

Section 4: ENVIRONMENTAL CONSEQUENCES

4.1 SOCIAL IMPACTS

The North-South Expressway project passes through a predominantly rural landscape with development limited to the north Shreveport metropolitan area and to towns associated with area highways. With the exception of the urbanized Shreveport area, the Preferred Corridor was intentionally located through sparsely populated areas currently in use for agricultural, oil and gas, and timber purposes.

Social impacts in rural areas may not necessarily be dictated by the physical location of the proposed highway in a particular community, but rather by the presence of the proposed highway through the local area, regardless of the particular alignment location. For this reason, all alignments are expected to have similar social impacts north of Shreveport unless otherwise noted in the following discussions. Social impacts associated with the No-Action alternative would be minimal and are described where appropriate.

4.1.1 Land Use Changes

The North-South Expressway project will have both direct and secondary impacts to existing land uses. The construction of the highway will result in the direct conversion of land currently in forest or agricultural production, to a transportation use. While no secondary development is currently planned, access to a new highway may generate

indirect or secondary land use impacts resulting from possible new or increased residential, commercial, or industrial development in the project area.

Land Use Conversion

Land directly taken by the proposed highway would be converted from its present use to highway use as shown in Table 4-1. For the majority of the route, land would be converted from forest and agricultural land. Impacts to these land uses and vegetative communities are discussed in Section 4.9.

Secondary Development

The North-South Expressway could facilitate secondary development in the study area to some extent regardless of the alignment selected. This development could take several forms:

- Commercial development at interchanges
- Industrial development in existing industrial parks, or the formation of new industrial parks
- Recreational development that may result due to improved access
- Single site industrial developments by manufacturing enterprises that locate in the area due to increased access
- Residential development that may result due to community growth and improved access to nearby job markets.

**Table 4-1
SUMMARY OF LAND USE IMPACTS**

Alignment	Land Use											
	Forested		Agriculture		Oil and Gas Development		Wetlands/ Isolated Ponds		Residential/ Commercial		Totals	
	ha	ac	ha	ac	ha	ac	ha	ac	ha	ac	ha	ac
No-Action	0	0	0	0	0	0	0	0	0	0	0	0
Line 1	277.9	686.7	195.5	483.1	48.4	119.6	58.1	143.6	55.7	137.6	635.6	1,570.6
Line 2	257.1	635.3	232.6	574.8	37.7	93.2	60.1	148.5	53.2	131.5	640.7	1,583.3
Line 3	267.1	660.0	194.7	481.1	50.6	125.0	58.4	144.3	56.0	138.4	626.8	1,548.8
Line 4	204.3	504.8	249.5	616.5	37.5	92.7	64.8	160.1	41.8	103.4	597.9	1,477.5
Preferred	260.3	643.2	235.1	580.9	37.5	92.7	58.0	143.3	48.6	120.1	639.5	1,580.2
Selected	260.2	643.0	235.9	582.9	37.5	92.7	57.1	141.1	49.0	121.1	639.7	1,580.7

Source: Michael Baker Jr., Inc.

Hartgen and Kim (1998) found that the actual extent type of commercial development at interchange locations is influenced by many variables including the size of and distance to nearby communities, and the existing local services offered. In general, more development would be expected at interchanges near larger communities and would likely decrease as the interchange location moves further from the population centers. The size and distance variables are not absolute and exceptions to these general trends can and often do occur. Precise predictions of type and extent of development are not possible.

Little development would be expected at the proposed interchanges located at LA 173, LA 169, and LA 530. While these interchanges provide access to the local highway network, little residential or commercial development exists in this area. Furthermore, a variety of services exist in the Shreveport metropolitan area, which is in close proximity to all of the above interchanges (8-18 km, 5-11 miles). It could be expected that rural interchanges located near the communities of Gilliam, Hosston, Mira, and Ida would experience light commercial development that does not extend far beyond the interchange area. However, even a modest increase in the number of businesses in

such a community would still be a positive economic influence.

In the Shreveport area, Lines 1, 2, 3, and the Selected Alignment have proposed interchanges with LA 1 and Martin Luther King Jr. Drive before intersecting with Interstate 220. Light commercial development would be expected at LA 1 and MLK although a number of services currently exist near these interchanges that could limit new development.

Line 4 also proposes interchanges with LA 1 and Martin Luther King Jr. Drive before intersecting with Interstate 220 at the existing I-220 / U.S. 71 interchange. Development of this southern terminus interchange would impact 19 existing businesses in this area, including the North Market Plaza. New or replacement development would be limited in this area by the lack of available undeveloped commercial property. Limited light commercial development would likely occur at the LA 1 and MLK interchanges.

The Agurs Business Area is located just south of the Preferred Corridor. Over 6,000 people or 25% of Shreveport's manufacturing jobs are currently located in this area. Regardless of the alternative, the proximity of the North-South Expressway to this industrial development would provide increased transportation efficiency for the northward movement of manufactured goods and the north-south movement of raw materials to the

manufacturing industries. This area currently has land available for industrial or commercial development and expansion.

The 1998 opening of the Red River Raceway north of Gilliam has introduced recreational development to North Caddo Parish. Over 18,000 people attended 1998 events. Improved access to this area could increase attendance in future years. The success of this facility could spur additional recreation and commercial development in the surrounding communities of Gilliam and Hosston. Several new convenience/gift store enterprises have already been established in this area.

