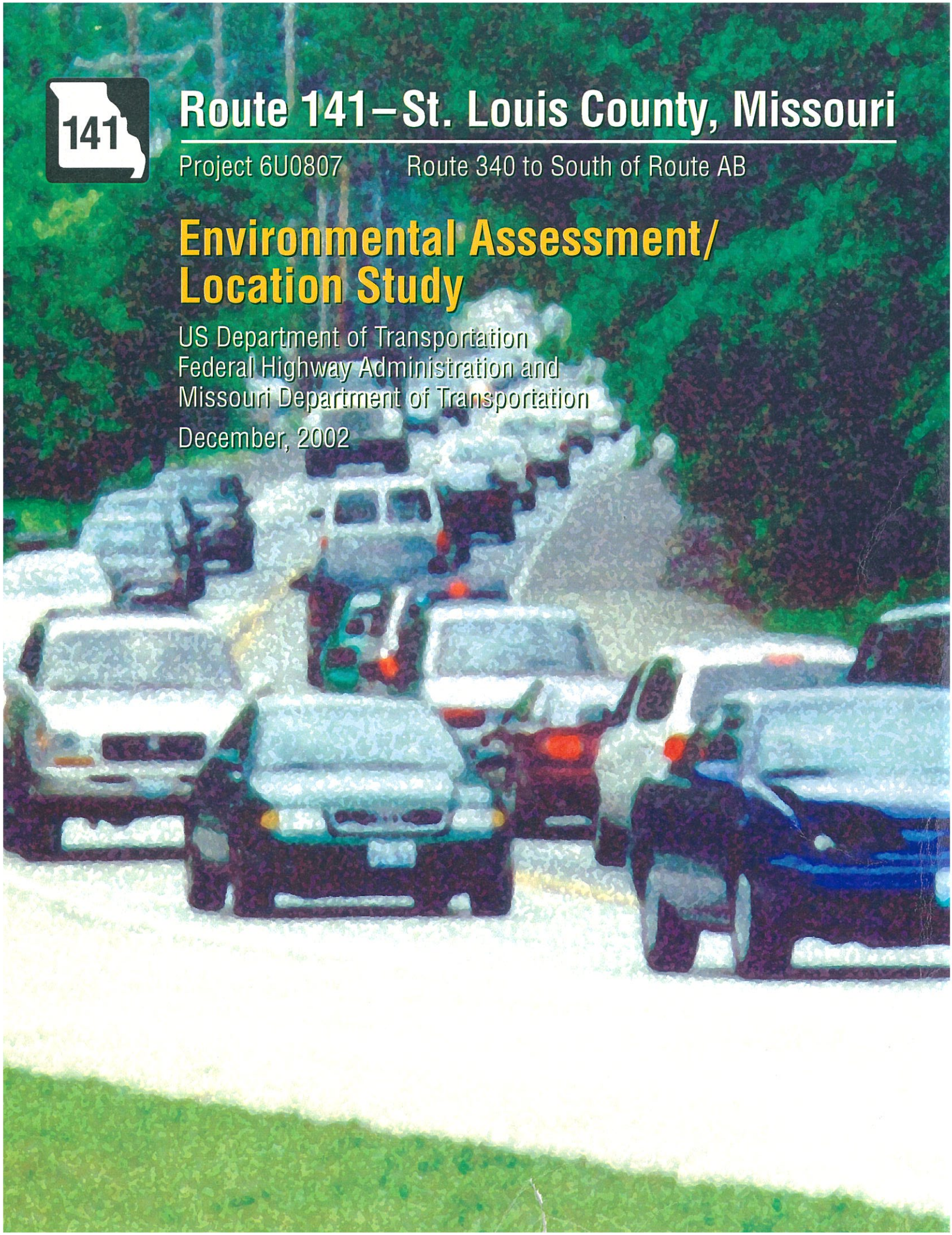

# Route 141–St. Louis County, Missouri

Project 6U0807 Route 340 to South of Route AB

## Environmental Assessment/ Location Study

US Department of Transportation
Federal Highway Administration and
Missouri Department of Transportation

December, 2002

FEDERAL HIGHWAY ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT

FOR

ROUTE 141, ST. LOUIS COUNTY, MISSOURI
Route 340 to South of Route AB

JOB NUMBER J6U0807

The FHWA has determined that this project will not have any significant impact on the human environment. This finding of no significant impact is based on the attached environmental assessment, which has been independently evaluated by the FHWA and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required. The FHWA takes full responsibility for the accuracy, scope, and content of the attached environmental assessment.

12/18/02
Date

Responsible Official

Div. Administrator
Title

Route 141, St. Louis County, Missouri
Route 340 to South of Route AB

Job No. J6U0807

# FINAL ENVIRONMENTAL ASSESSMENT/LOCATION STUDY REPORT AND FINAL SECTION 4(F) EVALUATION

Submitted Pursuant to 42 U.S.C. 4332(2)(c)
and 49 U.S.C. 303
by the

U.S. Department of Transportation
Federal Highway Administration

and

The Missouri Department of Transportation

12-18-02
Date of Approval

For FHWA

D.V. Adams
Title

The following persons may be contacted for additional information concerning this document:

Mr. Donald L. Neumann
Programs Engineer
FHWA Division Office
209 Adams Street
Jefferson City, Missouri 65101
(573) 636-7104

Mr. Dave Nichols
Director of Project Development
MoDOT
P.O. Box 270
Jefferson City, MO 65102
(573) 751-4586

# SUMMARY

# SUMMARY

## A. PURPOSE AND NEED FOR ACTION

Route 141 extends from Olive Boulevard (Route 340) to I-55. This study area includes the only portion of the route that is not upgraded, or in process of being upgraded, to a four-lane expressway. This last link would provide a continuous four-lane major arterial from Olive Boulevard to I-55 through St. Louis and Jefferson counties.

Olive Boulevard and Creve Coeur Mill Road are the northern limits of the study area; the southern boundary is the improved section of Route 141 south of Ladue Road (Route AB).

Existing Route 141, constructed in the 1930's, is a two- or three-lane roadway through the study area. Design speeds for the original alignment vary from 30-40 mph and are inadequate for a modern Principal Arterial. The intersection of Route 141 and Ladue Road is below the 10-year flood elevation of Creve Coeur Creek and consequently floods several times a year. During times of high water, both Route 141 and Ladue Road are closed to traffic in this location.

Traffic volumes within the study area have reached the capacity of the facility. The major intersections have marginally acceptable Levels of Service (LOS), and at some intersections, many of the individual movements are LOS F. Traffic projections for Year 2020 indicate that the problem will only become worse. Most of the intersections are projected to operate at LOS F in Year 2020.

Safety is also a concern in this corridor. Accident rates are currently about twice the statewide average for numbered routes. The accident rate for this section of Route 141 has increased considerably over the past five years.

## B. ALTERNATIVES

Alternatives for this study were developed in a two-phase process. The first phase involved the development of conceptual alternatives that subsequently went through a screening process. Those alternatives that advanced past the conceptual phase are considered feasible alternatives and were developed in greater detail.

The feasible alternatives considered for this study include the no-build option, a widening option, and new alignment, see **Figure S1**. The alternatives along new alignment utilize the undeveloped Creve Coeur Creek valley east of the existing Route 141. Two alternatives through this area were advanced as feasible alternatives.

All alternatives include a Single Point Urban Interchange (SPUI) at Olive Boulevard. At Ladue, the widening option includes a signalized at-grade intersection. The new alignment options include a compressed diamond interchange at this location.

Following the Public Hearing in July 2001, an additional interchange option at Ladue was developed for the new alignment alternate. This interchange features a SPUI at Route 141 and Ladue Road and a two-lane roundabout at the intersection of Ladue and Woods Mill Roads.

Projected traffic volumes indicate that an additional through lane is needed in each direction along Route 141 from south of Ladue Road to I-64. Existing right of way in this location should be sufficient for these additional lanes. Therefore, there is no discussion in this document of impacts for the lane widening south of Ladue Road. The Interchange B-Alignment B-Interchange G alternative has been designated as the Selected Alternate. This new alignment alternative utilizes the western portion of the Creve Coeur Creek valley to link a SPUI at Olive Boulevard to a SPUI at Ladue Road. Its advantages of community acceptance, low neighborhood disruption, cost, and a no-rise condition for Creve Coeur Creek make it superior to the other alternatives considered in this study.

MoDOT has identified this alternate as the Selected Alternate through public involvement and assessment of the socioeconomic and environmental consequences. The Selected Alternate includes a different interchange concept at Ladue Road than was presented in the Draft EA and subsequent Public Hearing. The decision to provide a SPUI and roundabout at Ladue was initiated due to public input. The revised concept addresses concerns from the public regarding the number of lanes and signals along Ladue.

## C. IMPACTS

The widening alternative would have substantially more displacements than the new alignment alternatives. Widening the existing roadway is expected to require 23 business and 64 residential relocations, 33 of which are rental units north of Olive Boulevard. The new alignment along the west side of Creve Coeur Creek valley has a single business relocation and eleven residential relocations. A new alignment along the east side of Creve Coeur Creek will result in no business relocations and five residential displacements.

The SPUI interchange at Ladue, developed after the Public Hearing, will decrease the number of residential displacements by two for the Selected Alternate.

There are considerable wetland and floodplain impacts for all of the build alternatives considered. Wetland impacts for each alternative are shown in **Table 1**. A hydraulic analysis was conducted for the Selected Alternate to determine the effect of the roadway embankment on flood elevations for Creve Coeur Creek. Results of this analysis show that construction of the Selected Alternate will result in a no-rise condition throughout the study area, provided that some overbank excavation is included as part of the alternative.

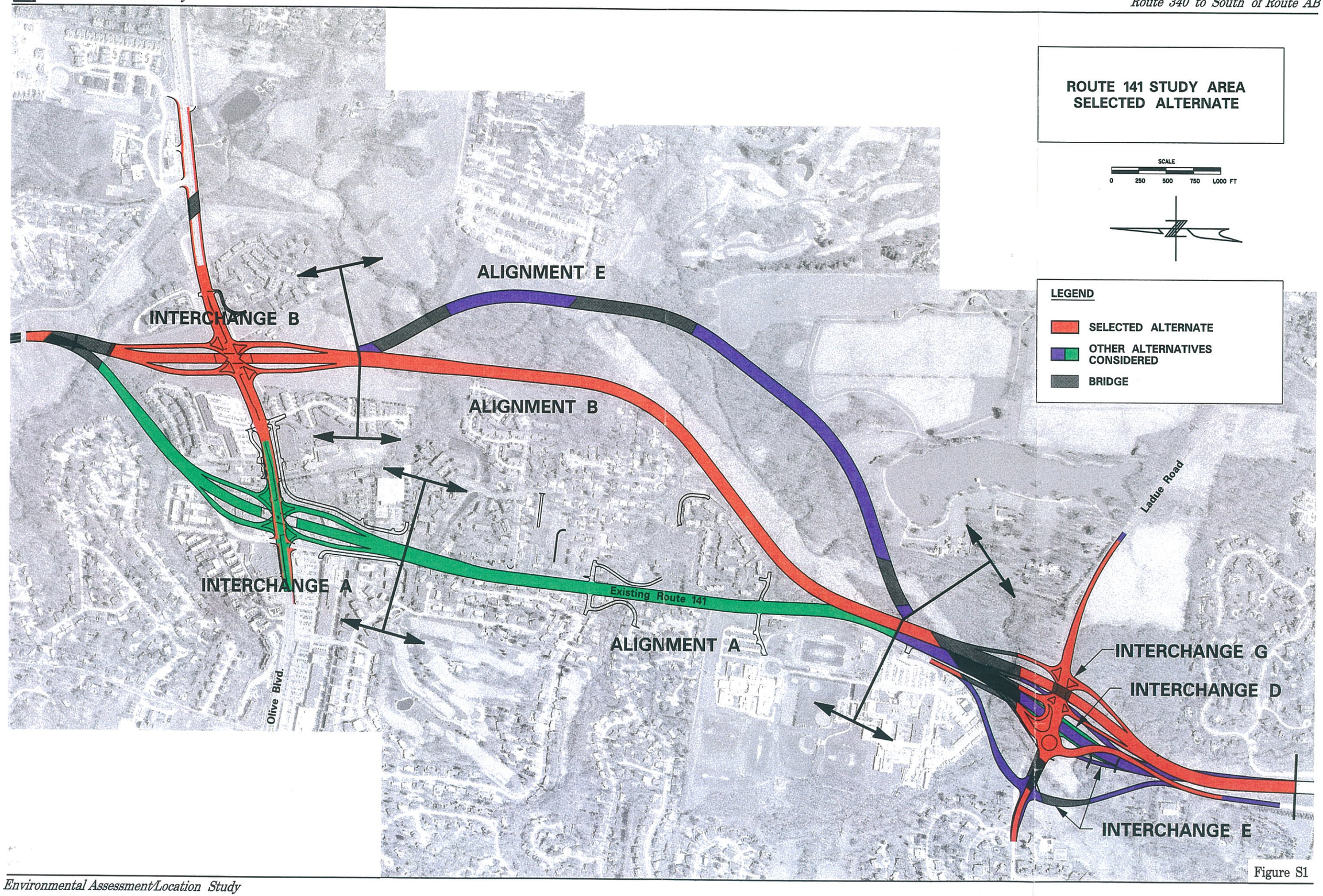
ROUTE 141 STUDY AREA
SELECTED ALTERNATE
SCALE
0 250 500 750 1,000 FT
LEGEND
SELECTED ALTERNATE
OTHER ALTERNATIVES CONSIDERED
BRIDGE
ALIGNMENT E
INTERCHANGE B
ALIGNMENT B
INTERCHANGE A
Existing Route 141
ALIGNMENT A
Olive Blvd.
Ladue Road
INTERCHANGE G
INTERCHANGE D
INTERCHANGE E

Figure S1

**Summary of Impacts** **Table 1**

| | Interchange A - Alignment A - Interchange D | Interchange B - Alignment B - Interchange E | Interchange B - Alignment E - Interchange E | Interchange B - Alignment B - Interchange G |
|---|---|---|---|---|
| Displacements | | | | |
| Residential | 64 | 11 | 5 | 9 |
| Commercial | 23 | 1 | - | 1 |
| Cost | | | | |
| Construction | $ 48,430,000 | $ 59,453,000 | $ 76,507,000 | $ 61,682,000 |
| Right of Way | $ 51,168,000 | $ 15,189,000 | $ 15,651,000 | $ 14,142,000 |
| Total Cost | $ 99,598,000 | $ 74,642,000 | $ 92,158,000 | $ 75,824,000 |
| Wetland Impacts (Acres) | | | | |
| Emergent | 0.3 | 0.3 | 0.3 | 0.3 |
| Forested | 4.9 | 12.0 | 8.1 | 17.8 |
| Scrub-shrub | 0.4 | 0.4 | 0.4 | 0.4 |
| Total Wetlands | 5.6 | 12.6 | 8.7 | 18.4 |
| Floodplain Impacts (Acres) | | | | |
| Floodplain | 27.7 | 57.6 | 53.6 | 55.8 |
| Floodway | 14.9 | 33.4 | 27.7 | 35.3 |
| Cultural Resource Impacts | | | | |
| Right of way needed (Acres) | 110 | 130 | 130 | 130 |
| No. of Architectural resources | 3 | 2 | 2 | 2 |
| No. of Archaeological resources* | 5 | 7 | 7 | 6 |
| Potential Section 4(f) properties | 1 | 1 | 2 | 1 |
| Hazardous Waste Sites | 2 | - | - | - |
| **Selected Alternate** | | | | ✓ |

* Estimated number of sites, as discussed in Cultural Resources Impacts.

Proposed noise walls have been identified at several locations along the Selected Alternate and are shown in **Appendix A**.

Several historic buildings and archaeological resources have been identified in the study area. The impacts of the Feasible Alternatives on these resources are summarized in **Table 1**.

The widening alternate would impact two hazardous waste sites at the intersection of existing Route 141 and Olive Boulevard. The new alignment alternatives do not impact these sites.

## D. REGULATORY COMPLIANCE

Clean Water Act Section 404 permits will be required from the U.S. Army Corps of Engineers (USACE) for the stream crossings of Creve Coeur Creek and Maryville Creek. In addition, there are potential crossings of wetlands within the project limits; these will also require permitting under Section 404. The USACE will be involved in ongoing coordination.

Hydraulic studies and analysis performed as part of the design process will ensure that there is no increase in the base floodwater elevation within the regulatory floodway. Since all municipalities within the study area participate in the National Flood Insurance Program, permits will be required for the crossings that occur within their respective areas of jurisdiction.

Federal and state resource agencies have been and will continue to be involved in consultation and coordination throughout the various phases of project development and implementation on this proposed action. Other considerations, such as Clean Air Act concerns and water quality permits, will be adequately addressed.

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# PURPOSE

# I. PURPOSE OF AND NEED FOR ACTION

## A. STUDY OVERVIEW

The purpose of the Route 141 Location Study is to investigate the need for transportation improvements and develop alternatives along approximately 1.5 miles of existing Route 141/Woods Mill Road. The study will examine the capacity, condition, and safety of the existing roadway, as well as cultural resources, biological resources, and land use issues within the corridor. The merged NEPA/404 process will not be used for this study.

The study area, shown in **Figure 1**, is roughly bounded by Route 340 (Olive Boulevard) and Creve Coeur Mill Road on the north, existing Route 141 (Woods Mill Road) on the west, and the improved section of Route 141 on the south. A lake and subdivision roughly define the eastern limits of the study area.

At the north end of the study area, Route 141 terminates as a state route at Olive Boulevard. Improvements to the Route 141/Olive connection may affect traffic operations at the Olive and Creve Coeur Mill Road signalized intersection. Therefore, the study area also includes this intersection. At the south end of the study area, the improved four-lane section of the Route 141 expressway currently combines with existing Route 141/Woods Mill Road approximately 0.5 mile south of Route AB (Ladue Road). The southern limit of the study area is therefore set at this transition point. The study area is approximately two miles long; the width varies to a maximum of about one mile.

The study area is located in St. Louis County and includes portions of the cities of Chesterfield, Creve Coeur, and Town and Country.

Bi-State Development Agency does not have a regular bus route along Route 141 in the study area. There are two bus lines, 91 and 91X, running from Chesterfield Mall to downtown St. Louis that use Olive Boulevard in this area.

## B. PROJECT HISTORY

The concept of expanding Route 141 into a major outer loop received Missouri Highway Commission approval in June 1976. The route, which extends from Olive Boulevard to I-55, has subsequently been studied and improved over most of its length.

An improved Route 141 north of Ladue Farm Road will complete the upgrade to a major north-south arterial through St. Louis and Jefferson counties from Olive Boulevard to I-55. The area north of Ladue Farm Road is the only portion of Route 141 that is not upgraded, or in the process of being upgraded, to a four-lane expressway signed for 45-55 mph.

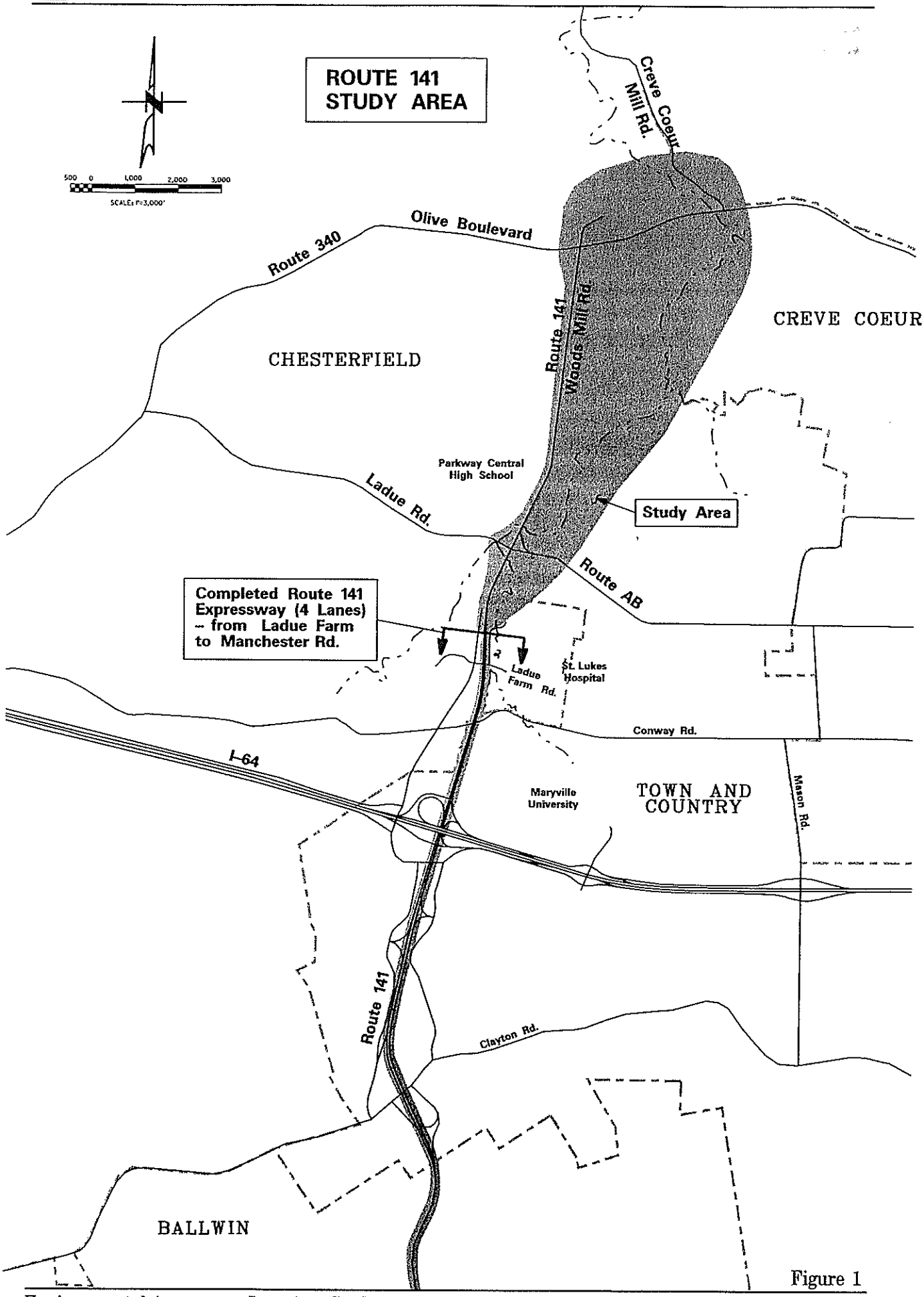


Figure 1



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MoDOT completed a Location Design Report for the Olive to Ladue section in March 1994. The preferred alternative was a new roadway that utilized the Creve Coeur Creek floodplain. It required the relocation of about 5,000 ft of Creve Coeur Creek and 1,400 ft of Maryville Creek. Due to the difficulty in obtaining approval of a route that significantly impacts a major stream and floodplain, new alternatives were developed when the current study began.

