use due to the estimated amount of right of way that would be within the study strip. Of the route alternatives, alternative 3 would cause the greatest reduction in acreage, with most of it being vacant land. Alternatives 1 and 2 would also take large acreages, with most it being in commercial/industrial use.

Alternatives 4 and 5 would cause very little reduction is acreage within the study

Table 30. Estimated Land Use Impact on the Number of Improved Properties for Route Alternatives 1-4 by Land Use.

Route Alternative/ Land Use	Before Construction	Displaced[1]	New[2]	After Construction	Change Before vs. After	
Alternative 1					Number	Percentage
Commercial/ Industrial	130	10	34	154	24	18.4
Residential	104	35	3	72	-32	-31
Public/ Nonprofit	10	2	2	10	-.06	-.6
Total	244	47	39	236	-8	-3.4
Alternative 2						
Commercial/ Industrial	130	12	34	152	22	16.9
Residential	109	38	5	76	-33	-30.4
Public/ Nonprofit	10	2	3	11	.7	7
Total	249	52	42	239	-10	-4.2
Alternative 3						
Commercial/ Industrial	108	1	28	135	27	25
Residential	99	13	22	108	9	9.5
Public/ Nonprofit	7	0	2	9	2	30
Total	214	14	53	253	39	18
Alternative 4						
Commercial/ Industrial	96	6	14	104	8	8.3
Residential	65	0	3	68	3	5
Public/ Nonprofit	10	0	3	13	3	26
Total	171	6	20	185	14	8

[1] The number of displaced properties was estimated by District 3 Personnel.

[2] The number of new properties was estimated from prior studies.

Table 31. Estimated Land Use Impact on the Number of Improved Properties for Route Alternatives 5a -5c by Land Use.

Route Alternative/ Land Use	Before Construction	Displaced[1]	New[2]	After Construction	Change Before vs. After	
					Number	Percentage
Alternative 5a						
Commercial/ Industrial	96	6	19	109	13	14
Residential	65	0	3	68	3	5
Public/ Nonprofit	10	0	2	12	2	17
Total	171	0	24	189	18	10
Alternative 5b						
Commercial/ Industrial	96	6	319	109	13	14
Residential	65	0	3	68	3	5
Public/ Nonprofit	10	0	2	12	2	17
Total	171	0	24	189	18	10
Alternative 5c						
Commercial/ Industrial	96	7	26	115	19	20
Residential	65	0	3	68	3	5
Public/ Nonprofit	10	0	2	12	2	17
Total	171	0	31	195	24	14

[1] The number of displaced properties was estimated by District 3 Personnel

[2] The number of new properties was estimated from prior studies.

Table 32. Estimated Land Use Impact on the Acreage of Abutting Band of Property due to Land Taken for Right of Way by Land Use.[1]

Route Alternative and Land Use	Before Construction	After Construction	Change in Acreage	
			Number	Percent
ALTERNATIVE 1				
Commercial/Industrial	313.49	189.25	-124.24	-39.63
Residential	50.67	10.51	-40.16	-79.26
Public/Nonprofit	2.93	1.77	-1.16	-39.59
Vacant Land	18.77	11.33	-7.44	-39.64
Total	385.86	212.86	-173	-44.83
ALTERNATIVE 2				
Commercial/Industrial	324.05	187.66	-136.39	-42.09
Residential	132.43	20.95	-111.48	-84.18
Public/Nonprofit	2.93	1.7	-1.23	-41.98
Vacant Land	18.77	10.87	-7.9	-42.09
Total	478.18	221.18	-257	-53.75
ALTERNATIVE 3				
Commercial/Industrial	226.69	88.72	-137.97	-60.86
Residential	80.35	21.81	-58.54	-72.86
Public/Nonprofit	0	0	0	0
Vacant Land	301.47	117.98	-183.49	-60.87
Total	576.25	228.51	-380	-62.45
ALTERNATIVE 4, 5				
Commercial/Industrial	84.46	81.71 5c) 81.25	-2.75 5c) -3.21	-3.26 5c) -3.80
Residential	1.17	1.17	0	0
Public/Nonprofit	27.27	27.27	0	0
Vacant Land	0	0	0	0
Total	112.9	110.15 5c) 109.69	-2.75 5c) -3.21	-2.44 5c) -2.84

[1] Reduction in acreage is based on the linear miles of right of way in each planned land use shown in Figure 14 of a strip of land 300 feet wide for all uses, except 150 feet for residential use, on each side of the existing roads involved in each alternative. For Alternative 3, the strip is also 300 feet wide for rural residential use.

strip. All of the reduction in acreage for these alternatives would come from commercial/industrial properties.

Estimated Impact on Nonabutting Property Use

In general, abutting tracts change uses much more rapidly than do nonabutting tracts. This conclusion is supported by the cited impact studies. In those studies, significant quantities of land not abutting the new bypass routes changed from agricultural or idle use to rural residential, urban residential or commercial/or industrial.

Since there is a considerable amount of vacant land not abutting the proposed alternative 3 in the present study area, the development of much of this land is likely to be accelerated. Such development would most likely occur near the major interchanges where there is cross-street access. New shopping centers and industrial firms would likely locate there.

IMPACT ON PROPERTY VALUES

This section of the report presents the detailed procedures used to estimate the impact of each of the U.S. Highway 287 project's route alternatives on abutting property values in the study area as well as present the findings resulting from following such procedures. The primary data sources are essentially covered in the first section of the report. However, the sources of more specific data used, such as literature sources or references, types of data obtained from District 3 personnel, the City of Wichita Falls and other state agencies are documented throughout this section, either in the text and/or in footnotes at the bottom of the tables.

Estimating Methodology

It is a real challenge to estimate the impact of a proposed highway improvement on property uses, values and land development. This is especially the case with the U.S. Highway 287 study where two of the proposed route alternatives use the existing route, one being a depressed freeway and the other an elevated freeway. On the other hand, two of the three proposed bypass route alternatives would bypass a large section of the existing route. Also, the other bypass alternative would leave U.S. Highway 287 at a different place on the north side of Wichita Falls. Therefore, the before construction land uses and values have to be estimated separately for different sections of each route alternative.

The land value analysis uses the same study strip for each route alternative as defined for use in the land use analysis. The estimated value of the existing abutting property serves as the base for estimating the proposed route impacts on property values and represents the value of the abutting property immediately after taking, if any, of right of way. It is assumed that, in most cases, the land uses and values of the new abutting property are the same as those of the existing abutting property. The value of the property that would be taken for right of way is estimated separately, so that it can be subtracted from the before construction value of the newly abutting strip of properties.

It is difficult to determine the after taking use and value of the newly created abutting properties, especially since some of these properties will be remainders of partial takings. A partial taking may be damaged in some way, needing an adjustment to its value after taking. Of course, where little or no right of way would be taken, no assumptions have

to made regarding newly created abutting properties.

Taking the above things into consideration, the following procedures are used to estimate the existing/new abutting property impacts of each route alternate being studied:

Step 1. Estimate the present (1991) land value of the existing/new abutting strip of land along each side of the proposed route and the corresponding bypassed portion of U.S. Highway 287. The width of the abutting strip is assumed to be 150 feet for residential use and 300 feet for all other uses. However, for route Alternative 3, the width of the abutting rural residential tracts is also assumed to be 300 feet. The Land Use Plan map shown in Figure 14 is used to obtain linear footage of land in each use along the existing and proposed routes. The estimated square foot values of abutting land in each use, as shown in Table 33, are based on a compromise between the right of way cost estimates made by District 3 personnel and estimates made by several private appraisers and/or real estate sales persons. The before construction abutting land values are calculated by multiplying the total square footage of land in each use by the corresponding square foot values shown in Table 33.

Step 2. Estimate the present (1991) value of improved properties in each route alternative's abutting strip of land defined in Step 1 above. These estimates are based primarily on District 3's estimated whole taking building values of each land use along each route alternate. The average value of the improved whole taking properties for each land use and route alternative is multiplied by the total number of properties of the corresponding land use group and route alternative to arrive at the estimated total valve of the improvements of the property within the study strip.

Step 3. Estimate the total before construction period value of the abutting strip of properties along the proposed routes and the corresponding bypassed portion of the existing U.S. Highway 287 by adding the total value of the land calculated in Step 1 to the total value of improvements calculated in Step 2. No adjustment is made for possible damages that might have to paid for small, irregular partial takings.

Step 4. Estimate the value of the new improvements estimated for each route alternative by type of land use in the land use section (Table 30) of the report. The

Table 33. Estimated Values of Land Located Abutting Each Route Alternative by Land Use.

Route Alternative	Land Value per Square Foot by type of Land Use[1]				
	Comm/Ind	Res	Public/ NP	Vacant Land	Res Agri.
Alternative 1					
Along Eastside to Spur 325	1.84	0.25	0.25	1733	-
From US 287 to Eastside	1.95	1.25	-	-	-
Alternative 2					
Along Eastside to Spur 325	1.84	0.25	0.25	1733	-
Between Holliday Crk and SH 79	1.00	-	-	-	970
Alternative 3					
Between River Rd and Spur 325	0.5	0.25	-	2142	-
Between River Rd and SH 79	0.5	-	-	3083	3083
Alternative 4 & 5					
North of River to Spur 325	2.50	3.50	3.50	3.50	-
Broad and Holliday St	5.7	4.75	4.75	-	-
South of Kell to SH 79	2.08	1.75	-	1.75	-

[1] Vacant and residential/agricultural land use for Routes 1,2, and 3 are based on value per acre.

average value of existing whole taking improvements estimated in Step 2 is multiplied by the number of new businesses estimated in Step 4 to arrive an estimated total value of buildings to be occupied by the new commercial/industrial businesses. For new commercial/industrial businesses, it is assumed that such a value is a compromise between the value of a new building and a renovated existing building. Probably 50% of these new businesses would locate existing renovated buildings. The estimated number of new residences is multiplied by the average whole value of existing residential improvements to be taken to arrive at a total value of all new residential improvements.

Step 5. Estimate the increased value of the vacant land where the new improvements will be placed. It is assumed that only one-half of the new commercial/industrial businesses will need a new lot in which to place a new building, and it is assumed that the size of a commercial lot is 100 feet wide and 300 feet deep. The differential value per square foot between vacant land and commercial land estimated in Step 1 is multiplied by the total lot square footage and then multiplied by the number of new businesses needing a lot to arrive at the total value of the newly created commercial land. The estimated value of the new residences is assumed to include the lot value. Therefore, no increase lot value is calculated for new residences.

For new public/nonprofit organization buildings, it is assumed that all will need new buildings and thus need new lots. It is assumed that the new lots for the public/nonprofit organization buildings are 100 feet wide and 300 feet deep. Again, the differential square foot value between vacant land and the value of public land is multiplied by the total square footage of each new lot and then multiplied by the number of new public/nonprofit lots to arrive at a total value of new public/nonprofit lots.

Step 6. Estimate the total value of new improved properties by adding the total value of the buildings estimated in Step 4 to the total value on the increased value of the land needed for the new buildings estimated in Step 5.

Step 7. Determine the appropriate percentage changes to be used in estimating the

expected before versus after construction period property values. Again, the results from previous studies were evaluated and the results from the most comparable studies were used to arrive at appropriate range and mean values in which to choose a percentage to use to estimate the before versus after period impacts. Tables 34-36 show the percentages arrived at from these studies and the chosen percentages used to calculate the property value changes expected during and after construction period by type of land use for each route alternative and the bypassed portion of the existing route. These percentages are based primarily on the Texas studies referenced under each table. Most of these studies are summarized in other publications [11,13,22].

These studies represent a construction period of about three years and an after construction period of from 5 to 8 years. All of the chosen percentages, based on the findings of these studies, seem to be reasonable and are based on a general comparison of the specific characteristics of each route alternative in relation to the percentage range obtained from the most comparable prior studies. For example, a prior study of a new depressed freeway in Chicago, Illinois indicates that abutting residential property decreased in value as much as 500 percent after construction of the freeway [32]. The results of this study was used to help determine the range and mean percentages for route Alternative 4, but a 500 percent decline for residential use was not used to set the bottom of the range.

The results of another study which obtained the opinions of residents living abutting or nearby depressed, elevated, and at-grade sections of a freeway spoke favorably of the depressed section as opposed to the elevated and at-grade sections in regards to the noise effects on property values [24]. The results of this study tended to disagree with the results of the Chicago study.

Other studies, although they did not involve depressed freeways, do show some negative percentage impacts of freeways on residential property values, but they were not nearly as extreme as the Chicago study. One of these studies involved a freeway that was elevated nearly 50% of the study section length [37].

Finally, it is assumed that only one-third of the total before vs after construction period impact would occur in the during construction period.

Table 34. Percentage Changes Used to Estimate Abutting Property Value Impacts Resulting from Building a Limited Access Freeway Bypass Along S.H. 240 (Eastside Dr.) by Type of Land Use and Time Period.

LOCATION AND TYPE OF LAND USE	PERCENTAGE CHANGE BEFORE VS AFTER CONSTRUCTION[1]		
	RANGE	MEAN	PERCENT USED
Freeway on S.H. 240 (Alternative 1)			
Commercial/industrial	+12 to +47	+30	+30
Residential	+9 to +35	+22	+10
Public/nonprofit	+10 to +41	+26	+25
Vacant land	+72 to +384	+276	+230
Freeway on S.H. 240 (Alternative 2)			
Commercial/industrial	+12 to +47	+30	+35
Residential	+9 to +35	+22	+15
Public/nonprofit	+10 to +41	+26	+15
Vacant land	+72 to +384	+276	+250
Bypassed Section of U.S. 287 (Alternative 1)			
Commercial/industrial	+12 to +47	+30	+25
Residential	+9 to +35	+22	+9
Public/nonprofit	+10 to +26	+26	+26
Vacant land	+92 to +392	+210	+200
Bypassed Section of U.S. 287 (Alternative 2)			
Commercial/industrial	+12 to +47	+30	+25
Residential	+9 to +35	+26	+9
Public/nonprofit	+10 to +26	+26	+25
Vacant land	+92 to +392	+210	+200

[1] Based on percentages of impact on each land use as indicated by appropriate combinations of the following previous studies: [6, 7, 8, 9, 10, 14, 15, 20, 34, 37, 38].

Table 35. Percentage Changes Used to Estimate Abutting Property Value Impacts Resulting from Building a Limited Access Freeway Bypass on New Location by Type of Land Use and Time Period.

LOCATION AND TYPE OF LAND USE	PERCENTAGE CHANGE BEFORE VS AFTER CONSTRUCTION[1]		
	RANGE	MEAN	PERCENT USED
Freeway on New Location (Alternative 3)			
Commercial/industrial	+12 to +47	+30	+30
Residential	+9 to +35	+22	+20
Public/nonprofit	+10 to +41	+26	+26
Vacant land	+72 to +384	+276	+275
Bypassed Section of U.S. 287 (Alternative 3)			
Commercial/industrial	+12 to +47	+30	+25
Residential	+9 to +35	+22	+9
Public/nonprofit	+10 to+41	+26	+25
Vacant land	+92 to +392	+210	+200

[1] Based on percentages of impact on each land use as indicated by appropriate combinations of the following previous studies: [6,7,8,9,10,14,15,20,34,37,38].

Table 36. Percentage Changes Used to Estimate Abutting Property Value Impacts Resulting from Building a Depressed or Elevated Limited Access Freeway Along Holliday and Broad Streets on U.S. Highway 287 by Type of Land Use and Time Period.

LOCATION AND TYPE OF LAND USE	PERCENTAGE CHANGE BEFORE VS AFTER CONSTRUCTION[1]		
	RANGE	MEAN	PERCENT USED
Depressed Freeway (Alternative 4)			
Commercial/industrial	+15 to +100	+57	+10
Residential	-56 to +73	+11	-10
Public/nonprofit	0 to 202	+29	+20
Vacant land	+35 to +392	+180	+150
Elevated Freeway (Alternative 5)			
Commercial/industrial	+15 to +100	+57	+15
Residential	-56 to +73	+11	-15
Public/nonprofit	0 to 202	+29	+15
Vacant land	+35 to +392	+180	+175
Existing Freeway (Alternative 4)			
Commercial/industrial	+15 to +100	+57	+30
Residential	-56 to +73	+11	+5
Public/nonprofit	0 to 202	+29	+20
Vacant land	+101 to +498	+232	+225
Existing Freeway (Alternative 5)			
Commercial/industrial	+15 to +100	+57	+30
Residential	-56 to +73	+11	+5
Public/nonprofit	0 to 202	+29	+20
Vacant land	+35 to +392	+232	+225

Step 8. Estimate the total before versus after construction period property impacts

[1] Based on percentages of impact on each land use as indicated by appropriate combinations of the following previous studies: [5, 7, 8, 9, 10, 11, 12, 14, 17, 19, 20, 23 28, 32, 33, 36, 37, 45, 55, 60].

Step 8. Estimate the total before versus after construction period property impacts of each route alternative by multiplying the appropriate percentage change by the total before value of the property abutting the proposed route and/or bypassed portion of the existing route. It is assumed that only one-third of the total impact would occur in the during construction period. The value of the proposed right of way takings is subtracted from the total after period property value, and the value of the new property is added to the total after period property value.

Estimated Impact on Abutting Property

The abutting property impacts of the proposed route alternatives are presented in Tables 37-46. The before versus during construction period and the before versus after construction period impacts are presented by land use and location i.e., along the proposed route and along the bypassed portions of the existing route.

Property Impact by Land Use

The values of residential property probably would be more negatively impacted by one or more of the proposed route alternatives than the values of any other property. The choice of either Alternative 1 or Alternative 2 would produce an overall negative impact on residential property values. Also, the proposed depressed or elevated portions of Alternatives 4 and 5 (which includes 5A-5C) would produce a negative impact on residential property values, but with most of the existing route not changed, the overall impact of either of these route alternatives would be positive. Even Alternative 3 would produce a negative impact on residential property value during the construction period. Overall, Alternative 2 would produce the most negative impact on residential property values, and Alternative 4 would produce the most positive impact on residential property values. Alternative 4 has very few abutting residences to impact, but Alternative 2 has many abutting residences to impact. In fact, Alternative 4 takes no residences off the tax rolls, but Alternative 2 takes many residences off the tax rolls.

Alternative 2 would produce the least positive impact on commercial/industrial property values, and Alternative 5 would produce the most positive impact on commercial/industrial property values. Most of Alternative 2 passes through perhaps the most densely developed residential area than do the other route alternatives.

Table 37. Estimated Abutting Property Value Impacts During Construction for Proposed Alternative 1.

TYPE OF LAND USE	PROPERTY VALUES ($)		ESTIMATED CHANGE	
	BEFORE	DURING	ACTUAL	PERCENT
Bypassed Property				
Commercial	52,977,858	57,375,020	4,397,162	8.3
Residential	7,128,097	7,341,939	213,842	3
Public	18,544,677	20,158,064	1,613,387	8.7
Vacant	429,213	716,785	287,572	67
TOTAL	79,079,845	85,591,810	6,511,965	8.23
New Route Property				
Commercial	28,990,069	31,889,076	2,899,007	10
Residential	3,846,755	3,962,157	115,402	3
Public	281,935	305,335	23,400	8.3
Vacant	32,526	57,571	25,045	77
TOTAL	33,151,285	3,621,410	3,062,855	9.24
Right of Way Taken				
Commercial	3,130,941		-3,130,941	
Residential	2,283,632		-2,283,632	
Public	962,656		-962,656	
Vacant	12,890		-12,890	
TOTAL	6,390,119		-6,390,119	
New Improvements				
Commercial		3,733,244	3,733,244	
Residential		123,403	123,403	
Public		466,666	466,666	
Vacant				
TOTAL		4,323,315	4,323,315	
All of Above				
Commercial	85,098,868	92,997,341	7,898,473	9.28
Residential	13,258,484	11,427,501	-1,830,983	-13.81
Public	19,789,268	20,930,066	1,140,798	5.77
Vacant	474,629	774,356	299,727	63.15
TOTAL	118,621,249	126,129,265	7,508,016	6.33

Table 38. Estimated Abutting Property Value Impacts After Construction for the Proposed Alternative 1.

TYPE OF LAND USE	PROPERTY VALUES ($)		ESTIMATED CHANGE	
	BEFORE	AFTER	ACTUAL	PERCENT
Bypassed Property				
Commercial	52,977,858	66,222,323	1,324,465	25
Residential	7,128,097	7,769,625	641,528	9
Public	1,854,467	23,366,293	4,821,616	26
Vacant	429,213	1,287,639	858,426	200
TOTAL	79,079,845	98,645,880	19,566,035	24.74
New Route Property				
Commercial	28,990,069	37,687,090	8,697,021	30
Residential	3,846,755	4,231,430	384,675	10
Public	281,935	352,418	70,483	25
Vacant	32,526	107,335	74,809	230
TOTAL	33,151,285	101,014,612	24,078,702	27.83
Right of Way Taken				
Commercial	3,130,841		-3,130,941	
Residential	2,283,632		-2,283,632	
Public	962,656		-962,656	
Vacant	12,890		-12,890	
TOTAL	6,390,119		-6,390,119	
New Improvements				
Commercial		1,199,734	1,199,734	
Residential		370,211	370,211	
Public		1,400,000	1,400,000	
Vacant				
TOTAL		12,969,945	12,969,945	
All of Above				
Commercial	85,098,868	115,109,146	30,010,278	35.27
Residential	13,258,484	12,371,267	-887,217	-6.69
Public	19,789,268	25,118,712	5,239,444	26.93
Vacant	474,629	1,394,974	920,345	193.91
TOTAL	118,621,249	153,994,100	35,372,851	29.82

Table 39. Estimated Abutting Property Value Impacts During Construction for Proposed Alternative 2.

TYPE OF LAND USE	PROPERTY VALUES ($)		ESTIMATED CHANGE	
	BEFORE	DURING	ACTUAL	PERCENT
Bypassed Property				
Commercial	76,914,271	83,298,155	6,383,884	8.3
Residential	9,037,645	9,308,774	271,129	3
Public	18,544,677	20,083,885	1,539,208	8.3
Vacant	1,144,568	1,911,428	766,860	67
TOTAL	105,641,161	114,602,244	8,961,082	8.48
New Route Property				
Commercial	24,432,850	27,291,493	2,858,643	11.7
Residential	1,569,531	1,648,007	787,476	5
Public	281,935	310,128	28,193	10
Vacant	32,526	59,523	26,997	83
TOTAL	26,316,842	29,309,152	2,992,310	11.37
Right of Way Taken				
Commercial	12,520,883		-12,520,883	
Residential	3,403,210		-3,403,210	
Public	963,441		-963,441	
Vacant	13,690		-13,690	
TOTAL	16,901,224		-16,901,224	
New Improvements				
Commercial		3,758,703	3,758,703	
Residential		37,179	37,179	
Public		847,500	847,500	
Vacant				
TOTAL		4,643,381	4,643,381	
All of Above				
Commercial	113,868,004	114,348,352	480,348	0.42
Residential	14,010,386	10,993,961	-3,016,425	-21.52
Public	19,790,053	21,241,514	1,451,461	777.33
Vacant	1,190,784	1,970,951	780,167	65.52
TOTAL	148,859,227	148,554,777	-304,450	-.20

Table 40. Estimated Abutting Property Value Impacts After Construction for the Proposed Alternative 2.

TYPE OF LAND USE	PROPERTY VALUES ($)		ESTIMATED CHANGE	
	BEFORE	AFTER	ACTUAL	PERCENT
Bypassed Property				
Commercial	76,914,271	96,142,839	19,228,568	25
Residential	9,037,645	9,851,033	813,388	9
Public	18,544,677	23,180,846	4,636,169	25
Vacant	1,144,568	3,433,704	2,289,136	200
TOTAL	105,641,161	132,608,422	26,967,261	25.53
New Route Property				
Commercial	24,432,850	32,984,348	8,551,498	35
Residential	1,569,531	1,804,961	235,429	15
Public	281,935	366,515	84,581	30
Vacant	32,526	113,841	81,315	250
TOTAL	26,316,842	35,269,665	8,952,883	34.01
Right of Way Taken				
Commercial	12,520,883		-12,520,883	
Residential	3,403,210		-3,403,210	
Public	963,441		-963,441	
Vacant	13,690		-13,690	
TOTAL	16,901,224		-16,901,224	
New Improvements				
Commercial		11,276,108	11,276,108	
Residential		111,536	111,536	
Public		2,542,500	2,542,500	
Vacant				
TOTAL		13,930,144	13,930,144	
All of Above				
Commercial	113,868,004	140,403,294	26,535,290	23.30
Residential	14,010,386	11,767,530	-2,242,856	-16.01
Public	19,790,053	26,089,862	6,299,809	31.83
Vacant	1,190,784	3,547,545	2,356,761	197.92
TOTAL	148,859,227	181,808,231	32,949,004	22.13

Table 41. Estimated Abutting Property Value Impacts During Construction for Proposed Alternative 3.

TYPE OF LAND USE	PROPERTY VALUES ($)		ESTIMATED CHANGE	
	BEFORE	DURING	ACTUAL	PERCENT
Bypassed Property				
Commercial	76,914,271	83,298,155	6,383,884	8.3
Residential	9,037,645	9,308,774	271,129	3
Public	18,544,677	20,083,885	1,539,208	8.3
Vacant	1,144,568	1,911,428	766,861	67
TOTAL	105,641,161	114,602,244	8,961,083	8.48
New Route Property				
Commercial	5,087,226	5,595,496	5,087,237	10
Residential	9,336,055	996,157	62,552	6.7
Public	0	0	0	0
Vacant	741,993	1,424,627	682,634	92
TOTAL	6,762,824	8,016,732	1,253,908	18.54
Right of Way Taken				
Commercial	3,305,006		-3,305,006	
Residential	672,984		-672,984	
Public	300,000		-300,000	
Vacant	456,109		-456,109	
TOTAL	4,729,599		-4,729,599	
New Improvements				
Commercial		2,985,400	2,985,400	
Residential		37,717	377,173	
Public		761,667	761,667	
Vacant				
TOTAL		3,784,783	3,784,783	
All of Above				
Commercial	85,306,503	91,879,504	6,573,001	7.71
Residential	10,644,234	10,342,648	-3,015,863	-2.83
Public	18,844,677	20,845,552	2,000,875	10.62
Vacant	2,338,170	3,336,055	997,885	42.68
TOTAL	117,133,584	126,403,759	9,270,175	7.91

Table 42. Estimated Abutting Property Value Impacts After Construction for the Proposed Alternative 3.

TYPE OF LAND USE	PROPERTY VALUES ($)		ESTIMATED CHANGE	
	BEFORE	AFTER	ACTUAL	PERCENT
Bypassed Property				
Commercial	76,914,271	96,142,839	19,228,568	25
Residential	9,037,645	9,851,033	813,388	9
Public	18,544,677	23,180,846	4,636,169	25
Vacant	1,144,568	3,433,704	2,289,136	200
TOTAL	105,641,161	132,608,422	26,967,261	25.53
New Route Property				
Commercial	5,087,226	6,613,394	1,526,168	30
Residential	9,336,055	1,120,326	186,721	20
Public	0	0	0	0
Vacant	741,993	2,782,474	2,040,481	275
TOTAL	6,762,824	10,516,194	3,753,370	55.50
Right of Way Taken				
Commercial	3,305,006		-3,305,006	
Residential	672,984		-672,984	
Public	300,000		-300,000	
Vacant	456,109		-456,109	
TOTAL	4,729,599		-4,729,599	
New Improvements				
Commercial		8,956,200	8,956,200	
Residential		113,150	113,150	
Public		2,285,000	2,285,000	
Vacant				
TOTAL		11,354,350	11,354,350	
All of Above				
Commercial	85,306,503	111,712,433	26,405,930	30.95
Residential	10,644,234	11,084,509	440,275	4.14
Public	18,844,677	25,465,846	6,621,169	35.14
Vacant	2,338,170	6,216,178	3,878,008	165.86
TOTAL	117,133,584	154,478,966	37,345,382	31.88

Table 43. Estimated Abutting Property Value Impacts During Construction for the Proposed Alternative 4.

TYPE OF LAND USE	PROPERTY VALUES ($)		ESTIMATED CHANGE	
	BEFORE	DURING	ACTUAL	PERCENT
Existing Freeway				
Commercial	53,044,155	58,348,571	5,304,416	10
Residential	8,607,435	10,070,699	1,463,264	17
Public	7,901,677	8,454,794	553,117	7
Vacant	1,144,568	2,002,994	858,426	75
TOTAL	70,697,835	78,877,058	8,179,223	12
New Route Property				
Commercial	26,470,116	27,264,219	794,104	3
Residential	242,710	235,429	-7,281	-3
Public	13,643,000	14,598,010	955,010	7
Vacant	0	0	0	0
TOTAL	40,355,826	42,097,658	1,741,832	4
Right of Way Taken				
Commercial	682,803		-682,803	
Residential	0		0	
Public	0		0	
Vacant	0		0	
TOTAL	682,803		-682,803	
New Improvements				
Commercial		2,379,333	2,379,333	
Residential		12,500	12,500	
Public		1,130,000	1,130,000	
Vacant		0	0	
TOTAL		3,521,833	3,521,833	
All of Above				
Commercial	80,197,074	87,992,123	7,795,049	9.72
Residential	8,850,145	10,318,628	1,468,483	16.59
Public	21,544,677	24,182,804	2,638,127	12.24
Vacant	1,144,568	2,002,994	858,426	75
TOTAL	111,736,464	124,496,549	12,760,085	11.42

Table 44. Estimated Abutting Property Value Impacts After Construction for the Proposed Alternative 4.