Single site industrial development could occur near the proposed highway where land is available. This development would be limited by the services and infrastructure local communities could provide.

Additional residential development may occur in North Caddo Parish communities due primarily to improved access to the Shreveport metropolitan area job market. The communities of Belcher, Gilliam, and Hosston would offer current urban area residents an opportunity for a more rural setting with a small town atmosphere that is often desirable in today's residential real estate market.

The No-Action alternative would not result in any development beyond what the current development trends would indicate. Scattered residential development will continue to occur as land becomes available. Limited commercial and retail

growth may continue in and around Gilliam and Hosston to support the Red River Raceway.

Consistency of Highway and Secondary Development with Land Use Plans

In the Shreveport area, the Preferred Corridor of the North-South Expressway project is consistent with both the Shreveport Metropolitan Planning Commission's Land Use Plan and the North Louisiana Council of Governments' (Shreveport-Bossier City area Metropolitan Planning Organization (MPO)) transportation plan. Members of both organizations have participated in this project since 1994, first as part of the Technical Advisory Committee, and currently as part of the Shreveport Local Officials Committee. These groups have participated in six meetings at various stages of the project to discuss both land use and transportation issues as they relate to the development of the North-South Expressway.

Formal land use planning has not been accomplished outside the Shreveport Metropolitan area. However, elected officials from North Caddo Parish rural communities have actively participated in the project development process and have been an active voice in the decision-making process.

4.1.2 Community Changes

The North-South Expressway would result in changes to neighborhoods, travel patterns, local traffic, community services, and property values. These changes would be most evident in communities in or adjacent to the Preferred

Corridor. Communities outside the Preferred Corridor could experience similar types of changes but typically to a lesser degree.

Neighborhoods

Two distinct neighborhoods lie within the north Shreveport portion of the study area, the Martin Luther King, Jr. (MLK) neighborhood and the North Highland neighborhood. The Preferred Corridor crosses the eastern edge of the MLK neighborhood adjacent to McCain Creek and south of MLK Drive. Land east of McCain Creek and the Preferred Corridor is undeveloped to U.S. 71. All alignments, except Line 4, would cross several city streets south of MLK Drive. A field review of this portion of the MLK neighborhood revealed that many of the streets crossed by the alignments, stop or dead-end near McCain Creek or I-220, and are bordered by undeveloped residential lots. Of the alignments through this area, the Selected Alignment would have the fewest residential impacts in the MLK neighborhood. In addition, the Selected Alignment remains as close as possible to McCain Creek and I-220, while avoiding the proposed Paul Lynch Park property, and utilizes undeveloped lots when practical to minimize the overall neighborhood intrusion to the greatest extent possible.

Line 4 would impact the North Highland neighborhood near the I-220/U.S. 71 /North Market Street interchange. While the majority of North Highland residents live north and east of this interchange and would not be directly impacted,

Line 4 and the resulting interchange reconstruction and expansion would impact the greatest number of businesses, including the North Market Plaza. Development of this alignment could increase traffic congestion along U.S. 71, particularly at the U.S. 71/MLK Drive/Ravendale Drive intersection, making access to and from both the MLK and North Highland neighborhoods more difficult.

Outside of the Shreveport metropolitan area, few established neighborhoods are crossed by the alignments due to the efforts made to minimize residential relocations. However, Line 2 and Line 3 would cross a residential area west of Hosston near Black Bayou Lake. The Selected Alignment was developed east of Hosston to avoid this area based on input received at the October 1997 public meetings.

The No-Action alternative would not directly impact neighborhoods. However, future traffic increases along U.S. 71 and adjacent roadways could make neighborhood access more difficult.

Community Access and Travel Patterns

All alignments developed would bridge nearly all existing U.S. highways, state highways, and parish and city roads. Access within and between communities would not appreciably change as a result of this project. Maintenance of access to individual property parcels would be considered and addressed during the final design of the highway.

All communities within the study area will have access to the proposed highway, particularly those located near U.S. 71. Rural interchanges are proposed for all alignments at state highways 173, 169, 530, 170, 2, 769, and 168. For most rural communities, residents would have to travel less than 3 kilometers (2 miles) to reach the highway. Residents located in the far western portion of the study area in the communities of Oil City, Vivian, and Rodessa, would have to travel approximately 10 kilometers (6 miles). Shreveport area residents could access the highway with proposed interchanges at LA 1, MLK Drive, and I-220.

The No-Action alternative limits the accessibility to an Interstate highway for many area residents. While most Shreveport area residents have ready access to I-220, I-20, and I-49, rural community residents may have to travel upwards of 50 kilometers (30 miles) to reach I-220 or 65 kilometers (40 miles) to reach I-30 in Texarkana, Arkansas. In addition, the No-Action alternative fails to complete the regional Interstate highway system and does not provide northward Interstate travel for area residents.

Travel patterns in the study area may change as a result of the proposed highway. Residents would have a choice to travel on existing U.S. 71 or the North-South Expressway depending on their final destination. Travel time between rural communities such as Ida and Hosston to Shreveport, would be reduced through use of the new facility.

Changes in Local Traffic

Changes in local traffic would result from all highway alignments. In general, traffic volumes would tend to increase on highways for which interchanges have been proposed. These traffic increases would result from local residents accessing the proposed highway, from trips exiting the proposed highway and destined for nearby communities, and from through travelers exiting the proposed highway and traveling to nearby communities for additional services or recreational activities.

