US 67 CLEBURNE BYPASS

FINAL ENVIRONMENTAL IMPACT STATEMENT

FHWA-TEX-EIS-86-02 F

FEDERAL HIGHWAY ADMINISTRATION

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION

FHWA-TEX-EIS-86-02 F

US 67 BYPASS

FROM FM 1434 TO SPUR 102

CLEBURNE, TEXAS

JOHNSON COUNTY

FINAL
ENVIRONMENTAL IMPACT STATEMENT

SUBMITTED PURSUANT TO 42 U.S.C. 4332 (2) (C)
(AND WHERE APPLICABLE 49 U.S.C. 303) BY THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
TEXAS STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

5/17/89
Date of Approval

Ken Bohuslav PE
State Department of Highways
and Public Transportation

5/17/89
Date of Approval

Peter A. Garland
Federal Highway Administration

For information concerning this document, contact:

Mr. William L. Hall, Federal Highway Administration
Federal Office Building, Room 826
300 East 8th Street, Austin, Texas 78708
Phone (512) 482-5988

Mr. Kenneth C. Bohuslav, State Department of Highways
and Public Transportation
11th and Brazos Streets, Austin, Texas 78701
Phone (512) 463-0264

ABSTRACT:

The action proposed is the construction of the US 67 Bypass around the north side of Cleburne, Texas from near FM 1434 to near Spur 102. Construction of this project in phases will result in a four-lane freeway which will ultimately have full control of access. The social, economic, and environmental impacts of the project have been analyzed, with build, no-build, and transportation system management alternatives addressed.

SUMMARY

The proposed action contemplated under this environmental impact statement is a four-lane, controlled access highway which will serve as a bypass route around the city of Cleburne in Johnson County, Texas. The 14- to 15-mile highway will be constructed to the north of the existing US 67 and will extend between two points on the existing US 67 near FM 1434 and Spur 102. The median will be 76 feet wide, with a minimum right of way width of 476 feet. Additional right of way width will be required at interchanges and other locations. Frontage roads will be constructed along most of the route as funding is available.

The US 67 bypass has been designed to be compatible with other SDHPT transportation projects and a federal water project. The transportation projects are planned for the existing US 67 to reduce bottlenecks and will be completed prior to or concurrently with construction of the bypass. They are 1) a grade separation structure which will be constructed at the Santa Fe mainline railroad crossing, 2) a project, which will widen the only remaining two-lane section from one mile east of the courthouse to the east end of the bypass, 3) a four-lane extension of US 67 east to Alvarado, and 4) a four-lane extension of US 67 west to Park Road 21. The US 67 project has also been routed to avoid the flood detention dam and reservoir constructed by the Soil Conservation Service (SCS) north of SH 171 on West Buffalo Creek.

The proposed Southwest Freeway (SH 121) from Fort Worth is another project (under preliminary study) which could connect with US 67 within the limits of this project. The SDHPT is considering several alternative routes for SH 121, one of which would be related to US 67. That alternative route, should it be selected, would connect SH 121 with US 67 near Nolan River Road. The interchange design is being included in the SH 121 study. SH 121 is not expected to be built until near the end of the design life of this US 67 project; therefore, no provisions were included for an interchange with SH 121 in the US 67 study.

This environmental document includes an analysis of a no-build alternative, transportation system management (TSM) needs, and construction alternatives.

A no-build alternative would eliminate the creation of negative environmental impacts at a new location, but would not relieve environmental and traffic problems along the existing routes nor provide any of the positive environmental impacts associated with highway placement. The analysis of TSM

actions already implemented along the existing routes indicates that TSM actions have been implemented to the extent feasible along existing routes.

Two construction alternatives have been assessed for each of the northern quadrants. In the northwest quadrant, Route W would be 6.3 miles long and Route X, 5.2 miles, from US 67 near Nolan River to SH 174. In the northeast quadrant, Route Y would be 3.9 miles long and Route Z, 4.0 miles, from SH 174 to near Spur 102. All routes share a common interchange with SH 174. Route W is the preferred alternative for the northwest quadrant; Route Y is the preferred alternative for the northeast quadrant.

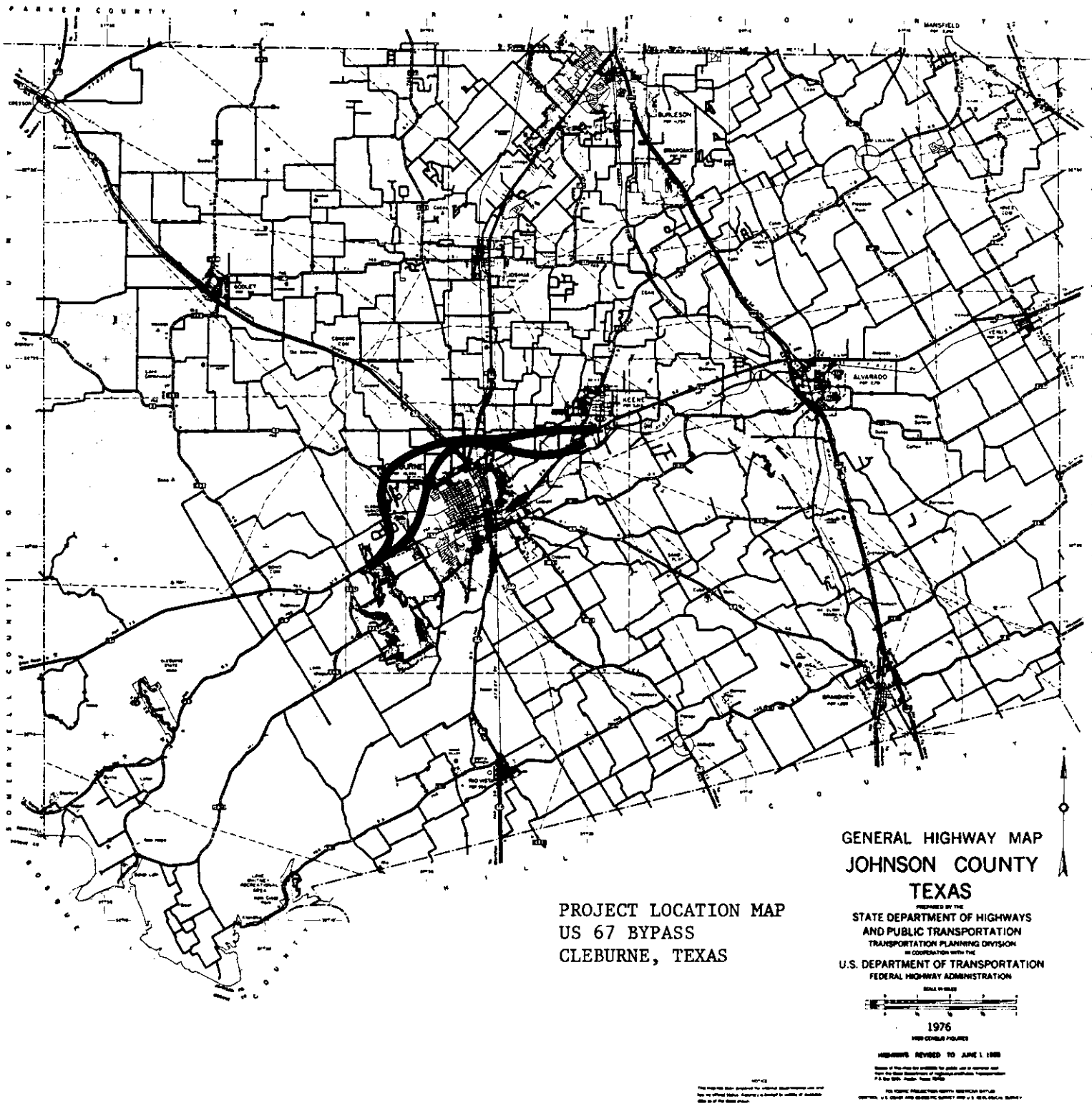
A single alternative has been identified for the southwest quadrant since more definitive studies of this future route will be done at a time nearer construction. The proposed project has been designed to allow extension to a loop should construction of a highway for the southeast quadrant become warranted.

Reductions in accident rates, traffic volumes and congestion, air pollution, and noise will occur along existing routes as a result of the proposed project. The bypass will improve accessibility to public facilities and private property in the northwest and northeast quadrants of the city, as well as to those in downtown Cleburne by routing through traffic away from the central business district.

The negative impacts include some displacement of persons and businesses, division of farmlands, and for some alternatives community cohesion and wetland impacts.

There has been no major area of controversy. Overall, support for this project has been strong; however, there has been some opposition from individuals. These individuals have been concerned over the displacement of their businesses or residences or the taking of portions of their property.

No historical or archaeological sites are involved. Coordination with the State Historical Preservation Officer has been done and wetland mitigation on the project has been approved by the U.S. Army Corps of Engineers. A Form AD-1006 for farmland impacts has been submitted to the U.S. Department of Agriculture. Other federal agencies which will review this document include: the Environmental Protection Agency, U.S. Department of Health and Human Services, U.S. Department of Housing and Urban Development, and U.S. Department of the Interior.



PROJECT LOCATION MAP
US 67 BYPASS
CLEBURNE, TEXAS

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1. PURPOSE OF AND NEED FOR ACTION

The subject project on US 67 is a bypass route around Cleburne in Johnson County, Texas and will be on new location. Its purpose is to improve the existing transportation system by diverting through traffic from the central business district and the county courthouse in the city of Cleburne and by accommodating future traffic generated by urban growth. Projections indicate that the city of Cleburne could increase in population from 19,218 in 1980 to 50,000 by the design year 2011.

To meet existing and projected demand, the initial project is a bypass route through the northwest and northeast quadrants of the city. The proposed project has been designed to allow extension to a loop around the city of Cleburne if warranted in the future, thus meeting long-range system planning needs. All route alternatives are compatible with the existing local street network.

The SDHPT has been coordinating with the City of Cleburne to ensure project compatability with future street and land use plans which will be defined once the City completes its master plan. The SDHPT is also coordinating with the City to ensure compatibility with plans for Cleburne Municipal Airport.

Local government and business leaders have expressed strong support for construction of this project. Construction of the bypass route has been requested by area delegations appearing before the State Highway and Public Transportation Commission. The project is in the four-year letting schedule of the Ten Year Project Development Plan For September 1986 Through August 1996, approved by the Commission in November 1986.

Existing facilities on US 67 and SH 174 are four-lane streets with no control of access. For several blocks in the vicinity of the courthouse where the routes intersect, both highways are divided into adjoining streets which operate as one-way pairs. Turning traffic between the routes operates one-way counterclockwise around the courthouse square. Despite signalization improvements, traffic is subject to considerable delay through many signalized intersections.

No method of expanding capacity of the existing routes to accommodate traffic is possible without excessive displacements and unacceptable disruption of the urban fabric. Furthermore, the existing heavy traffic with an abnormal proportion of large trucks in stop-and-go conditions is detrimental to the urban environment, aggravating noise, air quality, congestion, and traffic safety problems. The majority of the heavy truck

traffic, primarily from limestone and lime sources southwest of Cleburne, now enters the city on US 67, travels through downtown Cleburne, and then continues along US 67 toward Dallas or turns onto SH 174 toward Fort Worth.

The proposed bypass to the north side will divert a considerable volume of traffic, including most of the truck traffic, from downtown Cleburne. A substantial volume of traffic which is now moving through or turning at the existing US 67/SH 174 intersection in downtown Cleburne will be able to bypass this congested area. Traffic operation will improve on the existing US 67 and result in corresponding improvements to the urban environment. The existing US 67 will remain on the highway system to serve trips with local origins and destinations.

The resulting reduction in traffic congestion on the existing system will improve access to community and recreational facilities within presently developed areas in the city of Cleburne. Construction of the bypass will provide additional access to major facilities including Cleburne Municipal Airport, Walls Regional Hospital, Cleburne High School, and Lake Pat Cleburne, as well as to anticipated residential and employment development in northern Cleburne.

Average Annual Daily Traffic (AADT) for 1985 along the existing US 67 is 21,000 vehicles per day and 22,000 on SH 174 near the crossing of the proposed bypass.

Since construction of the first stage of the bypass is expected to begin during 1991, design year for the project is 2011. Maximum volume is 13,100 vehicles per day for the northeast quadrant, 11,100 for the northwest quadrant, and 7,500 for the southwest quadrant. These figures have been used as a guide for preliminary project design.

This facility, when completed, will provide level of service improvements in the area. Level of service on the existing US 67 is now "F" - heavily congested - for a substantial portion of each day. (See Appendix C for level of service criteria from HIGHWAY CAPACITY MANUAL.)

The number of accidents on the existing US 67 has been a concern to the SDHPT and the public. The accident rates have steadily increased due to traffic congestion, in particular heavy truck traffic.

Table 1 (page A-1) shows type and number of accidents for the years 1983-85 for the existing routes (US 67 and SH 174) which

will be relieved by the US 67 bypass. During this period, there was a combined total of seven deaths, 517 injuries, and 1012 property damage-only accidents. The total number of accidents for the three-year period was 1334 and the accident rate substantially exceeded the statewide average per vehicle mile. Accident rates should decrease due to volume reductions on existing routes and improved safety features on the bypass.

The proposed project will implement the latest design and safety standards. Installation of warning devices and roadway furniture, as appropriate and feasible, will reduce the severity of accidents. Warning device installation will also keep the accident rate down, but such devices are limited by the perceptual abilities of the driver. If this roadway is not constructed, the number and severity of accidents will probably continue to increase on existing routes.

2. ALTERNATIVES INCLUDING PROPOSED ACTION

A. No-Build Alternative

There is always the option to do nothing about a problem. This alternative has the apparent advantages of not creating adverse environmental impacts at a new location. However, this alternative would preclude the materialization of any of the favorable aspects of the proposed project, primarily, improved traffic distribution and safer flow, improved air quality and the other associated social, economic, and environmental benefits.

Accident rates along the existing route segments are considerably worse than the statewide average, and traffic flow is extremely congested, being level of service "F". Mass transit as an alternative to highway construction is not viable due to the rural nature of the area. Additionally, it would not serve the heavy truck traffic currently using the existing US 67 in downtown Cleburne.

If this project is not constructed, mobility would continue to deteriorate and the accident rate could increase in the area, especially along the existing routes of US 67 and SH 174. Economic activity could be hindered because of the reduced level of mobility.

Air pollutant loads would increase. Congestion forces vehicles to operate at lower, more irregular operating speeds. This produces higher fuel usage with increased pollutant emissions within the corridor.

B. TSM Alternative

The primary purpose of the US 67 bypass is to route through traffic away from downtown Cleburne. Transportation System Management (TSM) actions have been implemented to the extent feasible on the existing routes. Alternative routing of traffic, in particular truck traffic, in lieu of new construction, would require the use of neighborhood streets.

The SDHPT, in cooperation with the City of Cleburne, has implemented several TSM projects along the existing US 67 and on SH 174 - the two major downtown arteries.

To smooth traffic flow and improve turning movements, the existing US 67 and SH 174 have each been divided into one-way pairs through the central business district. Signals have been placed at major cross streets. Some of the signals are

traffic-actuated; others are interconnected to provide progressive traffic flow through the central business district. Also, a continuous left-turn lane has been striped for a large portion of the route. To eliminate the need for drivers to stop for trains, a grade separation structure is being planned for the existing US 67 crossing with the Santa Fe Railroad.

C. Construction Alternatives

1) General Project Description

Located mostly across gently rolling terrain, the proposed project is approximately 14 to 15 miles in length and subdivided into quadrants. The northwest and northeast quadrants are planned to be built initially, with the southwest quadrant being deferred due to much lighter traffic volume anticipated for the southwest bypass. (See Figure 1, page B-1.)

The US 67 bypass across the northern quadrants will provide alternative routing for traffic now on existing US 67 from near FM 1434 to Spur 102, a segment which is approximately nine miles long. Two routes are being evaluated for each of the northern quadrants - Routes W and X for the northwest quadrant and Routes Y and Z for the northeast quadrant.

The southwest quadrant is considered here only to the extent that it may influence the route and design of the northwest quadrant. Only one alternative has been under consideration for the southwest quadrant since more definitive studies of this future route will be done at a time nearer construction. This alternative has been routed across land to the east of Lake Pat Cleburne that is now undeveloped to assure the best possible access to the bypass for Cleburne residents and to reduce the length of the bypass. No definitive plans are underway for the southeast quadrant.

Within the northern quadrants, interchange sites with US 67, SH 174, and SH 171 will be critical. Grade separation structures will be provided at all railroad crossings. Interchanges will be designed for all highway crossings, and at other major thoroughfares depending upon suitable ramp spacing for safety and capacity reasons. Subject to availability of funds for the initial phase of construction, some road crossings may be at grade, but grade crossings will ultimately be eliminated in later programs as funding becomes available to upgrade the entire length of the bypass to freeway status.

Other principal design features include twin bridges with shoulders over the Nolan River at the upper end of Lake Pat Cleburne to replace the existing two-lane bridge which does

not have shoulders. This bridge will be replaced regardless of bypass construction since it is both structurally and functionally inadequate. Bridges over West Buffalo Creek and East Buffalo Creek will be important design considerations, but will not be controlling factors in route selection.

The project is being planned for a minimum right of way width of 476 feet, with greater width at intersections and places where cuts or fills result in increased width of side slopes. Ultimate development for full control of access is planned, but stage development with varying degrees of access control is anticipated. Right of way will include space for frontage roads, even though construction of frontage roads may be deferred in some places.

The proposed project will consist of a divided highway with the median 76 feet in width, and four controlled access through lanes, with two- and three-lane frontage roads on both sides that ultimately will be continuous except at railroad crossings.

2) Preliminary Alternatives

In the early stages of project planning, a number of preliminary evaluations were made. Among these, were the following.

- Alternative sites were evaluated for the US 67 bypass/SH 174 interchange. However, industrial and commercial development along SH 174 in northern Cleburne has filled vacant land to the point that only one adequate location remains. A more northerly possible site was eliminated due to the construction of the flood detention dam and reservoir by the Soil Conservation Service (SCS) north of SH 171 on West Buffalo Creek.

Thus, a common interchange point at the SH 174 crossing, 2.5 miles north of the courthouse, is required for all alternatives. Although this common interchange reduces design flexibility, it allows each alternative route to combine with either route in the adjacent quadrant.

- A preliminary alternative in the northwest quadrant was evaluated which would have located the bypass along Nolan River Road between the airport and the high school, mitigating farm and community cohesion impacts. That alternative was eliminated due to awkward freeway alignment and interchange design features; disruption of the local street system by altering the function of Nolan River Road, the only major thoroughfare in that section of the city; and encroachment upon the planned runway extension and approach zone of Cleburne Municipal Airport.

- A preliminary alternative was considered which would extend Route W west of Lake Pat Cleburne. This alternative, which would initially eliminate the Route W section from FM 4 south to the existing US 67 and west across Lake Pat Cleburne, was excluded from further consideration for a number of reasons.

It would fail to provide access to Walls Regional Hospital. It would further extend the bypass by adding approximately three miles to its length. It would not avoid widening the bridge over Lake Pat Cleburne, because traffic demand requires the widening of the existing US 67 even with construction of the bypass. It would require two, rather than one, crossings over Nolan River.

Additionally, the western portion of the city of Cleburne would not have access to the facility if the loop were constructed on the western side of Lake Pat Cleburne (the lake would be a barrier to access). To extend the loop on the east side of Lake Pat Cleburne, and thereby provide access for the western portion of the city, the Route W section from FM 4 to the existing US 67 would be required in the future as a connection to the proposed route in the southwest quadrant. Therefore, such an alternative would require a costly, extraneous link to the system.

3) Description of Construction Alternatives

All alternative routes are being designed to pass through vacant land wherever possible. Displacements will be minimal since the route will bypass the business section as well as most of the existing residential sections. While there is some development in the general area of the alternative routes, active development is not taking place within the proposed right of way. Adequate replacement housing facilities are available for the small number of displacees.

Alternative preliminary geometric layouts, Plates 1 through 4, are superimposed over aerial photographs, which show the relationship of each alternative to adjacent land uses.

In the northwest quadrant, Route W would be 6.3 miles long and Route X, 5.2 miles, from US 67 near Nolan River to SH 174. Routes W and X begin and end at common points.

Route W would begin on existing US 67 near Nolan River, at the upper end of Lake Pat Cleburne, and would follow the existing highway for about one-half mile. To pass west of the airport, the route would curve approximately 90 degrees at its junction with the existing US 67 on the west side of Cleburne near Walls Regional Hospital. It would intersect Woodward Street near

the southwest corner of the airport, traversing terrain which slopes abruptly to the west toward Nolan River, and would curve another 90 degrees to resume the general east-west direction of the bypass, intersecting FM 4 and County Road 1217, north of the airport. The route would then cross McAnear Creek, intersect County Road 1216, SH 171, and a Santa Fe branch line, cross West Buffalo Creek, downstream from the Soil Conservation Service flood detention reservoir, and intersect County Road 1022 shortly before ending at SH 174.

Interchanges would be constructed at US 67, Woodward Street, FM 4, County Road 1216, SH 171, and SH 174. The US 67 interchange would be a combination of wye and diamond-type interchanges; the SH 174 interchange would be a partial cloverleaf, and the others would be diamond interchanges. The crossing at the Santa Fe Branch line would be an overpass which would also span SH 171. Bridges to be constructed over McAnear Creek and West Buffalo Creek would be prestressed concrete beam spans and would pass the 100-year flood without major increase of the water surface. Other design features would include full control of access and a 55 MPH design speed.

Route X would begin on existing US 67 near Nolan River, at the upper end of Lake Pat Cleburne, and would follow the existing highway for approximately three-fourths of a mile. This route would bend approximately 30 degrees near Walls Regional Hospital, intersect Nolan River Road south of the airport, and pass south of Cleburne High School. It would intersect Woodward Street and FM 4, parallel and then cross McAnear Creek, and intersect County Road 1125A. Its crossing with SH 171 and the Santa Fe Branch line would be a very short distance from that of Route W. The proposed locations of Routes W and X coincide at the crossings of West Buffalo Creek and SH 174. They cross Nolan River at the same point, having an identical relationship outside Buddy Stewart Park near the west end of the project.

Interchanges would be constructed at US 67, Nolan River Road, Woodward Street, FM 4, SH 171, and SH 174. The interchanges at US 67, SH 171, and SH 174 would be similar to those on Route W, and the others would be diamond interchanges. The crossing at the Santa Fe Branch line would be similar to Route W's. Bridges to be constructed over McAnear Creek and West Buffalo Creek would be similar to Route W's, except the McAnear Creek crossing has a wider flood plain at the Route X crossing. Both W and X cross Nolan River at the same point and have an identical relationship to Buddy Stewart Park which is near the west end of the project. Other design features would be similar to Route W's.

Route W is supported by the Johnson County Commissioners' Court, the Cleburne City Council, and generally by the community of Cleburne. It would not interfere with community cohesion. It would displace fewer households and relocate fewer persons than Route X. However, it would initially create greater divisive impacts on farms, but these effects are mitigated by the economic benefits associated with freeway placement and the existing trend to urban conversion of lands in the project area.

Route W would marginally restrict future northern expansion of the airport and encroach slightly upon the grounds of the hospital. However, there are no plans for future airport expansion to the north to supplement planned expansion to the south. (See Appendix C for letter from the City of Cleburne.) Further expansion appears to be unnecessary for a city the size of Cleburne. Should the airport be expanded to the north, changes in the facility design of the bypass would be necessary but this would not impact route location. Rearrangement of hospital driveways and parking facilities can effectively mitigate encroachment on the hospital grounds.

Route X would improve external accessibility to Cleburne High School and would avoid deep encroachment into the grounds of Walls Regional Hospital. However, it would interfere with community cohesion by separating neighborhoods away from the body of Cleburne and by forming a barrier between the high school and the body of Cleburne. It would also encourage commerical and industrial build-up closer to residential areas than would Route W. In lieu of Route X, local thoroughfare construction as part of urban expansion in the area would improve accessibility to public facilities and mitigate community cohesion impacts. Route X would permit further future expansion of the airport to the north and would create a less divisive impact on farmlands. Route X would encroach logitudinally on the flood plain of McAnear Creek, requiring special design to avoid raising the flood level.

There are no other major impact differences between Routes W and X.

In the northeast quadrant, Route Y would extend 3.9 miles and Route Z, 4.0 miles, from SH 174 to near Spur 102. Both routes would begin and end at common points.

Route Y would begin at the common interchange with SH 174, intersecting the Atchison, Topeka, & Santa Fe mainline, County Road 801, East Buffalo Creek, County Roads 801B and 805, and FM 2280 about one-half mile north of the existing US 67-FM 2280 intersection. The junction with existing US 67 in Keene would bend approximately 30 degrees; with the relocation ending near

the intersection with Spur 102. The route would interface with a proposed four-lane divided expansion project east of Spur 102 in Keene. That project will extend eastward to Alvarado and continue to Midlothian.

Interchanges would be constructed at SH 174, County Road 801, County Road 805, FM 2280, and US 67. US 67 would have a wye-type interchange; SH 174 would have a partial cloverleaf; and the others would have diamond interchanges. The bridge to be constructed over East Buffalo Creek would be constructed with prestressed concrete beam spans and would pass the 100-year flood without a major increase of the water surface. Other design features would include full control of access and a 55 MPH design speed.

Route Z would begin at the common interchange with SH 174, intersecting the Atchison, Topeka, & Santa Fe mainline, East Buffalo Creek, County Roads 801, 801B, and 805, and FM 2280 immediately north of the existing US 67-FM 2280 intersection. The Route Z-existing US 67 junction would bend approximately 30 degrees.

At FM 2280 and US 67, an interchange would be required which would combine wye and diamond interchange design elements and extend a considerable distance. Other interchanges would be constructed at County Roads 801 and 805. The SH 174 interchange would be similar to Route Y's, and the others would be diamond interchanges. The crossing at the AT&SF mainline would be similar to Route Y's. The bridge to be constructed at East Buffalo Creek would be similar to Route Y's. Other design features would also be similar to Route Y's.

There are no serious environmental considerations which would impact selection between Route Y or Route Z. Route Y would displace slightly more households and businesses than would Route Z. Route Z would have a more divisive effect on established low-density neighborhoods and would impact the densely wooded area at the east end of the project more than Route Y. It would impact farmlands more than Route Y, disturb the existing road net more, and create a less desirable pattern of ramps at various interchanges. Route Y is supported by the Keene City Council, Cleburne City Council, and Johnson County Commissioners' Court.

A preliminary estimate of construction and right of way costs is summarized in Table 2 (page A-2).

The combination of Routes W and Y is the project alternative preferred by the SDHPT.

3. AFFECTED ENVIRONMENT

A. The Social and Economic Environment

Cleburne, the county seat of Johnson County, was incorporated as a city in 1871. The city is located within the Dallas-Fort Worth Consolidated Metropolitan Statistical Area, one of the nation's most rapidly growing urban regions. Cleburne serves as a market center for area residents, both city and rural dwellers, and as a hub of rail and other manufacturing enterprises.

Estimated and projected population figures demonstrate to what extent growth trends are expected to continue. The population of Cleburne was 19,218 in 1980. It is currently 22,250 according to the 1987 estimate prepared by the North Central Texas Council of Governments (NCTCOG). A range of projections provided by the City of Cleburne indicates that the population of Cleburne could exceed 50,000 by the year 2011, the design year of the US 67 bypass. Nearby cities include Keene (1980 population 3,013) to the east of Cleburne and Joshua (1980 population 1,470) to the north. NCTCOG population estimates indicate that both cities reached 4,000 in 1987. Other pertinent area population statistics are listed in Table 3 (page A-3).

Employment within the city of Cleburne, as well as within Johnson County, is supplied primarily by agribusinesses, railroad-related shops and shipping activities, a variety of manufacturing firms, and lake recreational activities, or associated with the Fort Worth metro area. Major employers include the Atchison, Topeka & Santa Fe Railway, the city's largest employer; Walls Industries; Rangaire Corporation-Rangaire Manufacturing; Manville Sales Corporation; and Rubbermaid Commercial Products. Production of lime and limestone aggregates for the construction industry is centered a short distance southwest of Cleburne.

