FHWA-TN-EIS-86-02-D
Federal Highway Administration
Region IV

PROPOSED KIRBY PARKWAY FROM SPLIT OAK DRIVE TO STAGE ROAD AND SYCAMORE VIEW ROAD EXTENSION FROM MULLINS STATION ROAD TO KIRY PARKWAY IN MEMPHIS, SHELBY COUNTY, TENNESSEE

DRAFT ENVIRONMENTAL IMPACT STATEMENT
Submitted Pursuant to 42 U.S.C. 4332(2)(c),
and 49 U.S.C. 303

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
and
TENNESSEE DEPARTMENT OF TRANSPORTAITON

COOPERATING AGENCY
U.S. ARMY CORPS OF ENGINEERS

OCT 27 1988
Date of Approval

For FHWA

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The proposed action would result in the construction of two major streets having six lanes on both existing and new location. The project length is approximately 10 miles.

SUMMARY

General Project Description

The Tennessee Department of Transportation and the Federal Highway Administration propose to construct a new north-south route in the West Memphis area. It would consist of improving of some existing roads and some construction on new alignment to form a continuous route. The route would be designated Kirby Parkway and is shown on Figure 2.

The proposed project which is about 10 miles long, would have three traffic lanes in each direction and either a continuous center lane or a raised median with turning lanes. It would also have curbs and gutters with sidewalks.

Major structures will be required over the Wolf River, I-40, Fletcher Creek, and Nonconnah Creek.

During the initial coordination phase, the Tennessee Department of Transportation received no notification of any significant proposed actions in the project area by any federal agency. However, the proposed project would cross the proposed Nonconnah Parkway project near the southern end of Kirby Parkway.

Summary of Alternatives

Alternatives considered in this draft environmental impact statement (DEIS) are: Proposed Action, "No-Action", Transportation Management System, and Mass Transit.

The proposed project begins at Split Oak Drive and proceeds northward about 10.0 miles to Stage Road. Sycamore View Road will be extended about 1.3 miles from Mullins Station Road to Kirby Parkway.

Several design alternatives are being studied as part of the proposed action. Four (4) alternatives are proposed for the Shelby Farms area. These are to minimize the project's impact on the area known as Shelby Forest. Three (3) alternatives are proposed in the vicinity of Whitten Park. Their purpose is to minimize the project impact on the park. Two (2) alternatives are proposed

at the north end of the project. Their purpose is to minimize the project's impacts on the businesses along Whitten Road.

Summary of Environmental Impacts

The primary beneficial impacts of the proposed project include: (a) improved local and regional accessibility and traffic service, (b) improved route continuity, (c) reduction of traffic congestion on existing highways, (d) improved safety and operating conditions in the transportation corridor, and (e) enhancement of future planned growth and development.

The primary adverse impacts of the proposed project include: (a) possible displacement of up to forty-four residences and twenty-three (23) business, (b) reduction of wildlife habitat, (c) increase traffic volumes in some residential areas, and (e) temporary construction impacts such as fugitive dust, open burning, equipment noise, inconvenience to to motorist, and temporary siltation to streams.

The proposed project will cross the Wolf River, Fletcher Creek, and Nonconnah Creek floodplains. However, none of the crossings are considered to be a significant encroachment. The Wolf River crossing may involve wetlands, depending on which alternative is utilized. There will be no lands taken from any historic sites or wildlife refuges. However, there are three areas protected by Section 4(f) of the Department of Transportation Act of 1966 which may be impacted. They are Whitten Park, the hiking trails in the Shelby Forest Area, and the Shelby Farms Forest Natural Area.

Areas of Controversy

There have been objections to the project's intrusion through the residential area south of the Wolf River, and the project's impact on the ecological environment of the Shelby Forest area at the Wolf River crossing.

Possible Actions Required By Other Federal Agencies

U.S. Army Corps of Engineers - Section 404 Permit

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CHAPTER I

PURPOSE AND NEED FOR ACTION

1.1 Purpose

The purpose of the proposed project is to create a new north-south route in the East Memphis area of Shelby County (see Figure 1). It would connect the rapidly growing residential areas of Bartlett and Germantown to the Poplar Corridor employment/commercial center. The new route would be formed by improving and connecting existing sections of Kirby Parkway, Whitten Road, and Sycamore View Road. The length of the corridor is about 10 miles between Split Oak Drive and Stage Road.

Since the proposed project would provide improve access to the Poplar Avenue area, it is expected to reduce congestion along existing routes in the East Memphis area. This would provide a more safe and efficient system.

1.2 Need

The standard major road pattern used for Memphis road planning is the one (1) mile grid system. Prior to 1983, two (2) projects were proposed between I-240 and Germantown Parkway. They were Kirby Parkway and Riverdale Road. In 1983, the Riverdale Road project was deleted from the Major Road Plan in order to accommodate land use plans for Shelby Farms. Since the Riverdale Road project was deleted, that left the Kirby Parkway project the only north-south route between I-240 and Germantown Parkway, a distance of between 3 and 4 miles.

Kirby Parkway would cross several east-west routes. They are from south to north: Nonconnah Parkway (proposed); Poplar Avenue; Walnut Grove Road; I-40; Summer Avenue; and Stage Road.

These existing routes, both east-west and north-south, should experience some traffic relief when Kirby Parkway is completed.

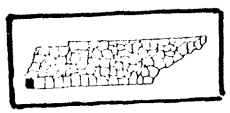

FIGURE 1

VICINITY MAP

Proposed Kirby Pkwy. and
Sycamore View Rd. Extension

Memphis, Shelby Co., TN

Between Split Oak Drive and Walnut Grove Road and between Summer Avenue Stage Road, Kirby Parkway has been designated as an Urban Collector. It has been designated as an Urban Minor Arterial between Walnut Grove Road and Summer Avenue.

The 1969 Memphis Urban Area Transportation Study included Kirby Parkway in the plan. It was part of the Crumpler-Kirby-Whitten-Dutwiler-Sledge-Armour Corridor. The 1973 East Memphis Transportation Plan, Update prepared for the Memphis and Shelby County Planning Commission by Harland Bartholemew and Associates studied the need for Kirby Road-Kirby Parkway-Whitten Road as a continuous north-south arterial. Their analysis confirmed the need for this project due to the rapidly developing areas of Barlett and Germantown. The 1981 Major Road Plan, Update prepared by the Memphis and Shelby County Office of Planning and Development called for the construction of Kirby Parkway by the year 1990. The Transportation Improvement Program 1986-1990 for the Memphis Urbanized Area designated Kirby Parkway to be built with Interstate Substitution Project funds.

The East Memphis area has experienced tremendous population growth. In 1964, the East Memphis area contained about 5,700 people. By 1970, the population in the same area had reached almost 17,000. A Kirby Parkway Corridor Study prepared by the Memphis and Shelby County Office of Planning and Development in June, 1986, put the 1985 population within the corridor at 78,702 and projected the 2005 population to be at 125,745.

In addition to the population growth, the proposed project crosses the Poplar Corridor which has been identified as the third largest employment center in the county. According to the 1986 Poplar Corridor Study more than 25 percent of recent office construction activity in Shelby County has occurred within the Poplar Corridor.

This combination of population growth around a major employment center has resulted in congestion along existing east-west routes, particularly on Walnut Grove Road, Poplar Avenue, and Poplar Pike. It also contributes to the traffic burden on the two north-south routes, I-240 and Germantown Parkway. The completion of Kirby Parkway would help reduce this congestion by providing an alternative route to/and from the residential areas to the north and south of the business/employment areas along Poplar Avenue.

Traffic volumes vary along the 10.0 mile length of the project corridor. After completion, it is expected to serve from about 3,000 (between Sumner Avenue and Stage Road) to about 16,300 (north of Poplar Avenue) vehicles per day. By the year 2010, the volumes are predicted to be from 5,700 to 32,900 vehicles per day.

The following chart shows the expected traffic for the existing system if no improvements are made.

Kirby Parkway	1990 ADT	2010 ADT
South of Poplar Avenue	8,580	32,000
North of Poplar Avenue	6,790	28,600
Whitten Road	**1990 ADT**	**2010 ADT**
North of I-40	15,700	22,700

Traffic figures are included in Appendix "E".

Traffic carrying capacities are rates in descending order

in order in accordance with the following level of service table:

Level A - primarily free flow operations

Level B - reasonably free flow operations

Level C - stable oerations approaching a range in which small increases in flow will cause substantial deterioration in service

Level D - borders on unstable

Level E - extremely unstable operations

Level F - forced or breakdown flow

Calculation of the level of service for the proposed project revealed several intersections which would deteriorate a level of E or F by the year 2010 if the project were not completed.

These are the intersections at Quince Road (level E), Nottingham Place (level E), Dexter Road (level F), I-40 (level F), and Reese Road (level E+). If the project were completed, the level of service would increase for all these intersections. The intersections would increase to: Quince Road (level B); Nottingham Place (level D); Dexter Road (level D); I-40 (level D); and Reese Road (level B+).

The intersections of the proposed project through the Shelby Farms area does not have a level of service for an existing system since this part of the project would be built on new alignment. However, by the year 2010 if it were completed, it would operate at a level of service between E and F with at grade intersections. If grade separated intersection are utilized the level of service would increase to level C.

There is a four lane cross-section for Kirby Parkway at the Nashaba intersection. The level of service here would be level C in 1990 and drop to level E in 2010 if this section of Kirby Parkway were not improved.

The intersection at Kirby Parkway and Poplar Avenue would have a level of service D- in 1990 and would drop to level F in 2010. These levels would be the same if no improvements were made. The Poplar Corridor Study, 1986, indicated a grade separated intersection based on traffic projections would be justified.

A list of the levels of service for the project is given in Appendix "E".

CHAPTER II

PROPOSED ACTION AND ALTERNATIVES

2.1 Alternatives Previously Considered

In addition to the alternatives described later in this chapter, several other alternatives were evaluated early in the planning process. These alternatives were not considered to be reasonable solutions to the transportation needs and were eliminated. They were eliminated because of excessive displacements and community disruptions.

One alternative considered was to the west of Kirby Parkway (See Figure 2). It would combine improvements to existing facilities and construction on new alignment. Traffic would be directed west on Quince Road then north on West Massey Road to Humphreys Boulevard.

This alternative would be very disruptive to the local communities. Since land use planning has not been developed, utilizing this alternative, development along the route was not required to be set back. This would require most of the development to be displaced. Therefore, this alternate was eliminated.

An alternative to the east of Kirby Parkway was also considered (See Figure 2). This area does not have a network of north-south streets which could be connected and widened to the extent the other, alternatives did. Therefore, this alternative would have to be extensively on new alignment. Since this alternative would be so disruptive to the local commuinities, it was eliminated.

One alternative was considered from Quail Hollow Road at Kirby Parkway to Humphreys Boulevard. This alignment was to the west of Kirby Parkway and would be built on new alignment. It was developed to prevent the merging of Kirby Parkway traffic and Humphreys Boulevard traffic if the Wolf River were crossed at the landfill site. This 1.2 mile section would cause eight (8) displacements and would cost almost $10,000,000. Since it would be built on new alignment, it would separate the existing neighborhood and would not be in accordance with the existing land use plan for the area. For these reasons, it was eliminated.

No other route between the east alternative and the west alternative, except the proposed route, would provide a reasonable solution to the transportation needs for the same reasons as the alternatives already discussed.

2.2 Proposed Action

The proposed project begins at Split Oak Drive and proceeds northward to Stage Road (See Figure 2) a distance of about 10.0 miles. Also proposed is an extension of Sycamore View Road from Mullins Station Road southeasterly to Kirby Parkway a distance of about 1.3 miles. This is a new north-south route which consists of construction on new alignment to connect existing street segments and widening of portions of existing facilities. The section between Split Oak Drive and Stout Road, as well as the section between Mullins Station Road and Reese Road would be widened. Construction on new alignment is required between Stout Road and Messick Road, as well as between Humphreys Boulevard and Mullins Station Road, including the Sycamore View Road extension. One of the alternatives at the north end of the project would also be built on new alignment.

While not proposed at this time, the section between Quail Hollow Road and Humphrey's Boulevard would need to be widened to obtain a facility with six (6) lanes.

The following chart gives the existing condition and the proposed cross section for the proposed project:

Road Segment	Existing	Proposed
Split Oak Road to Mt. Moriah Road	Transition from 6 lanes to 2 lanes	108' R.O.W. 6 lanes
Mt. Moriah Road to Quince Road	2 lanes	108' R.O.W. 6 lanes
Quince Road to 1000 ft. north of Stout Road	2 lanes	114' R.O.W. 6 lanes
1000' north of Stout Road to Messick Road	New construction	108' R.O.W.
Messick Road to Quail Hollow Road	6 lane cap;acity with median; 106' R.O.W.	No improvements proposed
Quail Hollow Road to Massey Lane	4 lane capacity 80' R.O.W.	No improvements proposed at this time
Massey Lane to Humphreys Boulevard	4 lanes with median	No improvement proposed at this time
Humphreys Boulevard to Mullins Station Road including Syuacmore View Road	New construction	114' R.O.W. 6 lanes
Mullins Station Road to Stage Road	2 lanes	108' R.O.W. 6 lanes

The City of Memphis plans to upgrade the section between Messick Road and Humphreys Boulevard at a later date.

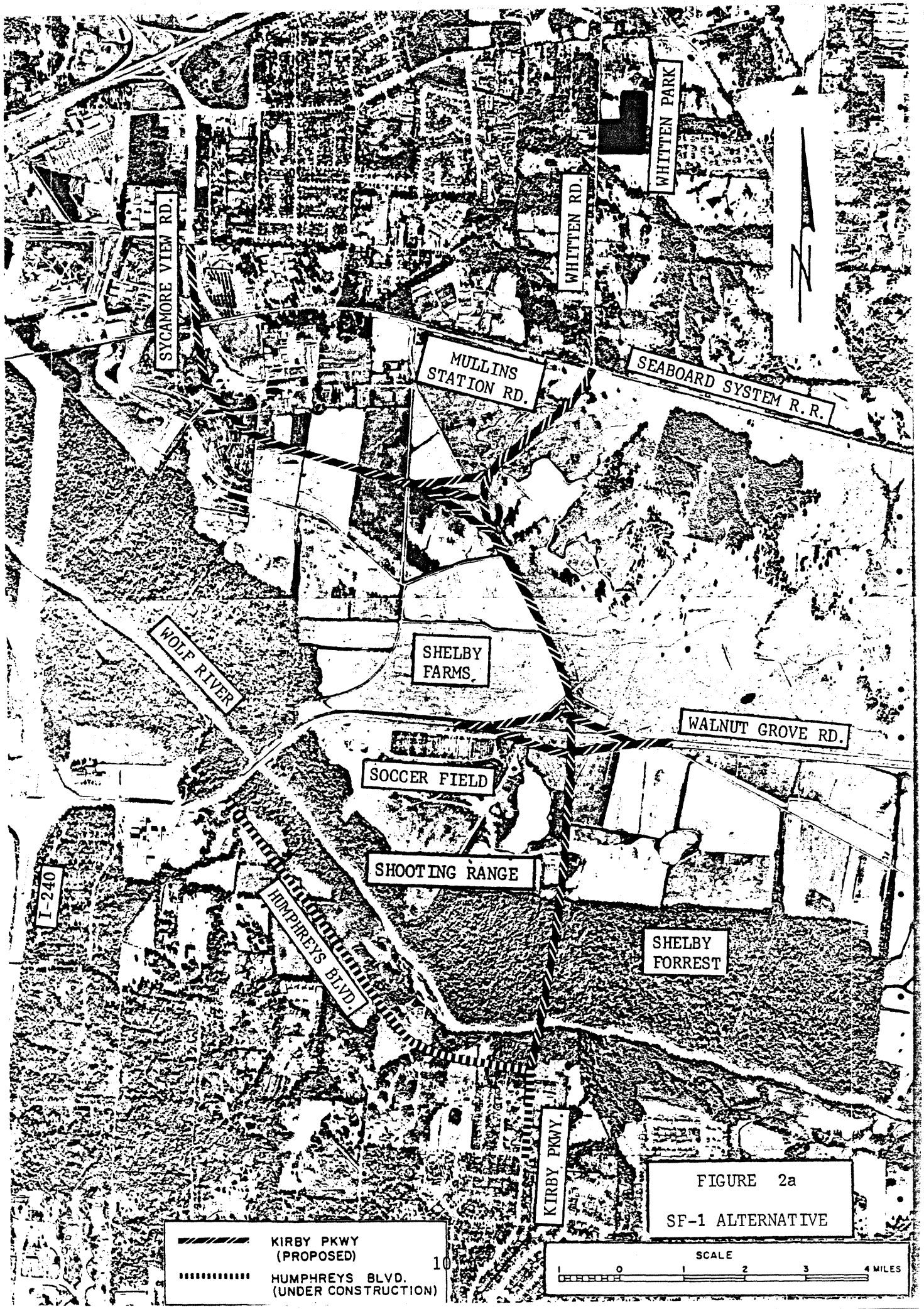

FIGURE 2a

SF-1 ALTERNATIVE

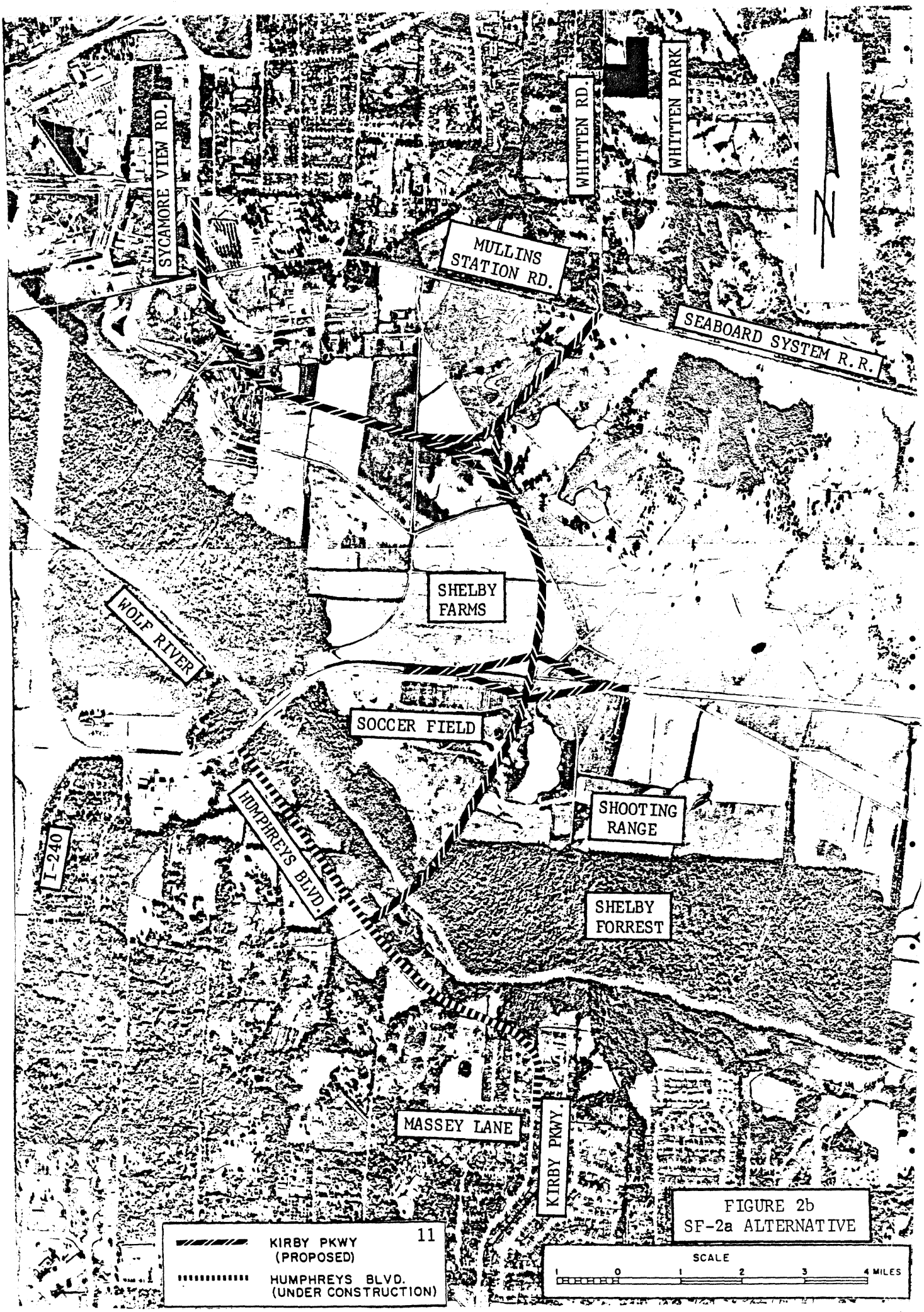

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FIGURE 2b
SF-2a ALTERNATIVE

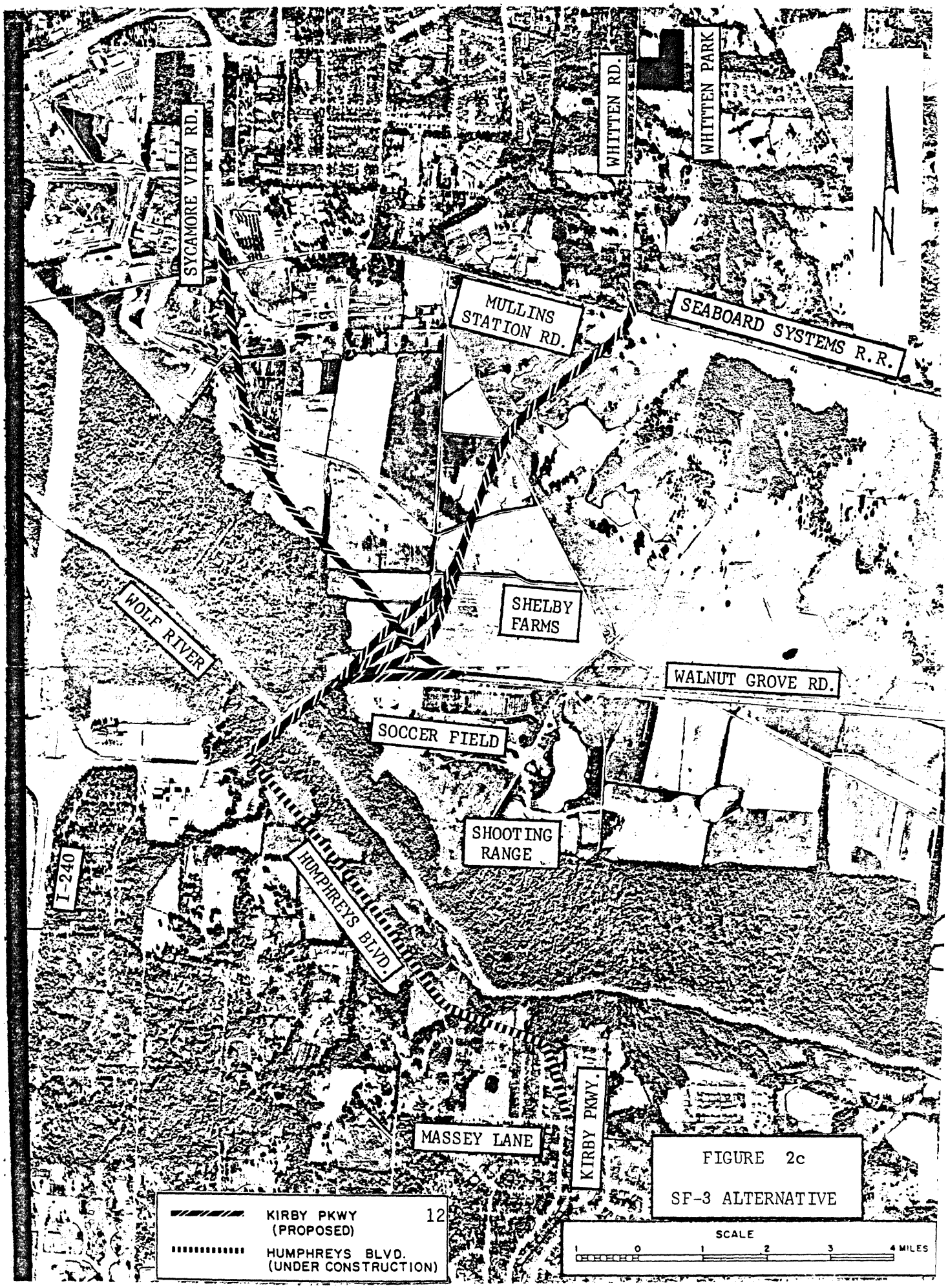


FIGURE 2c

SF-3 ALTERNATIVE

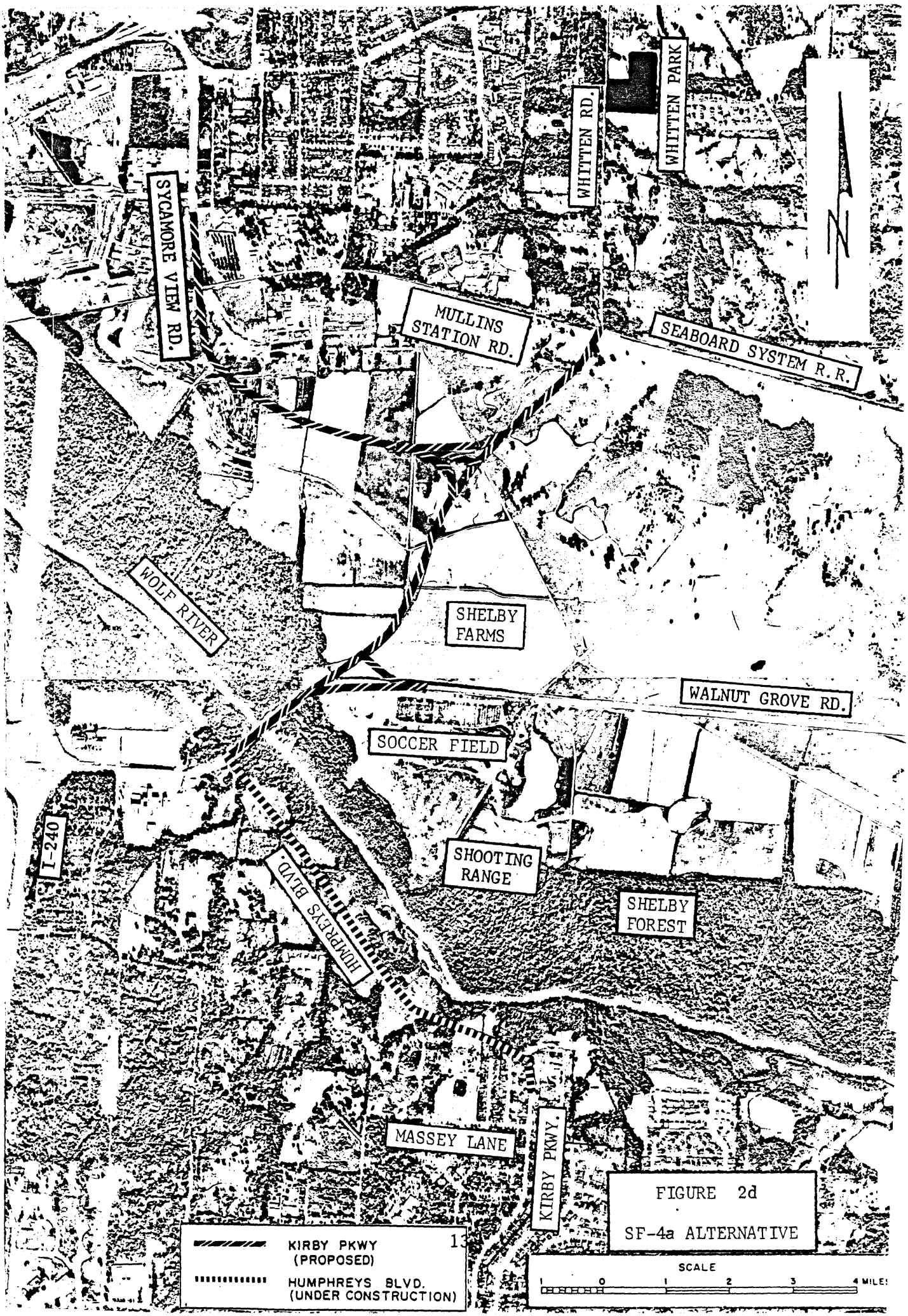


FIGURE 2d

SF-4a ALTERNATIVE

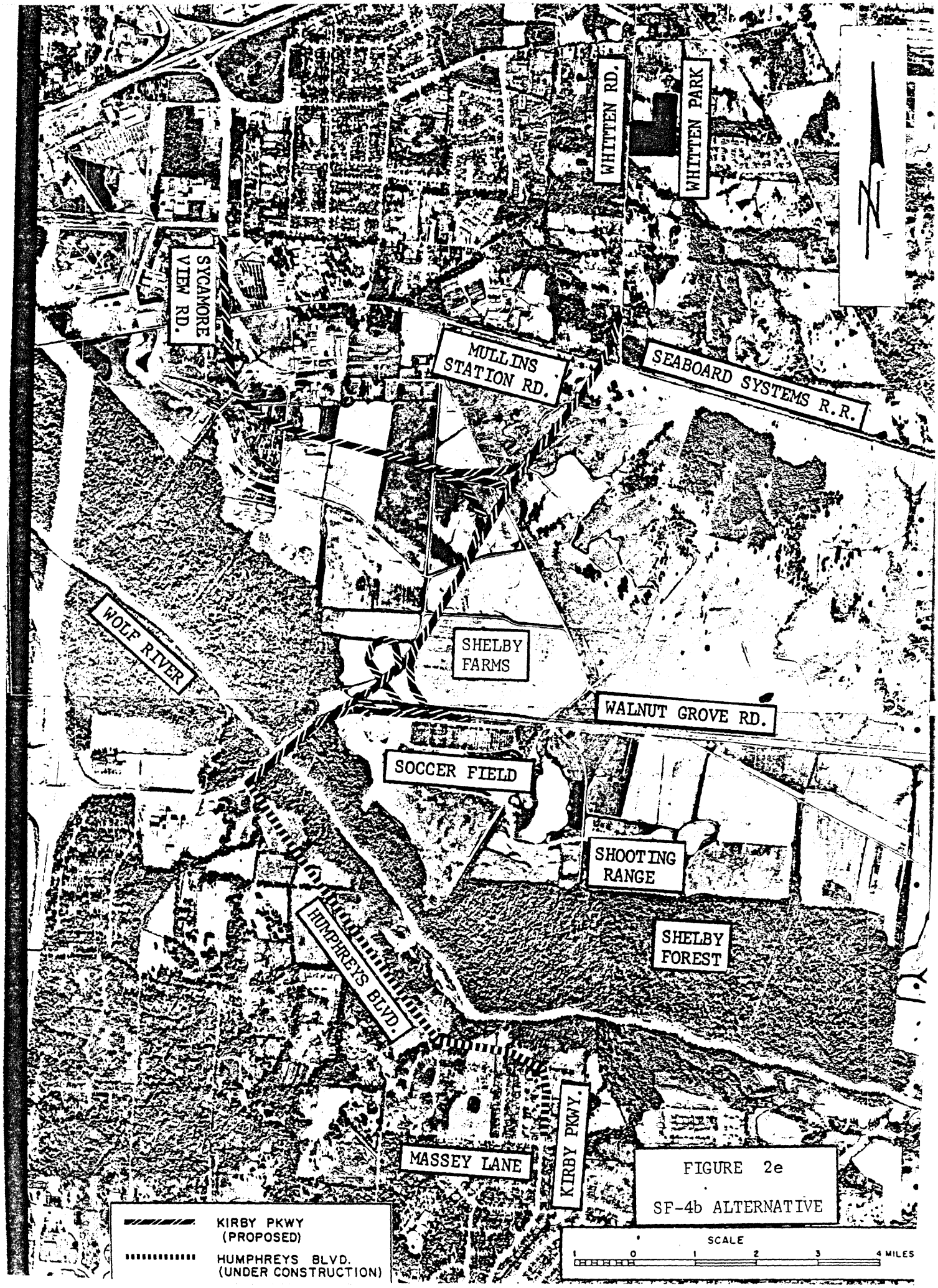


FIGURE 2e

SF-4b ALTERNATIVE

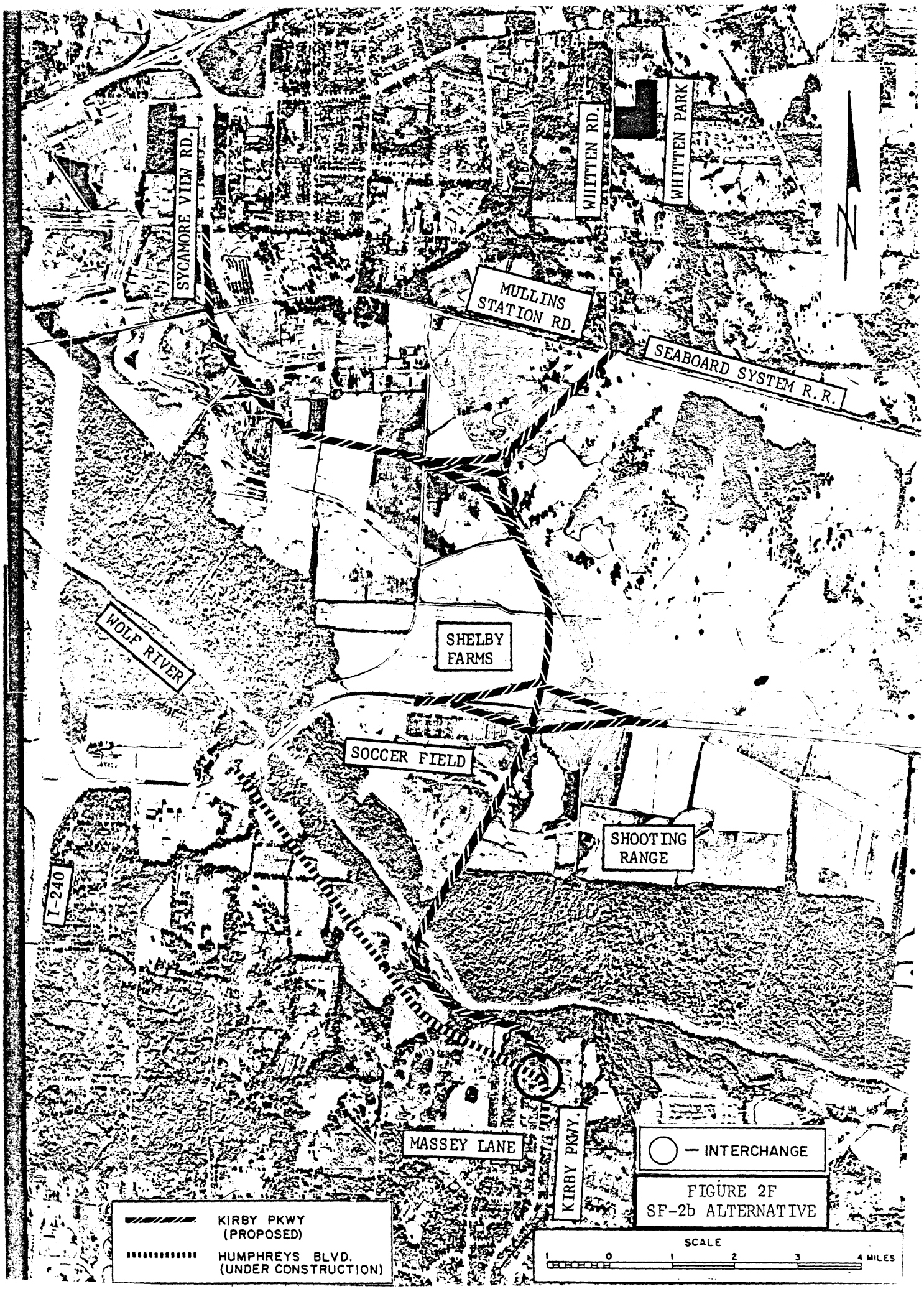
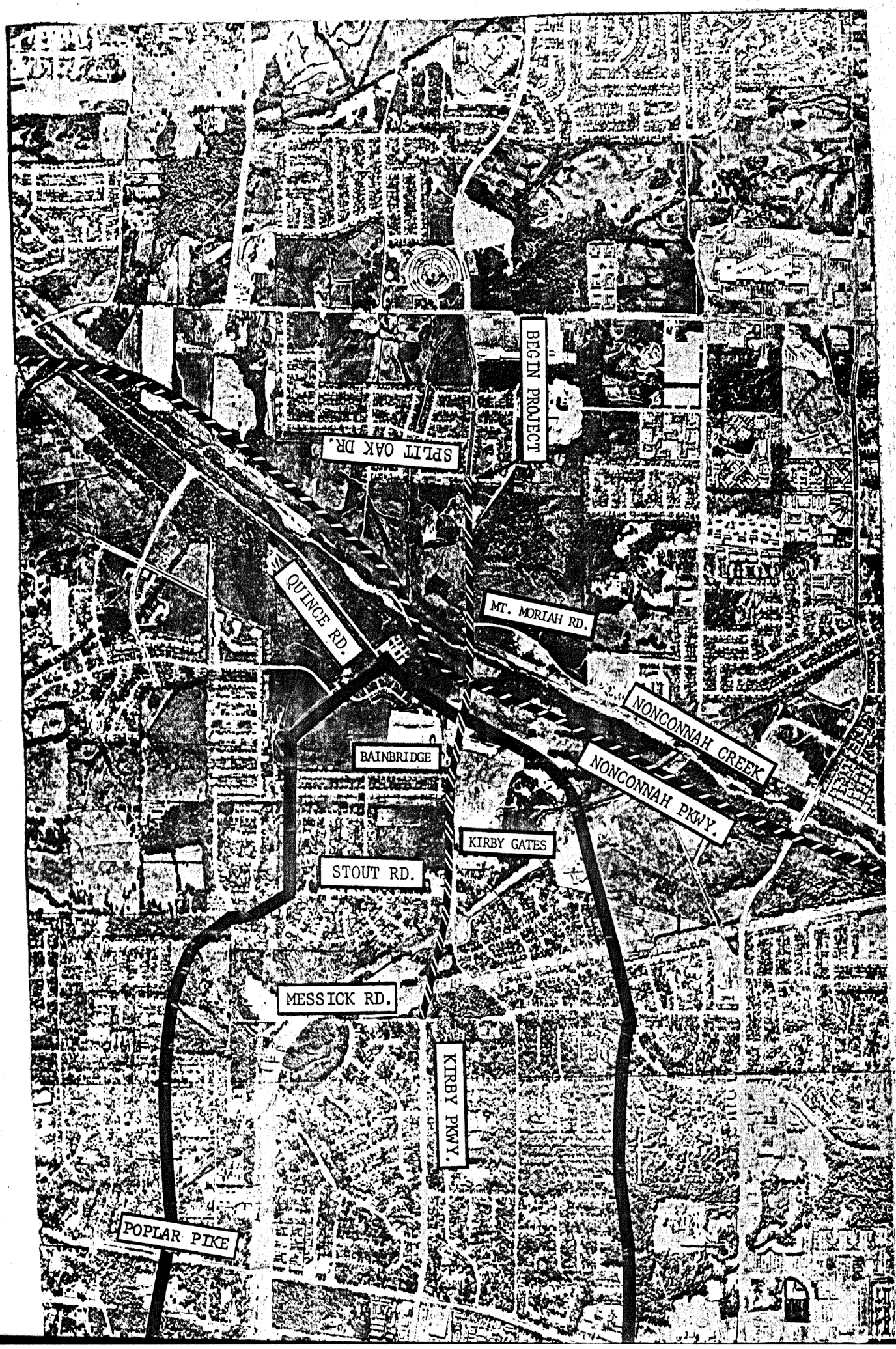
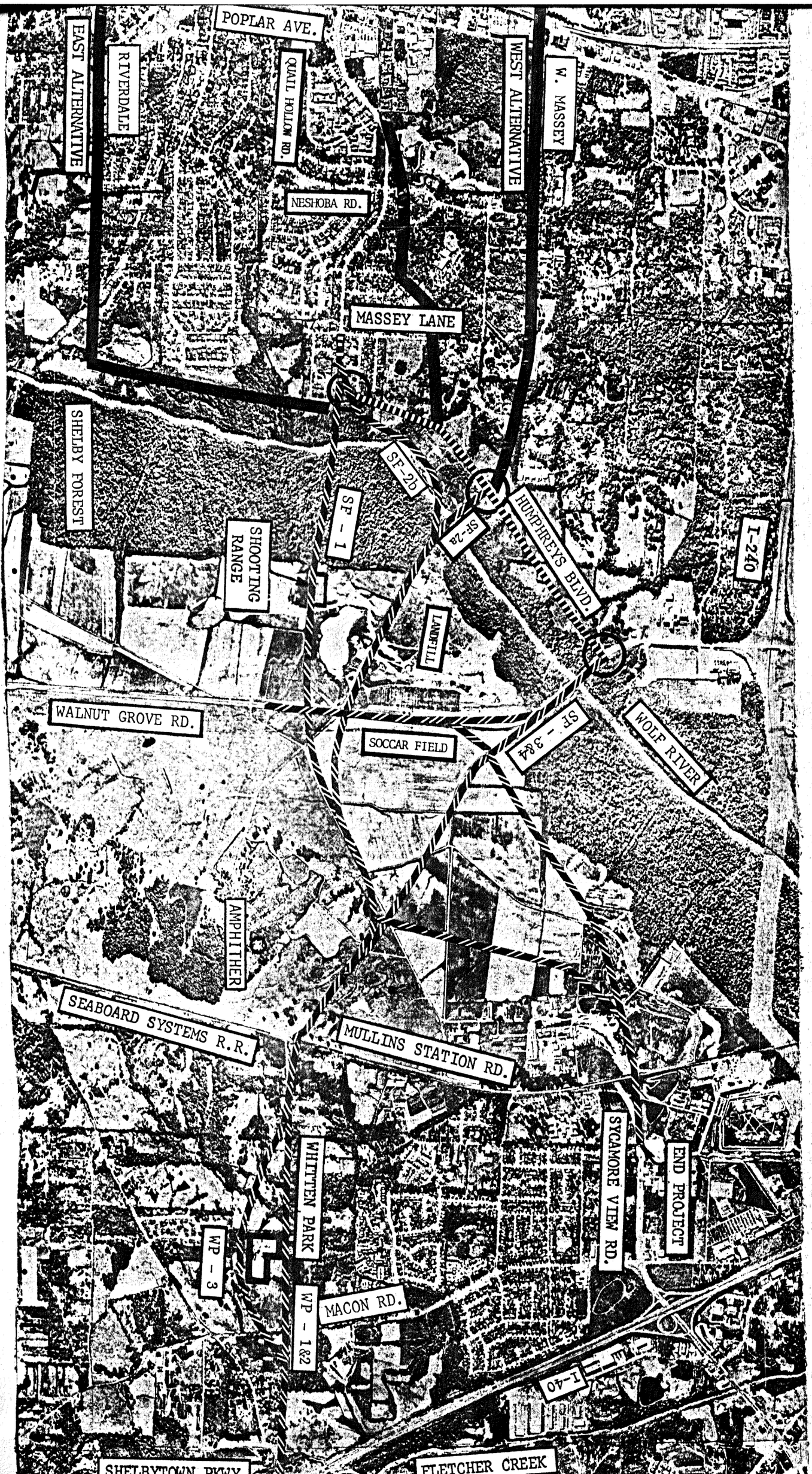