TYPE OF LAND USE	PROPERTY VALUES ($)		ESTIMATED CHANGE	
	BEFORE	AFTER	ACTUAL	PERCENT
Existing Freeway				
Commercial	53,044,155	68,957,402	15,913,247	30
Residential	8,607,435	12,911,153	4,303,718	50
Public	7,901,677	9,482,012	1,580,335	20
Vacant	1,144,568	3,719,846	2,575,278	225
TOTAL	70,697,835	95,070,412	24,372,577	34.47
New Route Property				
Commercial	26,470,116	29,117,128	2,647,012	10
Residential	242,710	218,439	-24,271	-10
Public	13,643,000	16,371,600	2,728,600	20
Vacant	0	0	0	0
TOTAL	40,355,826	45,707,167	5,351,341	13.26
Right of Way Taken				
Commercial	682,803		-682,803	
Residential	0		0	
Public	0		0	
Vacant	0		0	
TOTAL	682,803		-682,803	
New Improvements				
Commercial		7,138,000	7,138,000	
Residential		37,500	37,500	
Public		3,390,000	3,390,000	
Vacant		0	0	
TOTAL		10,565,500	10,565,500	
All of Above				
Commercial	80,197,074	105,212,529	25,015,455	31.19
Residential	8,850,145	13,167,092	4,316,947	48.78
Public	21,544,677	29,243,612	7,698,935	35.73
Vacant	1,144,568	3,719,846	2,575,278	225
TOTAL	111,736,464	151,343,079	39,606,615	35.45

Table 45. Estimated Abutting Property Value Impacts During Construction for the Proposed Alternatives 5A, 5B, and 5C.

TYPE OF LAND USE	PROPERTY VALUES ($)		ESTIMATED CHANGE	
	BEFORE	DURING	ACTUAL	PERCENT
Existing Freeway				
Commercial	53,044,155	58,348,571	5,304,416	10
Residential	8,607,435	10,070,699	1,463,264	17
Public	7,901,677	8,454,794	553,117	7
Vacant	1,144,568	2,002,994	858,426	75
TOTAL	70,697,835	78,877,058	8,179,223	12
New Route Property				
Commercial	26,470,116	27,793,662	123,506	5
Residential	242,710	230,575	-12,136	-5
Public	13,643,000	14,325,150	682,150	5
Vacant	0	0	0	0
TOTAL	40,355,826	42,349,346	1,993,520	5
Right of Way Taken				
Commercial	682,803		-682,803	
Residential	0		0	
Public	0		0	
Vacant	0		0	
TOTAL	682,803		-682,803	
New Improvements				
Commercial		3,236,333	3,236,333	
Residential		12,500	12,500	
Public		749,167	749,167	
Vacant				
TOTAL		399,800	399,800	
All of Above				
Commercial	80,197,074	89,378,526	9181,452	11.44
Residential	8,850,145	10,313,773	1463,628	16.54
Public	21,544,677	2,352,911	1984,434	9.21
Vacant	1,144,568	2,002,994	858,426	75
TOTAL	111,736,464	125,224,404	13487,940	12.07

Table 46. Estimated Abutting Property Value Impacts After Construction for Proposed Alternatives 5A, 5B, and 5C.

TYPE OF LAND USE	PROPERTY VALUES ($)		ESTIMATED CHANGE	
	BEFORE	AFTER	ACTUAL	PERCENT
Existing Freeway				
Commercial	53,044,155	68,957,402	15,913,247	30
Residential	8,607,435	12,911,153	4,303,718	50
Public	7,901,677	9,482,012	1,580,335	20
Vacant	1,144,568	3,719,846	2,575,278	225
TOTAL	70,697,835	95,070,412	24,372,577	34.47
New Route Property				
Commercial	26,470,116	30,440,633	3,970,517	15
Residential	242,710	206,304	-36,407	-15
Public	13,643,000	15,689,450	2,046,450	15
Vacant	0	0	0	0
TOTAL	40,355,826	46,336,387	5,980,561	14.81
Right of Way Taken				
Commercial	682,803		-682,803	
Residential	0		0	
Public	0		0	
Vacant	0		0	
TOTAL	682,803		-682,803	
New Improvements				
Commercial		9,709,000	9,709,000	
Residential		37,500	37,500	
Public		2,247,500	2,247,500	
Vacant				
TOTAL		11,994,000	11,994,000	
All of Above				
Commercial	80,197,074	109,107,035	28,909,961	36.04
Residential	8,850,145	13,154,956	4,304,811	48.64
Public	21,544,677	2,741,892	5,874,285	27.26
Vacant	1,144,568	3,719,846	2,575,278	225
TOTAL	111,736,464	153,400,799	41,664,335	37.28

Alternative 5 would perhaps encourage the most dense and high valued commercial development of all of the route alternatives. Also, very little of the overall route would be directly affect by the new improvement. Finally, Alternative 2 would take the most businesses off the tax rolls, and Alternative 5 would take very few businesses off the tax rolls

Public/nonprofit organizations' property values would be impacted positively and at about the same magnitude by all of the route alternatives. Alternatives 1 and 2 would take some of these properties, but the other route alternatives would not take any of such properties. On the other hand, Alternatives 1 and 2 would be expected to attract more public/nonprofit improvement than the other route alternatives.

Vacant land values would be positively impacted by all of the route alternatives. Alternative 3 would give the least positive impact and Alternatives 4 and 5 would give the most positive impact. Alterative 3 would require the most vacant land for right of way, thus reducing the property tax base. On the other hand, Alternatives 4 and 5 would require no vacant land for right of way.

Alternative Route Impact

All of the route alternatives would provide a significant positive impact on total abutting property values. Alternative 5 would provide the most positive impact, and Alternative 2 would provide the least positive impact. Of the three sub-alternatives of Alternative 5, Sub-Alternative 5C would provide the most positive impact, exceeding +40%. The total value of the abutting property would increase over 45 million dollars, with about 14.6 million dollars being added in the during construction period.

IMPACT ON TAX REVENUES

An indirect benefit to communities whose land values have been significantly increased as a result of highway improvements is the subsequent effect on the tax base and tax revenues. Similarly, communities whose gross business sales have been increased as a result of a highway improvement can enjoy the corresponding increase in sales tax revenues. However, during the construction period when business accessibility may be adversely affected the sales tax revenues could be decreased as a result in the decrease of taxable sales. Likewise, a community's long term sales tax revenues could be permanently affected if the highway improvement permanently decreased the volume of taxable sales within their boundaries. It is important to point out to the reader however, that this report does not account for the possible increase in demand on tax revenues that may result from an increase in growth and development caused by this highway improvement. Consequently, the tax effects in this report are gross impacts.

This section of the report presents the results from both the sales tax base and the property value tax base, and revenue analysis for each of the proposed route alternatives. A summary of the procedures and estimating methodology used to estimate the impact on the tax base and the corresponding tax revenues are also presented.

Estimating Methodology

The data used to estimate the gross taxable sales base is the same data that is used to generate the gross sales detailed in the business activity section of this report. The percent of gross sales that are taxable was obtained from the state comptroller's office for each SIC code classification. The gross sales for each business was then multiplied by this percentage rate to arrive at the amount of retail sales that were taxable. This amount of taxable retail sales can then be multiplied by the tax rates for the city to estimate the dollar amount of tax revenue. The same procedure is followed to calculate the sales tax revenue generated from the wholesale and manufacturing firms operating within the parameters of the study routes.

A similar procedure is followed in estimating the property tax revenues. The data for the property tax calculations is the same as that used to calculate the impact on property values found in the property value chapter of this report. To estimate the property tax

revenue, the property tax base found in the property values section of this report is multiplied by the property tax rate for the city. The property tax rate for Wichita Falls in 1989 was 0.6479. Table 5 on page 26 of this report presented a summary of the property valuation and property tax rate calculations from the Texas State Property Tax Board.

Sales Taxes

The estimated retail sales tax impacts are based on the impacts on the gross sales presented in Tables 11 - 22 of the Business Activity section of this report. The following several tables in this section of the report correspond closely to the tables 11 - 22. The sales tax impacts are separated between retail trade and service sales, and wholesale and manufacturing sales. For both the retail trade and service sales, and the wholesale and manufacturing sales, tax impact results are presented on a route by route basis.

These are gross sales tax impacts for the study area only, and do not account for any net impacts on the city as a whole. It is possible that those businesses that are displaced by the construction would relocate somewhere else in the city, but outside of the parameters of the study area. While acknowledging that there may be some offsetting of these impacts by businesses that locate elsewhere in the city, it is assumed that these impacts, and any other indirect impacts, are neutral over the time frame of the study.

Retail Sales Route Impact.

Tables 47 - 58 report the impacts on taxable sales before, during, and after completion of the highway construction for the different routes. For example, Table 47 reports the estimated abutting business gross taxable sales along the alternative 1 bypass route *before and during* construction of the proposed limited access freeway. Likewise Table 48 reports the estimated abutting business gross taxable sales along the alternative 1 bypass route *before and after* construction of the proposed freeway. In both cases the impacts are summarized for both business type (traffic serving or other retail/service) and status. Status refers to how the individual businesses are affected by the highway construction. The different status classifications are defined and explained in an appendix to this report. Following this example for alternative 1, the gross taxable sales impacts for the other routes can be seen by looking at the appropriate tables (tables 49-58).

Table 47. Estimated Retail Business Gross Taxable Sales Impact During Construction of Alternative 1.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	6,850(36)	6,234(33)	-617	-9
	Other retail/service	5,038(40)	4,736(38)	-302	-6
	Total	11,888(76)	10,969(70)	-919	-8
Remaining Businesses	Traffic serving	312(2)	250(2)	-62	-20
	Other retail/service	1,098(10)	977(9)	-121	-11
	Total	1,410(12)	1,227(112)	-183	-13
Partially Displaced Businesses	Traffic serving	271(1)	214(1)	-57	-21
	Other retail/service	942(5)	848(5)	-94	-10
	Total	1,213(6)	1,062(6)	-151	-12
Displaced Businesses	Traffic serving	782(5)	00(0)	-782	-100
	Other retail/service	882(5)	00(0)	-882	-100
	Total	1,664(10)	00(0)	-1,664	-100
Abutting Businesses	Traffic serving	351(2)	281(2)	-74	-21
	Other retail/service	1,341(8)	1,207(8)	-134	-10
	Total	1,692(10)	1,488(9)	-208	-12
Other Businesses	Traffic Serving	156(1)	156(1)		
	Other retail/service	232(2)	232(2)		
	Total	388(3)	388(3)		
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(4)		
	Total	00(0)	00(8)		
New Businesses	Traffic serving	00(0)	1,114(4)	+1,114	
	Other retail/service	00(0)	1,953(12)	+1,953	
	Total	00(0)	3,067(16)	+3,067	
All Businesses	Traffic serving	8,722(47)	8,248(46)	-478	-5
	Other retail/service	9,533(70)	9,953(77)	+420	+4
	Total	18,255(117)	18,200(123)	-58	+0

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 48. Estimated Retail Business Gross Taxable Sales Impact After Construction of Alternative 1.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	6,850(36)	4,179(30)	-2,672	-39
	Other retail/service	5,038(40)	4,887(35)	-151	-3
	Total	11,888(76)	9,065(64)	-2,823	-24
Remaining Businesses	Traffic serving	312(2)	284(2)	-28	-9
	Other retail/service	1,098(10)	1,054(9)	-44	-4
	Total	1,410(12)	1,338(10)	-72	-10
Partially Displaced Businesses	Traffic serving	271(1)	165(1)	-106	-39
	Other retail/service	942(5)	901(4)	-141	-15
	Total	1,213(6)	966(5)	-247	-20
Displaced Businesses	Traffic serving	782(5)	00(0)	-782	-100
	Other retail/service	882(5)	00(0)	-882	-100
	Total	1,664(10)	00(0)	-1,664	-100
Abutting Businesses	Traffic serving	351(2)	267(2)	-84	-24
	Other retail/service	1,341(8)	1,220(7)	-121	-9
	Total	1,692(10)	1,487(9)	-205	-12
Other Businesses	Traffic Serving	156(1)	156(1)		
	Other retail/service	232(2)	232(2)		
	Total	388(3)	388(3)		
Closed Businesses	Traffic serving	00(0)	00(7)		
	Other retail/service	00(0)	00(8)		
	Total	00(0)	00(15)		
New Businesses	Traffic serving	00(0)	2,227(8)	+2,227	
	Other retail/service	00(0)	3,999(23)	+3,999	
	Total	00(0)	6,227(31)	+6,227	
All Businesses	Traffic serving	8,722(47)	7,278(50)	-1,444	-17
	Other retail/service	9,533(70)	12,193(88)	+2,660	+28
	Total	18,255(117)	19,471(138)	+1,216	+11

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 49. Estimated Retail Business Gross Taxable Sales Impact During Construction of Alternative 2.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	7,318(39)	6,659(35)	-659	-9
	Other retail/service	6,442(52)	6,055(49)	-387	-6
	Total	13,760(91)	12,715(84)	-1,045	-8
Remaining Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	116(1)	103(1)	-13	-11
	Total	116(1)	103(1)	-13	-11
Partially Displaced Businesses	Traffic serving	271(1)	214(1)	-57	-21
	Other retail/service	1,011(6)	910(6)	-101	-10
	Total	1,282(7)	1,124(7)	-158	-12
Displaced Businesses	Traffic serving	782(5)	00(0)	-782	-100
	Other retail/service	1,252(6)	00(0)	-1,252	-100
	Total	2,024(11)	00(0)	-2,034	-100
Abutting Businesses	Traffic serving	351(2)	281(2)	-74	-21
	Other retail/service	712(5)	641(5)	-71	-10
	Total	1,063(7)	922(7)	-145	-14
Other Businesses	Traffic Serving	00(0)	00(0)		
	Other retail/service	00(0)	00(0)		
	Total	00(0)	00(0)		
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(4)		
	Total	00(0)	00(8)		
New Businesses	Traffic serving	00(0)	1,134(4)	+1,134	
	Other retail/service	00(0)	2,002(12)	+2,002	
	Total	00(0)	3,136(16)	+3,136	
All Businesses	Traffic serving	8,722(47)	8,288(46)	-437	-5
	Other retail/service	9,533(70)	9,711(76)	+178	+2
	Total	18,255(117)	17,999(122)	-259	-1

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 50. Estimated Retail Business Gross Taxable Sales Impact After Construction of Alternative 2.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	7,318(39)	4,464(32)	-2,854	-39
	Other retail/service	6,442(52)	6,249(45)	-193	-3
	Total	13,760(91)	10,713(77)	-3,047	-22
Remaining Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	116(1)	111(1)	-5	-4
	Total	116(1)	111(1)	-5	-4
Partially Displaced Businesses	Traffic serving	271(1)	165(1)	-106	-39
	Other retail/service	1,011(6)	859(5)	-152	-15
	Total	1,282(7)	1,025(6)	-257	-20
Displaced Businesses	Traffic serving	782(50)	00(0)	-782	-100
	Other retail/service	1,252(60)	00(06)	-1,252	-100
	Total	2,024(11)	00(0)	-2,034	-100
Abutting Businesses	Traffic serving	351(2)	267(2)	-84	-24
	Other retail/service	712(5)	648(4)	-64	-9
	Total	1,063(7)	915(6)	-148	-14
Other Businesses	Traffic Serving	00(0)	00(0)		
	Other retail/service	00(0)	00(0)		
	Total	00(0)	00(0)		
Closed Businesses	Traffic serving	00(0)	00(8)		
	Other retail/service	00(0)	00(8)		
	Total	00(0)	00(16)		
New Businesses	Traffic serving	00(0)	2,268(8)	+2,268	
	Other retail/service	00(0)	4,099(24)	+4,099	
	Total	00(0)	6,367(32)	+6,367	
All Businesses	Traffic serving	8,722(47)	7,164(50)	-1,558	-18
	Other retail/service	9,533(70)	11,967(88)	+2,434	+26
	Total	18,255(117)	19,130(138)	+875	8

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 51. Estimated Retail Business Gross Taxable Sales Impact During Construction of Alternative 3.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	7,318(47)	6,659(43)	-659	-9
	Other retail/service	6,442(69)	6,055(65)	-387	-6
	Total	13,760(116)	12,715(108)	-1,045	-8
Remaining Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	116(1)	00(0)	-116	-100
	Total	116(1)	00(0)	-116	-100
Abutting Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Other Businesses	Traffic Serving	1,404(8)	1,404(8)	0	0
	Other retail/service	2,975(17)	2,975(17)	0	0
	Total	4,379(25)	4,379(25)	0	0
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(4)		
	Total	00(0)	00(8)		
New Businesses	Traffic serving	00(0)	714(4)	+714	
	Other retail/service	00(0)	1,033(12)	+1,033	
	Total	00(0)	1,746(16)	+1,746	
All Businesses	Traffic serving	8,722(47)	8,777(51)	+1,459	+17
	Other retail/service	9,533(70)	10,063(81)	+3,505	+37
	Total	18,255(117)	18,840(132)	+4,964	+27

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 52. Estimated Retail Business Gross Taxable Sales Impact After Construction of Alternative 3.

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	7,318(47)	4,464(39)	-2,854	-39
	Other retail/service	6,442(69)	6,249(60)	-193	-3
	Total	13,760(116)	10,713(99)	-3,047	-22
Remaining Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	116(1)	00(0)	-116	-100
	Total	116(1)	00(0)	-116	-100
Abutting Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Other Businesses	Traffic Serving	1,404(8)	1,404(25)	0	0
	Other retail/service	2,975(17)	2,975(17)	0	0
	Total	4,379(25)	4,379(25)	0	0
Closed Businesses	Traffic serving	00(0)	00(8)		
	Other retail/service	00(0)	00(9)		
	Total	00(0)	00(17)		
New Businesses	Traffic serving	00(0)	1,427(8)	+1,427	
	Other retail/service	00(0)	2,115(24)	+2,115	
	Total	00(0)	3,542(32)	+3,542	
All Businesses	Traffic serving	8,722(47)	7,295(55)	-23	0
	Other retail/service	9,533(70)	11,339(93)	+4,781	+50
	Total	18,255(117)	18,634(148)	+4,758	+50

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 53. Estimated Retail Business Gross Taxable Sales Impact During Construction of Alternative 4 (Depressed Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	3,465(19)	2,772(17)	-693	-20
	Other retail/service	3,187(22)	2,836(21)	-351	-11
	Total	6,652(41)	5,608(38)	-1,044	-16
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	687(6)	00(0)	-687	-100
	Total	687(6)	00(0)	-687	-100
Abutting Businesses	Traffic serving	3,853(20)	2,312(18)	-1,541	-40
	Other retail/service	2,494(24)	1,995(23)	-499	-20
	Total	6,347(44)	4,307(41)	-2,040	-32
Other Businesses	Traffic Serving	1,404(8)	1,404(8)		
	Other retail/service	3,165(18)	3,165(18)		
	Total	4,569(26)	4,569(26)		
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(3)		
	Total	00(0)	00(7)		
New Businesses	Traffic serving	00(0)	439(2)	+439	
	Other retail/service	00(0)	637(4)	+637	
	Total	00(0)	1,076(6)	+1,076	
All Businesses	Traffic serving	8,722(47)	6,927(49)	-1,795	-21
	Other retail/service	9,533(70)	8,633(68)	-900	-9
	Total	18,255(117)	15,560(117)	+2,695	-15

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 54. Estimated Retail Business Gross Taxable Sales Impact After Construction of Alternative 4 (Depressed Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	3,465(19)	3,153(16)	-312	-9
	Other retail/service	3,187(22)	3,060(19)	-127	-4
	Total	6,652(41)	6,213(35)	-439	-7
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	687(6)	00(0)	-687	-100
	Total	687(6)	00(0)	-687	-100
Abutting Businesses	Traffic serving	3,853(20)	1,811(16)	-2,042	-53
	Other retail/service	2,494(24)	1,721(21)	-773	-31
	Total	6,347(44)	3,532(37)	-2,815	-44
Other Businesses	Traffic Serving	1,404(8)	1,404(8)		
	Other retail/service	3,165(18)	3,165(18)		
	Total	4,569(26)	4,569(26)		
Closed Businesses	Traffic serving	00(0)	00(7)		
	Other retail/service	00(0)	00(6)		
	Total	00(0)	00(13)		
New Businesses	Traffic serving	00(0)	951(4)	+951	
	Other retail/service	00(0)	1,083(9)	+1,083	
	Total	00(0)	2,034(12)	+2,034	
All Businesses	Traffic serving	8,722(47)	7,319(51)	-1,403	-16
	Other retail/service	9,533(70)	9,028(73)	-505	-5
	Total	18,255(117)	16,347(123)	-1,908	-21

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 55. Estimated Retail Business Gross Taxable Sales Impact During Construction of Either Alternative 5A or Alternative 5B (Elevated Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	3,465(19)	2,772(17)	-693	-20
	Other retail/service	3,187(22)	2,836(21)	-351	-11
	Total	6,652(41)	5,608(38)	-1,044	-16
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	687(6)	00(0)	-687	-100
	Total	687(6)	00(0)	-687	-100
Abutting Businesses	Traffic serving	3,853(20)	3,082(18)	-809	-21
	Other retail/service	2,494(24)	2,245(23)	-249	-10
	Total	6,347(44)	5,327(41)	-1,059	-17
Other Businesses	Traffic Serving	1,404(8)	1,404(8)		
	Other retail/service	3,165(18)	3,165(18)		
	Total	4,569(26)	4,569(26)		
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(3)		
	Total	00(0)	00(7)		
New Businesses	Traffic serving	00(0)	585(3)	+585	
	Other retail/service	00(0)	700(6)	+700	
	Total	00(0)	1,286(9)	+1,286	
All Businesses	Traffic serving	8,722(47)	7,844(50)	-917	-11
	Other retail/service	9,533(70)	8,947(70)	-586	-6
	Total	18,255(117)	16,790(120)	-1,503	-8

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 56. Estimated Retail Business Gross Taxable Sales Impact After Construction of Either Alternative 5A or Alternative 5B (Elevated Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	3,465(19)	3,153(16)	-312	-9
	Other retail/service	3,187(22)	3,060(19)	-127	-4
	Total	6,652(41)	6,213(35)	-439	-7
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	687(6)	00(0)	-687	-100
	Total	687(6)	00(0)	-687	-100
Abutting Businesses	Traffic serving	3,853(20)	2,928(16)	-925	-24
	Other retail/service	2,494(24)	2,270(21)	-224	-9
	Total	6,347(44)	5,198(37)	-1,149	-18
Other Businesses	Traffic Serving	1,404(8)	1,404(8)		
	Other retail/service	3,165(18)	3,165(18)		
	Total	4,569(26)	4,569(26)		
Closed Businesses	Traffic serving	00(0)	00(7)		
	Other retail/service	00(0)	00(6)		
	Total	00(0)	00(13)		
New Businesses	Traffic serving	00(0)	1,098(5)	+1,098	
	Other retail/service	00(0)	1,083(13)	+1,083	
	Total	00(0)	2,180(18)	+2,180	
All Businesses	Traffic serving	8,722(47)	8,583(52)	-139	-2
	Other retail/service	9,533(70)	9,577(77)	-44	-0
	Total	18,255(117)	18,160(129)	-95	-1

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 57. Estimated Retail Business Gross Taxable Sales Impact During Construction of Alternative 5C (Elevated Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	3,309(18)	2,647(16)	-662	-20
	Other retail/service	3,187(22)	2,836(21)	-351	-11
	Total	6,496(40)	5,484(37)	-1,012	-16
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	803(7)	00(0)	-803	-100
	Total	803(7)	00(0)	-803	-100
Abutting Businesses	Traffic serving	4,009(21)	3,207(19)	-842	-21
	Other retail/service	2,378(23)	2,140(22)	-238	-10
	Total	6,387(44)	5,347(41)	-1,080	-17
Other Businesses	Traffic Serving	1,404(8)	1,404(8)		
	Other retail/service	3,165(18)	3,165(18)		
	Total	4,569(26)	4,569(26)		
Closed Businesses	Traffic serving	00(0)	00(4)		
	Other retail/service	00(0)	00(3)		
	Total	00(0)	00(7)		
New Businesses	Traffic serving	00(0)	585(3)	+585	
	Other retail/service	00(0)	700(6)	+700	
	Total	00(0)	1,286(9)	+1,286	
All Businesses	Traffic serving	8,722(47)	7,844(50)	-918	-11
	Other retail/service	9,533(70)	8,842(69)	-691	-7
	Total	18,255(117)	16,686(119)	-1,609	-9

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 58. Estimated Retail Business Gross Sales Impact After Construction of Alternative 5C (Elevated Freeway).

STATUS AND TYPE OF BUSINESS		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Bypassed Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Remaining Businesses	Traffic serving	4,716(18)	4,292(15)	-424	-9
	Other retail/service	11,018(22)	10,577(19)	-441	-9
	Total	15,734(40)	14,869(34)	-865	-5
Partially Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	00(0)	00(0)	0	0
	Total	00(0)	00(0)	0	0
Displaced Businesses	Traffic serving	00(0)	00(0)	0	0
	Other retail/service	1,410(7)	00(0)	-1,410	-100
	Total	1,410(7)	00(0)	-1,410	-100
Abutting Businesses	Traffic serving	6,314(21)	4,799(17)	-1,515	-24
	Other retail/service	6,542(23)	5,953(20)	-589	-9
	Total	12,856(44)	10,752(37)	-2,104	-16
Other Businesses	Traffic Serving	2,616(8)	2,616(8)		
	Other retail/service	8,338(18)	8,338(18)		
	Total	10,954(26)	10,954(26)		
Closed Businesses	Traffic serving	00(0)	00(7)		
	Other retail/service	00(0)	00(6)		
	Total	00(0)	00(13)		
New Businesses	Traffic serving	00(0)	1,655(7)	+1,655	
	Other retail/service	00(0)	3,225(18)	+3,225	
	Total	00(0)	4,879(24)	+4,978	
All Businesses	Traffic serving	13,646(47)	13,361(54)	-285	-2
	Other retail/service	27,308(70)	28,093(81)	+785	+3
	Total	40,954(117)	41,454(134)	+500	+1

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 8 and 10.

Table 59. Estimated Abutting Business Gross Taxable Sales Impact During Construction, by Location Alternative and Type of Business.

ALTERNATIVE AND TYPE OF BUSINESS	ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
	BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Alternative 1 Businesses				
Traffic serving	8,722(47)	8,248(46)	-478	-5
Other retail/service	9,533(70)	9,953(77)	+420	+4
Total	18,255(117)	18,200(123)	-58	0
Alternative 2 Businesses				
Traffic serving	8,722(47)	8,288(46)	-437	-5
Other retail/service	9,533(70)	9,711(76)	+178	+2
Total	18,255(117)	17,999(122)	-259	-1
Alternative 3 Businesses				
Traffic serving	8,722(47)	8,777(51)	+1,459	+17
Other retail/service	9,533(70)	10,063(81)	+3,505	+37
Total	18,255(117)	18,840(132)	+4,964	+27
Alternative 4 Businesses				
Traffic serving	8,722(47)	6,927(49)	-1,795	-21
Other retail/service	9,533(70)	8,633(68)	-900	-9
Total	18,255(117)	15,560(117)	+2,695	-15
Alternative 5A or 5B Businesses				
Traffic serving	8,722(47)	7,844(50)	-917	-11
Other retail/service	9,533(70)	8,947(70)	-586	-6
Total	18,255(117)	16,790(120)	-1,503	-8
Alternative 5C Businesses				
Traffic serving	8,722(47)	7,844(50)	-918	-11
Other retail/service	9,533(70)	8,842(69)	-691	-7
Total	18,255(117)	16,686(119)	-1,609	-9

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 7, 8, 10, and 11.

Table 60. Estimated Abutting Business Gross Taxable Sales Impact After Construction, by Location Alternative and Type of Business.