The cultural character of Cleburne is defined by the historic nature of the Johnson County Courthouse and other community and residential structures. Public facilities include a park system of seven parks; the Cleburne Civic Center; a public school system of seven elementary schools, a middle school, and a high school; a regional hospital; and an airport. Lake Pat Cleburne serves both local water supply and recreational purposes.

The transportation system of Cleburne includes a network of highways, farm-to-market roads, and local streets, as well as demand-responsive transit service. The highway system

divides the city into quadrants via the existing US 67, which runs east-west, and SH 174, which runs north-south. The street pattern within the city of Cleburne is predominantly a grid system. An updated thoroughfare plan is underway as part of the master planning process.

The local transit system, CLETRAN, provides same-day demand-responsive service within the city limits. The service is available to all Cleburne residents, with one of the four CLETRAN vehicles being lift-equipped to serve persons with mobility restrictions. Additional public transportation service is provided by AMTRAK along the Santa Fe mainline.

The environment of Cleburne, including its roadway system, is also structured by other transportation facilities and natural features. Cleburne Municipal Airport and the Santa Fe Railroad (with its extensive yards and shops, north-south mainline, and two east-west branch lines) complete the area's transportation service by providing travel or freight shipping opportunities. Cleburne is edged by Lake Pat Cleburne and interlaced by waterways including West Buffalo Creek, East Buffalo Creek, McAnear Creek, and Nolan River.

The project area for the US 67 bypass contains residential, commercial, industrial, agricultural, and public land uses. All four routes, W, X, Y, and Z, travel primarily through agricultural land which is urbanizing.

1) Residences

Within the northwest quadrant, Routes W and X would travel through scattered residences, some of which would be displaced with the greater number being along Route X. Both routes would interchange with SH 174 which is bordered by mixed land uses including a few residences.

Along Route W, residential development is occurring south of Woodward Street (CR 1121) near the route. Scattered residences are located north of Cleburne Municipal Airport. Residential clusters are also located well south of the proposed Route W W along FM 4 from just east of SH 171 to near the Cleburne Municipal Airport. Route X would travel through a vacant section within this residential area separating a large cluster of homes away from the remaining residential area, but would not displace any residences. Route X would also travel through residential strips along Nolan River Road and the existing US 67 near the intersection of those two roads.

Within the northeast quadrant, scattered residences are along

along County Roads 801, 801B, 805, and 805A between Routes Y and Z; north of Route Y along CR 700, and south of Route Z along CR 801B. Existing low-density neighborhoods would be disrupted slightly more by Route Z than Route Y. Although the area at the east end of Routes Y and Z, south of the city of Keene, is primarily commercial, a few single-family homes, an apartment complex, and two mobile home parks are located near the existing US 67.

2) Businesses

There is a major business cluster at the SH 174/US 67 bypass interchange common to all routes. Industrial and commercial land uses, including car dealers, a motor inn, small restaurants, and mobile home sales are located within this cluster. Most of the land required for right of way in that area is still vacant; the route location was selected to use the only remaining vacant area.

Scattered businesses are located south of Walls Regional Hospital along Routes W and X, and north of the Cleburne Municipal Airport along FM 4. Both Route W and X would interchange with SH 171. Although land use adjacent to this highway will probably develop heavily as commercial and industrial, it now contains a light mixture of residential, commercial, and industrial land uses.

Scattered businesses are located south of Route Z at the existing US 67 and CR 805A. At the east end of both Route Z and Y, there is an area of mixed land uses, including both commercial and residential uses. A cluster of businesses and homes at the intersection of FM 2280 and existing US 67 would be displaced by Route Z, but avoided by Route Y.

Farms are located along all four alternative routes. Although most of the farmland is used for grazing, blocks of cultivated land are located along SH 171 within the northwest quadrant and east of the Atchison, Topeka & Santa Fe Railway within the northeast quadrant.

3) Public Facilities

Three public facilities, Cleburne High School, Cleburne Municipal Airport, and Walls Regional Hospital, are near to the US 67 bypass and within the northwest quadrant. Cleburne Municipal Airport and Cleburne High School are intermediate controls.

Cleburne Municipal Airport, which is located near the intersection of County Road 1217 and FM 4 between Routes W and X,

has a single paved runway approximately 5200 feet in length, north-south in orientation, and is presently planned to be extended 1000 feet to the south.

Cleburne High School, located at Nolan River Road and Woodward Street near Route X, has an enrollment of approximately 1400 students.

Walls Regional Hospital was completed in 1986 as the principal health facility in Johnson County. The 112-bed hospital employs 350 persons and is on the existing US 67 at the west end of Routes W and X.

Other public facilities within the project area of the northwest quadrant are Colonial Manor Nursing Center, Cleburne Health Care Center, Wesley Memorial United Methodist Church, the First Assembly of God Church, and the Texas Department of Public Safety located along FM 4 between the proposed Route X/ FM 4 interchange and SH 171, and Lebanon Baptist Church at FM 4 and CR 1125B which is north of Route W.

Within the northeast quadrant, a non-profit organization, The Hour of Prophecy, is located 0.4 miles northeast of FM 2280 and the existing US 67. Chisholm Trail Academy (estimated enrollment 200) is located northeast of Route Y at Fourth Street and FM 2280. The bypass will also serve Southwestern Adventist College (estimated enrollment 750), which is located at Hillcrest and College, approximately 1-1/2 miles north of the bypass near FM 2280 and at the north end of Spur 102 in Keene, Texas.

Public recreational sites in the project area are located at Buddy Stewart Park (aka Byron Stewart Park), Lake Pat Cleburne, and the West Buffalo Creek flood detention dam and reservoir.

Lake Pat Cleburne, located within the southwest quadrant, also affects the northwest quadrant. It is located at the west end of Routes W and X. Available recreational activities include boating, fishing, skiing, and swimming. Buddy Stewart Park, along Nolan River and north of US 67, provides a boat launching ramp, eight overnight camping facilities with electrical hookups and picnic tables as well as other camping facilities, two large pavilions for picnics, and nine soccer fields for multi-purpose recreational activities. (See Figure 2, page B-2.)

The West Buffalo Creek flood detention reservoir is within the northwest quadrant, north of the proposed interchanges with SH 171 and SH 174. Recreational activities may include boating and fishing.

4) 4(f) Properties

No 4(f) lands will be crossed. Buddy Stewart Park, abuts the right of way on the north side of the existing US 67. In that area, the only alternatives which have been considered are ones which would expand the existing facility on the opposite side away from Buddy Stewart Park to avoid impacts on the park.

The park is owned by the City of Cleburne and has received a matching grant from the Land and Water Conservation Fund. No land will be used from this park, nor will there be land used from any publicly owned park, recreational area, or wildlife and waterfowl refuge.

A small portion of land adjacent to Lake Pat Cleburne will be used; however, this land is not used for recreational purposes nor does the City of Cleburne plan to use this land for recreational purposes, the principal purpose of the lake being public water supply.

A historical marker designating the site of Wardville, the original county seat of Johnson County, is located on existing US 67 near the west end of the project. There are no other known historical or archaeological sites.

5) Aesthetic Considerations

The proposed bypass travels through rural land which is in the process of converting to urban uses. A park is located near the west end of the project and wooded areas are located toward the east end of the project, along creek crossings, and near County Roads 700 and 805.

B. The Natural and Ecological Environment

Johnson County:

In Johnson County the average daily maximum temperature in the summer is 96 degrees Fahrenheit and the average minimum in the winter is 36 degrees. Occasional freezing occurs usually between November 11 and March 27. Normal monthly precipitation is less than three inches, except during the months of April, May, September, and October. Normal annual precipitation is 32.27 inches. The average seasonal snowfall is 2 inches. The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 80 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 12 miles per hour, in spring.

Johnson County has a topography which ranges from nearly level to hilly. It is located within the Grand Prairie, East Cross Timbers, and Blackland Prairie Land Resource Areas, with a small portion falling within the West Cross Timbers Land Resource Area. Its most notable water bodies are the Brazos River and its tributaries, tributaries to the Trinity River, and Lake Pat Cleburne. It is in transition from rural to urban, with the southern edge of the county still retaining much of its rural character. The city of Cleburne falls within the Grand Prairie Land Resource Area. Lake Pat Cleburne and the Nolan River are its major water bodies. There is a Soil Conservation Service flood detention dam and reservoir on West Buffalo Creek.

Project Area:

1) Water Bodies and Streams

Major water bodies within the project area include Lake Pat Cleburne, Nolan River, McAnear Creek, West and East Buffalo Creeks, and the flood detention dam and reservoir constructed by the Soil Conservation Service on West Buffalo Creek. The divide between the Brazos and Trinity River watersheds lies near the east end of the project.

2) Wetlands

An area of wetlands will be involved at the crossing of Nolan River, being at the upper end of Lake Pat Cleburne. Alternative Routes W and X would be identical at that point and would both encroach slightly upon a small area of Lake Pat Cleburne. This area is inundated occasionally with shallow water when the backwater is at spillway level or higher.

3) Flood Plains

All alternatives have been routed to avoid the flood detention dam and reservoir. Both Routes W and X cross West Buffalo Creek on the same alignment approximately 4,500 feet downstream from the dam. At that location, the dam provides a flood level which is lower than that shown on the FEMA maps (compiled before completion of the dam).

Four of the intermittent streams which cross the project have been designated as Federal Emergency Management Agency (FEMA) floodways for the City of Cleburne and the unincorporated area of Johnson County, both participating governmental organizations. These streams include Nolan River, West Buffalo Creek, McAnear Creek, and East Buffalo Creek.

4) Coastal Zones, Navigable Streams, and Wild and Scenic Rivers

There are no navigable streams or Corps of Engineers waterways. There are no rivers listed under the National Wild and Scenic Rivers System. The project will not affect land or water uses within the area covered by a State Coastal Zone Management Program (CZMP).

5) Fish and Wildlife

Wildlife within the project are typical of those found in Johnson County. Lakes and ponds contain a variety of fish species including black bass, crappie, sunfish, channel catfish, and flathead channel. Wildlife include opossums, red and gray foxes, skunks, squirrels, beavers, coyotes, and bobcat. White-tailed deer and turkey inhabit the southwestern part of the county. Birds include doves, quail, and waterfowl such as mallard, pintail, teal, and gadwall ducks. Geese and sandhill cranes are transient. (ref. SOIL SURVEY OF JOHNSON COUNTY, U.S. Department of Agriculture Soil Conservation Service)

Threatened or endangered species of potential concern on this project include the American peregrine falcon, Arctic peregrine falcon, Bald eagle, Interior least tern, Piping plover, Whooping crane, and the Black-capped Vireo. (See page A-15.)

As the area urbanizes, only those wildlife tolerant of the activities of humans remain. Such species include opossums, skunks, squirrels, coyotes, doves and quail. Waterfowl and fish will continue to inhabitat water areas.

6) Soils, Topography, and Vegetation

The project falls within the Grand Prairie and East Cross Timbers Land Resource Areas. The terrain is rolling prairie land with interspersed Post Oak and other deciduous trees. Some of the land is now used for grazing or for crops. The northwest quadrant of the project area falls predominantly within the Grand Prairie Land Resource Area, which has grassy slopes and low escarpments and relatively few trees.

In the northwest quadrant, Route W would traverse rough terrain from US 67 near Nolan River to FM 4, north of the airport. Between FM 4 and SH 171, the land is gently rolling and currently agricultural. Route W would cross West Buffalo Creek between SH 171 and SH 174. Route X would travel through a substantial gap between existing residential developments to FM 4, continuing through rolling prairie land, which is still partly agricultural to SH 171 where the proposed locations of Routes W and X merge.

The northeast quadrant is primarily within the East Cross Timbers Land Resource Area, which is typified by low hills, reddish sandy soils, and some thickly wooded areas of oak trees.

In the northeast quadrant, Route Y would be located on rolling terrain which is mainly agricultural with scattered residential development. Route Z would traverse agricultural and residential land with a rolling terrain. From the junction of Route Z and existing US 67 to a midway point between FM 2280 and Spur 102, the land is undeveloped and covered with a dense woods of Post Oak and other deciduous trees.

Soils which are designated as prime and unique farmlands predominate, but are already developed or developing as urban land use. Those within the project area which are characteristicly prime and unique farmlands include: Bolar (BoB), Burleson (BuA,BuB), Culp (CuB), Denton (DnB), Frio (Fr), Gasil (GfB,GfC), Krum (KrB), Lewisville (LeB), Lindale (LIB), Lott (LoB), Ponder (PnB), Rader (RaB), Sanger (SaB,SaC), Slidell (SIA,SIB), and Sunev (SuB,SuC) soils.

Soils not designated as prime and unique are: Aledo-Bolar (AbC), Birome (BmE), Bolar (BoC), Crosstell (CrB,CrD), Gowen (Gy), Hassee (HaA), Hensley (HnB), Pulexas (Pp), Purves (PuB), Sanger-Urban (SbC), Seawillow (SeC), Silstid (SfD), and Wilson (WsB) soils. (SOIL SURVEY OF JOHNSON COUNTY, TEXAS, U.S. Department of Agriculture Soil Conservation Service)

Mineral resources in Johnson County include lime, stone, sand, and gravel. Nearby lime plants and limestone quarries, the source of much of the truck traffic, are located southwest of Cleburne. Gravel pits are also located near the project area.

4. ENVIRONMENTAL CONSEQUENCES

A. Social and Economic Impacts

Regional and community growth in the project vicinity is expected to continue along present trends. Due to its proximity to Dallas and Fort Worth, the land area is in a state of transition from rural to urban uses.

The area along the project includes single- and multi-family dwelling units, farm and ranching activities, retail and service businesses, industrial sites, and public land uses. The SDHPT has been coordinating with the City of Cleburne to ensure compatability with future land use plans now under development as part of the master planning process.

Land use along the proposed facility is expected to change from agricultural to industrial, commercial, and residential. Any changes to industrial or commercial use influenced by construction of this project for property abutting the completed project could benefit the local economy through the generation of additional employment opportunities.

New development is expected to occur in the area regardless of project implementation, but development could be accelerated somewhat by the project. Adjacent property values are expected to be favorably affected by the improved accessibility. As undeveloped properties are developed in the future and/or residential-to-commercial conversion occurs, rising property values will increase the local tax base. This increase in in the local tax base will offset any losses associated with right of way acquisition.

Short-term economic gain to the area will be in the form of job opportunities available during construction and by temporarily boosting the local economy. Road users, including occupants of abutting property, will benefit economically from various design improvements which will reduce vehicle operating costs and improve safety.

1) Residences

Listed in Table 4 (page A-4) are the residential displacements by route. Although a number of mobile homes would be relocated within the northeast quadrant, fewer than 20 owner-occupied single family homes would be relocated by any route.

Within the northwest quadrant, a field survey indicated that Route W would relocate one household; Route X, eight. All owner-occupied residences would be single-family homes. The

tenants displaced by Route X would occupy duplexes. There should be no minorities, persons 62 years of age or over, or handicapped residents displaced, nor any families with a large number of children.

In the northeast quadrant, Route Y would relocate 54 households; Route Z, 46. Owner-occupied dwelling units would be single-family homes; the tenant-occupied residences would be mobile homes. Displacements by either route could include one Hispanic family and one person age 62 or over and on a fixed income, both would be tenants of mobile homes. Other low income families could be displaced; however, they would be tenants of mobile homes which can be relocated in the area. There should be no handicapped residents, nor families with a large number of children occupying the dwelling units which would be displaced.

Community cohesion would be least affected by Routes W and X. Of all alternatives, Route X within the northwest quadrant would most impact community cohesion. Route X would separate a cluster of homes away from northwest Cleburne's residential area. This cluster of homes would be bordered by Route X to its east and Cleburne Municipal Airport to the west, restricting growth on both sides of the residential cluster. Several small residential pockets would be separated from the body of Cleburne. Route X would also encourage industrial and commercial build-up near residential areas. Route Z, within the northeast quadrant, would have a slight divisive impact on low-density neighborhoods, where it crosses near CR 805 and 805A.

Community cohesion and neighborhood character would generally be unaffected by Routes W and Y, as would access and community circulation patterns. Existing neighborhoods would not be divided or disrupted, except where Route X would cross Nolan River Road, and where Route Z would cross in the vicinity of CR 805 and 805A. No major adverse on minority or other specific groups is anticipated regardless of route selection.

2) Businesses

Within the northwest quadrant, Route W would displace four businesses, as would Route X. Routes Y and Z, within the northeast quadrant, would displace 20 and 23 businesses, respectively in the area near the east terminus, most of them being the same units. Table 5 (page A-4) indicates the number and type of businesses to be displaced by route.

Each of the businesses to be displaced should have fewer than ten employees. It is estimated that the majority of these businesses would relocate in presently vacant areas near the project; therefore, their displacement would not have a major

impact on the economy of the community. Minority businesses should not be affected by this project. Two employees could be minorities. Regardless of alternative selected, commercial or industrial tract division will be required between SH 171 and SH 174, and thus severance damage payments will be necessary.

The economy of the community should not be adversely affected by business relocations. Short-term unemployment caused by relocations should be absorbed by the labor market. Small retail or service businesses with localized clientele are unlikely to lose customers via residential displacement and relocation caused by freeway construction due to the small number of displacements. Access to commercial facilities from residential areas will be unaffected.

Most of the agricultural land within the project area is used for grazing purposes. Farms with cultivated fields are located west of SH 171 and east of the Atchison, Topeka & Santa Fe Railway. (See Figure 3, page B-3.) Within the northwest quadrant, Route W would require a greater degree of field division than Route X; however, the location of this area of farmland along an existing highway and near an urbanized area indicates that it will urbanize regardless of route selection. Within the northeast quadrant, Route Z would require slightly more field division than Route Y. Highway placement in an area converting from rural to urban uses usually provides economic benefits for property owners, due to the provision of highway frontage which generally increases property values.

The overall effect of the proposed project is anticipated to be favorable for the business community. Commercial development in the area is expected to continue, and with increased roadway capacity, the improved accessibility will be an asset to the existing commercial activities. Downtown Cleburne businesses should benefit substantially, since heavy truck traffic, which will be rerouted to the bypass, is a primary source of traffic congestion in Cleburne's central business district. There has been strong support of the bypass from downtown business interests, represented by the Cleburne Chamber of Commerce.

3) Public Facilities

Major public facilities near the project are Cleburne High School, Cleburne Municipal Airport, and Walls Regional Hospital.

With adoption of Route W, access to Cleburne High School and Cleburne Municipal Airport from much of the existing community would remain unchanged, retaining the existing poor access

patterns. However, Route W would improve external access to the airport. The SDHPT has coordinated with the City of Cleburne to ensure project compatibility with airport plans. (See Appendix C for City of Cleburne letter.) Current airport planning includes a 1,000 foot runway extension to the south, which is the maximum feasible southerly extension. This will lengthen the runway to 6200 feet, the acceptable length for small business jets, which will probably meet all expansion needs required at this aviation site.

Route W would encroach slightly upon the grounds of Walls Regional Hospital, and reconstruction for part of the parking facilities and traffic circulation patterns would be necessary. There are currently two parking spaces for the handicapped at the front entrance of the hospital. A third parking space for the handicapped is located in the doctor's parking area. There will be space available at the main entrance of the hospital to allow hospital planners to provide specialized parking facilities which exceed current parking facilities for the elderly.

Route X would improve external access to Cleburne High School by providing ramps to Woodward Street at the corner of the school, while proximity effects to the school would be mitigated by depressing through traffic lanes below Woodward Street. However, Route X would create community cohesion impacts for the high school by forming a barrier between the school and most of the existing community. Cleburne Municipal Airport or its possible expansion would not be affected by Route X, except that external access would be improved.

Route X would allow parking facilities and traffic circulation patterns at Walls Regional Hospital to function as built and provide greater access to the hospital for the Cleburne community. Route X would also improve access to several public facilties along FM 4 including Colonial Manor Nursing Center, Cleburne Health Care Center, Wesley Memorial United Methodist Church, the First Assembly of God Church, and the Texas Department of Public Safety.

Within the northeast quadrant, there is one non-profit organization, The Hour of Prophecy, located adjacent to Route Z, which would be displaced. Two private schools, Chisholm Trail Academy and Southwestern Adventist College will benefit from the improved access provided by the bypass; however, they are not located close enough to either Route Y or Z to experience adverse impacts from the project.

Recreational sites are located at Lake Pat Cleburne and Buddy Stewart Park. The Soil Conservation Service flood detention reservoir is located within the northeast quadrant. Access

to all recreational facilities will be improved by the bypass, regardless of route selection. No encroachment of these facilities will occur.

Public utility adjustments will be necessary for the following: Lone Star Gas Company, City of Cleburne Water and Sewer, Southwestern Bell Telephone Company, and TU Electric. Adjustments will also be necessary for a crude oil pipeline owned by AMOCO Oil Corporation. Encasement of the pipelines across the right of way will be necessary. The local municipal water supply source will be unaffected, although the proposed facility will cross several wet-weather creek beds and encroach slightly upon Lake Pat Cleburne. The US 67 bridge over Nolan River on the upper reaches of Lake Pat Cleburne will be widened at the west end of the project, whether the bypass is built or not.

During construction of the bypass, emergency routing will be possible at all times and will be coordinated with the proper local agencies. Fire protection and other emergency services will be improved due to the ease of travel afforded by new roadway construction, as will transit service. The reduction in traffic congestion in downtown Cleburne will make bicycle and pedestrian travel safer and increase its viability. Shoulders and frontage roads on the new facility will be able to accommodate bicycle traffic. If appropriate to the selected route, bicycle and pedestrian bridges will be constructed.

4) Relocation

Highways and other public transportation facilities are needed to improve our way of life. The development of such facilities often requires the use of land and the relocation of people and buildings. Through its relocation assistance program, the SDHPT provides payments, including reimbursement of reasonable moving expenses, and services to those required to move.

Replacement housing for the displacees of this project should be available within the cities of Cleburne and Keene and will be equal to or better than the displaced housing. Table 6 (page A-5) indicates the number and type of currently available replacement housing for sale and for rent in the Cleburne-Keene-Rio Vista area.

A visual inspection indicated that there may be difficulty locating replacement housing for one owner-occupied household per route, thus requiring "Last Resort" housing. "Last Resort" housing is required when alternative housing cannot be located which is comparable or better than the existing dwelling unit and is decent, safe, and sanitary without exceeding the evaluation of the existing dwelling unit plus $15,000. Additional funding can be provided for such cases.

Since the City of Cleburne operates a transit system which includes demand-responsive service, there should be no impacts on travel choice for any persons currently using the system should they be relocated.

Relocation assistance is available to all individuals, families, businesses, and non-profit organizations displaced by public transportation projects, in accordance with Title VIII of the Civil Rights Act of 1968 and the HUD Amendment Act of 1974. A relocation assistance brochure, available in both Spanish and English, is given to each individual to help explain the program.

No person shall be displaced by a SDHPT construction project until equal or better, decent, safe, and sanitary replacement housing has been provided for or has been made available. All replacement housing will be open to all persons regardless of race, color, religion, sex, or national origin.

Each displacee will have sufficient time to plan for an orderly, timely, and efficient move. This applies to all properties where an occupant has to move to a new location or to move property to a new location. No persons lawfully occupying real property will be required to move without at least a ninety day written notice.

Standard SDHPT relocation efforts are sensitive to the needs of special populations. Continued access to community services, including special transportation for the elderly and handicapped, will be maintained if possible. Interpreters will be provided for the deaf and non-English speaking persons. Special housing needs will be financed for the handicapped if their existing housing was so equipped and these needs are not met within the market place.

SDHPT personnel will work closely with displacees to meet relocation needs and to ensure that relocation assistance services are made available. Liaison will be maintained with social welfare agencies, urban renewal agencies, redevelopment authorities, and the Small Business Administration, the Federal Housing Administration, and the Veterans Administration, along with local sources of information on private replacement properties.

5) 4(f) Properties

No 4(f) lands will be crossed. Buddy Stewart Park, is located near Routes W and X, a portion of the project which is the expansion of an existing facility rather than on new location. The park is owned by the City of Cleburne and has received a

matching grant from the Land and Water Conservation Fund. A map provided by the City of Cleburne shows the boundary of Buddy Stewart Park and the locations of recreational activities within the park, including pavillions, picnic areas, soccer fields, boat ramp, and camping facilities. (See letter dated May 17, 1988 in Appendix C.)

No land will be used from this park, nor will there be land used from any publicly owned park, recreational area, or wildlife and waterfowl refuge. There are no other public recreational areas adjacent to the proposed facility other than Buddy Stewart Park. Monies from the Land and Water Conservation Fund have only been used for Buddy Stewart Park. (See copy of City of Cleburne letter dated May 17, 1988, Appendix C.)

Access to recreational sites at Lake Pat Cleburne will be improved as will travel to Cleburne State Park for Johnson, Dallas, and Tarrant County residents. The primary purpose of Lake Pat Cleburne is as a municipal supply source. (See City of Cleburne letter dated June 2, 1988 in Appendix C.) However, Routes W and X will not encroach on recreational sites at the lake.

The main lanes of US 67 will be placed farther from the park than the existing pavement to mitigate proximity effects. Additional right of way will be acquired only on the south side opposite the park. Park facilities have been located so that noisy soccer fields are near the highway, and camping sites are remote. Since the project in the area of the park is the widening of an existing facility, improved traffic flow should result in improved air quality. Visual effects, accessibility, and noise will be similar to existing conditions.

An on-site historical-archaeological survey of this project has been performed by members of the Department's professional cultural resources staff in accordance with 36 CFR, Part 800, and other federal and State procedures presently in effect. No evidence of historical or archaeological sites was found during the survey and no further investigation is recommended. An historical marker designating the site of Wardville, the original county seat of Johnson County, located near the west end of the project, will be carefully stored and re-erected after project completion.

Historical Marker

A check with local authorities indicates that there are no other known historical sites found near the project. A review of listings of properties contained within the National Register of Historic Places, including the latest additions,

and other available cultural resources inventories indicates that this project will not affect properties included on or determined eligible for inclusion on the National Register. Coordination with the office of the State Historic Preservation Officer for this project has been completed. (See Appendix C.) This coordination included the results of the historic survey.

During construction, if any evidence is uncovered indicating the presence of archaeological resources, construction in that area will be stopped immediately and department archaeological personnel will make a thorough investigation. All necessary steps will be taken to salvage and preserve such resources. Coordination with the SHPO and the Advisory Council on Historic Preservation will be afforded in accordance with Procedures for the Protection of Historic and Cultural Properties (36 CFR, Part 800).

6) Aesthetic Impacts

The SDHPT customarily takes steps to provide a quality view toward and from the road by preserving and improving the natural environment as part of its design and construction process.

The bypass will travel through an area which is converting from rural to urban uses, thus providing an opportunity to preserve an aesthetic view from the road, as well as a need to mitigate impacts of roadway construction upon the aesthetic environment.

Some of the existing trees within the project area will have to be removed to clear the right of way for construction. The location of trees to remain within the right of way will be determined based on safety and aesthetic criteria. At the east end of the project, Route Y is located north of a wooded area. Route Z corresponds with the existing US 67 for one-half mile near the east end of the project and would require the removal of a considerable area of dense woods.

In all facets of design and construction, pleasing appearance will be emphasized. Special attention will be given to design of the road profile and cross slopes with respect to adjoining development to achieve natural appearing contours, insofar as possible. All earth areas that are exposed by construction will be left in a smooth and sightly condition. Grass will be restored or established to blend in with the adjoining ground cover and prevent erosion of the roadside surface.

Where bridges, retaining walls, or other structures are built, surface texture and lines and grades will be designed with special attention to pleasing appearance.

The aesthetic environment will be maintained by the SDHPT through established procedures for the preservation of all trees not absolutely requiring removal for grading, safety, and placement of pavement. Such trees will be plainly marked to ensure that care be taken not to harm those trees during the construction stage. Shrubbery and trees will be planted, as feasible, to blend the open areas of the right of way into the adjoining area.

Open areas between roadways will be seeded with wildflowers. Several species such as Indian Blanket (Gaillardi pulchella), Buttercups (Oenothera servelate), and Texas Bluebonnets (Lupinus subcarnsus) are planted along highways in the area. Mowing operations are suspended during primary blooming and seeding seasons leaving the flowering plants undisturbed and promoting continuation of wildflower growth.