Residents living along these highways would experience the effects of this increased traffic as well as a different mix of trucks and cars. Truck traffic could increase on these highways. Travelers on streets that intersect with these highways near a proposed interchange may experience delays in turning onto these highways, particularly when crossing traffic. Driveways to businesses and houses along these highways may be similarly affected.

Residents living or traveling along U.S. 71 may experience a decrease in the traffic volumes, particularly truck traffic, as through trips are diverted to the new highway facility. Most truck traffic currently traveling U.S. 71 within the study area would benefit from the increased transportation efficiency provided by an Interstate highway facility.

Community Services and Facilities

Most residents of North Caddo parish communities along U.S. 71 travel from 30-50 kilometers (20-30 miles) to the Shreveport metropolitan area for medical and other professional services. Residents from Ida, Hosston, Gilliam, and other communities would experience improved access to services they frequently receive in Shreveport. Accessibility to community services would be improved by all alignments.

Adequate fire and police services are important for the protection of citizens and property in all communities. As discussed in Section 1, construction of the North-South Expressway would benefit the study area by reducing emergency response times between communities by removing through traffic from the local roadway network.

Access to churches, schools, and public facilities and parks would not be affected by the proposed highway. The alignments developed would bridge nearly all existing U.S. highways, state highways, and parish and city roads maintaining access to all community facilities. Three community churches would be impacted by Line 1, Line 2, Line 3 and the Selected Alignment, while Line 4 would impact one. Line 1 and the Selected Alignment are the only alignments that avoid the proposed Paul Lynch Park property, a Section 4(f) resource. No other community facilities would be directly impacted.

The No-Action alternative could affect future rural community emergency services. As discussed in Section 1, emergency response time would degrade under the No-Action alternative as the level of service drops on the existing routes within the study area over the next 20 years. The No-Action alternative would not result in improved community service accessibility. Increased traffic congestion along U.S. 71 and adjacent roadways could make community facility access more difficult and time consuming.

Property Values

Property values could increase near proposed interchange locations as land becomes more desirable for commercial and industrial development. As discussed in Section 4.1.1, commercial development and associated increased property values are more likely to occur at interchanges near existing communities. Houses that would remain close to the proposed highway, but not near an interchange could decrease in value, because some potential buyers may perceive this as an undesirable residential location. However, in some situations, houses remaining close to the proposed highway could increase in value.

Secondary Community Impacts

Secondary development may occur as a result of the proposed highway and could affect the daily lives of residents in nearby communities. Potential secondary development would be similar for all

alignments. As discussed previously, the degree to which secondary development may occur is dependent on many variables and is difficult to predict. Residential areas may become more densely populated, utility and social services demands may increase, and farmlands may be converted to residential areas or other forms of land use.

Community change such as this can be perceived as positive or negative. New development often means new jobs, increased economic vitality and a higher population. To some this change is unwanted, to others it is desirable and vital.

Development that may occur at interchanges could indirectly affect the residents living along these highways. The land directly adjacent to the proposed interchange could change from solely residential and farm use to light commercial use such as restaurants and service stations. While nearby residents may enjoy the convenience of these services, the previous rural character of their residence would have changed.

The No-Action alternative would not likely result in secondary development or associated change in communities beyond the current development trends.

4.1.3 Safety

The construction of the North-South Expressway project would have a positive impact on both highway and overall public safety, including bicycle

and pedestrian safety, within the study area. All alignments would have a similar affect.

Highway Safety

Section 1 discusses the general highway safety characteristics within the study area. The proposed highway would be a controlled access Interstate facility predominantly in a rural area. In Louisiana, the accident rate on this highway would be much lower than that of a rural two-lane highway such as U.S. 71. Safety improvements would primarily be related to the diversion of truck traffic from local roads to the new highway. Diversion of truck traffic to the proposed highway could reduce the need to pass, thereby reducing the potential number of head-on collisions on existing U.S. 71. In addition, all traffic on the proposed highway would encounter fewer access points than on the existing route, a factor that correlates to accident rates. Traffic traveling on U.S. 71 frequently encounters vehicles turning onto or out of side roads or driveways which can lead to collisions.

Pedestrians and Bicyclists

Limited pedestrian and bicycle activity exists within the study area as roadways pass through local communities. Increased traffic on crossroads connecting to the proposed highway could negatively affect pedestrian and bicycle safety. However, on U.S. 71, pedestrian and bicycle safety could improve as through traffic and truck traffic is diverted to the proposed highway.

Installations of additional signals and crosswalks may be necessary in some locations on roads intersecting with the proposed highway, such as MLK Drive.

The No-Action alternative could result in additional traffic accidents, fatalities, and property damage along the study area roadways due to the future increase in traffic volumes, increased congestion, and projected lowered level of service.

4.1.4 Relocations

All alignments will displace residents, businesses, and community facilities. Structures were initially identified on 1993 aerial photographic mapping, field verified, and entered into the project GIS for impact assessment. Revisions and updates were made to this information during the Alignment Study to include all currently existing residences and businesses. An effort to minimize residential, business, and farm impacts was made during both the corridor and alignment study. Further steps to minimize displacements will be considered during the final design of the highway. Minority impacts are discussed in Section 4.2 Environmental Justice.

Table 4-2 compares the relocations for all alignments. The majority of relocations for all alignments occur at the southern end of the project in the Shreveport area. This would be expected as the population density is greatest in this portion of the study area. The Selected Alignment would have the fewest number of relocations.