ALTERNATIVE AND TYPE OF BUSINESS	ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
	BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Alternative 1 Businesses				
Traffic serving	8,722(47)	7,278(50)	-1,444	-17
Other retail/service	9,533(70)	12,193(88)	+2,660	+28
Total	18,255(117)	19,471(138)	+1,216	+11
Alternative 2 Businesses				
Traffic serving	8,722(47)	7,164(50)	-1,558	-18
Other retail/service	9,533(70)	11,967(88)	+2,434	+26
Total	18,255(117)	19,130(138)	+875	+8
Alternative 3 Businesses				
Traffic serving	8,722(47)	7,295(55)	-23	0
Other retail/service	9,533(70)	11,339(93)	+4,781	+50
Total	18,255(117)	18,634(148)	+4,758	+50
Alternative 4 Businesses				
Traffic serving	8,722(47)	7,319(51)	-1,403	-16
Other retail/service	9,533(70)	9,028(73)	-505	-5
Total	18,255(117)	16,347(123)	-1,908	-21
Alternative 5A or 5B Businesses				
Traffic serving	8,722(47)	8,583(52)	-139	-2
Other retail/service	9,533(70)	9,577(77)	-44	-0
Total	18,255(117)	18,160(129)	-95	-1
Alternative 5C Businesses				
Traffic serving	8,722(47)	8,560(54)	-162	-2
Other retail/service	9,533(70)	9,471(81)	-62	-1
Total	18,255(117)	18,031(134)	-224	-3

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage impact shown in Tables 7, 8, 10, and 11.

The overall results of the various routes are summarized in Tables 59 and 60. Table 59 summarizes the during construction estimated impacts on taxable sales, and Table 60 summarizes the after construction impacts. As one may expect, these tables reveal that the downtown elevated and depressed routes experience the greatest reduction in taxable sales during this period. The depressed route taxable sales decreases 15 percent, and the elevated 5A or 5B route 8 percent, or 9 percent decrease for the 5C alternative. In the period after construction the depressed route is estimated to have a larger decrease in taxable sales to 21 percent, whereas the 5A or 5B elevated route is expected to only decrease by 1 percent, and the 5C elevated route decrease by 3 percent.

For the three bypass routes, alternative 3 would experience an increase of taxable sales by 27 percent during construction, and increase by 50 percent after the construction is finished and the facility is fully operable. Alternative 1 would show no change during construction, but increase by 11 percent after construction. Alternative 2 would be expected to decrease 1 percent during, and increase 8 percent after construction.

Wholesale and Manufacturing Impact

In order to maintain privacy requirements, and not disclose sales information for any given business establishment, it was necessary to combine the sales data from businesses such that the sales from individual businesses could not be distinguishable. The estimated abutting wholesale and manufacturing business sales tax revenue impact before, during, and after construction are summarized in Tables 61 and 62 by route alternative.

It is obvious from these tables that the tax impacts for the wholesale and retail firms follow closely to the gross sales impacts for these firms. Also, it is important to note that the percentage of their gross sales that is subject to sales tax is smaller than that for the retail and service businesses.

Property Taxes

As explained above, the property tax rate for Wichita Falls in Table 5 is applied to the property values in the Impact on Property Values section of this report to calculate the estimated impact on property tax revenues. Table 63 summarizes these estimated abutting property tax revenue impacts before, during, and after construction of the proposed highway facility. Revenue amounts are given for commercial, residential, and vacant property values.

Table 61. Estimated Gross Taxable Sales Impact on Wholesale and Manufacturing Firms During Construction.

ROUTE ALTERNATIVE AND TYPE OF IMPACT ON FIRM		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	DURING[2] ($000)	ACTUAL ($000)	PERCENT
Route 1	Bypassed	740(4)	718(4)	-22	-3
	Partially Displaced	1,480(5)	1,406(5)	-74	-5
	Abutting	1,665(7)	1,598(6)	-67	-4
	Closed	00(0)	00(0)	0	
	New	00(0)	289(1)	+289	
	All Firms	3,885(16)	4,011(16)	+126	+3
Route 2	Bypassed	185(1)	179(1)	-6	-3
	Remaining	185(1)	176(1)	-9	-5
	Partially Displaced	1,295(4)	1,230(4)	-65	-5
	Displaced	185(1)	00(0)	-185	-100
	Abutting	1,480(6)	1,421(5)	-59	-4
	Other	555(3)	555(3)	0	0
	Closed	00(0)	00(2)	0	0
	New	00(0)	241(1)	+241	
	All Firms	3,885(16)	3,802(17)	-83	-2
Route 3	Bypassed	185(1)	179(1)	-6	-3
	Abutting	370(2)	355(2)	-15	-4
	Closed	00(0)	00(1)	0	0
	Other	3,333(13)	3,333(13)		
	New	00(0)	24(1)	+24	
	All Firms	3,888(16)	3,892(17)	+4	0
Routes 4, 5A, 5B, 5C	Remaining	740(4)	703(4)	-37	-5
	Abutting	185(1)	178(1)	-7	-4
	Other	2,960(11)	2,960(11)	0	0
	New	00(0)	96(1)	+96	
	All Firms	3,885(16)	3,937(16)	+52	+1

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage gross sales impact shown in Tables 8 and 10. The number of new firms are based on the findings, summarized in Table 10, of seven bypass studies conducted in Texas.

Table 62. Estimated Gross Taxable Sales Impact on Wholesale and Manufacturing Firms After Construction.

ROUTE ALTERNATIVE AND TYPE OF IMPACT ON FIRM		ESTIMATED GROSS TAXABLE SALES		ESTIMATED CHANGE	
		BEFORE[1] ($000)	AFTER[2] ($000)	ACTUAL ($000)	PERCENT
Route 1	Bypassed	740(4)	770(3)	-30	-4
	Partially Displaced	1,480(5)	1,376(4)	-104	-7
	Abutting	1,665(7)	1,648(6)	-17	-1
	Closed	00(0)	00(0)	0	
	New	00(0)	317(1)	+317	
	All Firms	3,885(16)	4,112(16)	+227	+6
Route 2	Bypassed	185(1)	192(1)	7	4
	Remaining	185(1)	191(1)	-6	-3
	Partially Displaced	1,295(4)	1,204(3)	-91	-7
	Displaced	185(1)	00(0)	-185	-100
	Abutting	1,480(6)	1,465(5)	-15	-1
	Other	555(3)	555(3)	0	0
	Closed	00(0)	00(2)	0	0
	New	00(0)	265(1)	+265	
	All Firms	3,885(16)	3,317(17)	-13	-0
Route 3	Bypassed	185(1)	192(1)	7	4
	Abutting	370(2)	366(2)	-4	-1
	Closed	00(0)	00(1)	0	0
	Other	3,333(13)	00(13)		
	New	00(0)	26(1)	+26	
	All Firms	3,888(16)	585(17)	+30	1
Routes 4, 5A, 5B, 5C	Remaining	740(4)	762(3)	-22	-3
	Abutting	185(1)	183(1)	92	-1
	Other	2,960(11)	00(11)	0	0
	New	00(0)	106(1)		
	All Firms	3,885(16)	1,051(16)	+126	+3

[1] Based on 1989 data, State Comptroller's Office. Number of businesses is in parentheses.

[2] Based on appropriate mean percentage gross sales impact shown in Tables 8 and 10. The number of new firms are based on the findings, summarized in Table 10, of seven bypass studies conducted in Texas.

Table 63. Estimated Abutting Property Tax Revenue Impact Before, During, and After Construction.

ROUTE	TYPE	PROPERTY TAX REVENUE[1] ($)			PERCENT CHANGE
		BEFORE	DURING	AFTER	
Alternative 1	Commercial	551,356	602,530	745,792	+35
	Residential	85,902	74,039	80,153	-7
	Vacant	3,075	5,017	9,038	+194
	Total	640,333	681,586	834,984	+30
Alternative 2	Commercial	737,751	740,863	909,673	+23
	Residential	90,773	71,230	76,242	-16
	Vacant	7,715	12,770	22,985	+198
	Total	836,239	824,863	1,008,899	+21
Alternative 3	Commercial	552,701	595,287	723,785	+31
	Residential	68,964	67,010	71,817	+4
	Vacant	15,149	21,614	40,275	+166
	Total	636,814	683,912	835,876	+31
Alternative 4	Commercial	519,597	570,101	681,672	+31
	Residential	57,340	66,854	85,310	+49
	Vacant	7,416	12,977	24,101	+225
	Total	584,353	649,933	791,082	+35
Alternative 5A & 5B	Commercial	519,597	579,083	706,904	+36
	Residential	57,340	66,823	85,231	+49
	Vacant	7,416	12,977	24,101	+225
	Total	584,353	658,884	816,236	+40
Alternative 5C	Commercial	520,337	587,120	731,013	+40
	Residential	57,340	66,823	85231	+49
	Vacant	7,416	12,977	24,101	+225
	Total	585,093	666,920	840,345	+44

[1] Based on 1989 data, State Comptroller's Office.

IMPACT ON RELOCATION EMPLOYMENT AND INCOME

This section covers the impact of the proposed routes on relocation of businesses and residents and changes in employment and personal income. Each of these types of impact can have a significant effect on the businesses and residents located in the study area, especially those abutting the existing or proposed routes. They are discussed separately below:

Relocation Impact

Relocation costs and effects on those displaced by the right of way takings of any highway project are of major concern and need to be considered in any decision to select a route alternative to implement. The estimated relocation costs shown in Table 64 are based on data supplied by the District 3 personnel supplemented by the results of a similar study done in Fort Worth. The estimated effects of relocation are obtained from several previous relocation studies done in Texas [22,23,24,25,26].

Impact by Type of Relocatee

According to Table 64, most of the relocation cost incurred if alternatives 1, 2 or 3 were chosen would have to be paid to residential relocatees. Business relocatees would have to be paid most of the balance of the relocation costs for any of those route alternatives and all of the relocation cost estimate for alternatives 4 and 5.

According to Tables 27 and 31, the estimated number of new residences that might be built due to constructing alternatives 1 and 2 would not be enough to offset the number displaced. However, since the City of Wichita Falls' economy is still in a depressed condition, there should be a surplus of housing available for the number of residential relocatees caused by any of the proposed route alternatives. The number of new commercial/industrial businesses would be more than enough to replace those that would be relocated. Residential relocatees receive more financial assistance to relocate into safe, descent and sanitary housing. They not only receive adequate differential housing or rental supplements but also their moving expenses are paid in full. Most residential relocatees voluntarily upgrade into better quality dwellings. On the other hand, business relocatees receive only payment for their moving expenses. About 25% of the business relocatees choose not to relocate or to continue their businesses elsewhere, and another 10 percent

Table 64. Estimated Relocation Impact on Businesses, Residents and Other Relocatees for Each Route Alternative.

ROUTE BY TYPE OF RELOCATEE	NUMBER OF RELOCATEES	ESTIMATED COST PER RELOCATEE ($)	TOTAL COST OF RELOCATION ($)
Alternative 1			
Businesses	10	8,000	80,000
Residents	35	14,000	490,000
Public/Nonprofit	2	8,000	16,000
Total	47		586,000
Alternative 2			
Businesses	12	8,000	96,000
Residents	38	14,000	532,000
Public/Nonprofit	2	8,000	16,000
Total	52		644,000
Alternative 3			
Businesses	1	8,000	8,000
Residents	13	14,000	182,000
Public/Nonprofit	0	8,000	0
Total	14		190,000
Alternative 4,5A,5B			
Business	6	10,000	60,000
Residents	0	14,000	0
Public/Nonprofit	0	8,000	0
Total	6		60,000
Alternative 5C			
Businesses	7	10,000	70,000
Residents	0	14,000	0
Public/Nonprofit	0	8,000	0
Total	7		7,0000

close their business after relocating. Those that relocate their businesses lose a considerable amount of gross sales during and after they move, but over 75% of their customers are the same if they relocate in the same general area. Finally, most of the residential and business relocatees assume more debt than before they moved, with most of it due to upgrading their dwellings or businesses.

Impact by Route Alternative

Table 64 shows the greatest relocation cost would be incurred if alternative 2 was chosen, closely followed by alternative 1. Alternative 4 and two options of alternative 5 would require the lowest relocation costs. Alternative 5C would pay out slightly more relocation costs followed by alternative 3.

Employment Impact

Each of the proposed route alternatives would have a fairly significant employment impact on the area under study. As a part of the total impact, a portion would be due to the net change (existing businesses before construction less displaced businesses plus new businesses after construction) in employment by businesses locating abutting the existing and proposed routes, and another portion would be employment resulting from construction expenditures by the highway contractor to build the new facility and from construction expenditures by building contractors to build new businesses and residences or renovate old business houses or residences abutting the existing and proposed routes. The abutting businesses and residences would be considered to be directly influenced in choosing that location due to the new highway route.

Estimating Methodology

To estimate the impact on business employment, the following steps were taken:

Step 1. Separate the affected firms (existing, displaced or new) into two groups-commercial firms and industrial firms. Industrial firms usually have more employees than commercial firms, and so the employment of two groups have to be estimated separately .

Step 2. Estimate the number of employees of the two groups of firms for the before and after construction periods by using the average number of employees per firm for each group of firms operating in Wichita Falls for each route computed from the

latest U.S. Bureau of Census data. The numbers used in this study are from the 1987 Censuses of Retail Trade, Service Industries, Wholesale Trade and Manufacturers. Since this data source does not give the number of employees for non-payroll firms, it is assumed that each of the non-payroll commercial firms have only two employees, and industrial firms only have payroll employees.

Step 3. Add the estimated number of employees of commercial firms to the number of employees of industrial firms by city for each route.

To estimate the employment impact of highway and residential and commercial/industrial building construction, the following steps should be taken:

Step 1. Estimate the total construction cost for each proposed route and the total construction cost of commercial/industrial buildings and single family residences for each route. In this study, the District 3 personnel furnished route estimates for all of the above costs. The route construction costs estimates are broken down based on the miles of each route in each city. In the case of building costs, only whole building values are used to arrive at an average building value for commercial/industrial buildings and for single family residences. It is assumed that about half of the new businesses will occupy renovated buildings and half will occupy new buildings. Therefore, the average of whole existing structures is a reasonable compromise value for the buildings occupied by the new businesses. All of the new residential buildings are assumed to be single family structures.

Step 2. Estimate the number of employees that might be generated in the Texas economy due to each of the above types of construction. The latest (1989) input-out model estimates of the "full effect" employment multipliers are obtained from a report published by the Texas Comptroller of Public Accounts [27]. These multipliers are adjusted by the Consumer Price Index so that the construction dollars spent represent 1986 dollar values, making the employment estimates more accurate. The appropriate adjusted multiplier, which represents the number of employees generated by each 1 million dollars of construction expenditures, is then multiplied by the corresponding total construction expenditures to obtain the estimated number of employees generated or required for all sectors of the Texas economy by

expenditures. Caution should be exercised not to assume that all of the construction employment impact estimated by using the input-output multipliers will occur in the local area. If all of the funds for these expenditures come from outside the local communities involved and are spent in those communities to hire local labor and by materials produced locally, then most of the employment impact may occur in the local area. The employment effects from locally generated funds for building construction is much harder to measure and trace through the economy.

Business Employment Impact

Table 65 shows the estimated employment impact on business employment for each route alternative. The number of firms are shown in parentheses beside the corresponded employment estimate, except in the percent change column where it is also a percent. According Table 65, all of route alternatives would generate enough new business employment to produce a net increase in employment. Alternative 3 would generate the largest increase in employment, alternative 4 would generate the smallest increase in employment. Actually, alternative 1 would generate the highest level of employment, as in the before construction period. Alternative 4 would generate the lowest level of employment, as in the before construction period.

Construction Employment Impact

Tables 66 and 67 show the estimated construction employment impact for each of the proposed route alternatives. Included is the employment impact resulting from expenditures on highway construction, new and remodeled commercial/industrial building construction and new residential building construction. Again, it should be emphasized that an applicable employment multiplier is applied to each type of expenditure to estimate the employment impact. How much of this employment would be generated in Wichita Falls depends upon how of the expenditures are spent in Wichita Falls. Also, the multiplier could be too large or too small.

Tables 66 and 67 show that most of the employment impact would come from highway construction expenditures. In other words, the route alternative that costs the most to build would automatically generate the most employment impact. Also, such expenditures come from public funds.

Table 65. Estimated Employment Impact on Businesses Directly Affected by Each Route Alternative.

ROUTE ALTERNATIVE AND STATUS OF BUSINESS	NUMBER OF EMPLOYEES AND BUSINESS[1]		ESTIMATED CHANGE	
	BEFORE	AFTER	NUMBER	PERCENT
Alternative 1	991(130)	1174(154)	183(24)	18.5(18.5)
Alternative 2	928(130)	1060(152)	132(22)	14.2(16.9)
Alternative 3	880(108)	1079(135)	199(27)	22.6(25.1)
Alternative 4	589(96)	650(104)	61(8)	10.4(8.3)
Alternative 5A,5B	589(96)	675(109)	86(13)	14.6(13.5)
Alternative 5C	589(96)	705(115)	116(19)	19.7(19.8)

[1] Based on the number of payroll employees per firm adjusted to include and estimate on non-payroll employees reported in the 1987 Censuses of Retail Trade, Service Industries, Wholesale Trade and Manufactures. Each non-payroll business is assumed to have two (2) employees. The numbers and percentages of businesses are in parentheses.

Table 66. Estimated Impact of Highway and Building Construction Expenditures on Employment for Route Alternatives 1-4.

LOCATION AND TYPE OF CONSTRUCTION	TOTAL EXPENDITURES (PER MILL $)	EMPLOYMENT MULTIPLIER[1] (PER MILL $)	EMPLOYEES REQUIRED (ALL SECTORS)
Alternative 1			
Highway Improvement	103.4	47.3325	4894
Commercial/Industrial buildings	7.6	38.9937	296
Residential	.3702	33.3668	12
Total	111.37		5203
Alternative 2			
Highway Improvement	141.9	47.3325	6712
Commercial/Industrial buildings	7.62	38.9937	315
Residential	.1153	33.3668	4
Total	149.64		7030
Alternative 3			
Highway Improvement	121.2	47.3325	5737
Commercial/Industrial buildings	6.2	38.9937	243
Residential	.1131	33.3668	4
Total	127.51		5983
Alternative 4			
Highway Improvement	75.5	47.3325	3574
Commercial/Industrial buildings	5.8	38.9937	226
Residential	.0375	33.3668	1
Total	81.34		3801

[1] Base on multipliers in a report published in 1986 by the Texas Comptroller of Public Accounts [27].

Table 67. Estimated Impact of Highway and Building Construction Expenditures on Employment for Route Alternative 5A-5C.

LOCATION AND TYPE OF CONSTRUCTION	TOTAL EXPENDITURES (PER MILL $)	EMPLOYMENT MULTIPLIER[1] (PER MILL $)	EMPLOYEES REQUIRED (ALL SECTORS)
Alternative 5A			
Highway Improvement	36.2	47.3325	1713
Commercial/Industrial buildings	7.9	38.9937	308
Residential	.0375	33.3668	1
Total	44.14		2023
Alternative 5B			
Highway Improvement	39.4	47.3325	1865
Commercial/Industrial buildings	7.9	38.9937	308
Residential	.0375	33.3668	1
Total	47.34		2174
Alternative 5C			
Highway Improvement	43.1	47.3325	2040
Commercial/Industrial buildings	11	38.9937	429
Residential	.0375	33.3668	1
Total	54.14		2470

[1] Base on multipliers in a report published in 1986 by the Texas Comptroller of Public Accounts [27].

These tables show that alternative 2 would generate the most employment impact, and alternate 5A would generate the least employment impact. However, alternative 5C would generate the most employment impact resulting from commercial/industrial building construction expenditures, and alternative 4 would generate the least impact.

Construction Expenditure Output Impact

Construction expenditures to build highway improvements and buildings for businesses and residences produce not only an employment impact but also an output or total demand effect. Total output multipliers have been developed to estimate these effects. As this construction money circulates through the local, state, and even national economy, they may produce three levels of impacts: (1) the direct impact of the actual expenditures, (2) the indirect impact in supply industries and (3) the induced impact of increased consumer spending. As in the case of the employment impacts, if the source of these expenditures is from the outside of the local area, most of the final demand output effects may be realized. The amount of the output impact received locally depends on how much is spend for local labor, services and supplies. Updated "full effect" output multipliers estimated by Texas Input-Output Model are used in this study to estimate the output impacts of the proposed highway construction expenditures and commercial/industrial and single family residential building expenditures. The appropriate multipliers are multiplied by the amount of expenditures of that type to yield the final output estimates.

Tables 68 and 69 show the estimated impact of highway and building construction expenditures on final output. The estimated impact for each type of expenditure is shown by route alternative. Again, most of expenditure output impact results from expenditures for the proposed highway improvement, regardless of route alternative. The least expenditure output impact would come from expenditures on residential construction.

Alternative 2 would produce the most impact output in income to the economy, and alternative 5B would produce the least output impact. On the otherhand, alternate 5C would produce the most output impact from commercial/industrial building construction expenditures, and Alternative 4 would produce the least output impact.

Table 68. Estimated Impact of Highway and Building Construction Expenditures on Output for Route Alternatives 1-4.

LOCATION AND TYPE OF CONSTRUCTION	TOTAL EXPENDITURES ($ MILL)	OUTPUT MULTIPLIER[1] (PER DOLLAR)	ADDITIONAL OUTPUT IN ($ MILL)
Alternative 1			
Highway Improvement	103.4	3.6885	381.39
Commercial/Industrial buildings	7.60	3.2873	24.99
Residential	.3702	3.2435	1.20
Total	111.37		407.58
Alternative 2			
Highway Improvement	141.8	3.6885	523.02
Commercial/Industrial buildings	7.62	3.2873	26.51
Residential	.1153	3.2435	.3617
Total	149.54		549.89
Alternative 3			
Highway Improvement	121.2	3.6885	447.04
Commercial/Industrial buildings	6.22	3.2873	20.46
Residential	.1131	3.2435	.3670
Total	127.53		467.87
Alternative 4			
Highway Improvement	75.5	3.6885	278.48
Commercial/Industrial buildings	5.8	3.2873	19.06
Residential	.0375	3.2435	.1216
Total	81.34		297.66

[1] Based on multipliers in a report published in 1986 by the Texas Comptroller of Public Accounts [27].

Table 69. Estimated Impact of Highway and Building Construction Expenditures on Output for Route Alternatives 5A-5C.

LOCATION AND TYPE OF CONSTRUCTION	TOTAL EXPENDITURES ($ MILL)	OUTPUT MULTIPLIER[1] (PER DOLLAR)	ADDITIONAL OUTPUT IN ($ MILL)
Alternative 5A			
Highway Improvement	75.5	3.6885	278.48
Commercial/Industrial buildings	7.9	3.2873	25.96
Residential	.3705	3.2435	1.21
Total	83.77		305.65
Alternative 5B			
Highway Improvement	39.4	3.6885	145.32
Commercial/Industrial buildings	7.9	3.2873	25.96
Residential	.0375	3.2435	.1216
Total	47.34		17.40
Alternative 5C			
Highway Improvement	43.1	3.6885	158.97
Commercial/Industrial buildings	11	3.2873	36.16
Residential	.0375	3.2435	.1216
Total	54.14		195.25

[1]Based on multipliers in a report published in 1986 by the Texas Comptroller of Public Accounts [27].

IMPACT ON HIGHWAY USERS

Users of any segment of a highway system experience what is called highway user costs. These costs are traditionally classified into three types: (1) time or delay costs, (2) vehicle operating costs and (3) accident costs. One of the ways to justify improving a segment of an existing highway or bypassing the existing segment with a new segment is to be able to show that the money required to pay for and maintain the improvement will produce an even greater dollar amount of user cost savings. Therefore, the U.S. Highway 287 proposed improvement project is evaluated for the same reason in this study. The methodology, data requirements and the estimated impact on highway users of this segment of the highway are presented below:

Methodology and Data Requirements

The third version of Highway Economic Evaluation Model (HEEM-III) is used to estimate the user cost savings that might result from implementing one of proposed route alternatives 1-5C. HEEM-III, which is the TxDOT's official user cost estimating model is designed to effectively estimate the user costs of either improving the existing facility or bypassing the existing facility. This model is also equipped to handle induced traffic that may be occurring in this segment of U.S. Highway 287.

Design and Traffic Data

The basic design and traffic volumes for the existing and proposed routes needed as model input data are presented in Table 1 of the introductory section of the report. Also, the total length of the existing and proposed routes are presented in Table 1.

The traffic volumes shown in Table 1 are 1986 machine and manual count ADT volumes taken from a traffic system map of Wichita Falls furnished by TxDOT's District 3 personnel. This map was the only source of traffic volumes for cross-streets and roads as well as some of those on all of the alternate routes studied. TxDOT's Division 10 furnished updated 1989 annual traffic growth rates for three locations on U.S. Highway 287 in Wichita Falls. The rates at either end of town were averaged together which yielded an annual growth rate of 2.65% that was used to update the map traffic volumes to 1992 and to make the 2012 projections for the existing facility in the unimproved state. All three of U.S. Highway 287 traffic growth rates were averaged together which yielded a rate of 3.1% that

was used to make the 2012 projections for the existing facility in the improved state.

The existing route volumes were split 40% local and 60% through traffic for estimating user costs of route alternatives 1, 4 and 5. and 30% local and 70% through traffic for estimating user costs of route alternatives 2 and 3.

The intersections analyzed by the model for each route alternatives are as follows:

Alternative 1:

F.M. 890 with Sheppard Access, S.H. 240 with F.M. 171, S.H. 240 with Harding Street, Spur 447 with S.H. 370, U.S. 287 with Spur 447 near Kell Blvd., U.S. 287 with S.H. 473, U.S. 287 with S.H. 79/U.S. 281, and U.S. 287 with Hammon Road.

Alternative 2:

F.M. 890 with Sheppard Access, S.H. 240 with F.M. 171, S.H. 240 with Harding Street, S.H. 240 with S.H. 79 and U.S. 287 with Hammon Road.

Alternative 3:

F.M. 890 with S.H. 240, F.M. 171, River Road, Petrolia, S.H. 240 with S.H. 79, and U.S. 287 with Hammon Road.

Alternatives 4 and 5:

U.S. 287 with 6th St., U.S. 287 with 8th St., U.S. 287 with 9th St., U.S. 287 with 10th St., U.S. 287 with 11th St., U.S. 287 with Kell Blvd.

Problem Assumptions

The problem assumptions for each of the proposed routes are listed in Table 70. Also, the HEEM-III unit costs are updated to 1990. The stream of user costs are discounted back to 1992, considered in the analysis as the current year. Table 71 gives a more detailed breakdown of the total construction costs, divided into construction, right of way and relocation costs. No additional alternative route besides the existing U.S. Highway 287 is assumed in the model. However, a possible case could be made for using S.H. 240 as an alternate route.

Highway User Cost Impact

The estimated highway user cost savings by route alternative are presented in Table 72. These savings are broken down into delay savings, operating cost savings and accident cost savings. Also given, are the savings of each type for Year 1, Year 20, and the 20 year

Table 70. Problem Assumptions.

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Current Year	1992	1992	1992	1992	1992
Discount Rate (%)	8	8	8	8	8
Analysis Period	20	20	20	20	20
Type of Traffic Growth Rate	Constant	Constant	Constant	Constant	Constant
Car Value of Time per Person ($/hr)	8.58	8.58	8.58	8.58	8.58
Truck Value of Time per Person ($/hr)	20.39	20.39	20.39	20.39	20.39
Car Occupancy Rate	1.30	1.30	1.30	1.30	1.30
Truck Occupancy Rate	1.00	1.00	1.00	1.00	1.00
Percent Truck	12	12	12	9	9
Total Construction Cost ($ Mill)	113.9	159.3	125.3	78.1	a) 38.7 b) 41.9 c) 45.6
Year When Improvement Completed	1993	1993	1993	1993	1993
Operating Cost and Accident Cost Update Factor	1.00	1.00	1.00	1.00	1.00

Table 71. Estimated Construction and Right of Way (ROW) and Relocation Costs of Each Alternative in 1992.

TYPE OF COST	ALT. 1	ALT. 2	ALT. 3	ALT. 4	ALT. 5
Construction	103.4	141.8	121.2	75.5	a) 36.2 b) 39.4 c) 43.1
ROW & Relocation	10.5	17.5	4.1	2.6	a) 2.5 b) 2.5 c) 2.5
Total ($ mill)	113.9	159.3	125.3	78.1	a) 38.7 b) 41.9 c) 45.6

Table 72. Estimated Highway User Cost Savings by Route Alternative.

TYPE OF SAVINGS BY YEAR	ALT. 1	ALT. 2	ALT. 3	ALT. 4, 5A, 5B, 5C
	(Thousand $)			
Delay Savings				
Year 1	43,013.57	31,748.47	30,145.31	44,907.95
Year 20	23,985.61	25,979.52	24,843.38	31,590.98
20 Year Total	719,171.31	623,628.5	594,753.6	837,298.30
Operating Cost Savings				
Year 1	628.86	2,392.47	2,092.89	7,281.18
Year 20	284.22	1,095.67	945.31	3,737.12
20 Year Total	9,480.22	33,604.27	29,447.62	107,771.60
Accident Cost Savings				
Year 1	-51.21	54.34	16.30	539.12
Year 20	-17.20	25.83	10.59	204.52
20 Year Total	-627.82	770.41	270.09	6,915.43
Total Cost Savings				
Year 1	43,591.22	34,195.28	32,254.50	52,728.25
Year 20	24,252.63	27,101.02	25,799.27	35,532.62
20 Year Total	728,023.50	658,003.3	624,471.3	951,985.40

total. Alternatives 5A-5C would produce the most operating cost savings and accident cost savings over the 20 year life of the improvement. Alternative 3 would produce the least delay savings.