Construction of an upgraded Route 141 is complete from the southern terminus of this study area to south of Manchester Road (Route 100), a distance of approximately 5¼ miles. This segment is a controlled access four-lane expressway with interchanges at I-64, Clayton Road (Route HH), and Manchester Road. Auxiliary lanes are provided in each direction between interchanges.

Construction is currently underway from Manchester Road to about one mile north of I-44, a distance of 2.2 miles. This segment will have the same lane configuration as the section to the north and will include a single point urban interchange at Big Bend Road.

Improvements south of Vance Road were completed several years ago. This included the crossing of the Meramec River and the I-44 interchange. South of I-44, Route 141 has been upgraded to a four-lane expressway to its terminus at I-55.

In May 2000, the East-West Gateway Coordinating Council (EWGCC) Board of Directors adopted its staff's recommendation for the Daniel Boone Major Transportation Investment Analysis (MTIA). These recommendations included improvements to Route 141 between Olive Boulevard and Ladue Farm Road at a cost of $72.4 million. The MTIA assumed that Route 141 would be a six-lane facility on new alignment through this area.

Also included in the EWGCC staff's recommendations was the extension of the existing Earth City Expressway to Olive Boulevard.[1] This six-lane roadway, estimated to cost $63.8 million, would possibly tie in at the Route 141/Olive Boulevard connection. The agency responsible for completion of the Earth City Extension was not identified.

A separate Environmental Impact Statement (EIS) sponsored by the US Army Corps of Engineers (USACE) is underway for the Howard Bend floodplain. Included in the alternatives being considered in this study is a possible Route 141 or Earth City Expressway extension connection from the Page Avenue Extension to Olive Boulevard. Traffic projections developed for the Route 141 study include a connection between the Page Avenue Extension and Olive Boulevard.

[1] Because a potential Earth City Expressway extension may be foreseeable, we are considering it and its relationship to and impacts upon Route 141 in this analysis to comply with NEPA obligations. At present, such an Earth City Expressway extension would probably be regulated and prohibited by a U.S. Army Corps of Engineers permit issued to MoDOT for the Page Avenue Extension. Also, MoDOT itself has no plans to extend the Earth City Expressway. Any such extension at a later date will likely be owned and funded by a local governmental entity, not MoDOT.

## C. EXISTING GEOMETRY

### *1. Description*

Existing Route 141 is an urban Principal Arterial that was originally constructed in the 1930's. It is a three-lane roadway between Olive and Ladue and a two-lane roadway south of Ladue to the improved section of Route 141. The road, which is signed for 40 mph, terminates on the north at an apartment complex north of Olive Boulevard. Lane widths are adequate along this section of roadway. However, the maximum shoulder width is about four feet. No passing is allowed anywhere along Route 141 is this study area.

### *2. Geometric Deficiencies*

Generally, the horizontal and vertical alignment of Woods Mill Road is suitable for its posted speed of 40 mph. The sag vertical curves are the lone exception. These curves, which make up about 20% of the length of this study area, are only suitable for 20-35 mph speeds.

The major geometric deficiency of this route is its inability to meet current design criteria for a Principal Arterial. According to MoDOT's Policy Procedure and Design Manual, a Principal Arterial in rolling terrain should have a minimum design speed of 60 mph. The improved section of Route 141 south of this study area would be an example of this type of facility. Because Woods Mill Road has been designed for speeds of about 40 mph, its utility as a principal arterial is less than ideal.

### *3. Intersections, Access points*

Route 141 intersects with several public streets between Olive and Ladue Farm Road. Four streets intersect Route 141 from the west, while seven roads intersect from the east. Only Ladue Road can be considered an east-west collector or arterial. All other intersecting roads provide access to neighborhoods adjacent to Route 141.

In addition to public streets, numerous other access points exist along the approximately 9,000 ft of existing Route 141 in this study area. On the west side of Route 141, there are seven commercial-type drives and five residential driveways. On the east side of Route 141, there are seven commercial-type drives and six residential driveways, in addition to the public streets mentioned above.

### *4. Flooding*

Creve Coeur and Maryville Creeks converge near the southwest quadrant of the Route 141 and Ladue Road intersection. Federal Emergency Management Agency studies of these waterways indicate a 100-year flood elevation of approximately 485 ft MSL at this location; the 10-year flood elevation is approximately 483 ft. North of the intersection, Route 141 crosses Creve Coeur Creek at an elevation of 478.8 ft. The Maryville Creek

bridge south of the intersection has a bridge deck elevation of 480.1 ft. For a 10-year flood event, the bridges and intersection would therefore be under about four feet of water. The depth of floodwater associated with these potential events presents a significant hazard to the traveling public.

Because Route 141 is prone to flooding in this area, road closure gates have been installed near the entrance to Parkway Central High School and north of Ladue Farm Road. Along Ladue Road, the gates are located about 1,900 ft east and 400 ft west of Route 141. No records were located that would indicate the frequency of road closures in this area, but several local officials estimate that the road floods 2-3 times a year.

## D. PAVEMENT AND STRUCTURE CONDITIONS

The condition of the asphalt pavement along Woods Mill Road is generally good with some cracking evident. Routine maintenance and resurfacing would be needed to keep the roadway in good service.

There are two bridges along Woods Mill Road within the study area. Both were constructed in the 1930's when the road was originally built. Data on the condition of these structures was taken from MoDOT's *Service Ratings for Bridges*. That information is summarized in **Table 2**.

With respect to waterway adequacy, the Creve Coeur Creek and Maryville Creek bridges are considered marginal and poor, respectively. These ratings indicate that the bridges are occasionally overtopped by high flows, resulting in traffic delays. The Maryville Creek Bridge has been determined to be functionally obsolete. Inadequate deck geometry, structural condition, and/or waterway adequacy may contribute to a functionally obsolete rating.

**Existing Bridges within the Study Area** **Table 2**

| Crossing | Width (ft) | Length (ft) | Type | Year Built | Weight Limit (tons) | Condition |
|---|---|---|---|---|---|---|
| Creve Coeur Creek | 40 | 52 | Tee Beam | 1932 | 65 | Generally fair – potential for major maintenance |
| Wiseman/Maryville Creek | 40 | 32 | Stringer | 1932 | 55 | Generally fair – potential for minor rehabilitation |

## E. TRAFFIC VOLUMES

Existing traffic volumes and Year 2020 traffic projections are shown in **Figure 2**. Year 2020 traffic projections do not include a possible Route 141 or Earth City Expressway extension connection from the Page Avenue Extension to Olive Boulevard. Traffic levels along Route 141 over the next twenty years will increase by about 9% between Olive

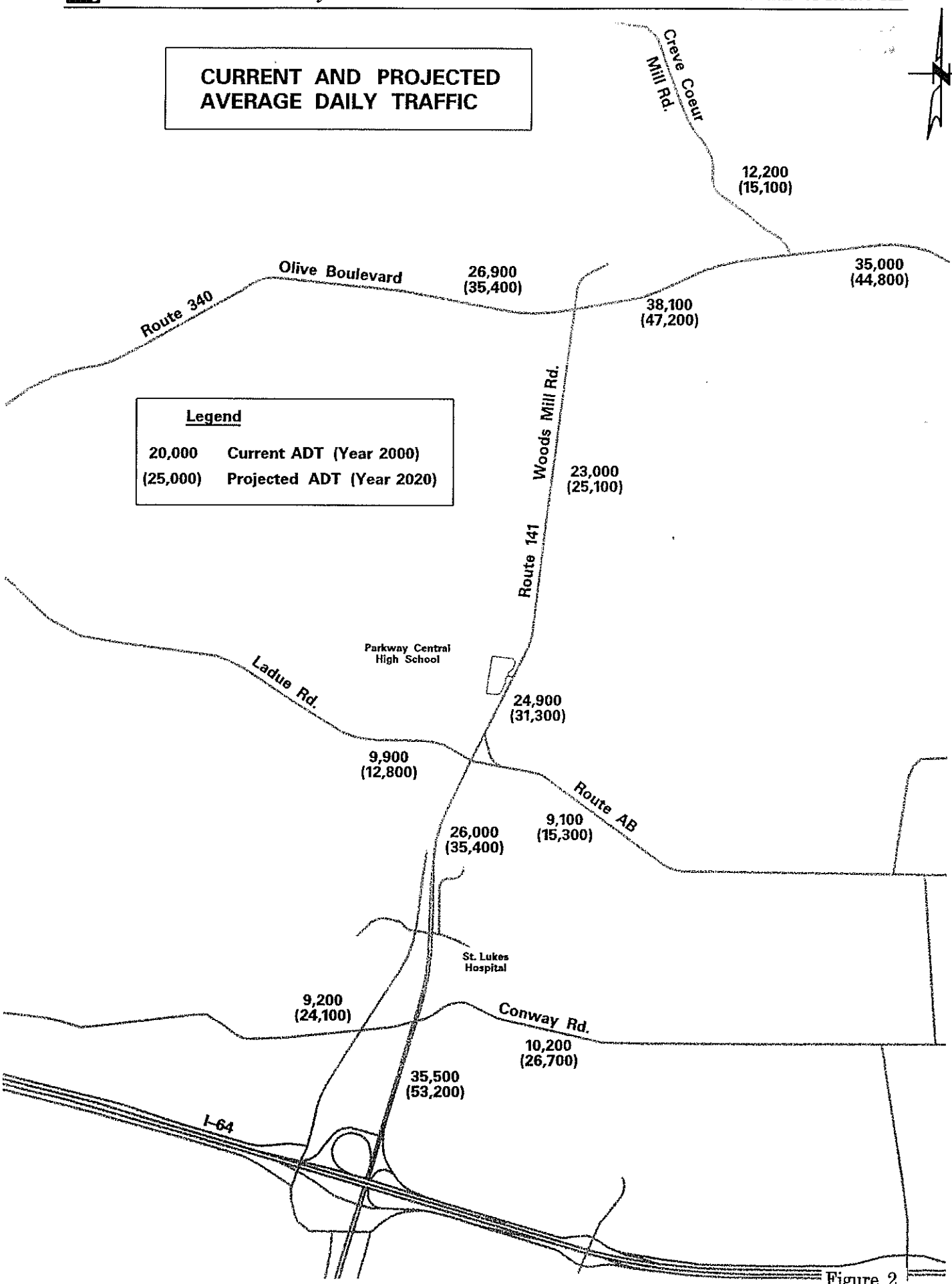


Figure 2



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Boulevard and Parkway Central High School. South of the high school, traffic levels are expected to increase by 25% along Route 141 and by nearly 70% along Route AB east of Route 141. Traffic on Route 141 south of Ladue Road is expected to increase by about 35%; south of Conway, traffic will increase by nearly 50%.

On Olive Boulevard between Route 141 and Creve Coeur Mill Road, traffic is expected to increase by over 20% during the next twenty years. Much of this additional traffic will access Olive from Creve Coeur Mill Road where traffic is expected to increase by about the same percentage due to the Page Avenue Extension.

## F. LEVEL OF SERVICE

### *1. Existing*

Current traffic operations were analyzed at all of the intersections along Route 141 from Olive Boulevard to the I-64 South Outer Road using Synchro 3.2, a computer program that is based on the 1994 version of the Highway Capacity Manual. In addition, the intersection of Olive Boulevard with Creve Coeur Mill Road was analyzed. The results of this analysis for the a.m. and p.m. peak periods are specified in Levels of Service (LOS), and are shown in **Figures 3** and **4**.

Figures 3 and 4 also identify specific movements that have LOS E or F. The Highway Capacity Manual uses the following definitions to describe these LOS:

- LOS A describes operations with very low delay, up to 5 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all.
- LOS B describes operations with delay greater than 5 and up to 15 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average delay.
- LOS C describes operations with delay greater than 15 and up to 25 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersections without stopping.
- LOS D describes operations with delay greater than 25 and up to 40 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
- LOS E describes operations with delay greater than 40 and up to 60 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.

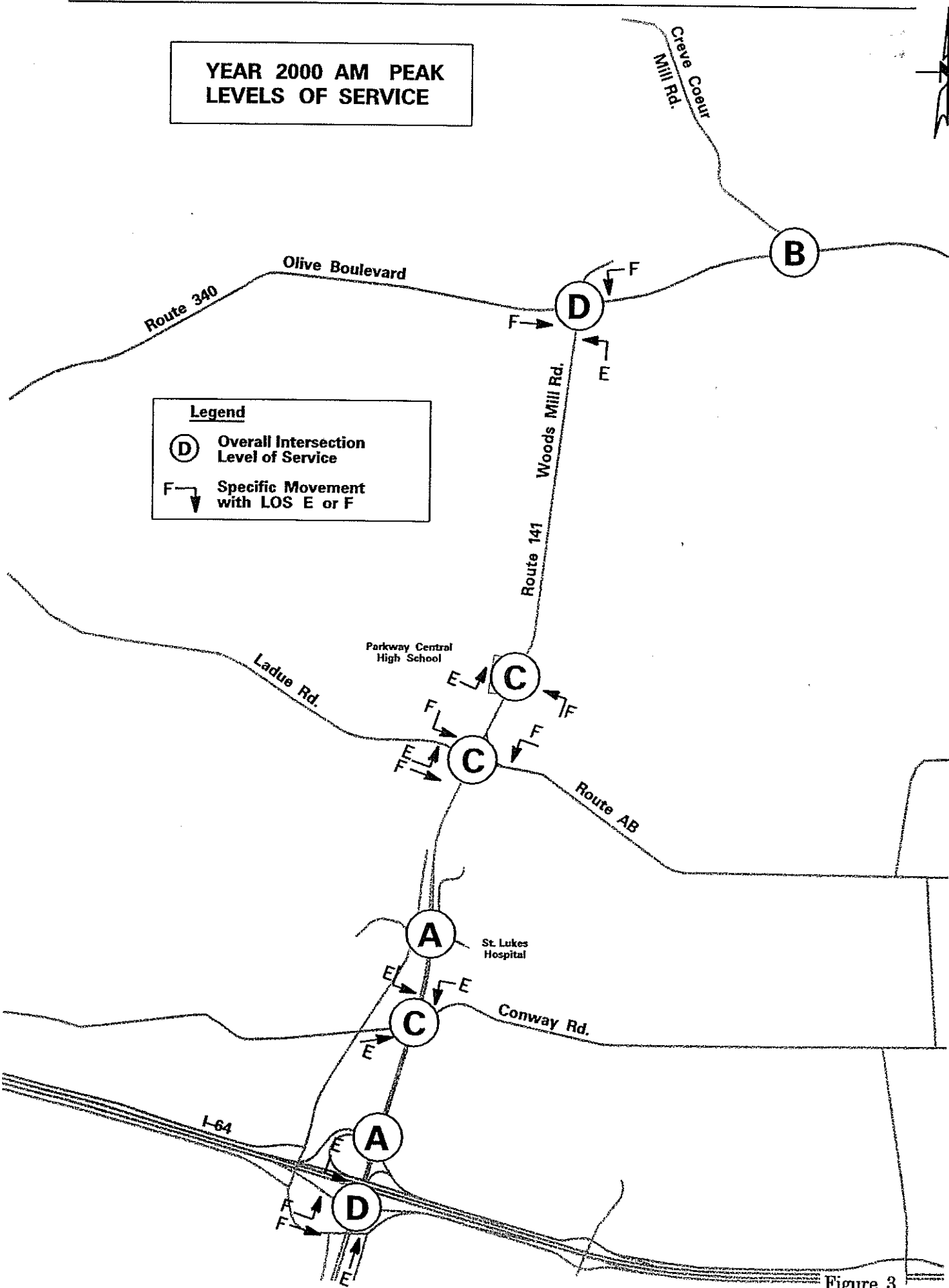


Figure 3



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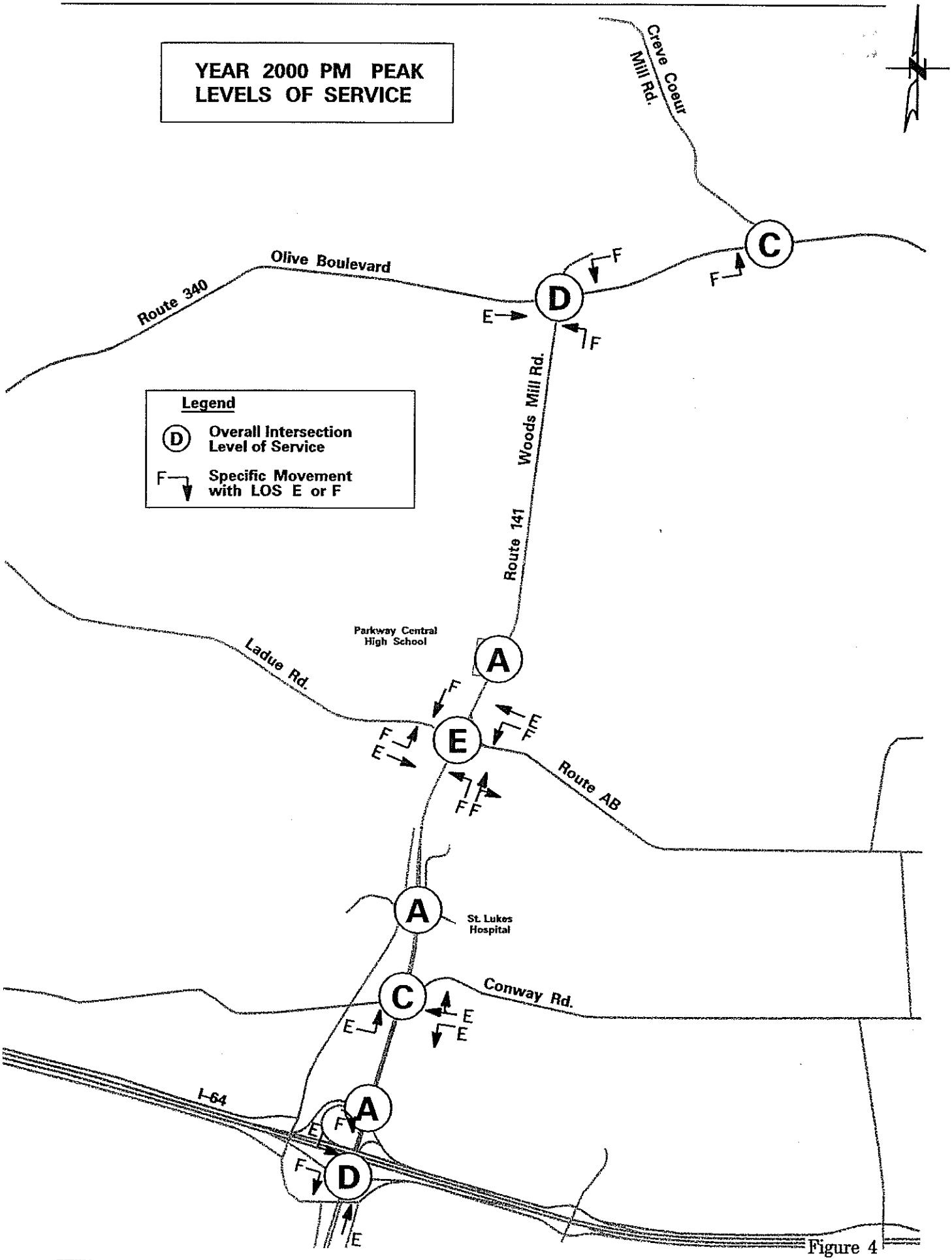


Figure 4



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- LOS F describes operations with delay in excess of 60 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

AM Peak Hour

During the AM Peak Hour (Figure 3), all intersections operate at an overall LOS D or better. However, specific movements at several of these intersections operate at LOS E or F.

Those movements that operate at LOS F include the following:

- eastbound Olive through movement,
- westbound Olive to southbound Route 141,
- northbound Route 141 into Parkway Central High School,
- southbound Route 141 to eastbound Ladue,
- westbound Ladue to southbound Route 141,
- eastbound Ladue through movement,
- eastbound I-64 South Outer Road to northbound Route 141, and
- eastbound I-64 South Outer Road through movement.

The southbound section of Route 141 between Ladue Farm Road and Conway Road has an arterial LOS E for the morning peak period.

PM Peak Hour

During the PM Peak Hour (Figure 4), the Route 141 and Ladue Road intersection operates at an overall LOS E. Several movements at this intersection operate at LOS F:

- southbound Route 141 through movement,
- westbound Ladue to southbound Route 141,
- all northbound Route 141 movements, and
- eastbound Ladue to northbound Route 141.

Several other locations within the study area also have movements with LOS F, as listed below:

- eastbound Olive Boulevard to northbound Creve Coeur Mill Road,
- westbound Olive Boulevard to southbound Route 141,
- northbound Route 141 to westbound Olive Boulevard,
- westbound I-64 exit ramp to southbound Route 141, and
- eastbound I-64 South Outer Road to southbound Route 141.

Southbound Route 141 between Parkway Central High School and Ladue Road has an arterial LOS F for this peak period.

### *2. Year 2020*

Traffic growth over the next twenty years is expected to cause several intersections that are currently operating at marginal LOS to drop to unacceptable levels. The results of the analysis for Year 2020 traffic volumes are shown in **Figures 5** and **6**.

AM Peak Hour

During the morning peak, five of the eight intersections analyzed are expected to have an unacceptable LOS by Year 2020 (Figure 5). The intersections along Route 141 that have a LOS E or F are at Olive Boulevard, Parkway Central High School, Ladue Road, Conway Road, and the I-64 South Outer Road.

In addition, the following specific movements have a LOS F in Year 2020:

Route 141 and Olive Boulevard
- westbound Olive to southbound Route 141,
- northbound Route 141 to eastbound Olive,
- eastbound Olive through movement,

Route 141 and Parkway Central High School
- both southbound Route 141 movements at Parkway Central High School,
- northbound Route 141 into Parkway Central High School,

Route 141 and Route AB/Ladue Road
- southbound Route 141 to eastbound Ladue,
- westbound Ladue to southbound Route 141,
- all northbound Route 141 movements at Ladue,
- eastbound Ladue through movement,
- eastbound Ladue to northbound Route 141,

Route 141 and Conway Road
- southbound Route 141 through movement at Conway,
- westbound Conway to southbound Route 141,
- northbound Route 141 to westbound and eastbound Conway,
- eastbound Conway through movement,
- eastbound Conway to northbound Route 141,

Route 141 and the I-64 South Outer Road
- southbound Route 141 to eastbound I-64 South Outer Road,
- northbound Route 141 through movement at the I-64 South Outer Road,
- eastbound I-64 South Outer Road through movement, and
- eastbound I-64 South Outer Road to northbound Route 141.

Southbound Route 141 between Ladue Farm Road and Conway Road and northbound Route 141 between Ladue Farm Road and Ladue Road have arterial LOS F for the Year 2020 morning peak period.