FIGURE 2F
SF-2b ALTERNATIVE


BEGIN PROJECT
SPLIT OAK DR.
QUINCE RD.
MT. MORIAH RD.
NONCONNAH CREEK
NONCONNAH PKWY.
BAINBRIDGE
KIRBY GATES
STOUT RD.
MESSICK RD.
KIRBY PKWY.
POPLAR PIKE


POPLAR AVE.
EAST ALTERNATIVE
RIVERDALE
QUAIL HOLLOW RD.
WEST ALTERNATIVE
W. MASSEY
NESHOBA RD.
MASSEY LANE
SHELBY FOREST
SF-2b
SF - 1
SF-2a
HUMPHREYS BLVD.
I-240
SHOOTING RANGE
LANDFILL
WALNUT GROVE RD.
SOCCAR FIELD
SF - 3&4
WOLF RIVER
AMPHITHER
SEABOARD SYSTEMS R.R.
MULLINS STATION RD.
SYCAMORE VIEW RD.
END PROJECT
WHITTEN PARK
WP - 3
WP - 1&2
MACON RD.
I-40
SHELBYTOWN PKWY
FLETCHER CREEK

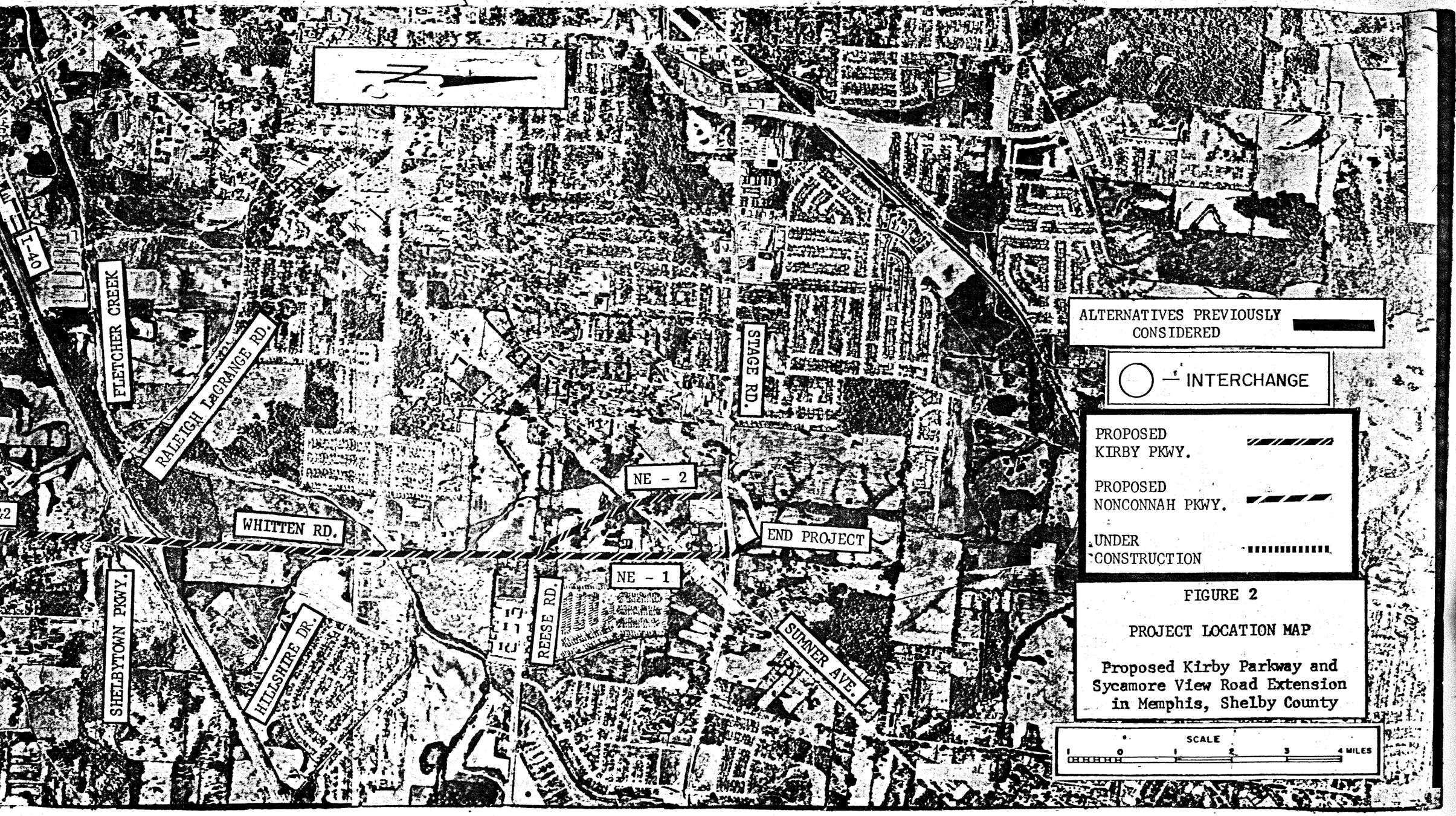
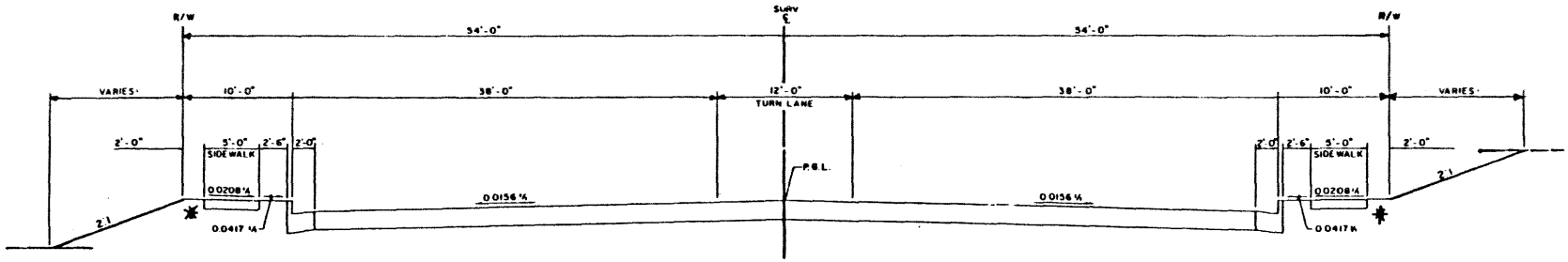


FIGURE 2

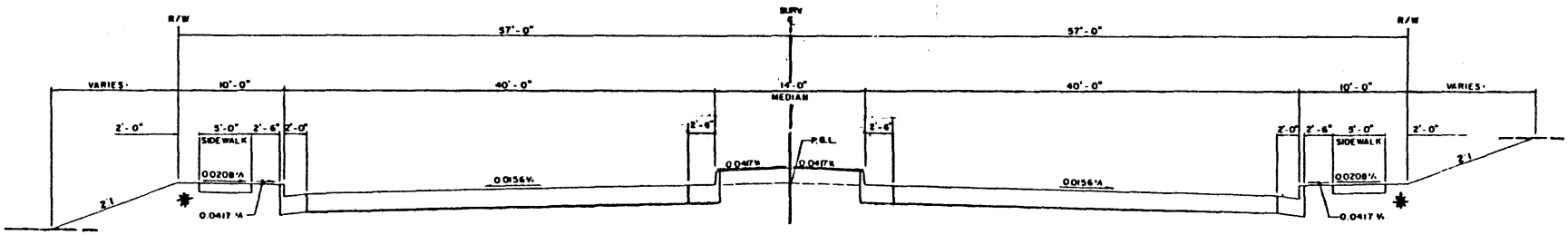
PROJECT LOCATION MAP

Proposed Kirby Parkway and Sycamore View Road Extension in Memphis, Shelby County

KIRBY PARKWAY AND SYCAMORE VIEW RD. EXTENSION



KIRBY PARKWAY
TYPICAL TANGENT SECTION 108' R.O.W.
SPLIT OAK DR. TO QUINCE RD. AND
MULLINS STATION RD. TO STAGE RD.



TYPICAL TANGENT SECTION 114' R.O.W.
QUINCE RD. TO MESSICK RD;
MASSEY LANE TO MULLINS STATION RD;
AND SYCAMORE VIEW RD EXTENSION

✱ THE LOCATION OF THE SIDEWALKS WILL BE DETERMINED ACCORDING TO CURRENT STANDARDS DURING THE DESIGN PHASE.

FIGURE 3
TYPICAL SECTIONS
KIRBY PARKWAY AND
SYCAMORE VIEW RD. EXTENSION

Several design alternatives are being studied. Four (4) alternatives are being studied between Humphreys Boulevard and Mullins Station Road which is the Shelby Farms area. Three (3) alternatives are under consideration from Mullins Station Road to Shelbytown Parkway, which is the Whitten Park area. The north end of the project between Reese Road and Stage Road has two (2) alternatives. Table 1 contains a comparison of these alternatives.

The existing bridges at Fletcher Creek, I-40 and Nonconnah Creek will be improved. The Wolf River crossing will require either a new bridge or improvements to the existing Walnut Grove Road bridge depending on which alternative is selected. Also depending on the alternative utilized, a bridge could be needed in the Shelby Farms area at the Walnut Grove Road/Kirby Parkway intersection.

The project has two (2) typical cross sections (See Figure 3). One section will be built within a 108-foot right-of-way and the other within a 114-foot right-of-way. Both sections will have three 12-foot traffic lanes in each direction, curbs and gutters. The 114-foot section will have a 12-foot turn lane. The 108-foot section will be used from Split Oak Drive to Quince Road and from Mullins Station Road to Stage Road. The 114-foot section will be used from Quince Road to Messick Road, from Massey Lane to Mullins Station Road, and on the Sycamore View Road extension.

TABLE 1

Comparison of Alternatives

ALTERNATIVES		APPROXIMATE NEW R.O.W. ACRES REQUIRED	DISPLACEMENTS		ESTIMATED COST			
			RESIDENCES	COMMERCIAL	CONSTRUCTION	RIGHT-OF-WAY	UTILITIES	TOTAL
Shelby Farms Alt.	SF-1a	74	0	0	19,650,000	1,803,000	140,000	21,593,000
	SF-1a*	74	4	0	21,650,000	2,403,000	140,000	24,193,000
	SF-1b	74	0	0	24,080,000	1,803,000	140,000	26,023,000
	SF-1b*	74	4	0	26,080,000	2,403,000	140,000	28,623,000
	SF-1c	74	0	0	31,515,000	1,803,000	140,000	33,458,000
	SF-1c*	74	4	0	33,515,000	2,403,000	140,000	36,058,000
	SF-1d	74	0	0	21,130,000	1,803,000	140,000	23,073,000
	SF-1d*	74	4	0	23,130,000	2,403,000	140,000	25,673,000
	SF-2a	75	0	0	19,615,000	1,704,000	127,000	21,446,000
	SF-2a*	75	44	0	24,615,000	14,704,000	127,000	38,946,000
	SF-2b	75	20	0	19,615,000	4,704,000	127,000	24,446,000
	SF-3	82	0	0	14,900,000	1,815,000	205,000	16,920,000
	SF-3*	82	4	23	18,900,000	18,815,000	205,000	35,920,000
	SF-4a	82	0	0	12,565,000	1,804,000	155,000	14,524,000
	SF-4a*	82	4	23	14,565,000	18,804,000	155,000	33,524,000
	SF-4b	82	0	0	13,640,000	1,804,000	155,000	15,599,000
	SF-4b*	82	4	23	15,640,000	18,804,000	155,000	34,599,000
Whitten Park Alt.	WP-1	12	5	0	3,465,000	4,063,000	321,000	7,849,000
	WP-2	12	31	0	3,465,000	5,184,000	246,000	8,895,000
	WP-3	16	0	3	3,600,000	2,196,000	148,000	5,944,000
North End Alt.	NE-1	5	0	4	1,580,000	1,567,000	15,000	3,162,000
	NE-2	38	0	0	1,775,000	996,000	4,000	2,775,000

*Indicates that grade separated interchanges are utilized at the Humphrey Boulevard Intersections

The design speed for the proposed project is 50 mph. The facility would be posted for about 45 mph.

Depending on which combination of alternatives is chosen, the project would require from 95 to 140 acres of additional right-of-way and would cost from $39,819,000 to $63,079,000. It would also require the displacement of from 0 to 44 residences from 0 to 23 businesses.

2.3 Shelby Farms Alternatives

Several alternatives were developed to connect Kirby Parkway south of the Wolf River and Whitten Road north of Mullins Station Road. These alternatives are designated SF-1, SF-2, SF-3 and SF-4. They are shown on Figures 2a thru 2f. Those alternatives would cross the Shelby Farms property impacting the Shelby Farm Forest Natural Area and the recreational trails along the north margin of the Wolf River. All alternatives would cross the trails. Only SF-2a alternative would avoid taking land from the natural area.

The alternatives include intersections with Humphreys Boulevard. Both at-grade intersections, grade-separated intersections were considered at these intersections. Level of service for the alternatives are shown in Appendix "E". There would be from 0 to 44 residential relocations and from 0 to 23 business relocations caused depending on which alternative is considered.

2.3.1 SF-1 Alternative

SF-12 (See Figure 2a) is the most direct route across Shelby Farms and would require the construction of a new bridge over the Wolf River. It begins just south of the Wolf River at Humphreys Boulevard and extends northward to Whitten Road. There are intersections at Walnut Grove Road and Sycamore View Road.

In an effort to provide a highway facility which would be compatible with existing and future uses of the Shelby Farms Forest Natural area and the recreational trails on the north margin of the river, four (4) alternative bridge designs were developed. They are listed below giving the bridge length of each and the total estimated cost of the alternative.

Alternative	Total Bridge Length	*Estimated Cost w/at-grade intersection	*Estimated Cost w/grade separate intersection
SF-1a	1,000'	$21,593,000	$22,193,000
SF-1b	1,550'	$26,023,000	$26,623,000
SF-1c	2,450'	$33,458,000	$34,058,000
SF-1d	1,350'	$23,073,000	$23,673,000

*at-grade or grade-separated intersection at Kirby Parkway and Humphreys Boulevard

Alternative SF-1a has the shortest bridge length. The design includes a spur dike at each end of the bridge to accommodate a 100-year flood. The bridge would span one of the trails, but the other trail would be blocked by the elevated roadway. This concept would provide a box culvert for vehicles using a loop road at the north margin of the woods. The bridge in alternative SF-1b would span both trails, but a box culvert would still be provided for the loop road. The alternative SF-1c bridge would span the entire forest area including the loop road. The SF-1d concept would utillize two bridges. The first bridge would cross the Wolf River and span both of the trails. A second bridge would span the loop road.

These alternatives would require the acquisition of 10.0 acres of right-of-way from the Shelby Farms Forest Natural Area.

2.3.2 SF-2 Alternative

Alternatives SF-2 would cross the Wolf River at the narrowest section of the woodland which is near the landfill. Alternative SF-2a (See Figure 2b) would cross the Wolf River at nearly a perpendicular angle and intersect with Humphreys Boulevard. This would result in an off-set in the Kirby Parkway alignment and causes Kirby

Parkway traffic to use a short section of Humphreys Boulevard. This alignment would then continue northward intersecting with both Walnut Grove Road and Sycamore View Road before ending at Mullins Station Road. If at-grade intersections, at Humphreys Boulevard are used, there would be no relocations and would cost about $21,446,000. If grade separated interchanges are used at the Humphreys Boulevard intersections, there would be about forty-four (44) residential relocations. Four (4) of the displacements are houses near the end of the present Kirby Parkway location. The remaining forty (40) relocations would be condominium units being developed across from the landfill crossing. The estimated cost would be about $34,440,000.

Alternative 2b (See Figure 2f) would also cross the Wolf River near the landfill. However, it would keep traffic on Kirby Parkway separated from that on Humphreys Boulevard. This is done by building an interchange at the existing Kirby Parkway/Humphreys Boulevard intersection. The alignment would move westward between Humphreys Boulevard and the Wolf River. It would cross the river at a skewed angle near the land fill. This alternative would cause twenty (20) residential displacements because of the interchange at Kirby Parkway and Humphreys Boulevard. The estimated cost would be about $24,446,000.

Both SF-2a and SF-2b alternatives would cross the recreational trails. SF-2b alternative would require the acquisition of 1.8 acres of right-of-way from Shelby Farms Forest Natural Area.

2.3.3 SF-3 Alternative

Alternative SF-3 (See Figure 2c) would utilize the existing Walnut

Grove Road Bridge to cross the Wolf River. This would require the bridge to be widened. South of the river, Humphreys Boulevard would connect Walnut Grove Road and Kirby Parkway. North of the river, Walnut Grove Road would be realigned to intersect with Sycamore View Road and Kirby Parkway at one intersection.

If at-grade intersections are utilized at the two Humphreys Boulevard intersections, there would be no displacements and the cost would be no displacements and the cost would be about $16,920,000.

If grade separated interchanges are utilized, there would be four (4) residential displacements at the Kirby Parkway intersection and twenty-three (23) business relocations at Walnut Grove Road intersection. It would cost about $33,920,000.

It would cross the recreational trails and take 3.0 acres of right-of-way from the Shelby Farms Forest Natural Area.

2.3.4 SF-4 Alternative

Alternative SF-4 (See Figure 2d and 2e) would utilize the existing Walnut Grove Road Bridge to cross the Wolf River. South of river, Humphreys Boulevard would connect Walnut Grove Road and Kirby Parkway. North of the river, two intersections are proposed. The first is with Walnut Grove Road and the second is with Sycamore View Road.

Two designs for the Kirby Parkway/Walnut Grove Road intersection have been developed for this alternative. An at-grade intersection is proposed for SF-4a (See Figure 2d) and a grade separated intersection is proposed for SF-4b (See Figure 2e). Both SF-4a and SF-4b would require the Walnut Grove Road Bridge to be widened.

If at-grade intersections are utilized at the two Humphreys Boulevard intersections, there would be no displacements and the estimated cost of

each alternative would be: SF-4a is $14,524,000 and SF-4b cost is $15,599,000.

If grade separated interchanges are utilized, there would be four (4) residential displacements at the Kirby Parkway intersection and twenty-three (23) business relocations at the Walnut Grove Road intersection. The estimated cost of each alternative is: SF-4a cost is $31,524,000 and SF-4b cost is $32,599,000.

Both alternatives would cross the recreational trails and take 2.1 acres of right-of-way from the Shelby Farms Forest Natural Area.

2.4 Whitten Park Alternatives

The proposed project passes Whitten Park, which is located on the east side of Whitten Road between Mullins Station Road and Macon Road (See Figure 2). If the proposed project were widened along the existing centerline of Whitten Road, some right-of-way would need to be acquired from the park. To avoid this, two additional alternatives were developed. Table 1 has a comparison of these alternatives.

2.4.1 WP-1 Alternative

WP-1 alternative (See Figure 2) begins at Mullins Station Road and proceeds northward to Shelbytown Parkway. The centerline of the proposed Kirby Parkway would coincide with the centerline of Whitten Road. This would require the acquisition of about 0.4 acres of land from Whitten Park for road right-of-way. This alternative would also require the relocation of five (5) residences. The total estimated cost of this alternative is $7,849,000.

2.4.2 WP-2 Alternative

WP-2 alternative (See Figure 2) begins at Mullins Station Road and ends at Shelbytown Parkway. The alignment of the proposed project would be shifted to the west so that the proposed right-of-way and the park's property line coincide. This would avoid taking land from Whitten Park, but it would require the relocation of thirty-one (31) residences. The total estimated cost of this alternative is $8,895,000.

2.4.3 WP-3 Alternative

The WP-3 alternative would be built on new alignment between Mullins Station Road and Macon Road (See Figure 2). This would move the proposed alignment to the east side of Whitten Park. The route would avoid taking right-of-way from the park. It would also miss the residential areas on the displacement of three (3) businesses. The total estimated cost of this alternative is $5,994,000.

2.5 North End Alternatives

Two (2) alternatives were developed for the north end of the project from Reese Road to the project terminus at Stage Road (See Figure 2). One alternative would be built along the center line of the existing facility while the other would be built on new alignment. The converging of two main routes, Stage Road and Summer Avenue, at the end of the project and the business development along Whitten Road prompted the second alternative.

2.5.1 NE-1 Alternative

NE-1 alternative calls for Whitten Road to be widened along its center line. This route would begin at Reese Road and cross Summer Avenue at a skew before ending at Stage Road. The area on both sides

of Whitten Road between the Summer Avenue intersection and the Stage Road intersection has been developed commercially. This route would require the relocation of four (4) businesses and would cost about $3,162,000.

2.5.2 NE-2 Alternative

NE-2 alternative would be built on new alignment (See Figure 2). At Reese Road the proposed route would proceed in a northwest direction intersecting with Summer Avenue at a more perpendicular angle before ending with an intersection at Stage Road. The intersection at Summer Avenue would be improved since the angle at the skew would be reduced. Also, the roadway length between the intersections at Summer Avenue and at Stage Road would be longer. This would allow more distance for vehicular movements and storage. This alternative would require no displacements and would cost about $2,775,000.

2.6 "No-Action" Alternative

The "No-Action" alternative denotes no major improvements being made to the existing roads. This alternative would preserve the existing land use pattern for a time and would not disturb the wildlife habitat. There would be no construction disruption of the area or siltation of local water courses. There would be no changes in the existing traffic patterns. These already over taxed east-west and north-south routes would not benefit from the proposed improvements.

Based on studies by the Memphis and Shelby County Office of Planning and Development, the East Memphis area has experienced rapid population growth since 1964. Projected population figures indicate this trend to continue. The proposed project has been identified as serving an important role in meeting the transportation needs of the area. The "No-Action" alternative would not provide an improved transportation link for the

spreading suburban growth. Traffic generators, such as parks and businesses in the area, will only serve to increase the area transportation problem.

2.7 Transportation Management System

The Memphis and Shelby County Office of Planning and Development indicate that van and car pools are presently being encouraged. However, the reduction of vehicular trips along the Kirby corridor is expected to be very small.

The use of HOV lanes is not specified for the Kirby corridor in the Memphis Major Route Plan. Even if HOV lanes were used on the existing section of Kirby Parkway between Messick Road and Humphreys Boulevard, it would not serve the transportation need south of Messick Road and north of the Wolf River.

Transportation system management does not meet the need or purpose so it is not a reasonable alternative.

2.8 Mass Transit

The Kirby Corridor is the western most extent for Memphis Area Transit Authority bus routes. Presently, there are six (6) routes which serve the study area and four (4) of them operate only during peak hours. None of the routes serve the north-south transportation need as identified by this project.

The Transit Authority is considering the addition of additonal routes in the East Memphis Area. Completion of the proposed project would allow the Authority to incooperate it into their future route plans. The new north-south route would allow the bus system to operate more efficiently.

Mass transit does not meet the need or purpose so it is not a reasonable alternative.

All reasonable alternatives are under consideration and a decision will be made after the alternatives' impacts and comments on the draft EIS and from the public hearing have been fully evaluated.

CHAPTER III

AFFECTED ENVIRONMENT

3.1 Physical Setting

The proposed project is located in Memphis, Shelby County, Tennessee. It lies within the physiographic Coastal Plain Province, which is characterized by relatively low elevations and relief with sediments of the same characteristics as the coastal regions in other southeastern states.

Soils in the area are principally of the Loess Region. Soils of the southern portion of the project are of the Grenade-Calloway-Henry Association which are moderately to poorly drained, silty soils. The project crosses two areas with soils from the Falaye-Waverly-Collins Association are soils of the major stream bottoms.

The project crosses three floodplains; the Nonconnah Creek floodplain, the Wolf River floodplain, and the Fletcher Creek floodplain. Nonconnah Creek and the Wolf River are tributaries of the Mississippi River Fletcher Creek drains into the Wolf River. The topography of the area is mostly flat.

3.2 Socio-Economic Setting

The proposed project is located in East Memphis. This area is one of the fastest growing areas in Shelby County. As discussed in Chapter I, this area has experienced tremendous population growth in the last twenty-one years. It has increased from about 5,700 in 1964, to about 78,702 in 1985, a 1280% increase. Although the population growth for the next twenty years is not expected to be quite as dramatic, it is expected to increase another 60% to about 125,745 in 2005.

Memphis is the largest urban area in the region and is a hub for economic activity. The city supports a diversified economic base.

As the population increased, business and commercial activity also increased in the East Memphis area. One of the three major employment centers in the county has developed along the Poplar Corridor. This corridor crosses the proposed project.

The current land uses along the project corridor are shown on Figure 4. It shows a mixture of residential and commercial uses. The area south of the Wolf River is more densely developed than that on the north side of the river.

Residential areas have developed along the existing street system at various locations. The following chart identifies the residential areas.

Location	Type of Residence
From Split Oak Drive To Mt. Moriah Road	Apartments and Townhouses
From Bainbridge To 1000' North of Kirby Gates	Single Family
From Messick Road To Poplar Pike	Single Family
From Poplar Pike To Quail Hollow Road	Apartments
From Nashoba To Humphreys Boulevard	Single Family
From Mullins Station Road To I-40	Single Family

In addition to the residential and commercial uses, there is a large area of public owned land, known as Shelby Farms, near the middle of the project. This area is mostly undeveloped at present.

WOLF RIVER

HOWDSHEYS BLVD.

I - 240

POPLAR AVE.

POPLAR PIKE

KIRBY PKWY.

QUINCE RD.

NONCONNAH PKWY.

BEGIN PROJECT

GERMANTOWN

FOX MEADOWS PARK


I - 240
HUMPHREYS BLVD.
WOLF RIVER
PENAL
SHELBY
COUNTY
SYCAMORE VIEW RD.
END PROJECT
I-40
BARTLETT
STAGE RD.
NE-2
NE-1
END PROJECT
WHITTEN PARK
WP-1&2
WP-3
MULLINS STATION RD.
SEABOARD SYSTEM R.R.
WHITTEN ROAD

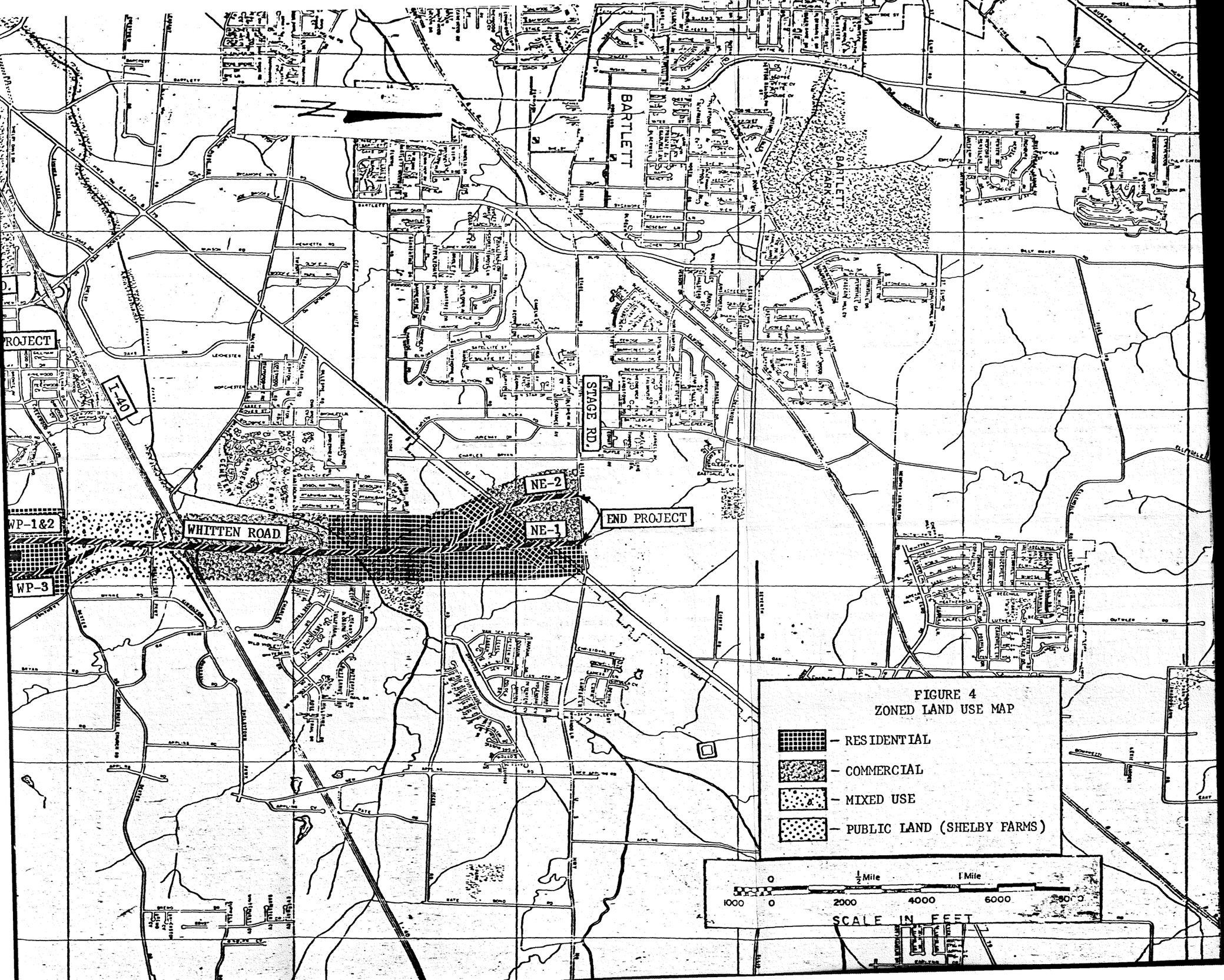


FIGURE 4
ZONED LAND USE MAP

In addition to the residential and commercial uses, there is a large area of public owned land, known as Shelby Farms, near the middle of the project. This area is mostly undeveloped at present.

3.3 Environmental Setting

The proposed projectd would be built on a combination of existing road facilities and new alignment. This would provide a variety of environmental settings. They would vary from urbanized areas to agricultur4al and undeveloped areas. An ecological study was conducted by the Tennessee Department of Transportation. The results of that study is included in Appendix "B". The largest area open and undeveloped land is near the center of the project. This area is known as Shelby Farms.

3.3.1 Shelby Farms

The proposed project will cross the Shelby Farms property (See Figure 2). Shelby Farms is located on 4500 acres which is owned by the Shelby County Government. It is bounded by the Wolf River, Mullins Station Road, Raliegh LaGrange Road and Germantown Parkway. The Plough Development Board oversees the property.

The present uses of Shelby Farms are shown on Figure 5. Most of the land is used for either row crops or pasturage. A bottomland hardwood forest is located along the margin of the Wolf River. Hiking trails have been established in the forest area. Some areas have been dedicated to institutional use such as the Shelby County Correctional Center, the county landfill, and the Agriculture International. Some of the open land is utilized by the institutions for agricultural uses. Other areas are open to public uses.

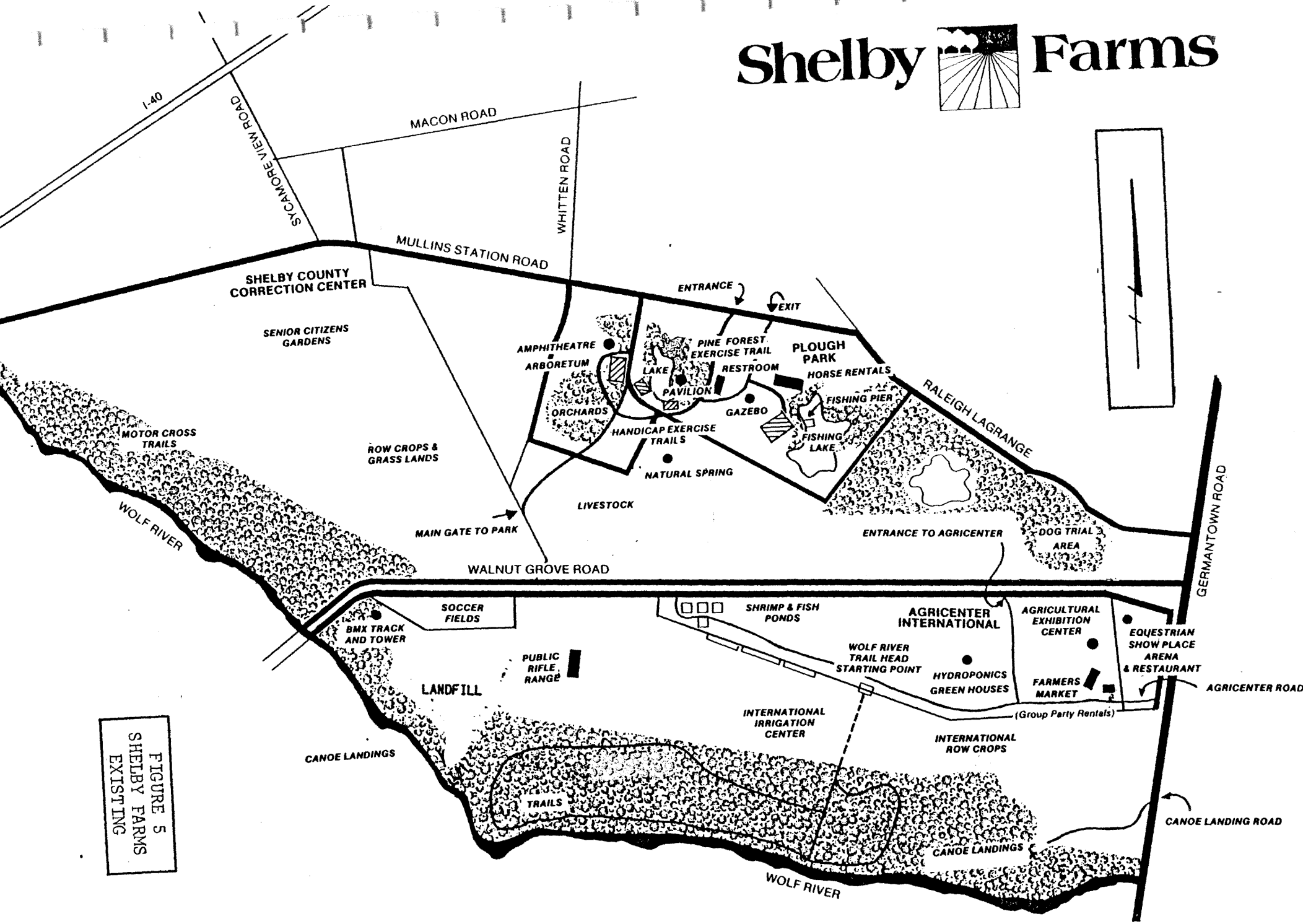


FIGURE 5
SHELBY FARMS
EXISTING

Some of the uses are the senior citizens gardens, soccer fields, canoe landings, hiking trails, an arborteum, Plough Park, and a rifle range.

The Plough Development Board is prparing a land use plan, the Shelby Farms Concept Plan. The preliminary plan has been reviewed by FHWA and is being reviewed by Shelby County Officials.

The Concept Plan includes most of the current uses and proposes some additional developments. Some of the existing facilities are projected to be expanded or relocated. The Concept Plan envisions the construction of Kirby Parkway across Shelby Farms, in the area of the Shelby Farms Forest Natural Area South/landfill.

CHAPTER IV

PROBABLE IMPACTS

The purpose of this chapter is to discuss the probably social, economic, and environmental effects of the project and the mitigation measures to those effects. This chapter discusses anticipated effects, including primary impacts, or those which will result directly from construction and the use of the highway, and secondary impacts, or those which may be caused by changes in traffic patterns and accessibility. This chapter contains the consideration of adverse environmental impacts which cannot be avoided, the relationship between short-term uses of man's environment and long-term productivity, and irreversible or irretrievable commitments of resources.

4.1 Land Use Impacts

The existing land use types in the project area may be described as suburban residential with scattered commercial development (See Figure 4). Scattered along the route are areas of undeveloped and sparsely developed land. Construction of the project may hasten development of the vacant areas along the corridor.

The project as proposed has been found to be consistent with local and regional planning documents and will not be in conflict with the long range planning activities of any local or regional activity. As discussed in section 1.2, Need for Action, it has been a part of the Memphis and Shelby County transportation planning since 1965. Both current and future land use plans have been made with Kirby Parkway as a part of the transportation system.

The secondary impacts associated with the proposed project are increased development potential and the possible spread of residential and commercial development into new areas. Development of this area would probably occur with or without the proposed project. However, it would tend to occur at a faster pace with the project. These developments should be controlled by local planning and governing agencies. The land use plans for the Memphis-Shelby County areas take into account the spread of current land use types through project area. The induced growth generated by the proposed project should be adequately controlled by conformity to the already established local land use plans. Land use impacts are the same for all alternatives.

4.2. Farmland Impacts

Some of the Shelby Farms property is presently used for agricultural purposes. These are pasture land, row crops and garden plots for use by senior citizens. The senior citizens' garden plots may be impacted by the proposed project. If it is, the garden site would be relocated to another portion of the Farms property.

The Farmland Protection Policy Act of 1981 (FPPA) does not apply to the Shelby Farms property. The FPPA has as its purpose "to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses, and to insure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with state, local government, and private programs and policies to preotect farmland."

However, Part 658.2 of the Farmland Protection Policy Act

states that a comprehensive Land Use Plan which has expressly been adopted or reviewed in its entirety by the unit of local government in whose jurisdiction it is operative within ten years preceeding implementation of the particular Federal Protection would exempt the area from the definition of Prime Farmland.

The Memphis and Shelby County Office of Planning and Development has a land use plan which deals with the area in question. Therefore, further provisions of the FPPA do not apply to this project. The Soil and Conservation Service agrees with this assessment (See Appendix E).

4.3 Social Impacts

The proposed project will affect the existing social structure of the project area communities by the improved accessibility to the areas along the project corridor. Suburban development in the area of the project as well as commercial development along portions of the corridor and in the project area are a predictable development of improved transportation facilities.

The project will not pose a threat to neighborhood continuity or "cohesion". It would not be disruptive to the community by splitting neighborhoods. There are no known minority communities in the study area.

Construction of the project will not adversely affect any health/education facility or any sanitation/water system. Fire, police, and ambulance services to the area should be improved by the use of an improved facility. The relocation of any utilities will be coordinated with the proper officials and agencies.

The proposed improvements should be advantageous to the local community. It will allow easier access to public facilities and services. The improvement will aid fire, police, and ambulance responsiveness. It would also aid local residents in their use of

schools, hospitals, and local seats of government.

The social impacts are the same for all alternatives.

A group of concerned citizens known as the Greentrees Civic Association responded to the proposed projects initial coordination. Members of the Association generally live in the community around Kirby Parkway between Messick Road and Poplar Pike. They were concerned about the impact of the proposed project through their community. They want the present roadway through their community to remain unchanged.

No improvements are proposed for the section of Kirby Parkway through the Greentrees Civic Association area. The cross section in this area consist six (6) lanes with a median on a 106' right-of-way. Once the project is completed, the average daily traffic is expected to be about 13,700 vehicles per day. By 2010, the traffic is expected to increase to about 23,100 vehicles per day. If no improvements were made, the average daily traffic is about 8580 vehicles per day and by 2010 it would increase to about 32,000 vehicles per day.

When the initial coordination was distributed for the project, in 1984, Kirby Parkway ended at Massey Lane. Therefore, all traffic in the area between Quail Hollow Road and Massey Lane was local residential traffic since Kirby Parkway ended at Massey Lane.

Since that time, the City of Memphis began and is nearing completion of Humphreys Boulevrd between Walnut Grove Road and Kirby Parkway. This will both increase and change the characteristics of the traffic using Kirby Parkway. By providing access to I-240, Kirby Parkway would become a through street. It would no longer serve only local residential needs. When the project is completed, the average daily traffic is expected to be about 13,300 vehicles per day. By 2010 this figure is expected to increase to about 32,900 vehicles per day.

This document has been reviewed and found acceptable by the Tennessee Department of Transportation's civil rights office in accordance with Title VI of the Civil Rights Act of 1964.

4.4 Relocation Impacts

The most direct impact of the proposed project would be the possible displacement of families and businesses along the alignment. The number of displacements would vary depending on which alternatives were built (See Table 1). The number of displacements would vary depending on which alternatives were built (See Table 1). The number of displacements would range fron no (0) displacements to as many as forty-four (44) residential and twenty-three (23) commercial displacements. A Conceptual Stage Relocation Plan has been prepared for this project to assess the impacts of displacements on the affected families and communities and to indicate the probability of successful relocation of all displacees (See Appendix "D").

Alternative	Displacements	
	Families	Commercial
SF-1*	4	0
SF-2a*	44	0
SF-2b	20	0
SF-3*	4	23
SF-4*	4	23
WP-1	5	0
WP-2	31	0
WP-3	0	3
NE-1	0	4

* indicate the use of a grade separated intersection used at the Kirby Parkway/Humphreys Boulevard intersections.

The Conceptual Stage Relocation Plan indicates that any business displacements would have little impact on the community. This is because there are similar businesses and services being offered within a short distance of the project. Also, displaced businesses should be able to relocate since there are several replacement commercial lots buildings for sale or rent which are available in the area.

A commercial development which would contain twenty-three (23) businesses is under construction at the intersection of Humphreys Boulevard and Walnut Grove Road. If a grade-separated intersection was used at this intersection for alternatives SF-3 and SF-4, this development would be displaced. However, since the development is under construction, no employees would be affected.

Alternatives WP-1 and WP-3 would damage a building containing six (6) businesses at Macon Road and Whitten Road by taking some of the existing parking. The businesses are; a print shop, a pet shop, a hair dresser, a hotel furnishings sale business, an insurance agent, securities business, and a vacant office. These facilities employ about thirty-five (35) people. The businesses which depend on a large number of drive up customers may have to relocate. These are the type of businesses that can be easily relocated.

Alternative NE-1 would displace four businesses; a service station, a bank branch, a beer tavern, and a boat distributor. These businesses employ about twenty-two (22) people. These are the type of businesses that can be easily relocated.

The Conceptual Stage Relocation Plan indicates that there is ample, decent, safe, and sanitary replacement housing within the financial means of the individuals and families displaced. The real estate market is very active in and around the project area and a new subdivision is under construction indicating the probability of continuing availability of comparable properties during the proposed acquisition period.

The Conceptual Stage Relocation Plan indicated the residential displacements consist of an average family size ranging from two (2) to four (4) members ranging in age from about five (5) to forty-five (45) years of age. They are also middle income, white, and owner occupants.

The residences taken by the SF alternatives, located south of the Wolf River, would range in value from $100,000 to $250,000. These taken by the WP alternatives, located north of Shelby Farms, would have a value less than $100,000.

The acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and relocation resources are available to all residential and business relocatees without discrimination. If any elderly or handicapped individuals are located, they will be given special consideration during the relocation process.

The Tennessee Department of Transportation provides advance notification of impending right-of-way acquisition and before acquiring right-of-way, all properties are appraised on the basis of comparable sales and land use values in the area. Owners of property to be acquired will be offered and paid fair market value for their property rights.

Brochures which describe in detail the right-of-way acquisition program and the relocation assistance and payments program are distributed at all public hearings and are made available upon request to any interested persons.

Many of the displaced families will be able to relocate on property near their present home. It is the Department's intent to relocate displaced persons on property near the same neighborhood from which they are removed whenever possible, if that is the desire of the relocatees. Some relocatees moving to new neighborhoods may experience some difficulty in adjusting to new circulation patterns, forming new community ties, and getting to know new neighbors. The provisions of suitable acceptable replacement housing combined with adequate relocation payments will help to minimize relocation impacts.