**Table 4-2
RELOCATION SUMMARY**

Alignment	Structure/Facility Type					Total
	House	Mobile Home	Business	Community Facilities		
				Church	Park	
No-Action	0	0	0	0	0	0
Line 1	39	7	1	3	0	50
Line 2	46	4	3	3	1	57
Line 3	53	2	3	3	1	62
Line 4	12	14	19	1	1	47
Selected	37	5	1	3	0	46

Source: Michael Baker Jr., Inc.

Residences

With the exception of Line 4, the majority of residential relocations occur in the MLK neighborhood. Homes in this area are typically of wood frame or brick construction with an average median home value of approximately \$30,000. The average median household income approaches \$12,500 and most relocatees own their own homes.

Line 4 would have the most relocations in the North Highland neighborhood. Most impacted residences would be mobile homes and would be valued at substantially less than the average median home value of approximately \$75,000 for this neighborhood. In addition, the average median household income of impacted residents likely less than the \$26,000 1990 Census Bureau figure.

Relocation can be more difficult for the elderly or for persons having lived in a location for a very long time, or on property owned by one family for many years. The location of the new home can also affect the degree of difficulty relocatees may experience. Moving within the same neighborhood may be less difficult than moving across town, which could involve other social changes.

Businesses

Business relocations would result from any of the alignments. The Selected Alignment and Line 1 would impact the least number of businesses while Line 4 would impact the most. All businesses impacted by Line 4, except for one, are located near the intersection of MLK Drive and U.S.71, and include the entire North Market Plaza. Business impacts range from private ownership to corporations. Business type enterprises include a jewelry store, two fast food franchises, hair salon,

grocery store, auto repair shop, pawn shop, general merchandise store, department store, bank, shoe store, finance company, beauty supply, video store, two convenience stores, and a Goodwill trailer. A Louisiana Department of Motor Vehicles office would also be impacted.

A survey of potentially impacted businesses was conducted to determine the approximate number of employees that could be affected by the alignments. Of the 22 individual businesses surveyed, 17 provided employee number information. Employee numbers were estimated for the remaining five businesses based on information obtained for similar business types in the area. Line 4 would impact the greatest number of employees, while Line 1 and the Selected Alignment would impact the least.

Alignment	Number of Businesses	Number of Employees
No-Action	0	0
Line 1	1	2
Line 2	3	4
Line 3	3	4
Line 4	19	309
Selected	1	2

Source: Michael Baker Jr., Inc.

The majority of business relocations affected by Line 4 do not necessitate special space requirements. However, new or replacement development would be limited in this area by the

lack of available undeveloped commercial property. Two relocations would involve underground storage tank (UST) locations. The Louisiana Department of Environmental Quality (LDEQ) must be notified seven days prior to tank removal and closure in order to schedule a site visit. The tank closure would be performed under the supervision of a certified contractor.

Community Facilities

All alignments would impact several study area churches. In the Shreveport area, Line 1, Line 2, Line 3, and the Selected Alignment would impact St. Matthews Missionary Baptist Church on MLK Drive and a small church located on Gaine Road near I-220. Line 3 would impact an additional church, Calvary Baptist, near MLK Drive. North of Shreveport, all alignments except Line 3 would impact a small church located on LA 173 near U.S. 71.

Line 2, Line 3, and Line 4 would impact the proposed Paul Lynch Park property. No other community facilities would be directly impacted by the alignments.

Farms

Although not accounted for as structure impacts, several farm operations would be impacted by the proposed highway. Some farms would be bisected by an alignment and others would lose property along one boundary of the farm. Impacts to farms result from land lost that was in productive use or

loss of access to acreage or pastureland. In some cases, access could be provided but the access may be indirect and less desirable. Final assessments of farm and other property access issues will be handled during the final design of the proposed highway.

Replacement Housing

An assessment was made of the available housing to determine its comparability with the relocatees' needs. Available housing within the project study area was obtained from local realtors based on information provided by the Shreveport-Bossier Multi-listing Service System. Results are summarized in Table 4-4.

Area	Price Range	Number
N. Shreveport Area ¹	28,000-69,900	16
	69,901-104,900	11
	104,901-158,900	13
	Over 158,900	13
N. Caddo Parish Area ²	21,000-49,900	12
	49,901-87,500	4
	87,501-179,900	7
	Over 179,900	2

Source: Michael Baker Jr., Inc.

¹ Housing units generally fall within study area from I-220 to LA 173

² Housing units generally fall within study area from LA 173 to AR state line

The DOTD conducts the acquisition and relocation process in accordance with the Uniform Relocation Assistance and Real Property Policies Act of 1970.

Relocation assistance will be made available to all residential and business relocatees without discrimination as to race, color, national origin, age, sex or religion. In all cases, decent, safe and sanitary housing will be made available for all relocatees. Current data collected indicate that adequate replacement housing may not be readily available in the appropriate price ranges for the North Shreveport area at this time. The DOTD is committed to locating replacement housing within the occupant's financial means and within the general area of the project and when necessary providing housing of last resort. Real estate availability will be reassessed once final design of the highway has been completed.

4.2 ENVIRONMENTAL JUSTICE

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, directs all federal agencies to determine whether a proposed action would have an adverse or disproportionate impact on minority and/or low-income populations. The Council on Environmental Quality (1997) suggests consideration of whether the environmental effects of the proposed project on minority or low-income populations appreciably exceed those on the general population or other appropriate comparison population when making disproportionate impact determinations.