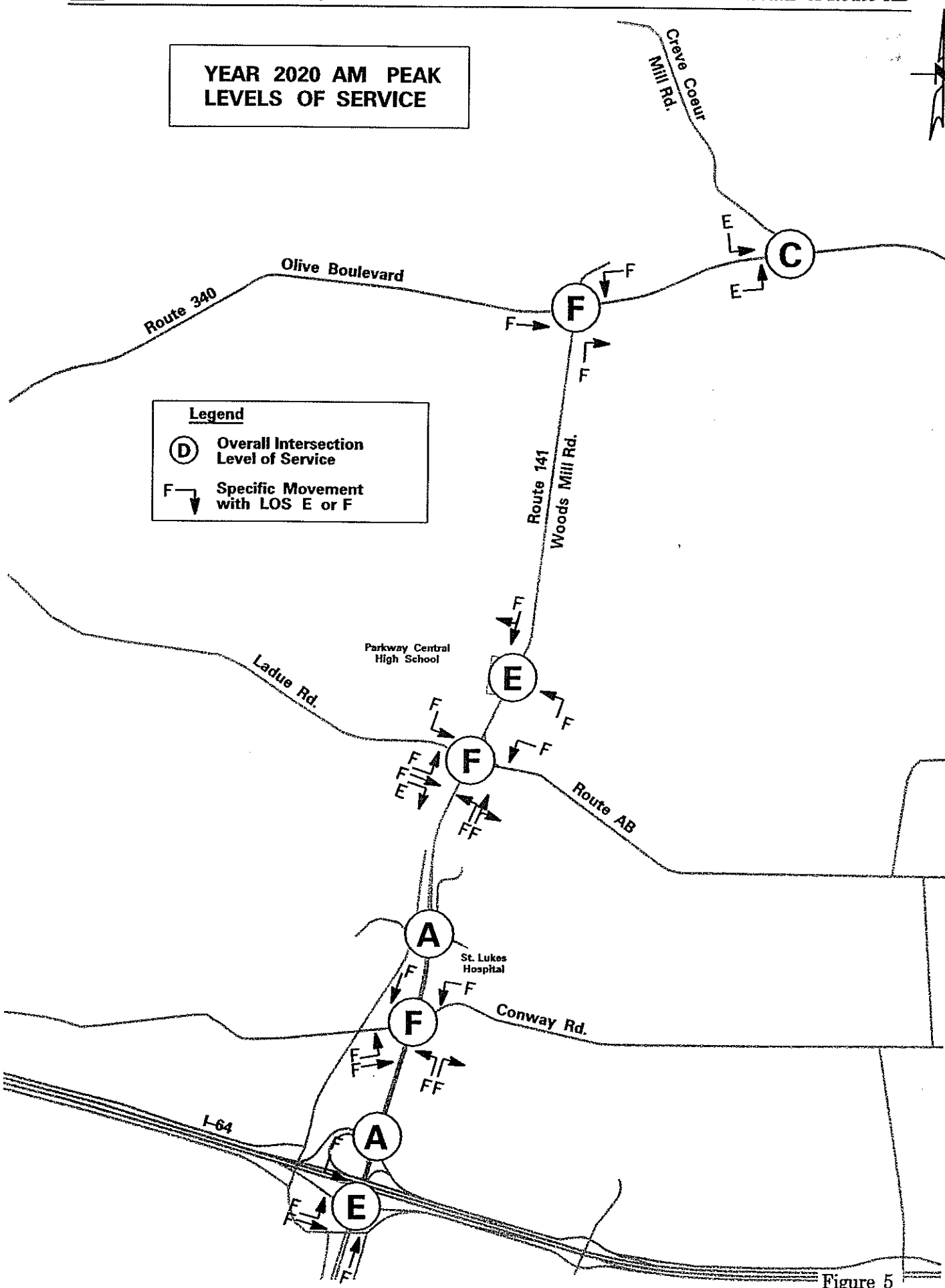


Figure 5



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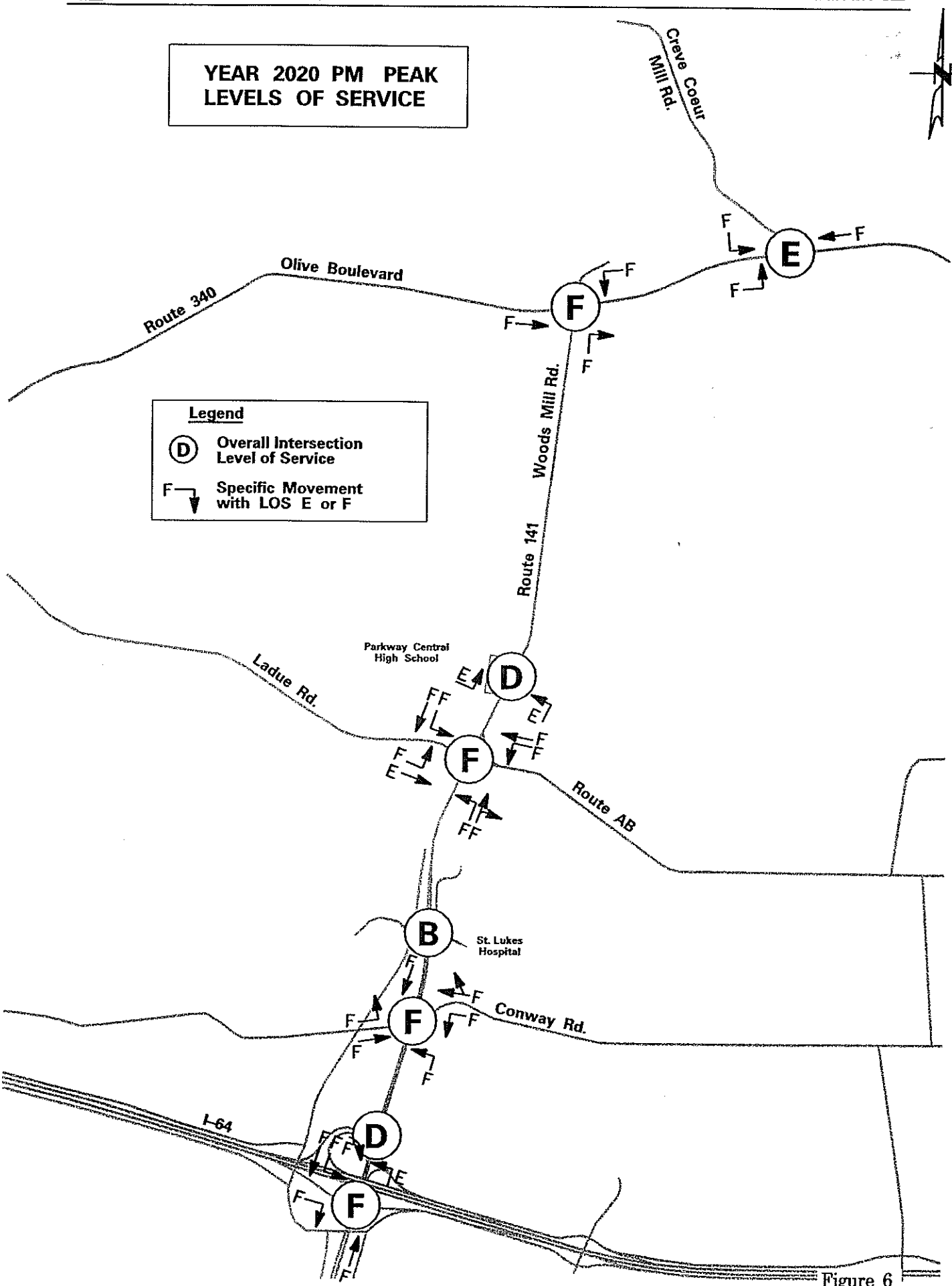


Figure 6



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PM Peak Hour

As with the morning peak, five of the eight intersections have unacceptable LOS during the afternoon peak in Year 2020 (Figure 6). These intersections include Olive Boulevard at Creve Coeur Mill Road, and Route 141 at Olive, Ladue, Conway, and the I-64 South Outer Road.

The following specific movements have a Year 2020 LOS F during the afternoon peak:
Olive and Creve Coeur Mill Road

- westbound Olive through movement at Creve Coeur Mill Road,
- southbound Creve Coeur Mill Road to eastbound Olive,
- eastbound Olive to northbound Creve Coeur Mill Road,

Route 141 and Olive Boulevard

- westbound Olive to southbound Route 141,
- eastbound Olive through movement at Route 141,
- northbound Route 141 to eastbound Olive,

Route 141 and Route AB/Ladue Road

- southbound Route 141 through movement at Ladue,
- southbound Route 141 to eastbound Ladue,
- westbound Ladue through movement,
- westbound Ladue to southbound Route 141,
- eastbound Ladue to northbound Route 141,
- all northbound Route 141 movements at Ladue,

Route 141 and Conway Road

- southbound Route 141 through movement at Conway,
- all westbound Conway movements,
- northbound Route 141 to westbound Conway,
- eastbound Conway to northbound Route 141,
- eastbound Conway through movement,

Westbound I-64 exit ramp

- westbound I-64 exit ramp to southbound Route 141,

Route 141 and the I-64 South Outer Road

- all southbound Route 141 movements at the I-64 South Outer Road,
- eastbound I-64 South Outer Road to southbound Route 141, and
- northbound Route 141 through movement at the I-64 South Outer Road.

Arterial segments with LOS F during this period include the following:

- southbound Route 141 between Parkway Central High School and Ladue,
- southbound Route 141 between Ladue Farm and Conway,
- southbound Route 141 between the westbound I-64 exit ramp and the I-64 South Outer Road, and
- northbound Route 141 between Ladue Farm and Ladue Road.

## G. SAFETY[2]

### *1. Accident Locations*

Accident data from 1994 to 2001 has been analyzed along Route 141 from Olive Boulevard to just south of I-64. The locations of these accidents are shown in **Figure 7**. The majority of the accidents occur between Olive Boulevard and Ladue Farm Road, coinciding with the limits of this study and the limits of the unimproved portion of Route 141. The highest number of accidents occurs immediately south of the Olive Boulevard intersection.

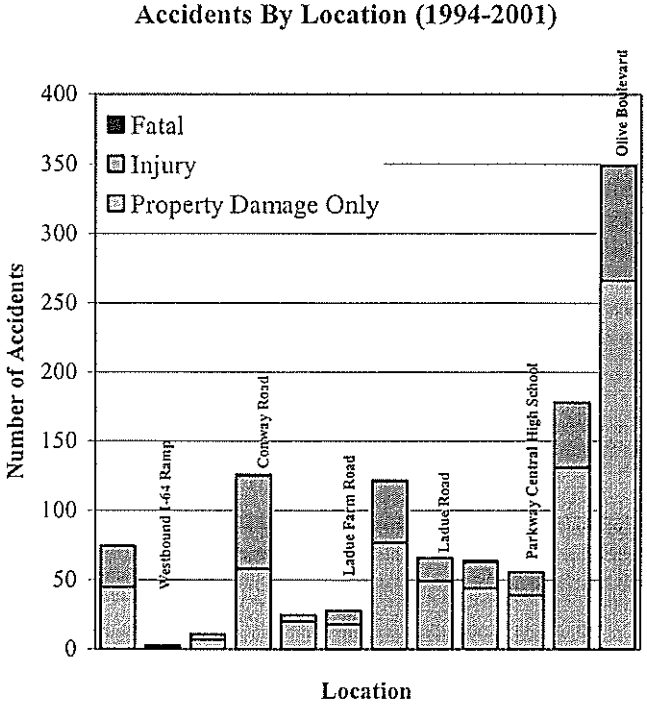


Figure 7

### *2. Accident Types*

The accident data was also analyzed to determine whether certain types of accidents occur more often than others. The results, shown in **Figure 8**, indicate that rear-end accidents make up more than half of all accidents, both at intersections and at locations between the intersections. The second leading type of accident is related to left-turns. Together, these two types of accidents account for about 80% of the accidents in the study area. Generally, the same types of accidents occur at both intersections and at locations between the intersections.

[2] Accident statistics and safety data summarized or presented in this section are protected under federal law. See Appendix C.

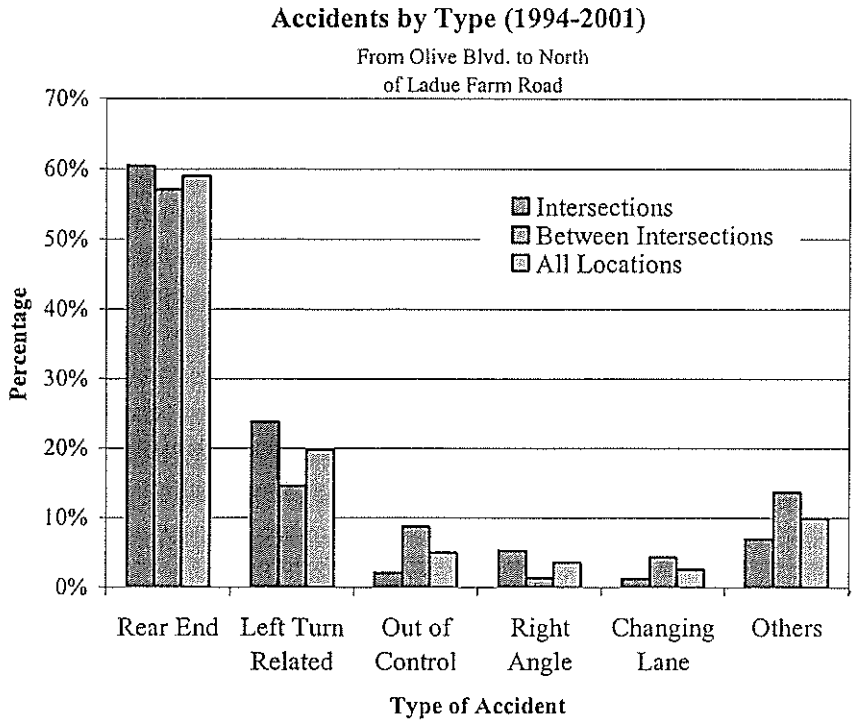


Figure 8

The congestion along this route, causing considerable backups at some of the traffic signals, may be a cause for many rear-end accidents. The large number of access points to and from Route 141 is another likely cause of many of the accidents in this area. Roadway geometry along this section of Route 141 is generally straight with sufficient stopping sight distance, and should not be a major contributor to these accidents.

### *3. Accident Rates*

Since 1995, the number of accidents in the study area has varied from a low of 101 in 1999 to a high of 118 in 2001, as shown in **Figure 9**. However, the amount of traffic has not followed the same yearly trends and in some years actually dropped off while the number of accidents rose. Accident rates were correspondingly higher in those years, as shown in **Table 3**. During the past eight years, the accident rate along Route 141 has steadily risen and is now more than double the statewide average for state numbered routes.

Because of the relatively low speeds associated with this congested route, the bulk (72.6%) of the accidents involves only property damage. The remaining accidents are almost exclusively injury accidents (27.2%), with only two fatal accidents (0.2%) over the last eight years. Based on values published in the Federal Highway Administration (FHWA) Technical Advisory T7570.2, the cost of accidents within the study area from 1994 to 2001 totaled $24.1 million. The average yearly cost of accidents is $4.8 million.

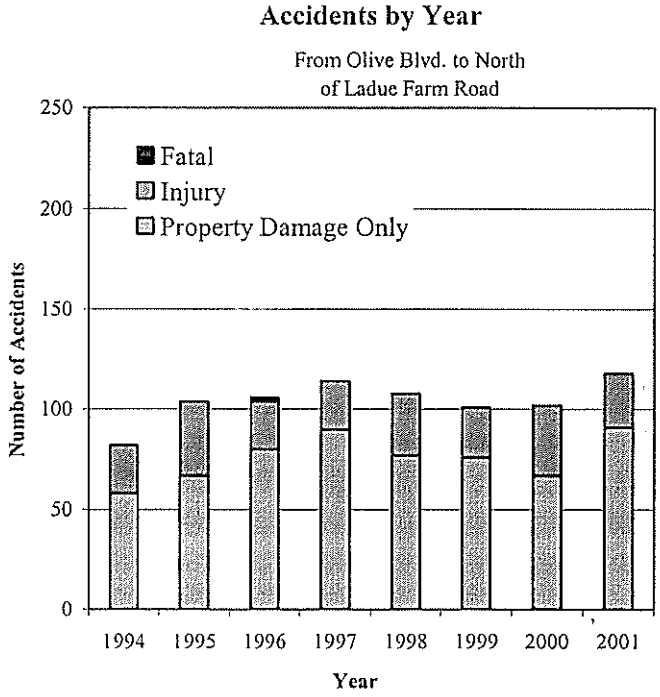


Figure 9

**Accident Rates** **Table 3**

| Year | VMT | Number of Accidents | Route 141 Accident Rate | Statewide Avg. Accident Rate |
|---|---|---|---|---|
| 1994 | 21,629,000 | 82 | 379.12 | 286.68 |
| 1995 | 21,326,000 | 104 | 487.67 | 281.47 |
| 1996 | 19,767,000 | 106 | 536.25 | 289.76 |
| 1997 | 18,617,000 | 114 | 612.34 | 274.20 |
| 1998 | 20,975,000 | 108 | 514.90 | 282.85 |
| 1999 | 19,650,000 | 101 | 513.99 | 258.64 |
| 2000 | 16,222,000 | 102 | 628.78 | 251.33 |
| 2001 | 16,530,000 | 118 | 713.85 | 274.09 |

# ALTERNATIVES

# II. ALTERNATIVES

Alternative development in this study occurred in two phases. The first phase began with a traffic analysis of a conceptual layout. When the analysis suggested that an alternative might be feasible from a traffic standpoint, alignments were developed. The traffic model was then revisited to ensure that it still represented the configuration that was developed.

A screening process occurred at this point of the study for the purpose of eliminating those alternatives that were clearly inferior to the rest. This process is described in more detail in Section A of this Chapter.

Those alternatives that advanced beyond the conceptual stage are described as feasible alternatives in Section B of this Chapter. These alternatives were examined in greater detail to provide a better analysis of their impacts. These impacts are described in **Chapter III**.

## A. CONCEPTUAL ALTERNATIVES

### *1. Widening Options*

Widening alternatives involve using as much of the existing Route 141 alignment as possible. Right of way needed for the extra lanes is generally taken from only one side of the existing roadway, thereby minimizing the number of parcels affected.

Several iterations of widening alternatives between Olive and Ladue were examined. A single widening alignment that minimizes neighborhood disruption, while avoiding a church and a National Register of Historic Places (NRHP)-eligible property, was advanced as a feasible alternative.

Connection with Olive Boulevard

One option considered for a Route 141 widening scenario included terminating a possible extension of Earth City Expressway[2] at Olive Boulevard midway between existing Route 141 and Creve Coeur Mill Road. Northbound traffic would use existing Route 141 to Olive, then travel east on Olive to the Earth City Extension before turning north again. Therefore, both east-west and north-south traffic would use Olive Boulevard between Route 141 and Earth City Extension. Due to the additional traffic on Olive, the intersections of Olive with Route 141 and the Earth City Extension would be overloaded and are projected to have LOS F. This option was therefore dropped from further consideration.

[2] Because a potential Earth City Expressway extension may be foreseeable, we are considering it and its relationship to and impacts upon Route 141 in this analysis to comply with NEPA obligations. At present, such an Earth City Expressway extension would probably be regulated and prohibited by a U.S. Army Corps of Engineers permit issued to MoDOT for the Page Avenue Extension. Also, MoDOT itself has no plans to extend the Earth City Expressway. Any such extension at a later date will likely be owned and funded by a local governmental entity, not MoDOT

Another option for a widening scenario assumes that a potential Earth City Extension is located so that it lines up with Route 141 at the present Route 141/Olive Boulevard intersection. Under this scenario, double left-turn lanes from westbound Olive Boulevard to southbound Route 141 and from northbound Route 141 to westbound Olive Boulevard were added to the traffic model. Also, an extra through lane was added for each direction of Olive, and three through lanes were provided for both directions of Route 141/Earth City Extension. However, the intersection still performed at a LOS D, **Figure 10**. Several key movements in the intersection had LOS E or F. The LOS F movements include westbound Olive to southbound Route 141, northbound Route 141 to westbound Olive, the eastbound Olive through movement, and the southbound Route 141 through movement.

The footprint of this signalized intersection is nearly as large as that for a Single Point Urban Interchange (SPUI), resulting in similar impacts for either alternative. However, a SPUI at this location works much better from a traffic standpoint, **Figure 11**. With a SPUI configuration, this connection has an overall LOS B. All movements have at least LOS D. The at-grade signalized intersection at Route 141 and Olive Boulevard was therefore dropped from further consideration and the SPUI was advanced for further study.

Two SPUI options were investigated at this location. Interchange A has Route 141 passing below Olive, while Interchange AA has Olive below Route 141. Earthwork costs for Interchange AA were considerably higher than for Interchange A. Also, Interchange A has fewer visual and noise impacts because the high-speed through movements are below the existing groundline. For these reasons, Interchange AA was dropped and Interchange A advanced for further study.

Intersection of Ladue Road and Route 141

A signalized intersection of widened Route 141 with Ladue Road was examined. This analysis determined that an at-grade intersection between these two routes would have an overall acceptable LOS B, **Figure 10**. Some movements, however, have LOS E. Any disruptions to the traffic flow, e.g. a stalled car or an accident, would cause traffic in this area to quickly drop to an unacceptable LOS.

Additional traffic studies indicated that an interchange would move traffic more efficiently through this area, **Figure 11**. All movements would have acceptable LOS with a compressed diamond interchange layout.

For the purposes of this study, an at-grade signalized intersection is used in the cost estimate, but a compressed diamond footprint is used for calculating right of way costs and environmental impacts. In this way, if this alternative is selected, the at-grade intersection can be built with the option of expanding it to an interchange in the future. This arrangement is referred to as Interchange D in the Feasible Alternatives section of this chapter.