B. Natural and Ecological Impacts

The impacts of this proposed project on natural and ecological resources including water, geology, and soils will be minimal, since appropriate mitigation measures will be implemented and alternatives have been routed, as feasible, to avoid impacts on the natural environment.

Water Quality Impacts:

Disturbance to the ecological balance of land or water areas will be held to a minimum with the use of current provisions and specifications of the SDHPT and the Federal Highway Administration, in accordance with FHPM Volume 6, Chapter 7, Section 3.

All alternatives have been routed to avoid the flood detention dam and reservoir constructed by the Soil Conservation Service on West Buffalo Creek.

Routes W and X would both encroach slightly upon the upper end of Lake Pat Cleburne, which is the primary municipal water supply source for the City of Cleburne. The dam and reservoir were constructed in 1964 by the City to provide a municipal water supply. Seven water wells are also maintained by the city as an alternative water supply source. None of these wells are near the project.

The existing water quality of Lake Pat Cleburne meets Texas Department of Health standards. Although the project will encroach slightly upon the lake, it will not impact the water quality because the mitigation measures associated with construction have been proven by experience to provide water quality protection at other similar locations.

The drainage area flowing toward the south into Lake Pat Cleburne from above US 67 totals 67 square miles. The flow at the dam is regulated by a fixed-elevation service spillway, plus an emergency spillway to allow exceptional flow to be released around the west end of the dam. The point of intake from the lake to the water plant is at the dam, located about four miles downstream from the proposed bridge crossing of the lake. The distance between the bridge crossing and the intake would permit dispersion of any contaminant which would enter the lake, or would allow a considerable flow time in which a spill could be contained before reaching the intake.

Approximately 150 acres of right of way for the project along Route W will contribute runoff within the watershed of Lake Pat Cleburne. On projects, such as this, with drainage

channels leading to a public water supply, special measures are taken to prevent siltation and sedimentation of the public water supply. Considerable planning and effort will be accomplished to prevent siltation of newly uncovered earth areas from draining into the waters of Lake Pat Cleburne until a permanent vegetative cover has been established.

The highway contractor will be required to incorporate all permanent soil erosion control features into the project at the earliest practicable time. Temporary pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent pollution control features; or that are needed temporarily to control soil erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Drainage ditches and channels have been designed to empty onto broad natural flood plains where the undisturbed vegetative cover will serve to trap and filter silt and sediment. Along steep cut and fill slopes where runoff velocities are likely to be higher, temporary earth berms and retards will be placed along their base to slow this flow and trap loose sediment. Where prevention of quick runoff is less feasible, large sumps or holding tanks will be used. These are similar to the "mud pits" used in oil well drilling operations.

To prevent prolonged exposure of erodible earth material due to unforeseeable construction delays, temporary seeding will be employed. The contractor will be required to maintain all drainage ditches free of embankment spillover and other loose soil as a measure to prevent sedimentary runoff.

In areas where uncovered earth has historically poor erosion qualities, baled hay will be placed end to end around the base of cut and fill slopes. This method of erosion and sedimentation prevention has proven successful as a two-fold measure both as a retard inhibiting erosion at the base of the unvegetated slope and as an economical sediment filtering system allowing water flow through the porous straw bales.

Throughout the project, soil erosion and sedimentation will be prevented through construction of erosion control measures, as needed, at culvert outlets. Hydraulic design practices on this project will conform with SDHPT and FHWA design policies and standards. All drainage channels along the right of way will be designed to maximize ecological benefits, being channelized to conform to the natural drainage pattern in all possible respects. Drainage facilities will permit conveyance

of the 100-year flood (inundation of the roadway being acceptable) without causing major damage to the highway, stream, or other property. Flood risk to property adjacent to the highway will not be increased.

Where soil erosion is likely to be a problem, clearing and grubbing operations shall be scheduled and performed so that grading operations and permanent soil erosion control features can follow thereafter, if the project conditions permit; otherwise, temporary soil erosion control measures may be required between successive construction stages.

Under no conditions shall the surface area of erodible earth material exposed at one time exceed 750,000 square feet, or other specified areas shown on the plans, without approval by the engineer.

The engineer will limit the area of excavation, borrow and embankment operations (other than in commercially operated sources) commensurate with the contractor's capability and progress toward construction of the finish grading, along with mulching, seeding, and other such permanent pollution control measures in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary soil erosion control measures shall be taken to the extent feasible and justifiable.

Construction of the replacement bridge across Nolan River at the upper end of Lake Pat Cleburne presents its own special set of problems regarding the maintenance of water quality.

On the north shore of the lake, widening plus a slight realignment of US 67 makes it necessary to build an embankment along the flood plain downstream from the existing bridge and approach embankments. Earth materials to be placed in this area, which extends slightly below the lake spillway water level, will be restricted to the material removed from the roadway cut sections. Heavy rock riprap similar to that on the existing embankment will be used. Use of this rock within the confines of the flood control pool will prevent siltation and sedimentation.

Construction of this bridge requires the placement of approximately 60 concrete columns below spillway elevation, with approximately one-half of them outside the usual shoreline and the other half in the ordinary pool of lake water. These columns will be footed in drilled shafts bearing on hard shale or limestone several feet below the lake bottom.

Drilling for most of these shafts and the concrete column pouring operations, or driving of piling as a substitute for drilled shafts, will be accomplished from a floating barge. However, the water along either bank may be too shallow to float such a barge and the construction operations for these shafts would have to be accomplished from a land fill platform temporarily extended from either bank. To obtain a minimum degree of siltation of the lake water, such land fill platforms would be constructed of rock and removed upon completion of the work.

The drilling and concrete pouring operations for the bridge columns below the water line will be accomplished within a double casing which is water tight and will provide a working area clear of the lake's water. All cores and residue removed from the lake bottom for these drilled shafts will be placed on the barge and removed to the bank. There it will be wasted in the roadway fill sections.

If any water right problems arise they will be resolved with the Texas Water Commission. The Texas Water Commission has been designated by the Governor of Texas as the agency to supervise state-authorized pollution removal operations. Upon occurence of a major accident spill, the Water Commission will immediately initiate notification of appropriate state and federal agencies to ensure proper supervision of clean-up operations.

The Texas Water Commission has promulgated guidelines for a Spill Prevention, Containment, and Counter Measure Plan for implementation by parties responsible for the storage, handling, and/or transportation of potentially hazardous polluting substances.

During construction, the contractor will take immediate steps to contain any spilled materials and prevent entrance or spread into lake waters, notify the City of Cleburne and the Texas Water Commission, and assist in cleanup operations as needed. In the event of spills on the bridge or roadways after completion of the project, state highway maintenance personnel and equipment will be used as appropriate to prevent or minimize the entrance of polluting materials into waterways.

The safe disposal of wastewater at a roadside rest area for the proposed highway is not a problem as rest stops are not planned.

The use of pesticides and herbicides will be kept to a minimum and the appropriate guide will be followed in concert with Federal, State, County, and local environmental laws and regulations.

No pollution from herbicides and pesticides during construction or future operation and maintenance activities will be allowed to enter any waterway. The application of these chemicals will be consistent with labeling, as required by the Federal Insecticide, Fungicide, and Rodenticide Act, as amended. Chemicals that may be needed for control during future operation and maintenance activities may be impossible to identify, since by the time such chemicals are needed, different pesticides may be in use.

Rock salt mixed with sand is used during icy conditions on bridges for the safety of the traveling public. It is cleaned up by SDHPT maintenance forces when icy conditions no longer present a problem. The number of times application is needed varies, but it is generally three to four times during the winter months. Such material will be removed promptly to minimize runoff into the lake.

Provisions will be made and coordinated with the Cities of Cleburne and Keene to minimize the adjustments in water, sewer, and other pipeline facilities affected by this highway project.

Wetland Impacts:

A wetlands area will be involved at the crossing of Nolan River, adjacent to the south edge of the embankment of the existing highway. It borders directly on Lake Pat Cleburne and is maintained by inundation during occasional high water levels of the lake. The lake has reached this level only five times during the last seven years. Records show time elapses in excess of two years between inundation periods. (See Table 7, page A-6.)

After these infrequent inundation periods, the wetland area displays the three basic characteristics common to the definition of a wetland. These are

1) the area is inundated or saturated by surface water periodically during the growing season;
2) the soils within the root zone are saturated periodically during the growing season; and
3) the prevalent plant species in concentrated areas is typically adapted for life within areas that have periodic inundation soil conditions during the growing season.

Periodic inundation occurs on the average frequency of about two years, allowing loss of all plant species requiring seasonal inundation, but seeds remaining from previous growing seasons germinate upon the next inundation.

The wetland is confined to a few isolated areas along the shoreline and where silted and dredged material briefly protrude above the water surface. The total shoreline affected is less than 2% of the total shoreline of Lake Pat Cleburne. The wetland in the affected area - the zone of the proposed embankment lying below spillway elevation (733.50) - totals approximately four acres. It is typical of that found throughout the lake proper. (See Figure 4, page B-4.)

Most of the lower lying areas in the zone of the proposed embankment along the lake shore and beyond contain vegetation which is not unique to wetlands. Wetland vegetation is not the dominant plant life in the area as a whole. Species identified in this wetland include water smartweed, black willow, curly leaf dock, switchgrass, and algae.

The wetland area found within the project boundaries is not major in an ecological sense. There is no indication that the proposed highway construction will cause long-term damage or destruction to the remaining wetlands.

A preliminary alternative alignment (tentatively called Route "UW") was considered which would extend Route W north and west of Lake Pat Cleburne to avoid encroachment upon the lake, including this area of wetlands, crossing Nolan River near the Woodward Street bridge. This alternative segment would not be compatible with Route X, but would initially eliminate the Route W section from FM 4 south to the existing US 67 and west across Lake Pat Cleburne. It was excluded from further consideration because

1) It would further extend the bypass by adding about 200 acres of land and three miles to its length, at an estimated cost of approximately $20 million.
2) It would fail to provide access to Walls Regional Hospital, until later stages as described in 5).
3) The bridge widening which produces encroachment upon the lake would be required in any case. Traffic demand under this scenario would still require the widening of the existing US 67 to four lanes since it would continue to serve a substantial volume of traffic as a business route. This business route widening would include widening the bridge if the bypass interchange were located beyond the bridge, thus resulting in almost identical lake and wetland encroachment.

4) The western portion of the city of Cleburne would not have access to the facility if the loop were constructed on the western side of Lake Pat Cleburne (the lake would be a barrier to access);
5) To extend the loop on the east side of Lake Pat Cleburne, and thereby provide access for the western portion of the city, the Route W section from FM 4 to the existing US 67 would be required in the future as a connection to the proposed route in the southwest quadrant.

Therefore, the scenario which included alternative route segment UW was dropped from further consideration because it would provide a costly, extraneous link to the system. It would require an estimated 200 acres of additional land purchase and additional environmental effects to construct the future connection between Route W and the proposed route in the southwest quadrant. It would also result in two crossings in the system, rather than one crossing, over Nolan River, while requiring identical treatment for the existing crossing.

Thus, it was determined that there are no feasible alternatives to the construction and widening of US 67 near the lacustrial wetland located in the upper reaches of Lake Pat Cleburne. The proposed action includes all feasible measures to minimize harm to wetlands and other environmentally sensitive areas since

1) the proposed route has been deliberately chosen to avoid encroaching upon park land and wetlands located to the north of the existing highway and to minimize the small area affected in the wetland to the south, and
2) erosion control activities provide wetland protection by preventing movement of water-carried erosive earth materials into the wetlands. (See erosion control activities under Water Quality Impacts, pages 28-32.)

The weekly lake surface record from January 1981 through May 1988, provided by the City of Cleburne, is in Table 7 (page A-6). It will serve as a guide in design of appropriate wetland mitigation measures. Conservation pool elevation is 733.50, controlled by a broadcrested concrete spillway. Lake surface elevation records show that water has been over the spillway during five periods since January 1981. The average of annual median elevations is 730.87. Maximum elevation was 736.91 and minimum was 724.93.

The spillway discharge events have usually receded below spillway elevation in about eight weeks, followed by further decline in about three months to a more stable elevation around 730 to 731. The most recent discharge continued for an unprecedented period of ten months from September 1986 through July 1987, and then dropped below 731 in three months, resuming the more typical lake shore configuration.

The existing two-lane bridge will be replaced with a considerably longer and wider four-lane divided bridge. Proposed minimum roadway elevation will be at or above the existing minimum of 746. Embankment slopes will be protected from erosion using ungrouted heavy rock rubble riprap similar to riprap on the existing embankment. The embankment will be placed on natural ground that is above ordinary high water, with the minimum toe of slope being above elevation 732. Thus, the usual lake shore, commonly being lower than elevation 731, will be a considerable distance away from the new embankment.

Careful design of the crossing and inclusion of mitigation measures as appropriate will minimize any adverse effects of the project. Since there is a considerable area of such wetland existing around the lake shore, it has been determined by the Corps of Engineers that it could be replaced with a deeper wetland area suitable for a fish habitat. Excavation volume would be approximately equal to the embankment volume which is to be placed below spillway elevation.

The nationwide Section 404 permit for this project has been approved by the Corps of Engineers. (See Appendix C.) Special conditions for the permit approval are

1) existing embankment will be removed within the limits of the proposed longer bridge, thus creating 1.8 acres of wetland;
2) three acres of deep water (5 feet to 7 feet deep) will be excavated adjacent to the new bridge crossing;
3) rock riprap will be placed on the lake side of the new embankment;
4) brush and trees removed at the site will be placed in the area excavated adjacent to the new bridge crossing as needed to enhance the fish habitat;

Mitigation measures also include all temporary erosion control measures deemed necessary and may include the use of dikes, sediment traps, temporary fencing, mulch sodding,

seeding, slope drains, and other measures indicated by the engineer. A "Wetlands Finding" is included in Appendix C.

As described in item 1 of the special conditions of the amended 404 permit, a substantial part of the material to be excavated is expected to be saturated silt which would be unsuitable for embankment material. Such material would present a serious problem of disposal, perhaps requiring hauling a considerable distance to some acceptable site away from the highway right of way.

A three-acre area of deep water for fish habitat (5 feet to 7 feet deep) will be excavated to approximately elevation 726, along the east side of the existing Nolan River channel under the new bridges. The north side of this excavated area would begin at the north right of way line and the southern boundary of Buddy Stewart Park, avoiding any encroachment on park land. The excavation would taper outward to present a naturally widening shore line to match an existing north-south segment of shore line at a distance of approximately 600 feet downstream from the highway centerline.

Removal of the old two-lane embankment within the limits of the new bridge would leave the usual shore line unaffected and would approximately duplicate the ground elevation of adjoining existing wetland. Widening of the channel as noted above, with partial removal of the existing embankment and lengthening the bridge, will also improve flood flow characteristics of Nolan River passing under US 67.

The proposed design has been coordinated with the Corps of Engineers in an amended 404 permit process. Wetland mitigation measures are shown in Figure 4 (page B-4).

Flood Plain Impacts:

Four flood plains will be crossed by this project. (See Figure 5, page B-5.) The crossing at Nolan River is downstream from the existing US 67 bridge, and therefore will not interfere with water flow. The new bridge at this crossing will be longer than the existing bridge, thus improving flow characteristics.

McAnear Creek, West Buffalo Creek, East Buffalo Creek, and several other minor intermittent streams cross the project. No embankment other will be placed in any of these stream channels. The bridge length will be governed by the limits of the floodway, with limited embankment being placed only in the floodway fringe. No embankment will be placed at any stream crossing below the level of ordinary high water. Any

embankment placed in the 100-year flood plain will be minimal and carefully designed so that there will be no major increase in flow depth.

Highway encroachments on flood plains will also be analyzed to determine any effects caused by the proposed facility should a 100-year flood occur. The highway facility will permit the conveyance of the 100-year flood, inundation of the roadway being acceptable, without causing major damage to the highway, stream, or other property.

The hydraulic design practices of this project will be in accordance with current SDHPT and FHWA design policies and standards. Where this highway encroaches on a flood plain, the proposed highway facility will be designed to avoid inundation of the roadway by floods having recurrence intervals of at least 50 years. Frontage roads will be designed for flood intervals of at least 10 years. Mitigation measures are discussed under "Water Quality Impacts."

Coordination with the Federal Emergency Management Agency regarding flood plains is unnecessary. The maximum one-foot increase in the base flood elevation will not be exceeded. There are no developments being planned that will use any part of the "one foot increase," and bridges are designed to have minimal backwater effects. City and county governments have been furnished copies of the DEIS and preliminary geometric layouts. They will be furnished copies of detailed plans when they are developed. FEMA maps were consulted to analyze flood plain impacts.

Since Route X is parallel to McAnear Creek along part of its flood plain, widening of the channel would be necessary to compensate for reduction of flow in the extreme edge of the flood plain where the roadway embankment would be placed. However, hydraulic design would be governed by criteria which would maintain the existing water surface profile.

Design procedures are such that there will be no impact differences between alternatives; except Route X with respect to McAnear Creek. Since there will be no major change in the water surface, the project will not affect the status of the National Flood Insurance Program nor regulatory floodways. No change in floodway or flood plain ordinances will be required.

Coastal Zone, Water Body Modification, and Wild and Scenic River Impacts:

Coordination with the Coast Guard will not be required, since there are no navigable streams. The project will not affect

land or water uses within an area covered by a State Coastal Zone Management Program (CZMP). This project will not cause any modification of existing streams nor result in impoundment of waters. The proposed project does not impact any present, proposed, or potential unit of the National Wild and Scenic Rivers System.

Fish and Wildlife Impacts:

There will be a loss of habitat as well as wildlife numbers. Total right of way acreage and an estimate of undeveloped land to represent loss of wildlife habitat by route are shown in Table 8 (page A-14). Undeveloped land in the project area borders the city of Cleburne; as such it is developing or expected to develop. The wildlife population will gradually decrease even without the project.

In the northwest quadrant, Route W displaces slightly more undeveloped land than does Route X. A wetland area is located adjacent to the existing US 67 bridge over Lake Pat Cleburne. There are no reasonable alternatives to widening the existing US 67 at the crossing of Lake Pat Cleburne. Both Routes W and X would encroach the same amount on the wetland area.

The proposed project expands the lake bridge on the downstream wetland side to avoid encroachment on Buddy Stewart Park. Mitigation measures will include lengthening the bridge to span the wetland area with minimal encroachment and relocating the wetland, plus creating a deeper wetland area suitable for improved fish habitat.

In the northeast quadrant, the percent undeveloped land taken would be the same for Routes Z and Y. In the northwest quadrant, Route Z would displace approximately 16 acres of a heavily wooded section at the east end of the project, which provides a substantial wildlife habitat not usually entered by people. Route Y would leave the wooded area undisturbed.

Some wildlife will be displaced during construction and infiltrate back into unpaved areas of right of way after project completion. Timely revegetation will be made of areas affected by construction activities. Revegetation will cover about 60% of the total right of way area, allowing remigration and recovery of a part of the wildlife population.

To help protect fish and wildlife resources in wetland and floodplain areas, hydraulic design practices will conform with SDHPT and FHWA design policies and practices, developed to maximize ecological benefits and promote safe conveyance of the 100-year flood.

No major impacts on threatened or endangered species are anticipated. Johnson County is within the migration routes of several federally-listed endangered species and is a potential breeding ground for the Black-capped Vireo. Project-specific information on threatened and endangered species provided by U.S. Fish and Wildlife is in Table 9 (page A-15).

There have been no confirmed sightings of endangered birds within Johnson County. A very marginal habitat for the Black-capped vireo exists within Buddy Stewart Park, which has been avoided by this project. The project is not expected to affect endangered or threatened species in any manner.

Prime and Unique Farmlands:

Table 10 (page A-16) shows the total right of way taken by route and the percents of farmland, vacant land, and land developed in urban uses. Figure 3 (page B-3) shows the location of farmland by route in the project area.

In the northwest quadrant, there are 22 farms along Route W and eight along Route X. Slightly over one-half of the farmlands along Route W are cultivated fields; approximately two-thirds of the farmlands along Route X are also used for cultivation rather than grazing.

In the northeast quadrant, there are 11 operating farms along Route Y and 16 along Route Z. Approximately one-third of the farmlands along both Routes Y and Z are used for cultivation rather than grazing.

All alternatives lie within a belt of prime and unique farmland soils, which have been converted or are expected to convert to urban uses since they compose the rural fringe of the City of Cleburne.

Route W would require the use of farmland more than would Route X. Most of the farmland adjacent to Routes W and X is along an existing highway and near an urbanized area, indicating that it will urbanize regardless of route selection. Additionally, a block of farmland between SH 171 and SH 174 along Route W is owned by an industrial development corporation. Route Z would require the use of farmland more than Route Y. Land along Routes Y and Z lies between the cities of Keene and Cleburne; it is expected to develop into urban uses.

In an area converting from rural to urban uses, highway placement usually provides economic benefits for property owners. Even with the expected conversion of the rural fringe around

the city of Cleburne, a quantity of farmland will continue to border the city of Cleburne; as such, there should be no negative impacts on the local economy due to the removal of farmland.

As mitigation, payment to farm owners can include both purchase of right of way and payment of damages if the highway splits the farm so that there are portions which become unusable for farming. Drainage structures are expected to be sufficient in size for cattle passes where needed; thus livestock can be herded underneath the highway. Should it be necessary, frontage roads will provide access for farm machinery from one side of the highway to the other.

SCS Form AD-1006 "Farmland Conversion Impact Rating" has been filed with the United States Department of Agricultural, Soil Conservation Service.

Mineral Resources:

The bypass will improve travel for trucks generated by lime and limestone and other mineral producing facilities located southwest of Cleburne. There are gravel pits near the proposed routes, but these pits are largely depleted and not in current operation.

Irreversible and Irretrievable Commitment of Natural Resources:

Highway construction inevitably requires the use of some lands. Within the scope of this project, the use of prime and unique farmland soils will be required regardless of route implementation since the city of Cleburne is located within an area of prime and unique farmland soils.

Construction will also require the use of resources such as aggregates, cement, asphalt, steel, and labor; however, none of these will be required in such quantities as to produce ecological consequences. The land so used will be an irreversible and irretrievable commitment as long as the proposed plan is in operation or until a higher and greater need for the land arises.

C. Air Quality Impacts

Overall, air quality will improve from construction of the bypass. The air quality analysis indicates that construction of the bypass will increase air pollutant levels within the area of the project and decrease them along the existing US 67.

The increase along the proposed bypass route will be well within allowable levels. For receptors along the existing route, construction of the bypass would reduce levels to half of that expected under the no-build option.

This analysis has been conducted for a no-build alternative and four route alternatives--Routes W, X, Y, and Z. There are no known existing or proposed point sources in the vicinity.

Johnson County is a non-designated county and is therefore treated as an attainment county for all air quality factors. The project is in an area where the State Implementation Plan does not contain any transportation control measures; therefore, the conformity procedures of 23 CFR 770 do not apply to this project.

Local topography is gently rolling in the area of the project, with elevations ranging between 730 and 910 feet above sea level. There are no abrupt changes in relief that will affect wind direction or speed.

1) Conclusions

The worst possible one-hour meteorological condition calculated for the year 2011 for both the build and no-build alternatives at the ROW line shows carbon monoxide (CO) concentrations within the project area of 0.4 ppm for the no-build alternative and 0.6 ppm for Routes W, X, Y, and Z.

The peak 8-hour concentration under the worst meteorological condition for the build alternatives is 0.38 ppm with a background concentration of 0.3 ppm. This concentration was calculated along the ROW line of Routes W, X, Y, and Z and is on 4% of the 9 ppm standard allowable for CO concentration. (See Table 11, page A-17.)

On the existing US 67, peak 8-hour concentrations for the worst meteorological condition were calculated at the ROW line, west of SH 174. A background concentration of 0.3 ppm was used. For 1986, the calculated concentration would be 0.7 ppm and 0.5 ppm for the no-build and build alternatives, respectively. The allowable standard is 9 ppm. The no-build alternative would be 8% of that standard; the build, 6%. In 2011, the concentration

would be 1.8 ppm for the no-build and 1.0 ppm for the build. The no-build would be 20% of the 9 ppm standard; the build, 11%. The build alternative would result in better air quality along the existing US 67.

Carbon monoxide emission factors would increase along the existing US 67, west of SH 174, from 21.18 gm/mi in 1986 to 32.51 gm/mi by the year 2011 with the no-build aternative. East of SH 174, CO emission factors would increase from 16.41 gm/mi to 17.58 gm/mi by the year 2011 with the no-build alternative. With construction of the bypass, CO emission factors by 2011 would be 20.93 gm/mi, west of SH 174 and 7.77 gm/mi, east of SH 174, along the existing US 67. They would be 6.58 gm/mi along alternative routes W and X and 6.86 gm/mi along Y and Z. (See Tables 12 and 13, pages A-18 and A-19.)

Air monitoring does not show that the lead standard has been violated. There are no known point sources of lead in the vicinity. The phase-down of lead in gasoline and reduction in the percentage of vehicles having leaded fuels make it extremely unlikely that the standard will be violated in the future.

2) Methodology

The following analysis focused on estimating carbon monoxide (CO) concentrations in parts per million for the worst possible meteorological conditions in the immediate vicinity of the proposed project only.

The SDHPT used the CAL 3 - Mobile 3 dispersion model computer program to arrive at one-hour pollutant concentrations originating at the highway "mixing cell." The mathematical model for highway line sources used in the CAL 3 - Mobile 3 program, which is the highway linear dispersion model, is based on the Gaussian Equation. A sample computer printout data sheet for the worst possible meteorological conditions in the year 2011 is shown in Table 14 (page A-20).

The calculation for eight-hour CO concentrations (indicated below) uses a factor value at 0.60 for meteorological persistence, 0.67 for traffic adjustment, and a background concentration for rural areas. (See Table 15, page A-21.)

$$CO_8 = (CO_1 - BG_1) \times 0.60 \times 0.67 + BG_8$$

$$= (0.6 - 0.4) \times 0.60 \times 0.67 + 0.3$$

$$= 0.38 \text{ ppm}$$

Emission factors were developed using procedures by the Texas Air Control Board for estimating pollutant loads for CO based on emission factors compiled for each county. The CAL 3 - Mobile 3 dispersion model computer program was used to calculate emission factors. Operating speeds were determined from the evaluation of corridor traffic volumes and in accordance with the SDHPT Design Division Operations and Procedures Manual. Volume to capacity ratios (V/C) were calculated and the average speeds were based on the level of service provided.

Input data required for the program includes traffic data, emission factors, meteorological conditions, roadway design characteristics, and horizontal and vertical dispersion parameters. The output yielded pollutant concentrations in the "mixing cell" of the highway and at varying distances downwind from the highway.

D. Noise Impacts

The noise analysis of the planned construction of the US 67 bypass was prepared to determine the existing noise levels and predict the noise which will occur from the completed facility.

Selected study sites are representative of receptors that are sensitive to noise. Figure 6 (page B-6) shows the noise assessment sites. Existing sound levels were measured, and design year sound levels were calculated at the same points for comparison to evaluate probable noise impacts of proposed changes in highway facilities.

Traffic volumes for the noise analysis are predicted design year traffic volumes or maximum vehicle volumes which can be handled when operating at "Level of Service C." Higher traffic volumes will operate at lower speeds, resulting in less noise.

The no-build and four route alternatives, W, X, Y, and Z, are considered in this study. Predicted design year noise levels are within the standard noise abatement criteria at all study sites.

1) Existing Noise Levels

Measured noise levels (L10) ranged from 42 dBA to 67 dBA. The L10 sound level represents the ninetieth percentile of sound generation in an environment where sound level is seldom constant. L10 is appropriate for design since it represents that magnitude of sound and the portion of the spectrum most annoying to observers. The samples are representative of the outdoor sound characteristics of the areas in which they were taken. These readings may include many typical sounds, along with traffic noise. Figure 7 (page B-7) gives examples of typical sound levels.

Vehicles make sounds during their operation from engine and exhaust, tire-roadway interaction, brakes, air disturbance, and chassis or load vibration. The sounds vary with the number and operating conditions of the vehicles, and the direction and amplitude of the sound vary with highway design features. Most objectionable highway noise originates with exceptionally noisy vehicles such as motorcycles and trucks.

Noise is generally defined as unwanted sound. The degree to which sound affects people is dependent upon the individual traits of each person and the activity which may be in progress. Some persons are more sensitive to sound than others.