4.2.1 Methodology

To assess possible disproportionate impacts from the proposed project, a reference population had to be established for comparative purposes. With the Preferred Corridor decision (see Section 2), much of the rural study area was no longer considered as a potential location for the proposed highway and therefore comparing population impacts to this entire area may not be applicable. For this analysis, the 1990 Census data was refined to reflect the population characteristics of the Preferred Corridor. Data previously presented in Table 3-2 were developed to include only those

Census Block Groups crossed by the Preferred Corridor. Furthermore, all North Caddo Parish Census Tracts were combined due to the relatively low population numbers and corresponding low number of relocations in this area. Table 4-5 presents the demographics for the North Caddo Parish area, Census Tract 245 (roughly Pine Hill Road to Twelve Mile Bayou), and the North Highland and MLK neighborhoods that served as the reference populations for this analysis. Study area and Caddo Parish numbers are also presented.

**Table 4-5
POPULATION CHARACTERISTICS WITHIN THE PREFERRED CORRIDOR**

	Population	% Minority	% 65 and Older	Median Household Income	% Below Poverty Threshold
MLK Neighborhood	4,615	97	8	\$11,286	48
North Highland Neighborhood	288	59	18	\$25,000	11
Census Tract 245	3,240	25	6	\$32,240	22
North Caddo Parish	4,880	40	15	\$15,077	30
Preferred Corridor Totals	13,023	57	10	\$17,817	34
Study Area Totals	36,520	44	13	\$19,487	28
Caddo Parish	248,253	41	13	\$22,033	24

Source: U.S. Department of Commerce - Bureau of the Census - 1990 - Census of Housing and Population
*Includes only Block Groups within or adjacent to study area boundary

4.2.2 Residential Minority and Low-Income Impacts

The total number of residential relocations for each alignment was calculated and is presented in Table 4-2. Race of each residential dwelling, including mobile homes, being displaced was determined through field observations, direct contact with property owners for other project efforts, and census data. Age and household income were not readily or reliably obtainable for the relocatees. The percent of relocatees below the poverty level was estimated using the individual Census Block Group data. Age was not considered a factor based on the relatively low percentages found in the Preferred Corridor. Race determination of businesses was determined through direct contact where possible. Line 4 is the only alignment that would impact the North Highland neighborhood. This impact is confined to a group of mobile homes near the MLK Drive/ U.S. 71 interchange. Based on field observations, no minority impacts would be associated with this neighborhood group. The percentage of minority and low-income relocations is compared to the reference populations for each alignment in Table 4-6.

For this analysis, only Census Tract 245 had a slightly higher than expected rate of minority impacts. Impacts in this area were minimized where possible. Further adjustment to avoid or reduce minority impacts would increase overall residential impacts, primarily near LA 1 and LA 538.

Alignments that would reduce or avoid impacts to the MLK neighborhood were considered during the project development process (see Section 2). Line 5 would reconstruct existing LA 1 and U.S. 71 to interstate standards from McCain Creek east along LA 1 and then south along U.S. 71 to the interchange with I-220. This alignment would have replaced LA 1 and U.S. 71 with a four-lane, divided, fully controlled access highway with one way frontage roads on either side to carry local traffic. Due to the high level of direct and indirect community disruptions, the relative cost, and the inability of this alternative to adequately meet the project purpose and need, this alternative was eliminated from further consideration. Line 4 would also avoid impacts to the MLK area. Line 4 would have had the least impact on residential structures, but would have had the greatest impact on businesses, wetlands, and the Paul Lynch Park property, a Section 4(f) resource and future recreational area for this neighborhood.

Of the alignments through the MLK neighborhood, the Selected Alignment would have the fewest residential impacts by remaining as close as possible to McCain Creek and I-220. The Selected Alignment crosses undeveloped lots where possible, while avoiding the proposed Paul Lynch Park property.

**Table 4-6
PERCENTAGE OF MINORITY AND LOW-INCOME RELOCATIONS
COMPARED TO REFERENCE POPULATIONS**

MLK Neighborhood Residential Relocations						
Alignment	Minority Reference %	Number of Minority Relocations	Minority Relocation %	Low-Income Reference %	Number of Low-Income Relocations	Low-Income Relocation %
No-Action	97	0	0	48	0	0
Line 1	97	27	100	48	10	37
Line 2	97	36	100	48	13	36
Line 3	97	41	100	48	15	37
Line 4	97	0	0	48	0	0
Selected	97	27	100	48	10	37
North Highland Neighborhood Residential Relocations						
Alignment	Minority Reference %	Number of Minority Relocations	Minority Relocation %	Low-Income Reference %	Number of Low-Income Relocations	Low-Income Relocation %
No-Action	59	0	0	11	0	0
Line 4*	59	0	0	11	1	11
Census Tract 245 Residential Relocations						
Alignment	Minority Reference %	Number of Minority Relocations	Minority Relocation %	Low-Income Reference %	Number of Low-Income Relocations	Low-Income Relocation %
No-Action	0	0	0	0	0	0
Line 1	25	3	37	22	1	12
Line 2	25	2	29	22	1	14
Line 3	25	2	29	22	1	14
Line 4	25	3	37	22	1	14
Selected	25	3	37	22	1	12
North Caddo Parish Residential Relocations						
Alignment	Minority Reference %	Number of Minority Relocations	Minority Relocation %	Low-Income Reference %	Number of Low-Income Relocations	Low-Income Relocation %
No-Action	0	0	0	0	0	0
Line 1	40	2	18	30	1	10
Line 2	40	1	14	30	1	17
Line 3	40	0	0	30	1	17
Line 4	40	2	29	30	1	17
Selected	40	2	29	30	1	17

Source: Michael Baker Jr., Inc.