The basic social arrangement and the residential character of the project area will not significantly change. The proposed project will not affect any specific interest group or alter the racial composition in the area.

4.5 Economic Impacts

With the completion of the proposed project, Memphis-Shelby County will experience a short-term tax base loss. This loss will be as a result of land removed from the tax rolls because of right-of-way acquisition. This could consist of as much as 136 acres. Loss may also come from relocation of up to 44 residents and 23 businesses (See table 1). This loss should be viewed as temporary. The continuation of existing development patterns should bring tax revenues back to a level equal to or higher than the current levels.

Economic gain and orderly growth are primary goals of any level of government or of any community. The construction of the proposed project, along with careful regulation of the expected growth potential, will help the local government and planning agencies in obtaining and maintaining orderly growth.

4.6 Air Quality Impacts

A microscale air quality analysis was performed using CALINE 3 developed by the Environmental Improvement Branch, Transportation Laboratory of CALTRANS. CALINE 3 is a computerized version of the California Line Source Dispersion Model which takes into account (1) traffic, (2) emission factors based on EPA's latest emissions factors, (3) meteorology, (4) type of highway design, (5) Pasquill's stability classification.

The outputs from this model are stated in terms of carbon monoxide concentrations in parts per million (ppm) or micrograms per cubic meter (ug/m^3).

The National Ambient Air Quality Standard for carbon monozide, which is not to be exceeded more than once a year, is an follows:

CARBON MONOXIDE

(National Ambient Air Quality Standard)

Maximum 1-hour Concentration	Maximum 8-hour Concentration
35 ppm	9 ppm

The CALINE 3 Model was used to predict future pollution levels for the estimated time of completion (ETC) of the project (1990) and the ETC plus twenty years or the design year (2010). Heaviest traffic volumes 41,300 ADT, as well as the poorest meteorological conditions, were utilized in this microscale analysis in order that the most conservative results would be obtained ("E") stability class, parallel winds at one meter per second, 50% cold starts and a 30°F ambient temperature.

The projected pollutant maximum one-hour concentrations without the ambient or background levels for the subject project are as follows:

1990	2010
2.0 ppm	2.8 ppm

A background of 2 ppm concentrations of carbon monoxide was added to the predicted carbon monoxide levels to determine the air pollution impact on the project area. The results are as follows:

Year	Predicted		Background		Total
1990	2.0 ppm	+	2.0 ppm	=	4.0 ppm
2010	2.8 ppm	+	2.0 ppm	=	4.8 ppm

The distance for the receptor location was 30 feet downwind of the project, which is the closest sensitive receptor within the project area. Therefore, if the design year carbon monoxide concentration predicted at this receptor location is well below the National Ambient Air Quality Standard for carbon monoxide, concentrations at all sensitive receptors within the project area are also assured to be well below the standard.

This project is in an air quality attainment area which has transportation control measures in the State Implementation Plan (SIP) which was conditionally approved by the Environmental Protection Agency March, 1984. The Federal Highway Administration has determined that both the transportation plan and the transportation improvements program conform to the SIP. The FHWA has determined that this project is included in the Transportation Improvement Program 1988-1992, for the Memphis-Shelby County urbanized area. Therefore, pursuant to 23 CFR 770, this project conforms to the SIP.

4.7 Noise Impacts

The effects of increased noise levels due to the proposed project have been evaluated according to the guidance of Federal-Aid Highway Program Manual, Volume 7, chapter 7, Section 3. Predicted noise levels have been compared to existing levels and to FHWA Noise Abatement Criteria (as listed in Table 2) to determine the impact of highway-generated noise on the community.

One of the provisions of the federal noise guidelines is that the designer must account for the statistical variation in traffic

noise with respect to time. This is accomplished by stating the existing, predicted, and FHWA Noise abatement Criteria in terms of an "L_{10}" value. This value specifies the sound level (measured on the "A" frequency weighing scale, dBA) which is exceeded no more than 10 percent of the time for the period under consideration. This value indicates both the magnitude and the frequency of occurrence. A noise impact can occur when predicted noise levels approach or exceed the FHWA noise abatement criteria levels listed in Table 2. Also, a noise impact can exist when there are "substantial" increases in design noise levels over the existing noise levels. The criteria used to define "substantial" are as follows:

Increase (dBA)	Subjective Descriptor
0-5	No Impact
6-15	Moderate Impactg
> 15	Substantial Impact

An existing noise level survey was conducted for this project by Tennessee Deprtment of Transportation personnel. These readings were made using the method outlied in FHWA'sa "FUNDAMENTALS AND ABATEMENT OF HIGHWAY TRAFFIC NOISE". These noise levels were made at representative receptor sites. The locations of these existing noise level sites are shown in Figure 8.

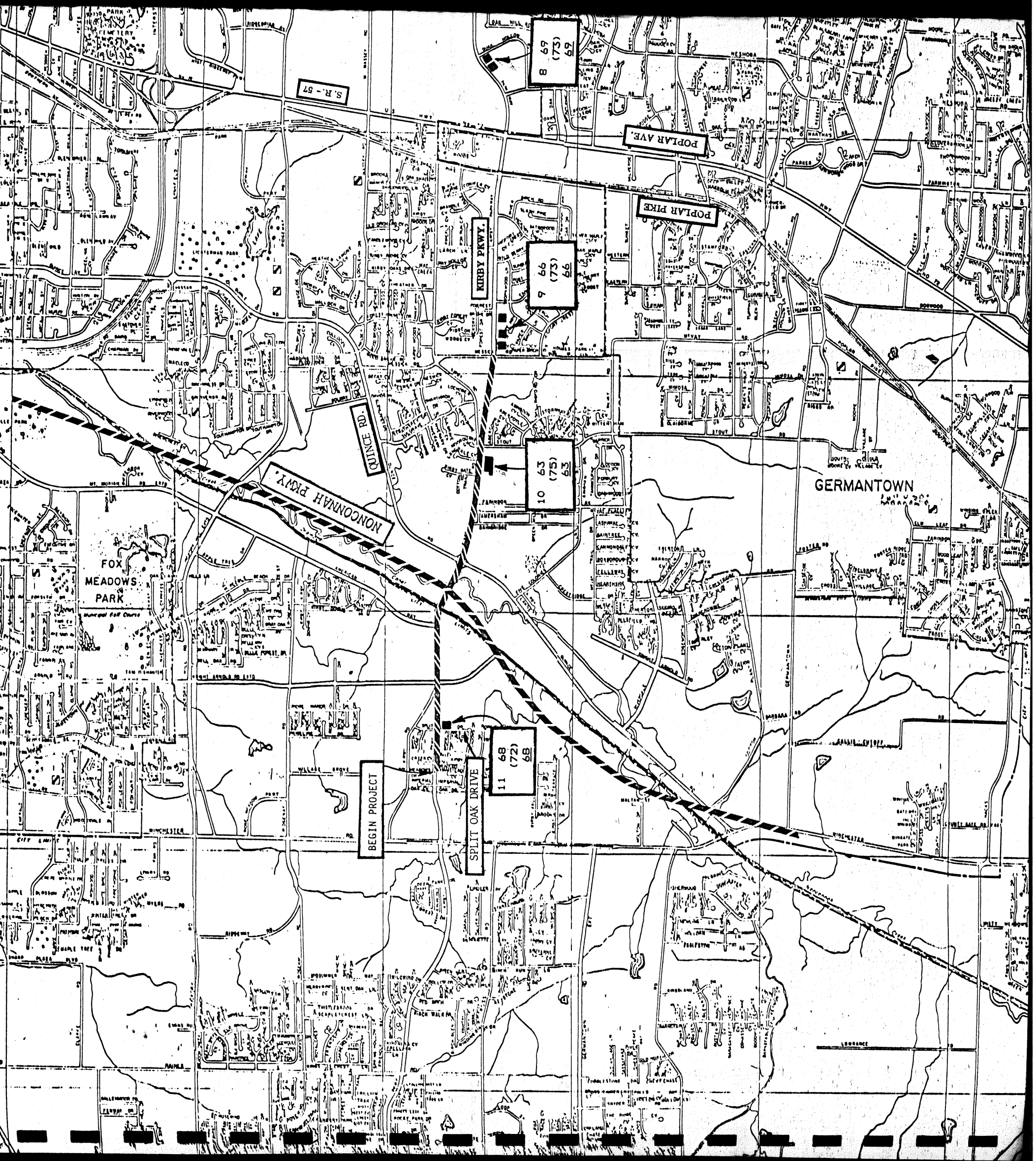
By using the latest functional layouts and the most recent traffic estimates for the proposed project, the design year (2010) peak hour noise levels were predicted at various locations along the project area. THE FEDERAL TRAFFIC PREDICTION MODEL (STAMINA 2.0/OPTIMA) was used to predict the design year noise levels.

The existing and design "L_{10}" levels for the project are presented in Table 3. This table shows that all sites except *2A, 3A, 5A, 5, 6, and *6

TABLE 2

RELATIONSHIPS OF LAND USE AND ACTIVITY CATEGORIES

	Land Use or Activity Category	FHWA Noise Abatement Criteria "L_{10}" Levels
A.	Tracts of land in which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is esstential if the area is to continue to serve its intended purpose.	60 (Exterior)
B.	Picnic areas, recreation areas, playgrounds, active sports areas, and parks which are not included in the above category and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.	70 (Exterior)
C.	Developed lands, properties or activities not included in either of the above two categories.	75 (Exterior)
D.	Residences, motels, hotels, public meeting rooms, schools, chuches, libraries, hospitals, and auditoriums	55 (Interior)


S.R. - 57
POPLAR AVE.
POPLAR PIKE
KIRBY PKWY.
QUINCE RD.
NONCONNAH PKWY.
BEGIN PROJECT
SPLIT OAK DRIVE
GERMANTOWN
FOX MEADOWS PARK
8 69 (73) 69
9 66 (73) 66
10 63 (75) 63
11 68 (72) 68


T-40
END PROJECT
SYCAMORE VIEW RD.
BENT TREE AVE
MULLINS STATION RD.
SHELBY COUNTY PENAL FARM
WOLF RIVER
HUMPHREYS BLVD
I - 240
WHITTEN PARK
WP-1&2
WP-3
SEABOARD SYSTEM R.R.
WALNUT GROVE RD.
2 66 (73) 66
3A 46 (65) 46
3 46 (71) 46
2A 63 (65) 63
4 63 (172) 63
4A 62 (75) 62
5A 62 (69) 62
5 62 (72) 62
6 62 (65) 62
*6 62 (63) 62
*5 62 (68) 62
7 62 (74) 62

FIGURE 8

NOISE LOCATION MAP

KIRBY PARKWAY

00 dBA Noise levels (Existing)
(00) dBA Design Noise levels with project
<u>00</u> dBA Design Noise levels without project

TAB__ 5

SUMMARY AND COMPARISON OF EXISTING AND PREDICTED
"L_{10}" NOISE LEVELS IN dBA

Location Point	Existing Noise Levels	Design Year Noise Levels With Project (2010)	Design Year Noise Levels Without Project (2010)	Number & Type of Sensitive Receptors Represented
1	66	73	66	6 Residences
2	66	73	66	1 Church 8 Residences
2A	63	65	63	Whitten Park
3	46	71	46	Housing Complex
3A	46	65	46	Whitten Park
4	63	72	63	1 Church 12 Residences
4A	62	75	62	Shelby Farms Forest Natural Area
5	62	72	62	5 Residences
5A	62	69	62	Soccer Field
5*	62	68	62	5 Residences
6	62	65	62	3 Residences
6*	62	63	62	3 Residences
7	62	74	62	23 Residences
8	69	73	69	Housing Complex
9	66	73	66	11 Residences
10	63	75	63	1 Church 10 Residences
11	68	72	68	6 Residences

*For Alternative SF-1
(all other points are the same for all alternatives)

exceed the noise abatement Criteria for land use Category "B" as listed in Table 2. Sites 1, 2, 4,4A, 5, 5A,*5, 7, 9 and 10 exhibit a moderate impact between 6 and 15 dBA. Site *5 and *6 are for Alternative SF-1. Site 5, 3, and 3A located at and near Whitten Park exhibits a substantial impact of above 15 dBA.

The sites are areas that have uncontrolled access which limits considerably the efficiency of noise barriers because of the opening in the barriers that the access roads create. A noise barrier of sufficient length to obtain significant noise reduction should normally extend eight (8) times the distance from the barrier to the sensitive site. Any access openings can considerably limit the barrier's effectiveness. It then becomes economically unreasonable to construct a barrier for a small noise reduction. Also, due to restricted sight distances at access openings noise barriers near highways could create a safety problems. Alteration of horizontal and vertical alignments and traffic management measures such as reducing speed limits, prohibition of heavy trucks, etc. were considered in order to attenuate the noise levels for this project; however, these forms of attenuation were also found to be infeasible. Alteration of horizontal and vertical alignments for the project would require undesirable curvature in alignment, impossible drive construction, or additional construction costs and right-of-way purchases. Reduction of speed limits and the elimination of truck traffic were determined to be contrary to the major reasons for building the highway, which are to facilitate better movement of traffic in the area.

These methods seem to be unreasonable and infeasible when compared to any limited noise attenuation they might offer. Because of these reasons, it is unlikely that any form of abatement measures will be recommended.

In the special cases of churches and hospitals along the project area, it was felt that interior noise abatement criteria would apply since there are few exterior activities. The construction of the structures is sufficient to reduce the interior levels to within the noise abatement criteria of 55 dBA.

There will be a substantial noise impact on the Shelby Farms Forest Natural Area and a moderate impact at the soccer fields; because of the sporadic intervals of use in these areas, it is unlikely that any form of abatement will be recommended. Because of the length of the noise abatement walls, it seems to be unreasonable when compared to any noise attenuation they might offer.

Mitigation of Construction Noise Impacts

Construction procedures will be governed by the Standard Specifications for Road and Bridge Construction as issued by TDOT and as amended by the most recent applicable supplements. The contractor must observe any noise ordinance in effect within the project limits. Detoured traffic shall be routed during construction so as to cause the least practicable noise impact upon residential and noise-sensitive areas.

Construction With Local Officials

The following table, table 4 indicates the future predicted noise levels and their critical distances. This information is being included to make local officials and planners aware of the anticipated highway noise levels.

TABLE 4

Design Year (2010) Predicted "L_{10}"
Project-Contributed Noise Levels (dBA)

Distance *	"L_{10}" Noise Level
100 feet (46 m.)	73 dBA
200 feet (77 m.)	69 dBA
300 feet (107 m.)	66 dBA
400 feet (138 m.)	65 dBA
500 feet (168 m.)	63 dBA
600 feet (199 m.)	62 dBA
700 feet (230 m.)	61 dBA
800 feet (260 m.)	60 dBA
900 feet (291 m.)	59 dBA
1000 feet (321 m.)	58 dBA
1200 feet (382 m.)	57 dBA

* Perpendicular distance to the center of the proposed traffic lane for an at-grade situation.

The distances in the table are measured perpendicular to the center of the proposed near lane at an at-grade situation. The predicted "L_{10}" noise levels displayed are conservation and should be considered to be maximum (highest) noise levels expected at any location along the entire roadway at the same distance from the roadway. "L_{10}" is the decibel level measured on the "A" frequency weighing scale (dBA) which is exceeded no more than ten percent of the time during the peak traffic hour of the design year (2010).

Table 2 indicates the relationship between various land use or activity categories and the upper limits of acceptable traffic noise levels for each category as established by FHPM 7-7-3.

4.8 Water Quality Impact

The proposed project will cross Fletcher Creek, Nonconnah Creek and the Wolf River. The Wolf River is the most prominent water resource within the project area. It is typical of the larger streams West Tennessee in that it has been extensively channelized. Water fluctuates greatly in depth, is normally turbid, and is polluted with industrial and domestic wastes. The constant turbidity is the product of poor agricultural practices, soil erosion on developing reidential and commercial sites, and the inherent instability of the river banks resulting from channelization. Obviously, these conditions have been very detrimental to water quality and aquatic organisms. Although water parameters (temperature, dissolved oxygen, etc.) in a river this size are moderated by its large volume, the limiting factor which is controlling the quality of the habitat is the turbidity. This destroys breeding areas, smothers eggs and food organisms, and clogs the gills of less vigorous fish species. Principle fish species caught from the Wolf

River are buffalo (Ictibus cyprinellus), carp (Cyprinus carpio), and bullheads (Ictalurus spps.). Other fishes present are the green sunfish (Lepomis cyanellus) and the bluegill (Lepomis macrochirus). Principle invertebrate organisms are mayfly (Ephemeroptera) and crayfish (Decapoda) species.

Historic data shows Fletcher Creek and Nonconnah Creek to be of very poor quality with little fishing value. Field studies over a three month period supported this. Habitat available to aquatic organisms was almost nonexistent with both creeks suffering from the heavy pollution which typifies that in the Wolf River. Fish and invertebrate species in these creeks would be similar to those found in the Wolf River.

Siltation due to erision associated with the construction phase is the most severe adverse impact to the aquatic environment. Although there is already heavy siltation existing, these waterways would be protected from further damages during construction.

Erosion impacts can be effectively controlled and minimized through use of those measures contained in the Tennessee Department if Transportation's "Standard Specifications for Road and Bridge Construction." This project will be built in compliance with these standards.

4.9 Wetland Impacts

The Corps of Engineers has determined the existence of wetlands adjacent to the Wolf River (See Appendix "B") in the area of the proposed project. The primary function of the wetlands is flood control.

Two of the alternatives, SF-1 and SF-2, would impact wetlands. Alternatives SF-1 (a thru d) would impact about 1.3 acres of late successional wetlands. Alternative SF-2 (a and b) would impact early successional wetlands. Alternative SF-2a would impact about 0.6 acre and Alternative SF-2b would impact about 1.1 acres. If a grade separated intersection was used at Humphreys Boulevard, alternatives SF-1 (a thru d) and SF-1a would impact an additional 0.5 acre.

The alternatives impact the wetland either by spanning them or destroying them. Alternative SF-1a destroy all wetlands along the right-of-way. Alternatives SF-1 (b and d) and SF-2a would span the wetlands. Alternative SF-2b would span the wetlands on the northside of the river and destroy the one on the southside.

If an alternative which impacts a wetland is chosen as the build alternative, a wetland mitigation plan would be written and included in the Final Environmental Impact Statement. Some of the mitigation measures which could be utilized are replacements of destroyed acres and protecting other acres from being compromised by construction activities.

Field studies in 1984 (See Apendix "B") revealed a wetland in the project area near Kirby Road and Knight Arnold Road. It was an old meander of the original channel of Nonconnah Creek created by channelization operations. However, this area has been destroyed by being cleared and graded for residential development.

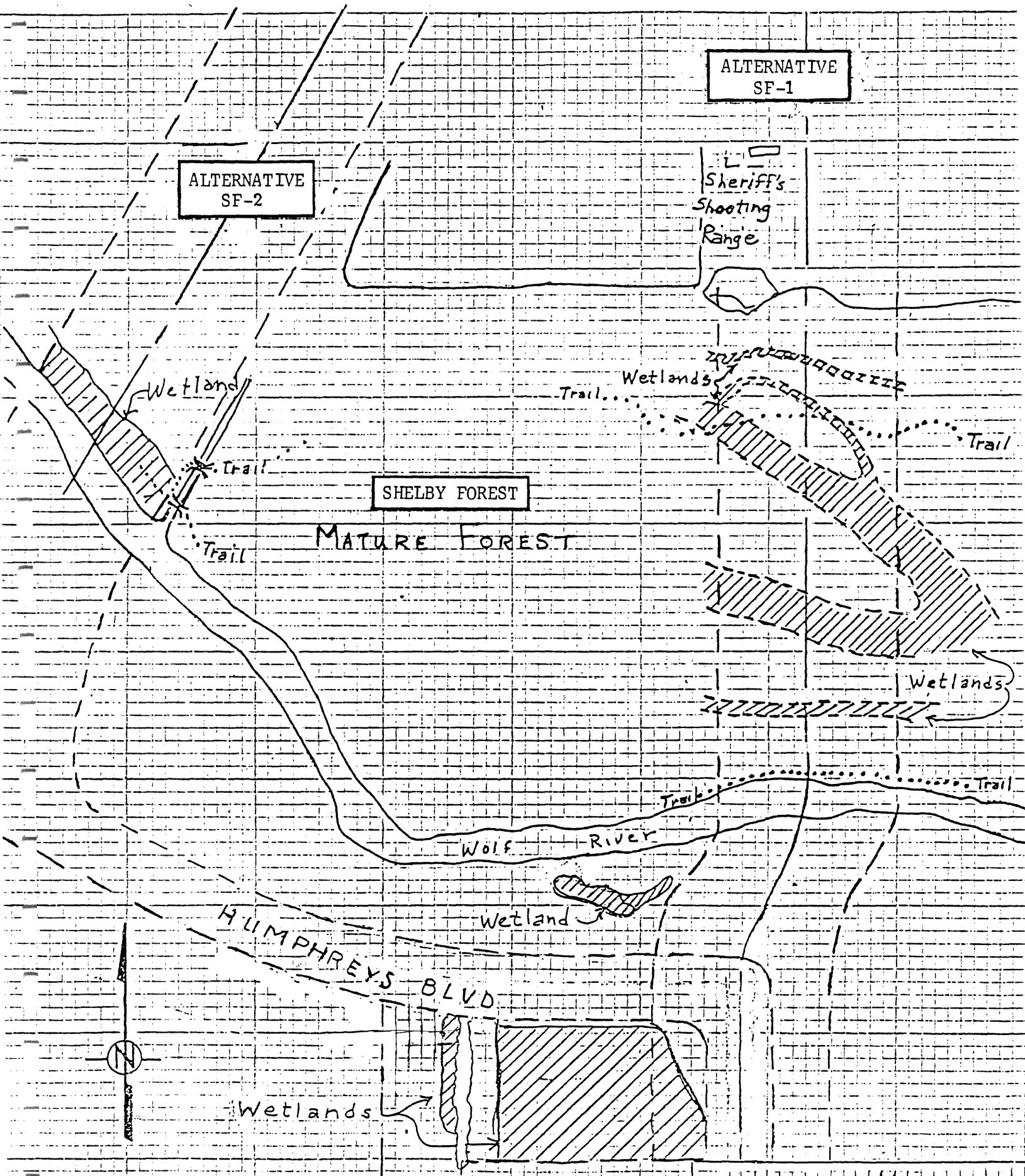


FIGURE 6
WETLAND MAP
KIRBY PARKWAY

4.10 Wildlife Impacts

The largest proportion of land affected by the Kirby Parkway project borders existing highway right-of-way. This includes all of the land along Whitten Road north of the Wolf River and most along Kirby Parkway south of the river. Urbanization has irrevocably altered the natural ecology. The only natural habitat remains as "strips" or "fringe" along fence rows, roads, and creeks. These areas support the growth of plant species which would not ordinarily be planted or allowed to grow in yards or croplands. This habitat type supports song birds, small mammals and reptiles: usually those species which are able to compete well in the disturbed environment and coexist with humans. Disregarding the Wolf River bottomlands, most of the trees along the right-of-way are located in these "fringe" locations. Clearing of these fringes for urban development is occurring at a rapid pace, which probably won't be changed by this project. However, those areas impacted by road improvement will be temporarily lost, but replaced by new "fringe" with time.

The project will be built on new location from Humphreys Boulevard to Mullins Station Road. This will require crossing the Wolf River and the Shelby Farms property. The land adjacent to the river, on both banks, is part of a system of "remnants" of the once extensive Wolf River bottomland forests. Although only a portion of what was once an important forest ecosystem remains, these remnants provide abundant wildlife habitat in an urbanized setting. The north bank vegetation is more extensive than that on the south bank. The north bank woodlands are more mature, have a less developed understory, and cover roughly ten times the acreage of those woodlands

on the south bank. Channelization of the Wolf River has hastened water loss, thus lowering the water-table. Consequently, the plant communities have become more mesic with the build-up of dryer soils. The discarded dredge material from the channelization process has also helped the mesic flora dominate most of the old bottomlands; very little remains of the wetlands ecology. There are some old meanders and low swampy spots in the northbank woodlands which are characterized by bald cypress/water tupelo communities. But these comprise a very small percentage of the flora. The most common community is typified by sugar maple (Acer scaaharum), American elm (Ulmus americanan), red mulberry (Morus rubra), American holly (Illex opaca), ironwood (Carpinus caroliniana), and privet (Forestiera acuminata). A more thorough listing of plants is found in Appendix "B".

These woodlands provide a variety of habitats for wildlife, particularly birds and mannals. It also serves as a protective "corridor" for the movement of larger wildlife (deer, bobcat, etc.) along the Wolf River, and as a haven for aquatic mammals.

The varied habitats should support numerous prey species as minks, beavers, river otters, foxes, bobcats, and feral dogs. In addition to several species of rabbits and squirrels, the woodlands offer a wide variety of habitats to rodents, birds, and reptiles. A complete listing of species can be found in Appendix "B".

These woodlands exhibit a diversity of flora and fauna which is unusual for a major urban area. The current land use plan developed by Shelby Farms Planning Commission calls for limited development of

these lands between the Wolf River and Walnut Grove Road. This development will be based on using these woodlands for ecological studies. Public recreation will also be served by the trails for hiking and nature studies.

The greatest impact associated with the project would be the loss of degradation of terrestrial wildlife habitat. Clearing of vegetation from the woodlands along the margins of the Wolf River would not only be an adverse impact to the habitat, but also to the movement of wildlife along the river.

Four alternatives (See Figure 2a thru 2f) for crossing the Wolf River and the associated hardwood areas were developed. Alternative SF-1 is the most direct route connecting Whitten Road to the north and Kirby Parkway to the south. However, it would cross a 413-acre tract of hardwood forest known as the Shelby Farms Forest Natural Area South and result in the loss of from 9.0 to 10.0 acres of woodlands.

Private citizens as well as environmental groups have objected to segmenting this forest area. To mitigate the alternatives impact to this area, four alternative bridge designs were developed. The bridge lengths vary from 1000' to 2450'. These are described in more detail in Section 2.3.1. The longest bridge would span the entire forest area. Some cutting of trees would be required with each alternative.

The remaining alternative cross the Wolf River to the west of the natural area. Alternative SF-2a and SF-2b cross the river at the western margin of the Shelby Farms Forest Natural Area where the band of vegetation on the north bank is the narrowest. Alternative SF-2a would cross the river at about a 90° angle. Alternative SF-2b would cross it on a curved alignment and run parallel between Humphreys

Boulevard and the Wolf River to its intersection at Kirby Parkway. Alternative SF-2b would thus require the loss of 1.8 acres of woodland from the Natural Area. Alternative SF-2a would avoid this area.

The last two alternatives, SF-3 amd SF-4, would cross the Wolf River at the existing Walnut Grove Road Bridge. This would require the bridge to be widened. However, it would not require as much right-of-way to widen an existing structure as it would to build a new one. The site has also been distrubed by previous construction. Alternative SF-3 would require 3.0 acres from the Natural Area and SF-4 would require 2.1 acres.

4.11 Floodplain Impacts

Based on information provided in the U.S. Department of Housing and Urban Development, Flood Hazard Boundard Maps, the proposed project would encroach on the 100-year floodplains of Fletcher Creek, Nonconnah Creek, and the Wolf River (See Figure 7), but is not considered to be a significant encroachment according to the criteria set forth in FHPM 6-7-3-2 which implements Order 11988 because: (1) there is no direct support of floodplain development because of access control of the highway where it crosses the floodplain; (2) there is no potential for interruption of termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route; (3) the design will include an evaluation to eliminate an significant risk, and (4) there will be no significant adverse effect on the natural and beneficial floodplain values. The impact on the natural and the beneficial floodplain values of the proposed project area would be the loss of wildlife habitat and the loss of vegetation.

MEMPHIS
WALNUT GROVE RD.
HUMPHREYS BLVD.
I-240
MASSEY LANE
Memphis Memorial Park Cemetery
Ridgeway Country Club
White Station
POPLAR AVE.
Memphis University Sch
SOUTHERN
RIVERDALE
Hutchison Sch
MEMPHIS
Germantown
MESSICK RD
KIRBY PKWY.
NONCONNAH CREEK
MEMPHIS
Fox Meadows Country Club
BEGIN PROJECT
SPLIT OAK DR.
Filtration Plant
Hickory Hill
WINCHESTER
Mount Moriah Eastland Cem
GERMANTOWN
Well

LEGEND:
PROPOSED KIRBY PKWY. —
PROPOSED NONCONNAH PKWY. —
UNDER CONSTRUCTION —
EXISTING —

END PROJECT
SYCAMORE VIEW RD.
MULLINS STATION RD.
COUNTY PEN PARK
FLETCHER CREEK
I - 40
WHITTEN PARK
WHITTEN RD.
SEABOARD SYSTEM R.R.
SHELBY TOWN PKWY.
REESE RD.
SUMNER RD.
STAGE RD.
END PROJECT
END PROJECT
Elmore Park
Spring Lake
ELLENDALE ROAD
OAK ROAD
BROAD ROAD
PIPELINE

FIGURE 7
FLOODPLAIN MAP
KIRBY PARKWAY

FLOODPLAIN —
FLOODWAY —

SCALE 1:24 000
1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

These would be short-term and minimal losses due to the re-establishment capabilities of the plant and animal species in the area.

Since construction of the proposed project will involve crossing Fletcher Creek, Nonconnah Creek, and the Wolf River, and their floodplains, project development must proceed according to Executive Order 11988, "Floodplain Management. The Federal Emergency Management Agency (FEMA), Federal Insurance Administration, completed the Flood Insurance Study, City of Memphis, Shelby County, Tennessee in August, 1985, the Flood Insurance Study, City of Bartlett, Shelby County, Tennessee in June, 1981, the Flood Insurance Study, City of Germantown, Shelby County, Tennessee in January, 1982, and the Flood Insurance Study, Shelby County, Tennessee in December, 1982. This study established a regulatory floodway (under the jurisdiction of the Corps of Engineers) and the 100-year and 500-year flood boundaries. Figure has been reproduced from Flood Boundary and Floodway Maps contained in the study and shows the 100-year flood and any regulatory floodway.

Encroachment on floodplain by new development or artificial fill reduces the flood-carrying capacity and increases the flood hazards in areas beyond the encroachment itself. One aspect of proper floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purpose of the National Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this

concept, the area of the 100-year flood was divided into a floodway and a floodway fringe. The floodway is a channel of the river, plus any adjacent floodplain areas that must be kept free of encroachment in order that the 100-year flood may be carried without substantial increases in flood heights. Minimum standards limit such increases in flood heights to 1.0 foot, provided that hazadous velocities are not produced. The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood more than 1.0 foot at any time.

In order to insure that the proposed project would be compatible with floodplain management, early project coordination was sent to federal, state, and local agencies responsible for control of the Mississippi River Regulatory Floodway. These agencies are the Tennessee State Planning Office, Memphis and Shelby County Office of Planning and Development, and the U.S. Corps of Engineers. These agencies coordinate with FEMA. Comments from these agencies did not identify any potential problems which would prevent the construction of the proposed project.

Preliminary hydrological studies have indicated that the proposed bridge locations are adequate and that the proposed project can be designed to convey anticipated floods. More detailed hydrological studies will be performed during the project design phase.

Construction of this project may require a permit from the U. S. Corps of Engineers under Section 404 of the Clean Water Act for any fill placed below ordinary high water areas. In compliance with the Memorandum of Agreement between the Department of the Army and the U.S. Department of Transportation, TDOT requested this agency to participate as a "cooperating agency" in the preparation of the draft EIS. The U.S. Corps of Engineers was asked to identify any specific areas of concern necessary to satisfy the requirements of the National Environmental Policy Act or other related laws which should be addressed prior to permit application. Their response is included in Appendix "A" and their concerns are addressed in this document.

There is no practicable alternative to this proposed improvement which would accomplish the objectives of this project without encroaching on the floodplains of Fletcher and Nonconnah Creeks and the Wolf River. The design selected for an encroachment shall be supported by analysis of design alternatives with consideration to capitol costs, risks, and economic, engineering, social, and environmental concerns. All streams crossings will be designed to be as nearly perpendicular as practicable. The floodplain crossings will be designed so as to be consistent with the standards established for the regulatory floodway and all other federal, state, or local regulations. This will be insured by continuing close project coordination with appropriate agencies responsible for the administration of the regulatory floodway.

The proposed project will increase the potential for development in the floodplain as a secondary impact. Such development will be under the control of local zoning policies.

4.12 Endangered Species Impacts

A review of pertinent literature and correspondence with state and federal agencies was conducted in an effort to determine the likelihood of the presence of endangered species or their preferred habitat. This was followed by a field review which was conducted for a total of eight days over a five month period.

In a letter, dated February 22, 1984, the U.S. Fish and Wildlife Service advised that they were not aware of any federally listed or proposed endangered or threatened plants or animal species in the impact area of the proposed project. (See Appendix "B").

The Tennessee Department of Conservation's letter of March 12, 1984, listed two rare avian species. (See Appendix "B"). The first is the grasshopper sparrow (Ammodramus savannarum) which is considered threatened in Tennessee by the Tennessee Wildlife Resources Agency (TWRA) and the Tennessee Natural Heritage Program (TNHP). The other is the lark sparrow (Chondestes grammacus) which is considered in need of management by TWRA and of special concern by TNHP. Sightings of these species have been recorded within the boundaries of Shelby Farms.

Open grassy fields is the nesting habitat for these two uncommon species of birds. To prevent possible destruction of active nests sites, the Department has agreed to cut and grub the right-of-way prior to the nesting season before the project goes to contract. (See Appendix "B").

4.13 Construction Impacts

There are several categories of unavoidable adverse environmental effects which are expected to occur during the actual construction phase of the project. These are (1) soil erosion and pollution of water courses, (2) disposal of solid waste, control of open burning and fugitive dust, (3)

construction noise, and (4) detours, public safety, and utility relocations. These adverse construction impacts are primarily short-term in duration or only exist during the construction period.

Throughout the term of the project construction, soil erosion and pollution abatement safeguards shall be exercised to the fullest practicable extent. Construction procedures shall be governed by the Standard Specifications for Road and Bridge Construction as issued by the Tennessee Department of Transportation and as amended by the most recent applicable supplements, and by FHPM 6-7-3-1 dated September 25, 1974, on "Erosion and Sediment Control for Highway Construction" as issued by the U. S. Department of Transportation. When regulations from these two publications are in conflict, the more stringent of the two requirements will be applied.

Subsection 107.08 of the Standard Specifications for Road and Bridge Construction and Section 209, "Temporary Project Water Pollution/Soil Erosion", which apply to protection of streams, lakes, and reservoirs, will be applicable to this proposed project.

Also, other special provisions of Tennessee highway specifications related to excavation and undercutting, landscape planting, operation of equipment in urbanized areas, sod certification, and traffic control devices will be observed during the construction of this project. The various American Association of State Highway and Transportation Officials (AASHTO) standards, policies, and guidelines mentioned in FHPM 6-2-1-1 will be used to the greatest degree applicable as they regard this project. The above measures will not eliminate siltation but are expected to reduce pollution to acceptable limits.

Solid waste generated by construction of this highway project will be disposed of in accordance with all state solid waste management rules and regulations. Landclearing waste construction and demolition materials shall be disposed of in a registered, sanitary landfill site if this is at all possible. If no landfill site is available or its use is not feasible, the contractor shall dispose of solid waste in a manner that will not create a hazard to public health or become a public nuisance in accordance with all state solid waste disposal rules and regulations.

During construction of this proposed project, public safety will be achieved by adhering to all applicable provisions of the Tennessee Standard Specifications for Road and Bridge Construction and to all applicable federal regulations. Care will be taken to provide traffic control devices, detour routes, warning devices, signs, barricades, flashers, flagmen, and any other precautions necessary to ensure the safety of persons and vehicles.

There is the possibility that some crossroads will be closed during the construction phase. The detouring of traffic will be coordinated with appropriate local officials.

Disruption of any utility services, if necessary, would be minimized as much as possible since it is the standard policy of the Department of Transportation to coordinate all utility relocations with the affected utility companies.

4.14 Historical and Archaeological Impacts

Historical and archaeological surveys were conducted for this project by staff of the Department of Transportation. These reconnaissance reports, concurrence by the State Historic Preservation Officer (SHPO), and related correspondence are in Appendix "C".

4.14.1 Historical Impacts

No properties in the project area are currently listed in the National Register of Historic Places, nor have any been determined to be eligible for listing. A field survey did not identify any previously unrecorded properties which might meet the criteria of the National Register as set forth in 36 CFR 60.6.

As a result of these investigations, it appears that the project, as presently designed, will have no effect on any buildings, structures, or objects listed in or eligible for listing in the National Register of Historic Places.

4.14.2 Archaeological Impacts

A search of the site survey files at the Tennessee Division of Archaeology indicated two previously recorded sites in the project area. Both sites, 40SY100 and 40SY101, were located in the project area immediately south of the Wolf River. Sometime prior to 1966 both sites were apparently destroyed when the Wolf River was channelized. No evidence of either site remains.

The field survey revealed no additional archaeological sites in or adjacent to the project area. Based upon this finding, the proposed project will have no impact upon any property included in or potentially eligible for inclusion in the National Register of Historic Places pursuant to 36 CFR 60.6.

4.15 Energy Impacts

The energy requirements of the various construction alternatives are similar. They are greater than the energy requirements of the no-build alternative. Conversely, the post-construction, operationale energy requirements of the facility should be less with the proposed project than with the no build alternative.

The fuel used during construction will be an indirect energy impact and should be more than offset by the fuel saved during operation of the proposed facility. Fuel used to operate vehicles on the new highway facility is considered to be a "direct" energy impact. Vehicles traveling on the multi-lane roadway will be able to operate under more energy efficient conditions with reduced travel time and distance.

4.16 Visual Impacts

The visual impacts of the proposed project upon the area, area residences, and neighborhood businesses is of considerable importance. While the project is a combination of improvements to existing facilities as well as construction on new location, it is located near urbanized and suburban areas. Its completion will alter the visual quality of the area in both the view of the road and the view from the road.

There are two areas where adverse visual impacts will be more pronounced. They are along Whitten Road from Mullins Station Road to I-40. Since a seven (7) lane section would replace a two (2) lane section (as in WP-1 and WP-2), any improvements to the existing facility would result in unavoidable adverse visual impacts. Even if Kirby Parkway were built on new location on the east side of Whitten Park, as in alternative WP-3, the residential areas on the east side of the park would be impacted. These residences would then have a view of a road instead of a vacant field.

The other area which is adversely impacted is Shelby Farms. The portion of the project built in Shelby Farms would serve as the connector link to existing roadways to form a continuous north-south facility. This would, however, abruptly alter the contour of the land and result in unavoidable adverse visual impacts.

Appropriate measures will be taken to make the design and appearance of the new roadway as pleasing as possible.

4.17 Construction Relating to Pedestrians and Bicyclists

Sidewalk facilities, for pedestrians, are included as a part of the proposed project (See Figure 3). This would reduce the access impact to the community.

Six (6) foot bikeways were considered for the portion of the project between Massey Lane and Mullins Station Road. At a meeting held in January, 1986, officials from the Tennessee Department of Transportation, Shelby County Government, City of Memphis, and City of Bartlett agreed to omit the bikeways from the project. They felt that a bikeway adjacent to traffic lanes with a design speed of 50 mph was undesirable with regard to bicyclist safety.

4.18 Landfill Impacts

The Shelby County Panel Farm Landfill, located in Shelby Farms (See Figure 2) is a registered sanitary landfill. It was issued a permit by the Tennessee Department of Health and Environment (TDHE) on June 30, 1972. On September 3, 1981 it was granted an extension. Within a few months, the site will reach its capacity.

As a sanitary landfill the facility is authorized to receive various waste streams including residential, commercial, industrial, demolition, and agricultural wastes. The Resource Conservation and Recovery Act (RCRA) provides that individual household hazardous waste are allowed for disposal at state permitted sanitary landfills. Household hazardous waste are excluded from regulation under RCRA.

Prior to receiving a permit, it was an open dump serving the County Penel Farm and the County Health Care Center.

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Studies conducted in 1986, by the Tennessee Department of Health and Environment indicate that the landfill has been leaking into the shallow aquifer and toward an interconnection to the Memphis Sands Aquiter. The Shelby County Government, TDHE, and U.S. Geological Survey (USGS) have been working in cooperation to study the situation. The TDHE is working with the Shelby County Government toward upgrading the cover material used as a final cover on the landfill.

The USGS is conducting a study in the vicinity of the landfill. The final report has not been completed. However, there is data to indicate a plume leading from the landfill towards wells located north of Walnut Grove Road. The occurrence of a plume toward the southeast is suspected. Appendix "E" contains the information, provided by USGS which describe the data from some of the wells sampled.

The alignment for alternatives SF-2 (a and d) would skirt the eastern margin of the landfill (See Figure 2). If excavation were required for these alternatives, it could involve fill material. While excavation along other alternative's alignments would not involve fill material, it could incounter leakage from the landfill.

To help protect the health and safety of both the construction workers and the general public, the design and construction of the project wouild be coordinated with the Department of Health and Environment. Possible mitigation measures include: the proper disposition of contaminated materials and the use of suitable materials to seal the site from the roadway.

4.19 Relationship Between Short-term Uses of the Environment and Long-term Productivity

The alternatives under consideration have similar impacts. The

improvements are based on comprehensive local planning which considers the need for both present and future traffic requirements. Present and future land use development was used in developing the proposed project.

The local short-term impacts and use of resources by the proposed action is consistant with the maintenance and enhancement of long-term productivity for the local area.

4.20 Irreversible and Irretrievable Commitment of Resources

Implementation of the proposed action involves a commitment of a range of natural, physical, human, and fiscal resources. Land used in the construction of the proposed facility is considered an irreversible commitment during the time period that the land is used for a highway facility. However, if a greater need arises for use of the land or if the highway facility is no longer needed, the land can be converted to another use. At present, there is no reason to believe such a conversion will ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material are expended. Additionally, large amounts of labor and natural resources are used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use will not have an adverse effect upon continued availability of these resources. Any construction will also require a substantial one-time expenditure of both local and Federal funds which are not retrievable.

The commitment of these resources is based on the concept that residents in the immediate area and region will benefit by the improved

quality of the transportation system. These benefits will consist of improved accessibility and safety, savings in time, and greater availability of quality services which are anticipated to outweigh the commitment of these resources.

CHAPTER V

SECTION 4(f) EVALUATIONS

5.1 Section 4(f) Evaluation for Whitten Park

5.1.1 Statement of Determination

The Tennessee Department of Transportation (TDOT), with funding made available through the Federal Highway Administration (FHWA) is planning for the construction of Kirby Parkway from Split Oak Drive to Messick Road and from Humphreys Boulevard to Stage Road with an extension of Sycamore View Road from Mullins Station Road to Kirby Parkway in Memphis, Shelby County. The length of the project is approximately 10 miles and is located in the East Memphis area (See Figure 1).

The proposed project has several design alternatives under consideration (See Figure 2). Alternative WP-1 would require the acquisition of approximately 0.4 acres of property from Whitten Park (See Figure 9). Therefore, Alternative WP-1 will constitute a physical taking of land from a public park, requiring a determination under Section 4(f) of the Department of Transportation Act of 1966, as amended by Section 138 of the Federal Aid Highway Act of 1968.