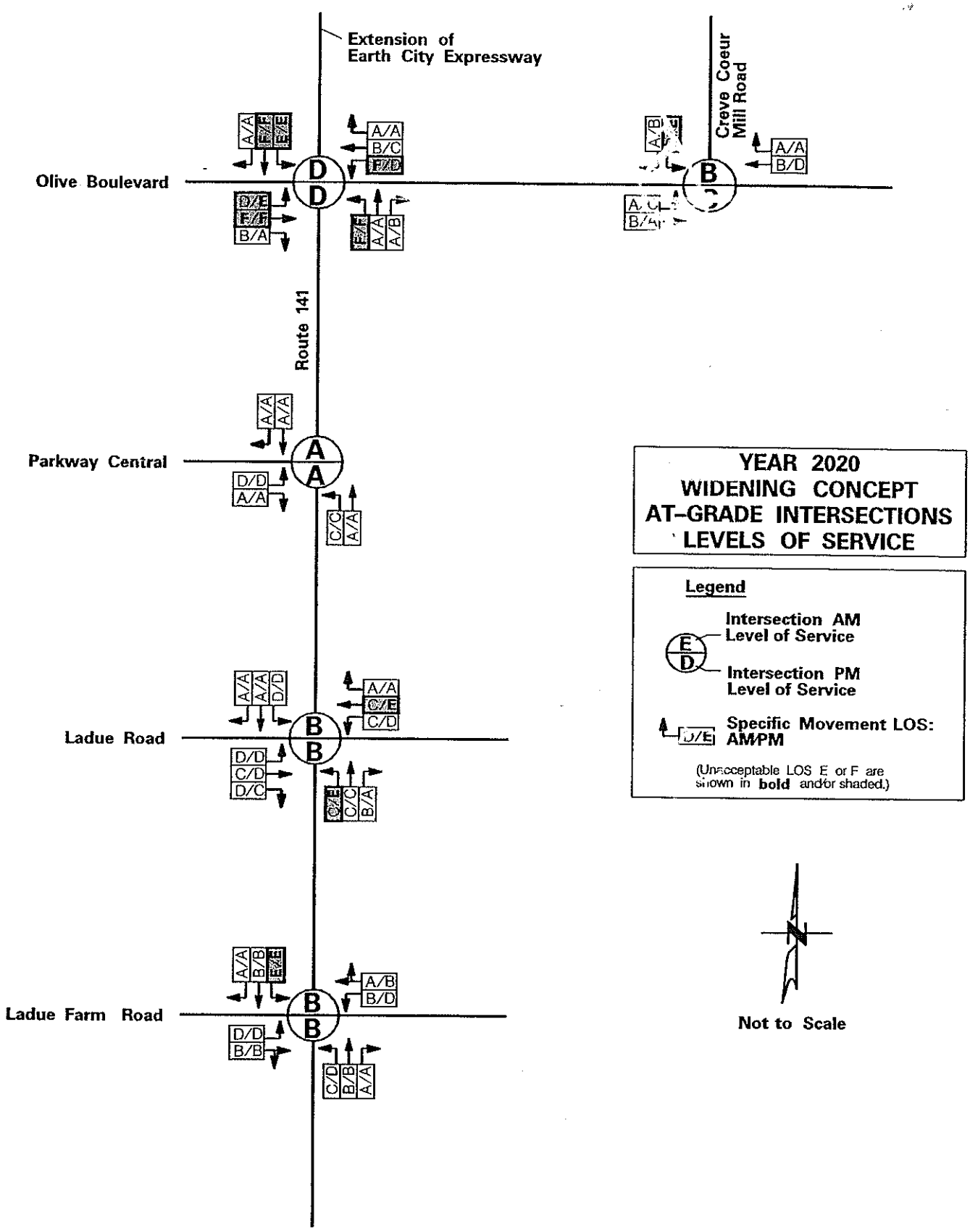


Figure 10



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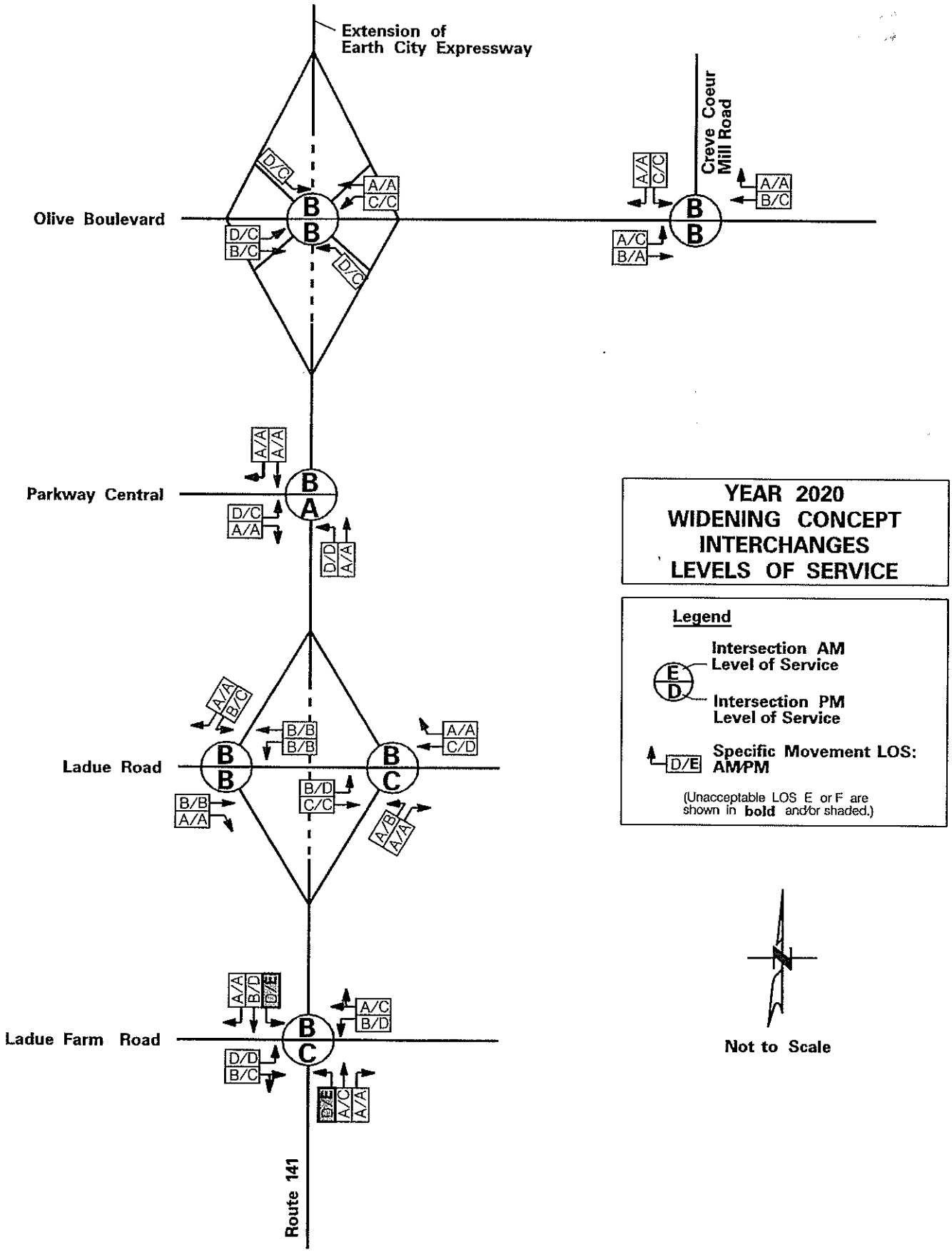


Figure 11



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### 2. *New Alignment Options*

The valley of Creve Coeur Creek is the only undeveloped land in the study corridor. Any new alignment that avoids the creek corridor will displace at least 200 residences between Olive and Ladue. New alignment alternatives therefore focused on the undeveloped creek valley. Another parcel of undeveloped property remains north of Olive Boulevard between Woodchase Plaza and Creve Coeur Crossing condominiums. With undeveloped land both north and south of Olive at this location, all of the alternatives in this category intersect with Olive at this site.

Connection with Olive Boulevard

An at-grade signalized intersection between relocated Route 141 and Olive Boulevard was analyzed. Traffic analysis of this connection, **Figure 12**, indicates that the intersection would have an unacceptable LOS E or F during both the morning and afternoon peaks. This intersection included three through lanes in all directions, as well as double left-turn lanes. A SPUI was therefore developed for incorporation into subsequent alternatives.

Two options were investigated for the SPUI at this location: Route 141 under Olive Boulevard (Interchange B), and Route 141 over Olive Boulevard (Interchange C). The footprints for both of these interchanges are essentially the same. However, the cost of putting Route 141 over Olive Boulevard is about one million dollars more than going under Olive. Also, an interchange where Route 141 passes under Olive will be less visually intrusive and have fewer noise impacts. Since Interchange C has no real benefits over Interchange B, only Interchange B was advanced as a feasible alternative.

Alignments along Creve Coeur Creek

The alignments that were developed through the Creve Coeur Creek valley are shown in **Figure 13,** along with the limits of the floodplain and floodway. The floodplain boundary represents the area inundated by a 100-year flood (a flood having a one percent probability of being equaled or exceeded in any given year). The floodway boundary represents the area that must be kept free of encroachment in order that the 100-year flood may be carried without substantial increases in flood heights.

Several alignments were developed along the west edge of the floodway. The goal of these alignments was to avoid residential impacts while minimizing floodplain encroachment. Three variations of this general theme were developed. The first, Alignment B1, has the smallest impact to the floodway and wetlands, but would require approximately six residential displacements at the end of Primwood Road and Walfield Lane in the Judson Manor subdivision. The second alignment variation, Alignment B2, shifts the line east, encroaching into more of the floodway and reducing the residential displacements to two. Wetland impacts increase by about one acre with this alignment. The last variation, Alignment B3, shifts the alignment further into the floodway so that no residences are displaced. However, in addition to having more floodplain and wetland impacts than the other alignment variations, this last alternative displaces an AmerenUE transmission tower.

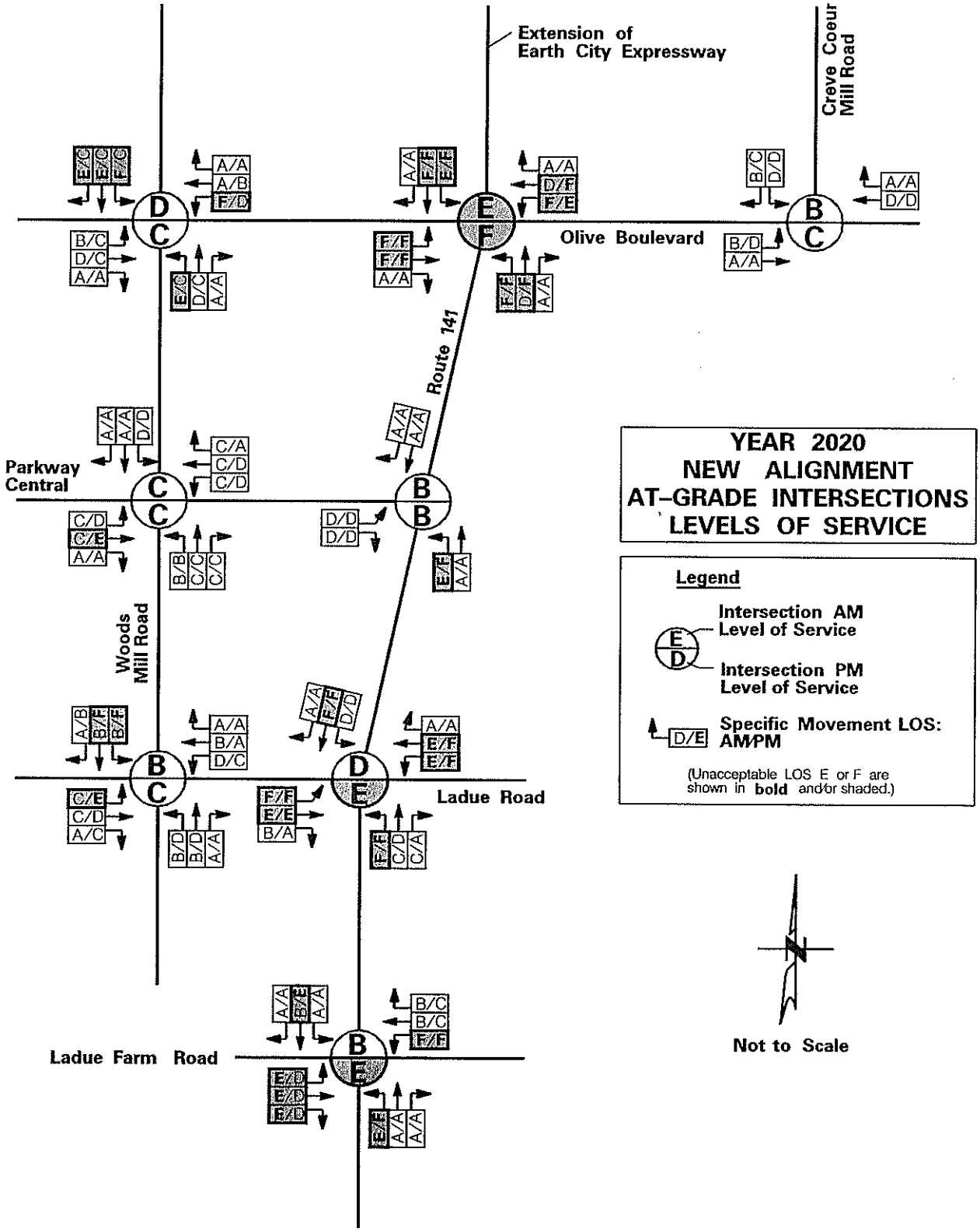


Figure 12



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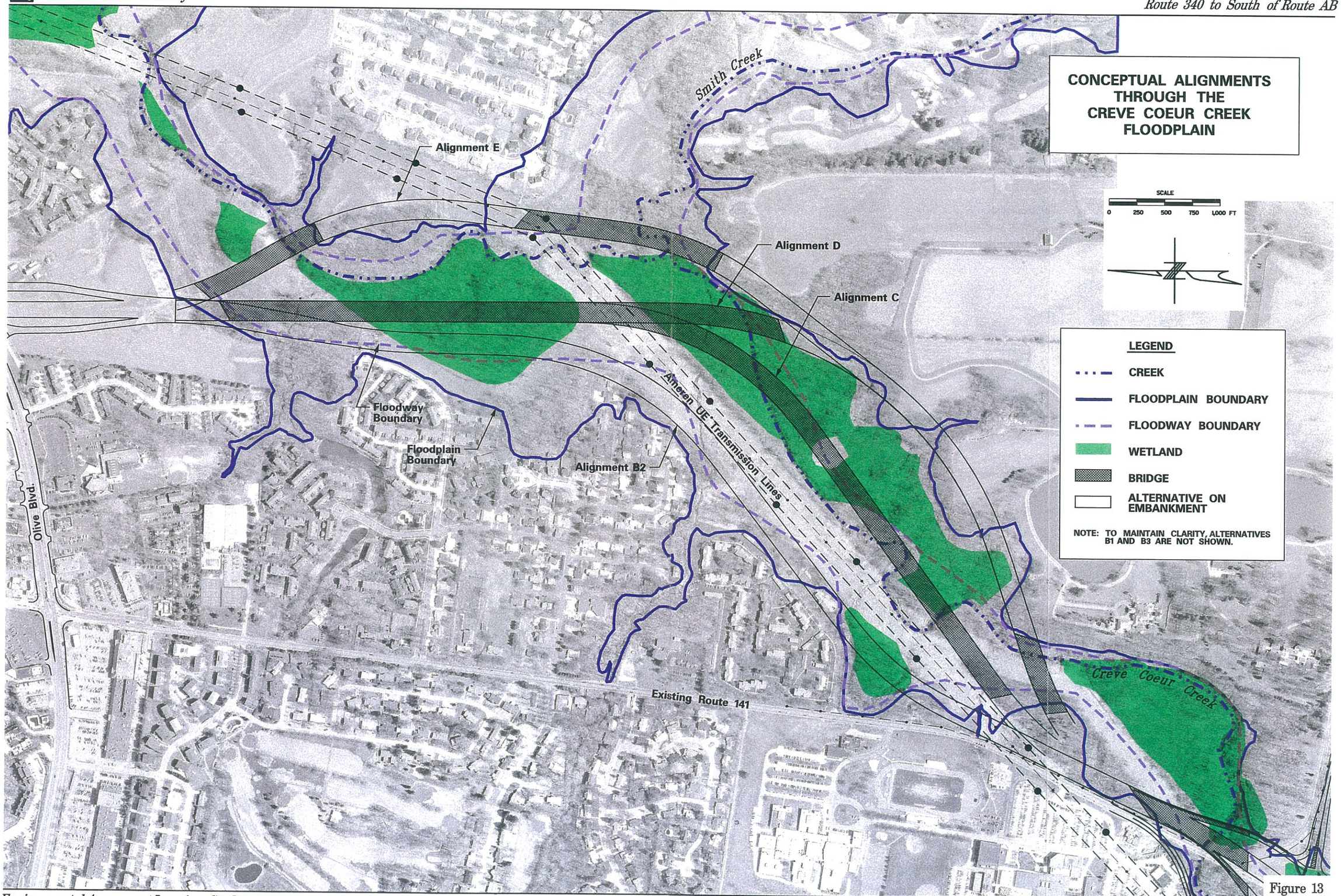
CONCEPTUAL ALIGNMENTS THROUGH THE CREVE COEUR CREEK FLOODPLAIN
SCALE
0 250 500 750 1,000 FT
LEGEND
CREEK
FLOODPLAIN BOUNDARY
FLOODWAY BOUNDARY
WETLAND
BRIDGE
ALTERNATIVE ON EMBANKMENT
NOTE: TO MAINTAIN CLARITY, ALTERNATIVES B1 AND B3 ARE NOT SHOWN.
Smith Creek
Alignment E
Alignment D
Alignment C
Floodway Boundary
Floodplain Boundary
Alignment B2
Ameren UE Transmission Lines
Olive Blvd.
Existing Route 141
Creve Coeur Creek

Figure 13

In addition to alignments along the west side of the floodplain, an alternative was also developed (Alignment E) that utilized the eastern portion of the floodplain as well as some adjoining upland areas. This alignment requires two crossings of Creve Coeur Creek and a crossing of Smith Creek. The remainder of the alignment generally stays out of the Creve Coeur Creek floodplain.

The third concept for using the Creve Coeur Creek valley, Alignment C, was to construct a continuous structure down the middle of the valley, equally distant from the development along both sides. This alternative was proposed during the public meeting held in June 2000. This alignment essentially bridges the floodplain and wetlands with a continuous structure. A variation of this alternative, Alignment D combined elements of Alignments C and E in order to minimize the amount of structure necessary.

All of these alternatives were presented to the U.S. Army Corps of Engineers (USACE). Cost estimates of each were also developed using earthwork volumes and bridge structure length. MoDOT and USACE representatives did not feel that the alternatives that place most of the alignment on structure down the middle of the valley are feasible from either an environmental or cost standpoint. Impacts of all of these alternatives are summarized in **Table 4**. Although these alternatives span much of the wetlands in the floodplain, the disruption to these resources during construction, along with the effect of continuous shade on wetland vegetation below the structures, were considered unacceptable. Alternatives C and D were therefore dropped from further consideration.

A single alternative that follows the west side of the floodplain, and the alternative that crosses to the east side of the floodplain were advanced as feasible alternatives. A western alternative, Alignment B2, was chosen that was representative of the impacts associated with a new alignment in this area, although during final design the alignment may be adjusted slightly into or out of the floodplain.

**Creve Coeur Creek Floodplain Alignments** **Table 4**

| | | Construction Cost | | | Environmental Impacts | | |
|---|---|---|---|---|---|---|---|
| Alignment | Length (ft) | Paving/ Earthwork | Bridge | Total | Wetlands (Acres) | Floodplain (Acres) | Floodway (Acres) |
| B | 5,854 | $ 5,737,400 | $ 0 | $ 5,737,400 | 6.77 | 26.13 | 15.34 |
| C | 6,065 | $ 1,147,800 | $ 37,597,800 | $ 38,745,600 | 14.45 | 25.93 | 22.41 |
| D | 6,335 | $ 2,342,200 | $ 25,323,400 | $ 27,665,600 | 10.77 | 22.42 | 15.06 |
| E | 6,625 | $ 4,402,400 | $ 16,377,600 | $ 20,780,000 | 2.88 | 22.16 | 9.64 |

Connection with Ladue Road

Several variations of at-grade intersections were analyzed at Ladue Road. The first terminated existing Woods Mill Road at an intersection with relocated Route 141 near Parkway Central High School. In this configuration, Route 141 continues to the south and intersects with Ladue Road. North-south traffic from both Woods Mill Road and

relocated Route 141 therefore access Ladue Road at a single signalized intersection. The traffic analysis of this alternative, shown in **Figure 14**, resulted in a LOS F at Ladue Road.

Another scenario brought existing Woods Mill Road to a second signalized intersection at Ladue Road. Under this alternative, the Route 141 intersection with Ladue Road is approximately 450 ft east of the Woods Mill Road intersection. The result of this layout was an overall LOS E at Route 141 and Ladue Road, as shown in **Figure 12**. Many of the movements for this intersection were LOS F. There were also movements at the Woods Mill and Ladue Road signalized intersection with LOS F.

One alternative that was suggested at the public scoping meeting was to allow Route 141 to pass over Ladue Road without providing access. Traffic destined for Ladue Road would leave Route 141 at the nearest intersection north or south of Ladue Road and travel west to Woods Mill Road. A signalized intersection with Woods Mill Road would then be provided at Ladue Road. Traffic analysis of this scenario, **Figure 15**, suggests complete failure of the intersection of Route 141 and Woods Mill Road north of Ladue Road. This failure is at least partially due to the proximity of the Creve Coeur Creek floodplain. In order to minimize floodplain impacts, relocated Route 141 would be immediately adjacent to Woods Mill Road in front of Parkway Central High School. This results in a very complex intersection at the front door of the school. The inexperienced drivers and number of buses at this location make this configuration especially dangerous. This alternative was therefore dropped from further study due to its inability to handle traffic and the unsafe nature of the intersection.

As a result of the analysis at Ladue Road, further alternatives developed at this site were configured as a compressed diamond interchange. Two such interchanges were developed. Under both of these configurations, Route 141 passes below Ladue Road. In addition, existing Route 141 is connected to Woods Mill Road at the cul-de-sac south of Ladue Road. This provides continuous access north and south of Ladue without the need for local traffic to utilize Relocated Route 141.

The first of these interchanges, Interchange E, locates the intersection of Woods Mill Road and Ladue Road on the west side of Creve Coeur Creek. The ramps for Route 141 intersect with Ladue on the east side of the creek, **Figure 16**.

The second interchange configuration, **Figure 17**, has the intersection of Woods Mill Road and Ladue Road on the east side of Creve Coeur Creek, along with the intersections of the Route 141 ramps and Ladue Road. This layout does not provide as much distance between the intersections and consequently does not operate as efficiently as the previously described interchange. Also, the eastern ramps of this interchange are immediately adjacent to a steep grade on Ladue. Westbound traffic on Ladue would have difficulty stopping at this intersection during wet or icy road conditions. Finally, because much of this interchange is located further east, there are more wetland impacts with this interchange alternative. For these reasons, this interchange was dropped from further study and Interchange E was advanced as a feasible alternative.