To generate a benefit-cost ratio, the stream of benefits and costs over the 20 year period assumed to be the life of the improvement is discounted back to 1992, the first year that the improvement is assumed to be operational. The construction costs do not have maintenance costs included, so there are no construction costs that will be incurred during the life of improvement. Hence, these costs are not discounted. Table 73 shows the level of discounted user benefits for each route alternative. As can be seen, the proposed alternatives 4 and 5 would produce the same and the most user benefits, and the proposed Alternative 3 would produce the least benefits. On the other hand, the proposed alternative 5A would cost the least to construct and the alternative 2 would cost the most to construct. As a result, the benefit-cost ratio for alternative 5A is the highest of the route alternatives. Alternatives 5B and 5C would produce slightly lower benefit-ratios than alternative 5A. Since all of the proposed route alternatives would produce benefit-cost ratios above 1.0, they all would be economically feasible.

Table 74 shows the calculation of benefit-cost ratios and incremental benefit-cost ratios for alternatives 1,2,3 and 5A. These alternatives are arranged in order of increasing costs, from alternative 5A, the least costly, to alternative 2, the most costly. Incremental costs and benefits for alternatives 1,3 and 2 are calculated relative to alternative 5A, the least costly alternative. Each of the three more expensive alternatives is estimated to give less benefits than alternative 5A, so the incremental benefits shown in Column (5) are negative, as are the incremental benefit-cost ratios shown in Column (7). Therefore, based on the incremental benefit-cost analysis, it is concluded that alternatives 1,2 and 3 are clearly inferior to alternative 5A; also would be inferior to alternatives 4, 5B, and 5C. That is, alternatives 1,2 and 3 cost more but give less total benefits than each of the alternatives on the existing route U.S. Highway 287 location (4, 5A, 5B, and 5C).

Table 73. Benefit-Cost Ratio.

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Total Discounted User Benefits ($ Mill)	728.02	658.00	624.47	951.98	951.98
Discounted Construction Cost ($ Mill)	113.90	159.30	125.30	78.10	a) 38.7 b) 41.9 c) 45.6
Benefit-Cost Ratio	6.39	4.13	4.98	12.19	a) 24.6 b) 22.72 c) 20.88

Table 74. Incremental Benefit-Cost Ratios.

Alternative (1)	Cost (2)	Benefit (3)	Incremental Cost (4)	Incremental Benefit (5)	B/C Ratio (6)	Incremental B/C Ratio (7)
5A	38.7	951.98	-	-	24.6	-
1 vs. 5A	113.9	728.02	75.2	-223.96	6.39	-2.98
3 vs. 5A	125.3	624.47	86.6	-327.51	4.98	-3.78
2 vs. 5A	159.3	658.00	120.6	-293.98	4.13	-2.44

RESULTS OF OPINION SURVEYS CONCERNING IMPACT OF PROPOSED U.S. HIGHWAY 287 IMPROVEMENT

Two surveys were conducted to obtain opinions concerning the impact of the five proposed alternatives for improving Highway 287 through Wichita Falls. In one survey business owners and operators, representatives of public and nonprofit organizations, and real estate appraisers and agents were interviewed by the study staff. Business owner/operator interviews were conducted for those that were abutting Highway 287 on Broad Street and on Holliday Street between 5th and 16th streets. Representatives of public and nonprofit organizations located on or in close proximity to Highway 287 that might be affected by alterations to the roadway or route through Wichita Falls were also contacted. These public/nonprofit (or institutional) type facilities included hospitals, school administration, city offices, etc.. The forms used for interviews of business owner/operators, institution/nonprofit organizations, and realtor/appraisal firms are provided in Appendix A.

In the second survey, businesses and residents were contacted using a mailed questionnaire. The questionnaire was mailed to a sample of 111 businesses with addresses abutting Eastside Drive or located near one of the proposed bypass routes. Additionally, 133 residents with addresses abutting any of the five proposed routes were mailed questionnaires. Of the 244 questionnaires mailed, 13 were returned undeliverable, 52 were returned completed, and 192 were not returned, for a response rate of 22.5 percent overall. Of the 52 questionnaires that were returned, 35 were from businesses and 17 were from residents.

The questionnaire was designed to elicit opinions regarding the possible effects of each of the proposed alternatives to the current Highway 287 route. For each alternative respondents were asked to estimate its effect by a percentage increase, decrease, or no change in certain characteristics of the highway or surrounding properties. These characteristics that were proposed to be affected were: travel time through Wichita Falls, property values, noise levels, and general appearance. Further, the respondents were asked how each alternative would affect the general economy of Wichita Falls, the general attractiveness of Wichita Falls, the general safety for motorists in Wichita Falls, and their commuting time. Finally, respondents were asked which alternative they prefer and why

they prefer it. Both questionnaire instruments are provided in Appendix B. Appendix C includes some general comments received from the mail out survey and also from interviews with the business owners.

Business Survey Results--Interviews

Personal interviews were conducted with business owner/ operators on properties abutting Highway 287 between 5th and 16th streets. The first set of questions classified businesses according to their type, size and age. Thirteen retail sales businesses, two retail service businesses, and seven professional service businesses were surveyed. The majority of the interviewees owned the property on which the business was located. The average age of the buildings where business operators were surveyed was 23 years, and the average age of the businesses was 20.8 years. The average number of years under current management was 14. Gross sales of the businesses ranged from $59,000 annually to $1.7 million annually. Number of employees ranged from two to 60 full time employees.

The second set of questions was intended to obtain information regarding business performance. Over half of the businesses interviewed (52 percent) said their business' performance was "good" during 1989 and to date in 1990, and 69 percent said the business performed as well or better than expected in 1989 and to date in 1990. Only 17 percent in 1989 and 16 percent in 1990 said their businesses performed worse than expected, and the most common explanation (54 percent) was the poor economy for their lack of performance. Two interviewees said their business performance was not as good as expected due to their location.

Businesses were interviewed regarding the maintenance of and the effects of a reconstruction project on Highway 287 on the Broad Street and Holliday Street sections. The majority of business operators considered Broad and/or Holliday Streets to be well maintained (69.6 percent), and 26 percent considered maintenance to be "very good". During the pavement repair work done in the winter of 1988 one business reported a loss of gross sales of 75 percent and one business reported a loss of 60 percent. Other businesses (n=5) reported losses of 20 percent or less, and no loss in gross sales (n=6) due to the pavement repair that resulted in some access restrictions.

Business owner/operators were asked which design alternative they preferred for

express lanes through town on Highway 287 -- elevated or depressed lanes. Of the 21 owner/operators who answered this question, 33 percent preferred elevated lanes, 29 percent preferred depressed lanes, and 38 percent said they preferred that neither be built. Additionally, the interviewees were asked which access ramps they would prefer at the north end of the expressway. The response percentages were:

	Percent
At 5th **and** 6th Street	42.9
At 5th Street **only**	4.8
At 6th Street **only**	9.5
Neither	28.6
Don't know	14.3

The business interviewees were asked how they would be affected by each type of freeway express lane or ramp adjustment. As seen in Table 75, 17 percent of the businesses reported they would lose over 50 percent of daily sales during construction of depressed expressway lanes. No losses over 50 percent were estimated for the period during the construction of elevated lanes or additional ramps. While 53 percent of the businesses estimated they would lose 50 percent or less in daily sales during construction of elevated lanes (compared to 50 percent estimating the same during construction of depressed lanes), 42 percent said they would not suffer any losses during construction of elevated lanes (compared to 22 percent who estimated no losses during construction of depressed lanes). Increases of one percent were projected by five percent of the interviewees (one business) during construction of elevated lanes and ramps. Other effects that were mentioned in addition to decreased daily sales included: less noise, more noise, and general inconvenience to customers.

After construction of express lanes more business respondents could foresee losses in daily sales (see Table 76). No losses were projected following ramp construction. However, 50 and 42 percent of the business respondents projected decreases in daily sales after construction of the elevated lanes and depressed lanes, respectively.

Business owner/operators were also asked how they would be affected by each type of bypass alternative. Tables 77 and 78 show the effects on daily sales during and after construction phase of each bypass alternative. As shown in Table 77, 5.5 percent of the

Table 75. Effects of Express Lanes and Ramp Additions on Daily Sales During Construction.

	Increase 1-10%	No Change	Decrease 1-50%	Decrease 51-75%	Decrease 76-100%
Depressed Lanes (n=18)	11.1	22.2	50.0	5.5	11.1
Elevated Lanes (n=19)	5.3	42.1	52.6	0.0	0.0
Ramp at 5th and/or 6th Sts. (n=20)	5.0	85.0	10.0	0.0	0.0

Table 76. Effects of Express Lanes and Ramp Additions on Daily Sales After Construction.

	Increase 51-100%	Increase 0-50%	No Change	Decrease 1-50%	Decrease 51-100%
Depressed Lanes (n=18)	5.5	5.5	38.9	38.9	11.1
Elevated Lanes (n=19)	5.3	21.0	31.6	31.6	10.5
Ramp at 5th and/or 6th Sts. (n=20)	0.0	20.0	80.0	0.0	0.0

Table 77. Effects of Bypass Alternatives on Daily Sales During Construction.

	Increase 51-100%	Increase 1-50%	No Change	Decrease 1-50%	Decrease 51-100%
Alternative Bypass 1 (n=18)	88.9	5.5	5.5	0.0	0.0
Alternative Bypass 2 (n=20)	5.3	5.3	90.0	0.0	0.0
Alternative Bypass 3 (n=18)	0.0	5.5	88.9	5.5	0.0

Table 78. Effects of Bypass Alternatives on Daily Sales After Construction.

	Increase 51-100%	Increase 1-50%	No Change	Decrease 1-50%	Decrease 51-100%
Alternative Bypass 1 (n=18)	0.0	5.5	50.0	44.4	0.0
Alternative Bypass 2 (n=19)	0.0	10.5	57.9	26.3	5.3
Alternative Bypass 3 (n=18)	0.0	11.1	55.5	27.8	5.5

businesses reported they would lose over 50 percent of daily sales during the construction phase of Alternative Bypass 3. If Alternative Bypasses 2 or 3 were constructed, almost all (89 to 90 percent) the businesses that were interviewed on Highway 287 said they would experience no change in daily sales during construction. Furthermore, 89 percent said their daily sales would increase in the range of 51 to 100 percent during the construction phase of Alternative Bypass 1.

Decreases in daily sales were predicted by business owner/ operators on Highway 287 after completion of each of the three bypass alternatives. As shown in Table 78, 44 percent of the business owner/operators predicted decreases up to 50 percent if Alternative Bypass 1 were built, 26 percent predicted the same if Alternative Bypass 2 were built, and 28 percent predicted the same if Alternative Bypass 3 were built. However, the effect of each bypass alternative was estimated to be zero by 50 percent for Alternative Bypass 1, 58 percent for Bypass 2, and 55 percent for Alternative Bypass 3.

In addition to how they individually would be affected by each of the proposed alternatives, business owner/operators on Highway 287 were also asked to estimate the effect of each alternative on all the businesses as a group on Highway 287 between 6th and 18th streets. Tables 79 and 80 show responses for daily sales and for property values. Regarding daily sales, little or no positive effect on daily sales was estimated for each of the alternatives. In fact, if no improvement was made, 47 percent of the business owner/operators surveyed said sales would increase by as much as 50 percent, and 47 percent said sales would remain constant. All of the alternatives were projected to have a negative effect on daily sales by a majority of the business owner/operators surveyed.

Regarding property values, the alternatives that were estimated to have the most negative effects on Highway 287 businesses were Alternative Bypasses 2 and 3. Each alternative was estimated to decrease property values from one to 50 percent by at least 60 percent of those surveyed. The alternative with the least negative effect and most positive effect on property values was to make no improvement to the route.

Each business surveyed was asked how many parking spaces would be eliminated to make way for a freeway service road and what would be the effect of parking spaces lost. A total of 92 spaces were reported that would be eliminated. However, one business

Table 79. Effects of Each Alternative on Daily Sales for Businesses on Highway 287.

	Increase 51-100%	Increase 1-50%	No Change	Decrease 1-50%	Decrease 51-100%
Alternative 1 Bypass (n=20)	5.0	5.0	10.0	75.0	5.0
Alternative 2 Bypass (n=20)	5.0	5.0	10.0	70.0	10.0
Alternative 3 Bypass (n=19)	5.3	0.0	10.5	73.7	10.5
Alternative 4 - Depressed (n=20)	5.0	5.0	10.0	80.0	0.0
Alternative 5 - Elevated (n=20)	5.0	5.0	10.0	80.0	0.0
No Improvement (n=17)	0.0	47.0	47.0	5.9	0.0

Table 80. Effects of Each Alternative on Property Values for Businesses on Highway 287.

	Increase 51-100%	Increase 1-50%	No Change	Decrease 1-50%	Decrease 51-100%
Alternative 1 Bypass (n=20)	6.7	13.3	13.3	66.7	0.0
Alternative 2 Bypass (n=20)	6.7	13.3	13.3	60.0	6.7
Alternative 3 Bypass (n=19)	0.0	14.3	14.3	64.3	7.1
Alternative 4 - Depressed (n=20)	0.0	18.7	6.3	75.0	0.0
Alternative 5 - Elevated (n=20)	0.0	18.7	6.3	75.0	0.0
No Improvement (n=17)	0.0	41.7	33.3	25.0	0.0

estimated a reduction of 50. By subtracting this business, the average number of parking spaces lost per business was estimated as 1.9. The effect of the eight foot widening of the existing street to provide for freeway service roads was quite variable for the businesses surveyed. Eleven of the 20 businesses responding to this question said there would be no effect on daily sales. Four said the effect would be in the 15 to 25 percent range. And three business owner/operators said they would lose 50 percent of their daily sales due to the widening.

Finally, each business owner/operator was asked which of the five alternatives they prefer to accommodate "through" traffic on Highway 287. As shown in Figure 15, none of the alternatives were preferred by a majority of the business owner/operators. No improvements and elevated express lanes received only slightly higher levels of support over the other alternatives.

Business Survey Results--Mail Questionnaire

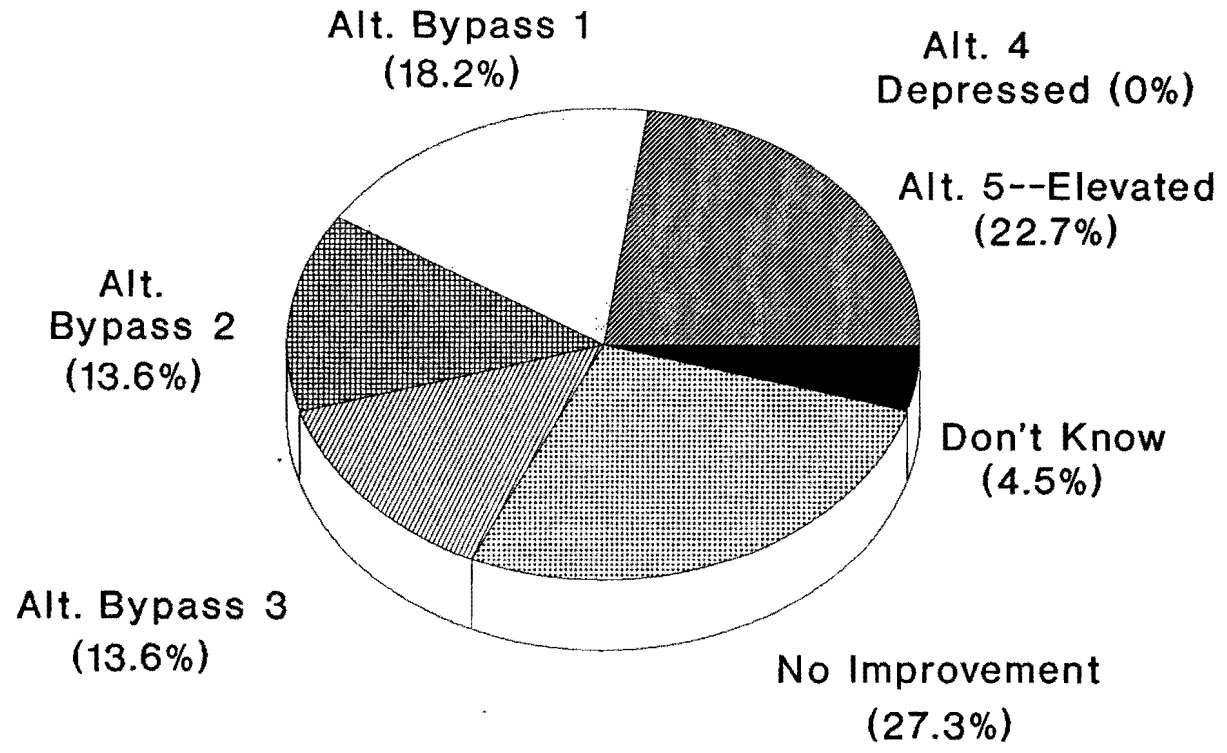
Business owner/operators on other proposed routes were also surveyed using a mailed questionnaire. As mentioned previously, 35 responses resulted from the mail survey. Twelve retail sales businesses, five retail service businesses, six professional service businesses, and 12 businesses classified as "other" responded to the survey. Less than half of the respondents (46.9 percent) owned the property on which the business was located. Seventy-five percent of the buildings were from one to 25 years old, while 25 percent were more than 25 years old. The businesses were all more than one year old: 31 percent were less than ten years old; 47 percent were 11 to 25 years old; and 22 percent were more than 25 years old. Gross sales of the businesses were grouped as:

18.75% Less than $100,000
21.88% $100,000 - $500,000
28.12% $500,001 - $1,000,000
31.25% More than $1,000,000

The average number of employees was 20 full time employees.

When asked to choose the alternative most preferred to improve travel "through" Wichita Falls, business respondents located along one of the bypass routes selected the elevated expressway on Highway 287 between 5th and 16th streets 48.4 percent of the time.

Figure 15. Business Interviewees' Preferred Option



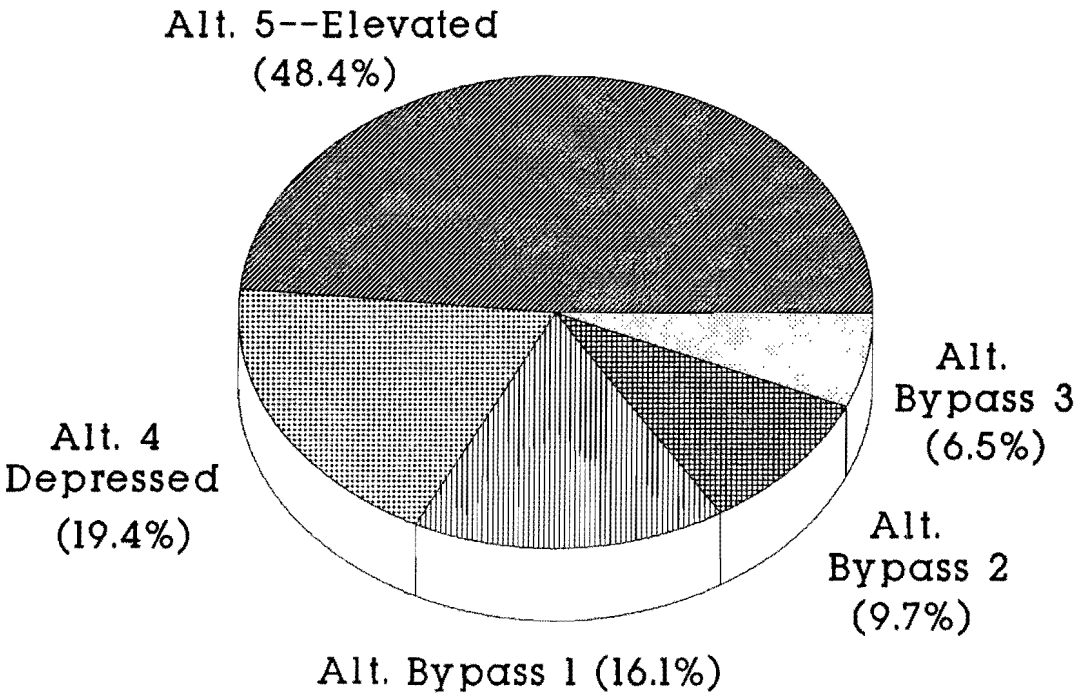
Note:

Bypass 1 will be built on Eastside Dr. terminating at U.S. 82 & Spur 325 intersections.

Bypass 2 will be built on Eastside Dr. terminating at State 79 & Spur 325 intersections.

Bypass 3 will be built on new location terminating at State 79 & Spur 325 intersections.

Figure 16. Business Respondents' Preferred Option



Note:
Bypass 1 will be built on Eastside Dr. terminating at U.S. 82 & Spur 325 intersections.
Bypass 2 will be built on Eastside Dr. terminating at State 79 & Spur 325 intersections.
Bypass 3 will be built on new location terminating at State 79 & Spur 325 intersections.

Figure 16 shows the business respondents' preferences for each alternative with the least preferred one being Alternative Bypass 3. An analysis of the estimated effects of each alternative provides greater understanding for most of the respondents' choice of Alternative 5 as their preferred option.

Table 81 indicates that elevated expressway lanes and Alternative Bypass 3 were more often thought to result in an increase in the general economy of Wichita Falls. The bypass around Wichita Falls was predicted to have a decreasing effect on the economy by 74 percent of the business respondents.

Table 82 indicates that more respondents (45 percent) believed elevated lanes would increase the attractiveness of the city. Alternative Bypass 1 was predicted by more respondents (39 percent) to decrease the attractiveness of the city.

Table 83 shows that more respondents (73 percent) thought elevated lanes would increase safety for motorists. The least safe alternative was Alternative Bypass 3 of Wichita Falls.

Commuting time for employees was predicted to decrease by more of the business respondents (17 percent) if the elevated lanes were constructed. While most respondents (73 and 80 percent) did not foresee a change in employee commuting time if expressway lanes were built on Highway 287, even less effect on commuting time was foreseen for the bypass alternatives (90 percent said "no change", see Table 84).

To further analyze the effects specific to each alternative, Tables 85 through 92 present the results of business owner/ operators' responses to questions regarding travel time, accidents, traffic volume, sales volumes, property values, noise, and appearance.

Travel Time

Table 85 gives business respondent estimates for the effect of each alternative on travel time through Wichita Falls. The elevated expressway was predicted to decrease travel time by 75 percent of the business respondents. The depressed expressway was predicted to decrease travel time by 67 percent of the business respondents. On average, approximately 25 percent of the respondents thought the three bypass alternatives would result in a decrease in travel time through Wichita Falls. Generally, the bypasses on Eastside Drive were estimated to increase travel time on Eastside Drive.

Table 81. Effects of Each Alternative on the General Economy of Wichita Falls (Business Responses).

	Increase	Decrease	Remain the Same
Alternative Bypass 1--Eastside	16.1	61.3	22.6
Alternative Bypass 2--Eastside	22.6	51.6	25.8
Alternative Bypass 3--Bypass Wichita Falls	9.7	74.2	16.1
Alternative 4--Depressed	16.7	43.3	40.0
Alternative 5--Elevated	22.6	45.2	32.3

Table 82. Effects of Each Alternative on Attractiveness of City (Business Responses).

	Increase	Decrease	Remain the Same
Alternative Bypass 1--Eastside	29.0	38.7	32.3
Alternative Bypass 2--Eastside	32.3	29.0	38.7
Alternative Bypass 3--Bypass Wichita Falls	19.4	32.3	48.4
Alternative 4--Depressed	34.5	34.5	31.0
Alternative 5--Elevated	45.2	25.8	29.0

Table 83. Effects of Each Alternative on Safety for Motorists.

	Increase	Decrease	Remain the Same
Alternative Bypass 1--Eastside	61.3	12.9	25.8
Alternative Bypass 2--Eastside	61.3	12.9	25.8
Alternative Bypass 3--Bypass Wichita Falls	60.0	16.7	23.3
Alternative 4--Depressed	66.7	13.3	20.0
Alternative 5--Elevated	73.3	10.0	16.7

Table 84. Effects of Each Alternative on Commuting Time (Business Responses).

	Increase	Decrease	Remain the Same
Alternative Bypass 1--Eastside	6.5	3.2	90.3
Alternative Bypass 2--Eastside	6.5	3.2	90.3
Alternative Bypass 3--Bypass Wichita Falls	6.5	3.2	90.3
Alternative 4--Depressed	13.3	6.7	80.0
Alternative 5--Elevated	10.0	16.7	73.3

Table 85. Effects of Each Alternative on Travel Time.

	Alternatives							
	1		2		3		4	5
	287	E.D.*	287	E.D.	287	E.D.	Highway 287	Highway 287
Increase > 50%	3.1	0.0	6.5	3.2	3.2	3.2	3.1	6.3
Increase 10 - 50%	15.6	12.5	9.7	12.9	9.7	3.2	6.3	9.4
Increase < 10%	21.9	37.5	12.9	38.7	16.1	19.4	12.5	6.3
No Change	37.5	18.7	41.9	22.6	45.2	64.5	12.5	3.1
Decrease < 10%	12.5	18.7	19.4	9.7	12.9	6.5	21.9	21.9
Decrease 10 - 50%	3.1	6.3	6.5	9.7	9.7	0.0	34.4	37.5
Decrease > 50%	6.3	6.3	3.2	3.2	3.2	3.2	9.4	15.6

*Eastside Drive

Table 86. Effects of Each Alternative on Accidents.

	Alternatives							
	1		2		3		4	5
	287	E.D.*	287	E.D.	287	E.D.	Highway 287	Highway 287
Increase > 50%	3.1	3.1	3.2	3.2	0.0	3.2	0.0	0.0
Increase 10 - 50%	3.1	18.7	0.0	29.0	0.0	9.7	3.1	0.0
Increase < 10%	0.0	43.7	0.0	38.7	0.0	16.3	3.1	0.0
No Change	12.5	28.1	9.7	25.8	25.8	51.6	6.3	6.5
Decrease < 10%	50.0	6.3	35.5	3.2	32.3	12.9	37.5	22.6
Decrease 10 - 50%	18.8	0.0	35.5	0.0	32.3	6.5	34.4	45.2
Decrease > 50%	12.5	0.0	16.1	0.0	9.7	0.0	15.6	25.8

*Eastside Drive

Table 87. Effects of Each Alternative on Traffic Volume.

	Alternatives							
	1		2		3		4	5
	287	E.D.*	287	E.D.	287	E.D.	Highway 287	Highway 287
Increase > 50%	0.0	21.9	0.0	19.4	0.0	6.5	3.1	0.0
Increase 10 - 50%	0.0	46.9	0.0	45.2	0.0	12.9	15.6	25.0
Increase < 10%	0.0	18.7	0.0	19.4	3.2	12.9	9.4	15.6
No Change	28.1	6.2	29.0	9.7	25.8	38.7	59.4	46.9
Decrease < 10%	28.1	3.1	29.0	6.5	22.5	19.4	9.4	6.3
Decrease 10 - 50%	31.3	3.1	29.0	0.0	32.3	3.2	3.1	6.3
Decrease > 50%	12.5	0.0	12.9	0.0	16.1	6.5	0.0	0.0

*Eastside Drive

Table 88. Effects of Each Alternative on Sales Volumes.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
Sales Volumes for Businesses on Highway 287							
Alternative Bypass 1	0.0	0.0	0.0	15.6	25.0	37.5	21.9
Alternative Bypass 2	0.0	0.0	0.0	19.4	29.0	25.8	25.8
Alternative Bypass 3	3.2	0.0	0.0	9.7	25.8	32.3	29.0
Alternative 4--Depressed Lanes	3.1	3.1	0.0	9.4	28.1	50.0	6.3
Alternative 5--Elevated Lanes	0.0	9.4	0.0	21.9	18.7	34.4	15.6
Sales Volumes for Businesses on Eastside Drive							
Alternative Bypass 1	9.4	40.6	28.1	9.4	6.3	3.1	3.1
Alternative Bypass 2	12.9	35.5	29.0	12.9	3.2	6.5	0.0
Alternative Bypass 3	6.5	6.5	29.0	29.0	9.7	12.9	6.5
Sales Volumes During Construction							
Alternative Bypass 1	0.0	12.5	3.1	56.3	9.4	9.4	9.4
Alternative Bypass 2	6.5	9.7	6.5	48.4	6.5	12.9	9.7
Alternative Bypass 3	3.2	6.5	9.7	71.0	0.0	6.5	3.2
Alternative 4--Depressed Lanes	0.0	15.6	3.1	53.1	3.1	15.6	9.4
Alternative 5--Elevated Lanes	3.1	6.3	12.5	53.1	3.1	9.4	12.5
Sales Volumes After Construction							
Alternative Bypass 1	0.0	6.3	15.6	43.7	12.5	9.4	12.5
Alternative Bypass 2	3.2	6.5	6.5	41.9	16.1	6.5	19.4
Alternative Bypass 3	3.2	3.2	3.2	58.1	9.7	6.5	16.1
Alternative 4--Depressed Lanes	0.0	12.5	0.0	65.6	9.4	12.5	0.0
Alternative 5--Elevated Lanes	0.0	9.4	3.1	65.6	9.4	6.3	6.3

Table 89. Effects of Each Alternative on Property Values.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
Property Values for Businesses on Highway 287							
Alternative Bypass 1	0.0	6.3	0.0	28.1	28.1	37.5	15.7
Alternative Bypass 2	3.2	0.0	0.0	3.2	3.5	25.8	16.1
Alternative Bypass 3	3.2	0.0	0.0	29.0	29.0	32.3	19.4
Alternative 4--Depressed Lanes	6.3	0.0	3.1	28.1	28.1	50.0	12.5
Alternative 5--Elevated Lanes	3.2	3.2	3.2	29.0	19.4	34.4	16.1
Property Values for Businesses on Eastside Drive							
Alternative Bypass 1	12.5	37.5	31.3	12.5	3.1	3.1	3.1
Alternative Bypass 2	19.4	25.8	29.0	19.4	0.0	6.5	3.2
Alternative Bypass 3	9.7	3.2	22.6	48.4	6.5	12.9	3.2

Table 90. Effects of Each Alternative on Noise Levels.