Section 4(f) declares it "... to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites". Section 4(f) further requires that "... the secretary shall not approve any program or project which requires the use of any publicly owned land from a

public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance as determined by the federal, state or local officials having jurisdiction thereof, or any land from a historic site of national, state or local significance as so determined by such officials unless: (1) there is no feasible or prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use".

5.1.2 Description of the Proposed Action

The portion of the proposed project which would impact Whitten Park would be a seven lane cross-section built within a 108-foot right-of-way. The center lane would be a turning lane. It would have sidewalks with curbs and gutters.

Three design alternatives were developed for this section: WP-1; WP-2; and WP-3 (See Figure 2). WP-1 would be constructed along the centerline of Whitten Road and would require taking some property from Whitten Park (See Figure 9). The alignment for WP-2 would be shifted 43 feet to the west of the centerline of Whitten Road (See Figure 10). This would avoid taking property from the park. Also to avoid taking property, WP-3 was routed on the east side of the park (See Figure 11).

The purpose and need for the entire project was discussed in Chapter I. Chapter II contains the description of the complete proposed project which includes alternatives WP-1, WP-2, and WP-3.

5.1.3 Description of the Section 4(f) Resource

5.1.3.1 Park Description

Whitten Park is a 15 acre park located off of Whitten Road (See Figure 2). It is located in the East Memphis area of Shelby County. The Shelby County Conservation Board ownes the Park. The facility is the only park in walking and bicycling distance for the area residents and is located in a rapidly growing area.

The Park contains a playground area, a tennis court, a basketball goal, restroom facilities, and two ball fields (See Figure 9). The ballfield nearest Whitten Road has lights, bleachers, and concession facilities. The bleachers will accommodate about 40 to 50 people. The other ballfield does not have any of these facilities.

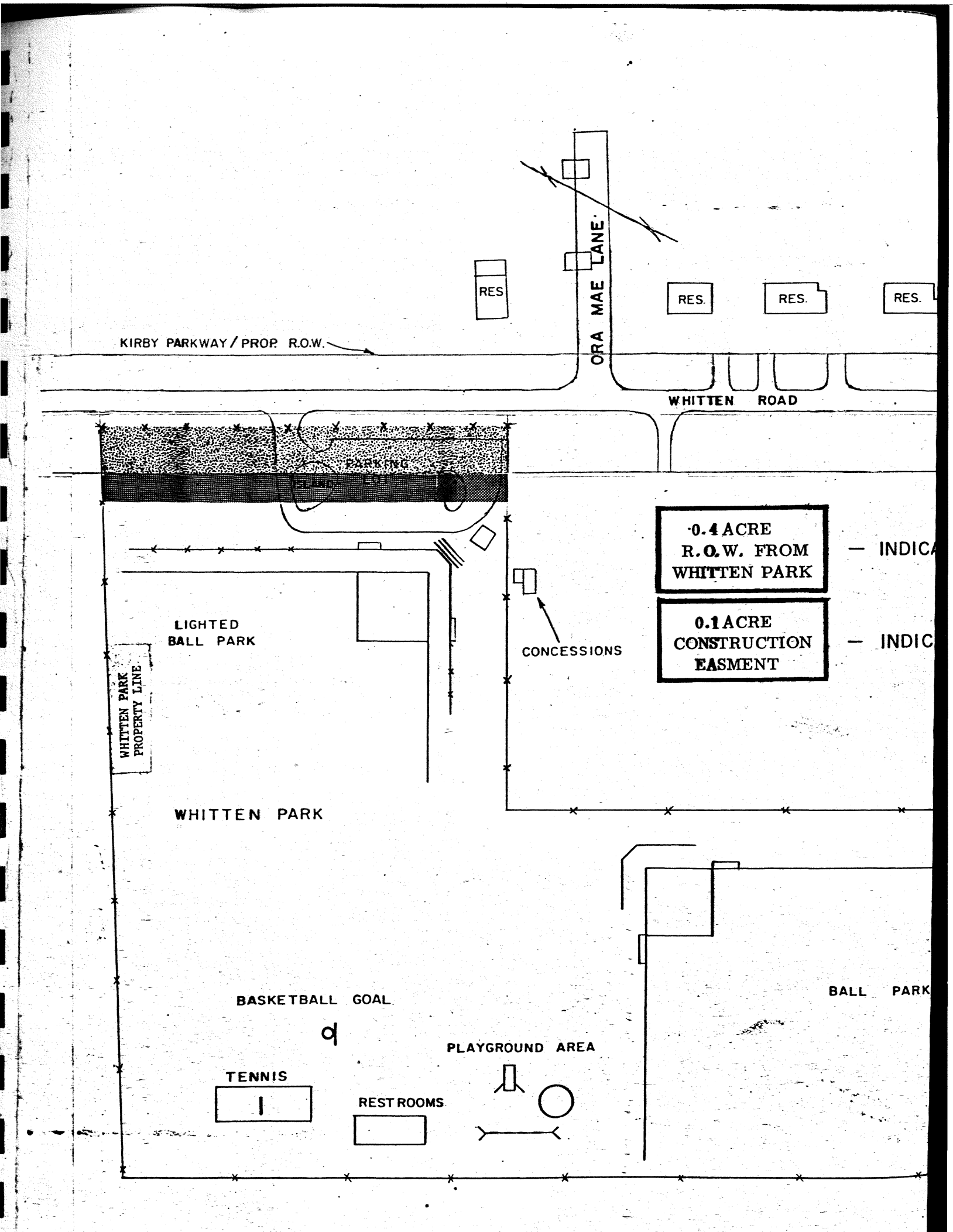
No Department of Interior funds were used to establish or improve Whitten Park.

5.1.3.2 Activities and Usage

The Whitten Park facilities provide many activities for the community. These activities are both organized and unorganized. General unorganized activities include use of the playground, the tennis court, basketball goal, and the ballfield. The ballfield also provide the facility for the Parks organized usage.

The Optimist Club operate Little League programs at Whitten Park. They indicate approximately 600 people a year participate in their baseball, softball, and football programs. This does not include family members who attend the game and use other park facilities.

The Shelby County Conservation Board does not maintain use records for Whitten Park.


RES
ORA MAE LANE
RES.
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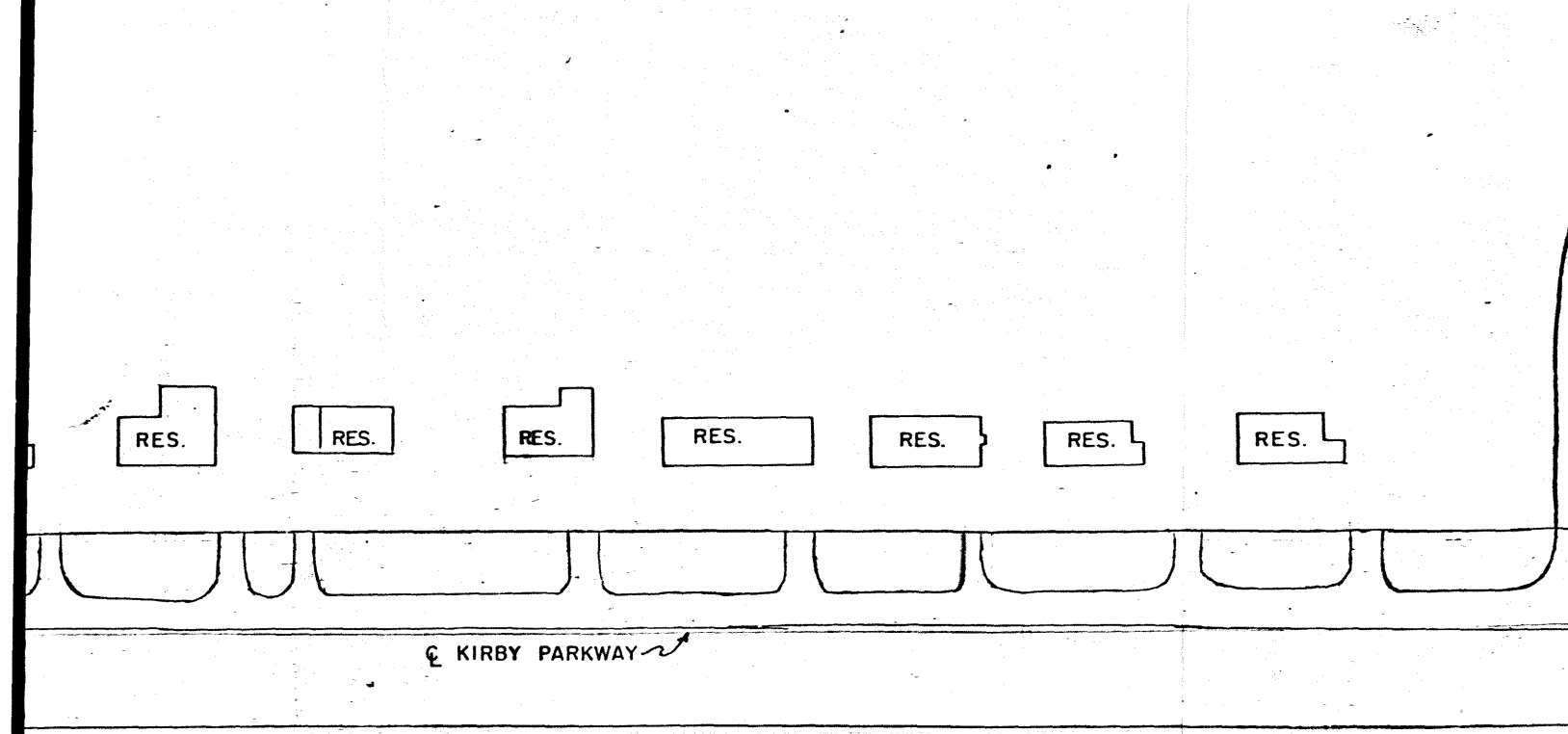
KIRBY PARKWAY / PROP. R.O.W.
WHITTEN ROAD
PARKING
LOT
0.4 ACRE
R.O.W. FROM
WHITTEN PARK
— INDICA
0.1 ACRE
CONSTRUCTION
EASMENT
— INDIC
LIGHTED
BALL PARK
CONCESSIONS
WHITTEN PARK
PROPERTY LINE
WHITTEN PARK
BALL PARK
BASKETBALL GOAL
PLAYGROUND AREA
TENNIS
1
REST ROOMS



KIRBY PARKWA

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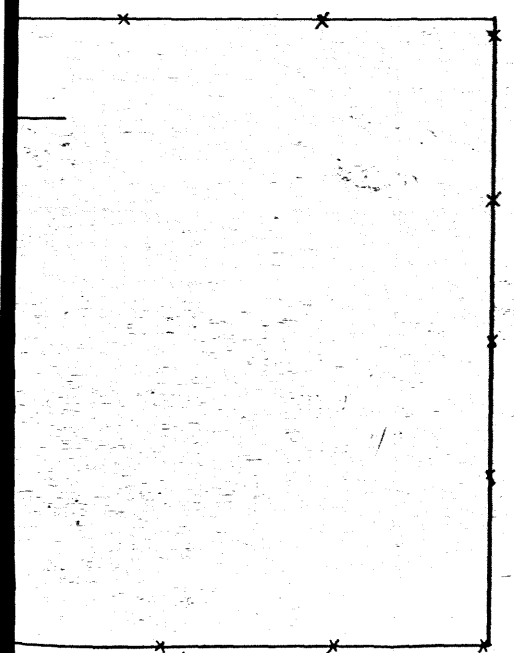


FIGURE

KIRBY PARKWAY AT W

ALTERNATIVE

R.O.W. TO BE ACQUIRED

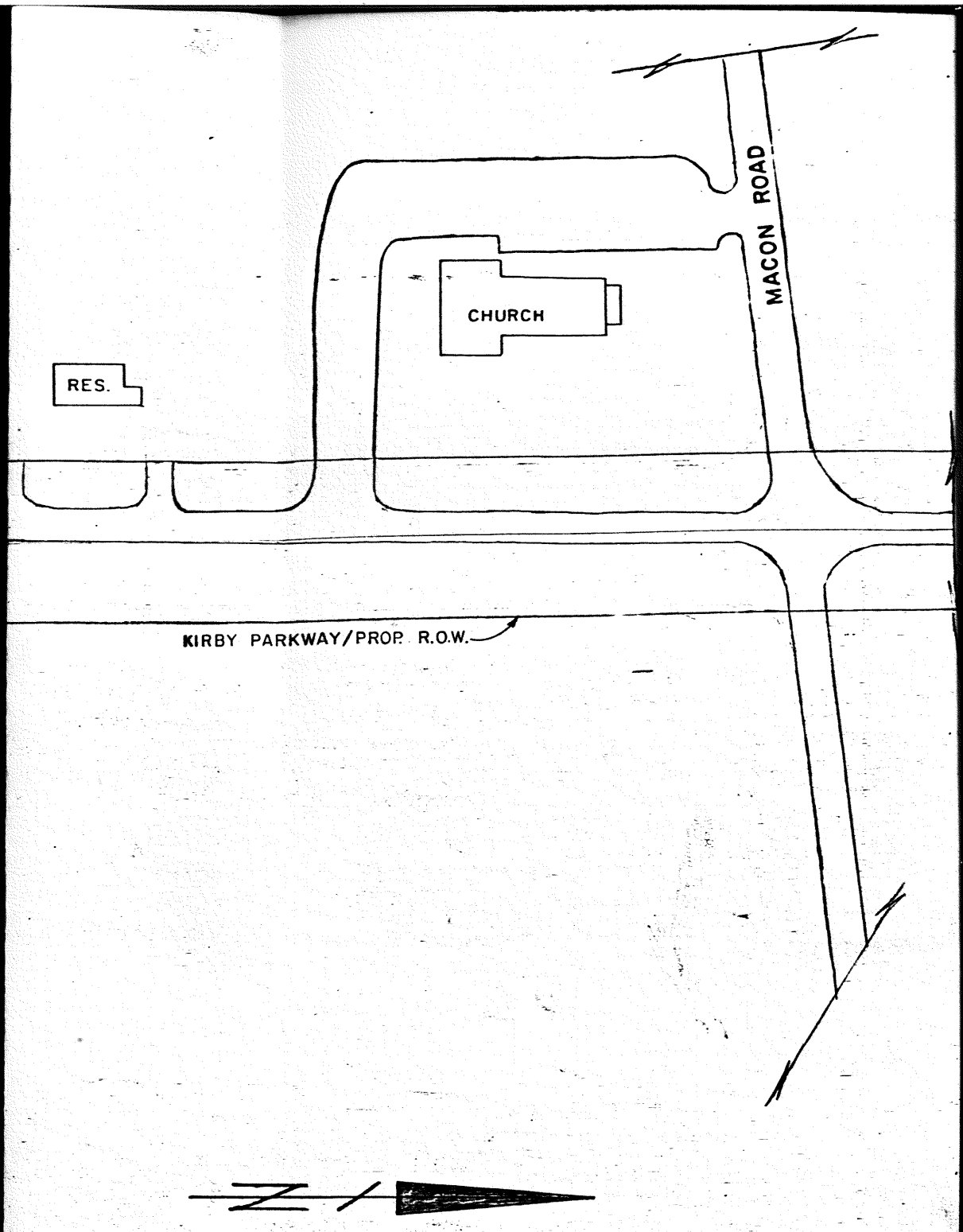


FIGURE 9

KIRBY PARKWAY AT WHITTEN PARK

ALTERNATIVE WP-1

R.O.W. TO BE ACQUIRED FORM WHITTEN PARK

5.1.4 Impacts on the Section 4(f) Resource

5.1.4.1 WP-1 Alternative

The proposed project calls for upgrading the existing two-lane street to one that has seven lanes. In the WP-1 Alternative, the widening is about the centerline of Whitten Road. This would require the use of 0.50 acre of Park land (See Figure 9). Of this land, 0.10 acres is for a temporary construction easement which would revert back to the Park. The remaining 0.40 acre would be permanently taken. The permanent take would be approximately 43-feet deep by 356-feet frontage.

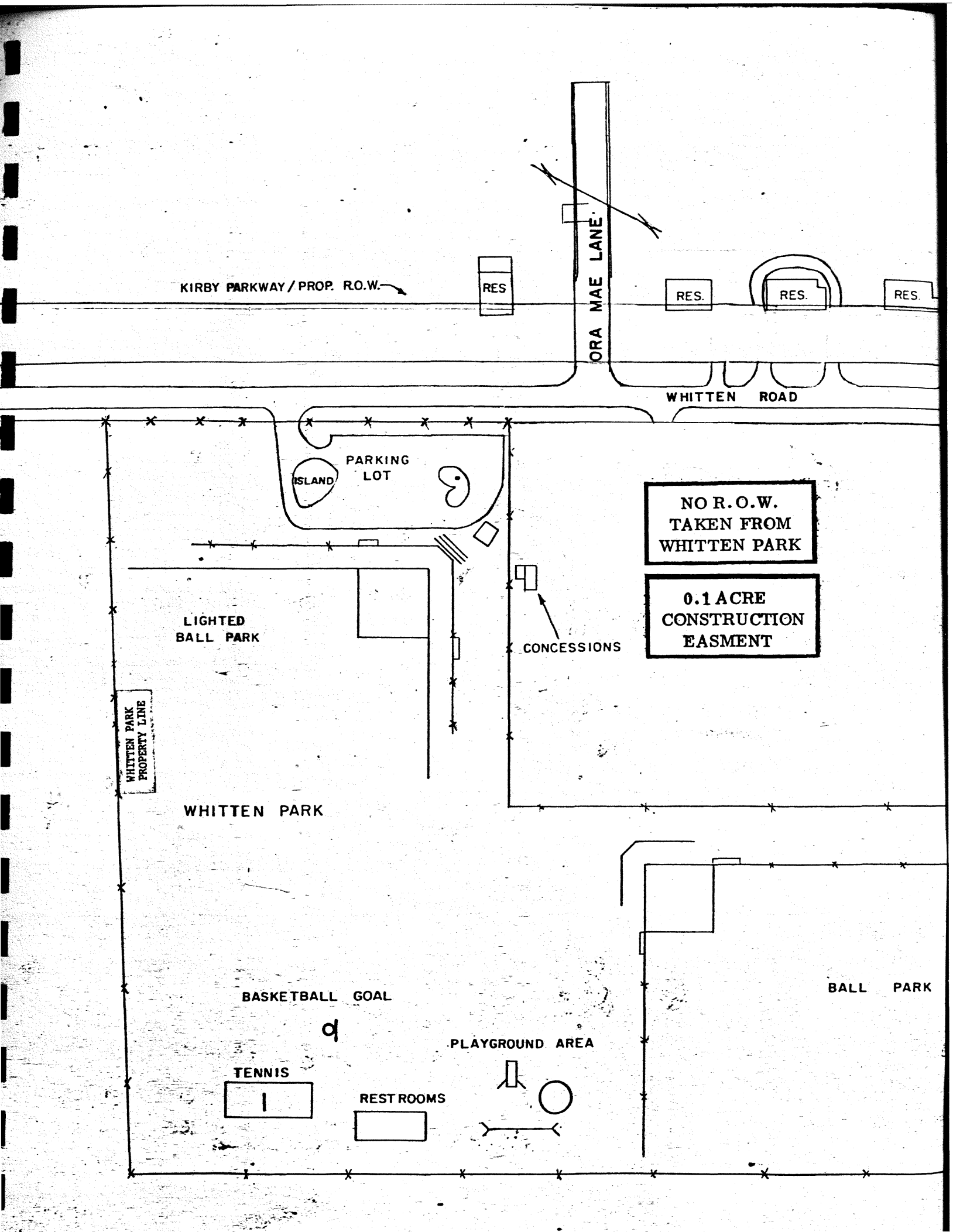
The land taken is in the parking area. This would result in the loss of about fifteen (15) parking spaces. Since the parking area is small with unmarked parking spaces, the loss of parking space would be about half of that available.

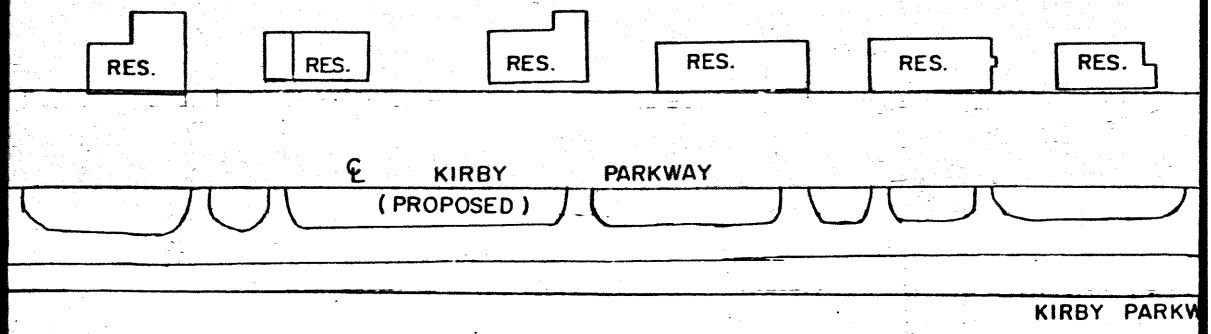
Noise levels to the Park would increase 2 dBA, from 63 dBA to 65 dBA. Air pollution will be well below the National Ambient Air Air Quality Standards. This would not effect the use of the park.

The proposed project would have some positive impacts on Whitten Park. It would improve the Park's accessibility. The addition of sidewalks would increase pedestrian safety. The present Park entrance would be widened and another entrance would be added to the north of the present entrance. The improved entrance along with the left turn lane would improve vehicular access and safety. There would be no impairment of resource functions.

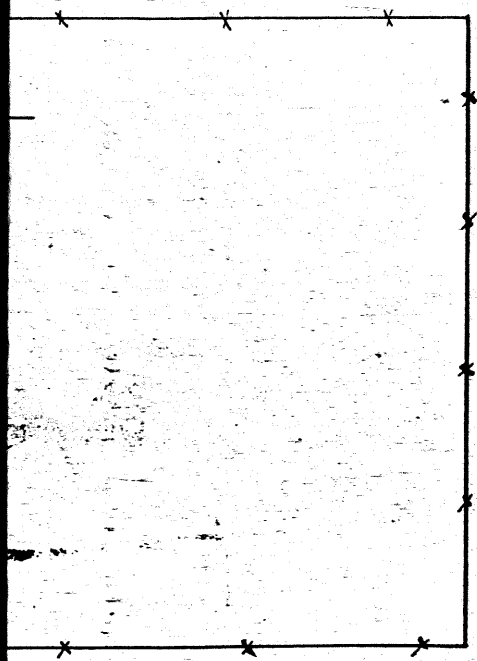
5.1.4.2 WP-2 Alternative

In this alternative, the alignment of the proposed project would be shifted to west so the right-of-way line of Kirby Parkway would correspond with the property line of Whitten Park (See Figure 10). This would avoid taking land from the Park.


KIRBY PARKWAY / PROP. R.O.W.
RES
ORA MAE LANE
RES.
RES.
RES.
WHITTEN ROAD
PARKING LOT
ISLAND
NO R.O.W. TAKEN FROM WHITTEN PARK
0.1 ACRE CONSTRUCTION EASMENT
LIGHTED BALL PARK
CONCESSIONS
WHITTEN PARK PROPERTY LINE
WHITTEN PARK
BALL PARK
BASKETBALL GOAL
PLAYGROUND AREA
TENNIS
REST ROOMS



KIRBY PARKW



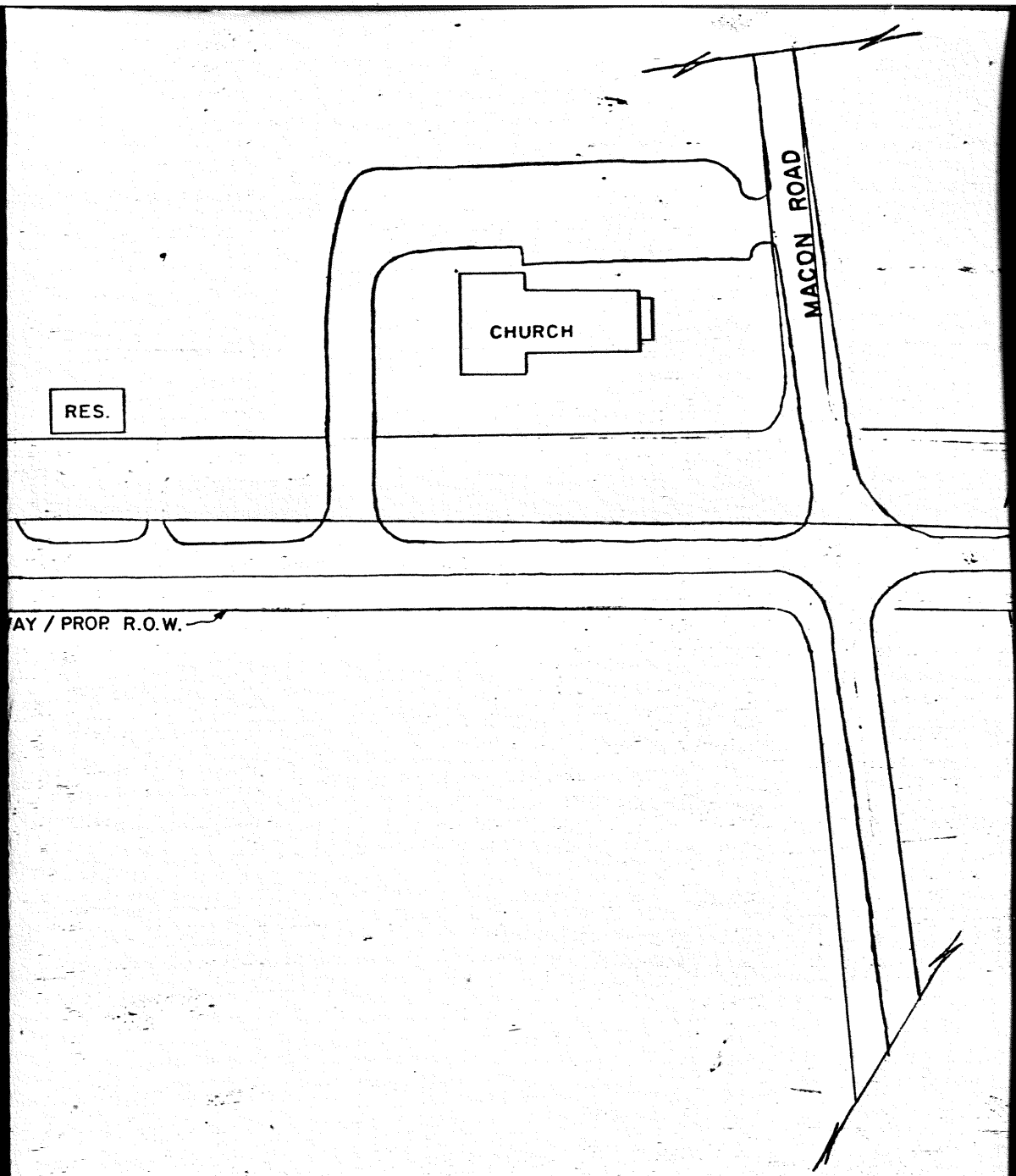


FIGURE 10

KIRBY PARKWAY AT WHITTEN PARK

ALTERNATIVE WP-2

NO R.O.W. TO BE ACQUIRED FROM WHITTEN PARK

Noise levels to the Park would increase 2 dBA, from 63 dBA to 65 dBA. Air pollution will be well below the National Ambient Air Quality Standards.

The proposed project would have some positive impacts on Whitten Park. It would improve the Park's accessibility. The addition of sidewalks would increase pedestrian safety. The present Park entrance would be widened and another entrance would be added to the north of the present entrance. The improved entrance along with the left turn lane would improve vehicular access and safety. There would be no impairment of resource functions.

5.1.4.3 WP-3 Alternative

In this alternative, the alignment of the proposed project would be shifted to the east side of Whitten Park (See Figure 11). No land would be taken from the Park. There would be no direct access between the Park and Kirby Parkway at this time. The entrance to the park would remain on Whitten Road. Noise levels would be increased 19 dBA, from 46 dBA to 65 dBA. There would be no impairment of resource functions. The activities on the east side of the park are baseball, football, playground, tennis, and basketball which would not be impaired by an increase in the noise level.

5.1.5 Avoidance Alternatives

In order for alternative WP-1 to avoid taking park property, its alignment would have to be shifted to the west side (alternative WP-2) or to the east side (alternative WP-3) of the park.

These two avoidance alternatives were developed for the proposed project. They are discussed below. WP-1 could not be adjusted to miss the park.

5.1.5.1 WP-2 Alternative

This alternative avoids Whitten Park with a shift of the projects alignment to the west. The impacts to the Park were discussed in Section 5.1.4.2.

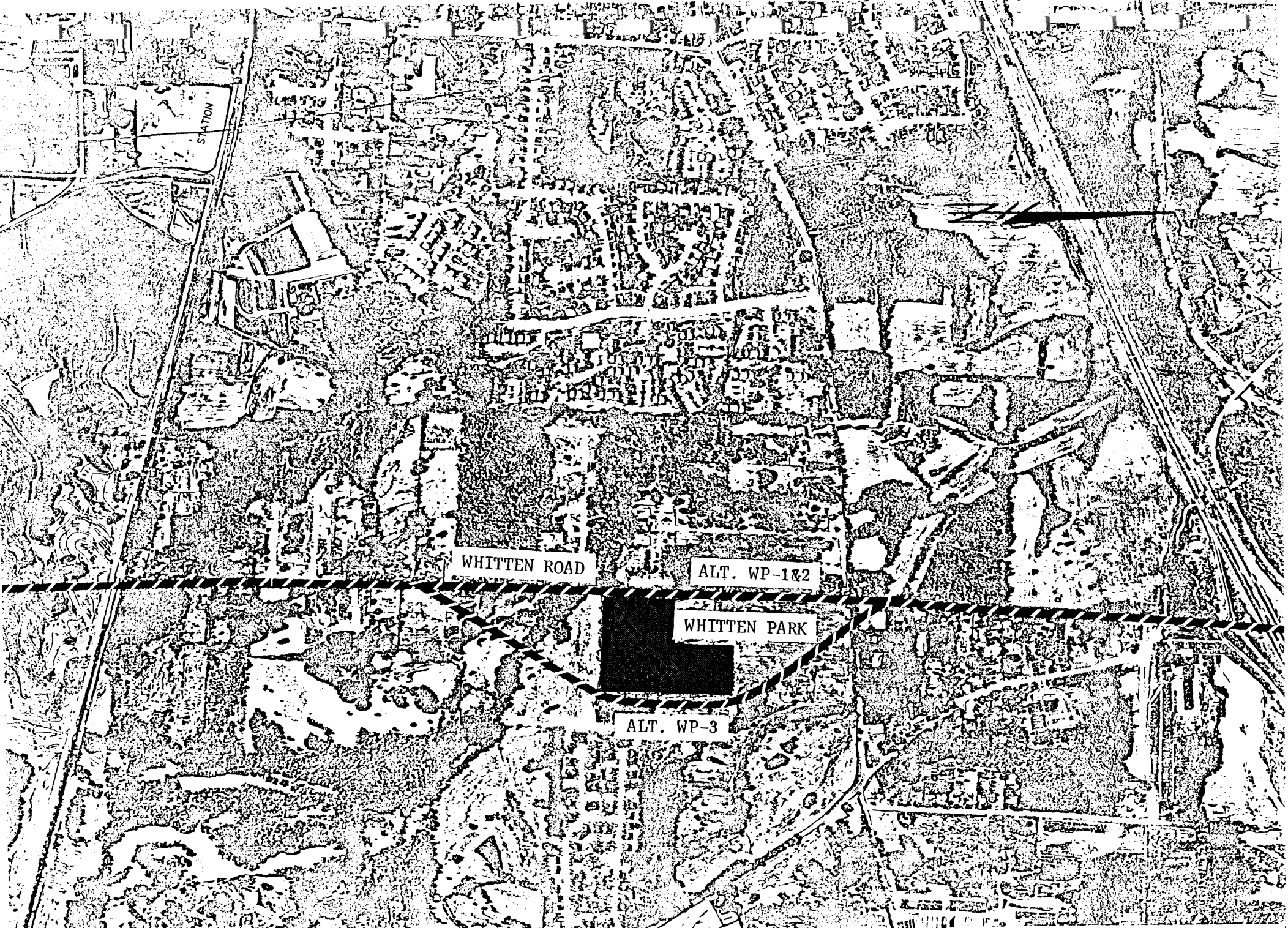


FIGURE 11
ALTERNATIVES FOR WHITTEN PARK

This shift in the alignment would result in the relocation of thirty-one (31) single family dwellings. These relocations are necessary to avoid park property. The families displaced consist of from two (2) to four (4) members and range in age from five (5) to forty-five (45). Studies indicate the displacees could locate comparable replacement properties in the project area.

This alternative would increase the cost of the project by approximately $1,046,000 more than WP-1 Alternative.

5.1.5.2 WP-3 Alternative

This alternative avoids Whitten Park by routing the project alignment to the east of the Park. The impact to the Park were discussed in Section 5.1.4.3.

Three (3) businesses located in one building may be displaced due to this alternative. Studies indicate there is available commercial property, both purchase and rental, in the project area.

This alternative would cost approximately $1,905,000 less than WP-1 Alternative.

5.1.6 Measures to Minimize Harm

The design of the proposed project utilizes two different cross-sections (See Figure 3). One uses a 108-foot minimum right-of-way and the other uses a 114-foot minimum right-of-way. At the Whitten Park location, the 108-foot cross-section would be utilized. This would reduce the right-of-way taken from the park by WP-1.

It may be possible to replace the parking which would be lost due to WP-1 taking park property. There is a vacant lot next to the park. It may be possible to purchase some or all of this property to replace the lost parking.

Construction activities would be coordinated with county and park officials so as to maintain access to the park. Park areas disturbed by construction of the proposed project would be restored and revegetated to their current appearance. The provisions of the Standard Specifications for Road and Bridge Construction will be will be followed throughout the term of the project construction.

5.1.7 Coordinaton

Initial coordination was sent to various Federal, regional, State, and local agencies and officials on February 1, 1984, for their review and comment. A discussion of the coordination with coordination with these agencies and their responses are in Chapter VI. Of those responding to the initial coordination, NO comments were offered as to Whitten Park.

After reviewing the three alternatives (WP-1, WP-2, and WP-3), Shelby County officials felt that either WP-1 or WP-3 would be preferred over WP-2 since WP-2 would displace a large number of families. They also indicated that if WP-3 were selected as the preferred alternative access should be provided to the park.

5.2 Section 4(f) Evaluation for the Shelby Forest Trails

5.2.1 Statement of Determination

The Tennessee Department of Transportation (TDOT), with funding made available through the Federal Highway Administration (FHWA) is planning for the construction of Kirby Parkway from Split Oak Drive to Messick Road and from Humphreys Boulevard to Stage Road with an extension of Sycamore View Road from Mullins Station Road to Kirby Parkway Parkway in Memphis, Shelby County. The length of the project is approximately 10 miles and is located in the East Memphis area (See Figure 1).

There are a number of recreational trails in the bottomland

hardwoods which is known as Shelby Farms Forest (See Figure 12). All of the design alternatives under consideration for the proposed project (See Figure 2) would cross these trails. Therefore, they impact recreational facilities, requiring a determination under Section 4(f) of the Department of Transportation

Act of 1966, as amended by Section 138 of the Federal Aid Highway Act of 1968.

Section 4(f) declares it "...to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites". Section 4(f) further requires that "...the secretary shall not approve any program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge or national, state, or local significance as determined federal, national, state, or local significance at determined by the federal, state or local officials having jurisdiction thereof, or any land from a historic site of national, state or local significance as so determined by such officials unless: (1) there is no feasible or prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use."

5.2.2 Description of the Proposed Action

The portion of the proposed project which impacts the Shelby Forest Trails would be built within a 114-foot right-of-way. It would have six traffic lanes, a raised median and sidewalks with curbs and gutters.

Four design alternatives were developed for this section: SF-1; SF-2; SF-3; and SF-4 (See Figure 12). SF-1 would cross the Wolf River directly north of the existing Kirby Parkway and proceed throughout the widest portion of the Shelby Farms Forest Natural Area South crossing two trails.

SF-2 would cross the Wolf River at the narrowest portion of

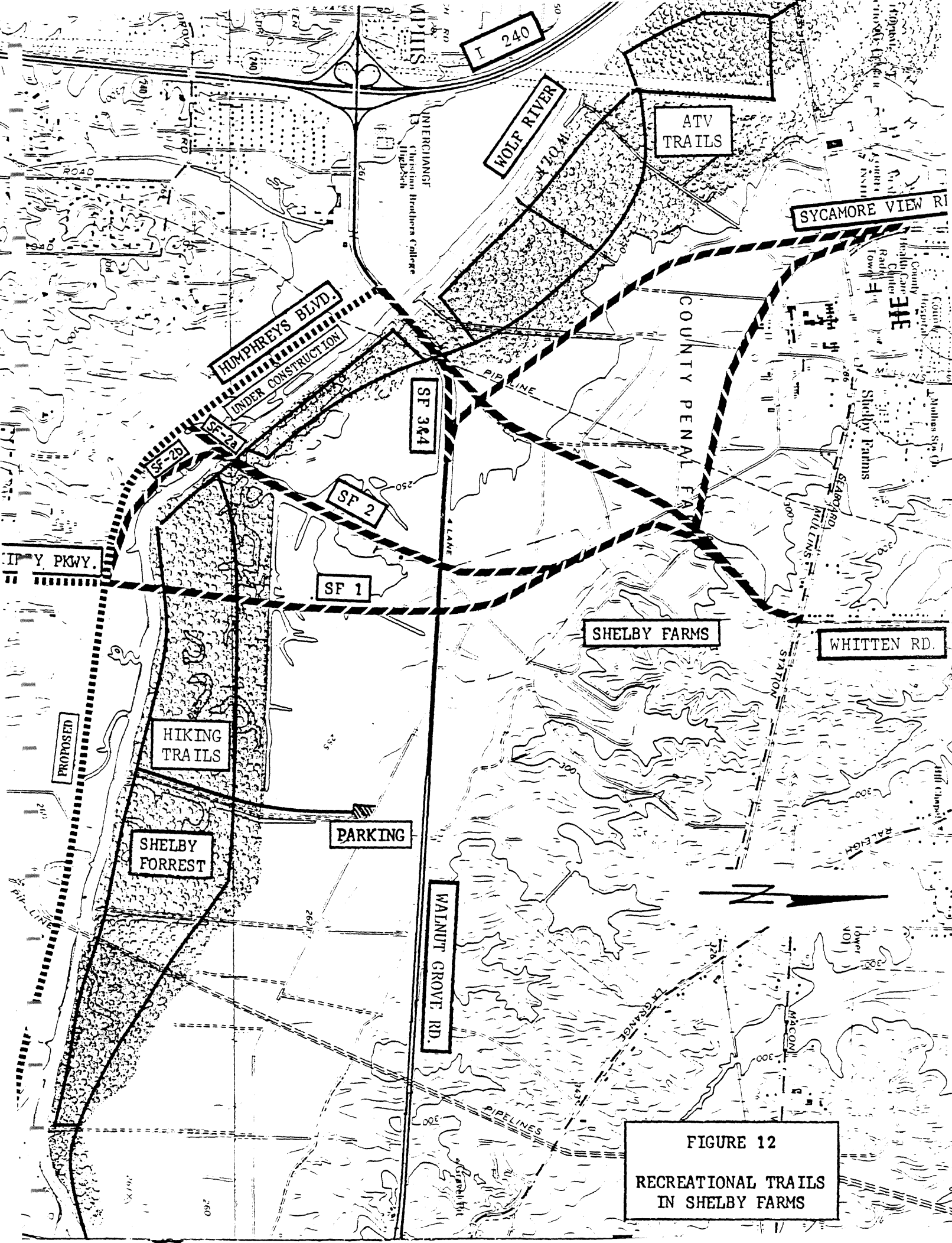


FIGURE 12

RECREATIONAL TRAILS IN SHELBY FARMS

the woodlands on the north side near the landfill. It would be bounded to the east by Shelby Farms Forest Natural Area South. This would cause the project to be offset at Humphreys Boulevard. This alternative would cross one trail.

SF-3 and 4 would cross the Wolf River at the existing Walnut Grove Road Bridge. The bridge would have to be widened. The proposed project would also be offset at Humphreys Boulevard for these alternatives. These alternatives would be bounded the north by the Shelby Farms Forest Natural Area North and would cross one trail.

The purpose and need for the entire project was discussed in Chapter I. Chapter II contains the description of the complete project which includes alternatives SF-1, SF-2, SF-3, and SF-4.

5.2.3 Description of the Section 4(f) Resource

5.2.3.1 Trail Description

The remnant of a once vast bottomland hardwood forest remains along the margin of the Wolf River as a greenbelt. As the local inhabitants walked in these areas, a series of trails were created. The quality of these trails vary from crude, and difficult to use trails along much of the length of the river to well developed and easily used trails like the ones which are maintained in the Shelby Farms areas.

There are two types of trails (See Figure 12) in Shelby Farms: those used by hiking and bicycles and those used for motorized vehicles such as motorcycles and all terrain vehicles (ATV's). The trails to the south of Walnut Grove Road are for hiking and bicycles while those to the north are used by motorized vehicles.

5.2.3.2 Activities and Usage

The hiking trails, which are located between Germantown Boulevard and Walnut Grove Road are used by individuals as well as

organized groups. Some of the groups which use the trails are school groups, church groups, scout troupers, and birding clubs. Some of the trails are relatively flat and are sometimes used by elderly and physically impaired individuals.

The trails provide a resource for a wide range of activities. These activities generally fall into one or both of two categories; recreational and educational. Walking the trail provide exercise and enjoyment of nature to many. Some utilize the habitat around the trails to study and observe the plant and animal life. There is some overnight camping along the trails.

The trails between Walnut Grove Road and Mullins Station Road are utilized by individuals on motorized vehicles, either motorbikes or all terrain vehicles (ATV's).

Although the trails were developed and are maintained by Shelby County, their use is not supervised. No records are maintained as to the number of individuals using the trails. They have, however, observed that the spring and fall are the seasons with the highest usage.

5.2.4 Impacts on the Section 4(f) Resource

There are four (4) design alternatives which impact the recreational trails (See Figure 12). These alternatives cross the trails at three (3) different locations. SF-1 (a thru d) alternatives cross the trails through an area known as Shelby Farms Forests. SF-2 (a and b) alternatives cross them at a narrowing of the greebnbelt near

the landfill. SF-3 and SF-4 (a and b) cross them at the existing Walnut Grove Road location.

The noise levels for all alternatives would increase by 13 dBA from 62 dBA to 75 dBA. The remaining impacts are discussed separately by alternative.

5.2.4.1 SF-1 Alternative

The SF-1 alternatives would cross the Shelby Farms area through a 413-acre woodland known as the Shelby Farms Forest. This would cause the alignment to cross two (2) hiking trails (See Figure 12). There are four (4) bridge design concepts for this alternative. One of the bridge designs, which was designated the SF-1a alternative, would span the trail nearest the Wolf River, but it would completely block the other trail. The other three (3) bridge designs, designated SF-16, SF-1c, and SF-1d, would span both rails.