Sound energy is measured in decibels (dBA), and a change of 10 dBA corresponds approximately to a doubling or a halfing of loudness. The subjective reaction of humans to noise, is closely related with readings on the A-scale, tends to suppress lower frequencies (such as, below 1000 HZ), as does the human ear.

Ambient noise, or background noise, is the basis on which one normally judges whether a noise is intrusive or not. Higher noise levels find acceptance when they are associated with desired activities, such as workers accept noises normally associated with their occupations and roadside markets accept the noise of the highways. Therefore, allowable noise levels should be variable, based on the land use activity prevailing on the abutting property.

2) Predicted Noise Levels

The project area contains residential, recreational, commercial, industrial, and agricultural land use. Measurements were taken at five sensitive receptors - Walls Regional Hospital, Cleburne High School, Chisholm Trail Academy, Adventist High School, and Buddy Stewart Park.

Since the land use of this project now exists with "closed window" conditions (air conditioned), only the outside design sound level will be considered for the design year. Table 16 (page A-22) shows some interior noise level reduction factors for opened and closed window conditions. Table 17 (page A-23) gives a description of land use activity by categories as mentioned above, together with design guideline noise level criteria.

The calculated values of unattenuated L10 noise levels for design year traffic, together with the measured ambient noise levels are shown in Table 18 (page A-24). These noise levels are maximum in the sense that future noise impacts of both trucks and automobiles may well be reduced due to improved technology or size limitations of the vehicles as well as expected Federal or local government regulations. A percentage of 5.0 is predicted for heavy trucks and 5.0 for medium trucks west of SH 174; and east of SH 174 heavy trucks are predicted to be 4.0 percent and medium trucks 4.0 percent. "Level of Service C" operating speed is 50 MPH for main lanes with a maximum service flow rate of 1,550 passenger cars per hour per lane in one direction under ideal conditions. Predicted traffic volume is less than that rate. Noise levels were developed for the proposed facility in accordance with the procedures outlined by the FHWA Highway Traffic Noise Prediction Model-172001.

3) Noise Assessment

Based on the analysis of predicted noise levels for design traffic, outlined in Table 18 (page A-24), there would be a range of increases from 4 dBA to 24 dBA without attentuation. Although the existing and predicted noise levels for sites of concern do not exceed L10, the noise abatement criteria of 70 dBA established by FHPM 7-7-3, Site 2 experiences a substantial increase in noise level. Sites 3, 7, 8, 9, and 11 also experience substantial increases, but are not of serious concern due to the land use activities.

Noise abatement measures were evaluated for Site 2, which is at Cleburne High School. Initial studies indicate that an insertion loss of 5 dBA can be obtained with an 8-foot concrete wall of 1,700 feet at an estimated cost of $135,400. Highway noise should not affect the school since it has been constructed without classroom windows to reduce noise from the nearby airport.

Based upon the studies undertaken to date, the SDHPT would install the noise barrier at Site 2 if the selected alternative were to be Route X. If further study during the design stage indicates that a noise barrier would be inadvisable on the basis of cost effectiveness or other concerns such as visibility, then the abatement measure might not be provided. A final decision regarding the installation of such a mitigation measure will be made upon completion of project design and after consultation with affected property owners.

The higher predicted noise levels would be the result of rerouted traffic volumes, particularly heavy truck traffic. Of the several remedies of noise reduction studied, rerouting the trucks is not considered feasible, since the basic purpose for construction of the bypass is to reduce excessive noise and congestion primarily from truck traffic in downtown Cleburne.

Noise abatement measures are not warranted for Routes W, Y, and Z.

To help prevent future traffic noise impacts on currently undeveloped lands, the Department has provided appropriate local officials with a copy of the environmental impact statement. Estimation of future noise levels for both developed and undeveloped lands in the immediate vicinity of the project are listed in Table 18 (Page A-24). Local officials have also been furnished copies of the Federal-Aid Highway Program Manual, Volume 7, Chapter 7, Section 3 (FHPM 7-7-3).

4) Construction Noise

During construction of the project, noise levels will often be greater than they normally are in adjacent areas. It is not possible to predict levels of construction noise at a particular receptor or group of receptors. Heavy machinery, the major source of noise, is constantly moving in unpredictable patterns. The duration of daily construction work normally occurs during daylight hours when occasional loud noises are more tolerable.

Because of the relative short-term exposure periods imposed on any one receptor, extended disruption of normal activities is not considered likely. However, provisions will be included in the P.S.& E. requiring the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and maintenance of muffler systems.

Pile-driving may have to be carried out to provide firm support for bridge piers. Sound waves emanating from the pile-driving activities will be carried for some distance, but such activities will only be permitted during the least offensive portions of the day. There will be a considerable short-term emanation of fairly high-volume noise from the heavy equipment other than pile-drivers employed on the project. These noise levels should compare with most construction jobs.

E. Construction Impacts

Without question there will be a short-term adverse impact as a result of the US 67 bypass project during the construction period, owing to grading operations and the massive use of heavy equipment of various types as is requisite for such activities. Every effort will be expended to minimize possible adverse effects. Any required fill at bridge abutments will be applied by a technique which will greatly curtail the amount of possible erosion and sedimentation in the event of rainfall at this stage of construction.

Because the construction equipment involved in the project will be an addition to the normal traffic loads upon the traffic arteries in the neighborhood, there may be expected a short-term increase in air pollution. Nevertheless, these short-term increases will be more than compensated for by the long-term reductions in emissions from permanent daily traffic due to elimination of stop-and-go driving after completion of the project.

Although unlikely, there remains the possibility of an accidental spillage of noxious or toxic liquids or pulverized materials resulting from some accident to a construction or supply vehicle during the construction phase. Consideration is given to minimizing such hazards by carefully controlling drainage by means of berms, dikes, slope drains, sedimentation basins, and other artificial catchment, so that such substances can be kept from getting into the stream.

The contractor shall not be allowed to unduly strip existing vegetation in the vicinity. Approaches to a stream always will be from the closed paved surface, and the contractor will not be permitted to cross through a streambed with equipment, but will be required to cross by means of existing bridges.

Some of the existing trees within the project area will have to be removed to clear the right of way for construction. The location of trees to remain will be based on safety and aesthetic criteria. Additional trees may be planted to enhance the environment and screen the right of way.

All debris, falsework, and other temporary obstructions involved during construction operations will be cleared away promptly.

The construction contract will include Special Provisions to safely handle the existing highway traffic as well as provisions to handle local traffic along the existing city streets.

Some social and economic impacts on the adjacent businesses and residences will be caused by this construction but will be held to a minimum by the inclusion of Special Specifications and Provisions as are standard in all Federal and State highway construction projects. The use of special hours of work and continuous access to the adjacent property are some of the mitigation measures which will be included.

F. Other Impacts

1) Energy

Despite length differences between Routes W and X, differences in design or construction methodology between routes will not produce energy impacts major enough to overrule other environmental considerations. Any build alternative requires a greater use of energy during construction than a no-build alternative. However, savings in operational energy requirements will more than offset construction energy requirements and thus, in the long term result in a net savings in energy usage.

2) Hazardous Materials

Hazardous waste sides are regulated by the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation, and Liability Act. During initial planning, no permitted or nonregulated hazardous waste sites have been identified in the project corridor. Should hazardous materials be located during right of way acquisition, the SDHPT will remove them in a manner complying with applicable federal, state, and local laws.

5. LIST OF PREPARERS

TEXAS DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

DISTRICT OFFICE, FORT WORTH, TEXAS

Billy A. Hardie, P.E., District Designing Engineer
Burton Clifton, P.E., District Planning Engineer
Elvis D. Shockley, P.E., Supervising Resident Engineer
Mark C. Schluter, P.E., Designing Engineer
Jean Karlik, M.A., Environmental Planner
Dianna F. Noble, B.S.C.E., Engineering Assistant III
Ibrahim A. Musa, B.S.C.E., Engineering Assistant II
Bill Wimberley, P.E., District Right of Way Engineer
James C. Goad, District Right of Way Supervisor
Larry M. Rosenbach, B.S., Right of Way Agent IV
Carl Logan, Right of Way Agent III

HEADQUARTERS OFFICE, AUSTIN, TEXAS

Kenneth C. Bohuslav, P.E, Engineer of Environmental Studies
James W. Barr, Director of Environmental Studies
Frank A. Weir, Ph.D., Archaeologist
Clyde Bullion, Ph.D., Sociologist
James R. Farrar, Jr., MS, Socio-Economist
Josiah W. Tyson, MS, Ecologist
Bill Hood, MS, Ecologist
Roderick D. Moe, MS, Meteorologist

FEDERAL HIGHWAY ADMINISTRATION

DIVISION OFFICE, AUSTIN, TEXAS

Jesse I. Gray, P.E., Division Environmental Coordinator
William L. Hall, Jr., P.E., District Engineer
Jerry G. Jones, P.E., Area Engineer

REGIONAL OFFICE, FORT WORTH, TEXAS

Peter A. Lombard, Director Office of Planning and Development
David R. Williamson, Environmental Protection Specialist

6. LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE STATEMENT ARE SENT

Johnson County
City of Cleburne
City of Keene
Environmental Protection Agency
Cleburne Independent School District
Keene Independent School District
Governor, State of Texas
North Central Texas Council of Governments
Texas Air Control Board
Texas Department of Agriculture
Texas Water Commission
Texas General Land Office
Texas Historical Commission
Texas Natural Resources Council
Texas Parks and Wildlife Department
Texas Railroad Commission
U.S. Department of Agriculture
U.S. Army Corps of Engineers
U.S. Army Corps of Engineers, Fort Worth District
U.S. Department of Health and Human Services
U.S. Department of Housing and Urban Development
U.S. Department of Interior

7. INDEX

Appendix A

ACCIDENT SUMMARY ON EXISTING HIGHWAY ROUTES
THAT WILL BE RELIEVED BY US 67 CLEBURNE BYPASS

YEAR	FATAL ACCIDENT TOTAL	NO. KILLED	INJURY ACCIDENT TOTAL	NO. INJURED	PROPERTY DAMAGE ONLY	ANNUAL ACCIDENT TOTAL	ANNUAL AV.DAILY TRAFFIC	ANNUAL TOTAL VEHICLE MILES	TOTAL ACCIDENT RATE*	SYSTEM STATEWIDE AVERAGE	PERCENT STATEWIDE AVERAGE
US 67: from FM 1434 to SH 174, length = 4.3 miles											
1983	0	0	15	27	53	68	10,470	16,432,665	414	378.0	110
1984	1	2	29	45	57	87	12,200	19,147,900	454	353.7	128
1985	0	0	27	42	76	103	13,700	21,502,150	479	338.9	141
SUB.	1	2	71	114	186	258		57,082,715	452	356.9	127
US 67: from SH 174 to Spur 102, length = 4.9 miles											
1983	0	0	48	81	169	217	8,300	14,844,550	1462	378.0	387
1984	1	2	60	111	158	219	9,750	17,437,875	1256	353.7	355
1985	2	2	57	88	172	231	11,050	19,762,925	1169	338.9	345
SUB.	3	4	165	280	499	667		52,045,350	1282	356.9	359
SH 174: from Santa Fe Overpass to US 67, length = 3.7 miles											
1983	0	0	28	42	116	144	17,200	23,228,600	620	379.6	163
1984	0	0	30	44	105	135	19,900	26,874,950	581	365.2	159
1985	1	1	23	37	106	130	22,000	29,711,000	438	343.5	128
SUB.	1	1	81	123	327	409		79,814,550	512	362.8	141
3 YR. TOTAL	5	7	317	517	1012	1334		188,942,615	706	358.9	197

* Accident rate per 100 million vehicle miles traveled

TABLE 1

ESTIMATED COST BY ALTERNATIVE

Route W		Route X	
Construction	$ 43,000,000	Construction	$ 41,000,000
State Right of Way	2,300,000	State Right of Way	5,380,000
State Total	45,300,000	State Total	46,380,000
Local Right of Way	240,000	Local Right of Way	590,000
Total	$ 45,540,000	Total	$ 46,970,000

Route Y		Route Z	
Construction	$ 23,000,000	Construction	$ 23,800,000
State Right of Way	3,900,000	State Right of Way	2,050,000
State Total	26,900,000	State Total	25,850,000
Local Right of Way	370,000	Local Right of Way	210,000
Total	$ 27,270,000	Total	$ 26,060,000

Preferred Alternative (W + Y)

Construction	$ 66,000,000
State Right of Way	6,200,000
State Total	72,200,000
Local Right of Way	610,000
Total	$ 72,810,000

TABLE 2

POPULATION STATISTICS

JURISDICTION	1980 POP.	1987 EST. POP.	2010 PROJ. POP.
Dallas-Fort Worth CMSA	2,930,530	3,653,837	4,903,691
Fort Worth-Arlington PMSA	973,138	1,255,139	1,490,035
Johnson County	67,649	90,458	156,790

Sources: 1980--US Census; 1987--NCTCOG; 2010--TWDB

TABLE 3

RESIDENTIAL DISPLACEMENTS

Quadrant	Route	Number of Displacements Owner-Occupied	Tenant-Occupied	Total
Northwest	W	1	0	1
Northwest	X	2	6	8
Northeast	Y	11	43	54
Northeast	Z	6	40	46

TABLE 4

BUSINESS DISPLACEMENTS

Route	Retail	Service	Industrial	Total
W	3	1	0	4
X	3	1	0	4
Y	12	2	6	20
Z	13	4	6	23

TABLE 5

AVAILABLE REPLACEMENT HOUSING

Single-Family Residences for Sale*

	2 BR	3 BR	4 BR
$35,000 - 45,000	12	16	1
45,001 - 55,000	4	21	1
55,001 - 65,000	2	16	0
65,001 - 75,000	0	12	3
75,001 and over	0	9	2
TOTAL	18	74	7

Single-Family Residences for Rent

Mo/Rent	1 BR	2 BR	3 BR
$ 200 - 300	3	6	2
201 - 250	0	3	1
351 - 400	0	3	1
401 - 450	0	0	3
451 and over	0	0	8
TOTAL	3	12	15

Mobile Homes for Rent

Mo/Rent	1 BR	2 BR	3 BR
$ 200 - 300	1	6	3
301 - 350		1	1
351 and over			2
TOTAL	1	7	6

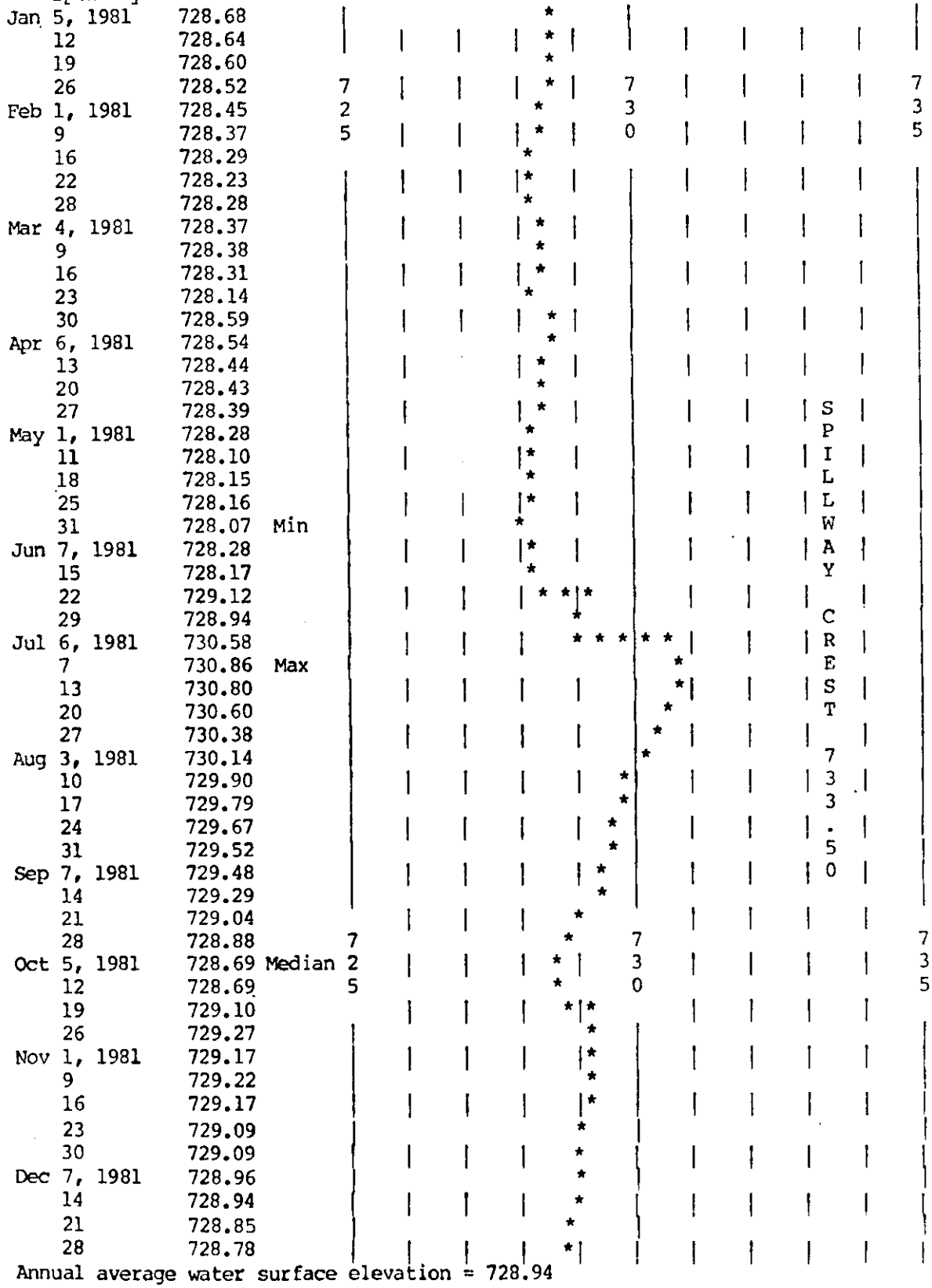
*Multiple Listing Service

TABLE 6

WEEKLY WATER SURFACE READINGS OF LAKE PAT CLEBURNE
(From records of Cleburne Water Department)
Spillway Elevation 733.50

TABLE 7: Sheet 1 of 8

Jan	5, 1981	728.68	
	12	728.64	
	19	728.60	
	26	728.52	
Feb	1, 1981	728.45	
	9	728.37	
	16	728.29	
	22	728.23	
	28	728.28	
Mar	4, 1981	728.37	
	9	728.38	
	16	728.31	
	23	728.14	
	30	728.59	
Apr	6, 1981	728.54	
	13	728.44	
	20	728.43	
	27	728.39	
May	1, 1981	728.28	
	11	728.10	
	18	728.15	
	25	728.16	
	31	728.07	Min
Jun	7, 1981	728.28	
	15	728.17	
	22	729.12	
	29	728.94	
Jul	6, 1981	730.58	
	7	730.86	Max
	13	730.80	
	20	730.60	
	27	730.38	
Aug	3, 1981	730.14	
	10	729.90	
	17	729.79	
	24	729.67	
	31	729.52	
Sep	7, 1981	729.48	
	14	729.29	
	21	729.04	
	28	728.88	
Oct	5, 1981	728.69	Median
	12	728.69	
	19	729.10	
	26	729.27	
Nov	1, 1981	729.17	
	9	729.22	
	16	729.17	
	23	729.09	
	30	729.09	
Dec	7, 1981	728.96	
	14	728.94	
	21	728.85	
	28	728.78	



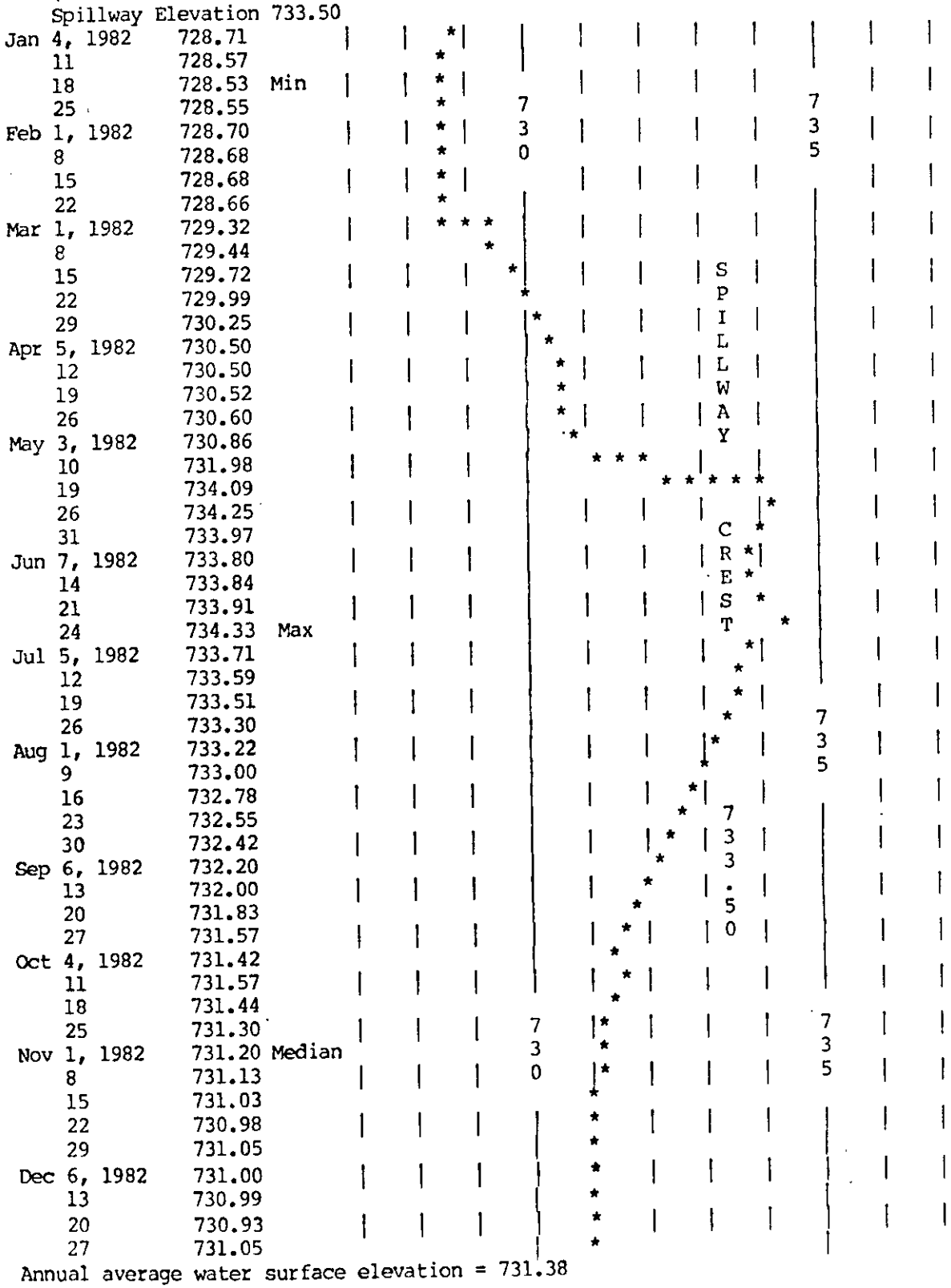
Annual average water surface elevation = 728.94

WEEKLY WATER SURFACE READINGS OF LAKE PAT CLEBURNE
(From records of Cleburne Water Department)

TABLE 7: Sheet 2 of 8

Spillway Elevation 733.50

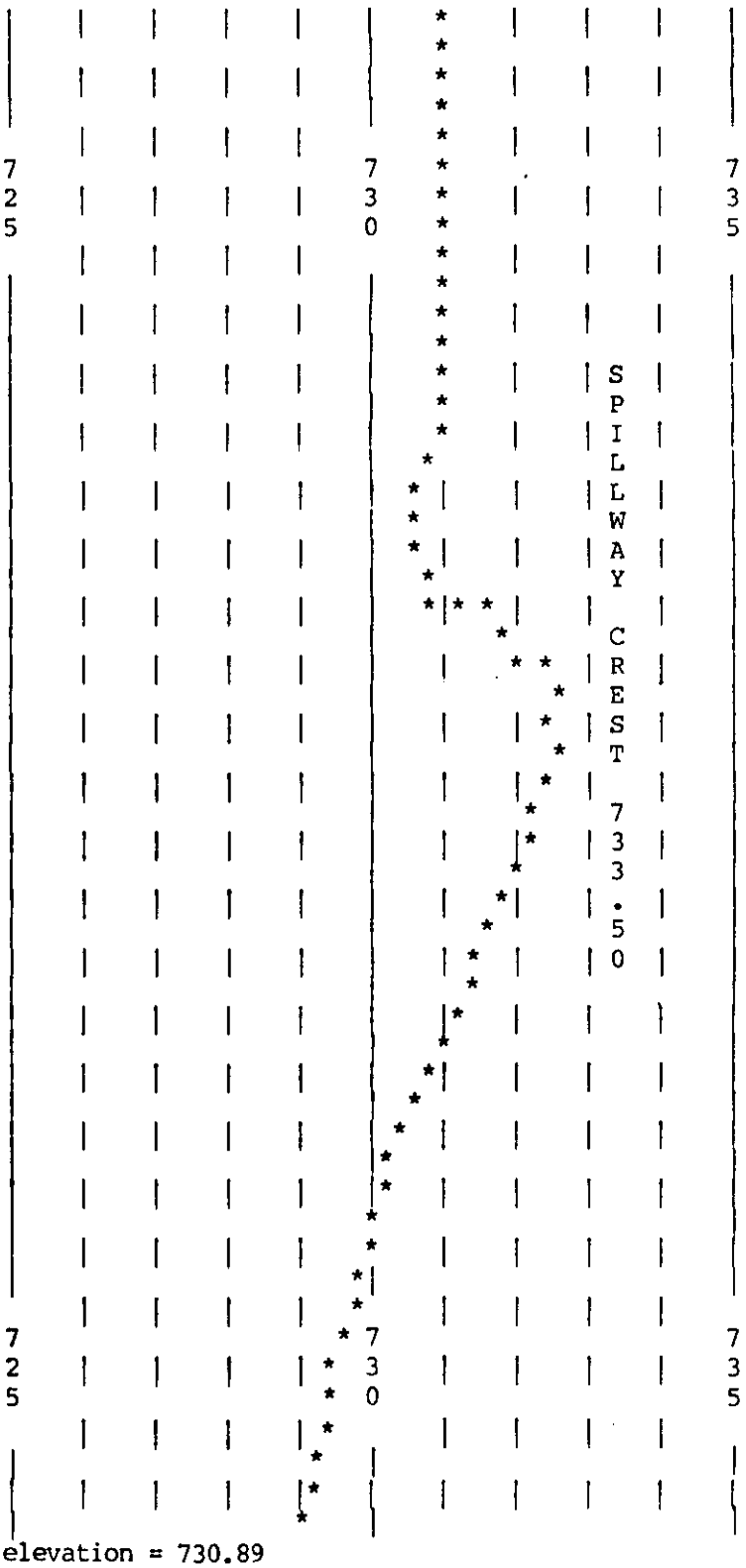
Jan	4, 1982	728.71	
	11	728.57	
	18	728.53	Min
	25	728.55	
Feb	1, 1982	728.70	
	8	728.68	
	15	728.68	
	22	728.66	
Mar	1, 1982	729.32	
	8	729.44	
	15	729.72	
	22	729.99	
	29	730.25	
Apr	5, 1982	730.50	
	12	730.50	
	19	730.52	
	26	730.60	
May	3, 1982	730.86	
	10	731.98	
	19	734.09	
	26	734.25	
	31	733.97	
Jun	7, 1982	733.80	
	14	733.84	
	21	733.91	
	24	734.33	Max
Jul	5, 1982	733.71	
	12	733.59	
	19	733.51	
	26	733.30	
Aug	1, 1982	733.22	
	9	733.00	
	16	732.78	
	23	732.55	
	30	732.42	
Sep	6, 1982	732.20	
	13	732.00	
	20	731.83	
	27	731.57	
Oct	4, 1982	731.42	
	11	731.57	
	18	731.44	
	25	731.30	
Nov	1, 1982	731.20	Median
	8	731.13	
	15	731.03	
	22	730.98	
	29	731.05	
Dec	6, 1982	731.00	
	13	730.99	
	20	730.93	
	27	731.05	