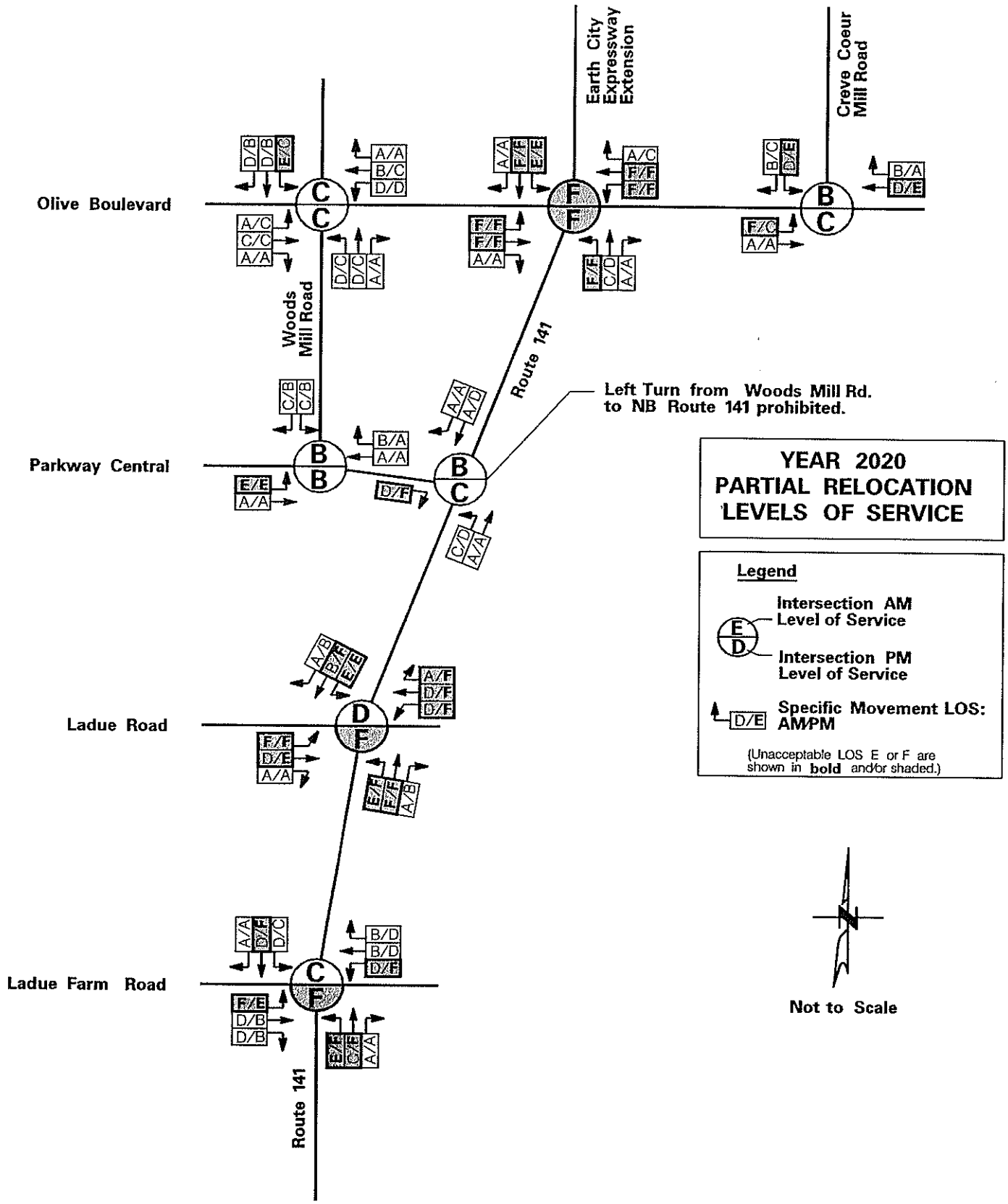


Figure 14



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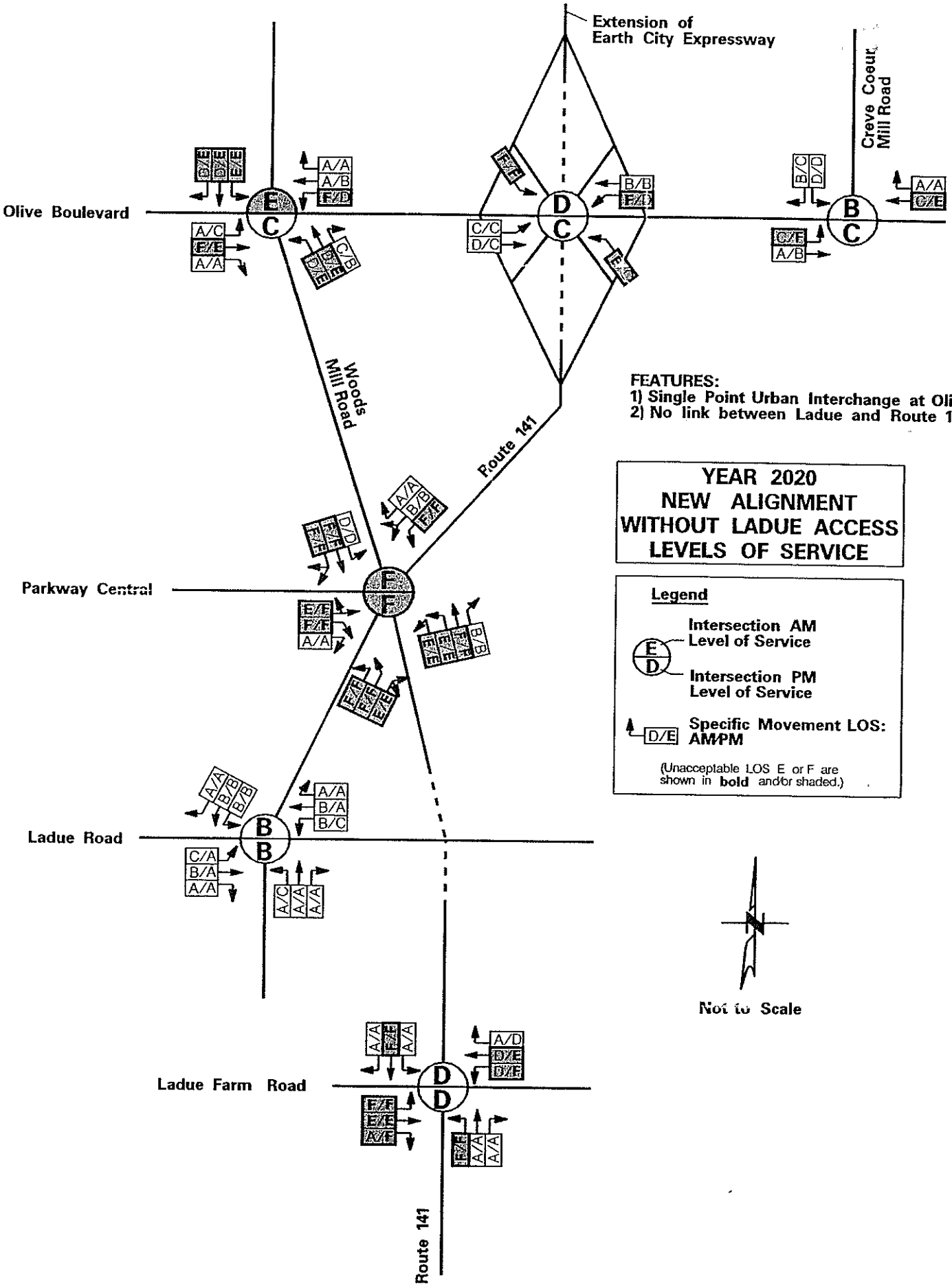


Figure 15



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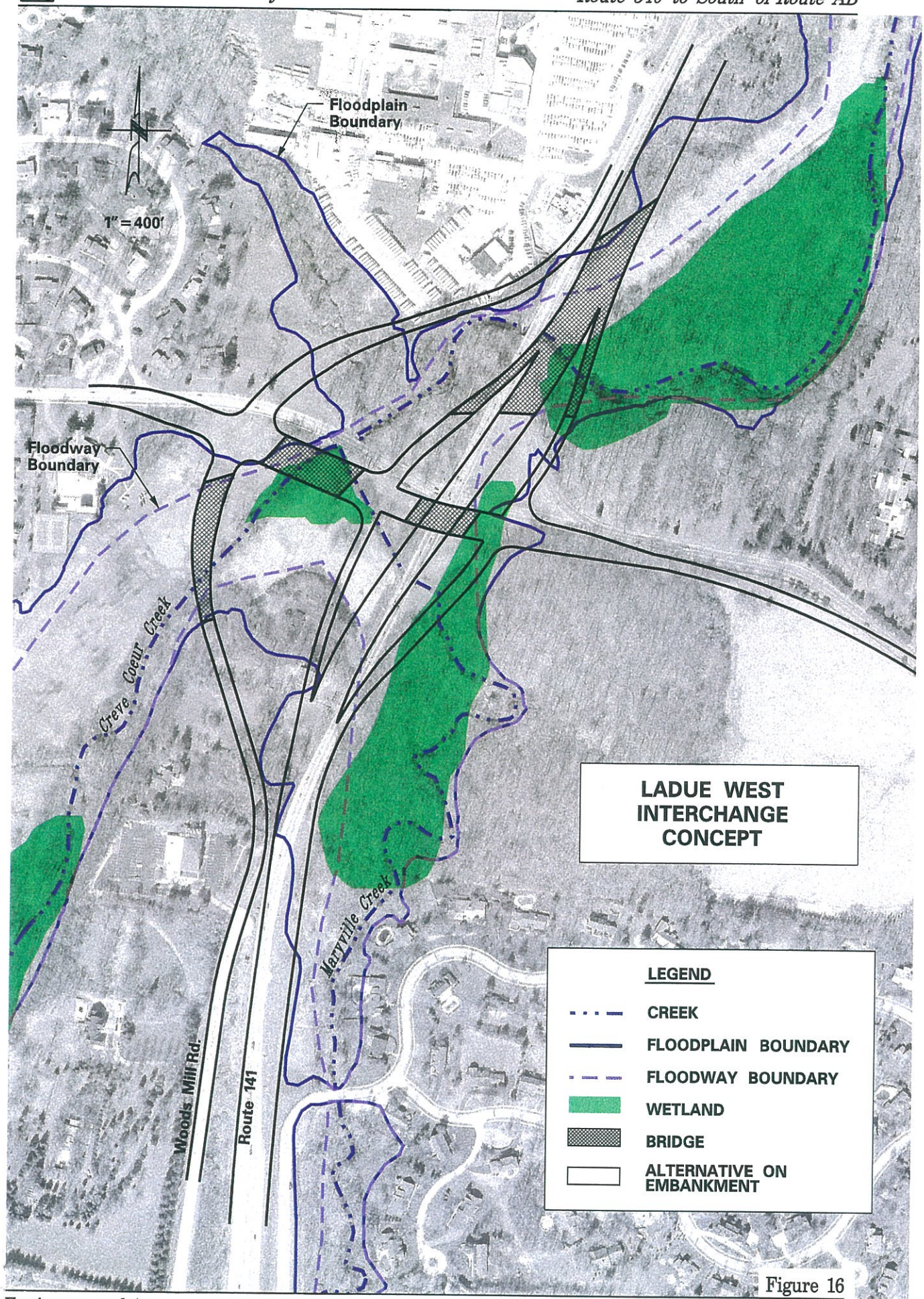


Figure 16



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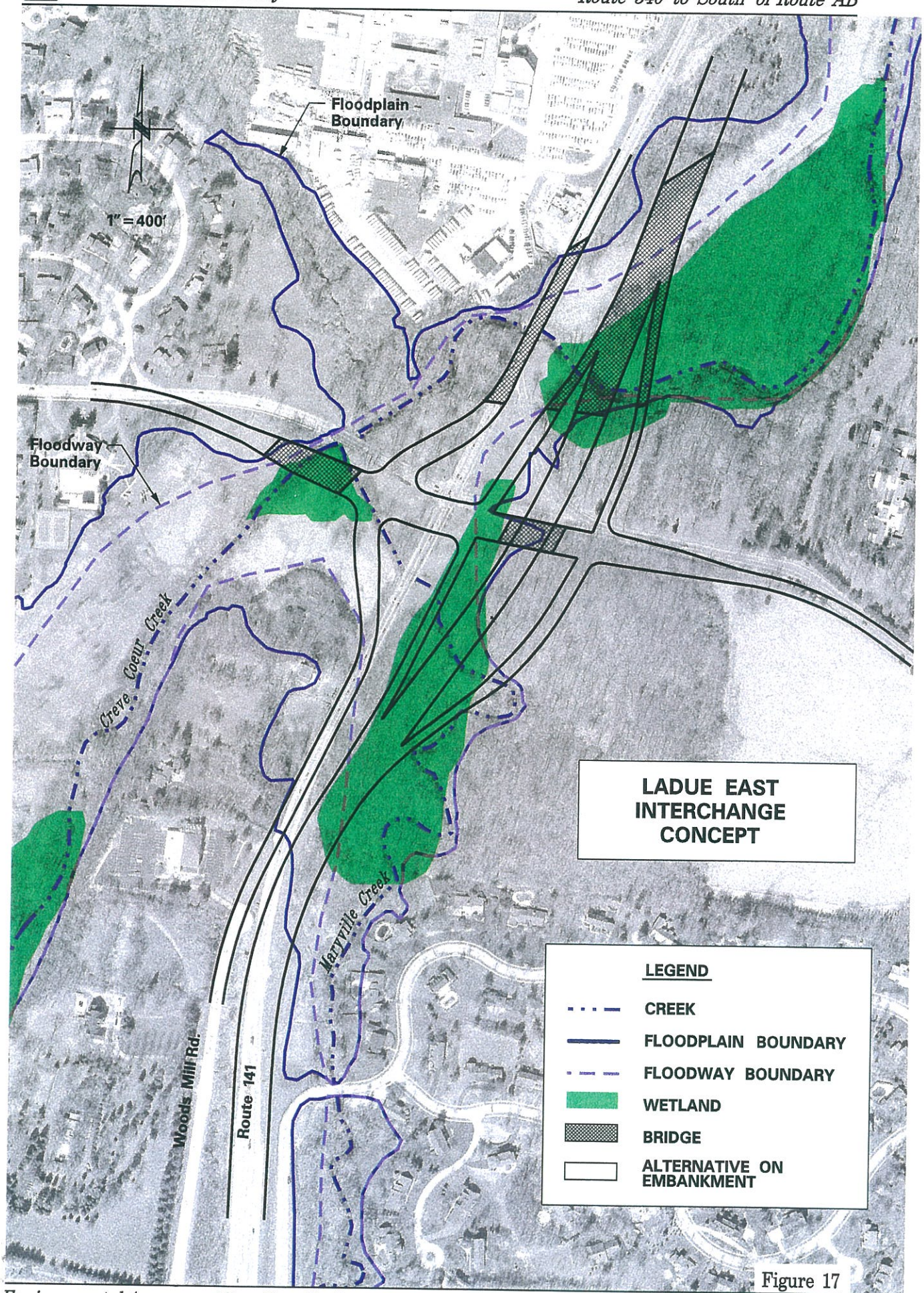


Figure 17



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## B. FEASIBLE ALTERNATIVES

The alternatives described in this section are those that advanced from the conceptual phase described above. The No-Build Alternative would use the existing Route 141 typical section, shown in **Figure 18**. Typical sections for Build Alternatives are also shown in **Figure 18**. The widening alternative and new alignment alternatives have 12-ft lanes, 10-ft shoulders, and 22-ft medians. The new alignment alternatives use a 20-ft 6:1 safety slope, with 3:1 side slopes. These alternatives are shown in **Figure 19** and described in more detail below.

### *1. No-Build*

Description

This alternative does not improve Route 141 through the study area. Regular maintenance, such as resurfacing and safety enhancements, would be included in this scenario. Enhancements may include adding signals or turn lanes. However, most of these improvements would be made within the existing right-of-way and would not include extensive impacts to the surrounding environment.

Traffic Analysis

Traffic analysis under this scenario is described in **Chapter I** of this document. This analysis shows that future traffic levels will result in failure at most of the intersections within the study area.

### *2. Widening*

Description

The widening option, shown in detail on **Sheets 1-5** in **Appendix A**, combines Interchange A at Olive Boulevard with Alignment A and Interchange D at Ladue Road. This alternate provides six through lanes between Olive Boulevard and Ladue Road and uses as much of the existing alignment as possible. Because the original roadway was designed and constructed in the 1930s for a speed of about 35 mph, the vertical geometry requires considerable reconstruction to make it acceptable as a modern arterial designed for speeds of 50 mph. Residential and commercial development has occurred along both sides of the existing alignment, so the right of way needed for the additional lanes is generally taken from only one side of the existing roadway. Widening to only one side limits the impacts of the alternative to the development along that side, rather than to both sides.

As described in Section A of this Chapter, the connection between Olive and Route 141, Interchange A, was developed as a SPUI due to the inability of a signalized intersection to handle the traffic. Traffic levels along Olive are expected to increase when Route 141 is upgraded. To handle the additional traffic, an extra westbound through lane is needed at the Olive and Creve Coeur Mill Road intersection. This lane would begin at Woodland Point Drive, approximately 800' east of the intersection and extend to Creve Coeur Crossing condominiums, approximately 1,000' west of the intersection. The existing

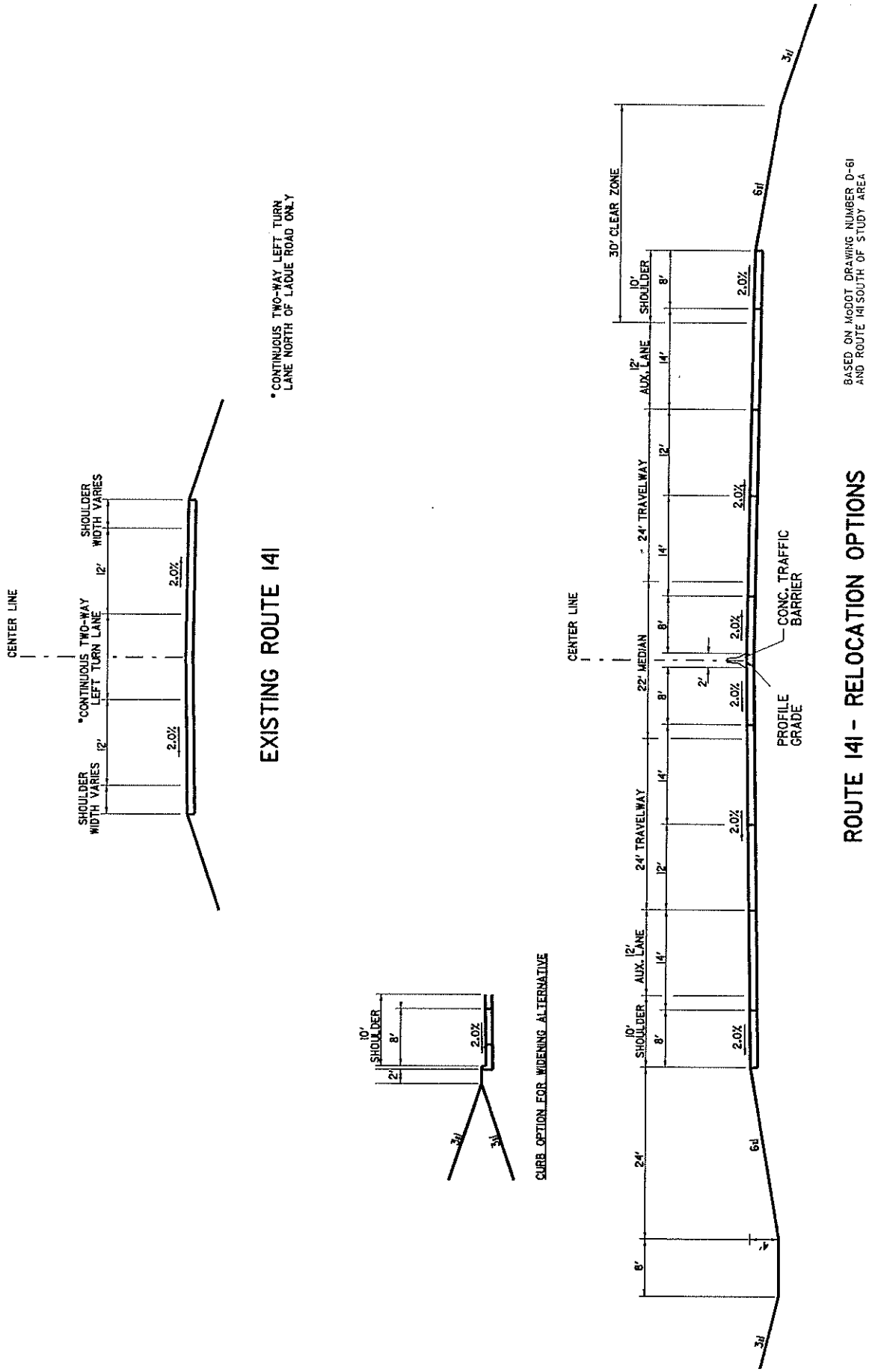


Figure 18



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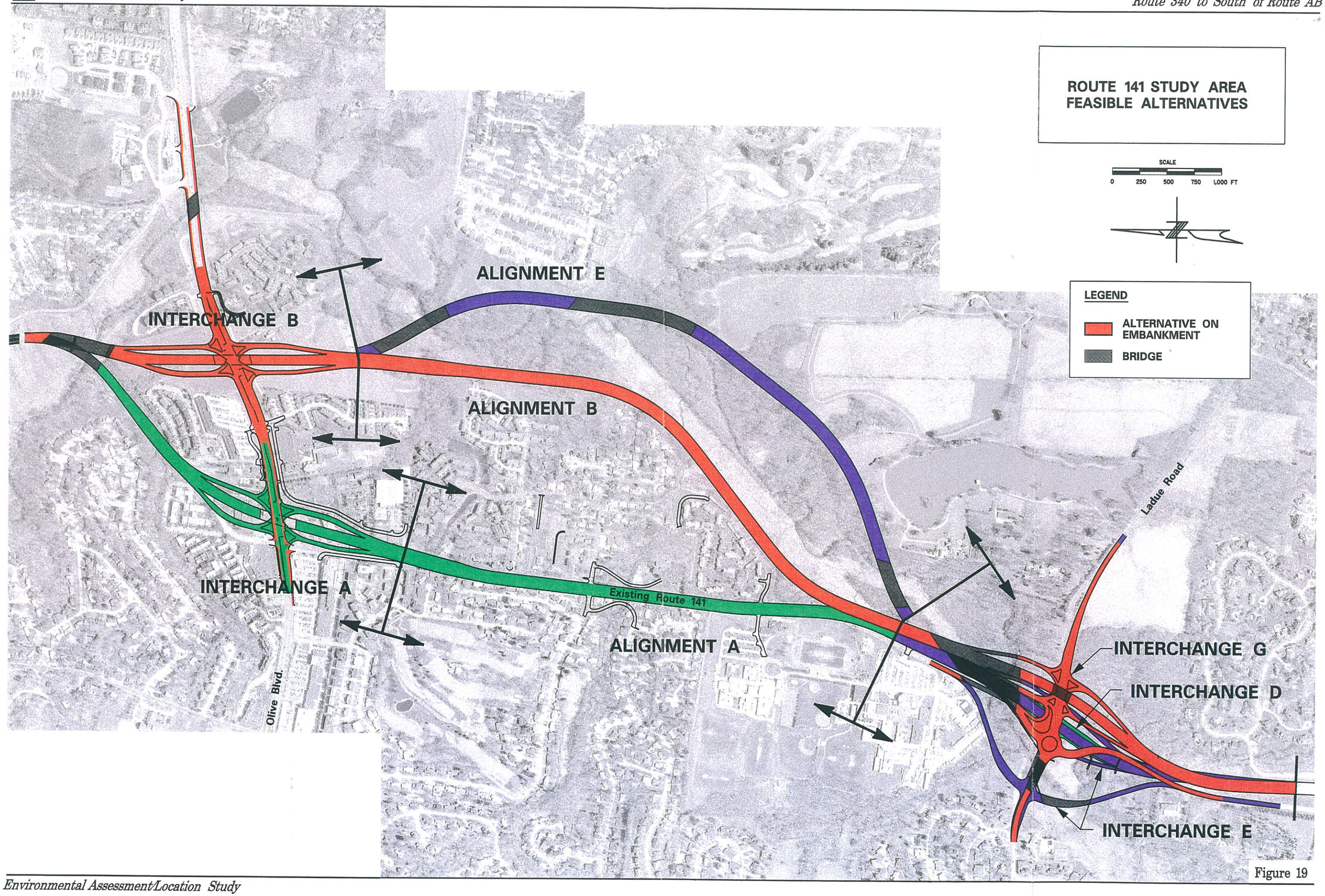
ROUTE 141 STUDY AREA
FEASIBLE ALTERNATIVES
SCALE
0 250 500 750 1,000 FT
LEGEND
ALTERNATIVE ON EMBANKMENT
BRIDGE
ALIGNMENT E
INTERCHANGE B
ALIGNMENT B
INTERCHANGE A
Existing Route 141
ALIGNMENT A
Olive Blvd.
Ladue Road
INTERCHANGE G
INTERCHANGE D
INTERCHANGE E

Figure 19

Olive Boulevard bridge over Creve Coeur Creek would need to be widened by about 12 ft.