Other than completely blocking a trail, as with SF-1a alternative, the main impact to the trails would be visual. The construction of the project would require the cutting of some of the vegetation which would alter the view from the trails. The bridge itself would also alter the view. While some of the vegetation would regrow, the bridge would remain a permanent alteration of the area.

The construction of the project would cause temporary disruptions in the use of the trails.

5.2.4.2 SF-2 Alternative

The SF-2 alternatives cross the Section 4(f) Resource for the landfill (See Figure 12). At this location, the trails have merged into one trail. This is due to the narrowing of the woodlands at this location.

Both of the alternatives, SF-2a and SF-2b, would span the trail. As with the SF-1 alternatives, the main impact to the trail would be visual due to the construction of a permanent overhead bridge structure as well as the cutting of vegetation during construction. There would also be construction disruption to the use of the trail.

These alternatives differ by the angle which they cross the trails. The SF-2a alternative cross at nearly a 90° angle. The SF-2b alternative cross at a skew ad angle. This would increase the impact on the trails because the structure would be wider.

5.2.4.3 SF-2 and SF-4 Alternatives

These alternatives would cross the Section 4(f) Resource at the existing Walnut Grove Road Bridge loction (See Figure 12). This would require the bridge to be widened. There is one trail under the bridge.

The widening of an existing structure would cause less disturbances to the woodland area than the construction of a new bridge. This would, however, be some damage to the vegetation during the construction phase. Disruptions to the use of the trail would also occur during construction.

5.2.5 Avoidance Alternatives

The trails in the woodland on the northern margins of the Wolf River extend beyond the boarders of Shelby Farms. However to avoid the trails that are within Shelby Farms, two (2) alternatives were investigated. These alternatives would direct traffic from Kirby Parkway onto proposed Humphreys Boulevard, and then to the existing facilities to the east or west of Shelby Farms.

An alternative to the west of Shelby Farms would require the use of Humphreys Boulevard (under construction), Walnut Grove Road, I-240, and I-40 (See Figure 13). An alternative to the east of Shelby Farms would use the proposed Humphreys Boulevard, Germantown Parkway, and I-40 (See Figure 13).

Both alternatives would defeat the purpose of the proposed project (See Section 1.1). Memphis Road Planning is based on the one-mile grid concept, use of either alternative would leave a gap in that system between Humphrey Boulevard and Stage Road. Part of the purpose of the project was to provide a near north-south route which would help relieve traffic problem on the existing transportation system in the vicinity of the project. Using the existing streets would not accomplish this objective. These alternatives would also add to the length of travel and travel time for those using Kirby Parkway.

5.2.6 Measures to Minimize Harm

Cutting of vegetation for bridge construction is to be held to minimum necessary. The provisions of the Standard Specifications for Road and Bridge Construction will be followed throughout the term of the project construction.

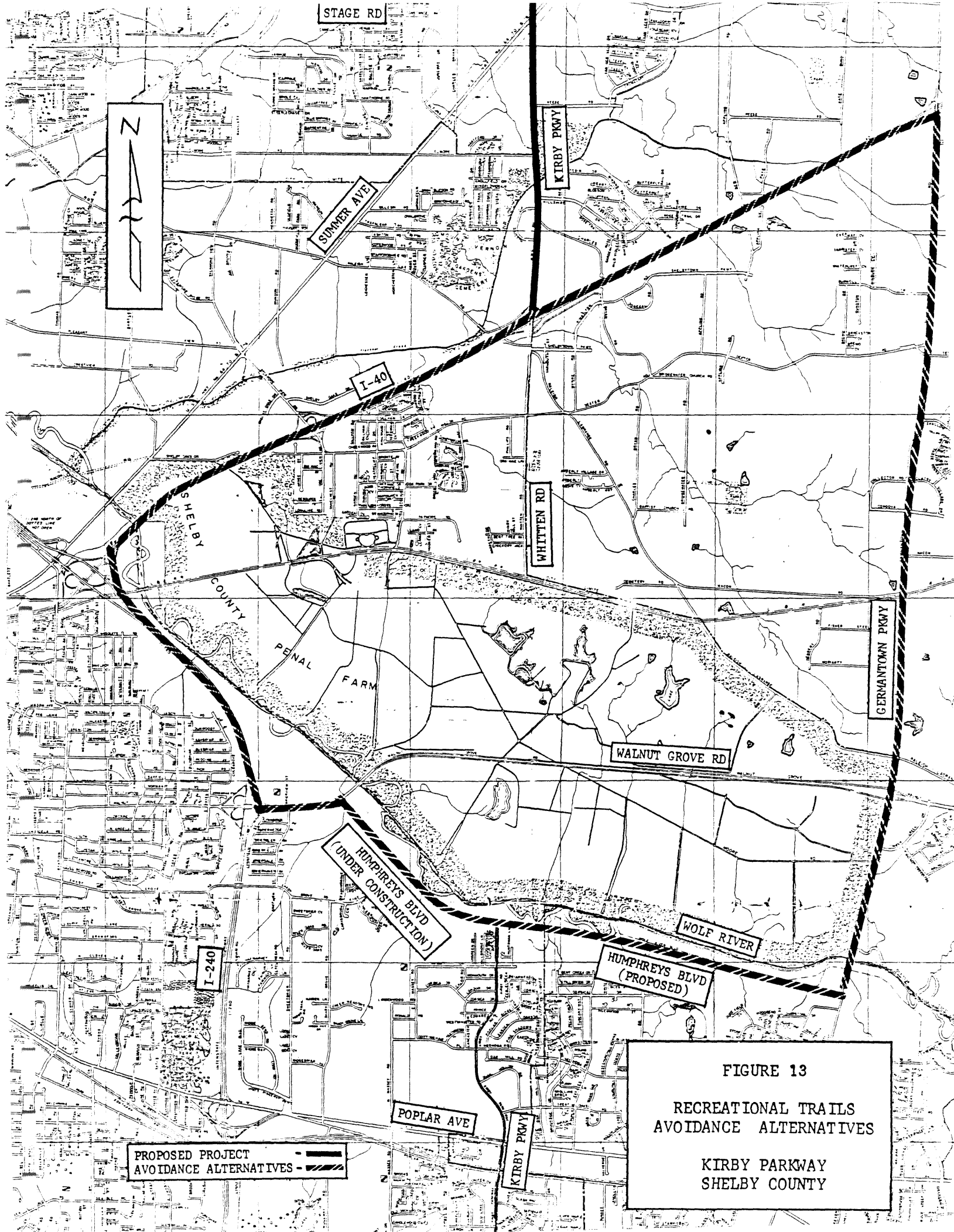


FIGURE 13

RECREATIONAL TRAILS
AVOIDANCE ALTERNATIVES

KIRBY PARKWAY
SHELBY COUNTY

The elimination of bikeways from the proposed project has resulted in a narrower section crossing the trails. If any trail were blocked or destroyed due to construction, they could be rebuilt or relocated. Any structure which would be built over a trail would have sufficient clearance for users to pass under them.

The bridge width of the recreational trails would be narrower than the typical road section which is built on 114' right-of-way. The bridge width would be 106'.

5.2.7 Coordination

Initial coordination was sent to various Federal, regional, State, and local agencies and officials on February 1, 1984, for their review and comment. A discussion of the coordination with these agencies and their responses are in Chapter VI. Of those responding to the initial coordination, no comments were offered as to the recreational trails.

After the initial coordination phase was completed, the recreational trails were identified as a section 4(f) resource. Also, there was growing opposition to crossing the woodlands containing the hiking trails. In a response to this, the county has been involved in developing alternate routes through the Shelby Farms area.

In a meeting held on January 29, 1987, the county indicated they wanted to provide for both human and animal movements through the woodland area. They also wanted an underpass for the loop road near the woodlands. The Tennessee Department of Transportation agreed to develop alternatives which provide this. It was also decided not to provide noise walls due to the visual impact, maintenance, additional right-of-way required, and a feeling that the noise impact was not significant.

In a meeting held on October 11, 1988, county officials said that "After all studies have been completed and the results have been presented for public

review and comment, Shelby County will support the alternatives that best meets the need of the community as it relates to traffic and environment.

5.3 Section 4(f) Evaluation for Shelby Farms Forest Natural Areas (North and South)

5.3.1 Statement of Determination

The Tennessee Department of Transportation (TDOT), with funding made available through the Federal Highway Administration (FHWA) is planning for the construction of Kirby Parkway from Split Oak Drive to Messick Road and from Humphreys Boulevard to Stage Road with an extension of Sycamore View Road from Mullins Station Road to Kirby Parkway in Memphis, Shelby County. The length of the project is approximately 10 miles and is located in East Memphis area (See Figure 1).

The proposed project has several design alternatives under consideration (See Figure 2). Some of the alternatives would require the acquisition of land from the Shelby Farms Forest Natural Areas North of South (See Figure 13). The following chart shows the alternatives, land acquisition requirement, and the area impacted.

Alternative	Acreage	Areas Impacted
SF-1	9.0 to 10.0	South
SF-2b	1.8	South
SF-3	3.0	North
SF-4 a & b	2.1	North
SF-a	0	None

Therefore, these alternatives will constitute a physical taking of land which has unique scenic and recreational value requiring a determination under Section 4(f) of the Department of Transportation Act of 1966, as amended by Section 138 of the Federal Aid Highway Act of 1968.

Section 4(f) declares it "... to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites". Section 4(f) further requires that "...the secretary shall not approve any program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance as determined by the federal, state or local officials having jurisdiction thereof, or any land from a historic site of national, state or local significance as so determined by such officials unless: (1) there is no feasible or alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use."

5.3.2 Description of the Proposed Action

The portion of the proposed project which impacts the Shelby Forest Trails would be built within a 114-foot right-of-way. It would have six traffic lanes, a raised median and sidewalks with curbs and gutters.

Four design alternatives were developed for this section: SF-1; SF-2; SF-3; and SF-4 (See Figure 14). SF-1 would cross the Wolf River directly north of the existing Kirby Parkway and proceed throughout the widest portion of the Shelby Farms Forest Natural Area South crossing two trails.

SF-2 would cross the Wolf River at the narrowest portion of the woodlands on the north-side near the landfill. It would be bounded to the east of Shelby Farms Forest Natural Area South. This would cause the porject to be offset at Humphreys Boulevard. This alternative would cross one trail.

SF-3 and 4 would cross the Wolf River at the existing Walnut Grove Road Bridge. The bridge would have to be widened. The proposed project would also be offset at Humphreys Boulevard for these alternatives. These alternatives would be bounded the north by the Shelby Farms Forest Natural Area North and would cross one trail.

The purpose and need for the entire project was discussed in Chapter I. Chapter II contains the description of the complete project which includes alternatives SF-1, SF-2, SF-3 and SF-4.

5.3.3 Description of Section 4(f) Resource

5.3.3.1 Shelby Farms Forest Natural Areas (North and South)

On March 30, 1988, Governor Ned McWherter, signed into law a bill designating portions of the hardwood forest

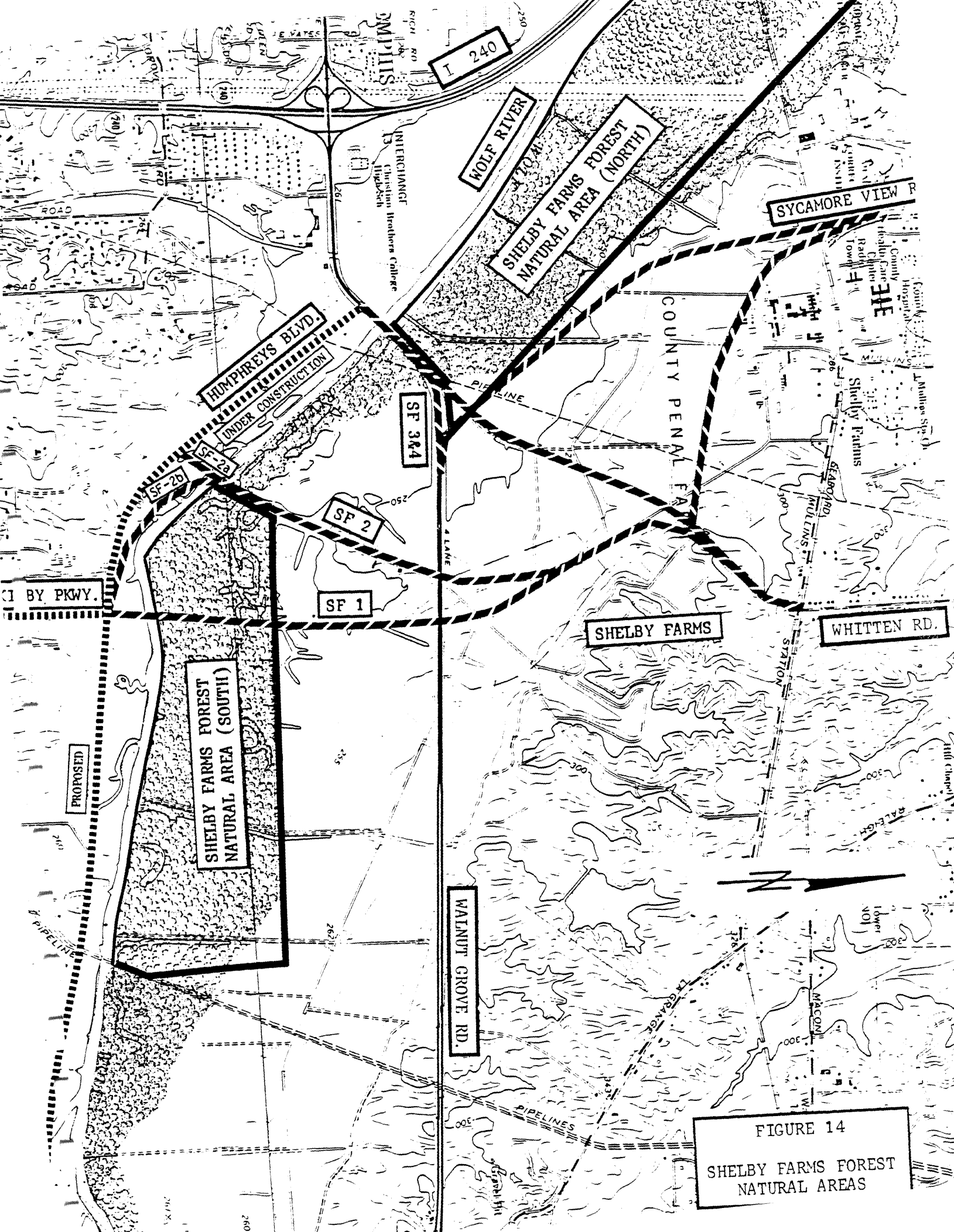


FIGURE 14

SHELBY FARMS FOREST NATURAL AREAS

in Shelby Farms a natural area to be known as Shelby Farms Forest Natural Area (See Figure 14). The natural area consists of two separate forest areas: a 600-acre north of Walnut Grove Road and a 413-acre south of Walnut Grove Road. There is a Corridor between the two acres which was specifically excluded from the Shelby Farms Natural Area.

The boundaries of the natural acres are described using the 1000-meter Universal Transverse Mecator grid ticks (UTM) noted on United States Geological Survey Quadrangle maps. Those boundries are as follows:

The 600-acre forest is shown on the Northeast Memphis, Tennessee and the Ellendale, Tennessee quads. The northern boundary of this forest is formed by interstate highway 240 at 2 UTM coordinates $2_{38}000$,$38_{94}000$. The eastern border $2_{38}000$,$38_{94}000$ (i.e. approximate intersection of TVA right-of-way and I-40) to UTM coordinates a 240300 , $38_{91}750$. The southern boundary of the forest if formed by the right-of-way for Walnut Grove Road (present and future). The western boundard of the forest is the Wolf River. The 413-acre forest is shown on the Ellendale, Tennessee and Germantown, Tennessee quads. The northern boundary of this forest is formed by a line drawn through UTM coordinates 240500, $38_{90}800$ to UTM coordinates $24_{3}000$, $38_{90}800$. The eastern border of this forest is formed by UTM coordinate $24_{3}000$, $38_{90}800$. The southern and partial western boundary of this forest is formed by the Wolf River. The western most boundary of this forest is shown at UTM coordinate $24_{0}500$, $38_{90}800$.

The following corridor is specifically excluded from Shelby Farms Natural Area:

The area as shown on the Ellendale, Tennessee and Germantown, Tennessee Quadrangle maps on which the northern boundard is formed by the right-of-way of Walnut Grove Road (present and future); the west and south boundary is formed by the Wolf River and the eastern boundary is formed by a line drawn through UTM coordinates $24_{0}60_{U}$, $38_{9}0400$ to $24_{1}200$, $38_{9}1500$.

The natural area will be cooperatively managed by Shelby County and the Tennessee Department of Conservation.

5.3.3.2 Activities and Usage

The Shelby Farms Forest Natural Areas are used by both individuals and organized groups. Some of the groups which use the areas are school grouips, church groups, scout troops and birding clubs. There is some use of the natural areas made by both elderly and physically impaired individuals. The series of trails through the woodlands provide access to the natural areas.

This resource provides a wide range of activities. These generally fall into one or both of two categories; recreational and educational. The recreation uses include: walking; jogging; bicycle riding; riding of motorized vehicles such as motorbikes and all terrain vehicles (ATV's); and camping. The woodland habitat provides opportunity to observe and study the plant and animal life.

Although the area is maintained by Shelby County, its use is not supervised by them. No records are maintained as to the number of individuals using the areas. They have, however, observed

that the spring and fall are the seasons with the greatest usage.

5.3.4 Impacts on the Section 4(f) Resource

There are four (4) design alternatives which impact the Shelby Farms Forest Natural Areas (See Figure 14). Alternatives SF-1 (a thru d) and SF-2b cross portions of Shelby Farms Forest Natural Area South. Alternatives SF-3 and SF-4 (a and b) cross a portion of Shelby Farms Forest Natural Area North. Each of these alternatives would require the use of the natural areas land.

The noise levels for all alternative would increase by 13 dBA from 62 dBA to 75 dBA. The remaining impacts are discussed separately by alternative.

5.3.4.1 SF-1 Alternatives

The SF-1 alternatives would cross the Shelby Farms Forest Natural South (See Figure 14) thus requiring the use of some of the Section 4(f) resource land. Four bridge design concepts have been developed for this alignment. Each has a different bridge length; from one that is the minimum necessary to cross the Wolf River to one that not only crosses the Wolf River but also spans the woodland area. Each of these alternatives would require a different land use requirement from the natural area. Their land use requirement is given below:

Alternatives	Approximate Land Required
SF-1a	10.0 acres
SF-1b	9.5 acres
SF-1c	9.0 acres
SF-1d	9.3 acres

The length of the area impacted would be 2,450-feet. The width would vary. At the bridge sections, the width would be 114-feet. The fill sections would depend on the elevation on the roadway since it crosses a floodplain.

The primary adverse impact to the natural area would be the cutting of vegetation for construction of the project. Some vegetation would regrow, but the continuity of the natural area would be permanently altered. White the disrupted area could still be used for recreationl purposes, the educational uses would be altered since construction would disturb the existing habitat.

There would also be an adverse visual impact to the natural area. The construction of a permanent overhead structure, with or without a raised roadway (depending on the bridge length), would alter the view from the vicinity of the alternatives.

5.3.4.2 SF-2b Alternative

This alternative crosses the Wolf River at a point where the woodlands narrow (See Figure 14). Its purposes was to avoid the thickest portion of the woodlands crossed by the SF-1 alternatives. After its development, the state law established boundaries for the Shelby Farms Forest Natural Area South. This alternative will now require the use of approximately 1.8 acres of the natural area.

The construction of the roadway, along the edge of the natural area, would be an adverse visual impact.

5.3.4.3 SF-3 Alternative

This alternative will cross the Wolf River at the present Walnut Grove Road Bridge (See Figure 14). This would require the bridge to be widened. The intersection to the north of the river crossing would require the use of approximately 3.0 acres of land from the Shelby Farms Forest Natural Area North. The intersection would build on land which is presently being cultivated so that there would be no or very little cutting of woodland vegetation.

Since the boundary description of the natural area included a cultivated area along with the forest area, this alternative would impact the Section 4(f) resource by taking cleared land for project construction.

There will also be an adverse visual impact to the Section 4(f) resource. Since the Walnut Grove Road Bridge is already in place, its widening would not change the visual impact. However, the new intersection would change the view from the margins of the woodland area.

5.3.4.4 SF-4 Alternatives

As with the SF-3 alternative, these alternatives would also cross the Wolf River on a widened Walnut Grove Road Bridge (See Figure 14). Each alternative would require the use of some land from the Shelby Farms Forest Natural Area North. Both alternatives, SF-4a and SF-4b, would use approximately 2.1 acres of the Section 4(f) resource. The land use is due to the proposed intersection north of the present bridge. The area which is

needed for the intersection is presently cultivated land so there would be no or very little cutting of woodland vegetation.

Since, the boundary description of the natural area included a cultivated area along with the forest area, this alternative would impact the Section 4(f) resource by taking cleared land for project construction.

There will also be an adverse visual impact to the Section 4(f) resource. Since the Walnut Grove Road Bridge is already in place, its widening would not change the visual impact. However, the new intersection would change the view from the margins of the woodland area.

5.3.5 Avoidance Alternatives

5.3.5.1 SF-2a Alternative

This alternative would build through the cooridor between Shelby Farms Forest Natural Area North and South (See Figure 14). This would avoid taking land from either Section 4(f) resource.

5.3.6 Measures to Minimize Harm

Alternative SF-2a would avoid the Natural Areas. Alternative SF-2b would be build in the corridor between the natural area except for a small portion in the corner of Shelby Farms Forest Natural Area South. Alternatives SF-3 and 4 would be widened on the south side of Walnut Grove Road to minimize the impact to the Shelby Farms Forest Natural Area North. Four design alternatives were developed for SF-1 to minimize impacts to the Shelby Farms Forest Natural Area South. Alternative SF-1c would bridge the entire Natural Area.

The elimination of bikeways from the proposed project has resulted in a narrower section crossing the Natural Area.

The bridge width over the natural area would be narrower than the road section. The typical road cross-section is built on a 114' right-of-way. The bridge width would be 106'.

Cutting of vegetation for project construction would be held to the minimum necessary. The provisions of the Standard Specifications for Road and Bridge Construction will be followed throughout the term of the project construction. Any area disturbed by construction would be landscaped to be as compatible as possible with the surrounding area.

5.3.7 Coordination

The Shelby Farms Forest Natural Areas were not created at the time the initial coordination was sent to various Federal, Regional, State, and local agencies and officials. Therefore, no comments were offered as to the Section 4(f) resource.

After the completion of the initial coordination phase, the Governor signed into law a bill designating portions of the woodland as natural areas. However, opposition to cross these areas had already grown. Alternatives had been developed to avoid or minimize damage to these areas. County officials had been involved in the development of these alternatives.

In a meeting held on October 11, 1988, county officials said that, "After all studies have been completed and the results have been presented for public review and comment, Shelby County will support the alternatives that best meets the need of the community as it relates to traffic and environment."

The elimination of bikeways from the proposed project has resulted in a narrower section crossing the Natural Area.

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In a meeting held on October 11, 1988, county officials said that, "After all studies have been completed and the results have been presented for public review and comment, Shelby County will support the alternatives that best meets the need of the community as it relates to traffic and environment."

CHAPTER VI

COORDINATION AND COMMENTS

6.1 Initial Coordination

Initial coordination packages were sent out on February 1, 1984, to fifty-nine (59) Federal, State, and Local agencies and officials for their comments on the proposed project. There were a total of seventeen (17) replies. Copies of those replies and a list of those who received initial coordination packages is in Appendix "A".

Summarized below are the comments received as a result of the initial coordination phase. Each comment is addressed immediately below it.

Summary and Disposition of Comments
Received During Initial Coordination

FEDERAL AGENCIES

U. S. Department of Interior, Fish and Wildlife Service

Comments: They were concerned about the impacts of the project on the Nonconnah Creek and the Wolf River floodplains.

Disposition: This is discussed in Section 4.11.

U.S. Department of Interior, Geological Servey

Comments: They indicated that the project would have no effect on any of their programs. They did not foresee any major potential hydrologic impacts.

Disposition: None.

Federal Energy Regulatory Commission

Comments: They are concerned that provisions be made to protect electrical transmission lines and natural gas pipelines which may be in the construction area.

Tennessee Valley Authority

Comments: Their "Cordova-West Memphis 500-KV Line will be affected by the proposed project." Any relocations would be handl;ed according "to the terms of Master Agreement TV-34932A between the STate and TVA.

Disposition: This is discussed in Section 4.13..

Department of Army, Corps of Engineers

Comments: They feel the original channel design for the Wolf River should be considered as a minimum for the proposed bridge. They are concerned with erosion control at the Nonconnah Creek crossing. They are also concerned about wetlands within the project.

Disposition: The bridge at the Wolf River crossing will be designed to provide adequate vertical and horizontal clearance so as to maintain current river operations. All water way crossings will be protected against erosion. See Section 4.13. Wetlands are discussed in Section 4.9.

Federal Aviation Administration

Comments: The project will not adversely affect any work planned by their office.

Disposition: None.

Environmental Protection Agency

Comments: Their main concerns involve potential adverse impacts to wetlands, water quality, air quality, and noise.

Disposition: There concerns were addressed in the following sections of the EIS:

Wetlands	-	Section 4.9
Water Quality	-	Section 4.8
Air and Noise	-	Section 4.6 and 4.7

U. S. Coast Guard

Comments: They offer no comments on the proposed project.

Disposition: None.

STATE AGENCIES

Mississippi-Arkansas-Tennessee council of Governments/ Mermphis Delta Development District

Comments: They suggest that a bikeway be considered for the project.

Disposition: This was discussed in Section 4.17.

Department of Transportation, Office of Aeronautics

Comments: Project does not conflict with any present or future programs.

Disposition: None.

Department of Conservation

Comments: They were concerned about the possible impact of the project on two rare bird species.

Disposition: This was discussed in Sectin 4.12

Tennessee Wildlife Resources Agency

Comments: They expressed concerns about the project impact on wetlands, floodways, and clearing for right-of-way through woodlands.

Disposition: Wetlands and floodplains are discussed in Section 4.9 and 4.11. Clearing of woodland was discussed in Section 4.10.

LOCAL AGENCIES

City of Memphis

Comments: They expressed support for the project.

Disposition: None.

Memphis and Shelby County Office of Planning and Development

Comments: They feel the project is consistent with local plans.

Disposition: None.

City of Germantown

Comments: They expressed support for the project.

Disposition: None.

City of Bartlett

Comments: They expressed support for the project.

Disposition: None.

Greentree Civic Association

Comments: They expressed concern about the project's impact on their subdivision.

Disposition: This was discussed in Section 4.3.

6.2 Public Meeting

A public meeting was held by the Shelby County Division of Public Works on November 15, 1984, at the Shelby County Administration Building. A total of seventeen (17) people attended the meeting; none of whom were private citizens. All comments were favorable toward the proposed project.

6.3 List of Preparers

TENNESSEE DEPARTMENT OF TRANSPORTATION

1. Carver, Martha A. (Transportation Planner 3)

   Education: B.A. in History; M.A. in History, with emphasis on historical preservation

   Professional Affiliations: National Trust for Historic Preservation, Society for Industrial Archaeology

   Experience: Staff Historian, Tennessee Department of Transportation, 4-1/2 years; Historic Preservation Planner for Chattanooga/ Hamilton County Regional Planning Commission, 2-3/4 years.

2. Crabb, Michael A. (Civil Engineer Specialist 1)

   Education: B.S. in Biology in Engineering

   Experience: Tennessee Department of Transportation Environmental Planning Office, 3 years; Division of Structures, 5 years; Traffic Engineering Office, 3/4 years; Tennessee Department of Public Health, Water Quality Control, 2 years

3. Green, Donald L. (Biologist 2)

   Education: B.S. and M.S. in Biological Science

   Experience: Tennessee Department of Transportation Environmental Planning Office, 4 years

4. Kline, Gerald (Archaeologist Supervisor)

Education: B.S.; M.S.; Ph. D. Program, degree pending

Professional Affiliations: Tennessee Anthropological Association; Southeastern Archaeological Conference; Society for American Archaeology; American Anthropological Association

Experience: Tennessee Department of Transportation, 7 months; Archaeological field work in Indiana, Arizona, and Tennessee, 6 years with developed expertise in analysis of prehistoric lithic artifacts, lithic technology instructor, contract archaeologist, 9 years

5. Rust, William D. (Biologist 2)

Education: B. S. Wildlife Management; M. S. Biology

Experience: Tennessee Department of Transportation, Environmental Planning Office, 1 1/2 years; Allinson, Inc. biological and environmental impact analysis, 3 years

U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION

1. Aldridge, W. B. (Community Planner, FHWA-Tennessee Division)

Highway Engineer responsible for the coordination of environmental and location studies for Federal-Aid projects in Tennessee.

APPENDIX "A"

Replies to Initial Coordination

Kirby Parkway from Split Oak Drive to Stage Road and Sycamore View Road Extension from Mullins Station Road to Kriby Parkway in Memphis, Shelby County

Initial Coordination

List of agencies and local officials to which initial coordination was sent.

Federal Agencies	Response
U.S. Department of Housing and Urban Development	
U.S. Department of Housing and Urban Development Memphis Insuring Office	
U.S. Department of the Interior	
Fish and Wildlife Service	X
Heritage Conservation and Recreation Service	
U.S. Geological Survey, Environmental Impact Analysis	
U.S. Geological Survey, Water Resources Division	X
Bureau of Mines, East Field Operations	
Office of Surface Mining	
Southeast Region	
Federal Energy Regulatory Commission	X
Tennessee Valley Authority, Environmental Quality	X
U.S. Corps of Engineers	
Memphis District	X
Engineering Division	
Regulatory Functions Branch	
U.S. Department of Transportation	
Federal Aviation Administration	X
U.S. Department of Health and Human Services	
Environmental Protection Agency	
EIS Review Section	X
U.S. Department of Energy	
Division of NEPA Affairs	
U.S. Coast Guard	
Second Coast Guard District	X
U.S. Department of Commerce	
Ecology and Conservation	
U.S. Department of Agriculture	
Soil Conservation Service	

State Agencies	Response
Tennessee State Planning Office Federal and State Programs Review	
Mississippi-Arkansas-Tennessee Council of Governments Memphis-Delta Development District	X
Tennessee Energy Authority	
Tennessee Department of Economic and Community Development Divison of Industrial Development	
Tennessee Department of Public Health Bureau of Environmental Health	
Tennessee Department of Transportation Aeronautics Office Public Transportation and Aeronautics Division Facilities Planning Section	X
Tennessee Department of Conservation Division of Planning and Development Division of Archaeology	X
Tennessee Department of Education Memphis Satellite Office Director of School Plant School Plant Specialist	
Tennessee Wildlife Resources Agency	X
Tennessee Historical Commission	
Tennessee Department of Agriculture	

Other Agencies and Organizations

Association for the Preservation of Tennessee Antiquities

Tennessee Chapter of the Wildlife Society

Tennessee Trails Association

Tennessee Ornithological Society

Tennesseans for Better Transportation

Tennessee Conservation League

Tennessee Scenic Rivers Association, Inc.

Tennessee Lung Association

Baptist Childrens' Home

Local and County Officials	Response
The Honorable William N. Morris Mayor of Shelby County	
Mr. George L. Reed Director of Public Works for Shelby County	
Mr. Raymond E. Harvell, Chairman Shelby County Housing Authority	
The Honorable Richard Hackett Mayor of Memphis	
Mr. Maynard Stiles Director of Public Works, Memphis	X
Mr. Ben Whitton, Chairman Memphis and Shelby Couty Office of Planning and Development	X
Ms. Ann McComic Shelby County Government 160 North Mid America Mall Memphis, Tennessee 38104	
Memphis Housing Authority	X
Mr. Herman Dwing, Director Memhis Area Urban League	
Reverend William R. Johnson, President National Associaton for the Advancement of Colored People	
Memphis Urban Area Transportation Study	
The Honorable W. A. Nance Mayor of Germantown	X
The Honorable Oscar T. Yates Mayor of Bartlett	X

46-1603

U.S. Department
of Transportation

**Federal Highway
Administration**

Tennessee Division Office

801 Broadway, Room A926
Nashville, Tennessee 37203

June 5, 1984

IN REPLY REFER TO:
HDV-TN

RECEIVED
JUN 12 1984
TDOT
ENVIRONMENTAL PLANNING

Mr. E. R. Terrell, Executive Director
Bureau of Planning and Development
Tennessee Department of Transportation
Nashville, Tennessee

Dear Mr. Terrell:

Subject: Proposed Kirby Parkway from North of Split Oak Drive to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway, Shelby County

We have evaluated the comments received from Federal Land Management entities as a result of the early coordination efforts for this project. This evaluation was made in accordance with the requirements of Section 102(2)(D)(IV) of the 1969 National Environmental Policy Act, as amended.

Comments from the Federal Land Management entities did not identify any issues which indicate a significant disagreement with positions taken by TDOT and FHWA with regard to project impacts. The proposal may be advanced to the environmental assessment phase.

Sincerely yours,

R. D. Carr

(For) E. G. Oakley
Division Administrator

DIRECTOR
JUN 11 1984
DIVISION OF PLANNING

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Post Office Box 845
Cookeville, TN 38501

March 6, 1984

Mr. Charles E. Bush, Administrator
Environmental Planning Office
Department of Transportation
900 James K. Polk Building
Nashville, Tennessee 37219

Dear Mr. Bush:

Pursuant to your letter and enclosures of February 1, 1984, the U.S. Fish and Wildlife Service has reviewed the information provided concerning the program for improvement of Kirby Parkway and Sycamore View Road Extension in Memphis, Shelby County, Tennessee. The following comments are provided to aid you in identifying critical areas and thereby planning to minimize environmental impacts in the early stages of project development.

Most of the planned improvements follow existing transportation corridors and lie within residential or commercial areas; environmental impacts in these areas are anticipated to be minimal. However, there are two areas where the potential exists for adverse impacts. These areas are the crossings of the Wolf River and Nonconnah Creek floodplains. The Nonconnah Creek crossing is mentioned in the information package provided to us; however, no mention is made of the Wolf River crossing. Since the Wolf River crossing will be on new location, and involves a more extensive floodplain than Nonconnah Creek, potential impacts are much greater than those involving the Nonconnah Creek crossing. Both of these areas will require careful planning in order to minimize adverse environmental effects. Section 404 permits will probably be required for these crossings, and we will provide additional comments at that time. In the interim, we recommend that the following measures be considered in future planning for this project.

(1) Right-of-way incursions into wetlands and wooded areas be restricted to the minimum necessary,

(2) Sufficient bridge span be provided to prevent ponding of water upstream of the roadway during high flow periods,

(3) Erosion and sediment control measures be implemented on all vegetatively denuded areas,

(4) All fill be stabilized, and

(5) Channel excavations for pier placement be restricted to the minimum necessary for that purpose.

We appreciate the opportunity for early input into the planning process. Please advise us if we can be of further assistance.

Sincerely,

Thomas S. Talley

Thomas S. Talley
Field Supervisor

TST/RLW/r

xc: FWS, AHR, Atlanta, GA
TWRA, Dan Sherry, Nashville, TN
EPA, Atlanta, GA

United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
Tennessee District

A-413 Federal Bldg.
U.S. Courthouse
Nashville, TN 37203
February 23, 1984

Mr. Charles E. Bush
Administrator
Environmental Planning Office
Tennessee Department of Transportation
900 James K. Polk Building
Nashville, TN 37219

SUBJECT: Kirby Parkway from North of Split Oak Drive to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway in Memphis, Shelby County

Dear Mr. Bush:

The subject highway construction will have no effect on any programs being planned or executed by this agency. No major potential hydrologic impacts from the proposed construction are foreseen at this time. If additional review and comments are needed, please let us know.

Sincerely yours,

FOR THE DISTRICT CHIEF

Clarence H. Robbins

Clarence H. Robbins, Hydrologist
Hydrologic Investigation Section

FEDERAL ENERGY REGULATORY COMMISSION

REGIONAL OFFICE

730 Peachtree Street, N. E.
Atlanta, Georgia 30308
February 10, 1984

Mr. Charles E. Bush
Administrator
Environmental Planning Office
State of Tennessee
Department of Transportation
Nashville, Tennessee 37219

Dear Mr. Bush:

This is in response to your letter dated February 1, 1984, with attachment, requesting comments regarding the proposed improvement of Kirby Parkway in Shelby County.

In reviewing the area of consideration, it has been determined that this project is not within the hydropower licensing jurisdiction of the Atlanta Regional Office (ARO). It is within the Fort Worth Regional Office jurisdiction and, therefore, you may wish to contact the Fort Worth Regional Engineer for comments concerning the proposed effects on Federal Energy Regulatory Commission licensed projects.

From a power supply standpoint, the area is within the ARO jurisdiction. Our concern is with the construction phase, in that provisions should be made to protect electrical transmission lines and natural gas pipelines in the construction area.

Very truly yours,

Aarne O. Kauranen, P.E.
Regional Engineer

TENNESSEE VALLEY AUTHORITY
NORRIS, TENNESSEE 37828

April 12, 1984

Mr. Charles E. Bush, Administrator
Environmental Planning Office
Tennessee Department of Transportation
Nashville, Tennessee 37219

Dear Mr. Bush:

KIRBY PARKWAY FROM NORTH OF SPLIT OAK DRIVE TO ST. ELMO ROAD AND SYCAMORE VIEW ROAD EXTENSION FROM MULLINS STATION ROAD TO KIRBY PARKWAY IN MEMPHIS, SHELBY COUNTY

(Martin C. Rivers)

This responds to your February 1 request to Mohamed T. El-Ashry for TVA comments on the State's proposal to improve Kirby Parkway and Sycamore View Road extension in Memphis, Tennessee.

TVA's Cordova-West Memphis 500-kV Line will be affected by the proposed project. Any relocation of TVA's transmission line will be handled pursuant to the terms of master Agreement TV-34932A between the State and TVA.

Please let us know if we may be of further assistance.

Sincerely,

Frank R. Holland

Frank R. Holland, Chief
Land Management Branch
Division of Land and Economic Resources

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
B-314 CLIFFORD DAVIS FEDERAL BUILDING
MEMPHIS, TENNESSEE 38103

Reply to
Attention of:

March 12, 1984

Regulatory Functions Branch

Mr. Charles E. Bush, Administrator
Environmental Planning Office
Tennessee Department of Transportation
1200 James K. Polk Building
Nashville, Tennessee 37219

Dear Mr. Bush:

Reference is made to your letter concerning a proposed project on Kirby Parkway from north of Split Oak Drive to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway in Memphis, Shelby County. The project apparently will cross Fletcher Creek, Wolf River, and Nonconnah Creek. My staff has reviewed the proposal and I offer the following comments:

1. A new bridge and highway will cross the Wolf River within a reach of channel improvement completed by the Corps of Engineers in 1964. The original channel design in this area should be considered as a minimum for the proposed bridge to prevent problems with future channel maintenance. At the present time there is no ongoing project for this site.

2. The Corps of Engineers has recommended channel clearing of the reach of Nonconnah Creek which includes the Kirby Parkway crossing as part of a comprehensive flood control and recreation plan for the Nonconnah Creek basin. No alteration or relocation of the Kirby Parkway crossing was considered necessary; however, bridge protection consisting of a 120-foot long, 12-inch gabion revetment was included at the site. Assuming that a new Kirby Parkway crossing has the same opening as the existing structure and is adequately protected against erosion, no significant impact should result from the proposal.

3. Specific wetland mapping of the project area should be included in the proposal for future scoping to determine potential impacts and permit requirements.

I appreciate the opportunity to review the proposal and look forward to working with your office on the proposal. If any additional information is needed, please contact Mr. Tom Welborn of my Regulatory Functions Branch at telephone 901 521-3471.

Sincerely,

John F. Hatch, Jr.
Colonel, Corps of Engineers
District Engineer

U.S. Department
of Transportation
**Federal Aviation
Administration**

AIRPORTS DISTRICT OFFICE
3973 Knight Arnold Road, Suite 105
Memphis, TN 38118-3004

FEB 08 1984

Mr. Charles E. Bush, Administrator
Environmental Planning Office
Tennessee Department of Transportation
817 Highway Building; 6th and Deadrick
Nashville, TN 37219

Dear Mr. Bush:

Kirby Parkway from North of Split Oak Drive to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway in Memphis, Shelby County

We have reviewed your plans for subject highway improvements.

The proposed improvements will not adversely affect any work planned or programmed by this office. We have no suggestions or comments regarding these improvements or matters requiring special attention at this time.

We appreciate the opportunity to review and coordinate this proposal.

Sincerely,

Wayne R. Miles for
Otis T. Welch
Principal Planner/Programmer

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

APR 20 1984

4PM-EA/CMH

Mr. Charles E. Bush, Administrator
Environmental Planning Office
State of Tennessee Department
of Transportation
Nashville, Tennessee 37219

SUBJECT: Kirby Parkway from North of Split Oak Drive to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway in Memphis, Shelby County
EPA Log Number A-FHW-E40565-TN

Dear Mr. Bush:

We have reviewed the advanced information concerning the above referenced proposed highway improvement and extension project involving 12.48 miles. As you are aware, generic highway projects have the potential for causing ecological problems. Our main concerns involve potential adverse effects to wetlands, water quality, air quality, and noise. While highway improvements often need not have a significant effect on the environment, new alignment highway extensions can be disruptive of new environments.

Because new alignment is involved in the present advanced information, and because your information is still preliminary, it is difficult to make substantive project comments at this time. More information is needed, particularly regarding the environmental impact and alternatives to the new alignment sections. Additional environmental documents may be necessary to determine the environmental consequences of the proposed construction.

Since Nonconnah Creek and apparently other creeks or headwaters are scheduled to be crossed, we are able at this time to recommend the use of no or a minimum amount of fill, adequately long bridge spans, right angle bridge/creek intersections, and no channelizations. Effective Best Management Practices such as erosion control must also be instituted and maintained. As you know, the crossings may require a Section 404 permit from the U.S. Army Corps of Engineers. EPA also reviews these permits. Should the inland waters also be commercially navigable or susceptible to commercial navigation through dredging, a U.S. Coast Guard permit may also be necessary.

We would also like to encourage your consideration of mitigative measures in compensation for any possible unavoidable environmental impacts. Such measures might include the creation of wetlands or restoration of a hardwood forest unavoidably lost during highway construction.

As more information is provided, we would be pleased to further review the project from an environmental standpoint. To facilitate your project planning, we have attached a list of "Special Concerns" which outlines some of our environmental concerns relative to generic highway projects.

We look forward to your continued coordination and cooperation.

Sincerely yours,

Sheppard N. Moore

Sheppard N. Moore, Chief
Environmental Review Section
Environmental Assessment Branch

Attachment: "Special Concerns"

SPECIAL CONCERNS

The following list is a generalized synopsis of special concerns relevant to generic highway projects.

Wetlands/Water Quality

° Protection of wetlands pursuant to the Section 404 Guidelines of the Clean Water Act

° Avoiding/minimizing wetland activities such as:

  * channel realignments
  * dredging and filling
  * flow alterations causing wetland drainage or flooding
  * erosion and siltation
  * habitat loss
  * disturbance of rare and endangered species

° Conformance with Executive Order 11988 ("Floodplain Management") and Executive Order 11990 ("Protection of Wetlands"), if federal funds are involved

° Public complaints concerning construction-related wetland alteration.