* Line 4 is the only alignment that impacts the North Highland Neighborhood

4.2.3 Minority Business Relocations

With the exception of Line 4, few existing businesses would be affected by the highway alignments (Table 4-3). Of the business impacts, Line 4 would impact 2 minority owned businesses and the remaining alignments would impact 1. Attempts to reduce these numbers would result in additional residential and business impacts, additional natural resource impacts to wetlands, and impacts to the proposed Paul Lynch Park property.

4.2.4 Summary of Environmental Justice Considerations

The objective of the Environmental Justice policy is to insure that minority and low-income populations are fully and equitably considered during the project development process. The intent of the order is not to develop alternatives that simply move the impacts from one affected group to another. For the North-South Expressway project, a number of alignment alternatives were developed and considered that had differing impacts on a number of resources, including impacts to minority communities. With the exception of Census Tract 245, minority populations are not disproportionately impacted based on the percentage of minority impacts expected in the affected areas. During final design of the highway, further consideration will be given to reducing all residential and business displacements. All displaced residents will be provided with relocation assistance by DOTD and every reasonable effort will be made to

relocate affected residents within their immediate community.

Additional public outreach efforts were conducted to inform minority community residents of the highway project. These efforts are described in Section 2 and Section 7 and include meeting with elected officials and neighborhood leaders representing these areas, holding public involvement meetings near the affected neighborhoods, and posting project informational material in community centers and business establishments.

4.3 ECONOMIC IMPACTS

Economic impacts related to the development of the North-South Expressway include a temporary increase in construction employment, an increase in other employment areas, a reduction in travel costs, and additional local and regional income generation from sources such as transportation related taxes. Economic impacts would be similar for all alignments, including the Selected Alignment.

4.3.1 Employment Opportunities

Construction of the proposed highway would positively impact the local economies of the study area communities. New employment opportunities would be generated by the construction activities, in addition to the services required to support the operation. A recent national FHWA study on employment impacts of highway investment

(Highway Infrastructure Investment and Job Generation: A Look at the Positive Employment Impacts of Highway Investment, USDOT, FHWA, 1997) found that every \$1 billion in Federal-aid highway investment supported approximately 42,100 total full-time equivalent jobs. Jobs were further classified as:

- direct or on-site highway construction jobs specifically involved with the highway improvement project such as construction laborers, engineers, and construction managers
- indirect or supply industry jobs at firms that supply equipment, materials, and administrative support
- induced jobs created when construction-based employees spend their wages on various goods and services throughout the area.

An estimate of the number of jobs potentially created by the proposed highway project is shown

in Table 4-7. Due to the similarity in estimated construction costs of all alignments, individual employment projections were not made for each alignment. Overall, nearly 15,000 jobs would be generated by construction of the proposed highway. Given the length of the proposed highway, these economic impacts would continue for several years.

North Caddo Parish residents would benefit from the proposed highway through increased accessibility to the Shreveport area job market. Commuting times would be reduced from these rural communities allowing persons to increase their employment search area.

Access to existing service stations and convenience stores located near a proposed interchange would be improved which could benefit these businesses. Hiring of additional staff or expansion of the existing business facility could result from this increased patronage.

**Table 4-7
ESTIMATED EMPLOYMENT IMPACTS OF HIGHWAY CONSTRUCTION**

Job Category (person-years)	Jobs per \$1 billion of Construction Costs¹	No-Action	Build Alternatives
Average Construction Costs (Billions)		\$0.00	\$0.430
Direct/On-site Jobs	7,900	0	3,400
Indirect Jobs	19,700	0	8,470
Induced Jobs	14,500	0	6,230
Total Jobs	42,100	0	18,100

Source: Michael Baker Jr., Inc., FHWA, 1997
¹Does not include Right-of-Way costs

It is possible that some highway-related businesses along U.S. 71 could suffer due to a reduction in traffic on this route. This would depend on the type of business, the traffic changes that occur, and the proximity to other traffic generators. Highway related businesses that depend in large part on through traffic may be negatively impacted. Impacts to these businesses would also be dependent on their proximity to proposed interchanges. Marketing initiatives by affected businesses, such as signs on the highway, may offset the loss of through traffic impacts.

With the exception of Line 4, relatively few business relocations would occur for any of the alignments. Most businesses could reestablish their operations and no substantial negative economic impacts would be expected. Minimal negative economic impacts are expected should a business not reestablish. Development of Line 4 would impact 19 existing businesses near the U.S. 71/I-220 interchange, including the North Market Plaza. New or replacement development would be limited here by the lack of available undeveloped commercial property and may result in a negative economic impact in this area. Any business relocations involved would be compensated for their property and would receive relocation assistance.

The No-Action alternative could have a negative economic impact on the study area. The No-Action alternative would not result in new construction

employment, could limit rural resident employment opportunities, and increase travel and vehicle operating costs through a decreasing level of service on area roadways.

4.3.2 Secondary Economic Impacts

The recreation and tourism industry in the study area could benefit from the increased accessibility offered by the proposed highway. Potential tourists would be able to reach the area in less time and on an Interstate highway. Recreation and tourism related businesses such as casinos and providers of tourism opportunities (primarily recreational) would benefit from the increased business. Because vacationers typically set aside time and money during their trips for shopping, retail shops and antique stores catering to vacationer's needs would also benefit.