The numerous access points along existing Route 141 were consolidated to reduce the number of intersections. Access to and from Route 141 would only occur at these signalized intersections. This alternative has three signalized at-grade intersections between Olive and Ladue. New intersections are planned for LaGorce/Forest Crest and Parkway Middle School. The existing signalized intersection at the entrance to Parkway Central High School would remain.

The connection with Ladue Road was developed as an at-grade signalized intersection for construction cost estimating purposes. However, a compressed diamond footprint was used to measure environmental impacts and right of way costs. This approach was taken because the traffic analysis indicated that major movements within the intersection will be operating at LOS E in the design year. If future traffic growth is greater than expected, this intersection may need upgrading to an interchange. This configuration is designated as Interchange D.

Cost data for the components of the Widening Alternative is listed in **Table 5**. The construction cost for Interchange D is for an at-grade signalized intersection, while the right of way cost is for a compressed diamond interchange.

**Widening Alternative Costs** **Table 5**

| | Construction | Right of Way | Total |
|---|---|---|---|
| Interchange A | $ 19,963,000 | $ 34,282,000 | $ 54,245,000 |
| Alignment A | $ 10,218,000 | $ 10,137,000 | $ 20,355,000 |
| Interchange D | $ 16,045,000 | $ 6,749,000 | $ 22,794,000 |
| South of Ladue | $ 2,204,000 | $ - | $ 2,204,000 |
| **Totals** | **$ 48,430,000** | **$ 51,168,000** | **$ 99,598,000** |

Traffic Analysis

The traffic analysis for this alternative is shown in **Figure 20**. Acceptable LOS exist at all locations along the alignment. Overall LOS for all intersections along the alignment are acceptable. There are, however, several individual movements that operate at LOS E.

### *3. New Alignment*

Description

The new alignment alternatives are composed of a SPUI at Olive (Interchange B), an alignment from this interchange to Ladue, and a compressed diamond interchange at Ladue (Interchange E). Two options are available for connecting the two interchanges. The first, referred to as Alignment B, follows the western edge of the Creve Coeur Creek floodplain. This alignment is on embankment for the entire length from Olive to Ladue.

The second alignment, Alignment E, crosses to the east side of the Creve Coeur Creek floodplain. It then crosses Smith Creek midway between Olive and Ladue, before crossing to the west side of Creve Coeur Creek again.

There is no access provided between the Olive and Ladue interchanges under this scenario. Placing a signalized intersection between the two closely spaced interchanges would result in an unsafe condition and deteriorate the traffic flow. Existing access along Woods Mill Road would remain unchanged.

As with the widening alternative, an improved Route 141 will also increase traffic along Olive Boulevard. An additional eastbound through lane is needed at both the Woods Mill Road and Creve Coeur Mill Road intersections along Olive, **Figure 21**. This eastbound lane will begin at the entrance of Four Seasons Shopping Center, about 600 ft west of the intersection of Olive and Woods Mill Rd. This lane will continue through Interchange B to Mill Crossing Condominiums, a point about 650 ft east of the Olive and Creve Coeur Mill Rd. intersection. An additional westbound lane will be added to Olive from Woodland Point Drive, about 800 ft east of Creve Coeur Mill Road to Woods Mill Road.

Following the Public Hearing held in July 2001, property owners near the proposed Ladue interchange expressed strong interest in reducing the number of lanes on Ladue Road and moving the Woods Mill/Ladue Road intersection farther east. This interest was again expressed in August 2001 during a follow-up public meeting attended by over 500 property owners.

Based on public response at these two public meetings, MoDOT agreed to revisit the Ladue interchange concept. The result was a revised scheme with the interchange of Route 141 and Ladue Road changing from a compressed diamond to a SPUI configuration. The SPUI consolidates all traffic movements to a single set of traffic signals, thereby allowing more distance between the interchange and the Woods Mill/Ladue Road intersection. The intersection of Woods Mill Road and Ladue Road was also shifted east of Creve Coeur Creek and reconfigured as a two-lane roundabout. A roundabout eliminates the traffic signals at this intersection as well. The resulting concept (**Figure 22**), designated as Interchange G, has only one set of traffic signals along Ladue Road.

The revised interchange has several benefits over the concept presented at the Public Hearing: fewer lanes on Ladue Road, two fewer residential displacements, and the elimination of impacts to the Parkway School District bus facility. In addition, Ladue Road west of existing Route 141 provides a landscaped entrance to the Green Trails and Ladue Trails subdivisions. The roundabout currently proposed in the Interchange G concept will provide an area in the center of the roundabout that can be landscaped to again provide an entry into these subdivisions.

Cost data for the new alignment alternates is detailed in **Table 6**.

# YEAR 2020 WIDENING ALTERNATIVE TRAFFIC VOLUMES AND LEVELS OF SERVICE

FEATURES:
1) Single Point Urban Interchange at Olive,
2) Signalized Intersections at LaGorce/Forest Crest, Parkway Middle, Parkway Central, and Ladue Rd.
3) Additional lanes south of Ladue Rd.

**Legend**

- 32,100 / 28,400 — Directional Average Daily Traffic
- Intersection AM Level of Service / Intersection PM Level of Service
- D/E 2 — Number of Lanes; Specific Movement LOS: AM/PM

(Unacceptable LOS E or F are shown in **bold** and/or shaded.)

Not to Scale

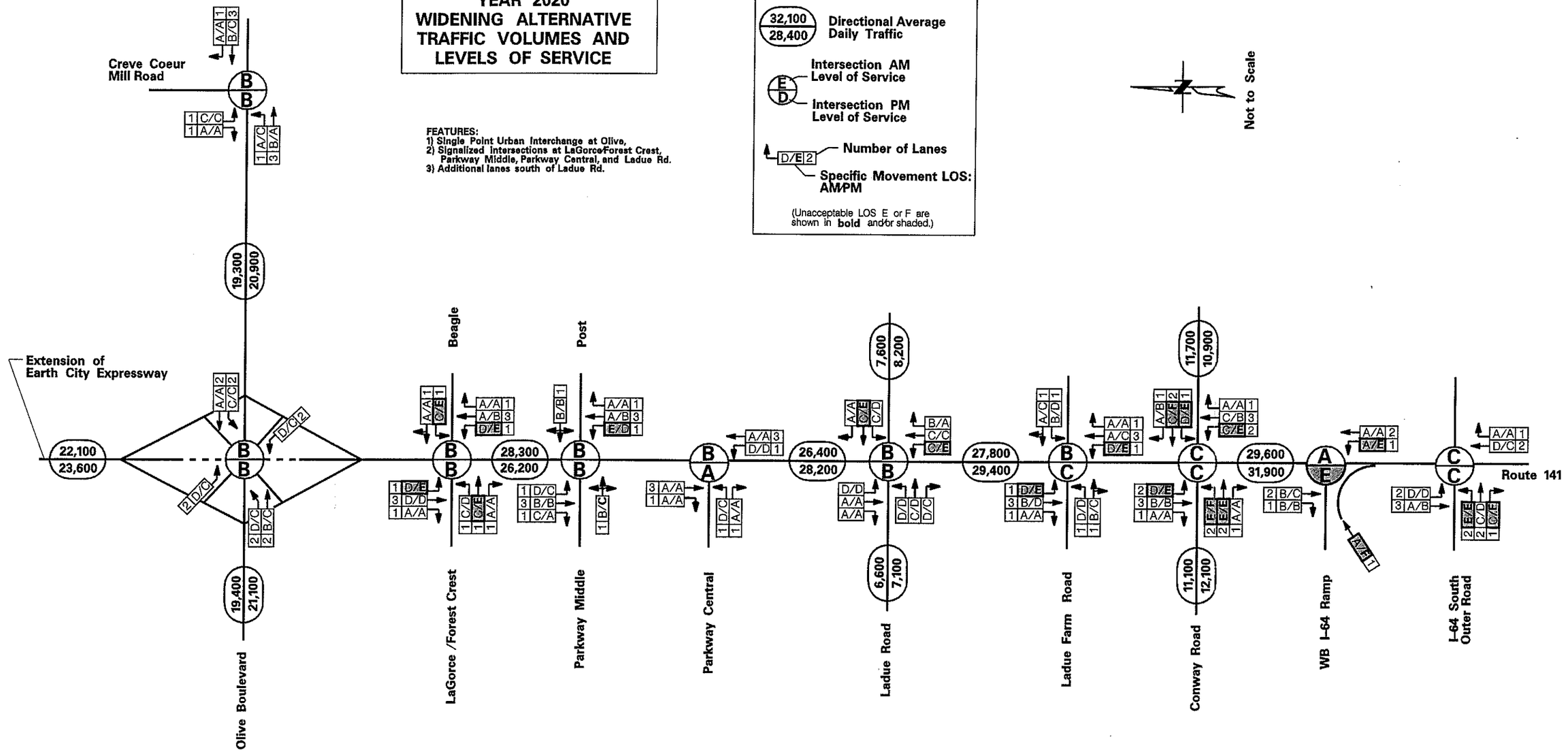


Figure 20

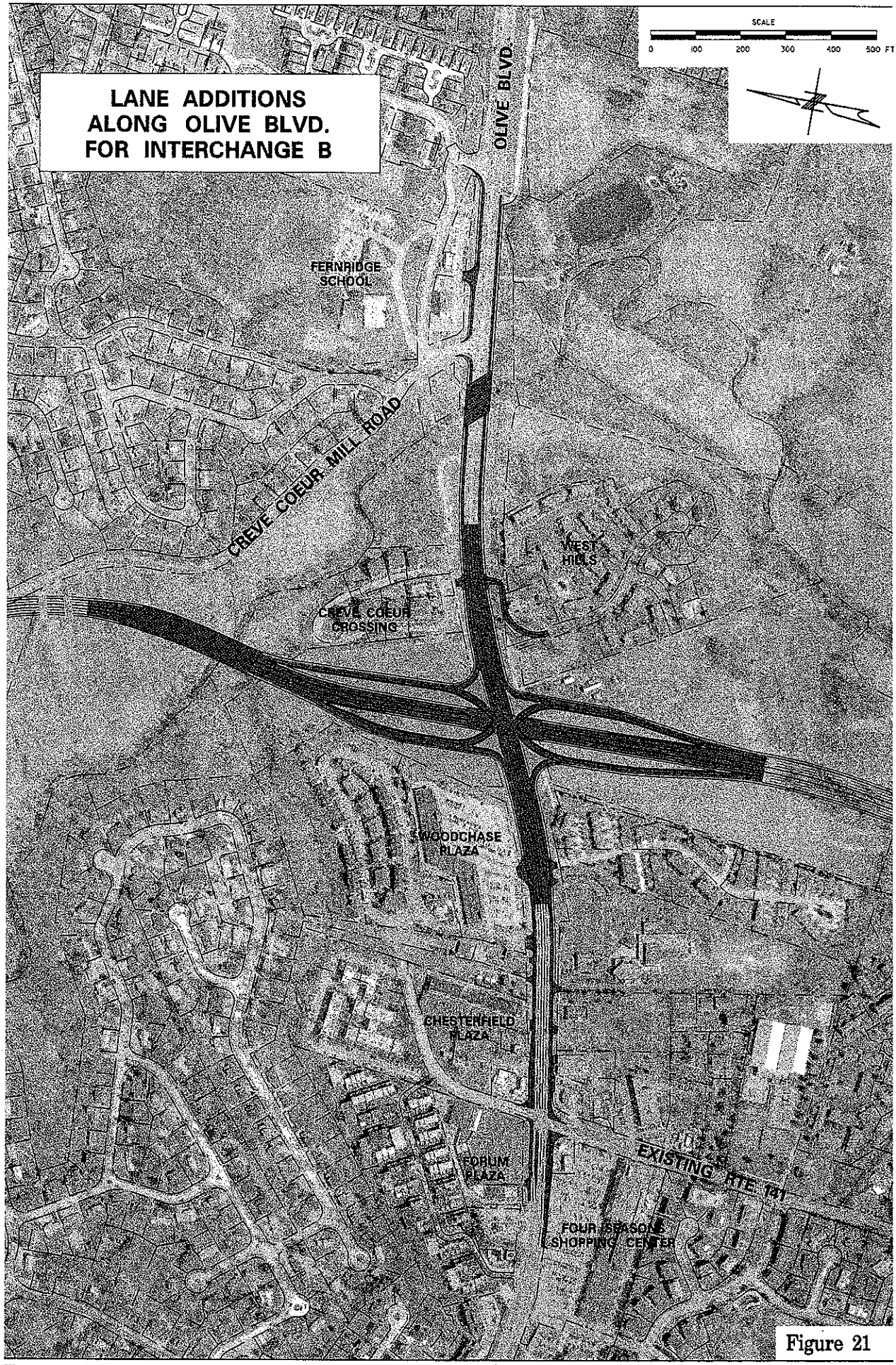


Figure 21



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**New Alignment Alternative Costs** **Table 6**

| | Construction | Right of Way | Total |
|---|---|---|---|
| Interchange B | $ 23,394,000 | $ 2,542,000 | $ 25,936,000 |
| Alignment B | $ 8,437,000 | $ 6,258,000 | $ 14,695,000 |
| Interchange E | $ 25,418,000 | $ 6,389,000 | $ 31,807,000 |
| South of Ladue | $ 2,204,000 | $ - | $ 2,204,000 |
| **Totals** | **$ 59,453,000** | **$ 15,189,000** | **$ 74,642,000** |
| | | | |
| Interchange B | $ 23,394,000 | $ 2,542,000 | $ 25,936,000 |
| Alignment E | $ 25,491,000 | $ 6,720,000 | $ 32,211,000 |
| Interchange E | $ 25,418,000 | $ 6,389,000 | $ 31,807,000 |
| South of Ladue | $ 2,204,000 | $ - | $ 2,204,000 |
| **Totals** | **$ 76,507,000** | **$ 15,651,000** | **$ 92,158,000** |
| | | | |
| Interchange B | $ 23,394,000 | $ 2,542,000 | $ 25,936,000 |
| Alignment B | $ 8,437,000 | $ 6,258,000 | $ 14,695,000 |
| Interchange G | $ 27,677,000 | $ 5,342,000 | $ 32,989,000 |
| South of Ladue | $ 2,204,000 | $ - | $ 2,204,000 |
| **Totals** | **$ 61,712,000** | **$ 14,142,000** | **$ 75,854,000** |

Traffic Analysis

The traffic analysis for this scenario is shown in **Figure 23**. As with the widening alternative, this configuration provides adequate LOS throughout the study area. This alternative does, however, serve more traffic than the widening alternative. Under this alternative, over 60,000 vehicles per day will utilize Route 141 between Olive and Ladue. Under the widening alternative, 54,000 vehicles are expected to use the route. Better geometrics and connectivity for the new alignment options result in greater traffic demand.

In addition, with the new alignment alternatives, Woods Mill Road provides lanes for an additional 14,000 vehicles per day to travel north-south between Olive and Ladue. Total north-south traffic in this scenario is therefore 74,000 vehicles per day, versus 54,000 vehicles per day for the widening alternative.

LOS and safety should be much improved along Woods Mill Road with this option. Future traffic along this section will be 40% less than current levels.

Traffic analysis of the roundabout and SPUI at Ladue is shown in **Figure 24**.

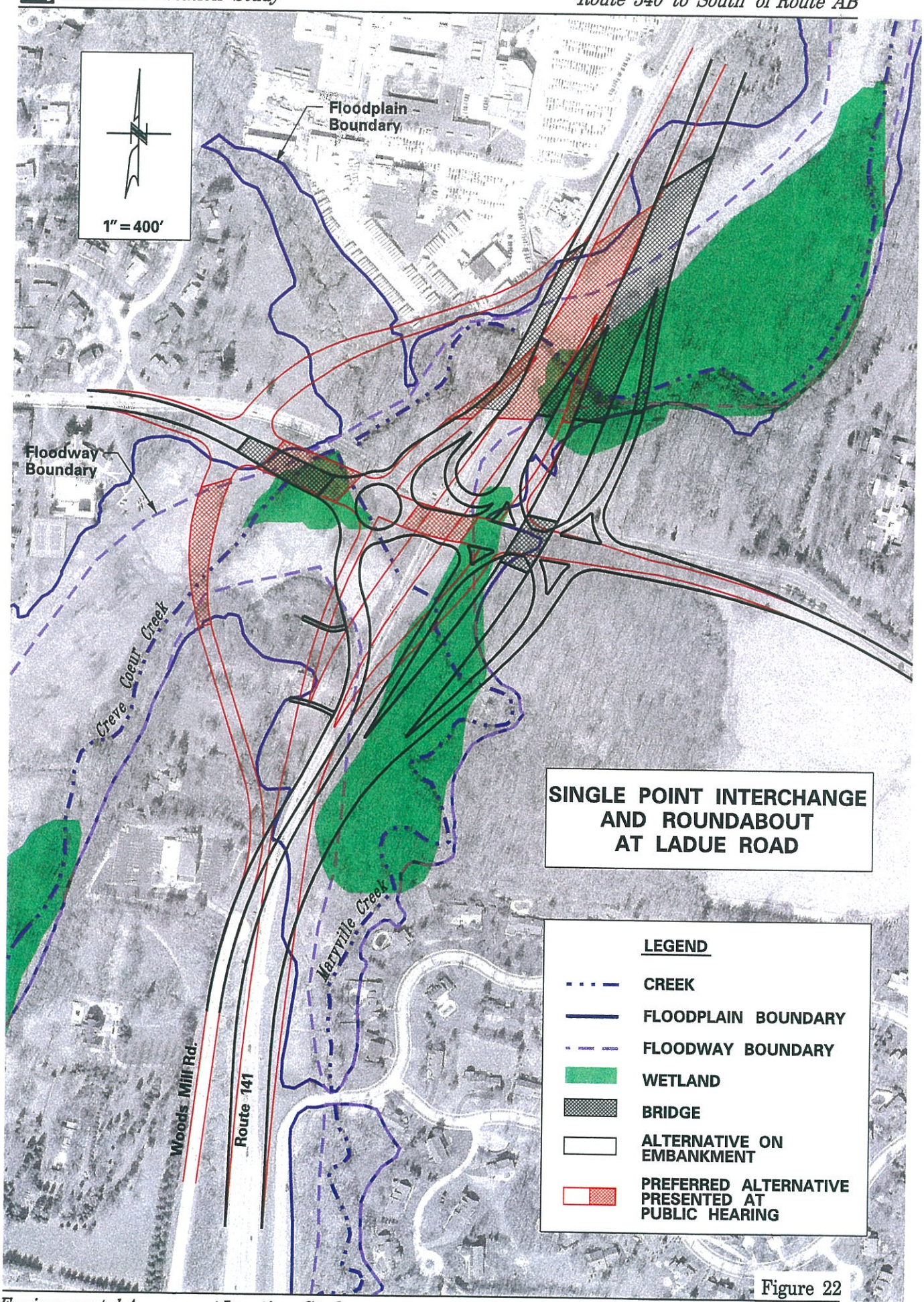


Figure 22



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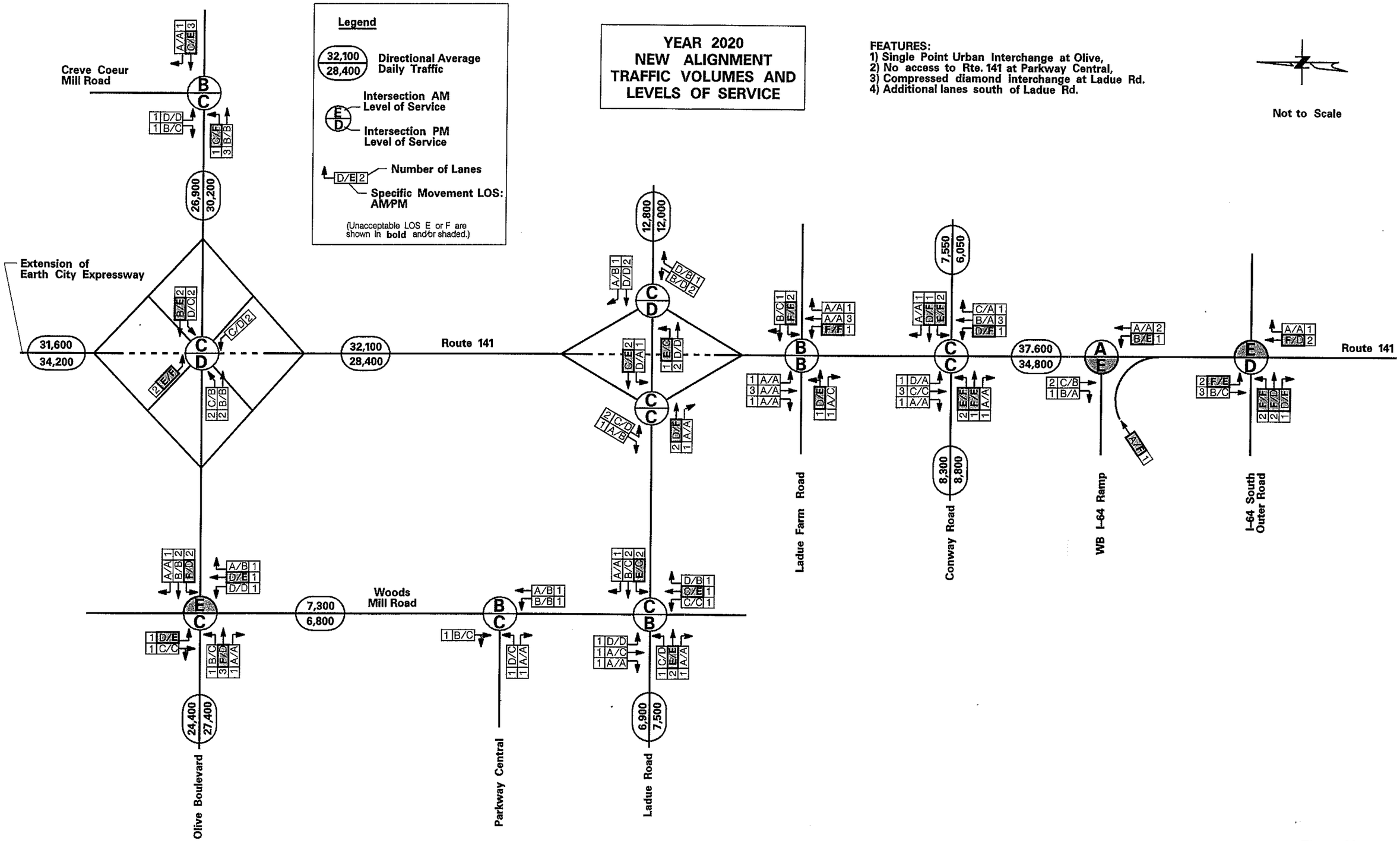
Legend
32,100 / 28,400 Directional Average Daily Traffic
E / D Intersection AM Level of Service / Intersection PM Level of Service
D/E 2 Number of Lanes / Specific Movement LOS: AM/PM
(Unacceptable LOS E or F are shown in bold and/or shaded.)
YEAR 2020
NEW ALIGNMENT
TRAFFIC VOLUMES AND
LEVELS OF SERVICE
FEATURES:
1) Single Point Urban Interchange at Olive,
2) No access to Rte. 141 at Parkway Central,
3) Compressed diamond interchange at Ladue Rd.
4) Additional lanes south of Ladue Rd.
Not to Scale
Creve Coeur Mill Road
Extension of Earth City Expressway
Route 141
Woods Mill Road
Olive Boulevard
Parkway Central
Ladue Road
Ladue Farm Road
Conway Road
WB I-64 Ramp
I-64 South Outer Road
31,600 / 34,200
32,100 / 28,400
26,900 / 30,200
12,800 / 12,000
7,550 / 6,050
37,600 / 34,800
7,300 / 6,800
24,400 / 27,400
6,900 / 7,500
8,300 / 8,800