Air Quality

° Conformance with National Ambient Air Quality Standards (NAAQS) of the Clean Air Act to determine whether a site is located in an attainment, non-attainment, or unclassifiable area

° Conformance with the State Implementation Plan (SIP)

° Conformance with the Prevention of Significant Deterioration (PSD) regulations

° Conformance with EPA and state modeling guidance

° Existing and predicted levels of various relevant air-quality parameters such as CO

° Public complaints concerning construction-related fugitive emissions.

Noise

- Conformance of on-site existing and predicted noise levels with design noise level criteria for commercial receptors and sensitive receptors (residences, churches, schools, etc.). Preferred representations of existing predicted, and design noise levels are the $L_{eq\ (1)}$, $L_{eq\ (24)}$ or L_{10} descriptors. The hour (1) of the $L_{eq\ (1)}$ descriptor should be defined (e.g., peak rush hour).

- Project-related noise level elevations: all project-generated noise increases above the existing site noise level are considered important, particularly if above design levels and/or if long termed. An increase of 5dBA is considered significant and a 10dBA increase is considered very significant, even if the final elevated noise levels are below design criteria.

- Additional helpful information includes the existing and predicted percentage of trucks using the old/new highway and the existing and predicted number of sensitive receptors that are/will experience noise levels above design levels.

- Public complaints concerning construction-related noise emissions.

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Commander (obr)
Second Coast Guard Dist.
1430 Olive St.
St. Louis, MO 63103
Tel. 314-425-4607

16591.6
March 13, 1984

Mr. Charles E. Bush
Environmental Planning Office
Tennessee Department of Transportation
Nashville, TN 37219

Subj: KIRBY PARKWAY FROM NORTH OF SPLIT OAK DRIVE TO ST. ELMO ROAD AND SYCAMORE VIEW ROAD EXTENSION FROM MULLINS STATION ROAD TO KIRBY PARKWAY IN MEMPHIS, SHELBY COUNTY

Dear Mr. Bush:

This is in reply to your letter of February 1, 1984, requesting comments on the subject project. The proposed improvement involves a bridge crossing Nonconnah Creek.

Coast Guard jurisdiction for bridge administration purposes extends only to navigable waters of the United States. The Coast Guard does not consider Nonconnah Creek to be a navigable waterway for Bridge Administration purposes. The Coast Guard offers no comments on this project, and a Coast Guard bridge permit will not be required.

Sincerely,

ROGER K. WIEBUSCH
Chief, Bridge Branch
By direction of the District Commander

MISSISSIPPI - ARKANSAS - TENNESSEE COUNCIL of GOVERNMENTS / MEMPHIS DELTA DEVELOPMENT DISTRICT

157 Poplar Avenue • Memphis, Tennessee 38103 • Phone (901) 528-2770

March 14, 1984

Charles E. Bush
Administrator
Environmental Planning Office
Tennessee Department of Transportation
James K. Polk Building
Nashville, TN 37219

SUBJECT: Kirby Parkway from North of Split Oak Drive to St. Elmo Road, and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway in Memphis, Shelby County.

Dear Mr. Bush:

The proposed route and cross-sections for the above project have been reviewed by this office. The project was found to be consistent with the major road. Therefore, we have no comments regarding these subjects.

Since the project is entering the alignment and design phases, the following comment is made in a personal context. Possible consideration for incorporating a bikeway into the design should not be overlooked. This incorporation could use the proposed median as a road bed. The establishment of a bikeway is valid consideration given the proximity of the project to the Shelby Farms Area.

Should you have any questions regarding this subject, do not hesitate in contacting this office.

Sincerely,

John W. Sicola

John W. Sicola
Executive Director

JWS/rj

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
NASHVILLE, TENNESSEE 37219

P. O. Box 17326

February 3, 1984

Mr. Charles E. Bush
Administrator
Environmental Planning Office
Suite 900, James K. Polk Building
Nashville, Tennessee 37219

Dear Mr. Bush:

SUBJECT: Kirby Parkway from North of Split Oak Drive to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway in Memphis, Shelby County

A review of the subject proposed project does not reveal any conflicts with our present or future programs.

Thank you for the opportunity to comment.

Sincerely,

OFFICE OF AERONAUTICS

David S. Futlon
Administrator

DSF:mmh

TENNESSEE DEPARTMENT OF CONSERVATION
701 BROADWAY
NASHVILLE, TENNESSEE 37203

March 12, 1984

Mr. Charles E. Bush, Administrator
Environmental Planning Office
Tennessee Department of Transportation
Nashville, TN 37219

Subject: Kirby Pkwy. from north of Split Oak Drive to St. Elmo Rd. and Sycamore View Rd. Extension from Mullins Station Rd. to Kirby Parkway in Memphis, Shelby Co.

Dear Mr. Bush:

In reference to your letter concerning the above and dated February 1, please be advised that the proposed project may adversely affect two rare avian species. The first, considered to be threatened in Tennessee (TWRA and TNHP), is the grasshopper sparrow (Ammodramus savannarum). The second, deemed in need of management (TWRA) and of special concern (TNHP) within Tennessee, is the lark sparrow (Chondestes grammacus). Occurrences of these species are recorded (TNHP) for the lands within the boundaries of the Shelby County Penal Farm. Both species nest in open grassy fields which explains the recorded occurrences on the Penal Farm grounds. Breeding for each species begins in April. Nesting ends by late August.

Because of our concern for the grasshopper and lark sparrows, the DOC suggests that all construction of those road segments passing through Shelby County Penal Farm be scheduled to occur between mid-September and March. Pre-construction activities such as surveying which are not likely to distrub soil and vegetation could occur during any period.

We appreciate the opportunity to comment on this proposed program and would request that you respond to our suggestions by letter before formalization of plans. If any questions arise as a result of our comments, please feel free to contact us. Thank you for your cooperation.

Sincerely,

Walter L. Criley
Director of Planning

WLC/REH:d
cc: Saralee Terry

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

February 2, 1984

Mr. Charles E. Bush, Administrator
Environmental Planning Office
Department of Transportation
900 James K. Polk Building
Nashville, TN 37219

RE: Kirby Parkway from North of Split Oak Drive to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway in Memphis, Shelby County

Dear Charles:

This project occurs in suburban Memphis and much of it apparently involves the upgrading of existing roads. Because of these factors, there will be limited wildlife impacts along most of the corridor.

The Project Summary mentions the crossing of Nonconnah Creek, but not the crossing of the Wolf River which is even more significant to us since that crossing would occur on new road and the Nonconnah crossing would apparently involve the upgrading of existing road. We are interested in seeing how impacts on wetlands can be minimized as both the Wolf River and Nonconnah Creeks are crossed. It is also important, of course, that bridging is adequate to pass floodwaters in such a way as not to affect the hydrological regime behind upstream of the bridges.

There appears to be some relatively good wooded areas in the vicinity of the Penal Farm. Right of way clearing in such areas should be minimized.

Thank you for precoordinating with us.

Sincerely,

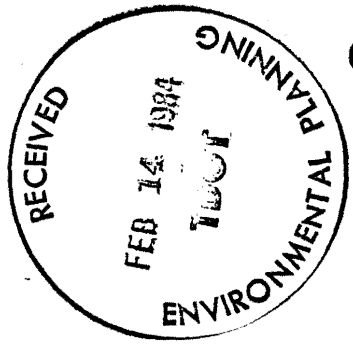
TENNESSEE WILDLIFE RESOURCES AGENCY

Dan Sherry
Wildlife & Fish Environmentalist

DS:jsf

cc: Frank Zerfoss
Harold Hurst

RICHARD C. HACKETT
MAYOR



CITY of MEMPHIS

DIVISION OF
PUBLIC WORKS

DIRECTOR'S OFFICE
Room 602
901-528-2742

February 7, 1984

Mr. Charles E. Bush, Administrator
Environmental Planning Office
STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION
James K. Polk Building
505 Deaderick Street
Nashville, TN 37219

REF: KIRBY PARKWAY from north of Split Oak to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway

Dear Mr. Bush:

This is in response to your February 1, 1984, initial coordination letter covering the subject improvements to Kirby Parkway.

The City of Memphis is in strong support of this project and has included the portions of Kirby Parkway between Split Oak and Messick and between Massey Lane and U.S. 64 in our 5 Year Capital Improvements Program. The proposed roadway construction of Kirby Parkway, together with the construction of the section of Sycamore View Road, will open up a major north/south transportation corridor across the eastern part of Memphis and Shelby County. In particular, Kirby Parkway will provide the only north/south roadway between I-240 and Germantown Road, a distance of four miles, in the area of the Shelby County Penal Farm (Plough Farms). Kirby Parkway will provide a vital link in the Memphis/Shelby County transportation system and relieve congestion and delay on many east Memphis arteries thus improving travel time, air and noise quality, traffic safety, and gasoline consumption.

Our engineers have had an opportunity to meet with the TDOT staff on several occasions to review the preliminary alignment for this project as well as the typical sections and overall roadway design concept. We are particularly pleased with the proposed reconstruction of the Nonconnah Creek bridge, including streambed and bank stabilization, a new bridge over the Wolf River, interchanges with Walnut Grove Road and at the Sycamore View/Kirby Parkway intersection, modifications to the Kirby Parkway/I-40 Interchange and overall improvements to the Kirby Parkway/Stage Road/ U.S. Highway 64 intersections. We are also pleased with the State's coordination efforts with Mrs. Ann McComic of the Plough Farms Board, and are in agreement with their assessment that the Kirby Parkway Project will provide vitally needed access to the proposed activity centers at Plough Farms including the Agricenter.

We appreciate this opportunity to comment on the initial coordination phase of this project, and can envision only positive impacts on the east Memphis and Shelby County area as a result of the Kirby Parkway construction. We look forward to working with you and other Department of Transportation Officials as this project proceeds through the design and construction phases.

Very truly yours,

Maynard C. Stiles
Director of Public Works

cd

cc: Marvin Jacobs
Richard Hoffman

Memphis and Shelby County
Office of Planning and Development

CITY HALL 125 NORTH MID AMERICA MALL MEMPHIS, TENNESSEE 38103 - 2084 (901) 528-2601

March 12, 1984

Mr. Charles Bush
Environmental Planning Office
Department of Transportation
Nashville, Tennessee 37219

RE: Kirby Parkway from North of Split Oak Drive to St. Elmo and Sycamore View Road Extention from Mullins Station Road to Kirby Parkway in Memphis, Shelby County.

Dear Mr. Bush:

We have reviewed the above captioned project for its impact on the public and its compatibility with local plans and programs.

Analysis of the project has shown that it is consistent with local plans and does not have a significant impact on the public.

Thank you for the opportunity to review this project.

Sincerely,

Phillip L. Whittenberg
Director

/bjj

MHA

MEMPHIS HOUSING AUTHORITY

Administration Building • 700 Adams Avenue (901)523-7620
Mailing Address • P.O. Box 3664, Memphis, Tennessee 38103

February 6, 1984

Mr. Charles Bush, Administrator
Environmental Planning Office
State of Tennessee
Department of Transportation
Nashville, TN 37219

RE: Kirby Parkway from North of Split Oak Drive to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway in Memphis Shelby County

Dear Mr. Bush:

The improvements, as referenced above and in your letter of 2/1/84, will have no adverse affect on existing Public Housing managed by this Agency. All of the MHA units existing and in the planning stage are within the City limits, but a large separation exists from each to the proposed improvements. There should be no adverse environmental effect.

This Agency does not assess the overall planning needs for the City of Memphis and our comments are limited to those affecting the residents of Public Housing.

Sincerely,

Frank Pope,
Assistant Executive Director

FP/JLS/hrg

City of Germantown

Germantown, Tennessee 38138-0309

February 7, 1984

Charles E. Bush, Administrator
Environmental Planning Office
Department of Transportation
James K. Polk Bldg./Suite 900
505 Deaderick Street
Nashville, TN 37219

Re: Kirby Parkway from North of Split Oak Drive to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway in Memphis, Shelby County

Dear Mr. Bush:

The proposal as set forth is consistent with our interpretation of the adopted Urban Area Major Road Plan. We, in Germantown, enthusiastically support the proposal as it will provide some degree of traffic relief to our citizens in the west part of the City.

The importance of the Kirby Parkway can easily be seen by viewing a map showing that the only north-south route which crosses the Wolf River between I-240 and Germantown Road will be the Kirby Parkway.

Should you have any questions, please don't hesitate to contact me.

Yours truly,

Boyd Arthur, Jr.
Mayor

ba:vj

City of Bartlett

Bobby K. Flaherty, Mayor

February 13, 1984

Mr. Charles E. Bush, Administrator
Environmental Planning Office
Tennessee Department of Transportation
James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37219

RE: Kirby Parkway and Sycamore View
Road Extension
Memphis, Shelby County

Dear Mr. Bush:

We appreciate the opportunity to review the above referenced projects at this early stage in development. Both of these improvements would greatly enhance the development of Bartlett due to their direct affects in relieving the traffic congestion in our City.

We have forwarded a copy of your letter of February 1st to the Bartlett Chamber of Commerce which is the primary group in our community. They will notify any other interested community groups.

We would like to alert you to the fact that the majority of the land in the Kirby-Whitten Road corridor from Stage Road to St. Elmo Road is owned by the Baptist Children's Home. The project should be coordinated closely with this property owner.

The City of Bartlett is looking forward to working with your organization on these projects. Please contact us if we can be of assistance.

Sincerely,

Bobby K. Flaherty

Mayor Bobby K. Flaherty

cc: Gregory-Grace and Associates, Inc.

5727 WOODLAWN • P.O. BOX 341148 • BARTLETT, TENNESSEE 38134 • 901-386-1414

March 14, 1984

Mr. Charles E. Bush
Administrator
Enviromental Planning Office
Tenn. Dept. of Transportation
Nashville, TN 38103

Dear Sir:

This is the preliminary response from our Civic Association to the State's proposed project on Kirby Parkway from north of Split Oak Drive to St. Elmo Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway in Memphis, Shelby County.

The Greentrees Civic Association, representing over 500 families, is extremely opposed to this project. Kirby Parkway runs through the center of our subdivision and the increased traffic would significantly affect our property values and the safety of our families.

We have scheduled a meeting with Mr. Clark Odor, the Transportation Planning Coordinator for the Memphis and Shelby County Office of Planning and Development. We plan to give you more details on our objections after that meeting.

Sincerely,

Mary Frances Wheeler

Mary Frances Wheeler
President Greentrees Civic Association

ARY FRANCES WHEELER
3 5 HONEY LOCUST COVE
EMPHIS, TN 38119

APPENDIX "B"

Ecological Studies

KIRBY PARKWAY
SHELBY COUNTY

AN ECOLOGICAL SUMMARY

1 August 1985

Prepared Pursuant to
Section 7(c) of the Endangered Species Act of 1973
As Amended

Prepared by
Dan Rust
Environmental Planning Office
Tennessee Department of Transportation

Introduction

This report presents those ecological impacts which are likely to occur with implementation of the Kirby Parkway project. Consideration was given to terrestrial ecology, aquatic ecology, and endangered or threatened plants and animals as designated by various State and Federal agencies. Because it was impossible to determine absolutely the presence or absence of a particular species of plant or animal, consideration was given to historic data in conjunction with field surveys for preferred or suitable habitats to make a determination as to the likelihood of a species being present.

Methods

The field survey was begun in May 1984. In preparation for this survey, several data sources were consulted to determine which endangered or threatened plant and animal species might be present within the project area. Additional information was received from those State and Federal agencies which responded to the Initial Coordination letter. A literature study of each species was done to understand the habitat required for a species survival. This was necessary because any species, notably animals, might not be observed during field surveys. So it was important to evaluate habitat and make a determination as to the likelihood of a species' presence. The field surveys could then eliminate the probability of a species being present if there was no suitable habitat.

A total of eight days over a five-month period was spent conducting field surveys. The first three days, May 8, 9 & 10, were

used to determine any likely areas of sensitive habitat where more study would be necessary. The field investigator walked along the entire proposed right-of-way to identify the dominant plant species and to determine the types of habitat available. Except for the Shelby County Penal Farm, the Wolf River woodlands, and a field south of Messick Road, most of the proposed right-of-way is a widening of existing facilities.

This on-foot survey covered that ground which is within the boundaries of the proposed right-of-way as well as 50'-100' additionally along each boundary to accommodate any construction easements deemed necessary by the project engineer. At the smaller creeks, an additional 300' was surveyed downstream from the project crossing point to check for any sensitive habitat or organisms which might be adversely affected by siltation or chemicals transported by the creek. Aquatic invertebrates were sampled by qualitatively sampling rocks and other objects in the streambed. A kick net was used to sample for invertebrates which would be found in substrates of gravel and sand. The larger streams, Fletcher Creek and Nonconnah Creek, were also surveyed in this manner with the only difference being the downstream distance; Fletcher Creek was surveyed for approximately one mile and Nonconnah Creek was surveyed for approximately 1.5 miles. These two streams were also sampled during late spring and summer when they were shallower. The Wolf River was not sampled for two reasons:

1. There is adequate data for water quality and aquatic life available from various State and Federal agencies.

2. Because of the ecological degradation of the Wolf River, field researchers believed historic data and correspondence from concerned agencies could provide any information concerning endangered or threatened species. This assumption precluded the expending of time and funds which field sampling would have required.

Kirby Parkway will be on new location in the Shelby County Penal Farm and through a field south of Messick Road. Except for an area of the "Farm" along the Wolf River, most of this ground was eliminated from further consideration during the initial field trip. The land along the Wolf River is old hardwood bottomlands. Approximately 150 acres were surveyed on five occasions. The first trip established those areas within the bottomlands which might support plants requiring a sensitive or unusual habitat. The additional trips were planned around the flowering periods of certain plant groups throughout the growing season. This plan afforded the field researchers maximum opportunity to locate and identify any endangered or threatened plants. This plan also made possible a more thorough understanding of those biotic communities present. Additionally, an extensive trail system within the bottomlands allowed greater freedom of movement and provided better access to the interior of this timber stand. On one trip, 14 June, two biologists from the Corps of Engineers-Memphis District, Tom Wellborne and Tom Heineke, accompanied T.D.O.T. biologists to assist with plant identification. Their experience with the local flora was deemed important to T.D.O.T. biologists because this area of the State supports a mix of hydric and mesic species, many of which are more common south or west of Memphis.

Terrestrial Assessment

The largest proportion of land affected by the Kirby Parkway project borders existing highway right-of-way. All of the land along Whitten Road north of the river and most along Kirby Parkway south of the river is residential, commercial or agricultural. Urbanization has irrevocably altered the natural ecology. The only natural habitat remains as "strips" or "fringe" along fence rows, roads, creeks, and the edges of field crops. These areas support the growth of plant species which would not ordinarily be planted or allowed to grow in yards or croplands. This habitat type supports song birds, small mammals and reptiles: usually those species which are able to compete well in a disturbed environment and to coexist with humans. Disregarding the Wolf River bottomlands, most of the trees along the right-of-way are located in these "fringe" locations. Clearing of these fringes for agricultural and residential development is occurring at a rapid pace, which probably won't be changed by this project. However, those areas impacted by road improvement will be temporarily lost, but replaced by new "fringe" with time.

The project will be on new location for most of its distance across the Shelby County Penal Farm. The majority of this land is being used for intensive agricultural purposes or for pasture. There are two areas of some ecological significance. One is a small, marshy site which has developed around one of the livestock ponds. It is located in a pasture approximately 1,500' southwest of the intersection at Whitten Road and Mullins Station Road.

The field surveys did not reveal anything significant. It is highly probable this site lacks any botanical significance; in addition to the lack of any endangered or threatened species being found, livestock grazing probably has a severe impact on those plants that are able to withstand its effect and still compete ecologically. Most likely, grazing diminishes the possibility of any unusual species being present. The mole salamander, Ambystoma talpoideum, is the only listed species which might be present. This salamander requires ponds for breeding and low-lying, damp ground for its habitat. Although it is not federally listed, it has been deemed in need of management by the State. Its preferred habitat should be avoided by construction if at all possible.

The second site is the previously mentioned bottomland hardwoods along the Wolf River. This land, adjacent to the river on both banks, is part of a system of "remnants" of the once extensive Wolf River bottomland forests. Although only a portion of what was once an important forest ecosystem, these remnants provide abundant wildlife habitat in an urbanized setting. The north bank vegetation is more extensive than that on the south bank; this can be attributed to the low degree of developemnt on the farm. The north bank woodlands are more mature, have a less developed understory, and cover roughly ten times the acreage of those woodlands on the south bank. Channelization of the Wolf River has hastened water loss, thus lowering the water-table. Consequently, the plant communities have become more mesic with the build-up of dryer soils. The

discarded dredge material from the channelization process has also helped the mesic flora dominate most of the old bottomlands; very little remains of the wetlands ecology. There are some old meanders and low swampy spots in the north-bank woodlands which are characterized by bald cypress/water tupelo communities. But these comprise a very small percentage of the flora. The most common community is typified by sugar maple (Acer saccharum), American elm (Ulmus americana), red mulberry (Morus rubra), American holly (Ilex opaca), ironwood (Carpinus caroliniana), and privet (Forestiera acuminata). A more thorough listing of plants is attached to this report.

These woodlands provide a variety of habitats for wildlife, particularly birds and mammals. It also serves as a protective "corridor" for the movement of larger wildlife (deer, bobcat, etc.) along the Wolf River, and as a haven for aquatic mammals. On two occasions field researchers found tracks and other signs of beavers (Castor canadensis) and river otters (Lutra canadensis). An otter slide, measuring 24"-30" wide and about 12' long, was found along a drainage stream just inside the northern edge of the Shelby Farms woodlands. Gnawed tree trunks and felled saplings were common around the streams and backwaters.

The varied habitats should support numerous prey species and so offer food sources for such carnivores as minks, foxes, bobcats, and feral dogs, all of which were noted by tracks. In addition to several species of rabbits and squirrels, the woodlands offer a wide variety of habitats to rodents, birds

and reptiles. The white-tailed deer might also be preyed upon. Although the coyote (Canis latrans) was not noted (sightings, tracks, scats) as an inhabitant of this area, it is reasonable to assume its presence. Numerous sightings have been reported by "farm" personnel. The coyote is found in every county in Tennessee and has been known to associate closely with humans; i.e. preying on livestock. The habitat available offers ample food and concealment and is of an extent to afford easy movement.

These woodlands exhibit a diversity of flora and fauna which is highly unusual for a major urban area. The current land use plan developed by Shelby Farms Planning Commission calls for limited development of these lands between the Wolf River and Walnut Grove Road. This development will be based on using these woodlands for ecological studies. Public recreation will also be served by the construction of trails for hiking and nature studies. The value of these woodlands to plants and wildlife is incalculable when compared with that habitat available in the remainder of the project area.

Aquatic Assessment

There are numerous ponds and streams along the length of the project. Four of these were considered especially significant to the local watershed. These four are Fletcher Creek, Nonconnah Creek, Wolf River and an unnamed wetland southwest of the intersection of Kirby Road and Knight Arnold Road.

The Wolf River is the most prominent water resource within the project area. It is typical of the larger streams in West Tennessee in that it has been extensively channelized. Water

fluctuates greatly in depth, is normally turbid, and is polluted with industrial and domestic wastes. The constant turbidity is the product of poor agricultural practices, soil erosion on developing residential and commercial sites, and the inherent instability of the river banks resulting from channelization. Obviously, these conditions have been very detrimental to water quality and aquatic organisms. Although water parameters (temperature, dissolved oxygen, etc.) in a river this size are moderated by the large volume, the limiting factor which is controlling the quality of habitat is the turbidity. This destroys breeding areas, smothers eggs and food organisms, and clogs the gills of less vigorous fish spcies. Principle fish species caught from the Wolf River are buffalo (Ictiobus cyprinellus), carp (Cyprinus carpio), and bullheads (Ictalurus spps.) Other fishes present are the green sunfish (Lepomis cyanellus) and the bluegill (Lepomis macrochirus). Principle invertebrate organisms are mayfly (Ephemeroptera) and crayfish (Decapoda) species.

Fletcher Creek and Nonconnah Creek were sampled several times during three months so the biologists could gain an idea about the fluctuation of water parameters. Historic data shows these two creeks to be of very poor quality with little fishing value. On 14 June 1984, the flow in both creeks was very low, the water was turbid, and water temperatures were very high; 24 ^{o}C in Nonconnah Creek and 35 ^{o}C in Fletcher Creek. On 21 June 1984, conditions had worsened acutely. Nonconnah Creek had a flow less than 5" deep with a water temperature at 33 ^{o}C. Fletcher Creek was dry. On 16 July 1984, conditions were much the same for both creeks.

These conditions were fairly constant into October 1984; the only changes occurred with run-off from rainstorms. With these conditions being persistent, it is readily obvious the quality of these two creeks has suffered. The habitat available to aquatic organisms is almost non-existent. These creeks also suffer from the heavy pollution which typifies that in the Wolf River. Fish and invertebrate species should be much the same as those in the Wolf River, although no invertebrates were found during the study period.

The wetland near Kirby Road and Knight Arnold Road was an old meander of the original channel for Nonconnah Creek. Channelization operations isolated this wetland but the topography and soils kept it viable. On the initial field trip, this wetland was plotted on a 7.5 minute topographic quad sheet and documented with photographs. This wetland was dominated by bald cypress/black willow stands. It was oriented on an east/west axis with the water being retained by an old beaver dam. The south bank was a steep ridge dominated by a mature mesophytic timber stand. The dominant species were various red and white oak (Quercus) species. The north bank was a low, flat grassland dominated by rush (Juncus) species and black locust (Robinia pseudoacacia) groves. The value of this wetland was not totally understood. However, since the initial field trip, the land on both banks has been cleared and graded for residential development. To date, there has not been any erosion mitigation measures, which has resulted in siltation of the wetland from the cleared banks. The development operations have seriously degraded, or possibly destroyed, this wetland.

Conclusions

The ecological impacts associated with the Kirby Parkway project should not be severe or of long duration if certain considerations are made in the design and construction process. There will be a significant amount of habitat loss, mainly because of the urban setting from which it will be taken. This cannot be avoided in a project of this magnitude but can be minimized. There will be no adverse impact to federally endangered or threatened plants and animals.

The greatest impact will be the loss or degradation of terrestrial wildlife habitat. This will be noticeable along the existing roads which are to be upgraded to design specifications. The existing "fringe" vegetation along the ditchlines will be cleared and unavailable to wildlife for a short time. Eventually, a new "fringe" will develop along the highway to replenish the habitat available. The same situation is true for any creeks, fence rows, or other margins where vegetation may grow unimpeded.

The most adverse loss will occur within Shelby Farms, where the facility will be almost entirely on new location. The proposed right-of-way north of Walnut Grove Road will traverse pasture and crops. As mentioned earlier, the only concern would be siltation of any livestock ponds and adjacent marshy sites. This impact can be minimized through the judicious application of those mitigative measures outlined in the Tennessee Department of Transportation's "Standard Specifications for Road and Bridge Construction".

That right-of-way south of Walnut Grove Road is mostly in hardwood timber along the river. This timber borders the river in a strip about 1/2 mile deep. The clearing of any vegetation for a six-lane highway will be a significant adverse impact to the available habitat and to the unobstructed movement of wildlife along the river. If the Wolf River Bridge cannot be built with enough length to span these woodlands, then only a minimum amount of canopy should be removed. This should be achieved by either cutting only to the toe of any fill or cutting only within the proposed right-of-way, whichever method conserves the most trees. Any stockpiling of materials or equipment for constructing the bridge should be north of the timber stand in the fields on the south side of Walnut Grove Road. This should effectively minimize loss of woodland habitat.

Another potential impact concerns the road fill acting as a barrier to the unrestricted movement of mammals. This has the potential to be a paticularly devastating impact because there currently is no vehicular traffic through these woodlands to impede free movement or cause road kills, such as with deer. To reduce the potential for the highway being a barrier, the bridge abutments should not be placed directly adjacent to the bank edge. If adequate space (100' feet) is kept between the edges of river bank and abutment, this might induce animal movement under the bridge and reduce the occurrence of road kills.

One other possible impact is the clearing of grassland habitat which could destroy the nests of two uncommon birds,

the lark sparrow (Chondestes grammacus) and the grasshopper sparrow (Ammodramus savannarum). Shelby County is within the range for these birds. Confirmed sightings and nests have been rare. But the habitat does exist sporadically along the project. This problem has been addressed previously, (see letters dated March 12, April 16 & 28, May 30), with discussion of the aspect of mowing pre-desingated areas of the proposed right-of-way before and early in the nesting season. Because of the small chance of either bird being present, this effort should be adequate to mitigate any potential impact.

Impacts to the aquatic ecology can be minimized if the "Standard Specifications" and other mitigative measures are properly used and enforced. The proposed facility will require an expansion of the existing bridges over Nonconnah and Fletcher Creeks and a bridge on new location over the Wolf River. Erosion and siltation cannot be totally eliminated, but can be effectively controlled.

The bridge over Fletcher Creek will have the least impact because the banks and bed of the creek have been concreted. This concrete extends approximately 150' upstream and 500' downstream. The banks have also been rip-rapped 200'-300' beyond the concrete. These structures already provide good erosion control and if left intact during construction, will help control any likely impacts to the creek. The bridge over Nonconnah Creek will be expanded from the existing structure, similar to the bridge over Fletcher Creek. However, there are no concrete or rip-rap creek structures. The creek banks are very steep and high, which will exacerbate

erosion. The worst pollution would come from the collapse of the banks during construction. The new structure over the Wolf River has the potential for the most adverse impact simply because there is not now any structure over the river.

Although these streams exhibit marginal ecological quality, this situation does not negate the application of State and Federal regulations concerning the maintenance of water quality during construction. Adverse impacts to the aquatic ecology can be effectively minimized through use of the following mitigative efforts:

(1) Canopy removal will be limited to an absolute minimum.

(2) Stream banks will be stabilized to prevent collapse during construction.

(3) Dredge material from coffer dams, especially bottom slurry, will be placed into settling ponds so solids can settle out before returning the water to the stream.

(4) All machinery parked along the banks for construction will be placed on gravel pads for erosion control. Pads will be removed, as much as possible, before completion of project.

(5) Appropriate erosion control measures (sediment traps, catch basins, silt fences, settling ponds, baled hay, straw, etc.) will be used to minimize erosion on all exposed earth.

(6) All erosion control measures will be maintained throughout the life of the project.

(7) Silt buildup in various traps, basins, and ponds or behind silt fences will not be allowed to accumulate at a depth greater than one-half (1/2) the capacity of any retention structure. This will minimize any excess siltation due to storm flooding of these structures.

(8) Trapped silt (Item 7) shall be disposed of away from the project sites.

(9) No machinery will be allowed in the streams unless placed on barges.

(10). Cut and fill slopes will be seeded to minimize siltation.

(11) Trees will be planted to help stabilize soils at the top of stream banks.

(12) The "Standard Specifications" for erosion and sediment control will be strictly followed.

WOLF RIVER WOODLANDS
SPECIES LIST
KIRBY PARKWAY PROJECT
June 14, 1984

Aristolochia tomentosa	-	Pipe-vine
Brunnichia cirrhosa	-	Ladies-Eardrops
Acer saccharum	-	Sugar Maple
Ulmus alata	-	Winged Elm
Ulmus americana	-	American Elm
Morus rubra	-	Mulberry
Ilex opaca	-	American Holly (large trees)
Quercus nigra	-	Water Oak
Quercus phellos	-	Willow Oak
Taxodium distichum	-	Bald Cypress
Nyssa aquatica	-	Water gum
Violaceae	-	Violets
Carya glabra	-	Pignut hickory
Carpinus caroliniana	-	Ironwood
Sambucus canadensis	-	Elderberry
Campsis radicans	-	Trumpet creeper
Anisostichus capreolata	-	Cross Vine
Passiflora lutea	-	Passion-Flower
Laportea canadensis	-	Wood-Nettle
Onoclea sensibilis	-	Sensitive Fern
Thelypteris palustris	-	Marsh Fern
Forestiera acuminata	-	Privet (thickets)
Arisaema dracontium	-	Green Dragon

BIRDS OF FEDERAL OR STATE SIGNIFICANCE
KIRBY PARKWAY PROJECT

Chondestes grammacus	-	Lark Sparrow	(H.P.)
Ammodramus savannarum	-	Grasshopper Sparrow	(H.P.)
Limnothlypis swainsonii	-	Swainson's Warbler	(H.P.)
Melanerpes erythrocephalus	-	Red-Headed Woodpecker	(S.)
Vireo gilvus	-	Warbling Vireo	(S.)
Vireo bellii	-	Bell's Vireo	(H.P.)
Ictinia mississippiensis	-	Mississippi Kite	(H.P.)
Accipiter straiatus	-	Sharp-Shinned Hawk	(W.V.)
Nyctanassa violacea	-	Yellow-crowned Night Heron	(H.P.)

H.P. - Habitat Present

W.V. - Winter Visitor

S. - Sighted in Field

MAMMALS OF SHELBY COUNTY FARMS
WOODLAND AND GRASSLAND HABITATS (HYDRIC-MESIC)
KIRBY PARKWAY PROJECT
(List Based on Available Habitat)

Didelphis marsupialis	-	Opossum
Cryptotis parva	-	Least Shrew
Sorex longirostris	-	Southeastern Shrew
Blarina brevicauda	-	Short-tail Shrew
Scalopus aquaticus	-	Eastern Mole
Reithrodontomys humulis	-	Eastern Harvest Mouse
Peromyscus maniculatus	-	Deer Mouse
Peromyscus leucopus	-	White-footed Mouse
Peromyscus gossypinus	-	Cotton Mouse
Ochrotomys nuttalli	-	Golden Mouse
Neotoma floridana	-	Eastern Woodrat
Oryzomys palustris	-	Rice Rat
Sigmodon hispidus	-	Hispid Cotton Rat
Marmota monax	-	Woodchuck
Ondatra zibethicus	-	Muskrat
Castor canadensis	-	Beaver
Tamias striatus	-	Eastern Chipmunk
Sciurus carolinensis	-	Eastern Gray Squirrel
Sciurus niger	-	Eastern Fox Squirrel
Sylvilagus floridanus	-	Eastern Cottontail Rabbit
Sylvilagus aquaticus	-	Swamp Rabbit
Mustela frenata	-	Longtail Weasel

Mustela vison	-	Mink
Mephitis mephitis	-	Striped Skunk
Lutra canadensis	-	River Otter
Procyon lotor	-	Raccoon
Lynx rufus	-	Bobcat
Urocyon cinereoargenteus	-	Gray Fox
Canis latrans	-	Coyote
Canis familiaris	-	Feral Dog
Odocoileus virginianus	-	White-tailed Deer

ADDENDUM TO THE ECOLOGICAL SUMMARY FOR KIRBY PARKWAY SHELBY COUNTY

3 December 1986

Prepared by
Dan Rust
Environmental Planning Office
Tennessee Department of Transportation

INTRODUCTION

Growing opposition to the proposed alignment and comments from the Federal Highway Administration has compelled the Tennessee Department of Transportation to consider some additional alternatives. The alignment through the Wolf River bottomlands needed a field review to determine the impacts to the habitats present. This aspect of the ecological studies was not thoroughly conducted in 1984 because the exact alignment through these woodlands was not surveyed and staked until 1985. The final outcome of the land use changes around an old meander of Nonconnah Creek at Kirby Parkway and Knight Arnold Road also needed reassessment. A route east around Whitten Park needed to be considered because of a possible 4(f) situation along Whitten Road and a park boundary.

The field review was conducted on 24 and 25 November 1986.

EXISTING ENVIRONMENTAL SETTING

The major area of concern is the Wolf River bottomlands on both sides of the river. The most extensive area lies on the north bank as part of the Shelby County Penal Farm. The alignment will move through an area of vegetation dominated by swamp chestnut oak (Quercus michauxii), cypress (Taxodium distichum), sweet gum (Liquidambar styraciflua), planertree (Planera aquatica), and boxelder (Acer negundo). All of these species have an affinity for wetter soils. This area is also traversed by several old backwater sloughs of the original Wolf River channel. Although these sloughs were dry, they are seasonally inundated; some are as deep as 8' - 10'. The majority of the cypress and planertree are located in or immediately adjacent to these sloughs. The understory growth is dominated by swamp privet (Forestiera acuminata). Otherwise, this area is adequately dealt with in the previous ecology report.

The area south of the river is an old oxbow meander which was cut off from the river by dredging spoil. This area contains about 6 cypress trees and many more planertrees. Water was standing 6" deep during the field survey. This area is also probably seasonally inundated. The majority of the vegetation is composed of sweet gum and red maple of sizes ranging to 4" in diameter. This area is not as remote or as extensive as that land along the north bank of the river. Residential developments have been encroaching upon these woodlands for twenty years.

The wetland at the intersection of Kirby Parkway and Knight Arnold Road, the southern project terminus, is an old meander of the original channel of Nonconnah Creek. In 1984, a developer cleared and graded all of the land around this wetland. Presently, this area is surrounded by multi-family housing units. There is some new tree growth, mostly black willow (Salix nigra), but the mature trees appear stressed; growth of new branches is poor. The wetland is suffering erosion and sedimentation from the landscaped residential lots surrounding it. This process may stop, but the future for this wetland is very dire.

The last area to be impacted was not considered during the original field study. This area is a detour from Whitten Road east around Whitten Park. This line was suggested in an attempt to avoid a possible 4(f) situation where the proposed alignment passes along the front of Whitten Park. The original alignment would take about 0.4 acres off the parking lot of Whitten Park. The proposed alternative would circumvent the park to the east. However, this land is an isolated woodland; surrounded by the park on the west, old fields on the north and south, and an apartment complex on the east. These fields and woodlands are not prime wildlife habitat, but they do provide good living space for small mammals and birds, especially since this habitat is like an "island" amidst the urban development. The woodlands are a mix of tree species, mostly saplings

and trees up to 4" - 5" dbh. But the dominant canopy trees are white oak (Quercus alba) and cherrybark oak (Quercus falcata). The most apt description of this woodland is a thick tangle of sapling trees, shrubs, honeysuckle, and sawbrier.

IMPACTS TO THE ECOLOGICAL ENVIRONMENT

The impact to the Wolf River woodlands in unavoidable with the proposed alignment, as was stated in the earlier document. Any shifting of the alignment will not lessen the impact to the habitats present. Only a major shift to an alignment running along the eastern border of the Shelby County landfill would lessen the impacts to these woodlands. As stated in the earlier document, any mitigation would be to clear the minimum amount of land for the road, to allow water movement through culverts to keep the meanders around the road fill wet, and to provide space between the edges of the river bank and the bridge abutment to allow animal movement along the river.

The old oxbow meander on the south bank will be partially filled if the proposed alignment is built. The abutment fill will encroach upon the eastern edge of this wetland. Although the extent of this fill is unknown, the wetland character would be altered. Some of the wetland vegetation will be removed. These impacts could be eliminated if the alignment could be shifted to the east or if a retention wall were placed to hold back the fill along this area.

The wetland at Kirby Parkway and Knight Arnold Road will not be affected by this project.

The woodlands behind Whitten Park will be totally obliterated if the alignment is shifted. The fields on either side will also be impacted, although some portions will remain. The shift in alignment to avoid possible 4(f) problems will enhance the development of the land around this park. The only way to mitigate the loss of this woodland is to stay out of it.

CONCLUSIONS

The proposed alignment will have severe impacts on the ecological environment where it crosses undeveloped land. Even minor shifts or adjustments in the alignment will not drastically change the degree of impact. However, careful construction practices in and near these woodlands will minimize the impacts. These mitigation steps have been prevously referenced in the original field study.

AN ADDENDUM TO THE ECOLOGICAL REPORT FOR KIRBY PARKWAY SHELBY COUNTY

29 January 1988

Prepared By
Dan Rust
Environmental Planning Office
Tennessee Department of Transportation

The City of Memphis submitted another proposed alternative across Shelby Farms for the Department's consideration. The new alternative is aligned along the proposed alternative which borders the dump. However, in crossing Wolf River, the new alternative bears east and crosses on a sharply skewed angle to the river. After crossing, it parallels the river for approximately 2,000' before interchanging with Humphreys Boulevard.

This alternative's close proximity to Wolf River practically ensures dredging and filling operations along the river. On the south bank, several remnant wetlands will be destroyed, including a wetland already designated as part of a mitigation plan for Humphreys Boulevard. The alternative's path is within the designated floodway. Not only will roadfill cause displacement of floodwaters, but the cutting action of the river against the south bank could eventually jeopardize the road itself. Some method of bank stabilization will probably be necessary, which will detract from the scenic aspects of the river. Even if the alternative is built totally on structure, some sort of bank stabilization will probably be necessary to protect the road from the river's cutting action.

42-0385

February 8, 1984

HDV-TN

Mr. Warren Parker
U.S. Fish and Wildlife Service
Endangered Species Field Office
100 Otis Street, Room 224
Asheville, North Carolina 28801

Dear Mr. Parker:

Subject: Kirby Parkway from Split Oak Drive
to St. Elmo Road, Memphis, Shelby County

The enclosed materials describe a proposed Federal-aid highway project in Tennessee. Please advise us if any species which are listed or proposed to be listed as threatened or endangered may be present in the area.

You may contact Mr. Larry Cameron at FTS 852-5373 if you should need addition information on the highway proposal.

Sincerely yours,

(For) E. G. Oakley
Division Administrator

Enclosure

Mr. Charles Buch - TDOT

United States Department of the Interior
FISH AND WILDLIFE SERVICE
ENDANGERED SPECIES FIELD STATION
100 OTIS STREET, ROOM 224
ASHEVILLE, NORTH CAROLINA 28801

February 22, 1984

Mr. E. G. Oakley
Division Administrator
U.S. Department of Transportation, FHA
801 Broadway, Room A926
Nashville, Tennessee 28801

Re: 4-2-84-302

Dear Mr. Oakley:

We have reviewed the proposed construction of Kirby Parkway from Split Oak Drive to St. Elmo Road in Shelby County, Tennessee as requested by letter of February 8, 1984, received February 10, 1984.

Based on our records, it is our belief that there are no federally listed or proposed Endangered or Threatened plant or animal species in the impact area of the project, and that the requirements of Section 7(c) of the Endangered Species Act of 1973, as amended, (Act) are fulfilled. In view of this, we believe that the requirements of Section 7 of the Act have been satisfied. However, obligations under Section 7 of the Act must be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or Critical Habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this review, or (3) a new species is listed or Critical Habitat determined that may be affected by the identified action.

Sincerely yours,

V. Gary Henry

V. Gary Henry
Acting Field Supervisor

CC:
Mr. Bob Hatcher, Tennessee Wildlife Resources Agency, Nashville, TN
Program Administrator, Tennessee Heritage Program, Nashville, TN
Commissioner, Tennessee Department of Transportation, Highway Building, Nashville, TN 37219
Field Supervisor, ES, FWS, Cookeville, TN

TENNESSEE DEPARTMENT OF CONSERVATION
701 BROADWAY
NASHVILLE, TENNESSEE 37203

March 12, 1984

Mr. Charles E. Bush, Administrator
Environmental Planning Office
Tennessee Department of Transportation
Nashville, TN 37219

Subject: Kirby Pkwy. from north of Split Oak Drive to St. Elmo Rd. and Sycamore View Rd. Extension from Mullins Station Rd. to Kirby Parkway in Memphis, Shelby Co.