Annual average water surface elevation = 731.38

WEEKLY WATER SURFACE READINGS OF LAKE PAT CLEBURNE
(From records of Cleburne Water Department) TABLE 7: Sheet 3 of 8
Spillway Elevation 733.50

Jan	3, 1983	731.07	
	10	731.04	
	17	731.00	
	24	730.99	
	31	730.93	
Feb	7, 1983	731.06	
	14	731.04	
	21	731.09	
	28	731.04	
Mar	7, 1983	731.10	
	14	731.00	
	21	730.98	
	28	731.06	
Apr	4, 1983	730.98	
	11	730.91	
	18	730.81	
	25	730.70	
May	2, 1983	730.63	
	9	730.53	
	16	730.80	
	23	731.70	
	30	731.80	
Jun	6, 1983	732.35	
	13	732.51	
	19	732.48	
	26	732.59	Max
Jul	3, 1983	732.40	
	11	732.26	
	18	732.21	
	25	732.00	
Aug	1, 1983	731.75	
	8	731.54	
	15	731.31	
	22	731.36	
	29	731.18	
Sep	5, 1983	730.99	Median
	12	730.78	
	19	730.65	
	26	730.42	
Oct	1, 1983	730.25	
	10	730.19	
	17	730.01	
	24	729.92	
	31	729.80	
Nov	7, 1983	729.76	
	14	729.58	
	21	729.47	
	28	729.44	
Dec	5, 1983	729.36	
	12	729.25	
	19	729.14	
	26	729.06	Min



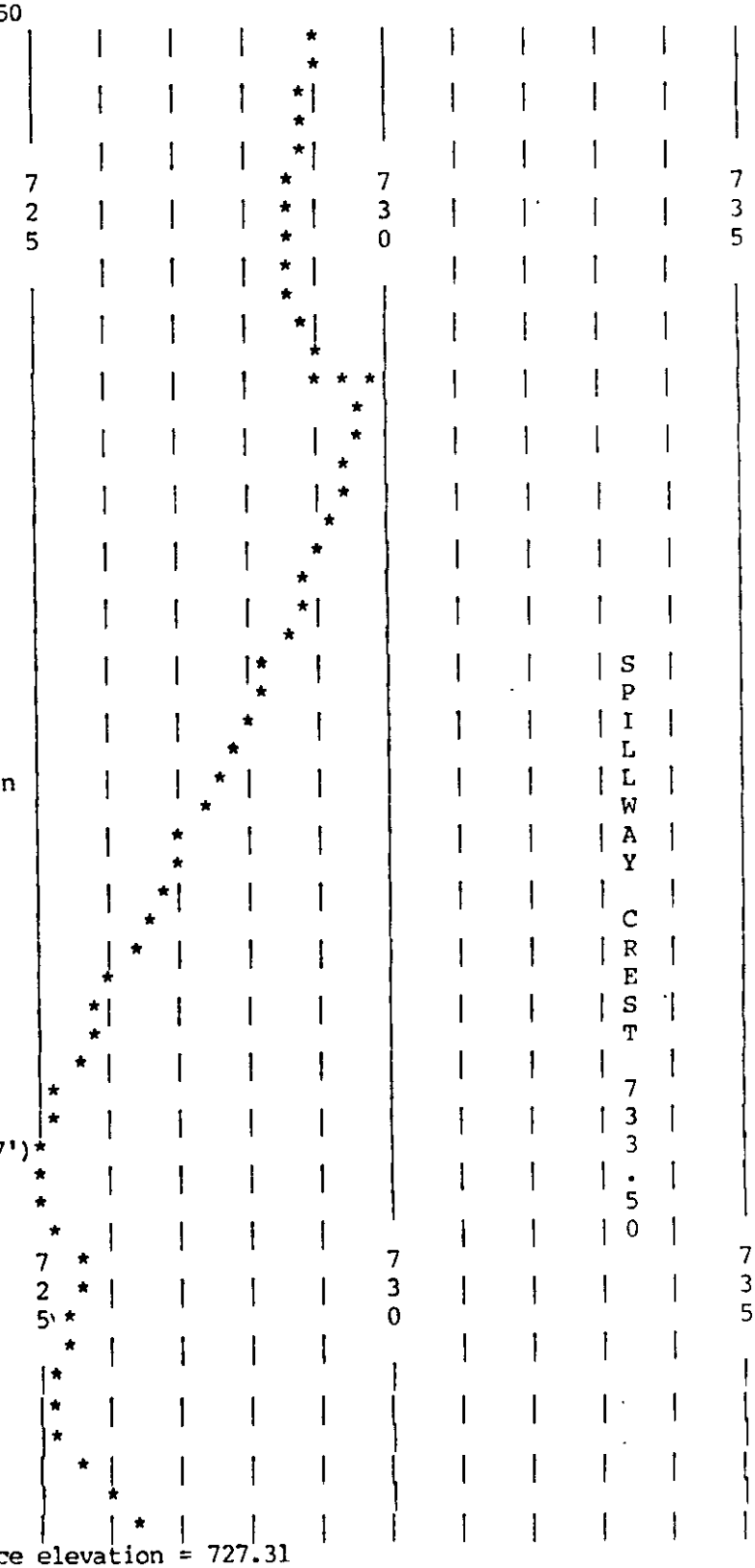
Annual average water surface elevation = 730.89

WEEKLY WATER SURFACE READINGS OF LAKE PAT CLEBURNE
(From records of Cleburne Water Department)

TABLE 7: Sheet 4 of 8

Spillway Elevation 733.50

Jan	1, 1984	729.00	
	9	728.98	
	16	728.90	
	23	728.83	
	30	728.80	
Feb	6, 1984	728.70	
	13	728.69	
	20	728.63	
	27	728.70	
Mar	5, 1984	728.52	
	12	728.81	
	19	728.95	
	26	729.75	Max
Apr	1, 1984	729.64	
	8	729.63	
	16	729.49	
	23	729.35	
	30	729.17	
May	7, 1984	729.09	
	14	728.85	
	21	728.72	
	28	728.56	
Jun	4, 1984	728.25	
	11	728.27	
	18	728.04	
	25	727.78	
Jul	1, 1984	727.57	Median
	9	727.30	
	16	727.01	
	23	726.95	
	30	726.78	
Aug	6, 1984	726.53	
	13	726.31	
	20	726.06	
	27	725.78	
Sep	3, 1984	725.80	
	10	725.54	
	17	725.28	
	23	725.13	
	30	724.93	(-8.57')
Oct	8, 1984	724.93	
	15	725.03	
	21	725.27	
	29	725.51	
Nov	5, 1984	725.50	
	11	725.37	
	19	725.33	
	26	725.27	
Dec	1, 1984	725.16	
	10	725.14	
	17	725.58	
	24	725.91	
	31	726.39	



Annual average water surface elevation = 727.31

WEEKLY WATER SURFACE READINGS OF LAKE PAT CLEBURNE
(From records of Cleburne Water Department)

TABLE 7: Sheet 5 of 8

Spillway Elevation 733.50

Date	Elevation	Remark
Jan 7, 1985	727.25	Min
14	727.38	
21	727.60	
28	727.70	
Feb 4, 1985	727.73	
11	727.87	
18	727.87	
25	729.09	
Mar 4, 1985	729.35	
11	729.50	
18	729.97	
25	731.11	
Apr 1, 1985	731.25	# Identical Elevation #
8	731.19	
: : : : : : : : : : : : : : :		
15	731.22	<<photos>>
22	731.13	
28	736.91(+3.41')	
May 6, 1985	733.81	
13	733.71	
19	733.67	
27	733.67	
Jun 3, 1985	733.53	
10	733.45	
17	733.28	
24	733.08	
Jul 1, 1985	732.91	
8	732.75	
15	732.51	
22	732.37	
28	732.32	
Aug 4, 1985	732.05	
12	731.76	
19	731.49	
25	731.20	
Sep 2, 1985	730.95	
9	730.70	Median
16	730.65	
23	730.50	
30	730.43	
Oct 7, 1985	730.21	
14	730.20	
21	730.82	
28	730.75	
Nov 4, 1985	730.59	
11	730.48	
18	730.45	
25	730.37	
Dec 2, 1985	730.37	
9	730.24	
16	730.27	
23	730.21	
30	730.15	

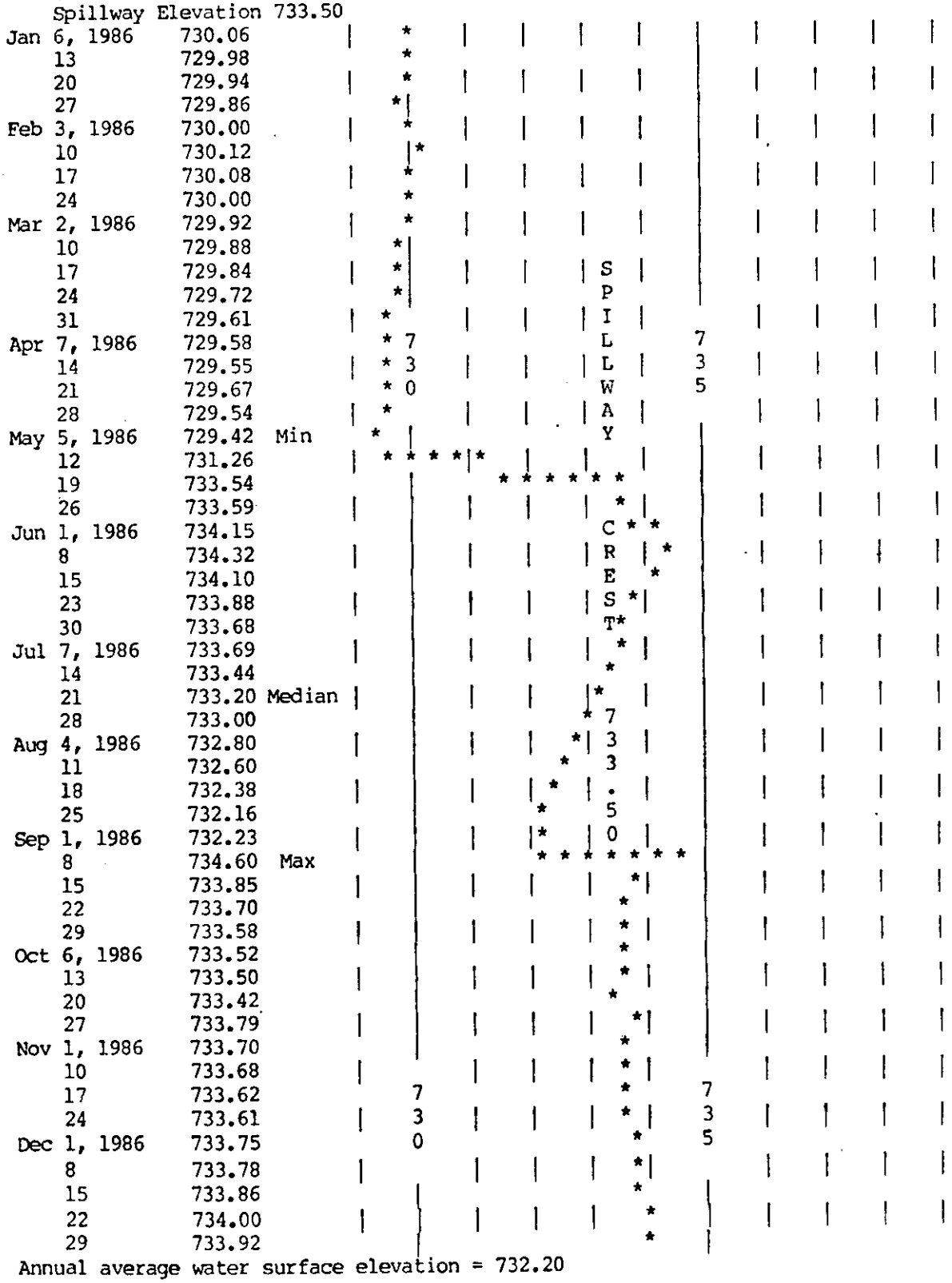
Chart scale labels: 725, 730, 735 (Jan–Apr); 730, 735, 740 (May–Dec); SPILLWAY CREST; 733.50

Annual average water surface elevation = 730.96

WEEKLY WATER SURFACE READINGS OF LAKE PAT CLEBURNE
(From records of Cleburne Water Department)
Spillway Elevation 733.50

TABLE 7: Sheet 6 of 8

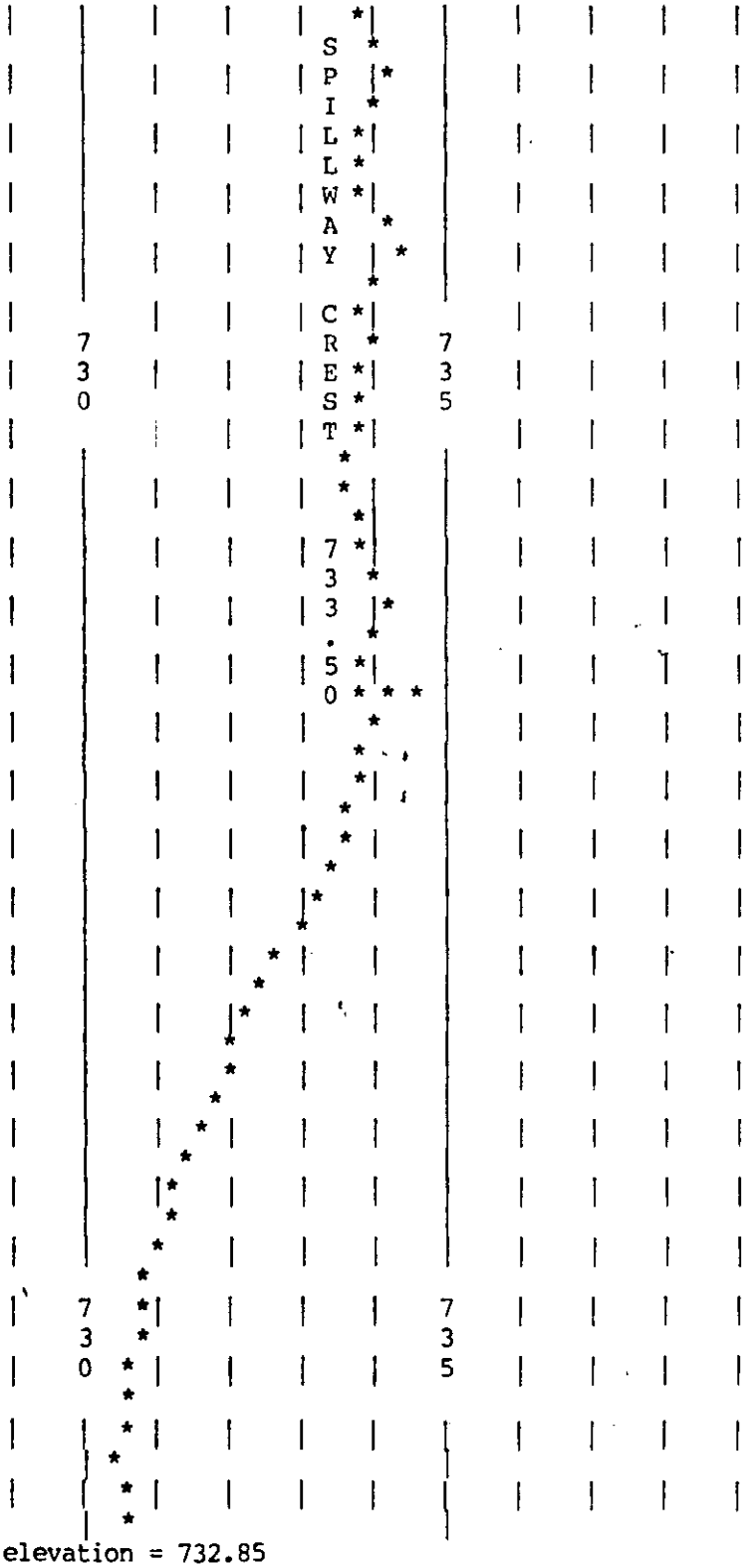
Jan	6, 1986	730.06	
	13	729.98	
	20	729.94	
	27	729.86	
Feb	3, 1986	730.00	
	10	730.12	
	17	730.08	
	24	730.00	
Mar	2, 1986	729.92	
	10	729.88	
	17	729.84	
	24	729.72	
	31	729.61	
Apr	7, 1986	729.58	
	14	729.55	
	21	729.67	
	28	729.54	
May	5, 1986	729.42	Min
	12	731.26	
	19	733.54	
	26	733.59	
Jun	1, 1986	734.15	
	8	734.32	
	15	734.10	
	23	733.88	
	30	733.68	
Jul	7, 1986	733.69	
	14	733.44	
	21	733.20	Median
	28	733.00	
Aug	4, 1986	732.80	
	11	732.60	
	18	732.38	
	25	732.16	
Sep	1, 1986	732.23	
	8	734.60	Max
	15	733.85	
	22	733.70	
	29	733.58	
Oct	6, 1986	733.52	
	13	733.50	
	20	733.42	
	27	733.79	
Nov	1, 1986	733.70	
	10	733.68	
	17	733.62	
	24	733.61	
Dec	1, 1986	733.75	
	8	733.78	
	15	733.86	
	22	734.00	
	29	733.92	



Annual average water surface elevation = 732.20

WEEKLY WATER SURFACE READINGS OF LAKE PAT CLEBURNE
(From records of Cleburne Water Department) TABLE 7: Sheet 7 of 8
Spillway Elevation 733.50

Jan	5, 1987	733.84	
	12	733.98	
	19	734.28	
	26	733.92	
Feb	1, 1987	733.89	
	9	733.88	
	16	733.90	
	23	734.12	
Mar	2, 1987	734.45	
	9	733.96	
	16	733.87	
	23	733.92	
	30	733.77	
Apr	6, 1987	733.75	
	13	733.75	
	20	733.65	
	27	733.56	
May	4, 1987	733.72	
	11	733.70	
	18	733.94	
	25	734.23	
Jun	1, 1987	734.24	
	8	733.84	
	15	734.63	Max.
	22	733.98	
	29	733.74	Median
Jul	6, 1987	733.85	
	13	733.65	
	20	733.58	
	27	733.40	
Aug	3, 1987	733.17	
	10	732.92	
	17	732.63	
	24	732.37	
	31	no rdg	
Sep	7, 1987	731.95	
	14	731.97	
	21	731.88	
	28	731.68	
Oct	5, 1987	731.43	
	12	731.22	
	19	731.17	
	26	730.96	
Nov	2, 1987	730.81	
	9	730.75	
	16	730.72	
	23	730.63	
	30	730.62	
Dec	7, 1987	730.54	
	14	730.45	Min
	21	730.52	
	28	730.60	



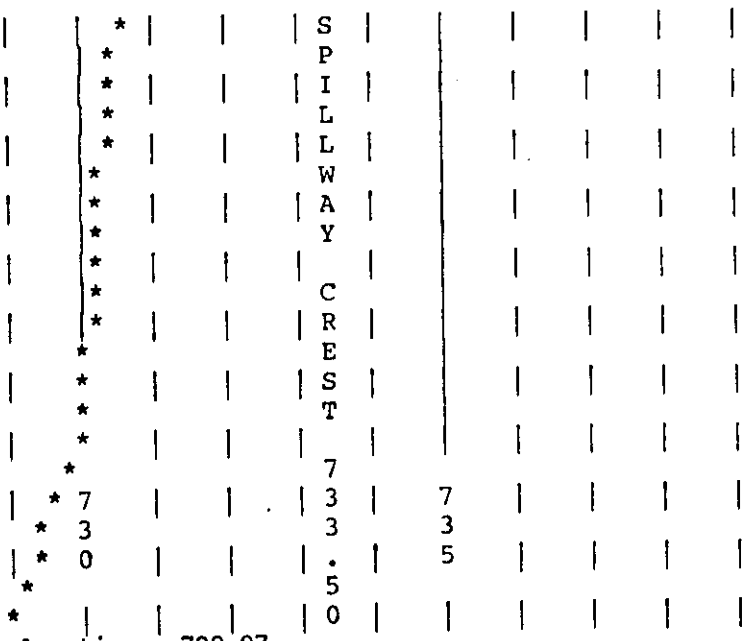
Annual average water surface elevation = 732.85

WEEKLY WATER SURFACE READINGS OF LAKE PAT CLEBURNE
(From records of Cleburne Water Department)

TABLE 7: Sheet 8 of 8

Spillway Elevation 733.50

Jan 4, 1988	730.53	Max	
11	730.48		
18	730.44		
25	730.37		
Feb 1, 1988	730.30		
8	730.22		
15	730.16		
22	730.24		
29	730.20		
Mar 7, 1988	730.13		
14	730.14		
21	730.04		
28	729.95		
Apr 4, 1988	730.01		
11	729.90		
18	729.75		
25	729.66		
May 9, 1988	729.39		
16	729.31		
23	729.15		
30	728.93	Min	



Five month average water surface elevation = 729.97

UNDEVELOPED LAND WITHIN THE PROJECT AREA

	Total ROW	% Undeveloped
Northwest Quadrant		
Route W	305	84
Route X	252	78
Northeast Quadrant		
Route Y	189	74
Route Z	194	74

TABLE 8

THREATENED AND ENDANGERED SPECIES

Listed Species		Status
American peregrine falcon Statewide migrant	Falco peregrinus anatum	Endangered
Arctic peregrine falcon Statewide migrant	Falco peregrinus tundrius	Threatened
Bald eagle Statewide migrant	Haliaeetus leucocephalus	Endangered
Interior least tern Statewide migrant	Sterna antillarum athalassos	Endangered
Piping plover Statewide migrant	Charadrius melodus	Threatened
Whooping crane May migrate through the project area	Grus americana	Endangered
Black-capped vireo Potential migrant and breeder in the area	Vireo atricapillus	Endangered

TABLE 9

Source: U.S. Fish and Wildlife

LAND USE WITHIN RIGHT OF WAY

Quadrant	Total ROW	Farmland # Acres	%	Cultivated # Acres	%*	Vacant # Acres	%	Developed # Acres	%
Northwest									
Route W	305	183	60	99	54	74	24	48	16
Route X	252	93	37	66	71	104	41	55	22
Northeast									
Route Y	189	83	44	26	31	57	30	49	26
Route Z	189	106	55	35	33	38	20	50	26

TABLE 10

*Percent of Total Farmland

NATIONAL AMBIENT AIR QUALITY STANDARDS

Primary Standards:

Carbon Monoxide (CO)	(a) 9 ppm (10 milligrams/m^3) maximum 8 hr. concentration not to be exceeded more than once per year. (b) 35 ppm (40 milligrams/m^3) maximum 1 hr. concentration not to be exceeded more than once per year.
Oxides of Nitrogen (NO_2)	0.05 ppm (100 micrograms/m^3) annual arithmetic mean.
Ozone (O_3)	0.12 ppm (235 micrograms/m^3) expected daily exceedances averaging less than one per year over a three year period.
Suspended Particulate Matter	75 micrograms/m^3 - annual geometric mean 260 micrograms/m^3 - maximum 24 hr. concentration.
Sulfur Dioxide	0.03 ppm (80 micrograms/m^3) - annual average 0.14 ppm (365 micrograms/m^3) - maximum 24 hr. concentration.
Lead	1.5 micrograms/m^3 - average over a calendar quarter.

Notes:

1. The only difference between primary and secondary standards in the above list of highway related pollutants are those for suspended particulate matter and sulfur dioxide. The secondary standard for suspended particulate matter is an annual geometric mean of 60 ug/m^3. The secondary standard for sulfur dioxide is a 3-hour maximum of 0.5 ppm.

2. Federal Standards, other than those based on annual averages or annual geometric means, are not to be exceeded more than once per year.

3. National Primary Standards: The levels of air quality necessary to protect the public health with adequate margins of safety.

4. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

5. See Texas State Implementation Plan (Regional Classifications) for priority classifications and priority of regions for each pollutant.

Revised 2/1/85

Table 11

EMISSION FACTORS FOR EXISTING US 67
BUILD AND NO-BUILD ALTERNATIVES

ALTERNATIVE	YEAR	ADT	AVG SPD MPH	EF GM/MI CO	LENGTH MI	EF TON/YR* CO
West of SH 174:						
No-Build	1986	22,680	36	21.18	4.6	889
	1990	26,530	34	18.33	4.6	900
	1994	31,040	32	17.50	4.6	1,005
	1998	36,310	29	18.22	4.6	1,224
	2002	42,480	25	21.10	4.6	1,659
	2006	49,695	20	26.12	4.6	2,402
	2011	60,460	15	32.51	4.6	3,638
Build	1986	18,719	50	14.54	4.6	504
	1990	21,728	48	11.07	4.6	445
	1994	25,221	46	9.80	4.6	457
	1998	29,258	43	9.86	4.6	534
	2002	33,934	38	11.98	4.6	752
	2006	39,339	32	15.45	4.6	1,125
	2011	47,293	25	20.93	4.6	1,832
East of SH 174:						
No-Build	1986	13,728	44	16.41	4.6	417
	1990	16,060	41	13.84	4.6	411
	1994	18,790	38	13.48	4.6	469
	1998	21,980	36	13.37	4.6	544
	2002	25,710	34	14.24	4.6	678
	2006	30,080	32	15.45	4.6	860
	2011	36,600	29	17.58	4.6	1,191
Build	1986	8,615	53	13.67	4.6	219
	1990	10,009	53	9.59	4.6	178
	1994	11,629	52	7.88	4.6	170
	1998	13,506	52	6.74	4.6	168
	2002	15,613	51	6.90	4.6	199
	2006	18,112	50	7.16	4.6	240
	2011	21,800	48	7.77	4.6	313

* TONS/YEAR = ADT X EF X L X 365/907,185

TABLE 12

EMISSION FACTORS FOR US 67 BY ROUTE

ALTERNATIVE ROUTE	YEAR	ADT	AVG SPD MPH	EF GM/MI CO	LENGTH MI	EF TON/YR* CO
W	1986	3,963	54	13.33	6.8	145
	1990	4,802	54	9.28	6.8	122
	1994	5,819	54	7.31	6.8	116
	1998	7,052	53	6.46	6.8	125
	2002	8,546	53	6.36	6.2	149
	2006	10,356	53	6.33	6.8	179
	2011	13,167	52	6.58	6.8	237
X	1986	3,963	54	13.33	5.5	117
	1990	4,802	54	9.28	5.5	99
	1994	5,819	54	7.31	5.5	94
	1998	7,052	53	6.46	5.5	101
	2002	8,546	53	6.36	5.5	120
	2006	10,356	53	6.33	5.5	145
	2011	13,167	52	6.58	5.5	192
Y	1986	5,117	54	13.33	3.8	104
	1990	6,065	54	9.28	3.8	86
	1994	7,188	53	7.59	3.8	83
	1998	8,519	53	6.46	3.8	84
	2002	10,092	53	6.36	3.8	98
	2006	11,968	52	6.59	3.8	121
	2011	14,800	51	6.86	3.8	155
Z	1986	5,117	54	13.33	3.9	107
	1990	6,065	54	9.28	3.9	88
	1994	7,188	53	7.59	3.9	86
	1998	8,519	53	6.46	3.9	86
	2002	10,092	53	6.36	3.9	101
	2006	11,968	52	6.59	3.9	124
	2011	14,850	51	6.86	3.9	160

* TONS/YEAR = ADT X EF X L X 365/907,185

TABLE 13

CAL3M0B3

TEXAS DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
TEXAS LINE SOURCE AIR POLLUTION ANALYSIS - 171072

VER 3.1 OCT 85

CAL3 PORTION OF TEXLINE REQUESTED, PREDICTIONS OF AIR POLLUTANT CONCENTRATIONS FOLLOW
FOR CALENDAR YEAR 2011

JOB: CAL3 RUN

NOTE: NO EMISSION FACTOR ENTERED FOR LINK STRAIGHT SECT TEXLINE PRODUCED VALUE OF 6.06 IS USED.