Other economic impacts would be tied to potential secondary development as discussed earlier in this section. The economic impacts of that development are summarized below.

- New and expanded industrial initiatives in the Agurs business park could provide employment opportunities for persons throughout the study area and provide additional corporate tax revenues (Merritt 1998)
- Growth in residential development would increase the demand for consumer services, including retail, banking, medical and recreational

- ❑ Commercial development at interchanges would have varying economic effects on the local economy, depending on the extent of this development.

4.4 VISUAL

Visual changes that are attributable to the proposed highway would take two forms: views of the proposed highway from various points within the Preferred Corridor and views from the proposed highway of the surrounding landscape. All alignments would have similar visual impacts.

4.4.1 Views of the Proposed Highway

The proposed highway would alter both the urban and rural setting as it moves from Shreveport to the Arkansas state line. In the Shreveport area, the highway will pass near several residential areas, including the MLK neighborhood. Neighborhood residents would view the proposed highway and interchange at MLK Drive. In other areas, the highway would be most visible at elevated grade separations as it crosses the area roadways of Pine Hill Road, LA 1, LA 538, and Albany Road. Forested terrain between these successive road crossings would serve to shield the highway as it moves northward between areas of development. Residents not displaced by the highway facility, but in close proximity to it, would have the greatest visual impacts. However, the number of these incidences is low due to the forested nature of the surrounding environment.

North of Shreveport, the majority of the proposed highway would traverse terrain that is rural in nature, primarily uninhabited, with the majority of the land in agricultural, oil and gas, and timber production. Due to the scattered residential development in this area, few residents would have a direct view of the proposed highway. The flat terrain across the agricultural landscape would limit most views of the highway to the elevated grade separations at area roadway crossings. Potential visual impacts would also be limited by the existing agricultural and forested vegetation, which would serve to reduce the visible extent of the proposed highway beyond local roadway/highway crossings.

It could be generally stated that as the alignments approach existing rural communities, more residents would have a view of the highway, but the highway would have a lesser effect on the overall rural viewshed. Conversely, as the alignments move further away from developed communities, the result may be a greater change in the overall rural visual setting, but would be observed by fewer individuals.

4.4.2 Views from the Proposed Highway

The views of the surrounding landscape from the proposed highway could be considered a beneficial impact as travelers pass through a predominantly rural vista marked by agricultural and petroleum activities and adjacent forested lands. The rolling forested terrain near the Arkansas state line would offer a marked visual contrast to the flat agricultural

landscape south of Hosston. Numerous opportunities would exist, primarily at elevated grade separations, for motorist views across expansive cotton, corn, and soybean fields, active oil and gas fields with working well pumps, forested areas, and views of distant rural communities.

4.5 OIL AND GAS RESOURCES

Producing oil and gas well locations were obtained from Tobin International, Ltd. in San Antonio, Texas and entered into the Geographic Information System (GIS) to determine impacts for each alignment. Producing wells are defined as wells that are currently providing enough product to offset the cost of maintenance and extraction.

Oil and gas well impacts are summarized in Table 4-8.

Alignment	Oil	Gas
No-Action	0	0
Line 1	68	3
Line 2	36	3
Line 3	70	3
Line 4	37	3
Selected	37	3

Source: Michael Baker Jr., Inc., Tobin International, Ltd.

Most well impacts are located in the Caddo-Pine Island oil and gas field between LA 530 and LA 170. Line 3 would impact the greatest number of producing oil wells, while Line 2 would impact the least. All alignments would impact the same

number of active gas wells. The No-Action alternative would not impact any wells.

As a result of highway construction, economic impacts may occur to landowners due to the loss of an active oil or gas well. In conjunction with the property acquisition process, a qualified petroleum engineer would conduct a feasibility study for each impacted well to determine the estimated reserves. Results of the study would determine whether a well would be replaced by directional drilling or compensation would be provided to landowners based on estimated reserves. All wells impacted by the proposed highway would be properly abandoned according to procedures established by the Louisiana Department of Environmental Quality.

During final design of the highway, individual gas and oil collector lines would be identified. When possible, these lines would be avoided or relocated to continue service to these well sites.

4.6 WATER QUALITY

Potential water quality impacts were assessed for surface water, groundwater, and public water supplies. Water quality impacts would likely be confined to the temporary influx of sediment laden surface runoff during construction activities. No long-term adverse impacts would be expected. DOTD will comply with all requirements of the Clean Water Act, as amended, for the construction of this proposed highway, and will obtain the

following permits: a Section 401 Water Quality Certification, a Section 402 National Pollutant Discharge Elimination System (NPDES) Permit, and a Louisiana Water Discharge Permit System (LWDPS) permit issued by the Louisiana Department of Environmental Quality (LDEQ); and a Section 404 permit issued by the U.S. Army Corps of Engineers for the placement of dredged and fill material in waters of the United States. A Stormwater Pollution Prevention Plan will be prepared in conjunction with the NPDES permitting process prior to construction. This plan will include all specifications and best management practices (BMPs) necessary for control of erosion and sedimentation due to construction related activities.

The No-Action alternative would have limited impacts to all water resources.