Dear Mr. Bush:

In reference to your letter concerning the above and dated February 1, please be advised that the proposed project may adversely affect two rare avian species. The first, considered to be threatened in Tennessee (TWRA and TNHP), is the grasshopper sparrow (Ammodramus savannarum). The second, deemed in need of management (TWRA) and of special concern (TNHP) within Tennessee, is the lark sparrow (Chondestes grammacus). Occurrences of these species are recorded (TNHP) for the lands within the boundaries of the Shelby County Penal Farm. Both species nest in open grassy fields which explains the recorded occurrences on the Penal Farm grounds. Breeding for each species begins in April. Nesting ends by late August.

Because of our concern for the grasshopper and lark sparrows, the DOC suggests that all construction of those road segments passing through Shelby County Penal Farm be scheduled to occur between mid-September and March. Pre-construction activities such as surveying which are not likely to distrub soil and vegetation could occur during any period.

We appreciate the opportunity to comment on this proposed program and would request that you respond to our suggestions by letter before formalization of plans. If any questions arise as a result of our comments, please feel free to contact us. Thank you for your cooperation.

Sincerely,

Walter L. Criley

Walter L. Criley
Director of Planning

WLC/REH:d
c : Saralee Terry

TENNESSEE DEPARTMENT OF CONSERVATION
701 BROADWAY
NASHVILLE, TENNESSEE 37203

April 28, 1984

Mr. Clark W. Odor
Transportation Planning Coordinator
Memphis and Shelby County Office of Planning & Development
City Hall - 125 North Mid America Mall
Memphis, TN 38103

RE: Kirby Parkway Section through Shelby County Penal Farm

Dear Mr. Odor:

In a letter dated April 12 concerning the above, you requested exact locations of sightings of two rare avian species, Chondestes grammacus (lark sparrow) and Ammodramus savannarum (grasshopper sparrow), discovered via our TNHP review process (see our letter of March 12). Exact locations of the sparrow sightings on the Shelby County Penal Farm are as follows:

Species	Status		Latitude	Longitude
	Fed.	State TNHP		
1) Chondestes grammacus	D	S	35°08'38"	89°50'32"
2a) Ammodramus savannarum	T	T	35°07'57"	89°50'33"
b) Ammodramus savannarum	T	T	35°08'23"	89°48'33"

Nos. 1 and 2a above represent sightings of territorial males observed in 1976. Sparrows were observed again at these locations in 1978. No. 2b above represents the observation of a nest of the grasshopper sparrow in 1978. The open grassy fields of Shelby County Penal Farm provide the nesting habitat which attracts these birds. It is not likely that usage of the area by these species is restricted to exact points where sightings have been noted. Protection of the birds' habitat should extend at least over the grounds of the penal farm. It is particularly important to protect those habitat areas that might be used for nesting.

In response to your request for information on rare plant and animal species of the entire Shelby County area, we are enclosing a list which should indicate species, occurrence location and species status. As before with sparrow occurrences, preservation of any species cannot be limited to the protection of an exact point, but must insure protection of that area which will fulfill species-specific habitat requirements.

We hope this information will prove useful. Please let us know what measures to protect the grasshopper and lark sparrows will be included in your project plans. If any questions arise as a result of our comments, please direct them to Ms. Roberta E. Hylton.

Sincerely,

Walter L. Criley

Walter L. Criley
Director of Planning

WLC/REH:d

cc: Saralee Terry
Charles E. Bush, Administrator, DOT, Environmental Planning Office

Enclosures

Copy to: F Ray

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
NASHVILLE, TENNESSEE 37219
Suite 700, James K. Polk Building

RECEIVED
APR 17 1984
TDOT
ENVIRONMENTAL PLANNING

April 16, 1984

Mr. Charles Bush, Administrator
Environmental Planning Office
Suite 900
James K. Polk Building
Nashville, Tennessee

SUBJECT: Kirby Pkwy. from north of Split Oak Drive to St. Elmo Road and Sycamore View Rd. Extension from Mullins Station Rd. to Kirby Parkway in Memphis, Shelby Co.

Dear Mr. Bush:

I have been furnished a copy of Mr. Walter L. Criley's letter to you dated March 12, 1984.

Mr. Criley expresses concern that the proposed construction may adversely affect two rare avian species and suggests that all construction of those roads segments passing through Shelby County Penal Farm be scheduled to occur between mid-September and March. The concern seems to be the possible interruption of the species' nesting activities in the existing grassy fields.

Although we certainly share Mr. Criley's concern, his suggestion of limiting all construction activities to the period he suggests may not be feasible. Construction during the winter months is often more difficult if not impossible. I wonder if a requirement to clear the affected area of all grass during the suggested time period and permit construction to proceed routinely would provide sufficient protection to the threatened species.

If this suggestion is acceptable and if a major portion of the work is through the Penal Farm, letting the contract in mid-summer would aid in proper scheduling of the work.

Please advise if you wish to discuss this matter further.

Very truly yours,

Johnie E. Davis
Director of Construction

Asked Ray to discuss this with Johnie. Dan

JED:jrd
cc Mr. Lewis Evans
Mr. Henry Derthick
Mr. E. R. Terrell

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
NASHVILLE, TENNESSEE 37219

MEMORANDUM

TO: Files

FROM: Dan Rust

DATE: May 30, 1984

SUBJECT: Mitigation of Impacts to Habitat of Grasshopper & Lark Sparrows Along the Proposed R.O.W. for Kirby Parkway in Memphis, Shelby County

In letters dated March 12, 1984 and April 28, 1984 to Messrs. Charles E. Bush and Clark W. Odor, respectively, Mr. Walter L. Criley, Director of Planning for the Department of Conservation, recommends measures to protect nesting individuals of grasshopper and lark sparrows. These measures would have restricted construction activity to the period between mid-September and late March.

This would pose construction problems, as stated in a letter dated April 16, 1984 from Johnie E. Davis, Director of Construction, T.D.O.T., to Charles Bush. Mr. Davis proposed cutting or removing grass before the nesting season begins, therefore eliminating the possibility of destroying any active nest sites.

I approached Paul Hamel, of the Department of Conservation's Natural Heritage Program, with this recommendation in a meeting on May 18, 1984. He and Roberta Hilton, also of the N.H.P., agreed that keeping any large grasslands mown would prevent nesting in the proposed right-of-way.

After discussion with Mr. Davis, it was agreed to cut and grub these areas prior to the nesting season before the project goes to contract, thereby eliminating any mowing during the nesting season. This plan will prevent nesting in the right-of-way and will not cause any delays in the construction timetable.

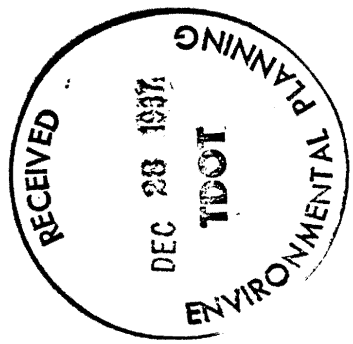
Our office will continue liaison with the construction office on this matter.

DR/zeg
cc: Johnie Davis
Charles Bush
Ray Brisson

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
B-202 CLIFFORD DAVIS FEDERAL BUILDING
MEMPHIS, TENNESSEE 38103-1894

Reply to
Attention of:

December 21, 1987



Regulatory Functions Branch

Mr. Charles E. Bush, C.E.
Environmental Planning Office
Tennessee Department of Transportation
1200 James K. Polk Building
Nashville, Tennessee 37219

Dear Mr. Bush:

Reference your request for wetland mapping for the proposed Kirby Parkway project.

Drs. Richard Mochow and Tom Heineke, of our Regulatory Functions Branch, have checked the route at the three stream crossings. The only wetlands were located along the alternate routes adjacent to the Wolf River. As Dr. Mochow noted to Mr. Mike Crabb of your office in a recent telephone conversation, late successional wetlands were found along the originally proposed route (marked Alternative #1 on attached map), on both sides of the Wolf River. The riparian strip located just north of the Wolf River on the alternative marked #4 on the map you provided was found to be an early successional wetland.

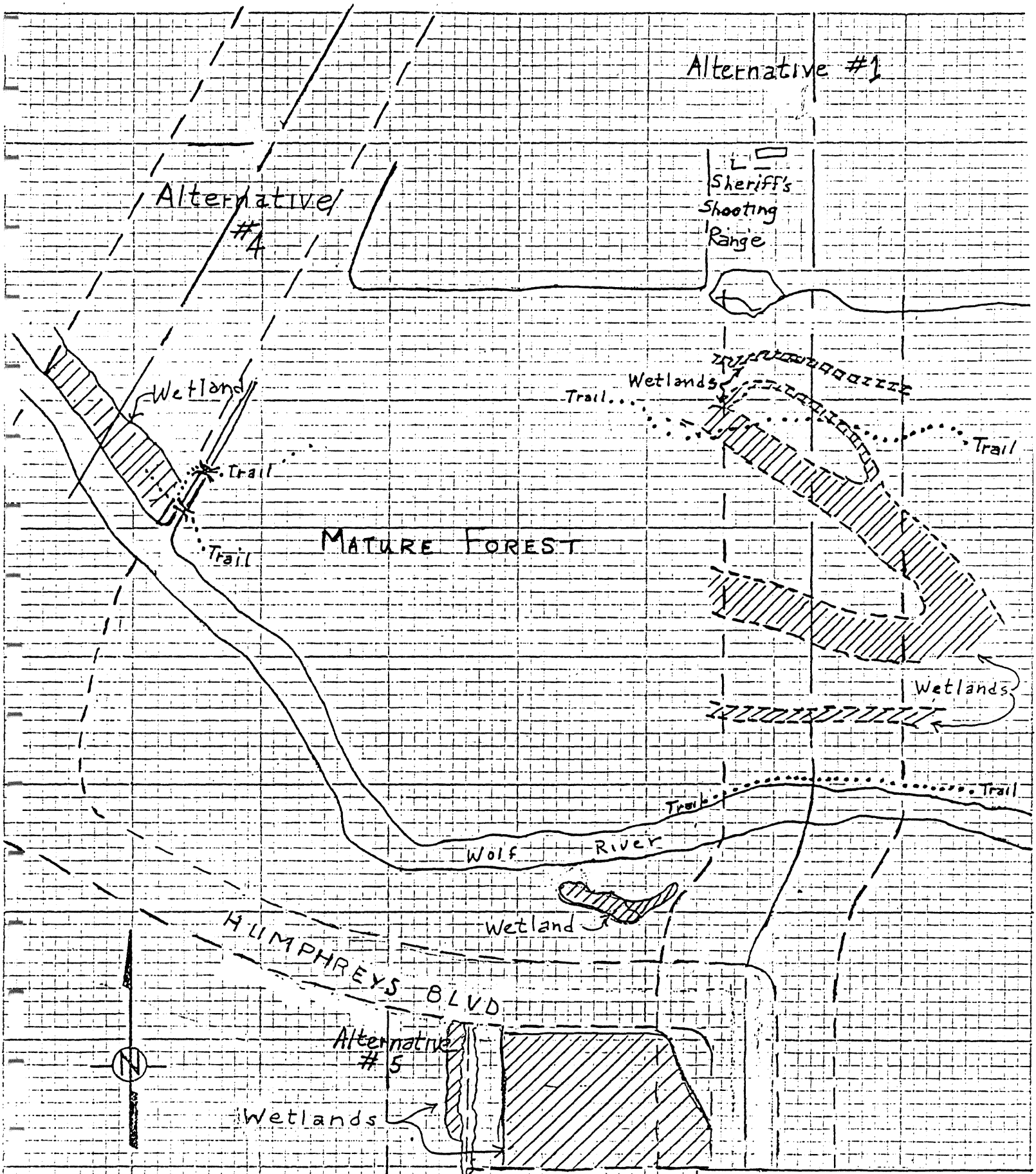
My staff looks forward to the opportunity to review the Draft EIS when it is ready. Should you have any additional questions, please contact Dr. Mochow, telephone (901) 521-3471.

Sincerely,

A. G. Davis

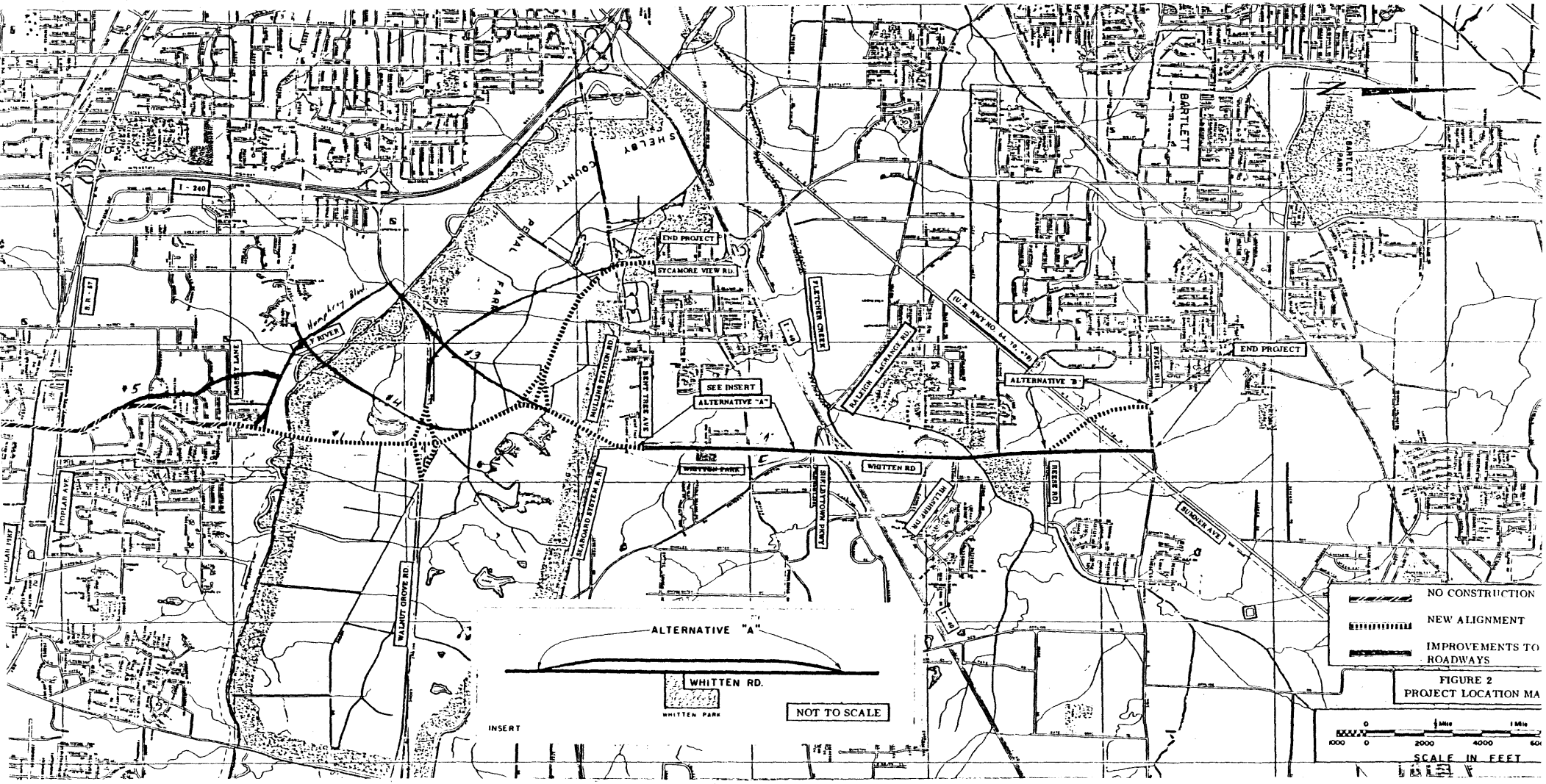
A. G. Davis
Assistant Chief
Construction-Operations Division

Enclosure



Kirby Parkway Wetlands
Wolf River @ Shelby Farms

Sheet 1 of 2 12-1-87



Kirby Parkway
Proposed Alignments
Sheet 2 of 2

APPENDIX "C"

Historical and Archaeological Studies

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
NASHVILLE, TENNESSEE 37219

MEMORANDUM

TO: Raymond Brisson

FROM: Martha Carver MC

DATE: September 11, 1984

SUBJECT: Kirby Parkway From North of Split Oak Drive to St. Elmo Road, Memphis, Shelby County

Pursuant to regulations set forth in 36 CFR 800 guidelines, staff historians surveyed the area of potential environmental impact for this project on 28 August 1984 and 5 September 1984. This area surveyed included land needed for additional right-of-way as well as areas which might possibly be affected by changes in air quality, noise levels, setting, and land use.

No properties in the project impact area are currently listed in the National Register of Historic Places, nor have any been determined to be eligible for listing. This field survey mentioned above did not identify any previously unrecorded properties which might meet the criteria of the National Register as set forth in 36 CFR 60.6.

As a result of these investigations, it appears that the project, as presently designed, will have no effect on any buildings, structures, or objects listed in or eligible for listing in the National Register of Historic Places. However, if the design or location of the project is altered, its effect on such properties may need to be re-evaluated.

MC:ljg

cc: Margaret Slater
Randy Smith

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
NASHVILLE, TENNESSEE 37219

September 11, 1984

Mr. Herbert Harper
Deputy State Historic Preservation Officer
Customs House, Basement
701 Broad
Nashville, Tennessee 37203

Dear Herbert:

Enclosed are two historical/architectural reports prepared by my staff. The projects discussed in these reports are the following:

Shelby Drive, Memphis, Shelby County
Kirby Parkway, Memphis, Shelby County

Please note that on Shelby Drive, I sent you a report previously that contained U.S. 61 as the western terminus of this project. Since then, this project has been expanded westward to Weaver Road. The enclosed report reflects that change.

Please review these reports and provide us with your comments.

Sincerely,

Raymond Brisson

Raymond Brisson,
Environmental Planning Office

RB:MC:ljg

cc: Tom Love
Randy Smith

TENNESSEE HISTORICAL COMMISSION
701 Broadway
Nashville, Tn. 37203
615/742-6716
October 16, 1984

Edward G. Oakley, Administrator
Tennessee Division
Federal Highway Administration
Federal Building, U. S. Courthouse
801 Broadway, Room A-926
Nashville, Tennessee 37203

Re: Archaeological Reconnaissance and Historical/Architectural Report, Kirby Parkway From North of Split Oak Drive to Stage Road and Sycamore View Road Extension From Mullins Station Road to Kirby Parkway, Memphis, Shelby County

Dear Mr. Oakley:

At the request of Mr. Raymond Brisson, Tennessee Department of Transportation (TDOT), our office has reviewed the above document in accordance with 36 CFR 800 (44 FR 6068-6081, Jan. 30, 1979). Based on the information provided by TDOT staff survey we conclude that the project impact area does not include properties on or eligible for the National Register of Historic Places.

All borrow area outside proposed right-of-way will require separate certification as specified under Section 107.06-Federal Aid Provisions.

If project plans are changed or archaeological remains are discovered during construction please contact us to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act.

Your continued cooperation is appreciated.

Sincerely,

Herbert L. Harper,
Executive Director and
Deputy State Historic
Preservation Officer

HLH:sd

xc: Raymond Brisson, TDOT

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
NASHVILLE, TENNESSEE 37219

MEMORANDUM

TO: Mr. Raymond Brisson, Manager
Environmental Planning Office

FROM: Gerald W. Kline, Archaeologist Supervisor
Environmental Planning Office

RE: An Archaeological Reconnaissance of Kirby Parkway from North of Split Oak Drive to Stage Road and Sycamore View Road Extension from Mullins Station Road to Kirby Parkway, Memphis, Shelby County, Tennessee

DATE: October 9, 1984

An archaeological assessment of the captioned project was conducted on September 11, 1984 (Figure 1). The purpose of the assessment was to determine the effect of highway construction on any recorded or previously unrecorded archaeological sites listed in or potentially eligible for inclusion in the National Register of Historic Places.

A search of the site survey files at the Tennessee Division of Archaeology indicated two previously recorded sites in the project area. Both sites, 40SY100 and 40SY101, were located in the vicinity of the southern end of Section III immediately south of the Wolf River. Sometime prior to 1966 both sites were apparently destroyed when the Wolf River was channelized. No evidence of either site remains.

This reconnaissance survey revealed no additional prehistoric archaeological sites in or adjacent to the project area. Based upon this finding, the proposed project will have no impact upon any property included in or potentially eligible for inclusion in the National Register of Historic Places pursuant to 36 CFR 60.6.

In the event landfill is required from areas outside of the proposed right-of-way, the special provisions pursuant to Section 107.06 (Special Provision #100), Federal Aid Provisions (attached), shall be met.

GWK:ljg

cc: Mr. Randall Smith

SECTION V
END PROJECT
SECTION IV
SECTION VI
SECTION III
40SY100
40SY101
EXCLUDED SECTION
SECTION II
GERMANTOWN
SECTION I
BEGIN PROJECT
PROJECT LOCATION MAP:
KIRBY PARKWAY
FROM NORTH OF SPLIT OAK DRIVE
TO STAGE ROAD
AND
SYCAMORE VIEW ROAD EXTENSION
FROM WOLLUBB STATION ROAD
TO KIRBY PARKWAY
MEMPHIS, SHELBY COUNTY
SCALE IN FEET

STATE OF TENNESSEE

100 (Rev. 10-26-81) March 1, 1981
Sheet 1 of 1

SPECIAL PROVISION

REGARDING

SECTION 107.06 - FEDERAL AID PROVISIONS

107.06 — Federal Aid Provisons.

Add as a new paragraph at the end of Subsection 107.06.

All excavated materials from outside the Rights-of-Way shall be obtained in compliance with Section 106 of the National Historic Preservation Act (16 U.S.C. S470(f). The Contractor shall furnish the Engineer archaeological clearance certified by the State Historic Preservation Officer on all non-commercial material sources requiring excavation, except when the source is a previously certified area shown on the Plans. Previously certified sources adjacent to the Rights-of-Way will be identified on the PIans when the information tion is available.

Regardless of prior certification, if prehistoric remains are encountered, the Contractor shall cease all excavation and notify the State Historic Preservation Officer for his determination of the disposition thereof.

APPENDIX "D"

Conceptual Stage Relocation Plan

(Not included in all copies but available from TDOT and FHWA upon request)

APPENDIX "E"

Related Correspondence

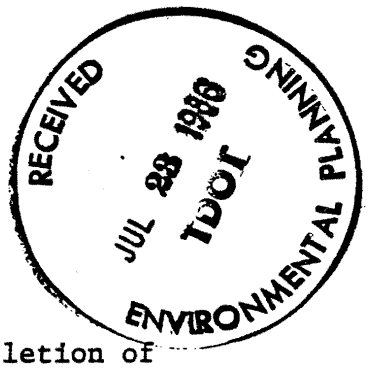
And Information

United States Department of Agriculture

Soil Conservation Service

675 U. S. Courthouse
Nashville, TN 37203

July 11, 1986



Mr. Charles E. Bush, C. E. Manager II
Environmental Planning Office
Suite 700, James K. Polk State Office Bldg.
Nashville, TN 37219

Dear Mr. Bush:

Our Memphis Field Office staff has reviewed your request for completion of Form AD-1006 Farmland Conversion Impact Ratings in reference to construction on Kirby Parkway and Sycamore View Extension in Shelby County, Tennessee.

The area under consideration is completely within the city limits of Memphis. Part 658.2 of the Farmland Protection Policy Act states that, "Prime Farmland" does not include land already in or committed to urban development or water storage. Therefore this land would not be considered prime farmland and would be exempt from the Form AD-1006.

If additional information is needed, please let me know.

Sincerely,

Louis McGodby, acting

DONALD BIVENS
State Conservationist

cc: Ray Bryant, Area Conservationist, Jackson
J. Kevin Brown, District Conservationist, Memphis

CITY of MEMPHIS

RICHARD C. HACKETT
MAYOR

DEPARTMENT
OF
ENGINEERING

July 15, 1986

Mr. Mike Crabb
Tennessee Department of Transportation
Planning Division
James K. Polk Building
Nashville, TN 37219

RE: Kirby Parkway - Messick to Massey Lane

Dear Mike,

This is in response to your question regarding the City's plans for the section of Kirby Parkway from Messick to Massey Lane after the Kirby Parkway project has been completed. At this point, we anticipate that on the section between Messick and Poplar, which has an existing median, that the volumes will be such that we will need to stripe this for three lanes in each direction. The section from Cottingham to Massey Lane has sufficient pavement width for five lanes. We anticipate that the volumes will also require us to stripe this at five lanes after the Kirby project is completed. The section from Poplar to Cottingham varies in width and in some places has an existing median. Restriping in this area will be dependent upon the existing pavement width that is available to us.

I trust this answers your questions. If you need any additional information, please let me know.

Sincerely,

Bryant Bondurant

Bryant Bondurant, P.E.
City Engineer

BB:cm

cc: Charles Sullivan
James Collins

Shelby County Government

William N. Morris, Jr., Mayor

October 11, 1988

Mr. Mike A. Crabb
Engineering Specialist II
Tennessee Department of Transporation
Suite 900
James K. Polk Building
Nashville, TN 37219

Dear Mr. Crabb:

The meeting held this morning in my office concerning the Draft EIS for Kirby Parkway was very informative. The following is a result of that meeting.

Concerning the portion of the project that goes through the Shelby Farms property and across the Wolf River, Shelby County appreciates having been included in the development of the various alternative routes SF1 - SF4. These alternatives were considered in an effort to provide a roadway facility which would meet the growing traffic demands in an economically and environmentally sound manner.

Concerning the portion of the project involving Whitten Park and the three alternatives, WP-1, WP-2 and WP-3; it appears that WP-1 or WP-3 alternatives would be preferred in order to reduce the number of displaced residents. If the WP-3 alternative is selected, Shelby County will need to have access provided to the park property.

After all studies have been completed and the results have been presented for public review and comment, Shelby County will support the alternatives that best meets the need of the community as it relates to traffic and environment.

I would like to take this opportunity again to express Shelby County's support of this project. Shelby County needs this north/south route in order to reduce the traffic problems we are experiencing along the Poplar corridor. This project is in keeping with our major road plan and needs to have the full attention of the State, City and County so construction can begin as soon as possible.

160 MID AMERICA MALL, MEMPHIS, TENNESSEE 38103

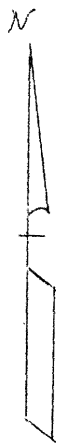
Should you need any additional information on this project, please advise.

Sincerely,

Robert I. Bowers, Director of
Public Works

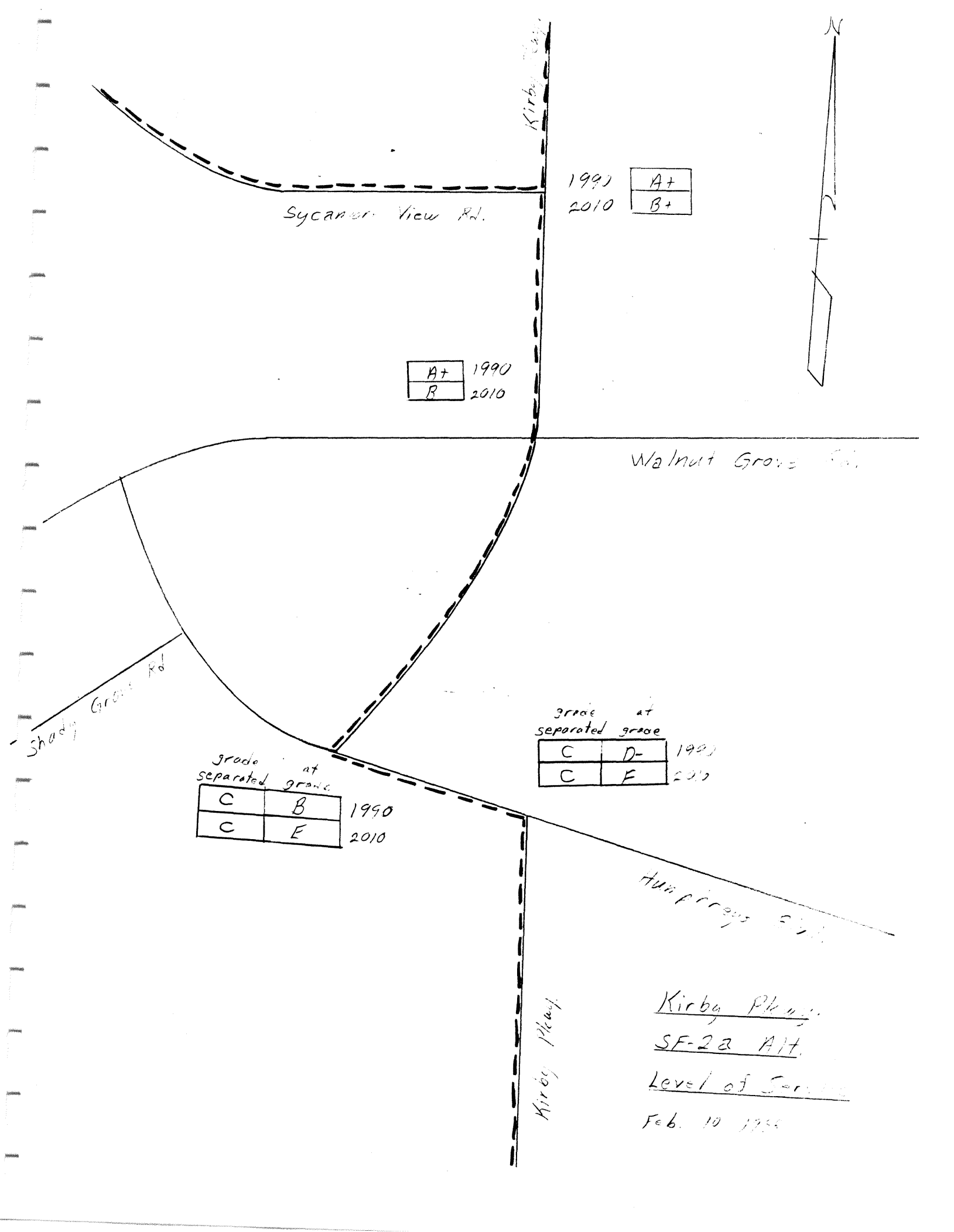
cc: Mayor William N. Morris, Jr.
Phil Whittenburg, CAO
Wade Towles, County Engineer

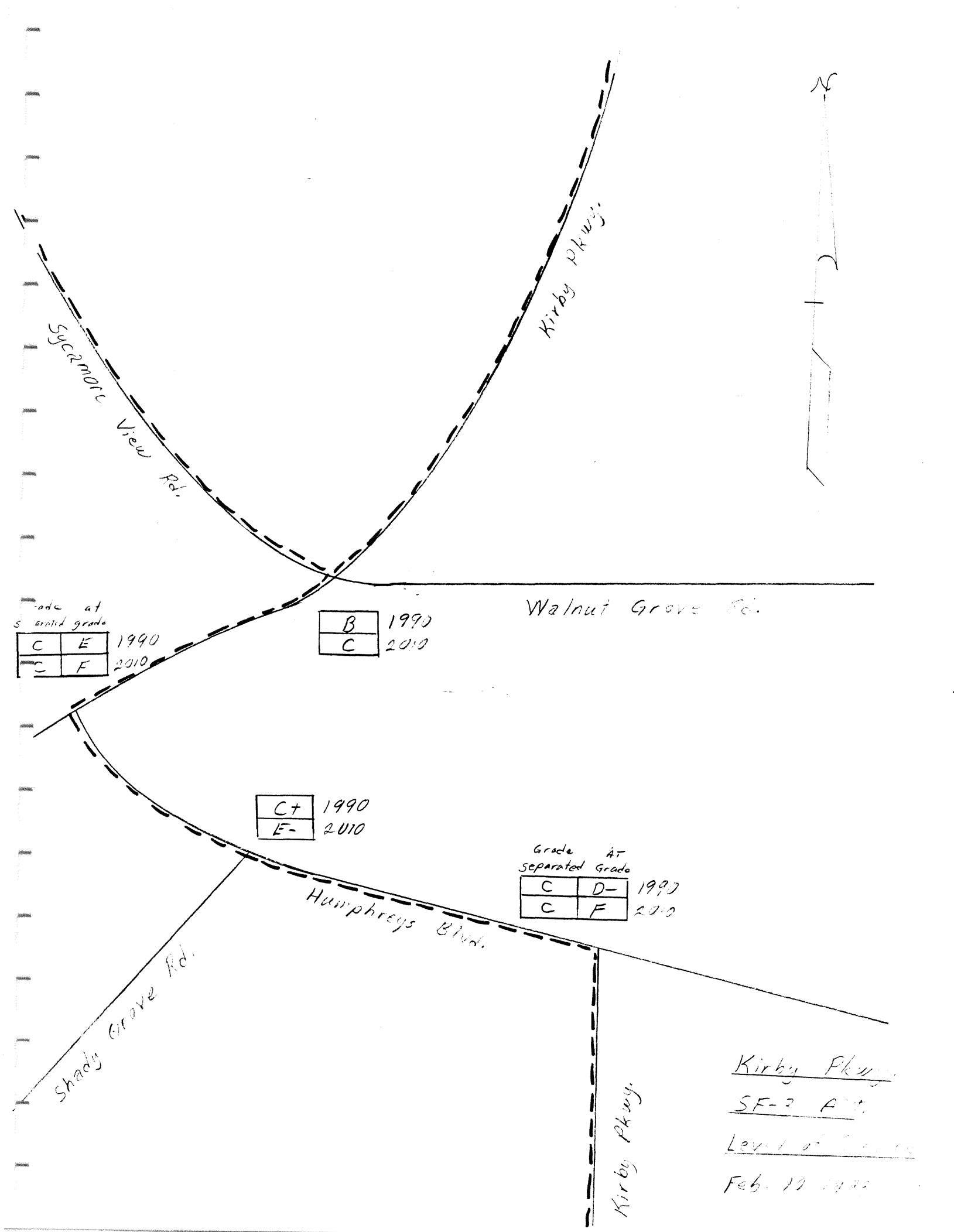
mlg

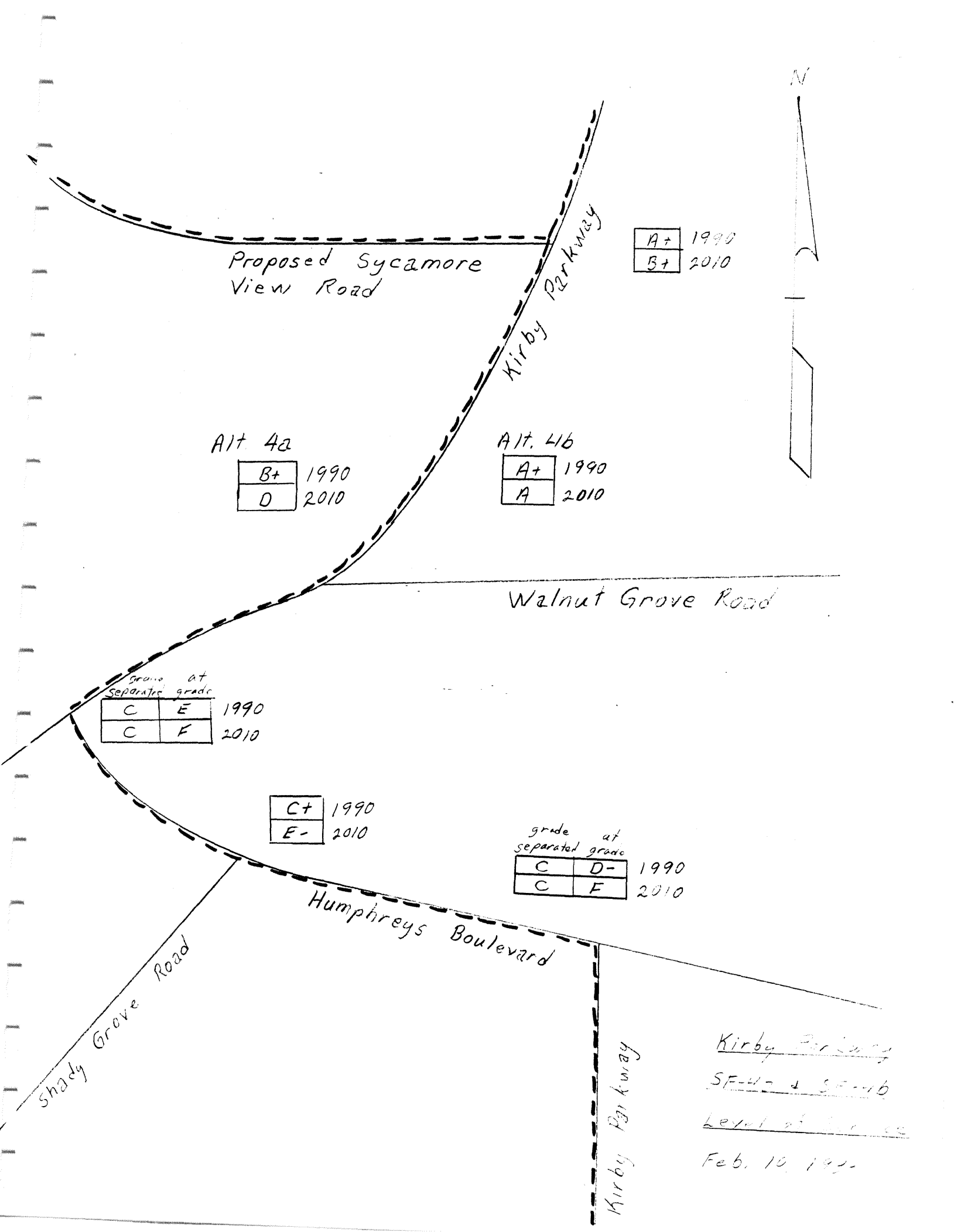


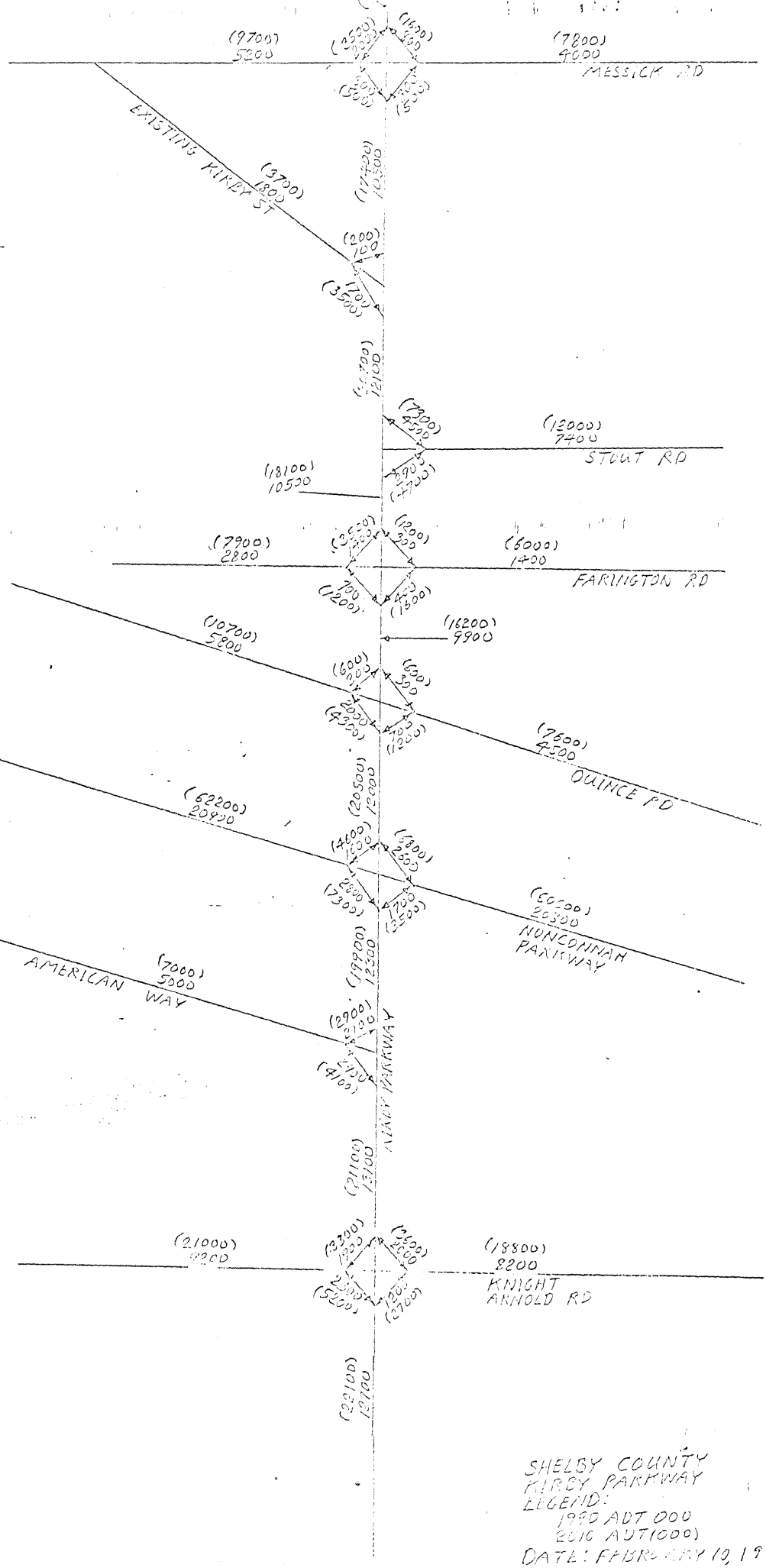
	Existing	Proposed		
Stage Rd.	C+	A	1990	
	C-	A	2010	
Summer Ave.	B+	A	1990	
	C-	A	2010	
Reese Rd.	B+	A+	1990	
	E+	B+	2010	
I-40	C+	B+	1990	
	F	D-	2010	
Dexter Rd.	C+	B+	1990	
	F	D-	2010	
Sycamore View Rd.		A+	1990	SF-1 Alt.
		B+	2010	
Walnut Grove Rd.		A+	1990	
		B+	2010	
		at-grade	grade separated	
Humphreys Blvd.		D	C	1990
		F	C	2010
Nottingham Place	C		1990	
Neshoba Rd.	E		2010	
Poplar Ave.	D-	D-	1990	
	F	F	2010	
Messick Rd.	B+	A	1990	
	C+	B	2010	
Quince Rd.	B	A+	1990	
	E	B	2010	

Kirby Pkwy.
Level of Service
For [illegible]

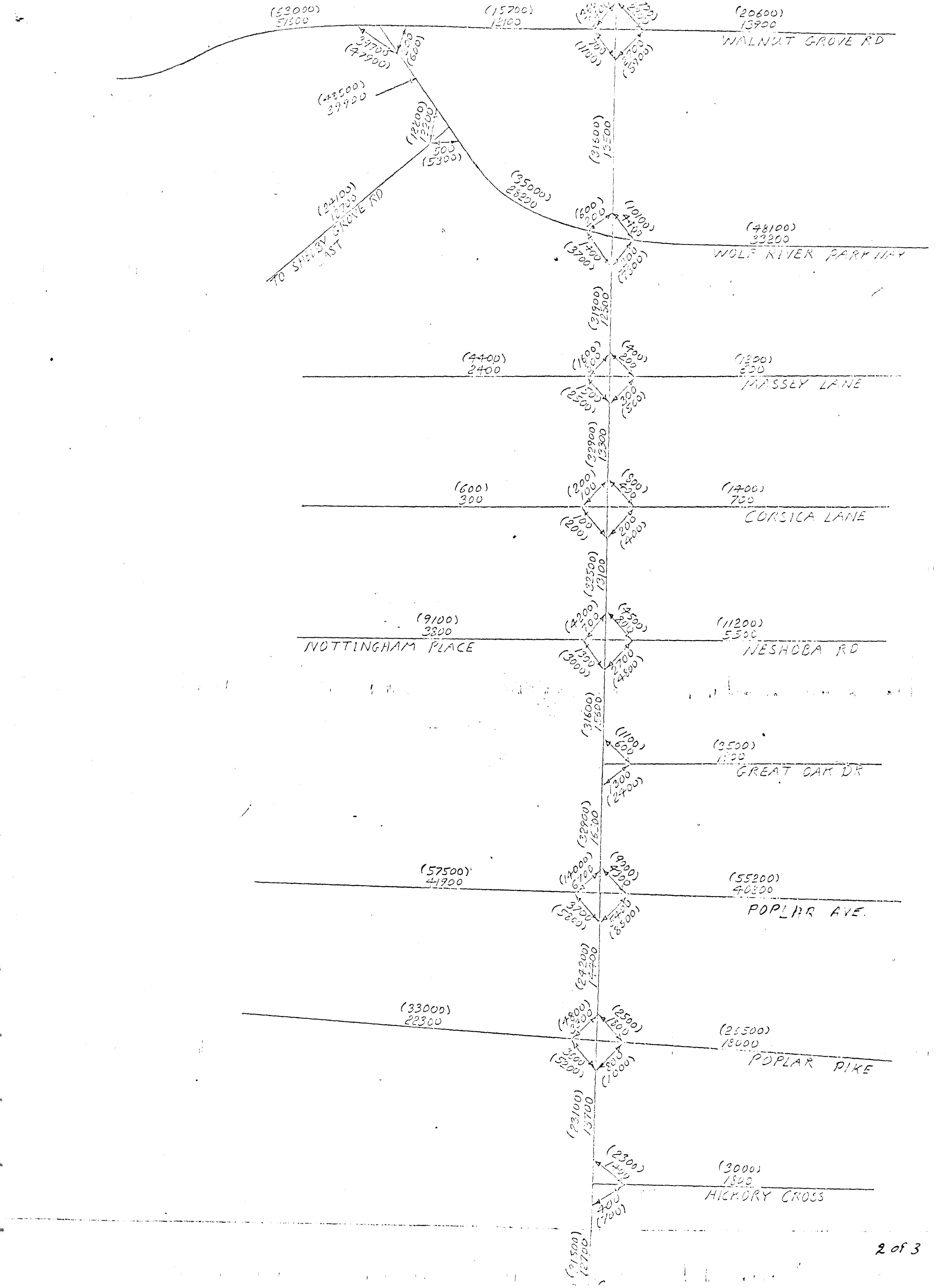

Kirby Pkwy.
Sycamore View Rd.
1990 A+
2010 B+
N
A+ 1990
B 2010
Walnut Grove Rd.
Shady Grove Rd
grade separated
at grade
C B 1990
C E 2010
grade separated
at grade
C D- 1990
C F 2010
Kirby Pkwy.
Kirby Pkwy.
SF-2a Alt.
Level of Service
Feb. 10 1990


Sycamore View Rd.
Kirby Pkwy.
Walnut Grove Rd.
Grade at
s arated grade
C E 1990
F 2010
B 1990
C 2010
C+ 1990
E- 2010
Grade separated
AT Grade
C D- 1990
C F 2010
Humphreys Blvd.
Shady Grove Rd.
Kirby Pkwy.
Kirby Pkwy
SF-3
Feb.