	Alternatives							
	1		2		3		4	5
	287	E.D.*	287	E.D.	287	E.D.	Highway 287	Highway 287
Increase > 50%	0.0	19.4	0.0	12.9	0.0	12.9	0.0	0.0
Increase 10 - 50%	0.0	29.0	0.0	25.8	0.0	0.0	12.5	6.3
Increase < 10%	3.1	41.9	3.2	45.2	0.0	22.6	9.4	18.7
No Change	31.3	9.7	22.6	12.9	32.3	38.7	31.3	46.9
Decrease < 10%	31.3	0.0	38.7	3.2	32.3	22.6	28.1	15.6
Decrease 10 - 50%	28.1	0.0	25.8	0.0	25.8	3.2	18.7	9.4
Decrease > 50%	6.3	0.0	9.7	0.0	9.7	0.0	0.0	3.1

*Eastside Drive

Table 91. Effects of Each Alternative on General Appearance.

	Alternatives							
	1		2		3		4	5
	287	E.D.*	287	E.D.	287	E.D.	Highway 287	Highway 287
Increase > 50%	0.0	3.1	0.0	6.5	3.2	3.2	3.1	0.0
Increase 10 - 50%	3.1	18.7	3.2	25.8	0.0	0.0	3.1	6.3
Increase < 10%	0.0	43.7	3.2	35.5	3.2	22.6	6.3	9.4
No Change	84.4	25.0	80.6	12.9	74.2	61.3	56.3	56.3
Decrease < 10%	9.4	6.3	6.5	12.9	6.5	9.7	15.6	3.1
Decrease 10 - 50%	0.0	3.1	3.2	6.5	6.5	3.2	12.5	18.7
Decrease > 50%	3.1	0.0	3.2	0.0	6.5	0.0	3.1	6.3

*Eastside Drive

Table 92. Effects of No Improvement.

Possible Effects on Wichita Falls If No New Highway Was Built	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. General economy of Wichita Falls.	0.0	0.0	6.3	87.5	6.3	0.0	0.0
2. General attractiveness of Wichita Falls.	0.0	0.0	0.0	87.5	12.5	0.0	0.0
3. General safety of Wichita Falls for motorists.	0.0	3.1	3.1	56.3	31.3	6.3	0.0
4. Travel time for travelers through Wichita Falls.	0.0	9.4	12.5	62.5	12.5	3.1	0.0
5. Sales volumes of businesses on highway 287.	0.0	3.1	9.4	78.1	6.3	3.1	0.0
6. Sales volumes of businesses on Eastside Drive.	0.0	3.1	3.1	84.4	6.3	3.1	0.0
7. Property values on Highway 287.	3.1	6.3	3.1	84.4	0.0	3.1	0.0
8. Property values on Eastside Drive.	3.1	3.1	3.1	84.4	6.3	0.0	0.0

Accidents

Very few of the respondents predicted that accidents would increase on Highway 287 if any of the proposed alternatives was built. However, each alternative was projected to have a decreasing effect on accidents on Highway 287 (94 percent of the business respondents said the number of accidents would decrease if elevated lanes were built; 87 percent said accidents would decrease if depressed lanes were built; 81 percent said the number of accidents would decrease if Alternative Bypass 1 were built; 87 percent said the number of accidents would decrease if Alternative Bypass 2 were built; and 74 percent said the number of accidents would decrease if Alternative Bypass 3 were built). Not surprisingly, the number of accidents were predicted to increase on Eastside Drive if bypasses were constructed on Eastside Drive.

Traffic Volume

Respondents were asked what the effects of each alternative on traffic volume on Highway 287 and on Eastside Drive would be. As would be expected (see Table 87), each of the bypass alternatives was predicted to decrease traffic volume for Highway 287 by considerably more respondents than those who predicted decreases as a results of elevated or depressed expressway lanes. Likewise, the two bypass alternatives on Eastside Drive were predicted to increase traffic on Eastside Drive. And the bypass around Wichita Falls was not predicted by as many business respondents to affect a change in traffic volume on Eastside Drive.

Sales Volumes

Business respondents were asked to estimate the effects of each alternative for businesses on Highway 287, for businesses on Eastside Drive, and for their own business both during and after construction. Table 88 presents the results for each variable. Very few respondents thought any of the alternatives would have a positive effect on sales volumes for businesses on Highway 287. Conversely, sales volumes were predicted to go up for businesses on Eastside Drive if either of the bypasses on Eastside Drive were built.

The effect on sales volumes during construction would be minimal for each alternative, according to the survey respondents. Over half of the respondents predicted sales volumes would stay the same during construction, and 71 percent said sales volumes

would stay the same if Alternative Bypass 3 around Wichita Falls was constructed.

Regarding sales volumes for individual businesses after construction, the survey respondents were more likely to estimate decreases than increases in sales after construction of each of the alternatives. The decreases, in fact, were projected to be higher for businesses on bypass routes if bypasses were built. Two-thirds of the respondents thought after construction sales would remain the same for businesses on the bypass routes if the elevated or depressed lanes were built.

Property Values

Table 89 indicates that few of the respondents thought property values would increase for business properties on Highway 287 regardless of the alternative built. However, property values for businesses on Eastside Drive were predicted to increase in value if any one of the bypass alternatives was built. Eighty-one percent of the business respondents said property values would increase if Alternative Bypass 1 was built; 74 percent predicted increases if Alternative Bypass 2 was built; and 35 percent predicted increases if Alternative Bypass 3 was built.

Noise Levels

Approximately 25 percent of the respondents thought noise levels would increase if elevated or depressed lanes were built on Highway 287. If Alternative Bypasses 1 or 2 was built, 90 and 84 percent, respectively, of the respondents said noise levels on Eastside Drive would increase.

General Appearance of the Area

Generally, Eastside Drive respondents thought building a bypass on Eastside Drive would improve the general appearance of the area near Eastside Drive. The majority thought elevated and depressed lanes would have a negative or no effect on the appearance of Highway 287, and that both areas (Eastside Drive and Highway 287) would remain the same in appearance if Alternative Bypass 3 around Wichita Falls was built (see Table 91).

Finally, respondents were asked how the above factors would be influenced if no improvement was made to Highway 287 through or bypassing Wichita Falls. Table 92 gives the results for this proposition. Generally, respondents thought the status quo would be maintained regarding motorist safety, travel time, the economy and attractiveness of Wichita

Falls, sales volumes, and property values if no improvement was made. A few respondents foresaw small improvements in some areas. Most notably, 37.5 percent of the respondents predicted a decrease in the general safety of Wichita Falls for motorists if no improvement was made.

Resident Survey Results

Wichita Falls residents were surveyed using a mailed questionnaire similar to that used to survey businesses. As mentioned previously, 133 questionnaires were mailed to a sample of residents with addresses abutting one of the five proposed routes. Seventeen questionnaires were returned and analyzed. These respondents were primarily long term (more than 10 years) owners (88 percent) of single-family houses (100%) that were built more than 25 years ago (59 percent). Thirty-five percent of the resident respondents were over 65 years old, 35 percent were between 46 and 65 years old, and 29 percent were 26 to 45 years old. Fifty-three percent of the resident respondents had household incomes in 1989 of $25,000 or less.

Resident respondents (68.7 percent) preferred the elevated expressway over the other four alternatives, as illustrated in Figure 17. Twenty-five percent preferred the bypass around Wichita Falls, and two people (six percent) preferred Alternative Bypass 2 on Eastside Drive. The depressed expressway and Alternative Bypass 1 were not preferred by any of the resident respondents.

Tables 93 through 99 give the response percentages for the possible effects that each alternative would have in the resident respondents' opinions. Resident responses were very similar to business owner/operator responses and thus are summarized in the same manner below, with divergent opinions noted.

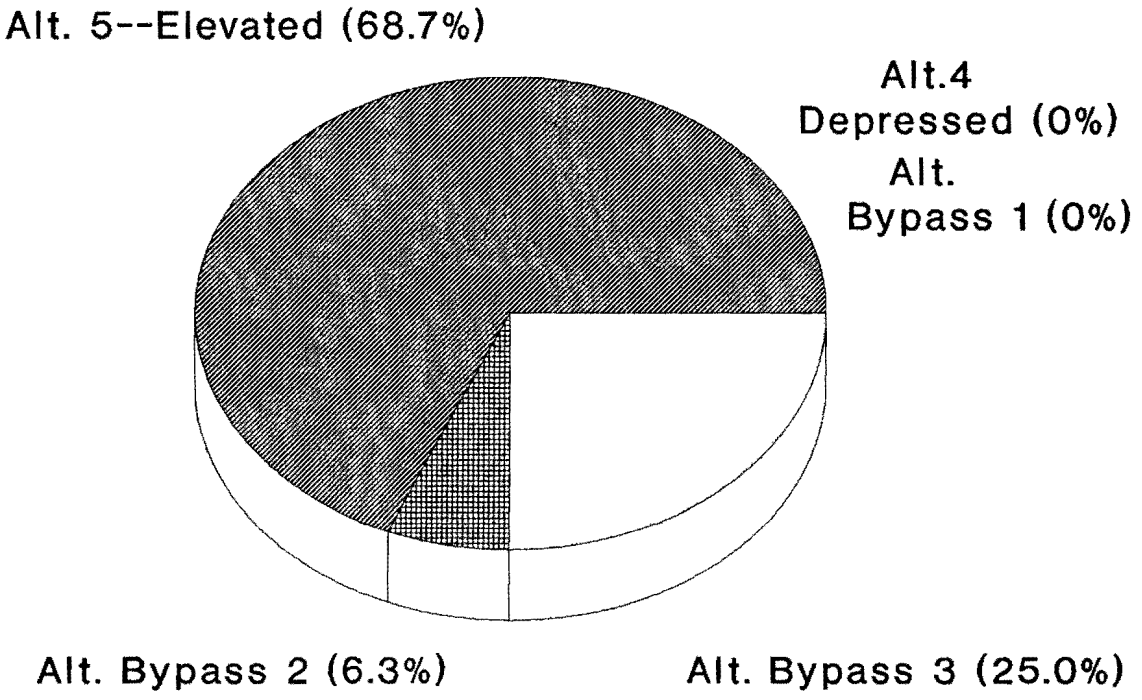
Travel Time

The elevated expressway was predicted to decrease travel time by 59 percent of the resident respondents. Sixty-five percent of the resident respondents said a bypass around Wichita Falls (Alternative Bypass 3) would increase the time it takes to travel through Wichita Falls on Highway 287.

Accidents

All but one of the resident respondents (94 percent) thought building an elevated

Figure 17. Resident Respondents' Preferred Option



Note:

Bypass 1 will be built on Eastside Dr. terminating at U.S. 82 & Spur 325 intersections.

Bypass 2 will be built on Eastside Dr. terminating at State 79 & Spur 325 intersections.

Bypass 3 will be built on new location terminating at State 79 & Spur 325 intersections.

Table 93. Effects of Alternative 1--Bypass on Eastside Drive.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls on Highway 287.	5.88	35.29	17.65	5.88	5.88	23.53	5.88
2. The time it takes to travel through Wichita Falls on Eastside Drive.	11.77	29.41	0	11.77	29.41	11.77	5.88
3. Number of accidents on Highway 287 on Broad and Holliday Streets.	0	0	0	5.88	41.18	35.29	17.65
4. Number of accidents on Eastside Drive.	0	29.41	29.41	23.53	0	5.88	11.77
5. Traffic volume on Highway 287.	5.88	5.88	5.88	29.41	29.41	17.64	5.88
6. Traffic volume on Eastside Drive.	29.41	47.06	11.77	5.88	0	0	5.88
7. Sales volumes for businesses on Highway 287.	17.65	0	0	29.41	41.18	5.88	5.88
8. Sales volumes for businesses on Eastside Drive.	5.88	5.88	41.18	17.65	11.77	11.77	5.88
9. Property values for homeowners on Highway 287.	5.88	0	5.88	70.59	11.77	0	5.88
10. Property values for homeowners on Eastside Drive.	5.88	11.77	29.41	29.41	17.65	0	5.88
11. Noise levels on Highway 287.	5.88	5.88	5.88	47.06	23.53	5.88	5.88
12. Noise levels on Eastside Drive.	17.65	29.41	29.41	17.65	0	0	5.88
13. General appearance of the area of town near Highway 287.	5.88	5.88	0	5.88	17.65	5.88	5.88
14. General appearance of the area of town near Eastside Drive.	5.88	11.77	35.29	35.29	5.88	0	5.88

Table 94. Effects of Alternative 2--Bypass on Eastside Drive.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls on Highway 287.	11.77	17.65	23.53	11.77	17.65	11.77	5.88
2. The time it takes to travel through Wichita Falls on Eastside Drive.	5.88	29.41	17.65	11.77	5.88	23.53	5.88
3. Number of accidents on Highway 287 on Broad and Holliday Streets.	5.88	0	0	11.77	35.29	41.18	5.88
4. Number of accidents on Eastside Drive.	11.77	11.77	41.18	23.53	0	5.88	5.88
5. Traffic volume on Highway 287.	11.77	11.77	11.77	17.65	29.41	11.77	5.88
6. Traffic volume on Eastside Drive.	11.77	47.06	17.65	11.77	0	0	11.77
7. Sales volumes for businesses on Highway 287.	11.77	5.88	5.88	23.53	35.29	17.65	0
8. Sales volumes for businesses on Eastside Drive.	5.88	23.53	41.18	17.65	5.88	0	5.88
9. Property values for homeowners on Highway 287.	5.88	5.88	5.88	58.82	17.65	0	5.88
10. Property values for homeowners on Eastside Drive.	11.77	23.53	29.41	17.65	11.77	0	5.88
11. Noise levels on Highway 287.	5.88	0	23.53	35.29	23.53	5.88	5.88
12. Noise levels on Eastside Drive.	17.65	11.77	41.18	17.65	0	5.88	5.88
13. General appearance of the area of town near Highway 287.	11.77	0	17.65	58.82	5.88	5.88	0
14. General appearance of the area of town near Eastside Drive.	11.77	11.77	29.41	29.41	11.77	5.88	0

Table 95. Effects of Alternative 3--Bypass Around Wichita Falls.

	Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1.	The time it takes to travel through Wichita Falls on Highway 287.	11.77	23.53	29.41	5.88	5.88	5.88	17.65
2.	The time it takes to travel through Wichita Falls on Eastside Drive.	11.77	29.41	5.88	11.77	11.77	17.65	11.77
3.	Number of accidents on Highway 287 on Broad and Holliday Streets.	5.88	0	5.88	17.65	35.29	17.65	17.65
4.	Number of accidents on Eastside Drive.	5.88	5.88	23.53	17.65	17.65	11.77	17.65
5.	Traffic volume on Highway 287.	5.88	5.88	23.53	23.53	23.53	11.77	5.88
6.	Traffic volume on Eastside Drive.	17.65	17.65	17.65	29.41	11.77	0	5.88
7.	Sales volumes for businesses on Highway 287.	11.77	0	11.77	35.29	23.53	17.65	0
8.	Sales volumes for businesses on Eastside Drive.	11.77	5.88	35.29	29.41	11.77	5.88	0
9.	Property values for homeowners on Highway 287.	11.77	5.88	17.65	52.94	0	5.88	5.88
10.	Property values for homeowners on Eastside Drive.	11.77	11.77	29.41	29.41	5.88	5.88	5.88
11.	Noise levels on Highway 287.	5.88	0	11.77	17.65	41.18	11.77	11.77
12.	Noise levels on Eastside Drive.	17.65	5.88	29.41	23.53	11.77	0	11.77
13.	General appearance of the area of town near Highway 287.	11.77	11.77	5.88	64.71	5.88	0	0
14.	General appearance of the area of town near Eastside Drive.	11.77	17.65	23.53	35.29	11.7	0	0

Table 96. Effects of Alternative 4--Depressed Expressway.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls.	23.53	5.88	5.88	23.53	5.88	11.77	23.53
2. Number of accidents on Highway 287 between 5th and 16th streets.	5.88	0	11.77	5.88	17.65	17.65	41.18
3. Traffic volume on Highway 287.	5.88	11.77	17.65	47.06	5.88	5.88	5.88
4. Sales volumes for businesses on Highway 287.	0	11.77	5.88	35.29	17.65	11.77	17.65
5. Property values on Highway 287.	5.88	5.88	11.77	5.88	11.77	5.88	0
6. Noise levels on Highway 287.	11.77	17.65	11.77	41.18	11.77	0	5.88
7. General appearance of the area of town near Highway 287.	11.77	5.88	5.88	41.18	29.41	0	5.88

Table 97. Effects of Alternative 5--Elevated Expressway.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls.	17.65	11.77	5.88	5.88	5.88	35.29	17.65
2. Number of accidents on Highway 287 between 5th and 16th streets.	0	0	5.88	0	11.77	29.41	52.94
3. Traffic volume on Highway 287.	11.77	11.77	11.77	35.29	5.88	11.77	11.77
4. Sales volumes for businesses on Highway 287.	0	11.77	0	29.41	23.53	11.77	23.53
5. Property values on Highway 287.	5.88	5.88	11.77	41.18	11.77	11.77	11.77
6. Noise levels on Highway 287.	23.53	5.88	23.53	23.53	11.77	5.88	5.88
7. General appearance of the area of town near Highway 287.	0	11.77	11.77	47.06	11.77	5.88	11.77

Table 98. Alternative Comparison for Resident Respondents.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
Alternative 1 (Bypass on Eastside Drive) 1. General economy of Wichita Falls.	23.53	11.77	11.77	11.77	29.41	11.77	0
2. General attractiveness of Wichita Falls.	23.53	5.88	11.77	35.29	23.53	0	0
3. General safety of Wichita Falls for motorists.	11.77	11.77	17.65	29.41	17.65	5.88	5.88
4. Time it takes to get to or from work for members of your household.	11.77	0	5.88	58.52	11.77	0	11.77
Alternative 2 (Bypass on Eastside Drive) 1. General economy of Wichita Falls.	23.53	0	11.77	23.53	23.53	17.65	0
2. General attractiveness of Wichita Falls.	29.41	0	23.53	29.41	11.77	5.88	0
3. General safety of Wichita Falls for motorists.	17.65	17.65	5.88	29.41	23.53	5.88	0
4. Time it takes to get to or from work for members of your household.	11.77	0	0	70.59	0	5.88	11.77
Alternative 3 (Bypass Around Wichita Falls) 1. General economy of Wichita Falls.	23.53	5.88	0	23.53	35.29	11.77	0
2. General attractiveness of Wichita Falls.	17.65	0	11.77	41.18	17.65	5.88	5.88
3. General safety of Wichita Falls for motorists.	23.53	17.65	0	23.53	23.53	5.88	5.88
4. Time it takes to get to or from work for members of your household.	11.77	0	0	64.71	5.88	5.88	11.77
Alternative 4 (Depressed Expressway) 1. General economy of Wichita Falls.	17.65	11.77	11.77	29.41	17.65	5.88	5.88
2. General attractiveness of Wichita Falls.	29.41	5.88	17.65	23.53	17.65	5.88	0
3. General safety of Wichita Falls for motorists.	17.65	29.41	23.53	11.77	11.77	0	5.88
4. Time it takes to get to or from work for members of your household.	11.77	5.88	5.88	58.82	5.88	0	11.77
Alternative 5 (Elevated Expressway) 1. General economy of Wichita Falls.	23.53	29.41	11.77	23.53	5.88	5.88	0
2. General attractiveness of Wichita Falls.	17.65	41.18	23.53	17.65	0	0	0
3. General safety of Wichita Falls for motorists.	35.29	47.06	5.88	5.88	5.88	0	0
4. Time it takes to get to or from work for members of your household.	23.53	11.77	0	41.18	5.88	11.77	5.88

Table 99. Effect of No Improvement (Resident Opinions).

Possible Effects on Wichita Falls If No New Highway Was Built	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. General economy of Wichita Falls.	11.77	5.88	0	58.82	0	17.65	5.88
2. General attractiveness of Wichita Falls.	11.77	5.88	0	64.71	11.77	5.88	0
3. General safety of Wichita Falls for motorists.	0	5.88	11.77	47.06	5.88	17.65	11.77
4. Travel time for travelers through Wichita Falls.	5.88	11.77	11.77	5.88	0	5.88	5.88

expressway or building Alternative Bypass 1 would effect a decrease in accidents on Highway 287 between 5th and 16th streets. Furthermore, 53 percent said the number of accidents would decrease by more than 50 percent. Seventy-six percent said accidents would decrease if a depressed expressway was built. The number of accidents on Eastside Drive if a bypass was constructed on it was predicted to increase by 59 percent of the resident respondents for Alternative Bypass 1 and 65 percent for Alternative Bypass 2.

Traffic Volume

Residential responses estimating changes in traffic volume were similar to those given by business owner/ operators. Each of the bypass alternatives was predicted to decrease traffic volume for Highway 287 by more respondents than those who predicted decreases as a result of elevated or depressed expressway lanes. Likewise, the two bypass alternatives on Eastside Drive were predicted to increase traffic on Eastside Drive. According to the resident respondents, a bypass around Wichita Falls would reduce traffic volume on Highway 287 more than on Eastside Drive.

Sales Volumes

Like the business respondents, few resident respondents thought any of the alternatives would have a positive effect on sales volumes for businesses on Highway 287. Increased sales volumes were predicted by most respondents (71 percent) if Alternative Bypass 2 was built.

Property Values

Over 50 percent of the resident respondents said property values on Highway 287 would stay the same, regardless of the alternative selected. Sixty-five percent of the respondents thought property values on Eastside Drive would go up if Alternative Bypass 2 was built; 47 percent predicted increases if Alternative Bypass 1 was built; and 53 percent said property values would go up on Eastside Drive if a bypass of Wichita Falls was built.

Noise Levels

Resident respondents were more inclined than business respondents to believe that elevated and depressed expressway lanes would increase noise levels on Highway 287. Conversely, they were less inclined than business respondents to foresee increases in noise levels on Eastside Drive if either bypass was built.

General Appearance of the Area

Like business respondents, resident respondents thought building a bypass on Eastside Drive would improve the general appearance of the area near Eastside Drive. They also thought elevated and depressed lanes would have a negative or no effect on the appearance of Highway 287. However, 53 percent believed Alternative Bypass 3 around Wichita Falls would improve the appearance of the area of town near Eastside Drive.

Table 98 is a comparison of each alternative based on their effects on the general economy, attractiveness, safety, and work commuting time for the resident respondents. For the economy, safety, and attractiveness of Wichita Falls, the elevated expressway alternative was selected by more of the resident respondents as having a positive effect. Sixty-five percent said the general economy would increase, 82 percent said the attractiveness of Wichita Falls would increase, and 88 percent said safety for Wichita Falls' motorists would increase under this alternative. Commuting time to and from work was most often predicted to stay the same under each alternative.

Finally, resident respondents were also asked how the above factors would be influenced if no improvement was made to Highway 287 through or bypassing Wichita Falls. Table 99 shows residents' opinions if no improvement were made. With the exception of motorist safety (35 percent believed it would decrease), resident respondents believed the status quo would be maintained if no improvements were made.

Institution and Nonprofit Organization Survey Results

Representatives of 10 public and nonprofit organizations were interviewed by the study staff. These institutions included three hospital facilities, three churches, two city offices, and two educational institutions. The buildings that housed these organizations were over 50 years old on average, and most of the organizational representatives said their buildings were in good condition.

Eight out of ten of the organizational interviewees described the portion of Highway 287 that abuts their property as very well maintained. They were equally divided in their assessment of the volume of weekday traffic for Highway 287, with half describing it as "very heavy" and half describing it as "heavy". A range of opinions from "very often" to "seldom" was obtained regarding the frequency of accidents on Highway 287.

Regarding preferences for express lane design on the Broad and Holliday Street portion of Highway 287, five of these interviewees expressed a preference for elevated express lanes, two preferred depressed lanes, and two preferred that neither be built. Four of the interviewees preferred additional access ramps at both 5th and 6th Streets.

The organizational interviewees were also asked their preference among the five proposed highway improvements to Highway 287. These respondents tended to give multiple choices (usually with certain qualifying statements). The following frequencies were given for each alternative:

Alternative Bypass 1	2
Alternative Bypass 2	0
Alternative Bypass 3	4
Elevated express lanes	2
Depressed express lanes	4
No improvements	1

resident respondents, a bypass around Wichita Falls would reduce traffic volume on Highway 287 more than on Eastside Drive.

By and large, the institutional organizations estimated minimal effects from each of the proposed alternatives. Most of the representative of these organizations regarded their entity as somewhat independent of the "through" traffic. Some concern was voiced for the need to improve safety on Broad and Holliday Streets, and some concern was voiced regarding access to their property if construction were to take place. Although the interviewees gave qualifying answers to some of the questions (e.g., "this is my personal opinion"), several said they recognized that they would be less affected than businesses in the area.

DEFINITION OF TERMS

1. *Bypassed Businesses* - are those businesses located on the existing route of U.S. Highway 287 which would be completely bypassed by the proposed bypass routes, alternatives 1, 2, and 3.

2. *Remaining Businesses* - are those businesses located on the existing route that would be abutting the proposed improved facility during and after construction of the selected route, but have limited construction activity in front of their property.

3. *Partially Displaced Businesses* - are those businesses which would have some property taken for right of way. It could be land only or land and buildings. Some of these businesses could continue to operate without moving back at the same location or moving to a new location.

4. *Displaced Businesses* - are those businesses which would have enough land and buildings taken for right of way to completely remove them from their present location. If they have enough remaining abutting land, they could build a new building and begin operating again at the same address. It should be noted that in the business analysis and tax revenue analysis sections of this report, the displaced business category includes only those businesses that were open and operating at the beginning of the study. The number of displaced businesses, as reported in the parenthesis in the various tables, does not include those business facilities that were closed and not in operation when the study commenced, but were physically displaced as a result of the highway construction.

5. *Abutting Businesses* - are those businesses located on a proposed route that would be abutting the proposed improved facility during and after construction, where construction activity would occur in front of their property.

6. *Other Businesses* - are those businesses located in the study area that would be directly affected by one or more of the proposed routes, but not directly affected by the route under consideration.

7. *Closed Businesses* - are those businesses that either closed before construction or closed during and remained closed after construction of one of the proposed routes.

8. *New Businesses* - are those startup businesses that open to business activity during and after construction of one of the proposed routes.

9. *Traffic Serving Businesses* - are those businesses that generally receive a considerable amount of business from the traveling public. They are as follows: gasoline service stations (including the toll type), eating and drinking establishments, and motels, hotels and other temporary lodging places.

10. *Nontraffic Serving Businesses* - are all other retail trade and service industry businesses as classified by the U.S. Census Bureau.