I. SITE VARIABLES

U =	1.0 M/S	CLAS =	6 (F)	VS =	0.0 CM/S	ATIM =	60. MINUTES	MIXH =	1000. M
BRG =	0. DEGREES	Z0 =	1. CM	VD =	0.0 CM/S	AMB =	0.4 PPM		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	LINK LENGTH (M)	LINK BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. LINK STRAIGHT SECT	0.	46.	610.	46.	610.	90.	AG	1036.	6.9	0.0	13.4
B. LINK STRAIGHT SECT	0.	76.	610.	76.	610.	90.	AG	710.	6.9	0.0	13.4

III. RECEPTOR LOCATIONS AND MODEL RESULTS

RECEPTOR	COORDINATES (M) X	Y	Z	TOTAL + AMB (PPM)	CO/LINK (PPM) A	B
1. RECP	305.	0.	1.5	0.6	0.1	0.1
2. RECP	305.	122.	1.5	0.4	0.0	0.0

Table 14

BACKGROUND ESTIMATES

PEAK AND AVERAGE VALUES OF CO CONCENTRATION

(PPM)

	Peak One-Hour	Peak Eight-Hour	Average
Houston	4.5	2.8	1.7
Dallas	3.7	2.3	1.4
Fort Worth	1.8	1.1	0.7
San Antonio	1.7	1.1	0.7
El Paso	4.9	2.7	1.5
Austin	0.7	0.4	0.3
Corpus Christi	0.6	0.4	0.3
Beaumont	0.6	0.4	0.3
Smaller Cities	0.5	0.3	0.2
Rural Areas	0.4	0.3	0.2

TABLE 15

INTERIOR NOISE LEVEL REDUCTION FACTORS

BUILDING TYPE	WINDOW CONDITION	NOISE REDUCTION DUE TO EXTERIOR OF THE STRUCTURE
All	Open	10 dBA
Light Frame	Ordinary Sash (Closed)	25
	Storm Windows	25
Masonry	Single Glazed	25
	Double Glazed	35

TABLE 16

ACTIVITY CATEGORY	NOISE ABATEMENT CRITERIA LEQ DBA	L10 DBA	DESCRIPTION OF ACTIVITY CATEGORY
A	57 (Exterior)	60 (Exterior)	Tracts of land in which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of these qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheathers, particular parks or portions of parks, open spaces, or historic districts which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	67 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, and parks which are not included in Category A, and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties or activities not included in Categories A or B above.
D	--	--	Undeveloped lands. Predicted noise levels should be provided to local governments by land developers which can design activities compatible with future noise levels.
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

TABLE 17

NOISE ASSESSMENT TABLE

SITE NO.	DIST. FROM ROW LINE	RT.	LOCATION DESCRIPTION	L10(DBA) MEAS. 1986	L10(DBA) PRED. 2011	CHANGE IN NOISE LEVEL	ACTIVITY CATEGORY
1	325	W	At Walls Regional Hospital near the emergency entrance	55	61	7	B
2	425	X	At Cleburne H.S. parking lot, to the side of band hall (School not in session)	46	60	15	B
3	30	W	At the intersection of CR 1217 and CR 1121	49	66	18	D
4	50	W	At FM 4 ROW, 1/2 way between CR 1217 and CR 1125B	60	65	6	C
5	25	X	At NW corner of FM 4 and Nolan River Road	67	66	0	B&C
6	100	W/X	Just north of the intersection of CR 1215 and SH 171	59	64	6	C
7	62	Y	At the NE corner of CR 700 and CR 805	42	65	24	D
8	0	Z	Near the intersection of Route Y and CR 801	53	67	15	D
9	150	Z	Near the intersection of Route Z and CR 805	50	64	14	B
10	1000	Y	At the parking lot of Chisholm Trail Academy and Adventist H.S.	51	56	5	B
11	0	X	At the ROW line south of Cleburne H.S. (School not in session)	45	66	23	B
12	280	W/X	At Buddy Stewart Park picnic bench closest to U.S. 67	60 (1988)	64	4	B

TABLE 18

Appendix B

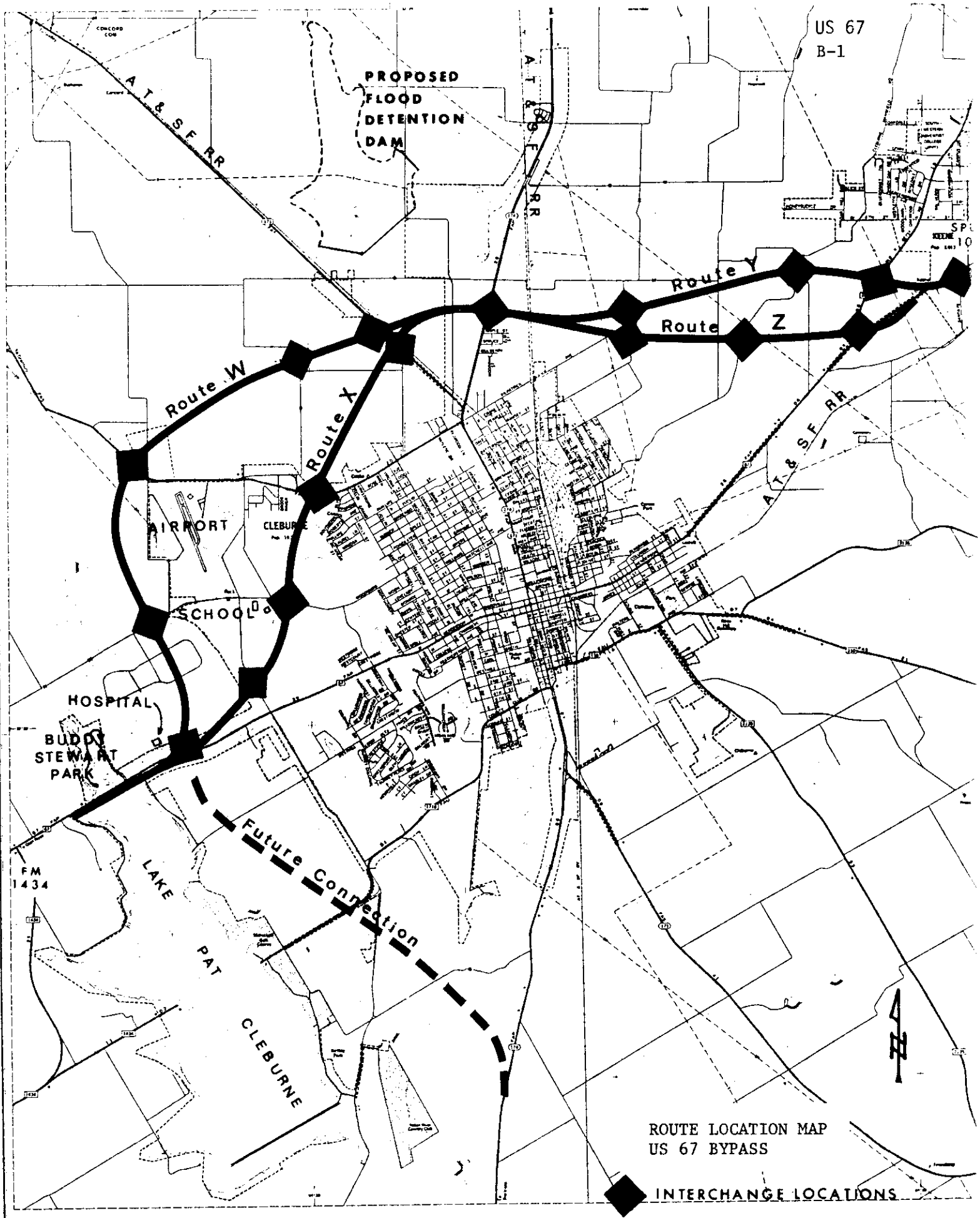

US 67
B-1
PROPOSED
FLOOD
DETENTION
DAM
A T & S F RR
A T & S F RR
Route Y
Route Z
Route W
Route X
A T & S F RR
AIRPORT
CLEBURNE
SCHOOL
HOSPITAL
BUDDY
STEWART
PARK
Future Connection
FM
1434
LAKE
PAT
CLEBURNE
ROUTE LOCATION MAP
US 67 BYPASS
INTERCHANGE LOCATIONS

FIGURE 1

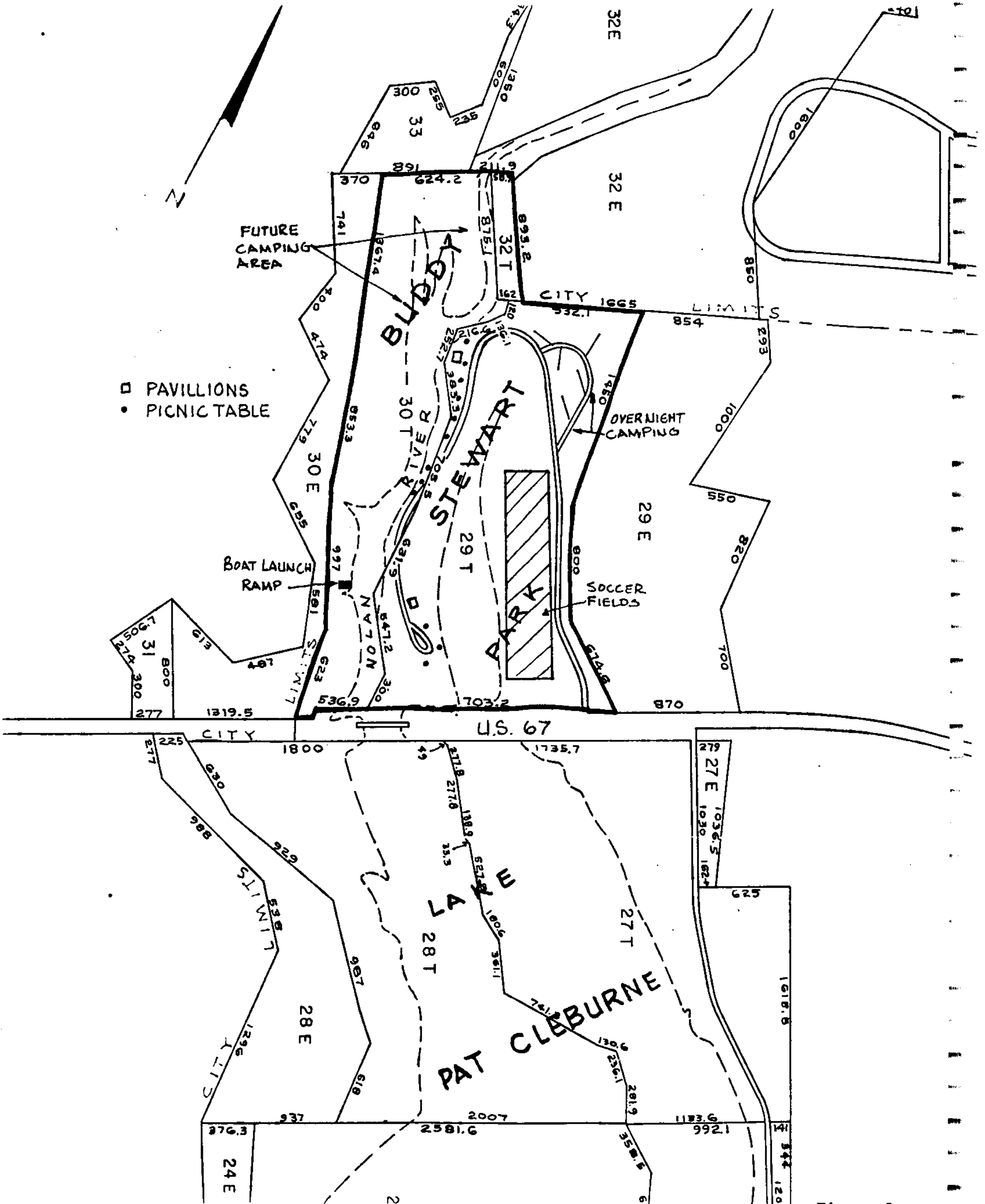

N
FUTURE
CAMPING
AREA
▫ PAVILLIONS
• PICNIC TABLE
BOAT LAUNCH
RAMP
OVERNIGHT
CAMPING
SOCCER
FIELDS
BUDDY STEWART PARK
NOLAN RIVER
CITY LIMITS
U.S. 67
PAT CLEBURNE LAKE
32E
33
32T
30T
30E
29T
29E
31
27E
27T
28T
28E
24E

Figure 2

US 67
B-3

LOCATION OF FARMLANDS
ALONG US 67 BYPASS ROUTE
ALTERNATIVES

FIGURE 3

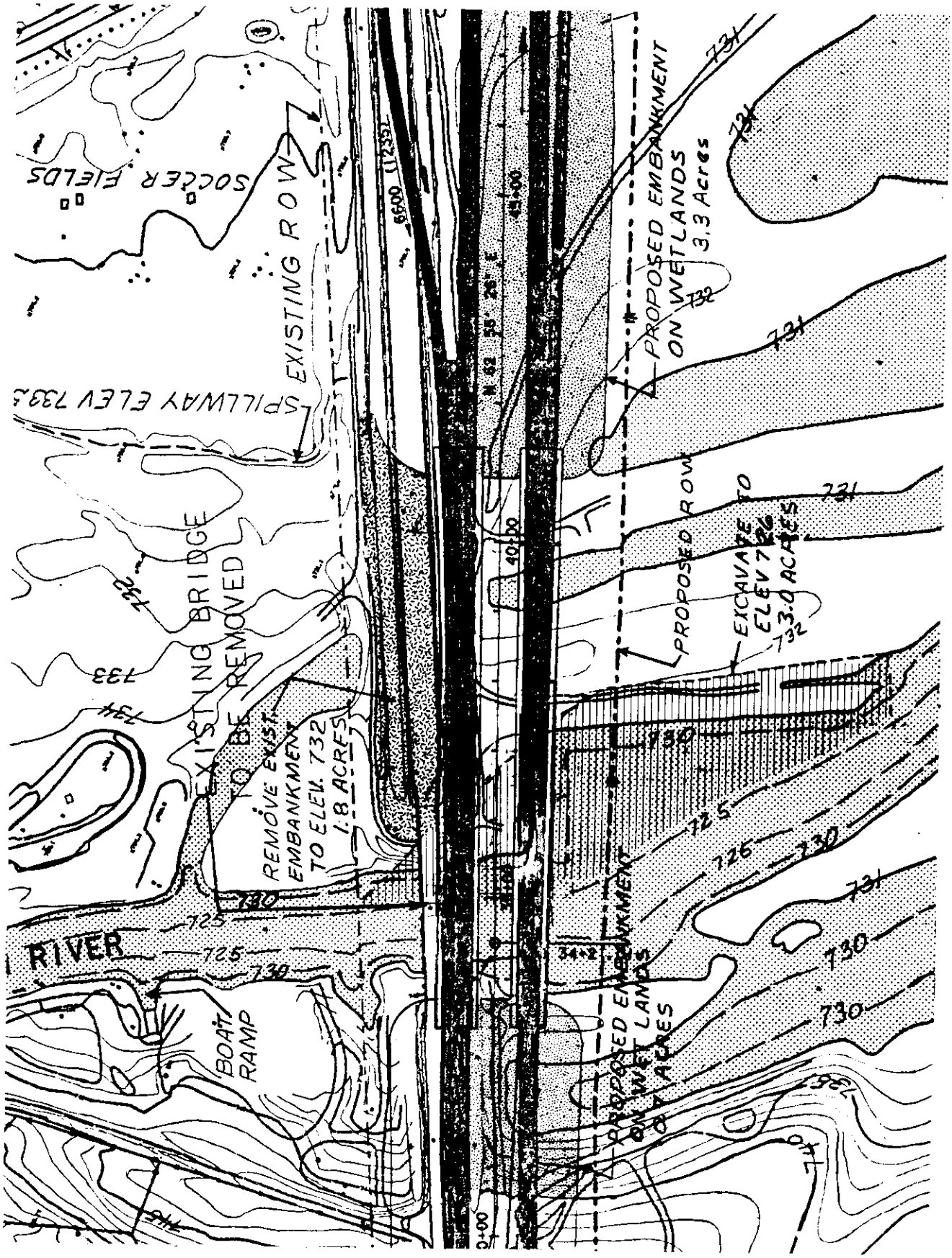


FIGURE 4: WETLAND MITIGATION MEASURES

GRAPHIC SCALE IN FEET
0 200 400

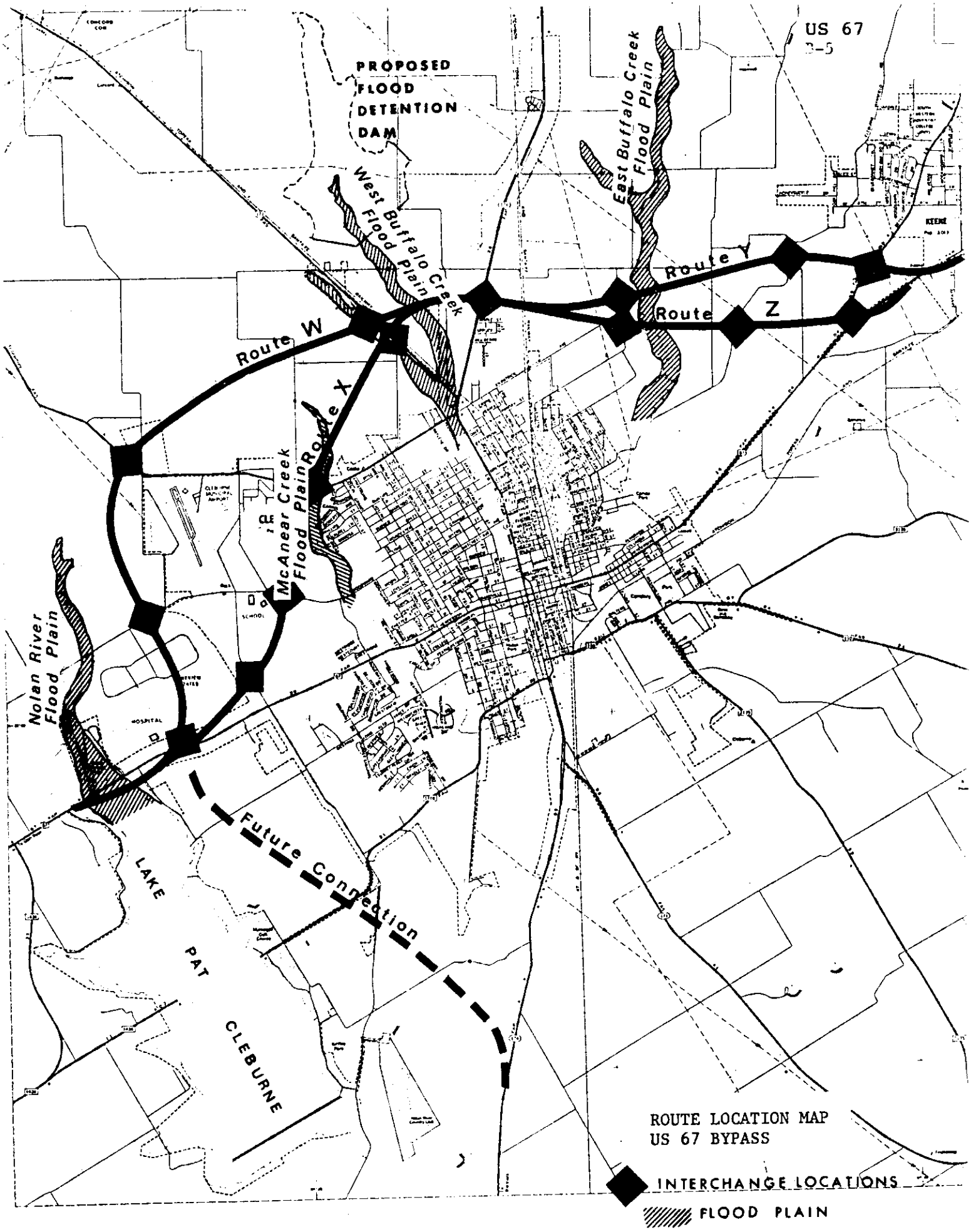

US 67
B-5
PROPOSED
FLOOD
DETENTION
DAM
West Buffalo Creek
Flood Plain
East Buffalo Creek
Flood Plain
Route Y
Route Z
Route W
Route X
McAnear Creek
Flood Plain
Nolan River
Flood Plain
Future Connection
LAKE
PAT
CLEBURNE
ROUTE LOCATION MAP
US 67 BYPASS
INTERCHANGE LOCATIONS
FLOOD PLAIN

FIGURE 5

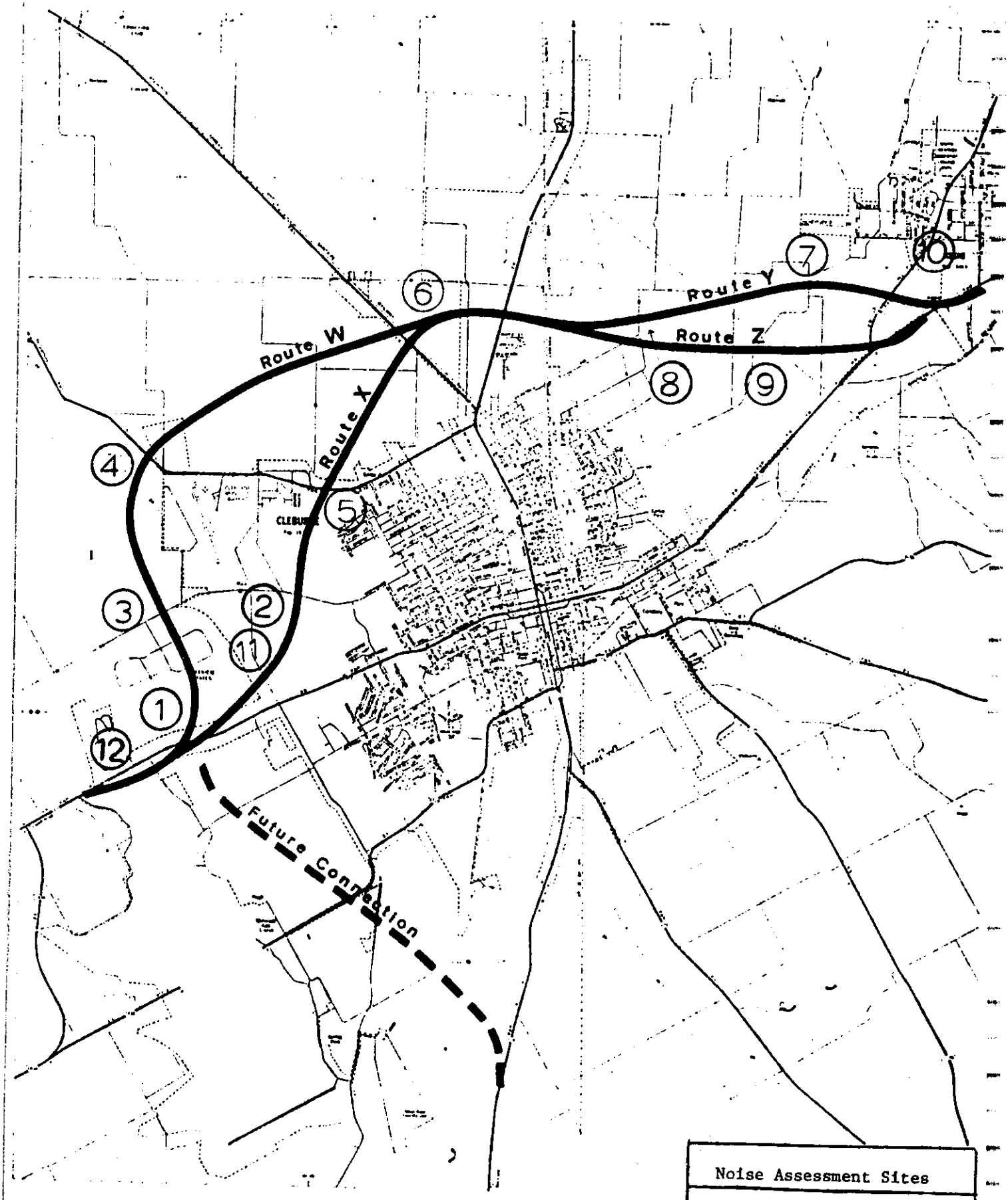

Route W
Route X
Route Y
Route Z
Future Connection
1
2
3
4
5
6
7
8
9
10
11
12
Noise Assessment Sites
Receptor Location

FIGURE 6

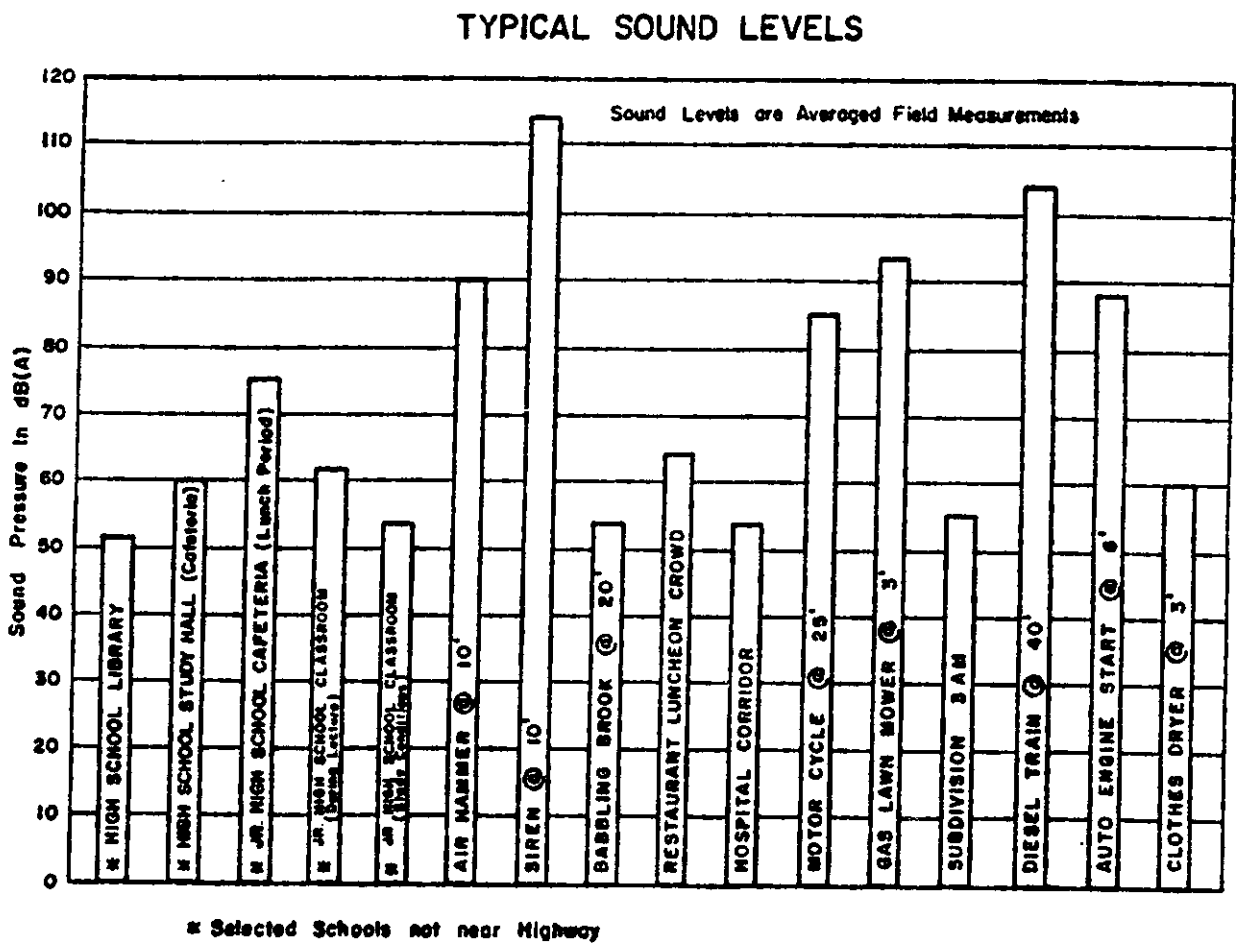

TYPICAL SOUND LEVELS
Sound Levels are Averaged Field Measurements
Sound Pressure in dB(A)
120
110
100
90
80
70
60
50
40
30
20
10
0
* HIGH SCHOOL LIBRARY
* HIGH SCHOOL STUDY HALL (Cafeteria)
* JR. HIGH SCHOOL CAFETERIA (Lunch Period)
* JR. HIGH SCHOOL CLASSROOMS (Typical Lecture)
* JR. HIGH SCHOOL Classroom (Typical Reading)
AIR HAMMER @ 10'
SIREN @ 10'
BABBLING BROOK @ 20'
RESTAURANT LUNCHEON CROWD
HOSPITAL CORRIDOR
MOTOR CYCLE @ 25'
GAS LAWN MOWER @ 3'
SUBDIVISION 8 AM
DIESEL TRAIN @ 40'
AUTO ENGINE START @ 6'
CLOTHES DRYER @ 3'
* Selected Schools not near Highway

FIGURE 7

Appendix C

LEVEL-OF-SERVICE CRITERIA

Level-of-service (LOS) criteria for multilane highways are defined in terms of density. Density is a measure which quantifies the proximity to other vehicles in the traffic stream. It expresses the degree of maneuverability within the traffic stream.