Figure 23

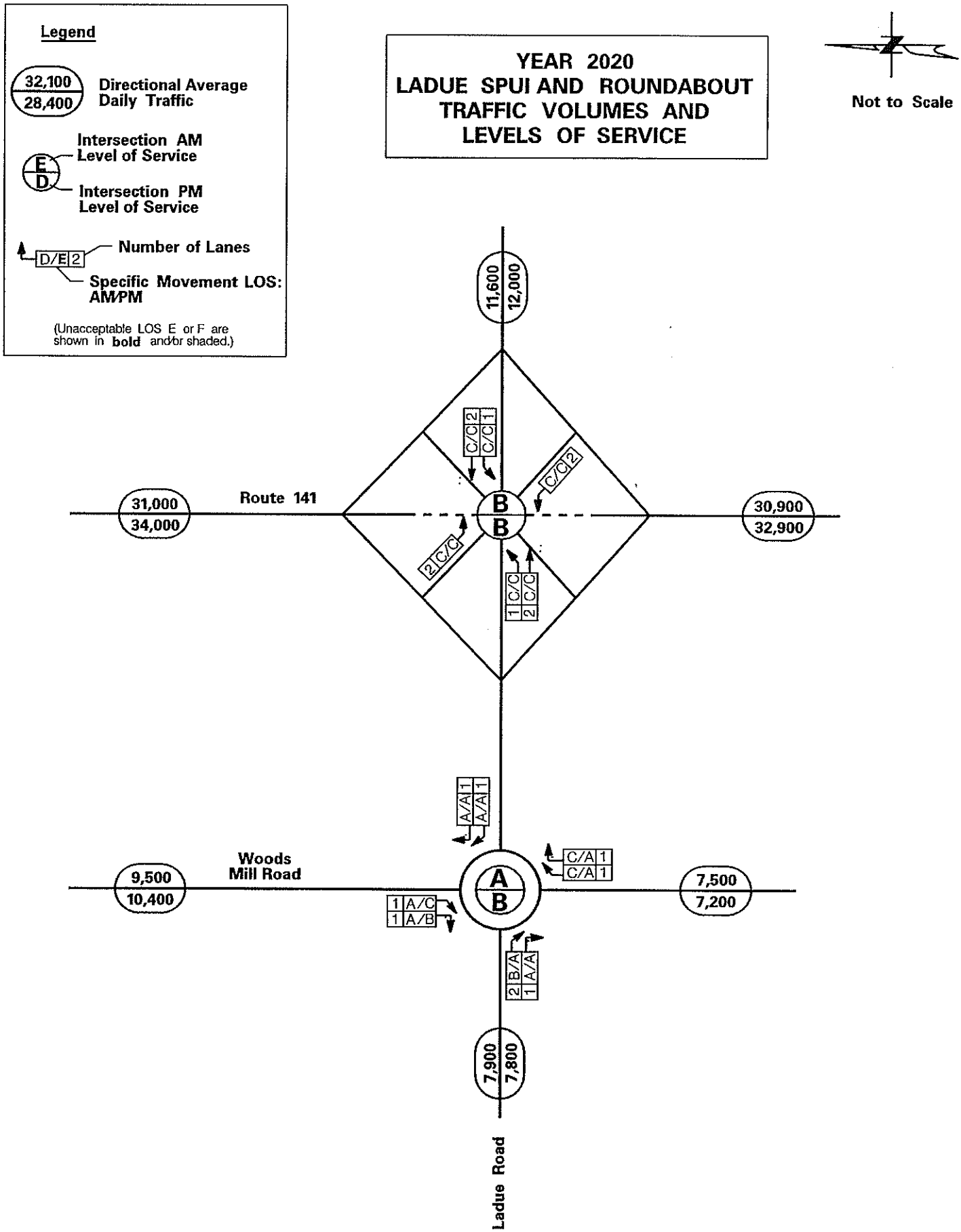


Figure 24



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### *4. Improvements South of Ladue*

Description

In either a widening or new alignment scenario, additional lanes are needed along Route 141 south of Ladue to handle future traffic volumes. For both of these alternatives, one additional through lane is provided in each direction south of Ladue to I-64, **Figure 25**.

Existing right of way along this segment of Route 141 should be sufficient for the lane widening shown. Therefore, **Chapter III** of this document does not address impacts for improvements made south of the Ladue interchange. Costs for these improvements are included in **Tables 5** and **6**.

## C. SELECTED ALTERNATIVE

The alternative combination of Interchange B-Alignment B-Interchange G has been designated as the Selected Alternate. The benefits of this alternative are detailed in **Chapter III** of this document. This alternate has few impacts on surrounding neighborhoods and businesses, is more cost effective, and best serves regional traffic needs. Environmental impacts of this alternative are such that a mitigation plan acceptable to the resource agencies is anticipated.

MoDOT has identified this alternate as the Selected Alternate through public involvement and assessment of the socioeconomic and environmental consequences. As discussed in Section B above, the Selected Alternate includes a different interchange concept at Ladue Road than was presented in the Draft EA and subsequent Public Hearing. The decision to provide a SPUI and roundabout at Ladue was initiated due to public input. The revised concept addresses concerns from the public regarding the number of lanes and signals along Ladue.

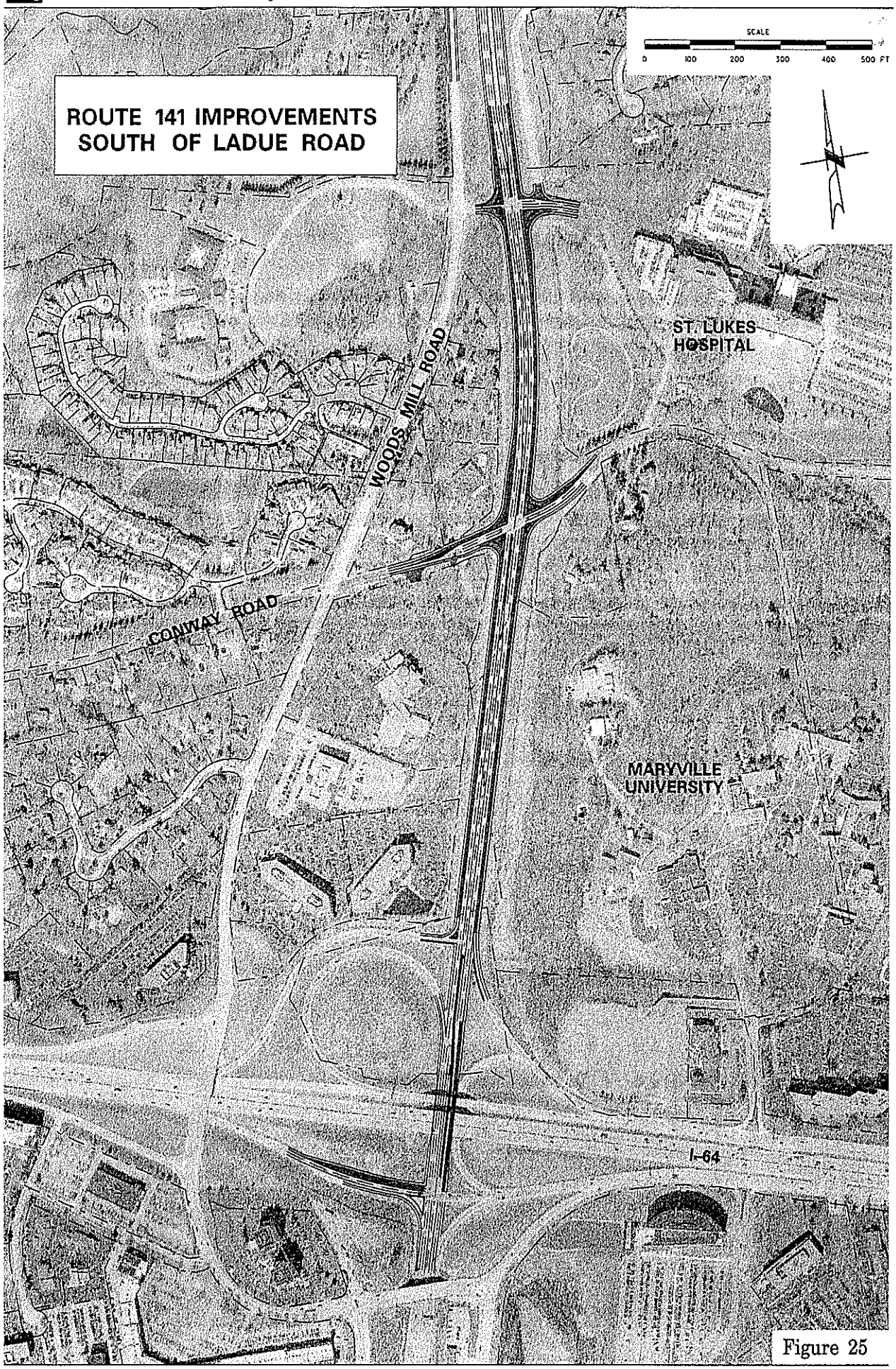


Figure 25



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# IMPACTS

# III. IMPACTS

## A. NATURAL SETTING

The study area is situated within the Outer Ozark Border ecological subsection of the Ozark Highlands Section of Missouri. Terrain within the study area varies from moderately rolling uplands to floodplain in the Creve Coeur Creek valley. Elevations within the project area range from 460 feet (140 meters) above mean sea level (msl) in the Creve Coeur Creek floodplain near Ladue Road to around 540 feet (165 meters) above msl at the intersection of Missouri Route 141 and Olive Boulevard near the northern limit of the project. Creve Coeur Creek is one of five major St. Louis area watersheds that drain into the Missouri River.

The proposed alternates are located within the municipalities of Chesterfield, Town and Country, and Creve Coeur. The existing Route 141 roadway begins in uplands at Olive Boulevard, winds through moderately rolling terrain, and dips down into the Creve Coeur Creek valley toward the southern limit of the study area, where the roadway is periodically flooded several times a year, **Figure 26.**

## B. SOCIAL, ECONOMIC, AND ENVIRONMENTAL IMPACTS

The impacts of the alternatives evaluated herein were considered in the decision to designate the combination of Interchange Alternate B, Alignment Alternate B, and Interchange Alternate G as the Selected Alternate.

### *1. Land Use Impacts*

The proposed project area occurs at the border of the cities of Chesterfield, Town and Country, and Creve Coeur in St. Louis County. Most of the land within the county has been committed to development. Land within the project area is primarily zoned for residential use, with commercial zoning along Olive Road. All three cities have both a zoning ordinance and a comprehensive plan, which are the appropriate mechanisms to guide land use and development.

Land use in the area will continue to be primarily residential; this is an established trend. The proposed facility will not result in unwelcome development. The comprehensive plans of all three cities have considered it.

### *2. Farmland Impacts*

Land associated with the proposed project is within the city limits of Chesterfield, Town and Country, and Creve Coeur and meets the definition of "farmland already committed to urban development" as contained in the Farmland Protection Policy Act (FPPA). It is therefore not subject to the Act.

### 3. *Socioeconomic Factors*

Demographic Characteristics Introduction and Summary

Demographic information from the 2000 Census is summarized in **Table 7** at the state, county, municipal, and census tract levels.

**Demographic Characteristics** **Table 7**

| | State of Missouri | St. Louis County | Chesterfield | Creve Coeur | Town & Country | Study Area* |
|---|---|---|---|---|---|---|
| Total Population | 5,595,211 | 1,016,315 | 46,802 | 16,500 | 10,894 | 18,425 |
| Age | | | | | | |
| Median | 36.1 | 37.5 | 41.8 | 43.1 | 46.7 | 41.9 |
| Under 18 | 25.5% | 25.2% | 24.8% | 20.6% | 23.2% | 22.2% |
| 18-64 | 61.0% | 60.7% | 60.6% | 59.6% | 54.9% | 58.4% |
| Over 65 | 13.5% | 14.1% | 14.6% | 19.9% | 22.1% | 19.4% |
| Race/Ethnicity | | | | | | |
| White | 84.9% | 76.8% | 91.3% | 88.8% | 90.2% | 89.9% |
| Black or African American | 11.2% | 19.0% | 1.9% | 3.4% | 2.0% | 2.0% |
| Asian | 1.1% | 2.2% | 5.6% | 6.0% | 6.3% | 6.7% |
| Other | 1.3% | 0.7% | 0.5% | 0.8% | 0.3% | 0.4% |
| Two or more races | 1.5% | 1.3% | 0.7% | 1.0% | 1.2% | 1.0% |
| Median household income | $ 37,900 | $ 50,500 | $ 83,800 | $ 75,000 | $ 140,000 | $ 80,300 |
| Median family income | $ 46,000 | $ 61,700 | $ 103,000 | $ 99,100 | $ 167,900 | $ 97,600 |
| Median House Value | $ 89,900 | $ 116,600 | $ 238,300 | $ 277,400 | $ 466,700 | $ 204,500 |
| Median Rental Cost | $ 480 | $ 600 | $ 840 | $ 780 | $ 900 | $ 820 |
| School Enrollment | | | | | | |
| K-12 | 22.3% | 24.6% | 26.1% | 23.7% | 32.2% | 23.8% |
| College or graduate school | 5.9% | 6.6% | 5.3% | 6.5% | 6.8% | 6.9% |
| Educational Attainment | | | | | | |
| High School | 59.7% | 52.5% | 35.3% | 33.7% | 26.6% | 36.0% |
| Bachelors | 14.0% | 22.0% | 36.6% | 34.6% | 35.4% | 33.4% |
| Masters | 5.2% | 9.1% | 16.4% | 14.1% | 13.8% | 15.3% |
| Prof School Degree or PhD | 2.4% | 4.3% | 7.6% | 14.2% | 17.0% | 10.1% |
| Percentage of Commuters | 96.5% | 96.8% | 94.4% | 94.4% | 94.5% | 94.3% |
| Language Spoken at Home | | | | | | |
| English only | 94.9% | 93.6% | 90.0% | 87.4% | 84.9% | 85.9% |
| Do not speak English | 0.2% | 0.1% | 0.2% | 0.1% | 0.3% | 0.2% |

* Census tracts include the area bounded by Olive Blvd. on the north and west, Mason Road on the east, and I-64 on the south.

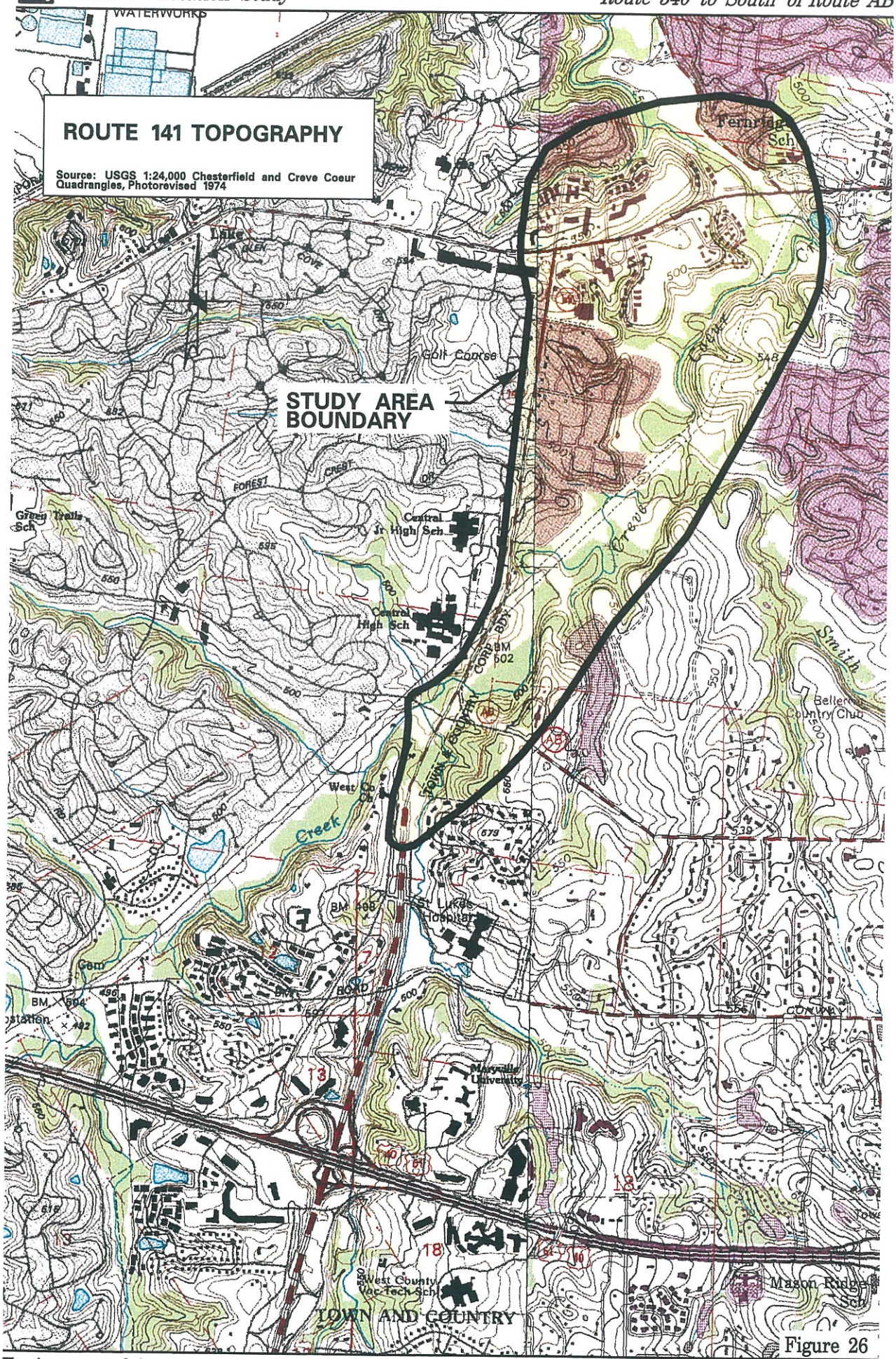


Figure 26



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Socioeconomic impacts are summarized in **Table 8**. These impacts, which include residential and business displacements, lost tax revenue, and lost employment, are described below. Throughout the study area, homes are valued between $125,000 and $200,000.

**Residential and Business Impacts** **Table 8**

| | Interchange A - Alignment A - Interchange D | Interchange B - Alignment B - Interchange E | Interchange B - Alignment E - Interchange E | Interchange B – Alignment B - Interchange G |
|---|---|---|---|---|
| Displacements | | | | |
| Residential | 64 | 11 | 5 | 9 |
| Commercial[1] | 23 | 1 | 0 | 1 |
| Estimated Number of People Displaced | | | | |
| Residential | 160 | 28 | 13 | 23 |
| Employees | 220 | 0 | 0 | 0 |
| Right of Way Costs | $ 51,168,000 | $ 15,189,000 | $ 15,651,000 | $14,142,000 |
| Yearly License Fees | $4,200 | 0 | 0 | 0 |
| Yearly Property Taxes | $283,000 | $31,000 | $24,000 | $27,000 |

[1] Commercial displacements for Interchange A-Alignment A-Interchange D include: Michael's Ristorante, The Sports Page, Gina Scognamiglio, European Deli Delight, Sophia's Café, Mario Anthony's Hair Nail and Skin Salon, Chesterfield Grooming, Annie's Books, Marathon Sports, Koreana, Michael Lorenz DDS, Ann's Bra Shop, Sun Studio Tanning Salon, Montgomery 1st National Bank, Jack in the Box, 7-Eleven, Steak and Shake, Décor Interiors, Jiffy Lube, First Bank, Spiro's Restaurant, Hitchens & Foster, Woods Mill Learning Center. The commercial displacement for the other alternates is the office for Woods Mill Park Apartments.

## Residential Impacts

*MoDOT Relocation Program*

The MoDOT's right-of-way acquisition and relocation program is carried out in compliance with the Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970 (Uniform Act), as amended in 1987 (42 U.S.C. 4601). The Uniform Act, as well as Missouri law, requires that just compensation be paid to the owners of private property taken for public use. An appraisal of fair market value is the basis for determining just compensation to be offered the owner for the property to be acquired. The Uniform Act defines an appraisal as a written statement independently and impartially prepared by a qualified appraiser setting forth an opinion of defined value of an adequately described property as of a specific date, supported by the presentation and analysis of relevant market information.

MoDOT's right-of-way acquisition and relocation program is designed to provide uniform and equitable treatment for those persons who are displaced from their residences, businesses, or farms. The program is carried out without discrimination and in compliance with Title VI, the President's Executive Order on Environmental Justice, Limited English Proficiency, and the ADA. It provides advisory assistance to owners and tenants who are displaced and relocation assistance payments designed to compensate displaced persons for costs which have been imposed on them by a MoDOT highway project. Relocation assistance under this program is made available to all affected parties without discrimination.