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APPENDIX A. INTERVIEW QUESTIONNAIRE INSTRUMENTS

Code No._____ CONFIDENTIAL

TEXAS TRANSPORTATION INSTITUTE
TEXAS A&M UNIVERSITY SYSTEM

BUSINESS INTERVIEW QUESTIONNAIRE

Interviewer_____ Date_____

Identification:

Name of business_____

Street address_____Owner/Manager_____

Person contacted_____

Classification:

Type of Business: Retail Sales___Retail Service___Professional Service___Other_____

Ownership of property: Owned___Leased___If leased, terms:_____

Age of Building_____Age of Business_____Years under present Mgmt_____

Percent of Customers: This part of town___Other parts of town___Out of town___

Parking capacity (number cars): Curb_____Lot_____Total_____

Motels only: Number of units (total)_____

Number of employees (Average for 1989 including owner/mgr.): Full-time___Part-time___

Total gross sales during 1989: $_____

OPINION QUESTIONS:

1. How did this business perform during 1989?
   Very Good?___Good?___Fair?___Poor?___Very poor?___
2. During 1989, did the business perform:
   as well as expected?____,better than expected?___, or worse than expected?____
   Why?_____
3. During 1990, is this business performing:
   as well as 1989?___,better than 1989?___, or worse than 1989?___
   Why?_____

4. How well maintained is the Broad Street and Holliday Street portion of U.S. Highway 287? Very good?___good?___Fair?___Poor?___Very poor?____

5. How did the pavement repair job done on these streets during the winter of 1988 affect this business?

   During repairing operation?_____

   After repairing operation?_____

6. How did the pavement repair job affect the gross sales of the business?

   During the repairing operation? _____% of daily sales

   After repairing operation? _____% of daily sales

7. If this part of U.S. Highway 287 were improved to a freeway and the outside portion of these streets plus an additional eight feet of the existing right of way became service roads, which of the following express lane designs would you prefer for your business?

   Elevated express lanes?___Depressed express lanes?___Neither?___Don't know?__

8. If elevated express lanes were built, which of the following additional access ramps would you prefer to be built at the north end?

   At 5th and 6th Street?___At 5th Street only?____At 6th Street only?____

   Neither?____Don't know?____

9. How would this business be affected by each type of freeway express lane or ramp adjustment?

Alternative/Adjustment	% of daily sales	Other effects
Depressed express lanes		
During construction	_____	_____
After construction	_____	_____
Elevated express lanes		
Before construction	_____	_____
After construction	_____	_____
Added ramp at 5th and/or 6th Sts.		
Before construction	_____	_____
After construction	_____	_____

10. How would the elimination of the parking lane to make way for a freeway service road affect this business?

    Parking spaces lost?_____

    Other effects?_____

11. How would the eight foot widening of the existing streets to provide for freeway service roads affect this business?

    Percent of daily sales?_____

    Other effects?_____

12. Which of the following proposed highway improvements to accommodate the U.S. 287 "through" town traffic would you prefer for this business?

    Depressed express lanes with street-level service roads on U.S. 287?_____

    Elevated express lanes with street-level service roads on U.S. 287?_____

    Bypass built on Eastside Dr. terminating at U.S. 82 & Spur 325 intersections?____

    Bypass built on Eastside Dr. terminating at State 79 & Spur 325 intersections?____

    Bypass built on new location terminating at State 79 & Spur 325 intersections?____

    None of the above improvements?_____

    Don't know?____

13. How would this business be affected if one of the U.S. 287 bypasses were built?

Bypass	% of daily sales	Other effects
Shorter bypass on Eastside Dr.		
During construction	_____	_____
After construction	_____	_____
Longer bypass on Eastside Dr.		
During construction	_____	_____
After construction	_____	_____
Longer bypass on new location		
During construction	_____	_____
After construction	_____	_____

14. Generally, how would the U.S. 287 businesses between 6th and 18th Streets be affected after one of the following highway improvements were made?

Improvement	% of daily sales	% of Propery values	Other effects
Depressed express lanes on U.S. 287	___	___	_____
Elevated express lanes on U.S. 287	___	___	_____
Shorter bypass on Eastside Dr.	___	___	_____
Longer bypass on Eastside Dr.	___	___	_____
Longer bypass on new location	___	___	_____
No improvement made to U.S. 287	___	___	_____

15. General comments_____

_____

Code No._____ CONFIDENTIAL

TEXAS TRANSPORTATION INSTITUTE
TEXAS A&M UNIVERSITY SYSTEM

INSTITUTIONS AND NONPROFIT ORGANIZATIONS QUESTIONNAIRE

Wichita Falls

Reviewer:_____ Date_____

Identification:

Name of Institution/Nonprofit Organization_____

Street address_____

Person contacted_____Title_____

Classification:

Age of building:_____years. Condition of building:Excellent___Good___Fair___Poor___

Estimated market value_____Capacity: beds____seating____other_____

Length of present occupancy_____yrs. No. of employees: Full-time _____Part-time____

Home location of employees (% of total): Local area_Other parts of town_Out of town_

Parking capacity (number cars): Curb_____Parking lot_____Garage____Total_____

OPINION QUESTIONS:

1. How well maintained is the street fronting this entity?
   Very good?___good?___Fair?___Poor?___Very poor?____ Don't know?____
2. How is the weekday traffic on the street fronting this entity?
   Very heavy?___Heavy?___Moderate?___Light?___Very Light?___Don't know___
3. How frequently do accidents occur on the street fronting this entity?
   Very often?___Often?___Not often?___Seldom?___Don't know?___

4. If one-way express lanes and service roads were built on Broad and Holliday Streets to handle U.S. Highway 287 traffic better, which of the following express lane designs would you prefer for your entity? **See Map 1.**

   Elevated express lanes?___Depressed express lanes?___Neither?___Don't know?___

5. If elevated express lanes were built, which of the following additional access ramps would you prefer to have built at the north end? **See Map 1.**

   At 5th and 6th Street?___At 5th Street only?___At 6th Street only?___Neither?___ Don't know?____

6. How would your entity be affected if any one of the following types of express lanes or **ramps** were built on Broad & Holliday Streets along U.S. 287? **See Map 1.**

Type of lane or ramp	Types of effects
Depressed express lanes?	
During construction	_____
After construction	_____
Elevated express lanes?	
Before construction	_____
After construction	_____
Added ramp at 5th and 6th Sts.?	
Before construction	_____
After construction	_____

7. Which of the following proposed highway improvements to accommodate the U.S. 287 "through" town traffic would you prefer for this entity? **See Maps 1-4.**

Express lane/bypass	Choice
Depressed express lanes (on Broad & Holliday Strs. on U.S. 287)?	____
Elevated express lanes (on Broad & Holliday Strs. on U.S. 287)?	____
Alternate 1 Bypass (partly on Eastside Dr.)?	____
Alternate 2 Bypass (partly on Eastside Dr.)?	____
Alternate 3 Bypass (on new location)?	____
None of the above improvements?	____
Don't know?	____

8. How would your entity be affected if any one of the following **bypasses** were built to accomodate the U.S. 287 "through" town traffic? **See Maps 2-4.**

Bypass	% of property value	Other effects
Alternate I Bypass (partly on Eastside Dr.)?		
During construction	_____	_____
After construction	_____	_____
Alternate II Bypass (partly on Eastside Dr.)?		
During construction	_____	_____
After construction	_____	_____
Alternate III Bypass (on new location)?		
During construction	_____	_____
After construction	_____	_____

9. Generally, how would all of the combined institutions/nonprofit organizations located along U.S. 287 between Spur 325 and State Highway 79 interchanges be affected **after** any one of the following highway improvements were made? **See Maps 1-4.**

Improvement	% of property values	Other effects
Depressed express lanes on U.S. 287?	_____	_____
Elevated express lanes on U.S. 287?	_____	_____
Alternate I Bypass on Eastside Dr.?	_____	_____
Alternate II Bypass on Eastside Dr.?	_____	_____
Alternate III Bypass on new location?	_____	_____
None of the above improvements?	_____	_____

10. Generally, how would all of the combined institutions/nonprofit organizations locate along Eastside Dr. be affected **after** any one of the following highway improvements were made? **See Maps 1-4.**

Improvement	% of property values	Other effects
Depressed express lanes on U.S. 287?	_____	_____
Elevated express lanes on U.S. 287?	_____	_____
Alternate I Bypass on Eastside Dr.?	_____	_____
Alternate II Bypass on Eastside Dr.?	_____	_____
Alternate III Bypass on new location?	_____	_____
None of the above improvements made?	_____	_____

11. Future plans for remodeling, expanding or moving from present location:_____

_____

_____

_____

_____

_____

_____

12. General comments:_____

_____

_____

_____

_____

_____

Code No._____ CONFIDENTIAL

TEXAS TRANSPORTATION INSTITUTE
TEXAS A&M UNIVERSITY SYSTEM

REALTOR/APPRAISAL FIRM INTERVIEW QUESTIONNAIRE

Wichita Falls Study

Interviewer_____ Date_____

Identification:

Name of business_____Age of business_____
Street address_____
Person contacted_____Title_____
Experience: Sales_____Appraisal_____Other_____
Professional memberships:_____
Method of Advertising properties:Multiple Listing_____Other_____
Percent of Customers: Around U.S.287 in CBD area_____Eastside Dr. area_____
Other parts of town_____Out of town_____

OPINION QUESTIONS:

1. How did this business perform during 1989?
   Very Good?___Good?___Fair?___Poor?___Very poor?___
2. During 1989, did the business perform:
   as well as expected?____,better than expected?___, or worse than expected?____
   Why?_____
3. During 1990, is this business performing:
   as well as 1989?___,better than 1989?___, or worse than 1989?____
   Why?_____
4. How are property values trending now in the Wichita Falls area? % change/yr.___
   Why?_____
   What about around the U.S. 287 in the CBD area? % change/yr._____
   What about the Eastside area? % change/yr._____
   What about just out side of town? % change/yr._____

5. How much are the different types of properties worth **abutting U.S. 287** in Wichita Falls? Please circle unit of pricing.

Area	Commerical	Residential	Other
Along Broad & Holliday Strs.			
Vac land(FF/SF/Ac/Lot)	_____	_____	_____
Impr property(FF/SF/Lot)	_____	_____	_____
North of River to Spur 325			
Vac land(FF/SF/Ac/Lot)	_____	_____	_____
Impr property(FF/SF/Lot)	_____	_____	_____
South of Kell Blvd. to State 79			
Vac land(FF/SF/Ac/Lot)	_____	_____	_____
Impr property(FF/SF/Lot)	_____	_____	_____

6. How much are different types of property worth **abutting** the proposed **Alternate Route 1** that partly follows **Eastside Dr.** Dr.?

Area	Commercial	Residential	Other
From U.S. 287 to Eastside Dr.			
Vac land(FF/SF/Ac/Lot)	_____	_____	_____
Impr property(FF/SF/Lot)	_____	_____	_____
Along Eastside Dr. to Spur 325			
Vac land(FF/SF/Ac/Lot)	_____	_____	_____
Impr property(FF/SF/Lot)	_____	_____	_____

7. How much are different types of property worth **abutting the proposed Alternate Route 2** that partly follows **Eastside Dr.**?

Area	Commercial	Residential	Other
Between Jefferson and Spur 325			
Vac land (FF/SF/Ac/Lot)	_____	_____	_____
Impr property(FF/SF/Lot)	_____	_____	_____
Between Holliday Crk. and State 79			
Vac land(FF/SF/Ac/Lot)	_____	_____	_____
Impr property(FF/SF/Lot)	_____	_____	_____

8. How much are the different types of property **abutting** the proposed **Alternate Route 3** that follows no existing route out of town?

Area	Commercial	Residential	Other
Between River Rd. and Spur 325			
Vac land(FF/SF/Ac/Lot)	_____	_____	____
Impr property(FF/SF/Lot)	_____	_____	____
Between River Rd. and State 79			
Vac land(FF/SF/Ac/Lot)	_____	_____	____
Imp property(FF/SF/Lot)	_____	_____	____

9. Has the the proposed improvement of U.S. affected the values of property **abutting** any of the proposed routes? Give % change per year.

Route	Commercial	Residential	Other
Along U.S. 287 Existing Route	_____	_____	____
Along Alternate Route 1	_____	_____	____
Along Alternate Route 2	_____	_____	____
Along Alternate Route 3	_____	_____	____

10. If the Broad and Holliday St. section U.S. 287 (**existing route**) is improved to a freeway with service roads, how would the **abutting** property values be affected during the first five years(%/yr) along the following sections?

Section	Commercial	Residential	Other
Elevated mainlanes section or	_____	_____	_____
Depressed mainlanes section	_____	_____	_____
North of River section	_____	_____	_____
South of Kell Blvd. section	_____	_____	_____

11. If the **Alternate Route 1** is built as a freeway with service roads, how would the **abutting** property values be affected over the first five years(%/yr.)?

Section	Commercial	Residential	Other
From U.S. 287 to Eastside Dr.	_____	_____	_____
Along Eastside Dr. to Spur 325	_____	_____	_____

12. If the **Alternate Route 2** is built as a freeway with service roads, how would the **abutting** property values be affected over the first five years (%/yr)?

Section	Commercial	Residential	Other
From Jefferson to Spur 325	_____	_____	_____
From Holliday Crk. to State 79	_____	_____	_____

13. If the **Alternate Route 3** is built as a freeway with service roads, how would the **abutting** property values be affected over the first five years (%/yr.)?

Section	Commercial	Residential	Other
From River Rd. to Spur 325	_____	_____	_____
From River Rd. to State 79	_____	_____	_____

14. If one of the proposed alternate routes is built, how would the **U.S. 287 abutting** property values be affected? (%/yr.)

Alternative Route	Commercial	Residential	Other
Alternative Route 1	_____	_____	_____
Alternative Route 2	_____	_____	_____
Alternative Route 3	_____	_____	_____

15. If none of the proposed improvements are made to help the "non-local" traffic get through Wichita Falls quicker and more safely, how would **abutting** property values along **U.S. 287** be affected? % change/yr._____ Why?_____
_____
_____

16. General comments._____
_____
_____
_____
_____

APPENDIX B. MAIL OUT QUESTIONNAIRE INSTRUMENTS

TEXAS TRANSPORTATION INSTITUTE

TRANSPORTATION ECONOMICS PROGRAM

Area Code 409
Telephone 845 • 9939
TexAn 857-9939

December 12, 1990

Nashua Homes Inc
2400 Burkburnett Road
Wichita Falls, Texas 76301

Dear Business Owner:

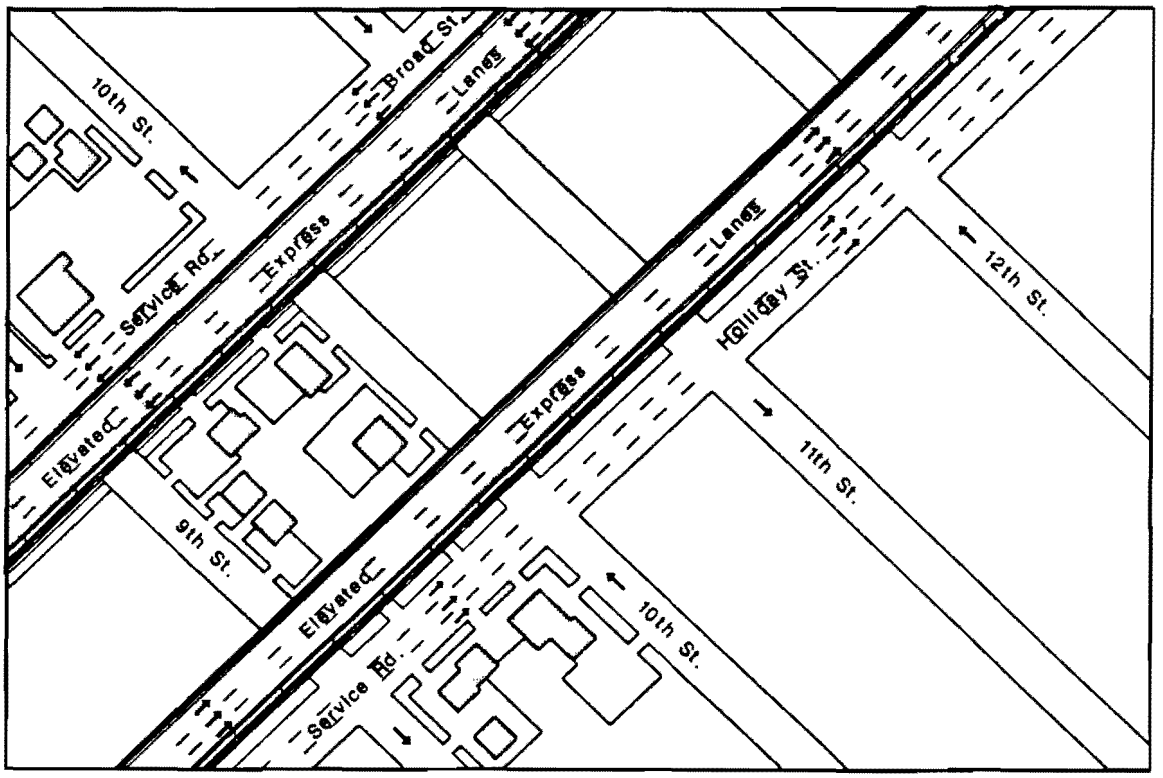
The Texas Transportation Institute at Texas A&M University is doing a study of the **proposed** improvement of a section of U.S. Highway 287 in Wichita Falls. The Highway Department needs information to decide between several options that are being considered. We are asking for your help in providing this information. We would like to know how you think each of these options would affect you, your business, and the City of Wichita Falls. Please take a few minutes to fill out the enclosed questionnaire and return the answer sheets (Pages 2,4,6,8,10,11,12, and 13) to us in the envelope provided as soon as possible. We will study the results as a group. All answers are confidential. Your name or information about you will not be used in any way that would identify you.

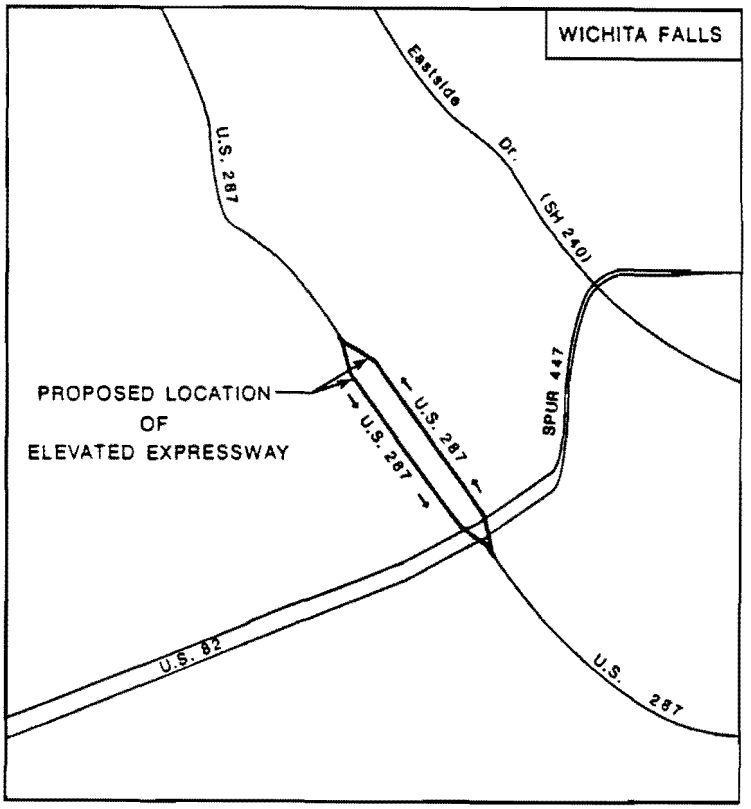
It is important that we hear from everyone so that the full impacts of each option can be measured. We thank you in advance for your time and help with this study.

Sincerely,

Jesse L. Buffington
Study Supervisor

One option that has been proposed to handle Highway 287 through-town traffic is to build an **elevated expressway** with service roads on U.S. Highway 287 along Broad and Holliday Streets. The picture below is an example of how the proposed expressway might look. The map shows where the expressway would be built.

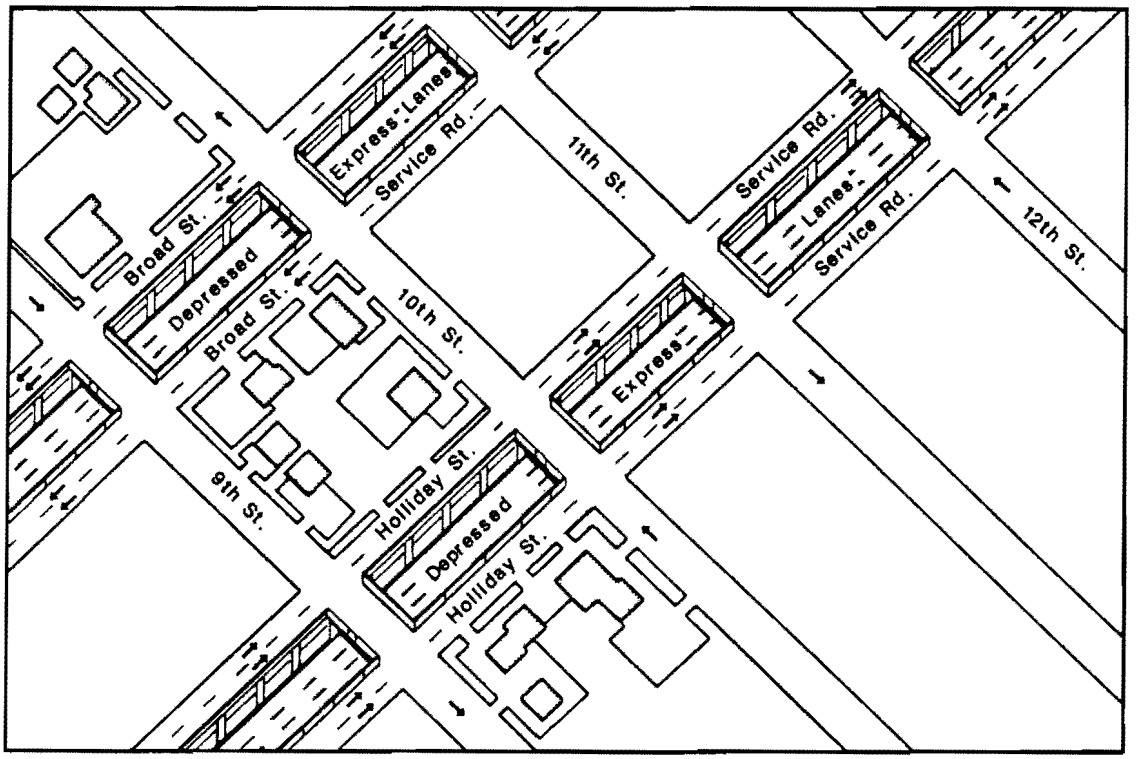


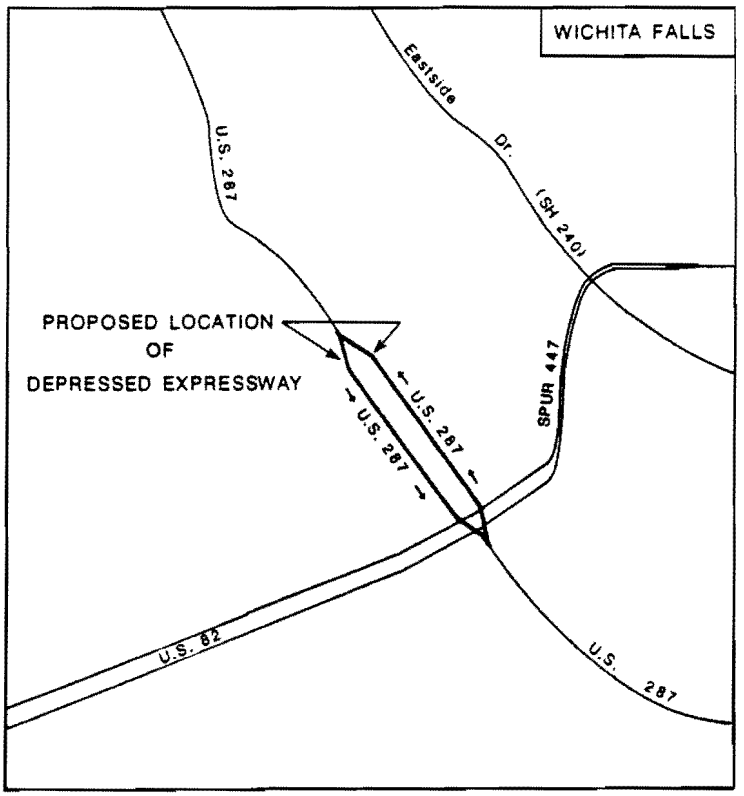


There are several ways that building an **elevated expressway** might affect the people, businesses, and travelers in the City of Wichita Falls. If the **elevated expressway** was built, what do you think would happen to the things in the list below afterwards? Please check for each one if you think it would go up, go down, or stay the same.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls.							
2. Number of accidents on Highway 287 between 5th and 16th streets.							
3. Traffic volume on Highway 287.							
4. Sales volumes for businesses on Highway 287.							
5. Property values on Highway 287.							
6. Noise levels on Highway 287.							
7. General appearance of the area of town near Highway 287.							
8. Sales volume of your business during construction.							
9. Sales volume of your business after construction.							

A second option that has been proposed to handle Highway 287 through-town traffic is to build a **depressed expressway** with service roads on U.S. Highway 287 along Broad and Holliday Streets. The picture below is an example of how the proposed expressway might look. The map shows where the expressway would be built.

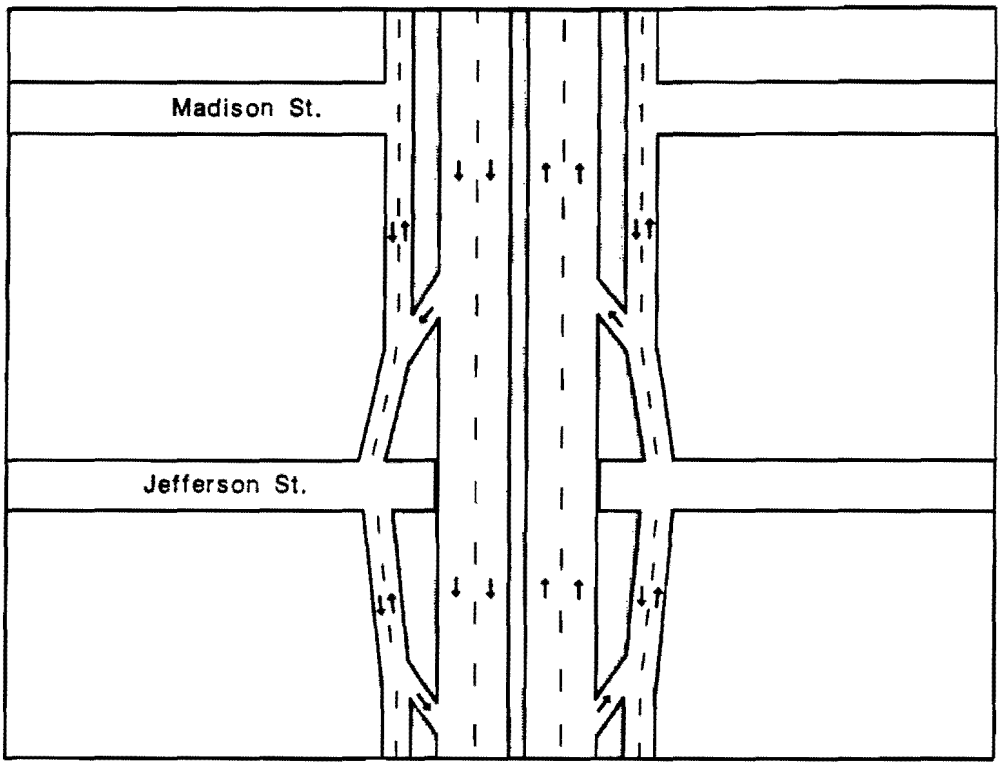


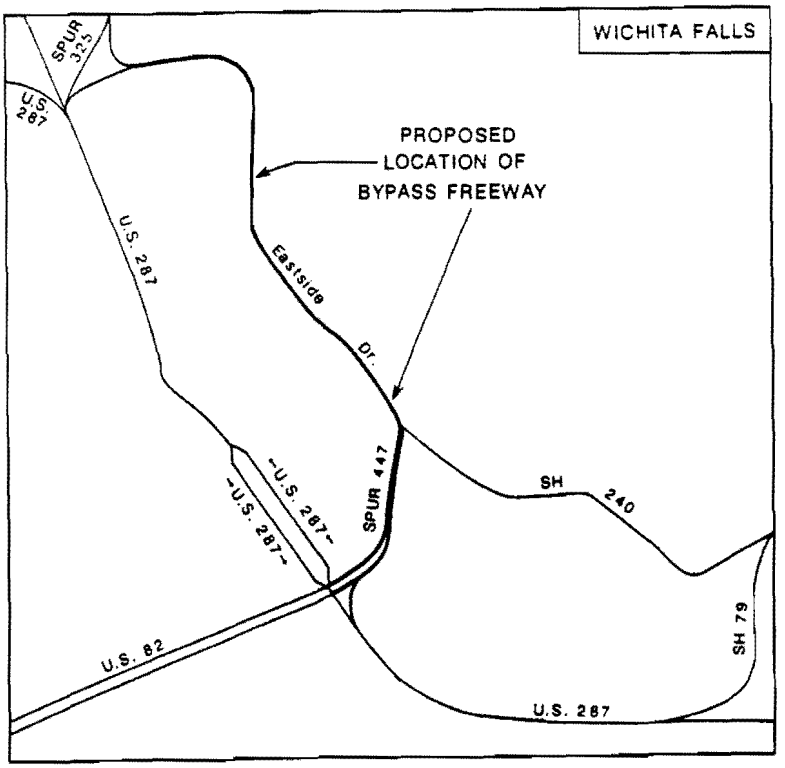


There are several ways that building a **depressed expressway** might affect the people, businesses, and travelers in the City of Wichita Falls. If the **depressed expressway** was built, what do you think would happen to the things in the list below afterwards? Please check for each one if you think it would go up, go down, or stay the same.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls.							
2. Number of accidents on Highway 287 between 5th and 16th streets.							
3. Traffic volume on Highway 287.							
4. Sales volumes for businesses on Highway 287.							
5. Property values on Highway 287.							
6. Noise levels on Highway 287.							
7. General appearance of the area of town near Highway 287.							
8. Sales volume of your business during construction.							
9. Sales volume of your business after construction.							