Boundary values of density are given, as follows, for the various levels of service. They are the same as the values used in Chapter 3 for freeways.

Level of Service	*Maximum Density (pc/mi/ln)*
A	12
B	20
C	30
D	42
E	67

Complete LOS criteria are given in Table 7-1. For 70-mph, 60-mph, and 50-mph design speed elements, the table gives the average travel speed, the maximum value of v/c, and the corresponding maximum service flow rate, *MSF*, for each level of service. The speeds, v/c ratios, and maximum service flow rates tabulated are expected to exist in traffic streams operating at the densities defined for each level of service under ideal conditions.

Level-of-service criteria depend on the design speed of the highway element being studied. A "highway element" can be an isolated geometric element, such as a curve or grade having a reduced design speed, or a series of such geometric elements that dominate the operation of a longer segment of highway. Straight and level highway segments are assumed to have a design speed of 70 mph.

Level-of-service A describes completely free-flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and driver preferences. Vehicles are spaced at an average of 440 ft, or 22 car-lengths, at a maximum density of 12 pc/mi/ln. The ability to maneuver within the traffic stream is high. Minor disruptions to flow are easily absorbed at this level without causing significant delays or queuing.

Level-of-service B is also indicative of free flow, although the presence of other vehicles begins to be noticeable. Average travel speeds are somewhat diminished from LOS A, but are still generally over 53 mph on sections with 70-mph design speed. Vehicles are spaced at an average of approximately 264 ft, or 13 car-lengths, at a maximum density of 20 pc/mi/ln. Minor disruptions are still easily absorbed at this level, although local deterioration in LOS will be more obvious.

Level-of-service C represents a range in which the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream, and to select an operating speed, is now clearly affected by the presence of other vehicles. Average travel speeds are reduced to about 50 mph on 70-mph design speed sections, and the average spacing of vehicles is reduced to approximately 175 ft, or 9 car-lengths, at a maximum density of 30 pc/mi/ln. Minor disruptions may be expected to cause serious local deterioration in service, and queues may form behind any significant traffic disruption. Severe or long-term disruptions may cause the facility to operate at LOS F.

Level-of-service D borders on unstable flow. Speeds and ability to maneuver are severely restricted because of traffic congestion. Average travel speeds are approximately 40 mph on 70-mph design speed sections, while the average spacing of vehicles is 125 ft, or 6 car-lengths, at a maximum density of 42 pc/mi/ln. Only the most minor of disruptions can be absorbed without the formation of extensive queues and the deterioration of service to LOS F.

Level-of-service E represents operations at or near capacity, and is quite unstable. At capacity, vehicles are spaced at only 80 ft, or 4 car-lengths, at a maximum density of 67 pc/mi/ln. This is the minimum spacing at which uniform flow can be maintained, and effectively defines a traffic stream with no usable gaps. Thus, disruptions cannot be damped or dissipated, and any disruption, no matter how minor, will cause queues to form and service to deteriorate to LOS F. Average travel speeds at capacity are approximately 30 mph.

Level-of-service F represents forced or breakdown flow. It occurs at a point where vehicles arrive either at a rate greater than that at which they are discharged or at a point on a planned facility where forecasted demand exceeds the computed capacity. While operations at such points (and on immediately downstream sections) will appear to be at capacity or better, queues will form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing short spurts of movement followed by stoppages. Average travel speeds within queues are generally under 30 mph, with densities higher than 67 pc/mi/ln. Note that the term "LOS F" may be used to characterize both the point of the breakdown and the operating conditions within the queue. It must be remembered, however, that it is the point of breakdown that causes the queue to form, and that operations within the queue are generally not related to defects along the highway segment over which the queue extends.

The City Of Cleburne

302 West Henderson Street P.O. Box 657 Cleburne, Texas 76031-0486 (817) 641-3321

February 16, 1989

Billy A. Hardie, P.E.
District Design Engineer
State Department Of Highways
And Public Transportation
P.O. Box 6868
Fort Worth, Texas 76115

Dear Mr. Hardie:

In regard to your letter dated February 14th pertaining to the US 67: Cleburne Bypass project, this correspondence is to advise you that at the present time, the City of Cleburne has no plans to extend the Cleburne Municipal Airport runway to the north, nor do I contemplate within the foreseeable future, any plans to extend to the north.

I might also add that at the time of the construction of airport, additional land was purchased to extend the runway to the south with a proposed extension of 1,000 square feet.

Hopefully, this letter will satisfy and/or answer any questions the Federal Highway Administration may have had. Please feel free to contact me should you need additional information.

Sincerely,

Lloyd E. Moss, C.I.D.
City Manager

LEM/db

FEB 17 1989

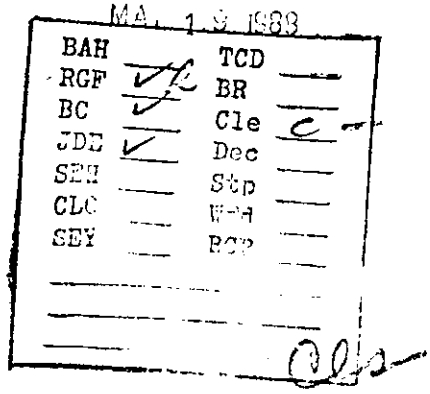
BAH		TCD	
RGP	✓	BR	
BC	C	Cle	C ✓
JDE		Dec	
SEH		Stp	
CLC		Wfd	
SEY		BCP	

File Cleburne
Cy Pass

The City Of Cleburne

302 West Henderson Street•P.O. Box 657•Cleburne, Texas 76031•817-641-3321

May 17, 1988



Mr. Billy A. Hardie
District Design Engineer
State Dept. of Hwys. &
Public Transportation
P. O. Box 6868
Fort Worth, TX 76115

Dear Mr. Hardie:

In accordance with your letter dated May 5, 1988, concerning public recreation areas adjacent to U.S. Hwy. 67 on the West side of Cleburne, the following information is submitted.

A map showing the limits of Buddy Stewart Park is attached which does show picnic areas, soccer fields, and an overnight trailer camping facility. This area along the north side of Hwy. 67 is a very popular day use facility with a boat ramp located on the western side of the lake (river).

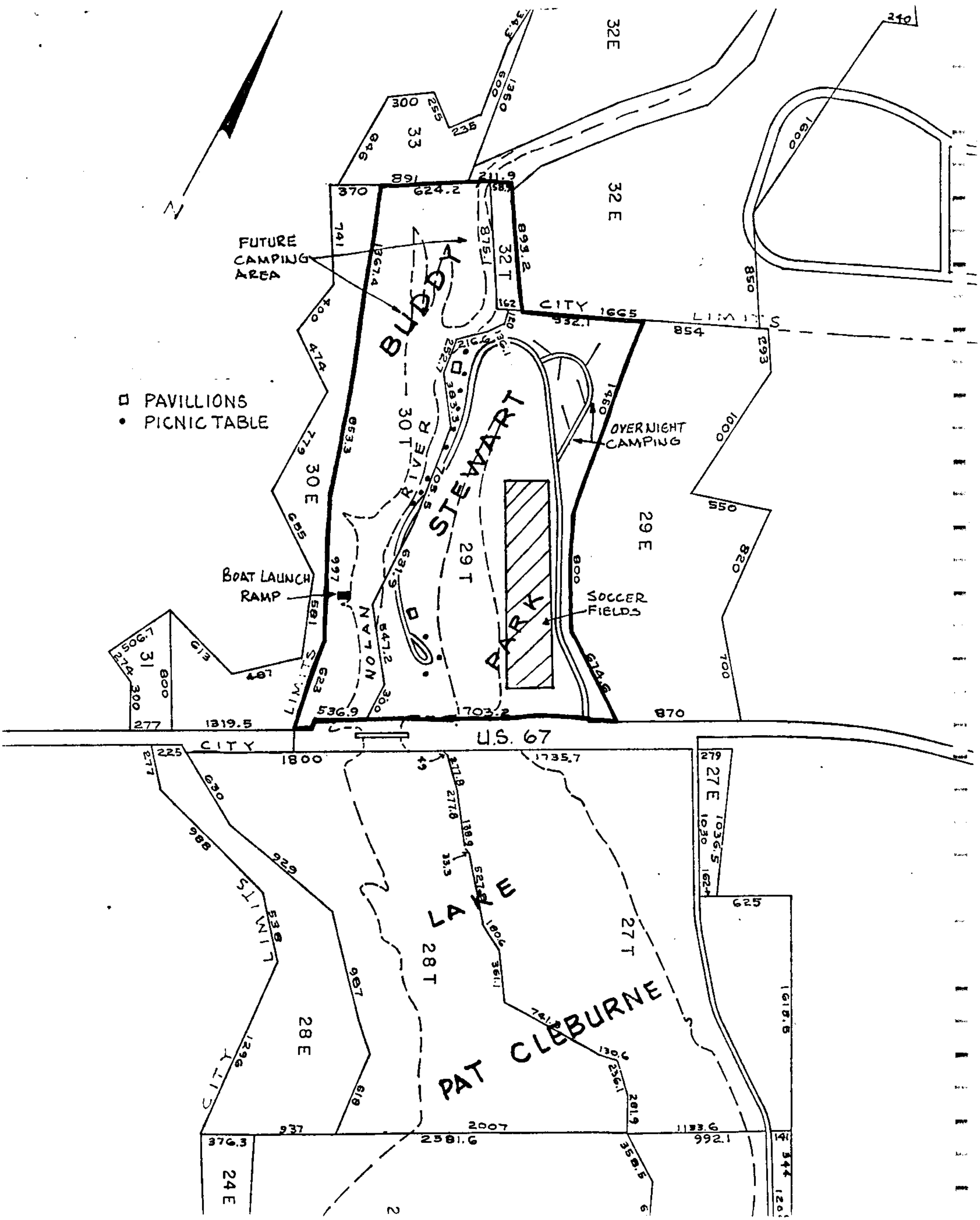
There are no public recreational areas adjacent to this immediate area other than the aforementioned Buddy Stewart Park. To my knowledge, federal funds were used only for Buddy Stewart Park and in no other location.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Don Dietrich, P.E.
Director of Public Works

DD:lp


N
FUTURE CAMPING AREA
PAVILLIONS
PICNIC TABLE
BUDDY STEWART PARK
RIVER
NOLAN
OVERNIGHT CAMPING
SOCCER FIELDS
BOAT LAUNCH RAMP
CITY LIMITS
U.S. 67
LAKE PAT CLEBURNE
33
32E
32T
30E
30T
29E
29T
31
27E
27T
28E
28T
24E

THE STATE OF TEXAS

CURTIS TUNNELL
EXECUTIVE DIRECTOR

Chief Engr. ____
Asst. ____ Adm. ____
F ____ ____ ____
C ____ PD ____ S ____
P ____ E ____ File ____

TEXAS HISTORICAL COMMISSION

O. BOX 12276 AUSTIN, TEXAS 78711 (512) 463-6100

September 11, 1987

Mr. Frank D. Holzmann
Chief Engineer, Highway Design
State Department of Highways
and Public Transportation
DeWitt C. Greer State Highway
Building
11th and Brazos
Austin, Texas 78701

Re: Johnson County, US 67: The Cleburne
Bypass D-8E, 845.02, 0259-05-041
0422-03-039 (FHwA, A5, A6, D1)

Dear Mr. Holzmann:

We are in receipt of a letter concerning an archeological survey for the above-referenced undertaking. After reviewing the letter, we conclude that, as described, the proposal should not affect sites on the National Register of Historic Places, nor any site determined eligible for the National Register.

We alert you to the possibility that there may be subsurface sites in the area which may be eligible for inclusion within the National Register. If buried cultural remains are discovered in the course of construction, work should cease in that area and federal regulations pertaining to emergency discovery situations should be followed. The federal agency involved in the project and the Advisory Council on Historic Preservation should be notified. Please also contact our office (512/463-6096).

Thank you for the opportunity to participate in the review process.

Sincerely,

Nancy Adele Kenmotsu
for

Curtis Tunnell
State Historic Preservation
Officer

NK/CT/lft

cc: Jesse Gray, FHWA

The City Of Cleburne

302 West Henderson Street•P.O. Box 657•Cleburne, Texas 76031•817-641-3321

JUN 06 1988

BAH		TCD	
RGF	✓	BR	
BC	✓	Cle	C
JDE	✓	Dec	
SEH		Stp	
CLC		Wfd	
SEY		BCP	

June 2, 1988

Mr. Billy A. Hardie
District Design Engineer
State Dept. of Hwys. &
Public Transportation
P. O. Box 6868
Fort Worth, TX 76115

Dear Mr. Hardie:

Please be advised that Lake Pat Cleburne was constructed for the principal purpose of municipal water supply for the City of Cleburne, Texas.

Sincerely,

Don Dietrich, P.E.
Director of Public Works

DD:lp

Enclosure

WETLANDS FINDING FOR THE PREFERRED ALTERNATIVE

Consistent with National Policy, as expressed in Executive Order 11990 and Federal Highway Administration Rules, this "Wetlands Finding" is provided in summary form.

There are no practical alternatives to the construction and use of the US 67 expansion project through a lacustrial wetland and aquatic habitat as is more fully discussed on pages 32-36 of the Environmental Impact Statement document. The basis for this determination includes, but is not limited to:

1) alternative routing to the north would encroach upon Buddy Stewart Park; and
2) alternative routing around Lake Pat Cleburne would
    a) further extend the length of the bypass,
    b) eliminate neither the need for the future route east of the lake nor the need for the bridge widening project across the lake,
    c) reduce community use of the bypass, and
    d) require two crossings, rather than one crossing, over Nolan River.

It is determined that the proposed action includes all practical measures to minimize harm to wetlands on the basis that:

1) the proposed route has been deliberately chosen to impact a minimum wetland area,

2) mitigation measures will include replacement as established through the Section 404 permit process; and

3) the erosion control activities associated with construction, as more fully indicated on pages 28-32 of the Environmental Impact Statement, have been proven by experience to provide wetland protection.

Based upon the above consideration, it is determined that there is no practicable alternative to the proposed new construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

SEP 23 1988
ADMINISTRATION

September 16, 1988

Operations Division
Office Operations Branch

SUBJECT: Permit Number 8700301

Mr. R. E. Stotzer, Jr.
State Department of Highways and
Public Transportation
Dewitt C. Greer State Highway Building
11th and Brazos Street
Austin, Texas 78701-2483

Dear Mr. Stotzer:

This refers to an on-site, July 14, 1988 meeting and subsequent telephone conversations between Mr. William F. Hood of your agency and Mr. Richard Lowe of this office concerning proposed modifications to Project Number 8700301, a new bridge crossing on the Nolan River at the upper end of Lake Pat Cleburne, Johnson County, Texas. The modifications are shown on the enclosed detail of your plans provided to Mr. Lowe at the meeting. This letter supersedes our October 26, 1987 letter on this subject.

Your modified project, as shown on the enclosure, has been reviewed in accordance with Section 404 of the Clean Water Act under which the U.S. Army Corps of Engineers regulates the discharge of dredged and fill material into waters of the United States including adjacent wetlands. Based on your description of the proposed work and all information available to us, we have determined that your modified project will involve such discharges and will require prior Department of the Army authorization under Section 404 of the Clean Water Act.

A general permit has been issued on a nationwide basis for the discharge of dredged or fill material into certain waters located upstream of the headwaters. Although we have determined that the modified project will cause the loss or substantial adverse modification of approximately 4 acres of waters of the United States, this proposed discharge has not been identified as being of particular interest to the resource agencies provided the revised special conditions described on the enclosure are established by

the applicant. Therefore, it is authorized by this nationwide permit. In addition to the special conditions, the person responsible for the project must ensure that the work is in compliance with the conditions and best management practices listed on the enclosure. Failure to satisfy these conditions invalidates the authorization and may result in a violation of the Clean Water Act.

The proposed work may impact previously unidentified or buried cultural resources. If any prehistoric or historic cultural remains are encountered during the course of construction, the contractor shall avoid further imapacts to the area and immediately contact this office of the Corps of Engineers.

Verification for the construction of an activity under this nationwide permit is valid for a period of no more than two years from the date of this letter, or a lesser time upon expiration of the nationwide permit on a regional or national basis. Continued confirmation that an activity complies with the terms and conditions and any changes to the nationwide permit is the responsibility of the permittee.

This permit should not be considered as an approval of the design features of any activity authorized or an implication that such construction is considered adequate for the purpose intended. It does not authorize any damage to private property, invasion of private rights, or any infringement of Federal, state, or local laws or regulations.

Thank you for your interest in our nation's water resources. If you have any additional questions concerning our regulatory program, you may contact Mr. Lowe at the address above, telephone (817) 334-4624.

Sincerely,

L. M. Hawkins, Jr.
Chief, Office Operations Branch

Enclosures

Copies furnished:

Mr. Rollin MacRae
Texas Parks and Wildlife Dept.
4200 Smith School Road
Austin, Texas 78744

Mr. David Curtis
U.S. Fish and Wildlife Service
Ecological Services
9A33 Fritz Lanham Building
819 Taylor St.
Fort Worth, Texas 76102

Mr. Jerry Saunders
U.S. Environmental Protection Agency
Region VI
1445 Ross Avenue
Dallas, Texas 75202

NATIONWIDE PERMIT CONDITIONS FOR CERTAIN ACTIVITIES REQUIRING DEPARTMENT OF THE ARMY AUTHORIZATION

The following special conditions must be followed in order for the nationwide permit(s) to be valid:

(1) That any discharge of dredged or fill material will not occur in the proximity of a public water supply intake.

(2) That any discharge of dredged or fill material will not occur in areas of concentrated shellfish production unless the discharge is directly related to a shellfish harvesting activity.

(3) That the activity will not jeopardize a threatened or endangered species as identified under the Endangered Species Act (ESA),or destroy or adversely modify the critical habitat of such species. In the case of Federal agencies, it is the agencies' responsibility to comply with the requirements of the ESA. If the activity may adversely affect any listed species or critical habitat, the District Engineer must initiate Section 7 consultation in accordance with the ESA. In such cases, the District Engineer may: (i) initiate Section 7 consultation and then, upon completion, authorize the activity under the nationwide permit by adding, if appropriate, activity specific conditions, or (ii) prior to or concurrent with Section 7 consultation he may recommend discretionary authority or use modification, suspension, or revocation procedures.

(4) That the activity shall not significantly disrupt the movement of those species of aquatic life indigenous to the waterbody (unless the primary purpose of the fill is to impound water).

(5) That any discharge of dredged or fill material shall consist of suitable material free from toxic pollutants (see Section 307 of the Clean Water Act) in toxic amounts.

(6) That any structure or fill authorized shall be properly maintained.

(7) That the activity will not occur in a component of the National Wild and Scenic River System; nor in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status.

(8) That the activity shall not cause an unacceptable interference with navigation.

(9) That, if the activity may adversely affect historic properties which the National Park Service has listed on, or determined eligible for listing on, the National Register of Historic Places, the permittee will notify the District Engineer. If the District Engineer determines that such historic properties may be adversely affected, he will provide the Advisory Council on Historic Preservation an opportunity to comment on the effects on such historic properties or he will consider modification, suspension, or revocation. Furthermore, that, if the permittee before or during prosecution of the work authorized, encounters a historic property that has not been listed or determined eligible for listing on the National Register, but which may be eligible for listing in the National Register, he shall immediately notify the District Engineer.

(10) That the construction or operation of the activity will not impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

(11) That in certain states, an individual state water quality certification must be

obtained or waived.

(12) That in certain states, an individual state coastal zone management consistency concurrence must be obtained or waived.

(13) That the activity will comply with regional conditions which may have been added by the Division Engineer.

(14) That the management practices listed below shall be followed to the maximum extent practicable.

MANAGEMENT PRACTICES

In addition to the conditions specified in the nationwide permit, the following management practices shall be followed, to the maximum extent practicable, in order to minimize the adverse effects of these discharges on the aquatic environment. Failure to comply with these practices may be cause for the District Engineer to recommend, or the Division Engineer to take, discretionary authority to regulate the activity on an individual basis or regional basis.

(1) Discharged or dredged or fill material into waters of the United States shall be avoided or minimized through the use of other practical alternatives.

(2) Discharges in spawning areas during spawning seasons shall be avoided.

(3) Discharges shall not restrict or impede the movement of aquatic species indigenous to the waters or the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).

(4) If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized.

(5) Discharge in wetlands areas shall be avoided.

(6) Heavy equipment working in wetlands shall be placed on mats.

(7) Discharges into breeding areas for migratory waterfowl shall be avoided.

(8) All temporary fills shall be removed in their entirety.

FURTHER INFORMATION

(1) District Engineers are authorized to determine if an activity complies with the terms and conditions of a nationwide permit unless that decision must be made by the Division Engineer.

(2) Nationwide permits do not obviate the need to obtain other Federal, state or local authorizations required by law.

(3) Nationwide permits do not grant any property rights or exclusive privileges.

(4) Nationwide permits do not authorize any injury to the property or rights of others.

(5) Nationwide permits do not authorize interference with any existing or proposed Federal project.

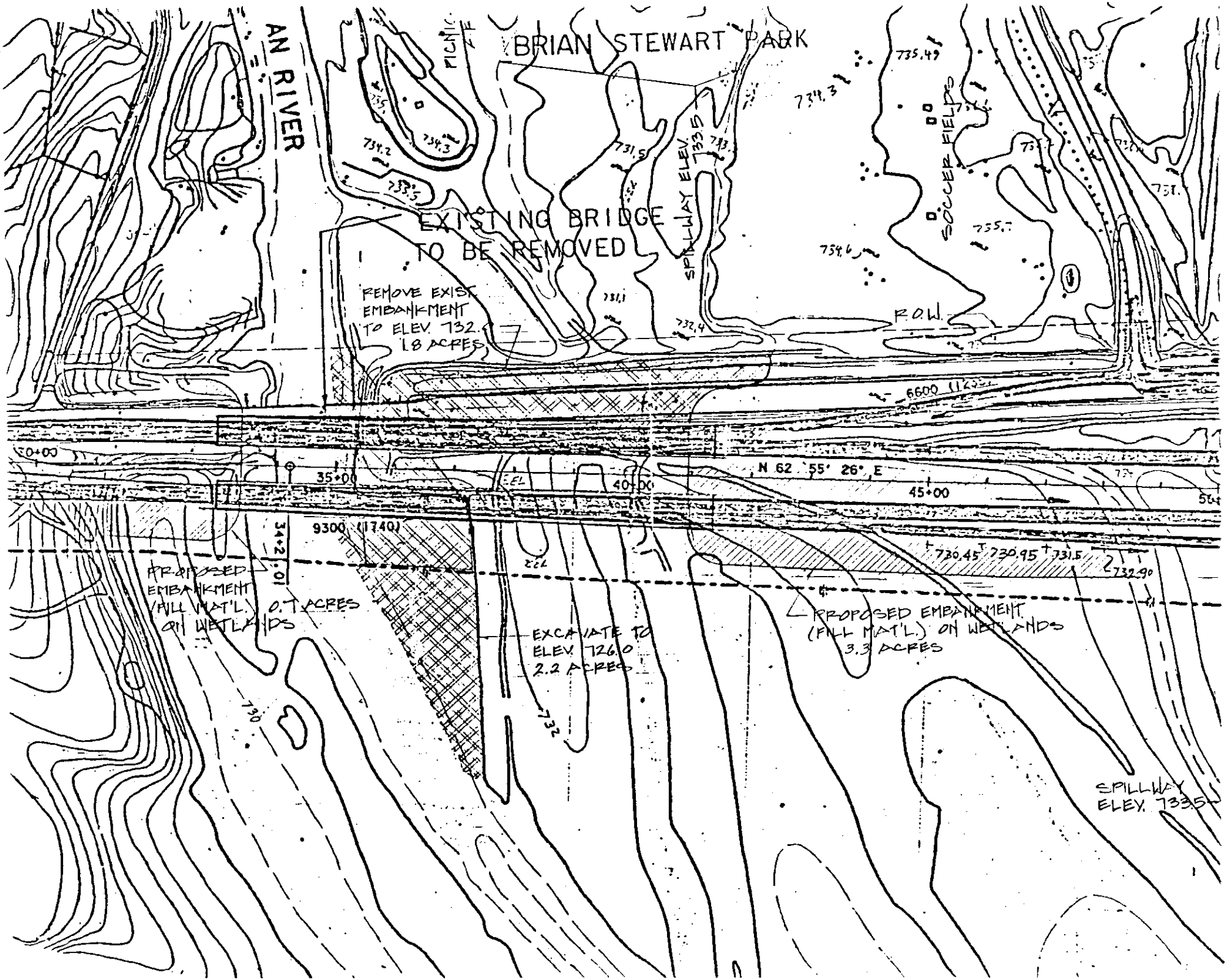
Special Conditions

1. The 2.2-acre excavation area shown on the attached plan shall be expanded in size to create 3 acres of deep water (5' to 7'deep) habitat.

2. The underlying, pre-existing contours shall be restored upon removal of the existing embankment (1.8 acres), except that portions of this area may be used as needed to accomplish item 1. above.

3. Rock rip rap shall be placed on the lake side of the new embankment.

4. Brush and trees removed at the site shall be placed in the area excavated adjacent to the new bridge crossing.


AN RIVER
BRIAN STEWART PARK
PICNIC
SOCCER FIELDS
SPILLWAY ELEV. 733.5
EXISTING BRIDGE TO BE REMOVED
REMOVE EXIST EMBANKMENT TO ELEV. 732. 1.8 ACRES
R.O.W.
6600 (1240)
N 62° 55' 26" E
35+00
40+00
45+00
9300 (1740)
34+2.01
PROPOSED EMBANKMENT (FILL MAT'L.) 0.1 ACRES ON WETLANDS
EXCAVATE TO ELEV. 726.0 2.2 ACRES
PROPOSED EMBANKMENT (FILL MAT'L.) ON WETLANDS 3.3 ACRES
730.45
730.95
731.5
732.90
SPILLWAY ELEV. 733.5

Appendix D

5. Comments and Coordination

History of project development and public involvement activities:

November 1973 - Delegation from Cleburne requested Commission to authorize the SH 174 bypass. (The project was originally visualized as a north-south bypass for SH 174.)

January 1974 - A Commission Minute Order authorized studies for the SH 174 bypass.

July 1974 - Social, economic, and environmental assessment of the SH 174 bypass endorsed by FHWA.

October 1974 - A group meeting, open to the public, was held to gather citizen input related to the proposed SH 174 bypass. Improvements which had been made to the downtown traffic system were discussed. Further improvements to that system were not considered feasible. The general area of the bypass was discussed. All persons making statements expressed support for the bypass project.

November 1974 - Delegation of local government and business leaders appeared before Commission in support of the SH 174 bypass.

June 1975 - District Design Engineer conducted preliminary discussion with city and county representatives on SH 174 bypass. The purpose of the meeting was to receive input on route possibilities for the SH 174 bypass.

July 1975 - Project Concept Conference held with county and city officials on the SH 174 bypass. The project, reasonable alternatives, and public involvement plans were described. A discussion of potential impacts revealed that businesses did not depend on the highway for economic survival, and that existing congestion was a detriment to downtown businesses. It was pointed out that a large percentage of Cleburne residents work in the Dallas-Fort Worth Metropolitan Area; the project would provide safer and easier access to their work. Since the bypass would run through a rural area, wildlife impacts were expected, and community cohesion impacts were considered unnecessary.