N
Proposed Sycamore View Road
Kirby Parkway
A+ 1990
B+ 2010
Alt 4a
B+ 1990
D 2010
Alt. 4b
A+ 1990
A 2010
Walnut Grove Road
Grade at separated grade
C E 1990
C F 2010
C+ 1990
E- 2010
grade at separated grade
C D- 1990
C F 2010
Humphreys Boulevard
Shady Grove Road
Kirby Parkway
Kirby Parkway
SF-4 & SF-4b
Level of Service
Feb. 10 199



SHELBY COUNTY
KIRBY PARKWAY
LEGEND:
1990 ADT 000
2010 ADT(000)
DATE: FEBRUARY 19, 1988
JRS



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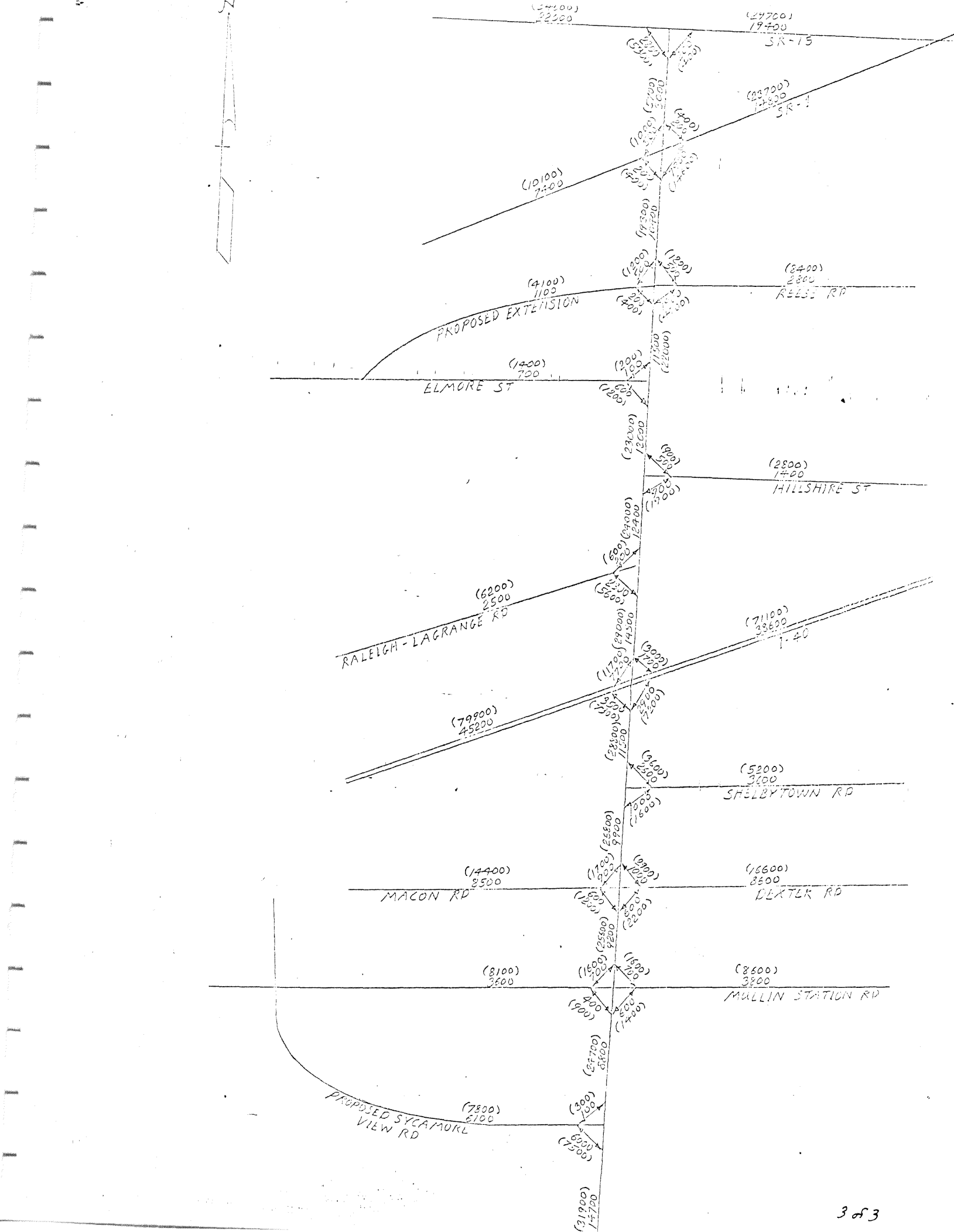
51500
(15700)
12100
(20600)
13900
(48500)
39900
(31600)
13500
(24100)
10700
TO SHELBY GROVE RD EAST
(35000)
28200
(48100)
33200
WOLF RIVER PARKWAY
(31900)
12500
(4400)
2400
MASSEY LANE
(32900)
13300
(600)
300
(1400)
700
CORSICA LANE
(32500)
13100
(9100)
3800
NOTTINGHAM PLACE
(11200)
5500
NESHOBA RD
(31600)
13300
(3500)
GREAT OAK DR
(32900)
16100
(57500)
41900
(55200)
40800
POPLAR AVE.
(24200)
(33000)
22300
(25500)
18000
POPLAR PIKE
(23100)
13700
(3000)
1800
HICKORY CROSS
(21500)
12700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(29700)
19700
SR-15
(23700)
17800
SR-1
(10100)
7400
(19300)
10700
(4100)
1100
PROPOSED EXTENSION
(8400)
2800
REESE RD
(1400)
700
ELMORE ST
(23000)
12000
(2800)
1400
HILLSHIRE ST
(24000)
12400
(62000)
2500
RALEIGH-LAGRANGE RD
(71100)
33600
I-40
(24000)
14500
(79800)
45200
(5200)
3600
SHELBYTOWN RD
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8500
MACON RD
(15600)
8500
DEXTER RD
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3600
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MULLIN STATION RD
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PROPOSED SYCAMORE
VIEW RD
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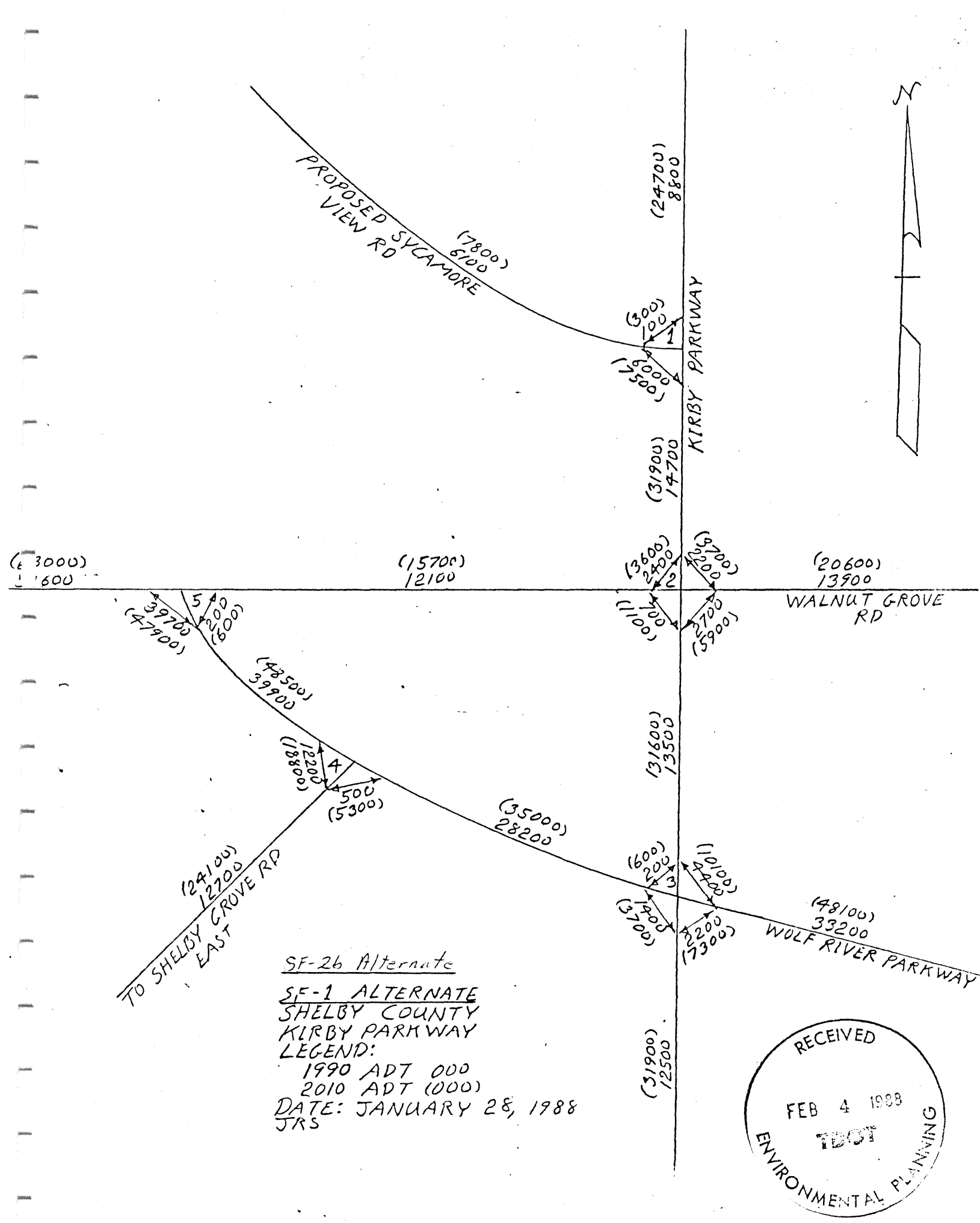
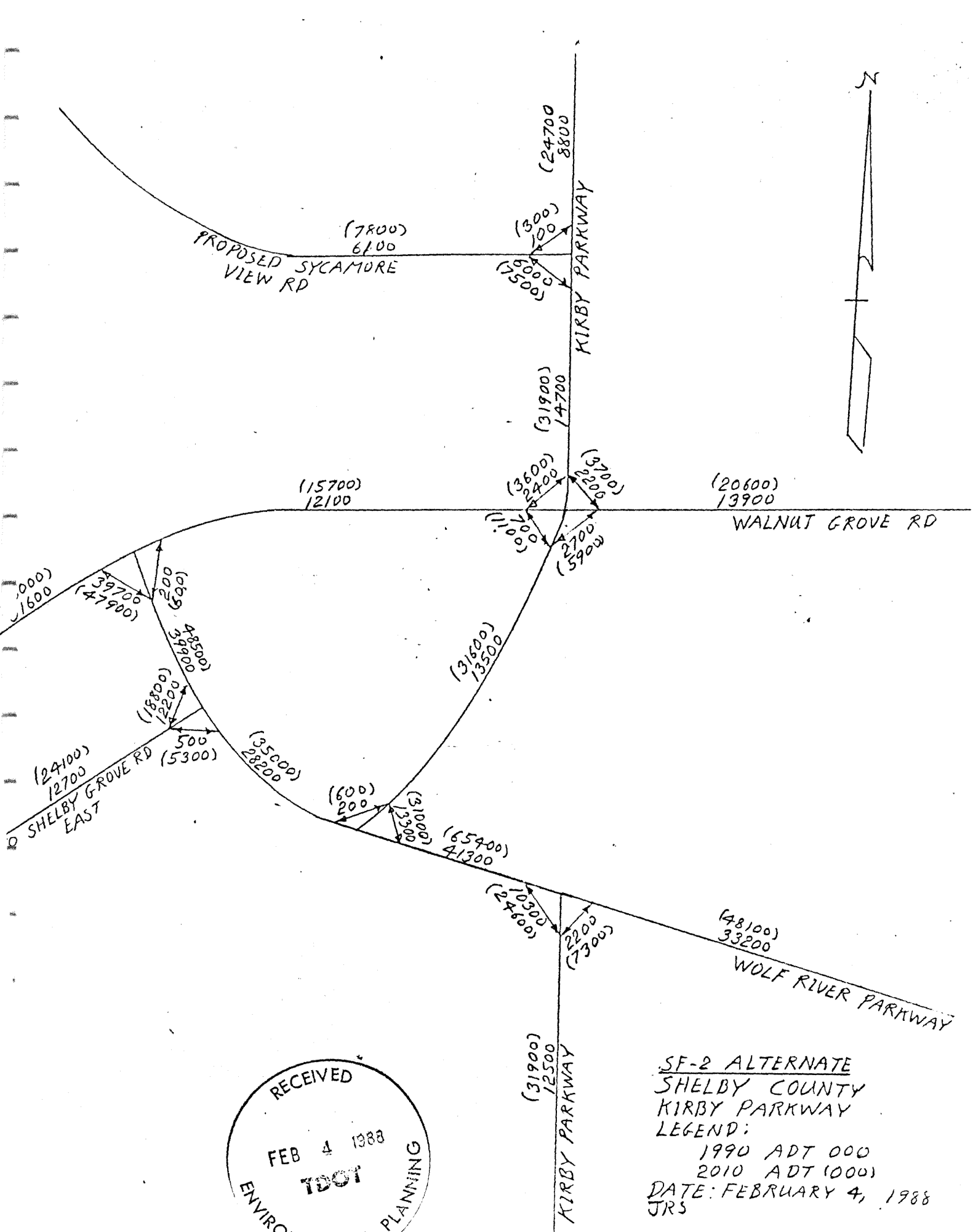


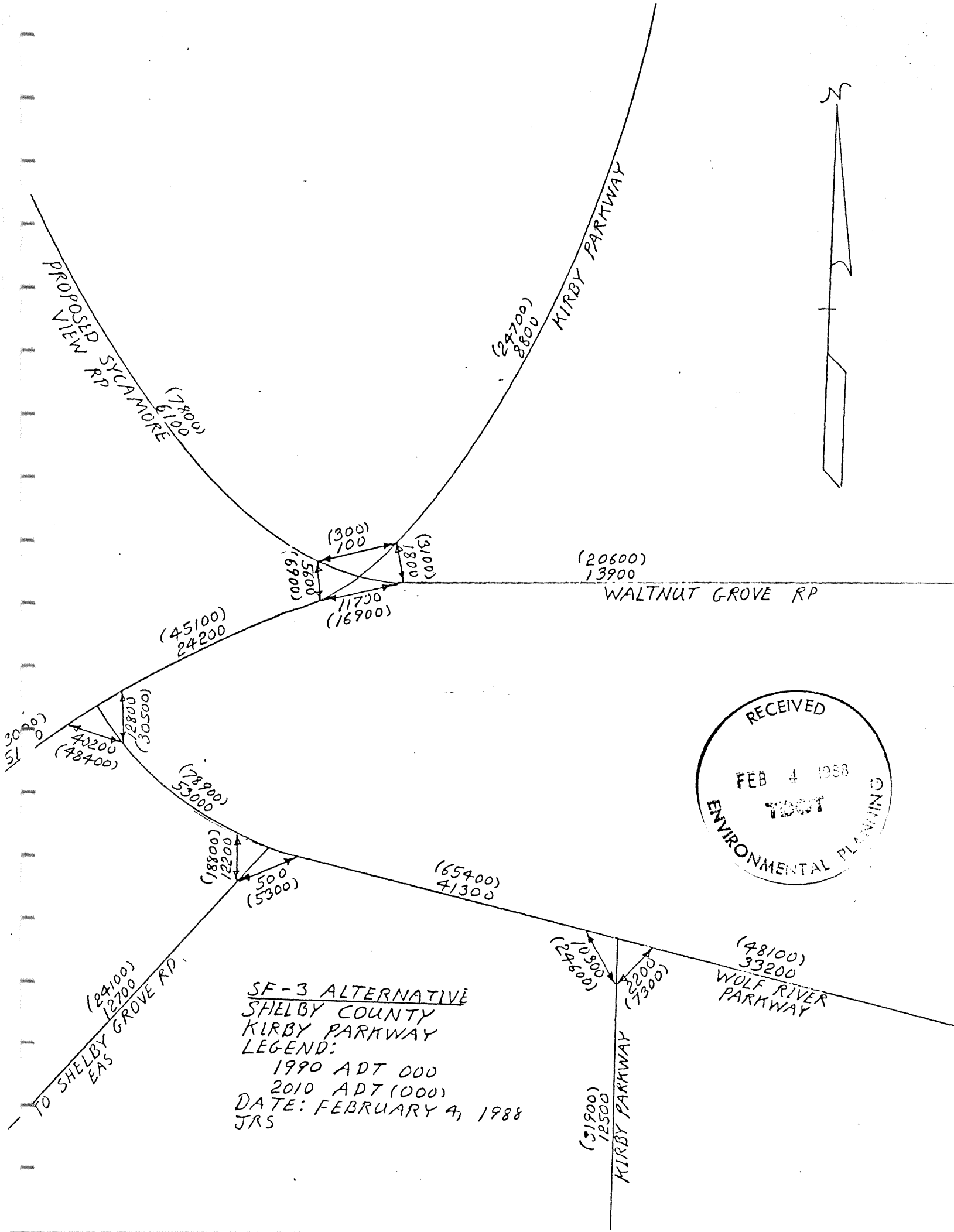
SF-26 Alternate

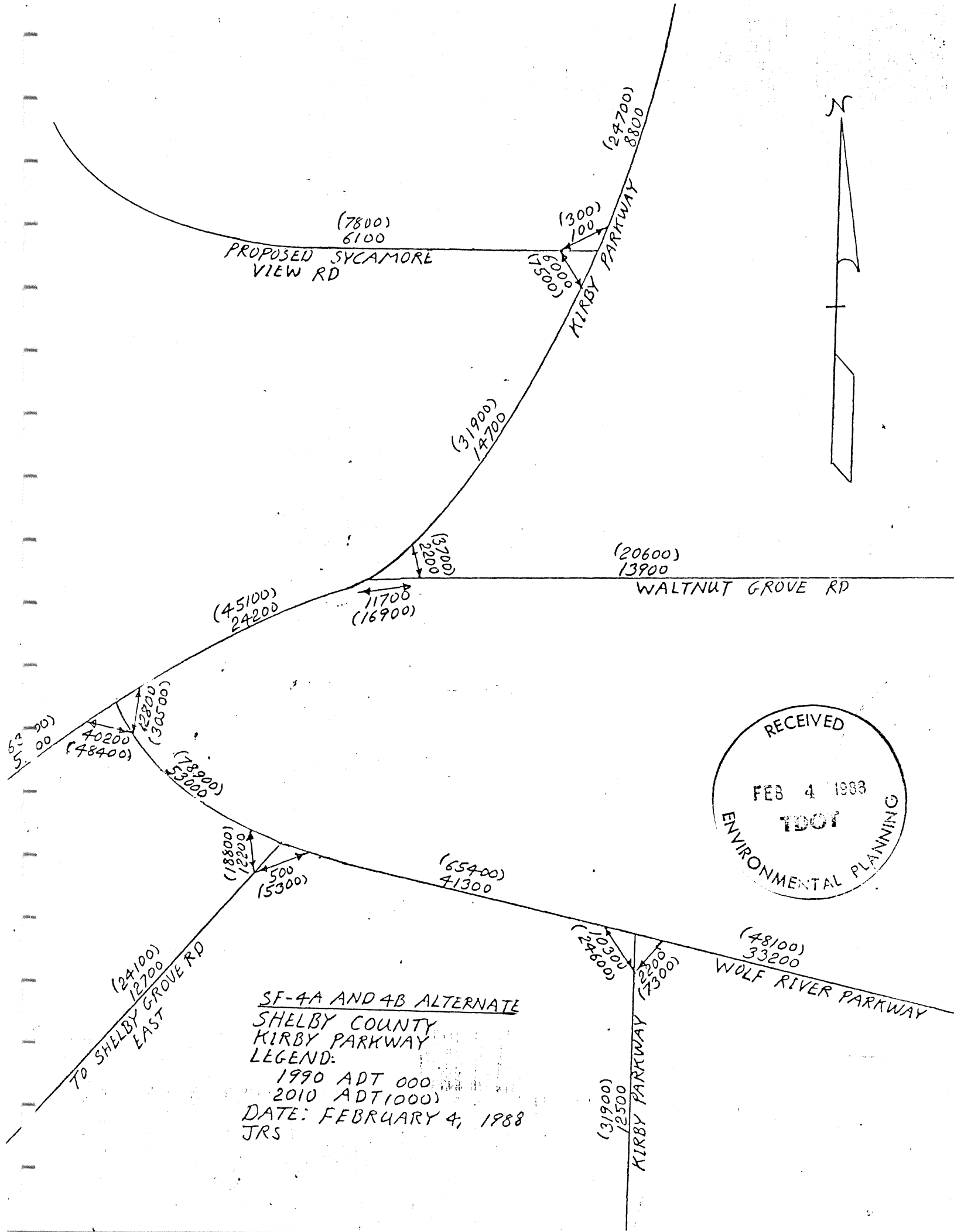
SF-1 ALTERNATE
SHELBY COUNTY
KIRBY PARKWAY
LEGEND:
1990 ADT 000
2010 ADT (000)
DATE: JANUARY 28, 1988
JRS



RECEIVED
FEB 4 1988
TDOT
ENVIRONMENTAL PLANNING

SF-2 ALTERNATE
SHELBY COUNTY
KIRBY PARKWAY
LEGEND:
1990 ADT 000
2010 ADT (000)
DATE: FEBRUARY 4, 1988
JRS

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14700
(3700)
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WALTNUT GROVE RD
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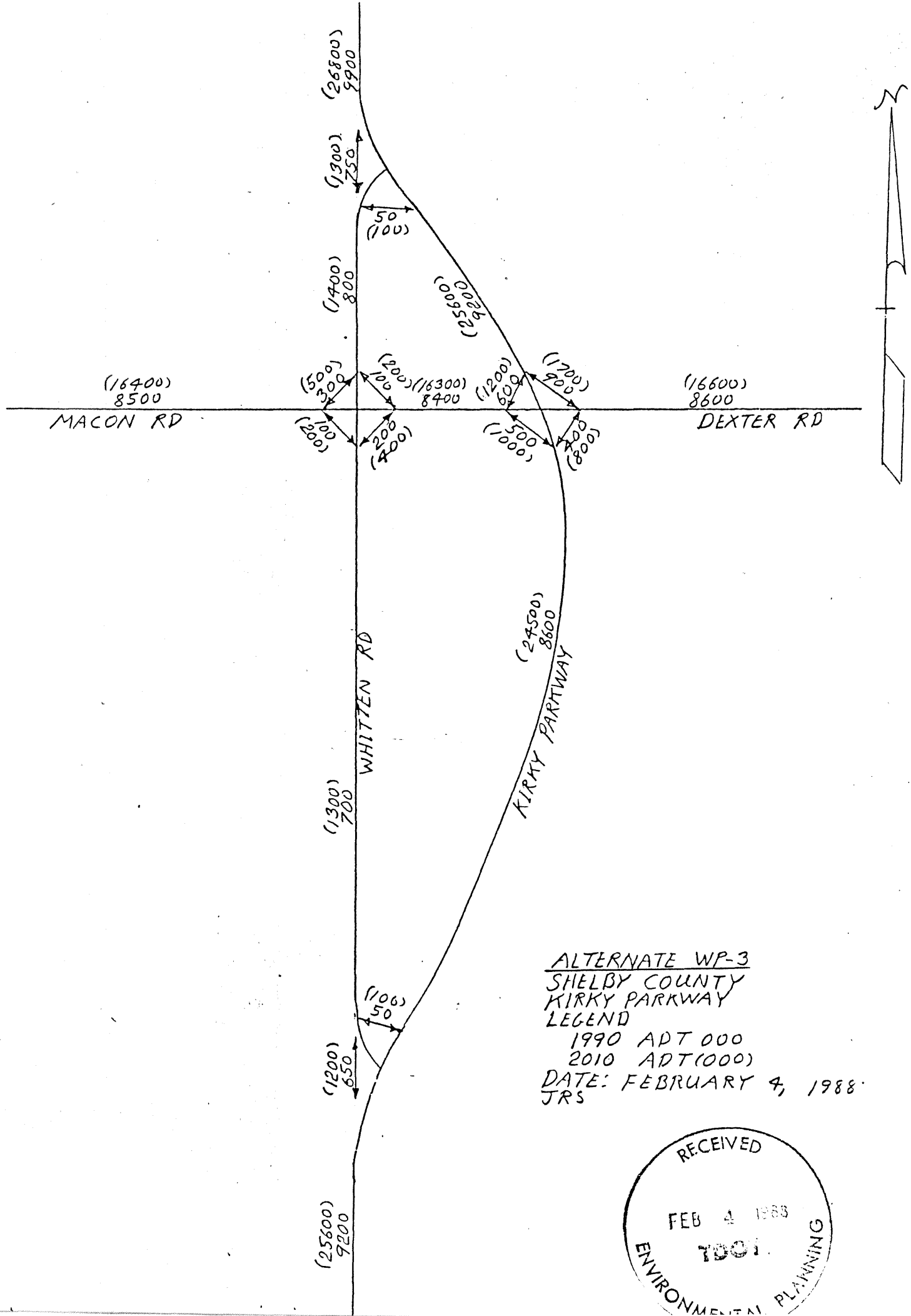
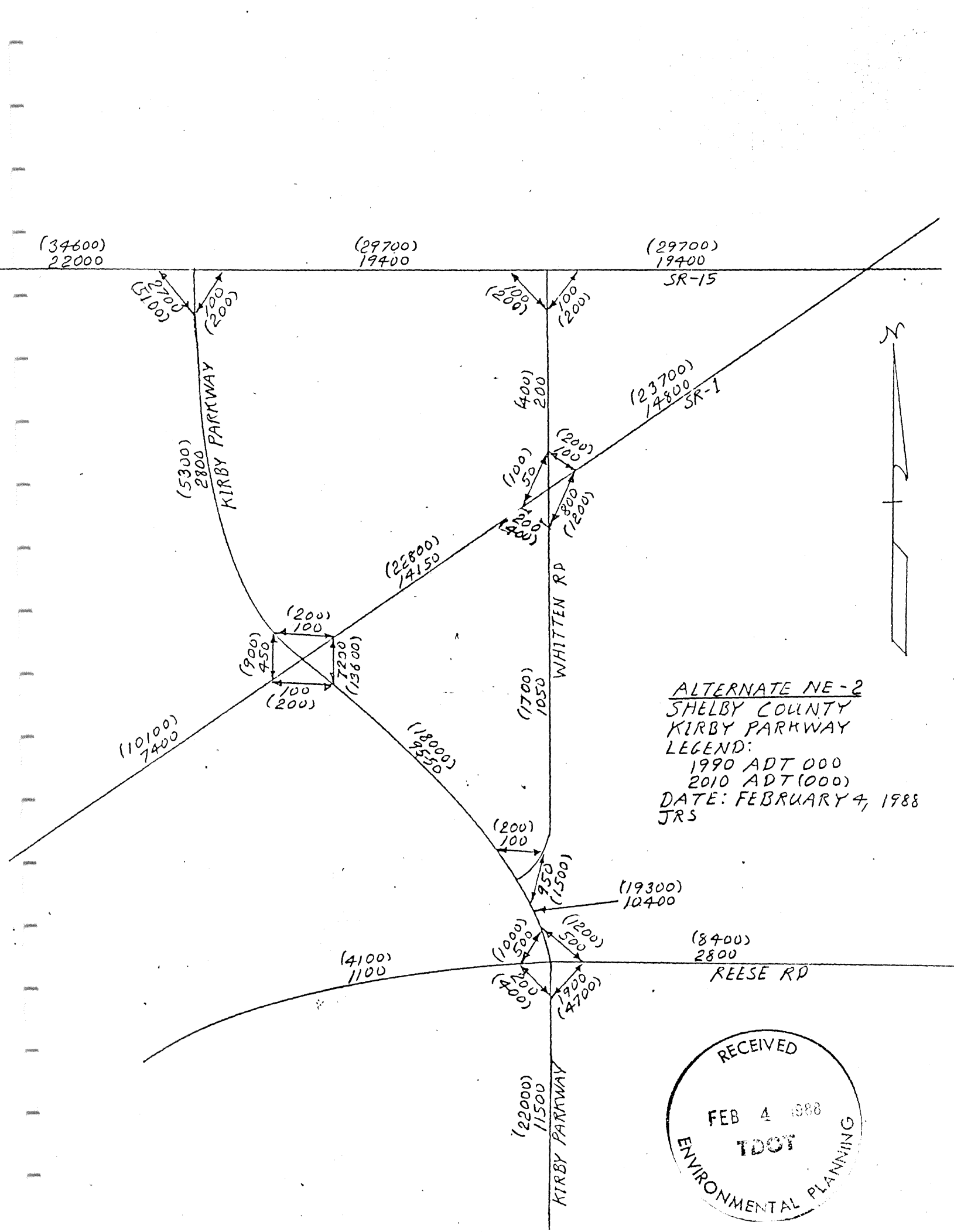
500
(15300)
(65400)
41300
(10300)
(24600)
2200
(7300)
(48100)
33200
WOLF RIVER PARKWAY
(24100)
12700
TO SHELBY GROVE RD
EAST
(31900)
12500
KIRBY PARKWAY
RECEIVED
FEB 4 1988
TDOT
ENVIRONMENTAL PLANNING
SF-4A AND 4B ALTERNATE
SHELBY COUNTY
KIRBY PARKWAY
LEGEND:
1990 ADT 000
2010 ADT(000)
DATE: FEBRUARY 4, 1988
JRS



ALTERNATE WP-3
SHELBY COUNTY
KIRKY PARKWAY
LEGEND
1990 ADT 000
2010 ADT (000)
DATE: FEBRUARY 4, 1988
JRS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WHITTEN RD
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(4100)
1100
(400)
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(1900)
(4700)
REESE RD
(22000)
11500
KIRBY PARKWAY
N
ALTERNATE NE-2
SHELBY COUNTY
KIRBY PARKWAY
LEGEND:
1990 ADT 000
2010 ADT (000)
DATE: FEBRUARY 4, 1988
JRS
RECEIVED
FEB 4 1988
TDOT
ENVIRONMENTAL PLANNING

United States Department of the Interior

GEOLOGICAL SURVEY
A-413 Federal Building
Nashville, TN 37203

TAKE PRIDE IN AMERICA

August 19, 1988

Mr. Mike Crabb
Tennessee Department of
Transportation
Suite 900
James K. Polk Building
Nashville, TN 37219

Dear Mr. Crabb:

In response to your request to Mike Bradley, from our staff, attached is the information on the Shelby County Landfill. The pink shaded area in the enclosed map shows the approximate extent of the landfill. The dashed red line shows the proposed path of the parkway. The tables describe the data from some of the wells in the vicinity of the landfill.

We believe that your concerns are very valid about the potential disturbance of contaminants in the landfill (or migrating from it) along the path of the parkway. The following facts support this hypothesis:

1. We have defined a plume leading from the landfill and extending toward wells 30 and 31 (in the map).

2. The occurrence of a plume and contaminants toward the southeast corner of the landfill is suspected but it has not been defined. The extent, depth and type of water, amount of cover, and quality of the ground water in this zone is unknown.

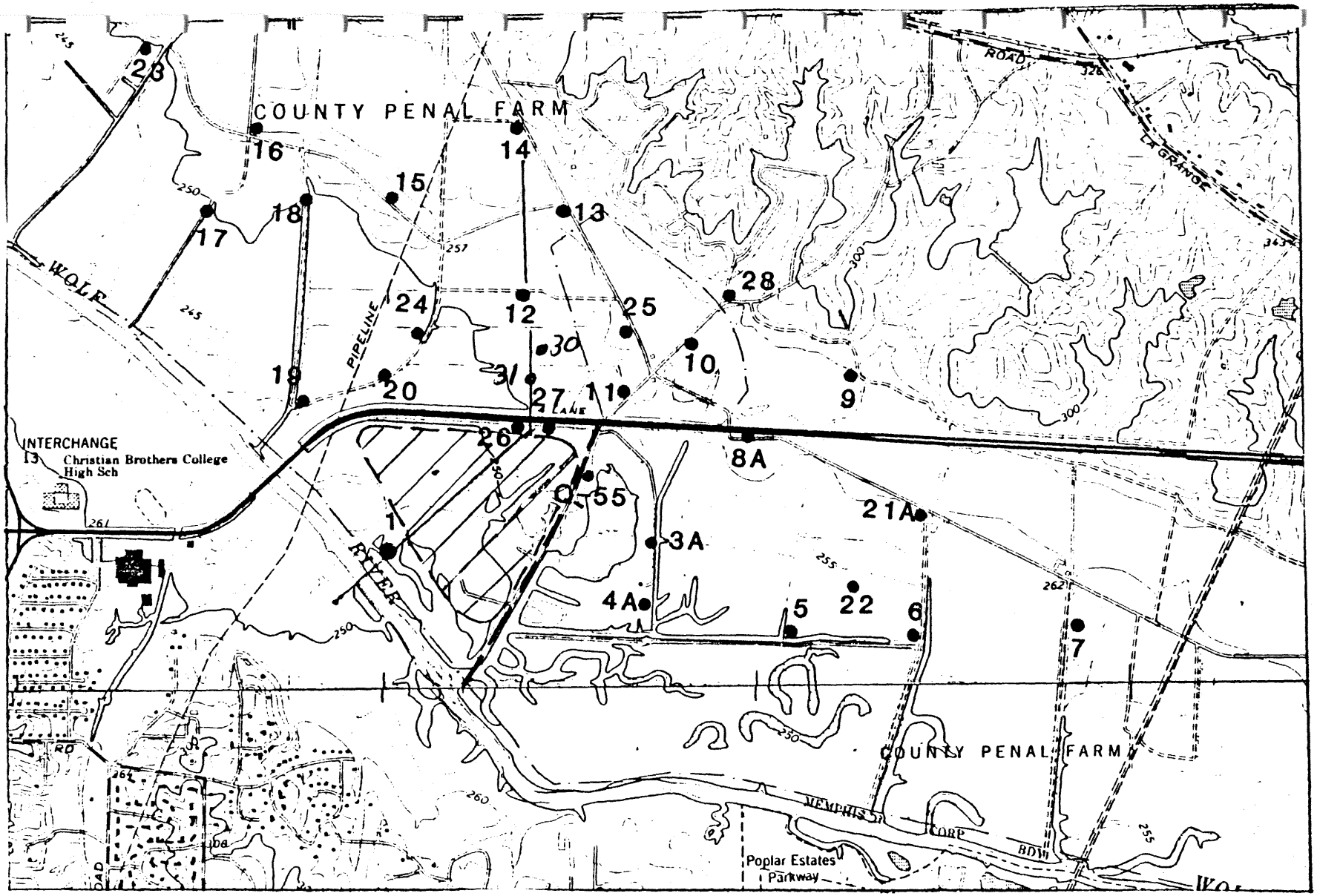
The resolution of these unknowns would require a drilling and sampling program. This program could be completed within the existing cooperative water-resources investigations between TDOT and the USGS. Under this program we would provide 50 percent of the cost of the investigation. The availability of auger rigs from TDOT could substantially reduce the cost of the project and expedite its completion.

At your convenience, we could meet with you to consider more details on the problem and its solution. Please call Mike Bradley or myself at 736-5424.

Cordially,

Ferdinand Quinones
District Chief

Attachments
FQ:jkd
cc: Billy Burke, TDOT



Location of well sites.

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY PROCESS DATE 8-18-88

USGS NO	FIELD NO	DATE	PH (STANDARD UNITS)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	CHLORIDE, DISSOLVED (MG/L AS CL)	SULFATE DISSOLVED (MG/L AS SO4)	FLUORIDE, DISSOLVED (MG/L AS F)
SH:Q- 55 SH CO PENAL FRM		09-28-81	6.30	--	--	--	--	--	--	--	--
		11-18-86	6.60	120	28	13	13	4.2	12	20	0.10
SH:Q- 95	1	07-16-87	5.70	23	5.9	2.1	9.8	1.9	3.3	9.4	0.10
SH:Q- 96	2	07-16-87	5.60	20	6.8	0.82	4.2	1.2	2.7	3.2	<0.10
SH:Q- 98	4A	11-18-86	6.00	37	10	3.0	3.5	3.7	4.2	40	<0.10
SH:Q-101	7	11-17-86	6.20	160	38	16	34	1.4	8.8	140	<0.10
SH:Q-102	8A	11-18-86	6.30	130	32	12	48	1.7	43	64	<0.10
SH:Q-105	12	11-17-86	6.20	150	35	14	32	1.6	9.2	130	<0.10
SH:Q-109	16	11-17-86	6.00	140	33	15	54	1.3	85	30	0.10
SH:Q-112	19	11-19-86	6.00	43	9.7	4.4	5.6	1.8	3.9	2.2	0.20
SH:Q-113	20	11-18-86	5.80	88	22	8.1	12	1.2	4.2	79	<0.10
SH:Q-119	26	11-19-86	6.40	360	91	33	62	15	73	4.4	0.20
SH:Q-120	27	11-19-86	6.40	510	140	39	82	46	91	7.6	0.30
SH:Q-128	30	07-17-87	6.80	91	20	9.8	70	0.80	7.5	79	0.30
SH:Q-129	31	07-16-87	6.60	140	36	12	110	3.7	14	54	0.30

USGS NO	FIELD NO	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SPECIFIC CONDUCTANCE LAB (US/CM)	SILICA, DISSOLVED (MG/L AS SIO2)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
SH:Q- 55 SH CO PENAL FRM		163	260	266	--	--	--	--	--	--	--
		177	127	301	12	<1	29	<1	<10	<10	360
SH:Q- 95	1	72	35	105	12	2	61	1	<10	<10	4
SH:Q- 96	2	47	27	70	11	19	41	2	20	<10	4600
SH:Q- 98	4A	110	67	222	22	<1	83	3	<10	<10	31000
SH:Q-101	7	314	68	454	17	<1	70	<1	<10	<10	38
SH:Q-102	8A	296	99	459	21	<1	180	1	<10	<10	16
SH:Q-105	12	291	69	421	17	1	120	<1	<10	<10	1100
SH:Q-109	16	354	82	546	38	<1	210	1	<10	<10	31
SH:Q-112	19	86	60	108	13	1	130	<1	<10	<10	5500
SH:Q-113	20	170	34	255	17	<1	81	2	10	<10	3900
SH:Q-119	26	619	642	1030	13	1	340	8	<10	<10	92000
SH:Q-120	27	932	924	1650	14	1	610	8	<10	<10	83000
SH:Q-128	30	--	200	456	28	2	170	3	<10	<10	4
SH:Q-129	31	556	325	709	16	1	160	8	20	<10	310

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY PROCESS DATE 8-18-88

USGS NO	FIELD NO	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	ZINC, DIS-SOLVED (UG/L AS ZN)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
SH:Q- 55 SH CO PENAL FRM		--	--	--	--	--	--	--	--	--
		<10	2800	<1.0	120	14	<1	<0.100	<0.010	1.5
SH:Q- 95	1	<10	1	<1.0	40	31	<1	<0.100	0.010	13
SH:Q- 96	2	<10	340	<1.0	30	11	<1	<0.100	0.010	2.1
SH:Q- 98	4A	<10	1300	<1.0	46	16	<1	<0.100	<0.010	2.7
SH:Q-101	7	<10	15	<1.0	99	15	2	0.680	<0.010	1.5
SH:Q-102	8A	<10	380	<1.0	91	15	5	1.50	<0.010	1.1
SH:Q-105	12	<10	1400	<1.0	80	28	9	1.90	<0.010	5.4
SH:Q-109	16	<10	5	<1.0	210	22	2	7.90	0.020	1.7
SH:Q-112	19	<10	220	<1.0	86	12	<1	<0.100	0.020	3.2
SH:Q-113	20	<10	190	<1.0	62	24	<1	<0.100	<0.010	2.0
SH:Q-119	26	20	1900	<1.0	320	5	<1	<0.100	<0.010	18
SH:Q-120	27	20	2500	<1.0	980	<3	<1	<0.100	<0.010	18
SH:Q-128	30	<10	3200	<1.0	160	45	9	1.30	0.040	99
SH:Q-129	31	<10	590	<1.0	330	24	<1	0.100	0.020	8.0