A third option to handle Highway 287 through-town traffic is to build a **bypass** freeway with service roads that will leave Highway 287 beginning at Spur 447, follow Eastside Drive, and connect back with Highway 287 at Spur 325. The picture below is an example of the type of road that would be built. The map shows the route of the proposed bypass.

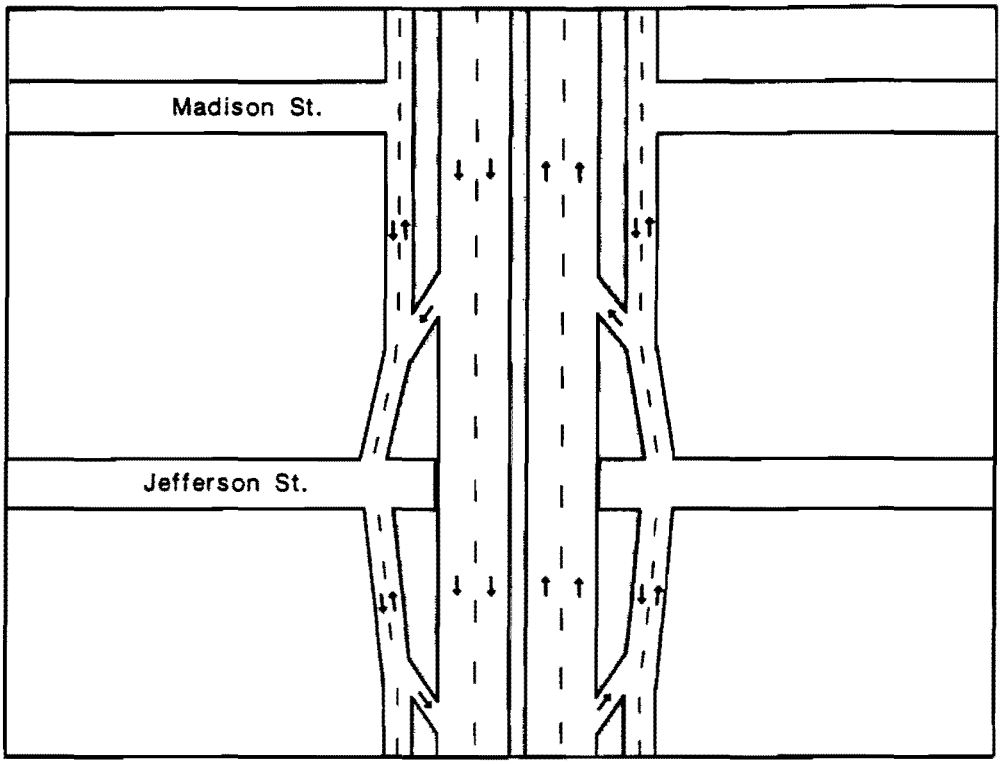


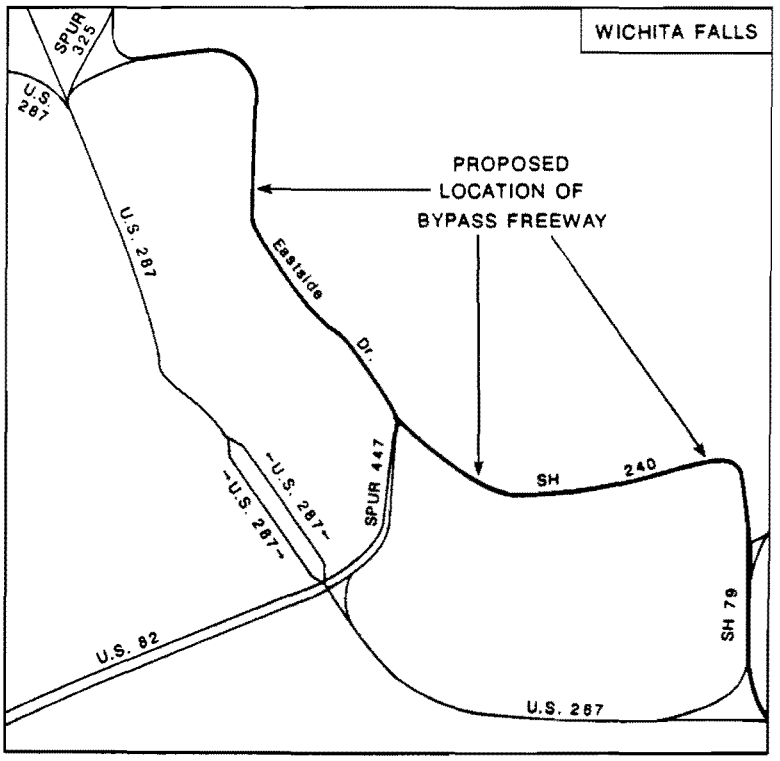


What do you think the effects of building a **bypass** leaving Highway 287 at Spur 447, following Eastside Drive, and connecting back with Highway 287 at Spur 325, would be?

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls on Highway 287.							
2. The time it takes to travel through Wichita Falls on Eastside Drive.							
3. Number of accidents on Highway 287 on Broad and Holliday Streets.							
4. Number of accidents on Eastside Drive.							
5. Traffic volume on Highway 287.							
6. Traffic volume on Eastside Drive.							
7. Sales volumes for businesses on Highway 287.							
8. Sales volumes for businesses on Eastside Drive.							
9. Property values for businesses on Highway 287.							
10. Property values for businesses on Eastside Drive.							
11. Noise levels on Highway 287.							
12. Noise levels on Eastside Drive.							
13. General appearance of the area of town near Highway 287.							
14. General appearance of the area of town near Eastside Drive.							
15. Sales volume of your business during construction.							
16. Sales volume of your business after construction.							

A fourth option to handle Highway 287 through-town traffic is to build a **bypass** freeway with service roads that will leave Highway 287 at Spur 325, follow Eastside Drive, and connect back with Highway 287 at State Highway 79. The picture below is an example of the type of road that would be built. The map shows the route of the proposed bypass.

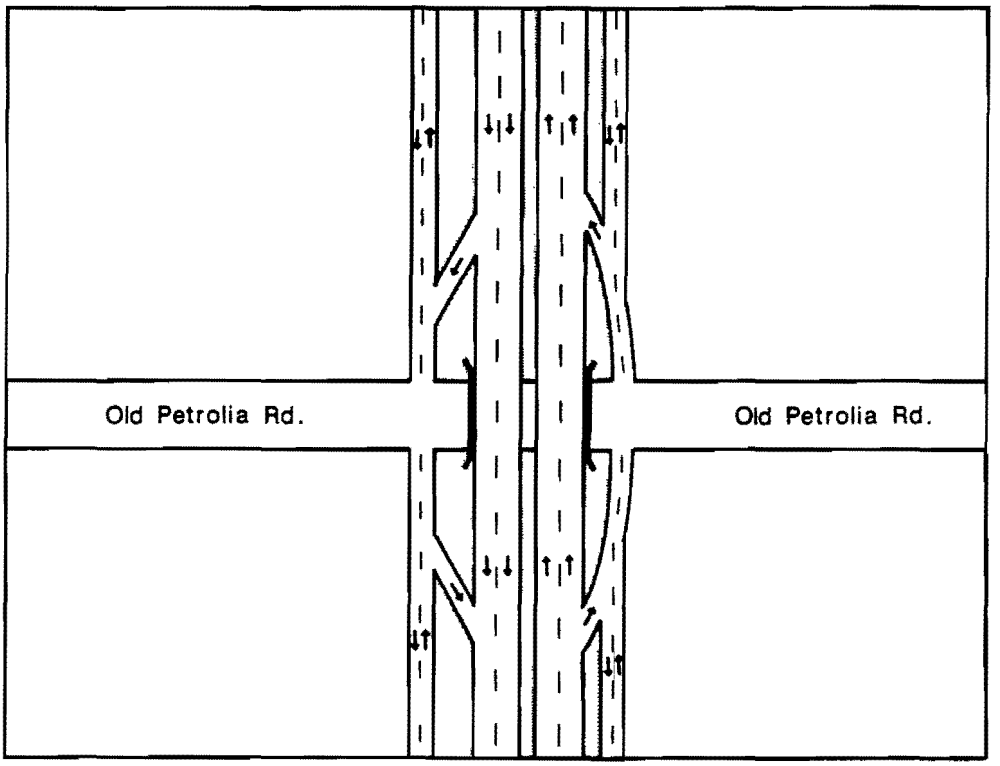


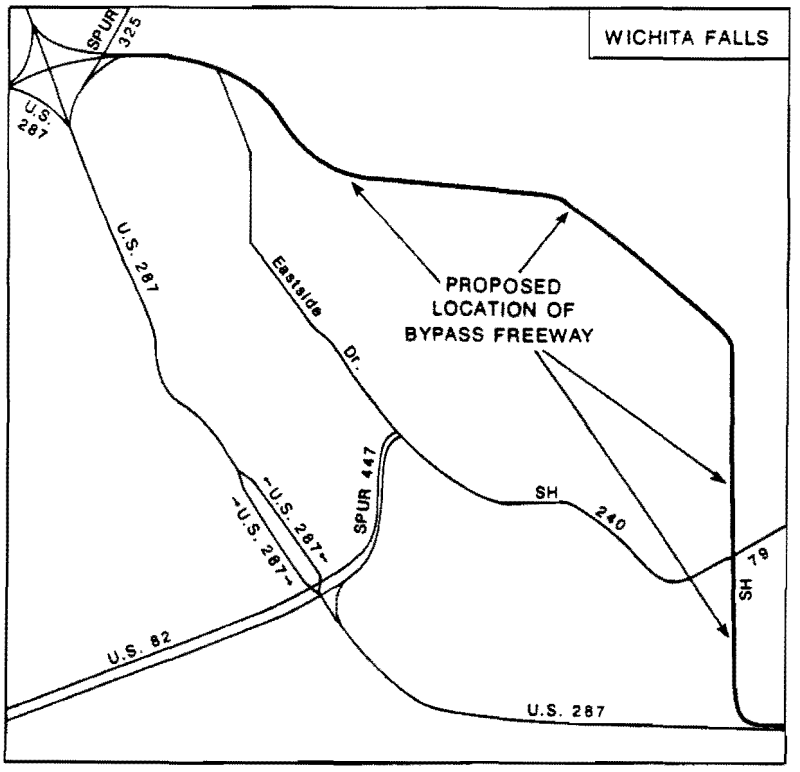


What do you think the effects of building a **bypass** leaving Highway 287 at Spur 325, following Eastside Drive, and connecting back with Highway 287 at State Highway 79, would be?

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls on Highway 287.							
2. The time it takes to travel through Wichita Falls on Eastside Drive.							
3. Number of accidents on Highway 287 on Broad and Holliday Streets.							
4. Number of accidents on Eastside Drive.							
5. Traffic volume on Highway 287.							
6. Traffic volume on Eastside Drive.							
7. Sales volumes for businesses on Highway 287.							
8. Sales volumes for businesses on Eastside Drive.							
9. Property values for businesses on Highway 287.							
10. Property values for businesses on Eastside Drive.							
11. Noise levels on Highway 287.							
12. Noise levels on Eastside Drive.							
13. General appearance of the area of town near Highway 287.							
14. General appearance of the area of town near Eastside Drive.							
15. Sales volume of your business during construction.							
16. Sales volume of your business after construction.							

A fifth option to handle Highway 287 through-town traffic is to build a **new freeway** with service roads that will bypass the City of Wichita Falls. This freeway would begin at the intersection of Highway 287 and Spur 325 and connect back with Highway 287 at State Highway 79. The picture below is an example of the type of road that would be built. The map shows the route of the proposed bypass.





What effects do you think building a **new freeway** around the City of Wichita Falls would have on Highway 287 and on Eastside Drive?

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls on Highway 287.							
2. The time it takes to travel through Wichita Falls on Eastside Drive.							
3. Number of accidents on Highway 287 on Broad and Holliday Streets.							
4. Number of accidents on Eastside Drive.							
5. Traffic volume on Highway 287.							
6. Traffic volume on Eastside Drive.							
7. Sales volumes for businesses on Highway 287.							
8. Sales volumes for businesses on Eastside Drive.							
9. Property values for businesses on Highway 287.							
10. Property values for businesses on Eastside Drive.							
11. Noise levels on Highway 287.							
12. Noise levels on Eastside Drive.							
13. General appearance of the area of town near Highway 287.							
14. General appearance of the area of town near Eastside Drive.							
15. Sales volume of your business during construction.							
16. Sales volume of your business after construction.							

For each of the five options, what do you think the effects would be on the City of Wichita Falls and for the employees of your business?

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
Option 1 (Elevated Expressway) 1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Time it takes to get to or from work for employees of your business.							
Option 2 (Depressed Expressway) 1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Time it takes to get to or from work for employees of your business.							
Option 3 (Bypass on Eastside Drive) 1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Time it takes to get to or from work for employees of your business.							
Option 4 (Bypass on Eastside Drive) 1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Time it takes to get to or from work for employees of your business.							
Option 5 (Bypass around Wichita Falls) 1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Time it takes to get to or from work for employees of your business.							

What do you think the effect would be on the City of Wichita Falls if **none** of the proposed Highway 287 improvements were built?

Possible Effects on Wichita Falls If No New Highway Was Built	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Travel time for travelers through Wichita Falls.							
5. Sales volumes of businesses on Highway 287.							
6. Sales volumes of businesses on Eastside Drive.							
7. Property values on Highway 287.							
8. Property values on Eastside Drive.							

Of the five options described in the previous questions, if you had to make the decision as to which one to build, which option would you choose? (Please check one.)

_____ 1. Elevated expressway on Highway 287 between 5th and 16th Streets.

_____ 2. Depressed expressway on Highway 287 between 5th and 16th Streets.

_____ 3. Bypass Option 3 on Eastside Drive.

_____ 4. Bypass Option 4 on Eastside Drive.

_____ 5. Bypass Option 5 around Wichita Falls.

Why do you prefer the Option you chose?

_____

_____

_____

_____

To compare opinions on the proposed options, we ask the following questions about each business. All of your responses are confidential.

1. What type of business is at the address to which this survey was mailed?

_____Retail sales
_____Retail service
_____Professional service
_____Other (Please describe:_____)

2. Do you own or lease this building?

_____Owned by the business
_____Leased by the business

3. About how old is this building?

_____Less than 1 year old
_____1 to 10 years old
_____11 to 25 years old
_____More than 25 years old

4. How old is the business in this building?

_____Less than 1 year
_____1 to 10 years old
_____11 to 25 years old
_____More than 25 years old

5. How many people are employed at this business? (Give the average number of employees for 1989, including the owner and/or manager.)

_____Number of full-time employees (or full time equivalents)
_____Number of part-time employees

6. What was the total gross sales volume for this business at this address in 1989?

_____Less than $100,000
_____$100,000 - $500,000
_____$500,001 - $1,000,000
_____More than $1,000,000

7. Please estimate the percentage of your customers that come from the part of town where your business is, other parts of town, and out-of-town.

_____Percent this part of town
_____Percent other parts of town
_____Percent out-of-town

TEXAS TRANSPORTATION INSTITUTE

TRANSPORTATION ECONOMICS PROGRAM

Area Code 409
Telephone 845 • 9939
TexAn 857-9939

December 12, 1990

RESIDENT
1621 CENTRAL FREEWAY
WICHITA FALLS, TEXAS 76302

Dear Resident:

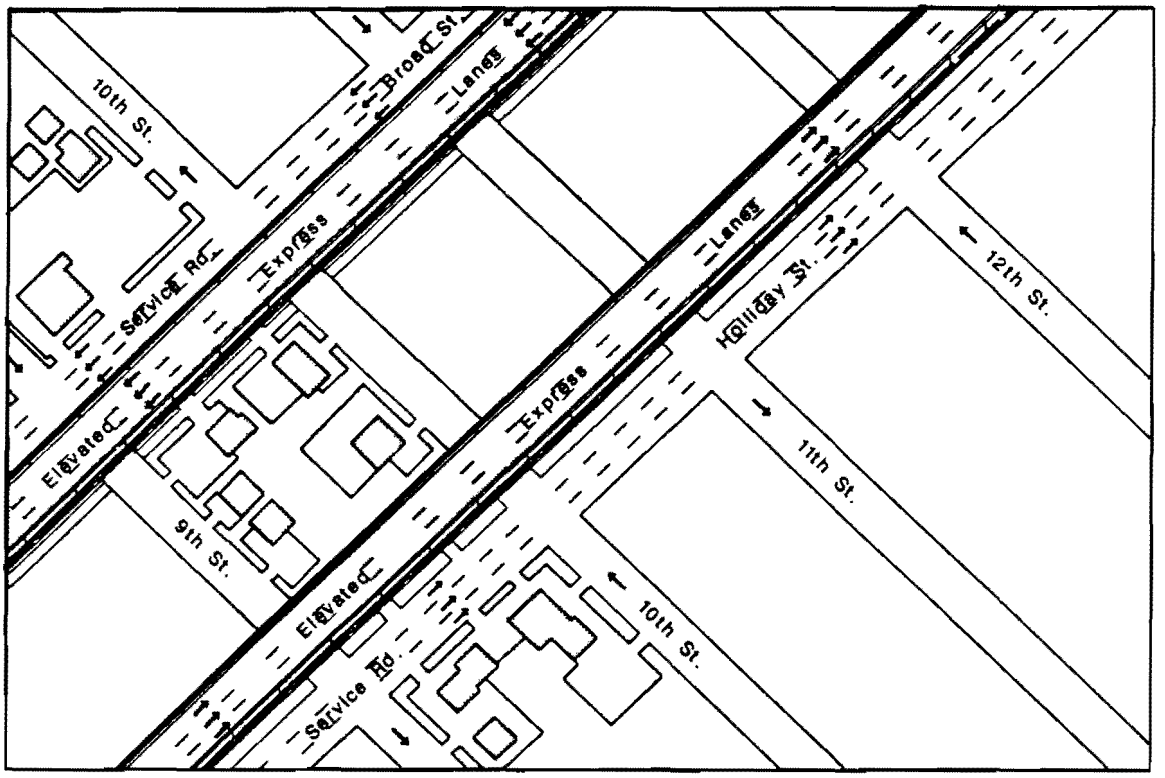
The Texas Transportation Institute at Texas A&M University is doing a study of the **proposed** improvement of a section of U.S. Highway 287 in Wichita Falls. The Highway Department needs information to decide between several options that are being considered. We are asking for your help in providing this information. We would like to know how you think each of these options would affect you, your property, and the City of Wichita Falls. Please take a few minutes to fill out the enclosed questionnaire and return the answer sheets (Pages 2,4,6,8,10,11,12, and 13) to us in the envelope provided as soon as possible. We will study the results as a group. All answers are confidential. Your name or information about you will not be used in any way that would identify you.

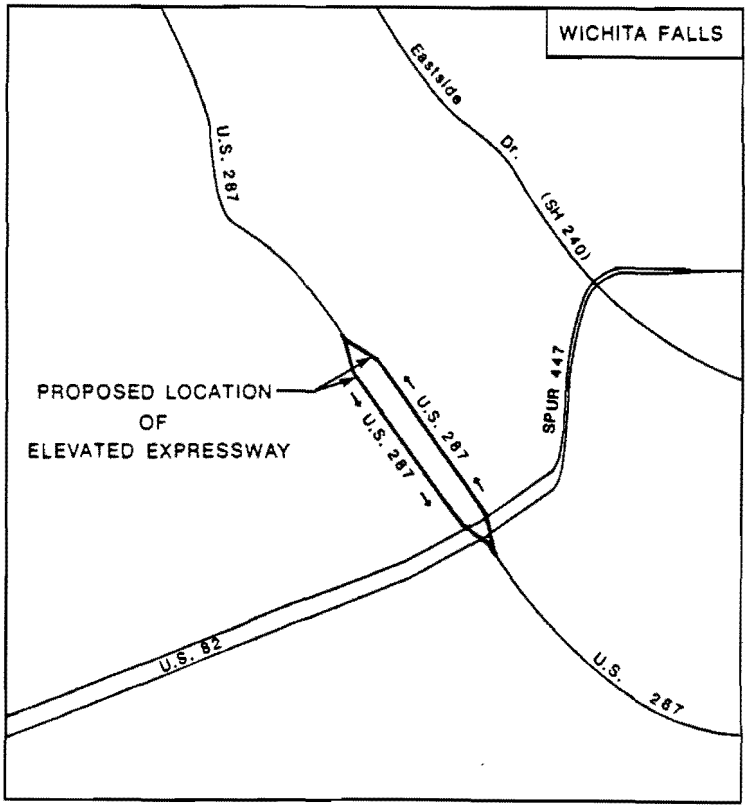
It is important that we hear from everyone so that the full impacts of each option can be measured. We thank you in advance for your time and help with this study.

Sincerely,

Jesse L. Buffington
Study Supervisor

One option that has been proposed to handle Highway 287 through-town traffic is to build an **elevated expressway** with service roads on U.S. Highway 287 along Broad and Holliday Streets. The picture below is an example of how the proposed expressway might look. The map shows where the expressway would be built.

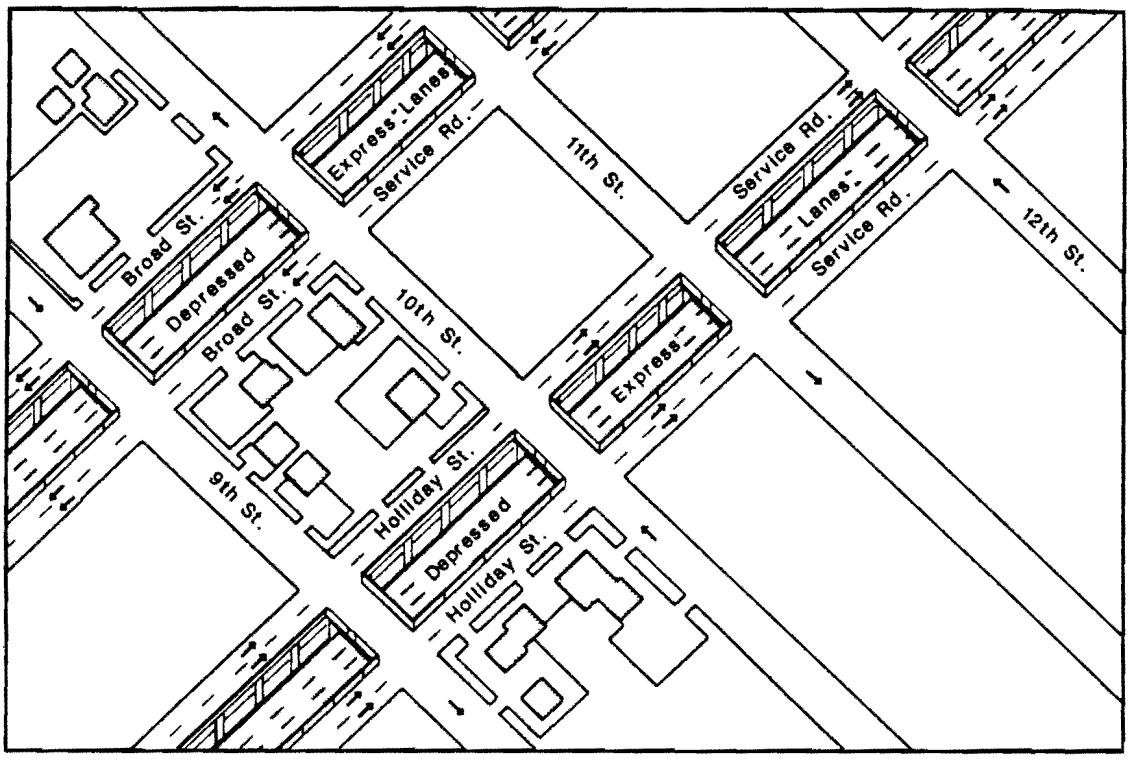


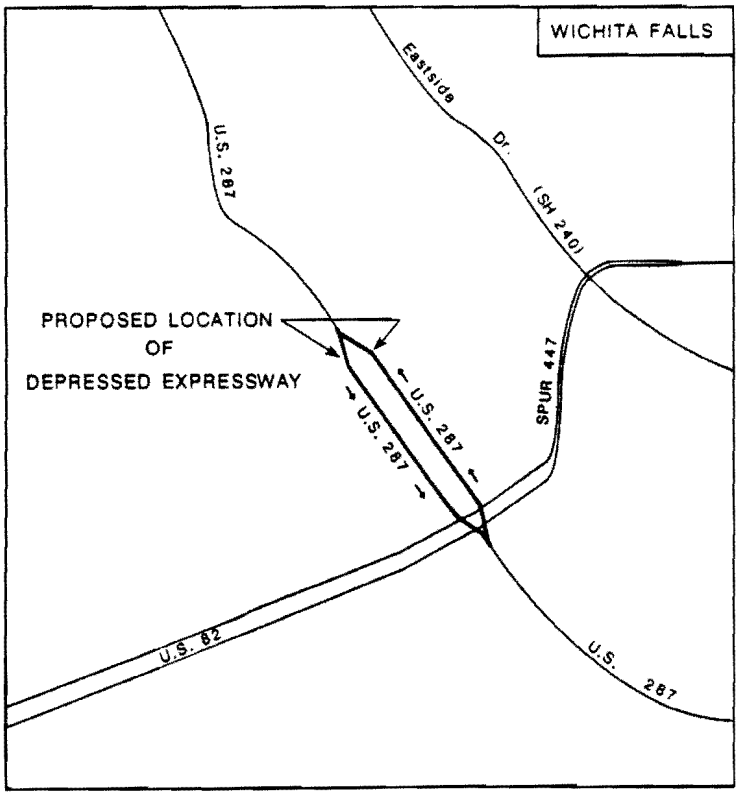


There are several ways that building an **elevated expressway** might affect the people, businesses, and travelers in the City of Wichita Falls. If the **elevated expressway** was built, what do you think would happen to the things in the list below afterwards? Please check for each one if you think it would go up, go down, or stay the same.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls.							
2. Number of accidents on Highway 287 between 5th and 16th streets.							
3. Traffic volume on Highway 287.							
4. Sales volumes for businesses on Highway 287.							
5. Property values on Highway 287.							
6. Noise levels on Highway 287.							
7. General appearance of the area of town near Highway 287.							

A second option that has been proposed to handle Highway 287 through-town traffic is to build a **depressed expressway** with service roads on U.S. Highway 287 along Broad and Holliday Streets. The picture below is an example of how the proposed expressway might look. The map shows where the expressway would be built.