May 1980 - Notice of Intent to prepare an environmental impact statement published in the Federal Register for the SH 174 bypass.

June 1982 - Delegation of local government and business leaders appeared before the Commission in support of the US 67 bypass. It requested that the northeast quadrant in addition to the northwest quadrant be included to help relieve congestion on US 67 as well as SH 174.

June 1982 - A Commission Minute Order was passed supporting the US 67 bypass, placing the northwest quadrant in the four-year letting schedule, the northeast quadrant in the five-year development schedule, and the southwest quadrant in the twenty-year plan.

September 1984 - Project Concept Conference held on the US 67 bypass with representatives from Johnson County and the Cities of Cleburne and Keene. The steps necessary in project developement were explained. The meeting examined potential effects of each alternate route, determined what studies would be necessary, identified the groups of people that would be involved, and defined the community and regional goals which the proposed highway would complement or fulfill. No new environmental impacts were identified.

November 1984 - A second Project Concept Conference was held on the US 67 bypass with representatives from Johnson County and the Cities of Cleburne and Keene. Accomplishments achieved since the first Project Concept Conference were discussed. The latest traffic projections were studied. Unanimous agreement was reached on proposed routes to be shown at the public meeting. No new environmental issues were discussed in this meeting.

November 1984 - US 67 bypass placed in new SDHPT Ten-Year Project Development Plan.

February 1985 - Public meeting held for the northeast, northwest, and southwest quadrants of the US 67 bypass at Cleburne Civic Center. Support for the bypass was almost unanimous, with Routes W and Y the preferred routes. No new environmental issues were brought out by the public.

July 1986 - US 67 bypass draft environmental assessment submitted to Austin office of SDHPT.

August 1986 - Notice of Intent to prepare an environmental impact statement issued.

In addition to the public involvement activities, noted on pages 58-59, many individuals and groups over a long period of time have discussed this project in person, by telephone, by letter, and within workshop and

discussion sessions with the District Engineer, District Design Engineer, District Right of Way Engineer, and other members of the District Design staff. It has been the policy and practice of the district to discuss possible design concepts and environmental effects public, and to display any pertinent drawings that were available.

SUMMARY AND ANALYSIS OF AGENCY REVIEW COMMENTS

RESPONDENT	DATE OF REPLY	SUBSTANTIVE COMMENTS
Governor, State of Texas	3-22-88	No
North Central Texas Council of Governments	1-22-88	No
Texas Parks and Wildlife Department	2-11-88	Yes
Texas Water Commission	1-13-88	Yes
U.S. Department of Interior	2-8-88	Yes

Texas Parks and Wildlife Department:

There will be no adverse impact on fish and wildlife habitat. Proposed mitigation measures would enhance fish habitat. Recommended additional enhancement measures--a public pulloff with a paved boat ramp and lighting to allow access to Nolan River and Lake Pat Cleburne.

Evaluation and Disposition:

There is an existing boat ramp located north of US 67 on the west side of Nolan River. This project will neither remove that boat ramp nor change access to it. Lighting of boat ramp areas is not the responsibility of the SDHPT and will not be included as part of the project.

Texas Water Commission:

The Commission expressed concurrence as long as specific procedures expressed in the EIS are followed.

Evaluation and Disposition:

The specific procedures have been retained within the document and will be implemented.

Department of the Interior:

1. Recommended inclusion of the major species present, their habitats, and utilization of this resource.

Evaluation and Disposition:

This information has been added to section 3B, The Natural and Ecological Environment, page 17, and The Natural and Ecological Impacts, pages 38-39.

2. Move discussions of wildlife to The Natural and Ecological Environment and Natural and Ecological Impacts.

Evaluation and Disposition:

Discussions on Wildlife have been moved to - 3B, The Natural and Ecological Environment, page 17, and 4B, The Natural and Ecological Impacts, pages 38-39.

3. Make reference to the information received from the Fish and Wildlife Service letter dated September 23, 1986, providing the list of endangered species which may be found in the project area.

Evaluation and Disposition:

This information has been added to section 3B, The Natural and Ecological Environment, on page 17, and 4B, Natural and Ecological Impacts, page 38, and in Appendix A, page A-14.

4. Correct status of black-capped vireo.

Evaluation and Disposition:

The status of the black-capped vireo has been corrected in section 4B, Natural and Ecological Impacts, on page 38.

5. Recognize that the project will cause a net loss of habitat, as well as wildlife numbers.

Evaluation and Disposition:

This information has been added to section 4B, The Natural and Ecological Impacts, page 38.

6. Provide a clear discussion of mitigation measures included in the project design. For example, what are the erosion control activities associated with construction that provide wetland protection?

Evaluation and Disposition:

The information has been added to section 4B, Natural and Ecological Impacts, pages 28-36.

7. It should be noted that Buddy Steward Park has received a matching grant from the Land and Water Conservation Fund (L&WCF).

Evaluation and Disposition:

The information on the matching grant has been added to

section 3A, Social and Economic Environment, page 15, and 4A, Social and Economic Impacts, page 25.

8. It would be helpful to have a summary table to consolidate, highlight, and compare impacts of each alternative with regards to wildlife impacts.

Evaluation and Disposition:

This information has been added to section 4B, The Natural and Ecological Impacts, page 38; the related table is Table 8 in Appendix A, on page A-14.

STATE OF TEXAS
OFFICE OF THE GOVERNOR
AUSTIN, TEXAS 78711

WILLIAM P. CLEMENTS, JR.
GOVERNOR

March 14, 1988

Mr. Ken Bohuslav
State Department of Highways
and Public Transportation
2620 Ridgepoint Drive
Austin, Texas 78753

Dear Mr. Holzmann:

The environmental impact statement for U.S. 67, Cleburne Bypass, SAI TX-87-12-29-0001-50, has been reviewed.

The Texas Water Commission's primary concern is protection of surface and/or groundwater quality during the construction phase; however, the proper use of chemicals and fuels by construction crews and heavy equipment have been adequately addressed. The Texas Parks and Wildlife Department noted the creation of 4 acres of 5-7 feet deep water and relocation of brush and trees would enhance fish habitat. Copies of the comments are attached.

We appreciate the opportunity to review this proposal. If we may be of further assistance, please advise.

Sincerely,

Phyllis O'Neill

for T. C. Adams
Assistant Deputy Director
Intergovernmental Relations and
State Single Point of Contact

TCA/pon

cc: Federal Highway Administration

P. O. Drawer COG Arlington, Texas 76005—5888

JAN 25 1988

GOVERNOR'S BUDGET...

January 22, 1988

Tom C. Adams
Director, Special Projects
Governor's Office of Budget
and Planning
P. O. Box 12428
Austin, Texas 78711

RE: Draft EIS for U. S. 67:
Cleburne Bypass
SAI# TX-87-12-29-0001-50

Dear Tom:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for U. S. 67. Since the application does not involve the expenditure of funds, we have chosen to waive review.

We are, however, very pleased to receive a copy of the Statement and will keep it on file for future reference.

Thank you.

Sincerely,

Karen Grady

Karen Grady
Administrative Assistant

KG:mah

Centerpoint Two 616 Six Flags Drive Dallas/Fort Worth Metro 817/640-3300

TEXAS
PARKS AND WILDLIFE DEPARTMENT
4200 Smith School Road Austin, Texas 78744

CHARLES D. TRAVIS
Executive Director

February 11, 1988

Mr. T. C. Adams
Director, Special Projects
Budget and Planning Office
Post Office Box 12428
Austin, Texas 78711

Re: Draft Environmental Impact Statement U.S. 67: Cleburne Bypass SAI/EIS # TX-87-12-29-0001-50

Dear Mr. Adams:

The proposed Cleburne Bypass will not adversely affect fish and wildlife habitat. The proposed excavation of material to create 4 acres of 5-7 feet deep water adjacent and parallel to the new bridge crossing and the relocation of brush and trees would enhance fish habitat. Also, additional enhancement measures should include a public pulloff with a paved boat ramp and lighting to allow access to Nolan River and Lake Pat Cleburne.

I appreciate the opportunity to review this project.

Sincerely,

Charles D. Travis
Executive Director

CDT:RWS:RCT:wjg

January 13, 1988

Mr. T. C. Adams
Director, Special Projects
Governor's Office of Budget and Planning
P. O. Box 12428, Capitol Station
Austin, Texas 78711

Re: Draft Environmental Impact Statement (DEIS) for the Proposed U.S. 67 Bypass, Cleburne, Texas; TX-87-12-29-0001-50

Dear Mr. Adams:

The staff of the Texas Water Commission has reviewed the above referenced DEIS regarding the proposed four-lane, controlled access highway to serve as a bypass around the City of Cleburne.

On page 31 of the report, all references to the Texas Water Rights Commission and the Texas Water Quality Board should be changed to the Texas Water Commission, since this agency now has responsibility for both of the items discussed. Our primary concern about this project relates to the protection of the surface and/or groundwater quality in the area during the construction phase. It appears that adequate provisions are included to minimize soil erosion and sedimentation. Also, proper use of chemicals and fuels by construction crews and heavy equipment have been adequately addressed. If the procedures described in the DEIS are followed, we have no objections to the proposed project or further comments to offer at this time.

If you have any questions regarding this matter, please contact Mr. Jack Kramer of my staff at (512) 463-7791.

Sincerely yours,

Allen Beinke

Allen Beinke
Executive Director

United States Department of the Interior

OFFICE OF ENVIRONMENTAL PROJECT REVIEW
POST OFFICE BOX ~~2063~~ 649
ALBUQUERQUE, NEW MEXICO 87103

TAKE PRIDE IN AMERICA

ER-87/1338

FEB 8 1988

Mr. William L. Hall
Federal Highway Administration
Federal Office Building, Room 826
300 East Eighth Street
Austin, Texas 78708

Dear Mr. Hall:

This responds to your request to the Director, Office of Environmental Project Review, for our review and comments on the draft environmental statement for US-67 Bypass, Cleburne, Johnson County, Texas. The following comments are provided for your consideration.

General Comments

In general, we find the draft statement to be lacking in its treatment of fish and wildlife resources. Coverage of this subject should be expanded to include, at a minimum, the major fish and wildlife species found in the area, their habitats, and utilization of this resource. The only discussion of wildlife resources under the Affected Environment section of the report occurs under segment B, Aesthetic Environment. While wildlife contribute greatly to the aesthetic environment, their coverage would be more appropriately placed under segment C, The Natural and Ecological Environment. The report indicates wildlife will be displaced during construction and that impacts will be insignificant. This is misleading; the project will result in a net loss of habitat, as well as wildlife numbers. The net result of wildlife displacement is a reduction in overall population numbers since the remaining habitat is generally at carrying capacity and cannot sustain the increased use. These losses need to be recognized. The report should provide a clear discussion of mitigation measures included in the project design. It would be helpful to have a summary table to consolidate, highlight, and compare impacts of each alternative.

The document states that Buddy Stewart Park will be avoided by project construction. It should be noted that Buddy Stewart Park has received a matching grant from the Land and Water Conservation Fund (L&WCF). The L&WCF Act of 1965, as amended, established a grant program which provides states with funds to acquire and develop public outdoor recreation lands and waters. The L&WCF is administered in each state by the State Liaison Officer (SLO), appointed by the governor. The SLO is Mr. Charles D. Travis, Executive Director, Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744. The L&WCF Act, Section 6(f), states that no property acquired or developed with assistance from the L&WCF shall be converted to other than public outdoor recreation uses without the approval of the Secretary of the Interior. If such conversion is anticipated, the SLO should be contacted to initiate the process for obtaining the Secretary's approval.

Specific Comments

Page 18, second paragraph - This discussion on wildlife resources should be placed under report segment C, The Natural and Ecological Environment. It should be greatly expanded to discuss major species present and habitat types. Reference should be made to the Fish and Wildlife Service letter dated September 23, 1986, providing the list of endangered species which may be found in the project area. The black-capped vireo was listed as an endangered species on November 5, 1987. The status of this species should be corrected in the report.

Pages 29-31, Items A and C - These sections should be revamped to cover their appropriate subject, i.e., Impacts on Aesthetics and Natural and Ecological Impacts. Impacts to wildlife should be recognized including the extent of habitat loss and reductions in wildlife populations. Reference to the status of the black-capped vireo should be corrected as discussed above. Mitigation measures should be clearly defined. For example, what are the erosion control activities associated with construction that provide wetland protection (page 35, 3rd paragraph)?

Summary Comments

If the comments in this letter are adequately addressed, we believe the final statement will satisfactorily describe the existing resources of the project area and the expected impacts that would be realized by the proposed activity.

Sincerely yours,

Raymond P. Churan

Raymond P. Churan
Regional Environmental Officer

Appendix E

Control # 259-5-41 & 422-3-39
Johnson County
US 67: New Construction Project
From near FM 1434 to near Spur 102

SUMMARY AND ANALYSIS OF PUBLIC HEARING

In compliance with FHPM 7-7-1 plus other State and Federal laws and regulations, a public hearing concerning location and design of the subject project was held at 10:00 a.m. on February 25, 1988 at the Cleburne Civic Center in Cleburne, Texas. Approximately 250 people attended the hearing.

Elvis Shockley, Cleburne Resident Engineer, opened the hearing. Billy Hardie, District Design Engineer, explained the design and environmental features of the project. Bill Wimberly, District Right-of-Way Engineer, explained the right-of-way acquisition procedures. Burt Clifton, Jack Eaton, Randy Burkett, Joe Faucett, and Rondell Fagan, SDHPT design personnel, were also at the displays to answer questions from the public during the intermission.

Preliminary geometric layouts of each alternative route were on display boards at the front of the meeting room where everyone attending the meeting could see them. For the preferred alternative, preliminary geometric design layouts were superimposed over contour maps scaled at one inch to 200 feet, and the proposed profile was attached. Aerial photographs of the other alternatives, scaled at one inch to 400 feet, were displayed. A county map identifying the project location was also on exhibit.

Property owners, existing streets, and community facilities were identified on the drawings; designers provided assistance in the interpretation of the layouts. This enabled persons viewing the displays to recognize details of existing features and to perceive impacts of the proposed construction.

Mr. Wimberly used a series of projector slides as a visualization tool in his right-of-way presentation. Copies of the Draft Environmental Impact Statement (DEIS) were available for reference by anyone who was interested.

Seventeen persons made statements at the hearing. Eight people stated that they supported the preferred action or the proposed project. Seven people suggested reassessments, changes in design, or alternative routes. One person was concerned about construction impacts on their property, and

another criticized the hospital for its refusal to adjust their development plans sufficiently to accommodate the highway.

Four letters were received from individuals after the hearing. Two letters supported the project and one letter suggested a modification. Another suggested that Routes X and Z should be selected in lieu of the preferred Routes W and Y and was concerned about a variety of impacts which have been studied as part of project planning.

After analyzing all statements related to the hearing and considering the Environmental Impact Statement and other related design information discussed at the hearing, it appears that construction of this project would support community goals, objectives, and planning.

SUMMARY AND ANALYSIS OF STATEMENTS

A. STATEMENTS MADE AT THE PUBLIC HEARING

1) Wayne Bridewell, Johnson County Judge, supported the preferred route.

The statement concurs with the preferred action.

2) Billy Roe, County Commissioner, supported the project, but suggested that the route chosen on the Keene end be reassessed because the other route seemed to him to be more economical and feasible. No additional data was presented.

The environmental impact statement has analyzed the route on the Keene end to assess whether it is economical and feasible. No change is warranted in the recommended action.

3) J.T. Bass, Mayor, City of Cleburne, supported the preferred route.

The statement concurs with the preferred action.

4) Robert Russell, Member--Cleburne Planning and Zoning Commission, supported the project, but suggested a route which would eliminate the 90-degree turn and move the intersection near the hospital away from town. Mr. Russell also suggested that loop (cloverleaf) interchanges not be used.

As described in the Construction Alternatives section in the EIS, a preliminary alternative

was considered which would have generally followed Route W, but extended the bypass connection to US 67 west of Lake Pat Cleburne. This preiminary alternative was found to be neither feasible nor prudent.

It was eliminated because it would further extend the length of the bypass, would eliminate neither the need for the future southwest quadrant route east of the lake nor the need for the bridge widening project across the lake, and would reduce community use of the bypass. The discussion in the DEIS has been expanded and reworded in the Final EIS for clarification. No change is warranted in the recommended action.

The types of interchanges in the project are consistent with traffic needs and safety criteria. No change is warranted in the recommended action.

5) Clint Forrest, Chairman, Cleburne Chamber of Commerce Highway Committee and property owner in the project vicinity, supported the project.

The statement concurs with the preferred action.

6) Roger Ackerman, former Mayor of Keene, supported the project and requested that it be started as expeditiously as possible.

The statement concurs with the preferred action.

7) Bob Mahaney, interested citizen, supported the project and requested that it be started as expeditiously as possible.

The statement concurs with the preferred action.

8) Sam Himmell, Chairman, Walls Regional Hospital Board of Trustees, indicated that the SDHPT had been cooperatively working with the hospital. He supported the project, considering its location near the hospital to provide critical access for the hospital. However, he was concerned about the proximity of the interchange to the hospital.

The topics discussed by Mr. Himmell have been studied as part of the design process. No change is warranted in the recommended action.

9) Howard McMahon, Senior Vice President of Harris Methodist Affiliated Hospitals (parent-company of Walls Regional Hospital) stated that the proposed alignments at the interchange require extensive parking and roadway modifications at Walls Regional Hospital which would inconvenience the patients and disallow construction of a planned medical office building. He also expressed special concern for relocaton of parking that would serve elderly patients and visitors. To resolve these concerns, Mr. McMahon suggested moving the frontage road a short distance to the east and reducing the total width of the interchange.

Walls Regional Hospital is located on a 200-acre tract; approximately twelve acres have been used for the hospital and its immediate grounds. Both the existing parking areas and the planned medical office building can be relocated within that tract.

There are currently two parking spaces for handicapped persons located near the front entrance of the hospital and a third located within the doctor's parking area. Parking spaces for elderly and handicapped persons could easily be provided in a small parking lot near the main entrance. This lot should be incorporated into a revised plan needed by the hospital for further development of hospital grounds. By doing so it would be ensured that there would be no further effect on this special group.

The interchange was designed carefully to fit hospital access needs, while meeting other traffic safety and demand criteria. The SDHPT also designed the interchange with space to accommodate future connections with the southwest quadrant of the loop around the city of Cleburne.

Omitting the space for future southwest quadrant connections would ultimately be detrimental to emergency transportation into the hospital, as well as to the overall needs of the travelling public. Moving the main lanes to the east a substantial distance would degrade proper alignment of the highway and would result in the displacement of a nearby home instead of hospital parking. In addition, access to the hospital would be degraded severely.

A small adjustment of the frontage road alignment adjacent to the hospital as suggested by Mr. McMahon appears to be acceptable for the highway design and would have no effect on others.

No change is warranted in the recommended action, but a minor adjustment in the alignment of the frontage road is being made to allow circulation improvements in the development plan for the remaining hospital grounds.

10) Ron Layland, property owner in the project vicinity (Layland L.P. Gas Company), supported the project, but suggested a route which would eliminate the 90-degree turn continuing north of the airport to near Nolan River.

An alternative similar to the one suggested by Mr. Layland has been studied as part of the design process, and determined to be neither feasible nor prudent as discussed above under statement 4). No change is warranted in the recommended action.

11) Dr. William Haney, property owner in the project vicinity, stated that the preferred route on the Keene end was in a flood plain and on low ground. He wanted to know why a map was exhibited that did not show the southern portion of the route. He also requested the cost of the acquisition of the right-of-way on the southeast route. (See also letter from Dr. Haney.)

The relation of the preferred alternative Route Y and alternative Route Z to flood plains has been identified in the EIS, in the section on Natural and Ecological Impacts. The flood plain width for East Buffalo Creek is approximately the same in both alternatives on the East Buffalo Creek crossing; therefore, there is no substantial difference between the two alternatives as related to the crossing of East Buffalo Creek.

A part of Route Y follows a short distance along a broad, shallow depression which slopes from east to west leading to East Buffalo Creek. East of County Road 801B, the side slopes and grade of this depression are steeper; the vegetation is predominantly wooded; and the channel veers off to the southeast so that the highway will be on the north slope of the watershed out

of the flow line of the channel. This drainage area now passes under County Road 801B with a 48-inch diameter pipe and a 36-inch diameter pipe culvert that is partly filled with silt.

The runoff can be accommodated in special ditches in the outer separations, such a drainage pattern being common on many highways. The culverts and erosion control measures that will be used are typical of highway construction projects. Route Z would also be in a similar depression a short distance east of East Buffalo Creek and would require similar drainage design.

Regarding a possible loop route in the southeast quadrant of Cleburne, it is stated on Page ii of the EIS that "more definitive studies of this future route (the southwest quadrant) will be done at a time nearer construction." Need for a corridor has not yet been defined and may never materialize for the southeast quadrant; therefore, a cost estimate has not yet been compiled. Likewise, a corridor has not been selected; therefore, maps do not exist for a southeast route.

Displays showing geometric features of all alternatives in the Northeast and Northwest quadrants were exhibited at the public hearing. A map showing a possible corridor for the proposed southwest quadrant also was exhibited.

Cost by route for those studied in this environmental document (routes within the Northwest and Northeast quadrants) is in the Construction Alternatives section of the EIS.

No change is warranted in the recommended action.

12) Jack Mullens, property owner in the project vicinity, supported the project.

The statement concurs with the preferred action.

13) Robin Pastarino, owner of the Town North Luxury Apartments, expressed concern about construction impacts on the complex.

Due to distance from the apartments, neither alternative would impact them in any way. No change is warranted in the recommended action.

14) Bob Craft, property owner in the project vicinity, indicated that the project should be done as expeditiously as possible and expressed concern over the availability of funding.

The project will be completed in stages, and funding is available for the initial construction stage, which will allow expeditious opening to traffic. The statement concurs with the preferred action. No change is warranted in the recommended action.

15) Ronnie Gossett, property owner in the project vicinity, criticized the hospital for its refusal to adjust fully their development plans to accommodate the highway. He stated that the entrance to the hospital needed improvements, and he felt the highway project would improve it.

The statement concurs with the preferred action.

16) Oveta Bates, interested citizen, commented that any changes to the present intersection near the hospital would be beneficial since the area is now dangerous, due to poor location of the hospital entrance road.

The existing entrance road will be entirely removed with construction of the proposed interchange. No change is warranted in the recommended action. The statement concurs with the proposed action.

17) Leroy Leskie, Mayor of Keene, supported the project.

The statement concurs with the preferred action.

B. STATEMENTS MADE IN LETTERS RECEIVED AFTER THE PUBLIC HEARING:

1) In a February 26, 1988 letter, Robert A. Spark, property owner in the project vicinity, stated his support of the bypass.

The statement concurs with the preferred action.

2) In a February 27, 1988 letter augmenting his statement at the hearing, William R. Haney, property owner in the project vicinity, supported the project, but supported Routes X and Z rather than the preferred routes of W and Y. He expressed the following concerns and questions:

a) Routes X and Z would be less expensive to construct.

Cost estimates in the EIS under the section, Construction Alternatives, indicate that the preferred routes, W and Y, will be less expensive to construct. However, the differences in cost are not of significant magnitude to outweigh other considerations.

b) Routes X and Z would follow higher ground, thus lessening flooding and drainage problems.

Route X is partially involved with McAneer Creek drainage problems, which are avoided by the preferred alignment on Route W. The flood plain width across East Buffalo Creek is the same in both alternatives Y and Z; therefore, there is no substantial difference between the two alternatives on the Keene end of the project with regards to flood plains. Other drainage problems along either route would be correctable with routine designs. (See also 11) STATEMENTS MADE AT THE PUBLIC HEARING.)

c) Routes X and Z would relocate fewer buildings.

The EIS indicates in the section, Social and Economic Impacts, that Route W will displace one residence; Route X, eight. Both Routes W and X will displace four businesses. Route Y will displace 54 residences; Route Z, 46. Route Y will displace 20 businesses; Route X, 23 businesses and one non-profit organization. These differences are not of significant magnitude to outweigh other considerations. Route selection was based on a number of factors, not just displacement.

d) The loop should be larger.

The purpose of the project is to serve as a bypass of the central business district (not the entire city) and to relieve traffic congestion while providing the community with existing and planned use of the facility.

e) A map of the southeast portion of the loop should have been presented at the public hearing.

Existing and projected traffic demand for a facility in the Southeast quadrant is insufficent to economically justify such a project.

f) A detailed presentation of access to and from the bypass should be given.

A description of all means of access to and from the bypass was given at the public hearing. Further clarification of specific questions is available to those desiring it from the District or the Resident Engineer's offices.

g) How will stock be transported from one side of the property to the other side?

Drainage structures are expected to be sufficient in size for cattle passes where needed; thus livestock can be herded underneath the highway. If culvert design indicates that a smaller size is needed for drainage, a larger structure can be built to accommodate livestock where it is economically warranted.

h) What is the possible loss of baby calves, coyotes, and other animals which would wander across the highway?

Possible loss of such animals from crossing the highway is expected to be identical for Routes Y and Z. Route X would have fewer of such animals present than would Route W. However, the difference would be so small that there is essentially no effect on route selection. Additional information on wildlife impacts has been added to the Final EIS under the sections--Natural and Ecological Environment and Natural and Ecological Impacts. No change is warranted in the recommended action.

3) In a February 29, 1988 letter, Theo Embry, property owner in the project vicinity, suggested a route north of Buddy Stewart Park connecting near Park Road 21.

An alternative similar to the one suggested by Mr. Embry has been studied as part of the design process and determined to be neither feasible nor prudent as discussed above under 4) in the section STATEMENTS MADE AT THE PUBLIC HEARING. No change is warranted in the recommended action.

4) In a March 2, 1988 letter, Don Haynes, property owner in the project vicinity, disagreed with Mr. Haney's statements in his letter of February 27, 1988, and supported the preferred route outlined at the public hearing.

The statement concurs with the preferred action.

5) In a March 2, 1988 letter, Robert J. Temple and Mike C. Webb, property owners in the project vicinity (Temple-Webb Development Co.), suggested changing the route to connect with Park Road 21 rather than near the hospital because of the two 90-degree turns required by the preferred route.

An alternative similar to the one suggested by Mr. Temple and Mr. Webb has been studied as part of the design process and determined to be neither feasible nor prudent as discussed above under 4) in the section STATEMENTS MADE AT THE PUBLIC HEARING. No change is warranted in the recommended action.

C. OTHER

In February 1988, a group of concerned property owners visited with the Resident Engineer in Cleburne. They discussed their concern over a portion of the preferred route near County Roads 805A and 805. This part of the route would make their houses inhabitable since it would take their septic tank drain fields.

A study of the problem indicated that there was a discrepancy between the preliminary layout included in the Draft Environmental Impact Statement and the geometric layout shown at the public hearing. Since the layout shown in the DEIS avoided taking the septic tank drain fields, the geometric layout has been changed to match that layout by moving the alignment centerline approximately 125 feet to the north.

After the alignment change was completed, the SDHPT contacted all parties who had demonstrated concern over the previous alignment.


PLATE 1
ALTERNATE "W"
SH 171 AT & SF RR
CLEBURNE MUNICIPAL AIRPORT
RUNWAY
CO RD 1217
CO RD 1127
WALLS REGIONAL HOSPITAL
LAKE PAT CLEBURNE
U.S. 67 TO STEPHENVILLE


PLATE 2
ALTERNATE "X"
CLEBURNE MUNICIPAL AIRPORT
CLEBURNE HIGH SCHOOL
WALLS REGIONAL HOSPITAL
LAKE PAT CLEBURNE
US 67 To STEPHENVILLE

ALTERNATE "Y"
PLATE 3
AT & SF R.R.
FM 2280
CO. RD. 805A
CO RD 805
CO RD 700
CO. RD. 801B
CO RD 805
CO RD 801
CO RD 700
AT & SF RR
SH 174
CO RD 900
CO RD 1022

ALTERNATE "Z"

PLATE 4

Z

AT & SF RR

CO RD 805A

CO RD 805

CO RD 700

CO RD 801B

CO RD 805

CO RD 801

CO RD 700

BOONE ST

AT & SF RR

SH 174

CO RD 900

CO RD 1022