4.6.1 Surface Water Resources

Surface water resources crossed by all alignments include perennial and intermittent streams or bayous, and man-made ponds primarily associated with agricultural activities. As discussed in Section 3.5, surface water quality within the study area is generally poor and has been degraded by surrounding petroleum and agricultural land uses. Impacts to surface waters from highway construction are typically associated with culvert and bridge placements. Stream resources are shown in Exhibit 4-1.

No state listed Natural or Scenic Rivers, Wild and Scenic Rivers, or rivers on the Nationwide Rivers Inventory would be impacted by any of the alignments. Perennial streams crossed by the alignments from south to north include McCain Creek, Twelvemile Bayou, Swift Bayou, Black Bayou, Kelly Bayou, Flag Branch, Hartman Branch, and Nance Branch. Intermittent streams crossed include Cottonwood Bayou, Dooley Bayou, Sterling Bayou, Trinity Bayou, and Myricks Bayou.

Construction Impacts

In general, construction activities would include removal of existing vegetation during clearing and grubbing and would expose soils adjacent to bayou crossings and within the right-of-way limits. As a result, a temporary increase in stream sedimentation could occur due to stormwater runoff and would be greatest in the immediate vicinity of the crossings. Suspended solids could adversely impact both aquatic invertebrates (aquatic insects, mussels, zooplankton) and fish by altering the existing substrate, reducing light penetration and in-stream photosynthesis, reducing dissolved oxygen, and increasing biological oxygen demand within the water column. Elevated suspended sediment concentrations could cause mortality in adult fish by clogging the gill filaments and preventing normal water circulation and aeration of blood. In addition, excess sedimentation could disrupt species productivity by smothering

spawning areas, reducing egg viability, and preventing the emergence of fry.

The potential construction impacts described are non-alignment specific and could occur regardless of the alternative selected. Furthermore, because all alignments are generally within 300 meters (1,000 feet) of each other, potential surface water impacts would be similar. Impacts from any of the alignments would be temporary in nature and would be minimized through site specific erosion and sedimentation control measures at all stream or bayou crossings.

Secondary or Operational Impacts

The operation and maintenance of a highway would produce additional sources of surface water pollutants. During highway operation, sources of potential pollutants include vehicles (heavy metals such as copper, lead, and zinc from tire and break wear, motor oil additives, and vehicle rust) and roadway maintenance practices such as sanding, deicing, and application of herbicides on right-of-way. However, the mild winter climate in Caddo Parish would limit the use of deicing materials and herbicides have not been found to be significant pollutants in highway runoff (Maestri et. al., 1988).

The rate of deposition and subsequent magnitude of these pollutants in highway runoff are site-specific and are affected by traffic volumes, highway design, maintenance activities, surrounding land use, climate, and accidental spills.

The primary mechanism for removal of highway pollutants from the road surface is through stormwater runoff. Highway construction would increase the impervious surface in the watershed and would generate additional runoff to receiving streams.

The affects of highway runoff on streams are variable and dependent on the length of time since the last storm event, the quantity of stormwater runoff delivered to the stream, volume of flow in the stream, the duration of the storm event, and traffic volume (Barrett et al. 1993). Highway runoff may adversely affect the water quality through short-term loadings associated with storm events and through chronic effects as a result of long-term accumulation and exposure. Pollutants that enter receiving streams can alter water quality and aquatic habitat, similar to sedimentation.

Research indicates that runoff from rural highways would generate few substantial impacts with average daily traffic (ADT) of less than 30,000 vehicles (Maestri et al. 1988). Based on the predicted ADT of less than 30,000 (Feasibility Study 1995) for the proposed highway, no substantial impacts to water quality would be expected due to highway runoff.

Hazardous or toxic materials spills could occur during construction or operation of the proposed highway and could impact area streams. In the event of a spill, all releases must be reported to the

Emergency Response Commission through the Transportation and Environmental Safety section of the State Police using the Hazardous Materials Hotline. Depending on the nature of the material and location of the spill, other agencies such as the LDEQ may need to be notified.

Stormwater Runoff Minimization Measures

The following measures could be implemented as part of the design and construction phases of this project to reduce impacts resulting from stormwater runoff.

- Scheduling construction activities to minimize exposed area and duration of exposure
- Prompt re-vegetation of all disturbed areas
- Minimize duration of in-stream work by heavy equipment
- Control of runoff within the right-of-way limits using temporary stormwater management ponds before discharging into receiving streams
- Use of gentle slopes and wide shallow channels for grassed swales to remove pollutants through filtration, settling, and infiltration
- Designation of impervious areas for construction equipment, vehicle storage, and fuel to minimize accidental spills.

4.6.2 Groundwater

Construction activities and stormwater runoff would have minimal impacts on groundwater quality. Construction would increase the amount of impervious cover within the local watershed, which would reduce the amount of infiltration. However, because of the remaining amount of undeveloped land available for recharge, the change in land use associated with the proposed project would have a low to negligible effect on the underlying aquifers.

Highway stormwater runoff could provide a potential source of pollutants to the groundwater system. Generally, groundwater is the most vulnerable to pollutants in areas where groundwater is the shallowest; such as the Red River floodplain. However, because soils within the floodplain are predominantly composed of clay and are poorly drained, the infiltration rate for any runoff containing pollutants would be greatly reduced. Further, the Red River alluvial aquifer is not considered to be a sole-source aquifer or located within a wellhead protection area. Through the implementation of proper erosion and sedimentation control plans, minimal impact to groundwater resources would be anticipated.

The No-Action alternative would not impact groundwater resources.