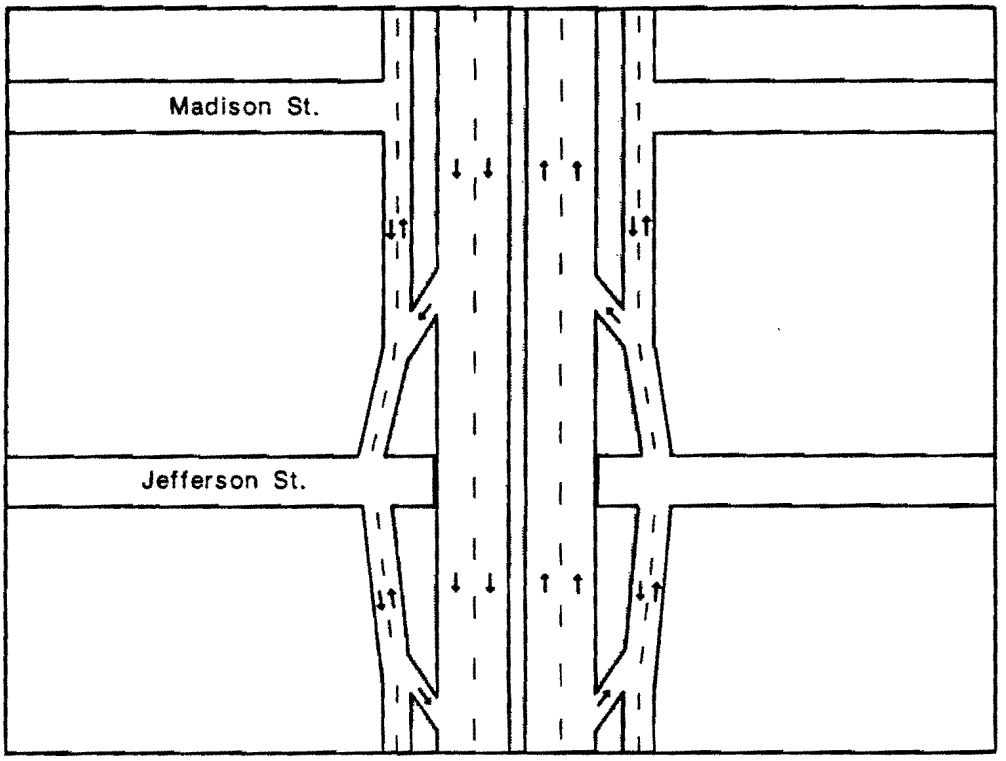


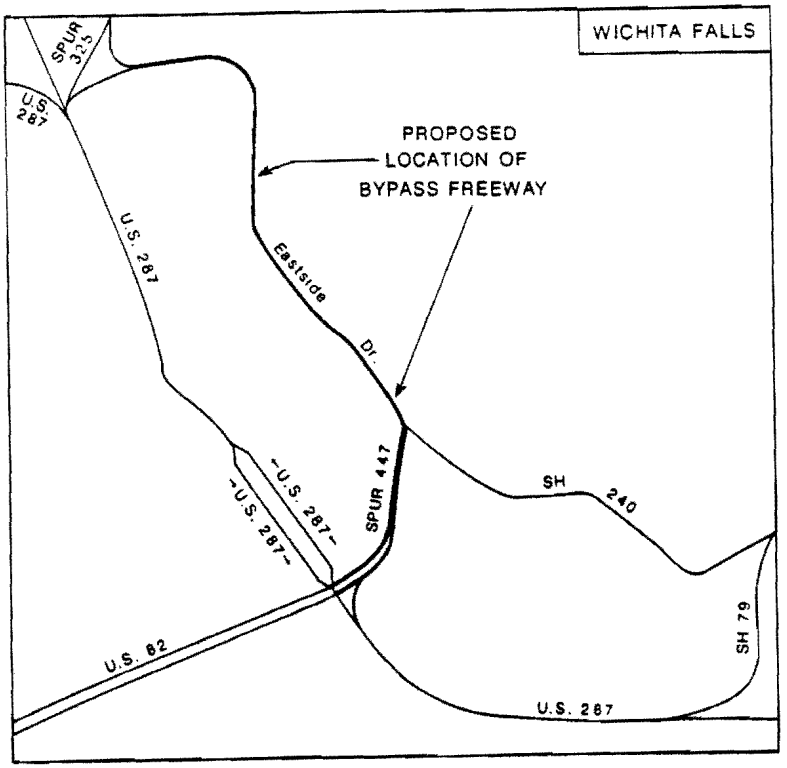


There are several ways that building a **depressed expressway** might affect the people, businesses, and travelers in the City of Wichita Falls. If the **depressed expressway** was built, what do you think would happen to the things in the list below afterwards? Please check for each one if you think it would go up, go down, or stay the same.

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls.							
2. Number of accidents on Highway 287 between 5th and 16th streets.							
3. Traffic volume on Highway 287.							
4. Sales volumes for businesses on Highway 287.							
5. Property values on Highway 287.							
6. Noise levels on Highway 287.							
7. General appearance of the area of town near Highway 287.							

A third option to handle Highway 287 through-town traffic is to build a **bypass** freeway with service roads that will leave Highway 287 beginning at Spur 447, follow Eastside Drive, and connect back with Highway 287 at Spur 325. The picture below is an example of the type of road that would be built. The map shows the route of the proposed bypass.

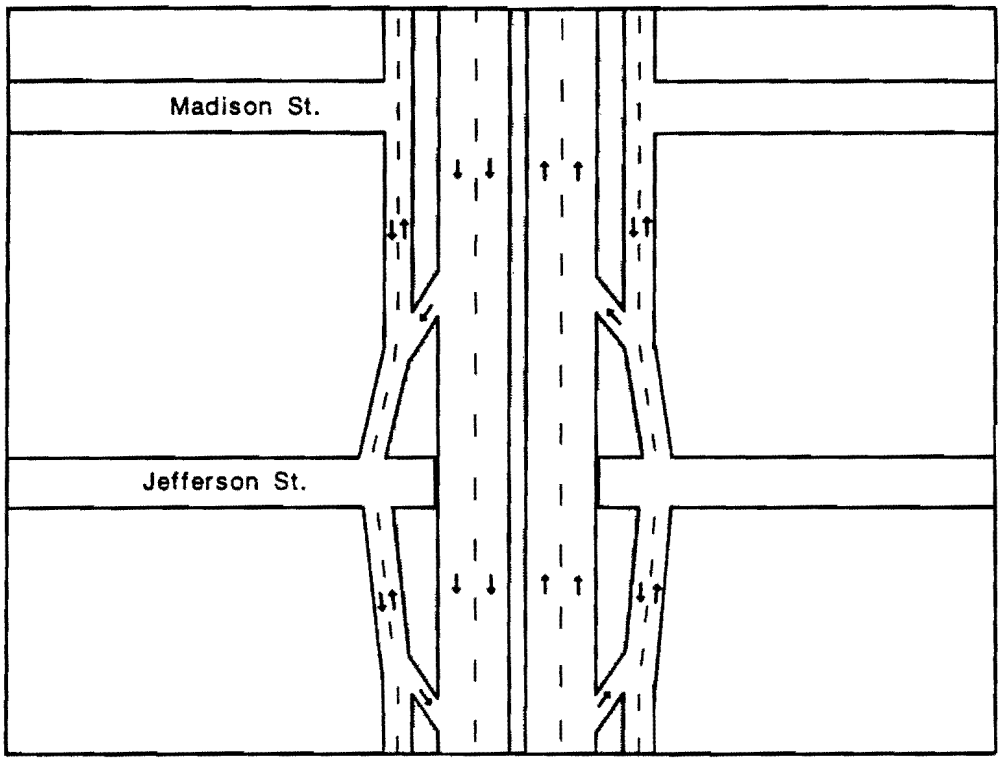


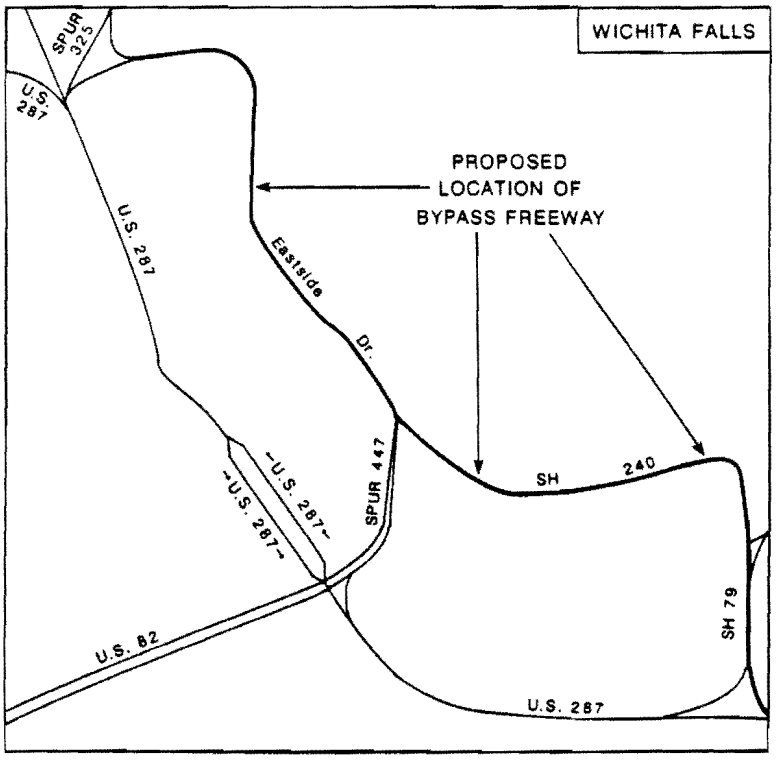


What do you think the effects of building a **bypass** leaving Highway 287 at Spur 447, following Eastside Drive, and connecting back with Highway 287 at Spur 325, would be?

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls on Highway 287.							
2. The time it takes to travel through Wichita Falls on Eastside Drive.							
3. Number of accidents on Highway 287 on Broad and Holliday Streets.							
4. Number of accidents on Eastside Drive.							
5. Traffic volume on Highway 287.							
6. Traffic volume on Eastside Drive.							
7. Sales volumes for businesses on Highway 287.							
8. Sales volumes for businesses on Eastside Drive.							
9. Property values for homeowners on Highway 287.							
10. Property values for homeowners on Eastside Drive.							
11. Noise levels on Highway 287.							
12. Noise levels on Eastside Drive.							
13. General appearance of the area of town near Highway 287.							
14. General appearance of the area of town near Eastside Drive.							

A fourth option to handle Highway 287 through-town traffic is to build a **bypass** freeway with service roads that will leave Highway 287 at Spur 325, follow Eastside Drive, and connect back with Highway 287 at State Highway 79. The picture below is an example of the type of road that would be built. The map shows the route of the proposed bypass.

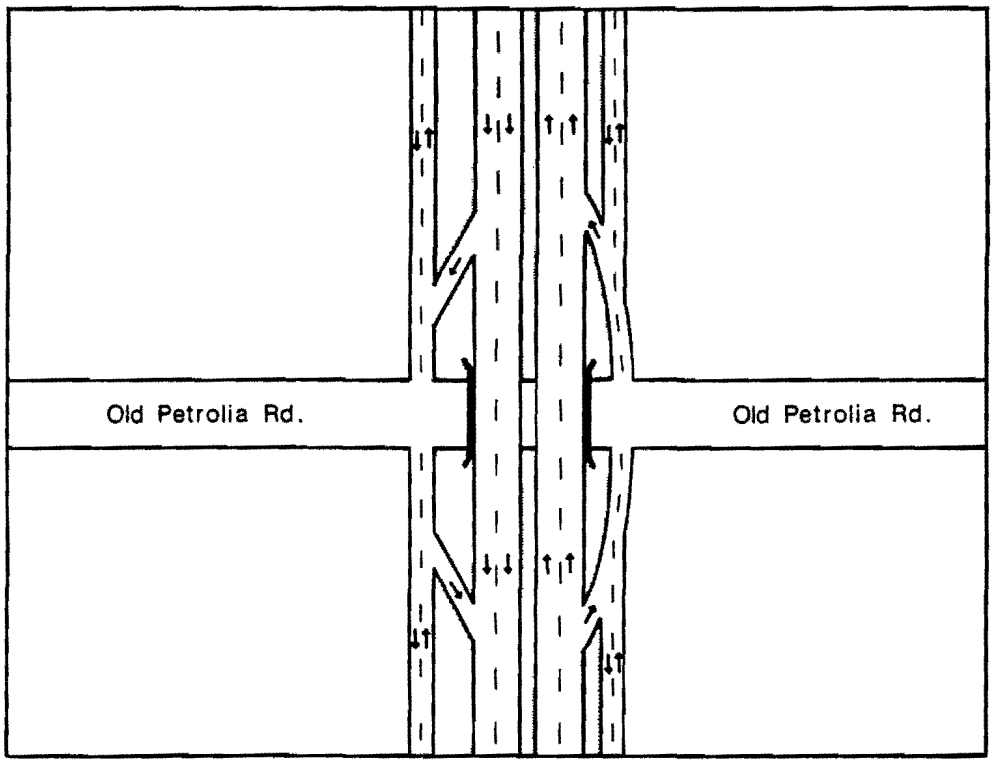


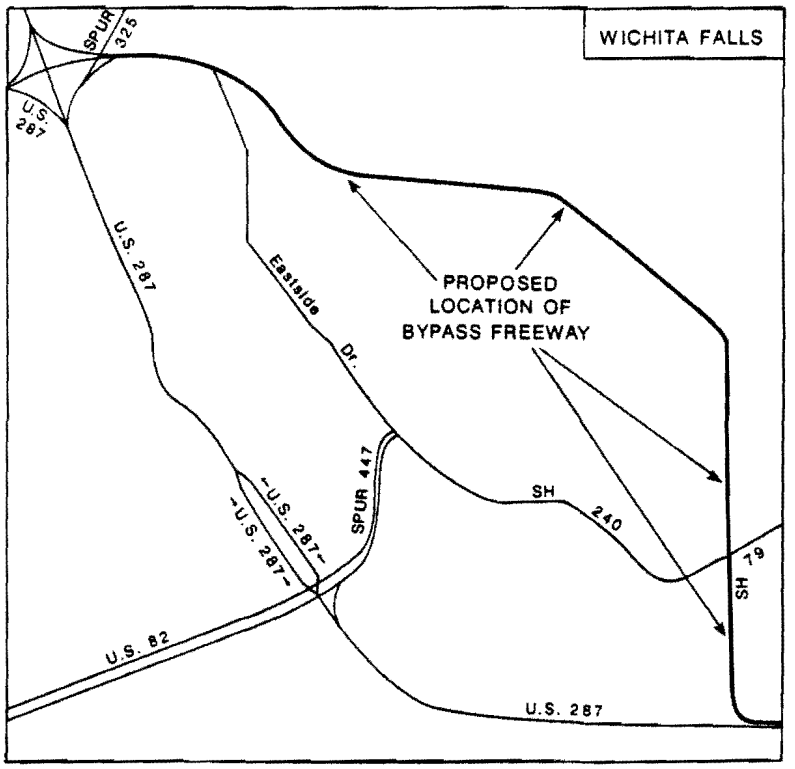


What do you think the effects of building a **bypass** leaving Highway 287 at Spur 325, following Eastside Drive, and connecting back with Highway 287 at State Highway 79, would be?

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls on Highway 287.							
2. The time it takes to travel through Wichita Falls on Eastside Drive.							
3. Number of accidents on Highway 287 on Broad and Holliday Streets.							
4. Number of accidents on Eastside Drive.							
5. Traffic volume on Highway 287.							
6. Traffic volume on Eastside Drive.							
7. Sales volumes for businesses on Highway 287.							
8. Sales volumes for businesses on Eastside Drive.							
9. Property values for homeowners on Highway 287.							
10. Property values for homeowners on Eastside Drive.							
11. Noise levels on Highway 287.							
12. Noise levels on Eastside Drive.							
13. General appearance of the area of town near Highway 287.							
14. General appearance of the area of town near Eastside Drive.							

A fifth option to handle Highway 287 through-town traffic is to build a **new freeway** with service roads that will bypass the City of Wichita Falls. This freeway would begin at the intersection of Highway 287 and Spur 325 and connect back with Highway 287 at State Highway 79. The picture below is an example of the type of road that would be built. The map shows the route of the proposed bypass.





What effects do you think building a **new freeway** around the City of Wichita Falls would have on Highway 287 and on Eastside Drive?

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. The time it takes to travel through Wichita Falls on Highway 287.							
2. The time it takes to travel through Wichita Falls on Eastside Drive.							
3. Number of accidents on Highway 287 on Broad and Holliday Streets.							
4. Number of accidents on Eastside Drive.							
5. Traffic volume on Highway 287.							
6. Traffic volume on Eastside Drive.							
7. Sales volumes for businesses on Highway 287.							
8. Sales volumes for businesses on Eastside Drive.							
9. Property values for homeowners on Highway 287.							
10. Property values for homeowners on Eastside Drive.							
11. Noise levels on Highway 287.							
12. Noise levels on Eastside Drive.							
13. General appearance of the area of town near Highway 287.							
14. General appearance of the area of town near Eastside Drive.							

For each of the five options, what do you think the effects would be on the City of Wichita Falls and for the members of your household?

Possible Effects	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
Option 1 (Elevated Expressway) 1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Time it takes to get to or from work for members of your household.							
Option 2 (Depressed Expressway) 1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Time it takes to get to or from work for members of your household.							
Option 3 (Bypass on Eastside Drive) 1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Time it takes to get to or from work for members of your household.							
Option 4 (Bypass on Eastside Drive) 1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Time it takes to get to or from work for members of your household.							
Option 5 (Bypass around Wichita Falls) 1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Time it takes to get to or from work for members of your household.							

What do you think the effect would be on the City of Wichita Falls if **none** of the proposed Highway 287 improvements were built?

Possible Effects on Wichita Falls If No New Highway Was Built	Up More Than 50%	Up 10% to 50%	Up Less Than 10%	Stay the Same	Down Less Than 10%	Down 10% to 50%	Down More Than 50%
1. General economy of Wichita Falls.							
2. General attractiveness of Wichita Falls.							
3. General safety of Wichita Falls for motorists.							
4. Travel time for travelers through Wichita Falls.							

Of the five options described in the previous questions, if you had to make the decision as to which one to build, which option would you choose? (Please check one.)

_____ 1. Elevated expressway on Highway 287 between 5th and 16th Streets.

_____ 2. Depressed expressway on Highway 287 between 5th and 16th Streets.

_____ 3. Bypass Option 3 on Eastside Drive.

_____ 4. Bypass Option 4 on Eastside Drive.

_____ 5. Bypass Option 5 around Wichita Falls.

Why do you prefer the Option you chose?

_____

_____

_____

_____

To compare opinions on the proposed options, we ask the following questions about you and your household. All of your responses are confidential.

1. Please describe the building at the address to which this survey was mailed. Is this:

_____A single-family house
_____An apartment
_____A duplex
_____A garage apartment

2. Do you (or someone else living at this address) own or rent this building?

_____Own
_____Rent

3. About how old is this building?

_____Less than 1 year old
_____1 to 10 years old
_____11 to 25 years old
_____More than 25 years old

4. How long have you lived in this building?

_____Less than 1 year
_____1 to 5 years
_____6 to 10 years
_____More than 10 years

5. How many people live in this household? _____

6. What is the age of the head of this household?

_____18 to 25 years old
_____26 to 35 years old
_____36 to 45 years old
_____46 to 55 years old
_____56 to 65 years old
_____over 65 years old

7. What was the total income in 1989 for this household?

_____Less than $15,000
_____$15,000 - $25,000
_____$25,001 - $45,000
_____$45,001 - $65,000
_____$65,001 - $85,000
_____More than $85,000

APPENDIX C. COMMENTS FROM SURVEYS AND INTERVIEW

Wichita Falls Mail Out Survey

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Of the five options described in the previous questions, if you had to make the decision as to which one to build, which option would you choose? (Please check one.)

1. *Elevated expressway on Highway 287 between 5th and 16th streets.*
2. *Depressed expressway on Highway 287 between 5th and 16th streets.*
3. *Bypass Option 3 on Eastside Drive.*
4. *Bypass Option 4 on Eastside Drive.*
5. *Bypass Option 5 around Wichita Falls.*

Why do you prefer the Option you chose?

Comments Received

1. Elevated expressway on Highway 287 between 5th and 16th streets

* Much safer for motorists traveling Broad & Holiday Streets, but also still brings travelers through Wichita Falls making it convenient for them to stop at business along Broad and Holliday Street. This method would make travel safer, easier, & still would not hurt the economy of the city.

* Traveling thru Austin was nice, & you still had your access roads to get to food, motel, and services.

* Process of elimination. Options 4 & 5 bypass our business. Option 3 bypasses downtown, which is nearly dead now. that would be the last straw; downtown would completely expire. Option 2 is too risky for a town like Wichita Falls. People don't like the idea of driving underground. Also an elevated overpass would allow people driving through town to view some of our attractions.

* Eliminate the traffic problems, improve safety. I believe the benefits would more than offset the economic impact on existing business.

* Which every one is the most cost efficient

* This option was planned some 20 year ago and it should not be changed. It is the most economical option & at this time. We need to get all the safety

we can on our highways at the lowest price. this option will affect the business along the highway the least. Any business on Holliday or Broad St. that has been built recently knew the expressway might go overhead someday. They could have chosen a different location as I did, so as not to be affected by on overhead highway.

* Any by-pass of a town of this size would hurt our economy- After watching smaller towns between us like Oklahoma city - us and dallas, small towns are dying due to highway bypasses.

* Less construction time, keep traffic flow through Wichita Falls.

* All restaurants and motels are located on 287. Many businesses would have to relocate in order to stay alive. Motels keep people in W.F. overnight: more business.

* "In my opinion it would be a serious mistake for the Texas Highway Department to consider any option, except elevated lanes, where the highway is divided going thru Wichita Falls. It seems this is the most economical way, as well as the shortest route, as well as less damages to the business's located on the highway at this time."

* Help our city.

* Overall effect on economy would be better. Cost would probably be less overall.

* Other side of town

* Cost

* So you can stay on 287 thru town (2) elevated expressway would be more attractive than a depressed expressway. 3-4-5- you would have to purchase more right of way on the other three options, which would be a lot more expensive than the elevated expressway. It is hard to change the flow of traffic. Option 3-4-5 --depressed area of W.Falls travelers would get the wrong impression of W.Falls.

* Advantage: cost - would probably require less money for construction.
Disadvantage: existing business would probably lose some business during and after construction.

2. *Depressed expressway on Highway 287 between 5th and 16th streets*

* Seems less hurt to business if the access are right with good off ramp location.

* Appearance, plus our business depends on a good flow of traffic both local & travelers.

* Expressway on Highway 287 would improve motorist safety with minimum impact on economy. any bypass option would have serious economic impact for business alone Highway 287 and the downtown area.

* overall improved safety and appearance.

* To try and not divert travelers around the town as far as business goes.

3. *Bypass Option 3 on Eastside Drive*

* I think it would help clean up a blighted area of town and improve the economy in that area more than it would depress businesses that not exist on 287. I also think it would be the most economical solution for Wichita Falls.

* 1. Improve a blighted area
  2. Does not interfere with the major economic area along 287.
  3. Encourages business expansion toward the east side
  4. Will encourage future growth of our general economy.

* Less expensive; Serve same purpose

* This would cause the least hardship and provide for the most beneficial long range solution.

4. *Bypass Option 4 on Eastside Drive*

* Safety and the potential of new businesses on Eastside drive.

* It is the shortest distance thru town & the noise level would be equalized somewhat. There is plenty of good property on E.side. It would make the city a more balanced place to live. I believe this is the cheapest route to take.

* It would help the eastside area improve and would relieve traffic on 287 at the same time.

5. Bypass Option 5 around Wichita Falls

* The point is to try to get traffic around or thru W.F. with as little impact to business and increased safety to motorist. this, I feel would accomplish these criteria.

* Because this would have the least overall effect on the city as a whole. Travelers needing gas, food, etc. could come into the city as they now do. Those not in need of these services could go around and get caught up in local traffic.

Business Interview

The following are comments or summaries of comments made during interviews with business owners on Holliday and broad Streets in Wichita Falls August 13 - August 16, 1990.

* The Highway Department is determined to put in an elevated expressway. I'm for a bypass. I hope they don't do it (the elevated lanes). The main negative impacts of the elevated options are: 1) noise, 2) appearance, 3) lack of access to businesses. ...feels the Highway Department has already made up their mind. Questions their objectivity. They (SDHPT) had a meeting on the aesthetics of the elevated lane option. They tell him they've already decided on the elevated.

* I haven't heard any more about it. I figured they had put it in the closed book. For anything routes affect trucks a different way, whether it's thru town or a bypass. But I think a bypass (longer option on new location) would be best because it would go around residences.

* Concerned with thru route because it goes through a viable business area. Property would devalue, and it would physically scar the area. The two major hospitals would keep the area viable without improvements to 287. I am in favor of something coming through because it will eventually lead us to being on an Interstate. It would be better for the city, without a doubt. There is too much military agriculture, etc. in the area to not be linked to the Interstate System. 287 is unsafe as it is.

* Finish the truck route they have. ...They want an Interstate and are determined to get it. We don't think we have that kind of traveling problem to be spending that kind of money and putting businesses out of business, ... 9 out of 10 wrecks are from 10th St. traffic not stopping at the red light. This problem won't be solved by the elevated lanes. The service road will still

have lights and the same problems. ... The Highway Department projects 100,000 cars on 287, 60,000 on the elevated, and 40,000 on the service road. We have 40,000 on 287 now. It doesn't stand to reason that fewer lanes (on the service road) will carry the same number of cars any more safely. ... We don't have traffic problems like Dallas, Austin, etc. ... The Highway Department couldn't show us the same situation in other cities (where an elevated cut across a thriving business section). The strip marked for improvement is the second largest income strip in Wichita Falls. This is going to kill it. Then they won't get any tax dollars from this area. If they are counting on relocation, they shouldn't because some businesses may relocate out of town. ... The Highway Department has said the service roads would have no trucks. Trucks will have to travel on the service roads in order to make deliveries and get services. ... They need to solve the accident problem by McDonalds. ...Close 13th or 14th cross streets in order to do away with those lights. ...We don't want Wichita Falls to look like Austin. ...The overhead will be unsafe. During ice storms it will be unsafe and the rerouted traffic will be too much for the service road. Trucks will go off the side. People will throw things off the side. The high wind on an elevated is a problem, and what if we have another tornado, and the structure or columns are damaged? Maybe an elevated is a good idea in the middle of nowhere, but not in an area like this, where there are so many businesses and people below it. ...It will finish off downtown, ...If the State maintains the elevated portion, and the city is asked to maintain the service road, that will mean even more tax dollars the city will have to spend. ...One big issue is construction time. If the Highway Department says it will take 3 to 4 years, we think it will take at least 5 to 6. We would like to see some facts and figures on the completion times compared to the projected completion times for previous projects in the area. ...We think the State should compensate businesses for lost business caused by the construction. ...Older drivers in this area are the ones who use the side roads. They probably won't even get on the elevated once it is built. Since they are a major cause of the accidents now, it will still be a problem if the elevated is built.

* The elevated is the best option because it will slow down the number of wrecks. If the thru traffic is elevated, Wichita Falls residents would have easier access to local businesses, and it will not be as dangerous.

* I am against the overhead freeway. I'm against ruining the city. It will split the city in half, and provide more homes for the homeless under the structure, There are enough derelicts in the park as it is, Wichita Falls needs progress, but that will only ruin the city. The plans for it have already ruined Trade Winds. We intend to fight them on it.

* What he says, and others like him say, is pure selfishness. They <u>have</u> to do

something because it is so dangerous out there.

* The city should buy all the land between Broad and Holliday and build a depressed expressway.

* As far as ... business is affected, any of the bypass options would be a win/win situation because thru traffic would be diverted and it would be safer, Our business is mostly local and from the airbase, so it would not be negatively affected. A similar example is Amarillo, where travelers passing through rarely get off the expressway thru town. If the Highway Department is determined to build the elevated lanes, at least provide access to our business.

* Elevated is good idea.

* ...I can see how restaurants would be negatively affected because people will just go on a few more miles to find another place to stop if they can't get off the overhead.

* We might lose 3 or 4 businesses due to the construction for the thru expressway, but it is still preferred. Something has to be done because the situation is so dangerous. Businesses may suffer but human life is important. If I lose a third of my business or even have to close, then so be it.

* There is not much traffic in the morning and the afternoon to be considered congested. I haven't seen any accidents. Why spend so much money to ruin this area? It's a waste of money for nothing, ...The elevated is dangerous due to ice. It will create more accidents. ...Why not spend 40 million dollars to build a factory instead? ...The population of Wichita Falls is decreasing. An elevated expressway will cause more people to move on. ...It's a foolish thing for government to go to this extreme to ruin the area. There is no congestion problem, and no accident problem. ...What difference will our voice have? ...The strip is so short. It's not even one mile. Why go to the trouble?

* Depressed lanes are by far the worse option. Whatever is decided, access to our business is of utmost importance. At no time should access to the business be totally cut off. From having been through this before ... I can tell you it's important to have meetings frequently with businesses involved, to keep them informed up front about start dates, plans, etc.

* (With the shorter bypass option) Tourists would still come down 287 if it were signed right. ...Truckers would like it too. Make it a mandatory truck route. We could live with the shorter bypass. It would help the Eastside. It would improve property values. It would help the City. And it's a workable plan. The economic cost to the city of the elevated plan outweighs the cost

of the bypass. The negative impact on businesses on 287 would surpass the extra cost of construction for the bypass, ...Downtown is dead. An overpass would bury the town. Three things this town relies on are highways (tourist or travelers), hospitals, and the airforce base. Highways are first. The one or two accidents that have happened in the last 10 years are what's causing all this.