Any displaced owner-occupant or tenant (of a dwelling) who qualifies as a displaced person is entitled to payment of his or her actual moving and related expenses, as the MoDOT determines to be reasonable and necessary. A displaced owner-occupant who has occupied an affected dwelling for at least 180 days is also eligible to receive up to $22,500 for a replacement housing payment, which includes the amount by which the cost of a replacement dwelling exceeds the acquisition cost of the affected dwelling, increased interest costs, and incidental costs. A displaced owner-occupant who has occupied an affected dwelling for at least 90 days but less than 180 days or a tenant who has occupied an affected dwelling for at least 90 days is entitled to a payment not to exceed $5,250 for either a rental or down payment assistance.

Any displaced business, farm operation, or nonprofit organization which qualifies as a displaced person is entitled to payment of actual moving and related expenses, as the MoDOT determines to be reasonable and necessary. In addition, a business, farm, or nonprofit organization may be eligible to receive a payment, not to exceed $10,000, for expenses incurred in reestablishing the business, farm operation, or nonprofit organization at a replacement site.

A displaced business may be eligible to choose to receive a fixed payment in lieu of the payments for actual moving and related expenses and actual and reasonable reestablishment expenses. The payment amount for this entitlement alternative is based on the average net earnings of the business. This fixed payment amount cannot be less than $1,000 or more than $20,000.

The Uniform Act requires that comparable, decent, safe, and sanitary replacement housing within a person's financial means be made available before that person may be displaced. Should this project include persons who cannot readily be moved using the regular relocation program benefits and procedures (i.e., when there is a unique housing need or when the cost of available comparable housing would result in payments in excess of the $22,500 or $5,250 statutory payment limits), the MoDOT's relocation policy commits to utilizing housing of last resort. Housing of last resort involves the use of payments in excess of statutory maximums or the use of other unusual methods of providing comparable housing. The MoDOT will utilize housing of last resort as needed on a case-by-case basis.

The MoDOT relocation program is designed to ease the property transition for the property owner or renter who is displaced. MoDOT relocation agents work closely with relocatees, as needed or requested, and provide the needed guidance to relocate any eligible party. Housing of last resort will be provided as needed but the local residential and commercial property market is expected to more than absorb the displacements associated with this project.

*Alternative impacts*

The alternative combination of Interchange A-Alignment A-Interchange D has considerably more residential impacts than the other alternatives. These impacts include 64 residential displacements, including impacts to 24 rental units in the Woodchase Apartment complex and at least nine units in the Forum Apartment complex. This alternative also requires consolidation of many subdivision access points. Access points at Broadmoor, Forestlac, and Land-O-Woods would be closed because of their proximity to the ramps of Interchange A. A new connection would be provided from Forestlac to Olive Boulevard. Traffic normally accessing Route 141 at Land-O-Woods would be rerouted to Beagle. Broadmoor traffic would have access to Route 141 at LaGorce or Olive at existing access points.

Beagle and LaGorce retain their access to Route 141 with a signalized intersection. Forest Crest is rerouted to LaGorce in order to avoid an additional signalized intersection with Route 141. Another signalized intersection at Post Road would provide access to Woods Mill Park Apartments and Parkway Central Middle School. Access to the school would move from the south side to the north side of the Parkway School District Administrative building where it would line up with Post Road. Access to Woods Mill Park Apartments via Kingscross Road would be eliminated. In its place, a new connector road around the northeast end of the development would be provided so that all traffic from the apartments could access Route 141 at the Post Road intersection.

Several properties along the east side of Route 141 would remain, but would no longer have direct access to Route 141. Access would be provided to subdivision streets, as shown in **Sheets 2-3** in **Appendix A**.

The alternatives along new alignment have a smaller number of residential displacements and require no changes to the existing access points along Route 141. Interchange B-Alignment B-Interchange E has a total of eleven residential displacements; Interchange B-Alignment E-Interchange E has five residential displacements; Interchange B-Alignment B-Interchange G has nine residential displacements.

Business Impacts

As with residential impacts, the widening alternative has considerably more impacts than the new alignment alternatives. These impacts include at least 23 business relocations. Approximately 220 jobs correspond to these businesses displacements, most of which occur on the east side of the intersection of Olive Boulevard and existing Route 141. The entire Chesterfield Plaza shopping center would be impacted by the widening alternative.

By contrast, the Interchange B-Alignment B-Interchange E alternative and the Interchange B-Alignment B-Interchange G alternative have a single business displacement, the office for Woods Mill Park Apartments. This building could reasonably be relocated to another location within the same complex.

Interchange B-Alignment E-Interchange E has no business displacements.

Tax Revenues

The businesses impacted by the widening alternative paid $4,200 of business license fees to the City of Chesterfield last year. If these businesses did not relocate within the city limits, this revenue source would be lost for the city. In addition, the property taxes lost due to the widening alternative total $283,000 per year, as opposed to $31,000 for the Interchange B–Alignment B–Interchange E alternative, $24,000 for the Interchange B–Alignment E–Interchange E alternative, and $27,000 for the Interchange B-Alignment B-Interchange G alternative.

Environmental Justice

*Summary*

Executive Order 12898 requires Federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse effects on minority and low-income populations. Sources used to identify possible concentrations of minority or low-income individuals include census data, contact with community leaders, public involvement meetings, and field visits.

The census data in **Table 7** indicates that the study area has a lower percentage of minorities than either the state or county. However, the study area does include a larger than average Asian community. Housing in the area is primarily composed of single-family homes located among several different subdivisions, and there is no apparent concentration of minorities within the study boundary.

Also shown in **Table 7**, the income, house value, and education attainment numbers for the study area indicate that the study area is largely composed of well-educated individuals with above average incomes. The income and house value levels for the study area are over double the state average. Residents in the study area are also nearly three times more likely to be college graduates than the remainder of the state. The project will therefore not adversely affect a disproportionate low-income population and the new roadway will displace no low-income individuals.

The percentage of elderly adults in the study area is proportional to the surrounding communities. There are some concentrations of elderly in the condominiums and apartments near the southeast quadrant of the Olive Blvd. and existing Route 141 intersection. Access into these areas is from existing Route 141, which will have less

traffic once the new roadway is constructed to the east of this location. The elderly population is therefore not adversely affected by the proposed project.

*Public Involvement*

Department of Justice regulations implementing Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d, et seq., requires that recipients of federal assistance (which includes MoDOT) must ensure meaningful access to their programs and activities by persons with limited English proficiency (LEP). There is a lower than average percentage of households where English is the only language spoken. However, the percentage of non-English speaking persons is about average, indicating that much of the minority population is bilingual. This would be consistent with other census data indicating a high level of education in the study area.

Parkway Central High School and Parkway Central Middle School both operate an English as a Second Language (ESL) program. The program has an enrollment of 40 students (about 4% of the total student body) at the middle school and 75 students (about 5%) at the high school. These numbers are substantially higher than the census data would indicate because these schools are the ESL centers for the entire school district. When all students in the school district are considered, participation in the ESL program is about 1%, which is more consistent with the census data.

Public meeting notices, information, and displays were presented only in English based upon the income, education level, and the significant level of the population which is bilingual. The variety of languages possible among the Asian community would make it difficult to ensure full project documentation in all native languages. None of the residences or businesses displaced by the project is occupied or operated by LEP individuals.

Community & Emergency Impacts

The Parkway School District operates a middle school with 1,010 students and a high school with 1,400 students in the study area. The schools, along with Parkway School District's administrative offices, are located west of existing Route 141 about ¼ mile north of Ladue. Most students arrive at school by either auto or bus. Administrative officials report that no more than 10 students walk to school from the surrounding neighborhoods. There are currently no sidewalks along Route 141 within the study area. During detailed design of the project, sidewalks may be incorporated around the northwest quadrant of the roundabout if the school district or local neighborhoods feel they are necessary.

School officials were kept informed of the project at all times. They attended both the initial open house scoping meeting and the Public Hearing, both of which were held at the high school. School officials have no objections the revised Ladue interchange concept that utilizes a SPUI at Rte 141 and Ladue and a roundabout at the intersection of Ladue and Woods Mill Road.

In addition to the general notices of public meetings, fire, police, and EMS officials from the local communities were invited to comment during a briefing for the Public Hearing. The meeting offered a forum for specific comments from the emergency service providers. There were no attendees at this meeting. Overall, however, no objections regarding emergency access have been raised by the local emergency service providers or the local community.

### *4. Water Quality Impacts*

The proposed project area is in the Creve Coeur Creek watershed. The St. Louis County Water Supply is the public water source for the project area; the primary water source is the Missouri River. The project area contains no sole-source aquifers or wellhead protection areas.

The Missouri Clean Water Commission has established water quality standards that designate beneficial uses for individual watercourses. Beneficial uses have been identified for Creve Coeur Creek. The defined uses for Creve Coeur Creek are "Livestock and Wildlife Watering" and "Protection of Warm Water Aquatic Life and Human Health — Fish Consumption."

The proposed project will incorporate all measures that are both feasible and prudent to minimize impacts to streams or tributaries resulting from the roadway improvement. Design parameters may require minor channel modifications, but the necessity or extent of such changes is not currently known. Some areas will require excavation of adjacent uplands to maintain the existing flood conveyance capacity. Instream work for the proposed alternatives will be limited to construction of bridges and culverts on Creve Coeur Creek, Smith Creek, Maryville Creek and four unnamed tributaries of Creve Coeur Creek. As discussed in the next section ("Permits"), these crossings are under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and will be coordinated with that agency.

Water quality impacts would be similar for all build alternates. Short-term impacts to surface water quality arise primarily during the construction phase of a project. Impacts such as erosion, siltation, an increase in nutrient levels or the discharge of fuels, lubricants, or other harmful contaminants during construction could occur with any of the build alternates; they would not under the no-build alternative.

MoDOT must comply with the provisions of the Missouri Department of Natural Resources' storm water regulations found at 10 CSR 20-6.010 to protect water quality during highway construction. In accordance with the National Pollutant Discharge Elimination System (NPDES) requirements of the Clean Water Act (CWA), the MoDOT also operates under the provisions of NPDES permit No. MO-R 100104, a general permit issued for road construction projects statewide. This permit limits the amount of pollutants that can leave a job site, and requires the implementation of erosion controls. This permit is included in the appendices, with a description of some construction practices required to minimize water quality impacts.

All construction activities will comply with the existing rules and regulations of governmental agencies having jurisdiction over streams and water supplies in the area. To prevent or minimize adverse impacts to streams, water courses, lakes, ponds, or other water impoundments within and adjacent to the project area, MoDOT's Pollution Prevention Plan will be implemented. This plan, which was approved by the Department of Natural Resources (DNR) on July 3, 1997, and is a component of MoDOT's five-year stormwater permit issued by DNR under the provisions of NPDES, was designed to reduce suspended solids, turbidity and downstream sedimentation that may degrade water quality and adversely impact aquatic life. The plan provides for temporary erosion and sediment control measures that will be included within construction contract specifications.

Under the MoDOT program, the control of water pollution will be accomplished through the use of berms, slope drains, ditch checks, sediment basins, silt fences, and rapid seeding and mulching, as well as other erosion control devices or methods. These temporary measures to be employed during construction will be coordinated with planned permanent erosion control features to assure effective and continuous erosion control.

The program also provides for limiting the exposed surface area of erodible earth material by selective clearing and grubbing, excavation, and borrow and fill operations. Clearing of trees and other vegetation will be confined to that which is absolutely necessary for construction of the project, to preserve as much existing natural growth as possible.

In addition, contract specifications will require implementation of Best Management Practices to prevent petroleum products, other toxic substances, and construction debris from entering water or otherwise contaminating the riparian or stream environment. Disturbed areas will be seeded and mulched or sodded as quickly as possible after completion of construction. All construction activities will comply with the existing rules and regulations of governmental agencies having jurisdiction over streams and water supplies in the area. These measures will diminish possible impacts to water quality. Any modifications in the physical characteristics of channels that result from the proposed improvement are not expected to change the existing populations of fish or invertebrates in the stream.

### *5. Wetland Impacts*

Wetlands are defined (*Federal Register*, 1982) as "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil condition." Recognizing the variety of beneficial functions performed by wetlands, Executive Order 11990 (Wetlands Protection) mandates consideration of wetland impacts, as does Missouri's Executive Order 96-03. Furthermore, a no-net-loss of national wetlands policy is mandated under Executive Order 11990. Section 404 of the Clean Water Act of 1977 (CWA) authorizes the USACE to regulate the discharge of dredged or fill material in all waters of the United States, including wetlands.

National Wetlands Inventory (NWI) maps (prepared by the Department of the Interior, U.S. Fish and Wildlife Service) and Natural Resources Conservation Service (NRCS) Food Security Act (FSA) wetland maps were used to identify potential wetland impacts for each of the proposed alternatives. The NWI mapping was visually analyzed with ArcView. The results of this analysis will be field verified, as soon as landowner permission is obtained.

A corridor width of 225 feet was analyzed for each alignment alternate. The widths examined for the interchange alternates varied: Interchange A, from 225 to 593 feet; Interchange B, from 225 to 698 feet; Interchange D, from 225 to 887 feet; Interchange E, from 225 to 887 feet; and Interchange G, from 225 to 1220 feet. The impacted wetland acreages are very preliminary estimates; field verifications on adjacent projects have found the NWI mapping in this area to be somewhat inaccurate.

Interchange Alternate A (Olive Boulevard)
Interchange Alternate A would connect Olive Boulevard with alignment alternative A. There are no wetland impacts anticipated to result from this alternative. This alternative includes one proposed crossing of Creve Coeur Creek and a crossing of an unnamed tributary of Creve Coeur Creek.

Interchange Alternate B (Olive Boulevard)
Interchange Alternate B would connect Olive Boulevard with either alignment alternative B or E. There are no wetland impacts anticipated to result from this alternative. This alternative crosses Creve Coeur Creek once.

Interchange Alternate D (Ladue Road)
Interchange Alternate D would connect alignment alternative A with Ladue Road. There are a total of 5.3 acres of wetland impacts associated with this interchange. Of these impacts, 4.6 acres are palustrine forested wetland, 0.3 acres are palustrine emergent wetland, and 0.4 acres are palustrine scrub-shrub wetland. This proposed interchange crosses both Creve Coeur Creek and Maryville Creek.

Interchange Alternate E (Ladue Road)
Interchange Alternate E would connect either alignment alternative B or E with Ladue Road. There are a total of 5.9 acres of wetland impacts associated with this interchange. Of these impacts, 5.2 acres are palustrine forested wetland, 0.3 acres are palustrine emergent wetland, and 0.4 acres are palustrine shrub scrub wetland. This proposed interchange crosses Creve Coeur Creek at three locations and Maryville Creek.

Interchange Alternate G (Ladue Road)
Interchange Alternate G would connect either alignment alternative B or E with Ladue Road. There are a total of 9.7 acres of wetland impacts associated with this interchange. Of these impacts, 9.0 acres are palustrine forested wetland, 0.3 acres are palustrine emergent wetland , and 0.4 acres are palustrine shrub scrub wetland. This proposed

interchange crosses Creve Coeur Creek at three locations and Maryville Creek at two locations.

Alignment Alternate A

Alignment Alternate A would widen existing Woods Mill Road. This alternative mainly traverses previously developed commercial and residential areas. All of this alternative's wetland impacts would occur near its connection to the proposed Ladue Road interchanges.

The wetland impacts associated with this alternative are limited to 0.3 acres of palustrine forested wetland. This alternative includes improvements to crossings of three unnamed tributaries of Creve Coeur Creek.

Alignment Alternate B

Alignment Alternate B roughly follows the Creve Coeur Creek corridor on its west side. This alternative would have two major areas of impact to wetlands. One area is near this alternative's connection with the proposed Ladue Road interchanges; the other is at about the midpoint of this alternative.

There are a total of 6.8 acres of palustrine forested wetland impacts associated with this alternative. This alternative contains four proposed crossings of unnamed tributaries of Creve Coeur Creek.

Alignment Alternate E

Alignment Alternate E roughly parallels Creve Coeur Creek, staying mostly to its east side. This alternative would have multiple areas of impact to wetlands. The areas of impact are along the entire length of this proposed corridor.

There are a total of 2.9 acres of wetland impacts associated with this alternative. Of these impacts, 2.8 acres are palustrine forested wetland and 0.03 acres are palustrine emergent wetland. This alternative contains two proposed crossings of Creve Coeur Creek, a crossing of Smith Creek and a crossing of one unnamed tributary of Creve Coeur Creek.

Wetland impacts are summarized in **Table 9**.

As discussed previously, there are no other practicable alternatives to the proposed action that would adequately serve the purpose and need of the proposed project. Following coordination with the U.S. Army Corps of Engineers and other resource agencies, MoDOT will compensate for unavoidable wetland losses by restoring, creating and enhancing wetlands in a manner that will ensure no net loss of function or acreage as a result of this project. The FHWA has determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such action.

**Potential Impacts to Wetlands and Waters of the U.S.** **Table 9**

| | Palustrine Emergent Acres | Palustrine Forested Acres | Palustrine Scrub-Shrub Acres | Farmed Wetland Acres | Open Water Acres | Stream crossings |
|---|---|---|---|---|---|---|
| **Alternate Segments** | | | | | | |
| Interchange A | - | - | - | - | - | Creve Coeur Creek, unnamed tributary |
| Interchange B | - | - | - | - | - | Creve Coeur Creek |
| Alignment A | - | 0.3 | - | - | - | Three unnamed tributaries |
| Alignment B | - | 6.8 | - | - | - | Four unnamed tributaries |
| Alignment E | 0.03 | 2.9 | - | - | - | Creve Coeur Creek (2), Smith Creek, unnamed tributary |
| Interchange D | 0.3 | 4.6 | 0.4 | - | - | Creve Coeur Creek (2), Maryville Creek |
| Interchange E | 0.3 | 5.2 | 0.4 | - | - | Creve Coeur Creek (3), Maryville Creek |
| Interchange G | 0.3 | 9.0 | 0.4 | - | - | Creve Coeur Creek (3), Maryville Creek (2) |
| **Alternate Combinations** | | | | | | |
| Interchange A-Alignment A-Interchange D | 0.3 | 4.9 | 0.4 | - | - | |
| Interchange B-Alignment B-Interchange E | 0.3 | 12.0 | 0.4 | - | - | |
| Interchange B-Alignment E-Interchange E | 0.3 | 8.1 | 0.4 | - | - | |
| Interchange B-Alignment B-Interchange G | 0.3 | 15.8 | 0.4 | - | - | |

Section 404 Permitting/Wetland Mitigation Requirements

Streams and wetlands in the project area are considered waters of the United States, regulated by the USACE. A Department of the Army permit is usually required for crossings of waters of the United States. The USACE is required to assess impacts to waters of the U.S. in their analysis of permit applications. All alternates would cross either Creve Coeur Creek or one or more of its tributaries; in addition, some of the alternates may impact wetlands within the project limits.

This project will require authorization by individual permit from the USACE under Section 404 due to the amount of unavoidable jurisdictional wetland impacts. Because of the scope of anticipated wetland impacts as well as the USACE's ongoing corridor study just north of this proposed Route 141 improvement for a possible link between the Earth City Expressway and Olive Boulevard, MoDOT has coordinated with the USACE

regarding the alternatives analysis during development of this National Environmental Policy Act document. This should aid in streamlining the timeline requirements for the permit process.

When detailed information on wetland impacts becomes available during the design process, MoDOT will coordinate with the USACE and resource agencies to develop a suitable plan for compensatory mitigation of wetland impacts. MoDOT will coordinate with the USACE and the Missouri Department of Natural Resources (DNR) to ensure compliance with state and federal executive orders regarding no net loss of wetland acreage and function.

### *6. Floodplain Impacts*

Executive Order 11988 (Floodplain Management) and subsequent federal floodplain management guidelines as well as Missouri's Executive Order 82-19 mandate an evaluation of floodplain impacts. When available, National Flood Insurance Program (NFIP) flood hazard boundary maps and flood insurance studies for the project area are used to determine the limits of the base (100-year) floodplain and the extent of encroachment for each project alternative.

The Federal Emergency Management Agency (FEMA) and Federal Highway Administration (FHWA) guidelines 23 CFR 650 have identified the base (100-year) flood as the flood having a one percent probability of being equaled or exceeded in any given year. The base floodplain is defined as the area of 100-year flood hazard within a county or community. The regulatory floodway comprises the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood discharge can be conveyed without increasing the base flood elevation more than a specified amount. FEMA has mandated that projects can cause no rise in the regulatory floodway and no more than a one-foot cumulative rise for all projects in the base (100-year) floodplain. For projects that involve the state of Missouri, the State Emergency Management Agency (SEMA) issues floodplain development permits. In the case of projects proposed within regulatory floodways, a "no-rise" certificate, if applicable, should be obtained prior to issuance of a permit.

A Flood Insurance Study and Flood Insurance Rate Maps (FIRM) are available for St. Louis County; base flood elevations have been established. The study area, located near the boundary of the cities of Chesterfield, Town and Country, and Creve Coeur, extends from Olive Boulevard south and southwest to just south of the Route AB (Ladue Road)/Route 141 (Woods Mill Road) intersection. Due to the nature of the proposed improvements, the encroachments on the floodplain are primarily transverse, but longitudinal as well. Beginning at the northern project terminus, Interchange Alternate A would impact a total of 5.05 acres of base floodplain and 2.22 acres of regulatory floodway. Interchange Alternate B would impact 3.26 acres and 2.65 acres, respectively. Continuing south, Alignment Alternate A would impact a total of 1.63 acres of base floodplain and 0.71 acre of regulatory floodway. Alignment Alternate B would impact 26.13 acres and 15.34 acres, respectively, and Alignment Alternate E would impact 22.16 acres and 9.64 acres, respectively. At the southern project terminus, Interchange

Alternate D would impact 21.05 acres of base floodplain and 11.95 acres of regulatory floodway, while Interchange Alternate E would impact 28.20 acres and 15.41 acres, respectively. These impacts are summarized in **Table 10**.

**Floodplain & Floodway Impacts** **Table 10**

| | Floodplain Impacts (Acres) | Floodway Impacts (Acres) |
|---|---|---|
| Alternate Segments | | |
| Interchange A | 5.05 | 2.22 |
| Interchange B | 3.26 | 2.65 |
| Alignment A | 1.63 | 0.71 |
| Alignment B | 26.13 | 15.34 |
| Alignment E | 22.16 | 9.64 |
| Interchange D | 21.05 | 11.95 |
| Interchange E | 28.20 | 15.41 |
| Interchange G | 26.36 | 17.29 |
| Alternate Combinations | | |
| Interchange A - Alignment A - Interchange D | 27.73 | 14.88 |
| Interchange B - Alignment B - Interchange E | 57.59 | 33.40 |
| Interchange B - Alignment E - Interchange E | 53.62 | 27.70 |
| Interchange B - Alignment B - Interchange G | 55.75 | 35.28 |

Hydraulic Analysis

An analysis of the hydraulic characteristics of Creve Coeur Creek and Maryville Creeks was performed for Alignment Alternate B, combined with Interchange Alternates E and G. The purpose of these hydraulic studies was to develop floodplain mitigation features for this alignment alternative, and to determine the bridge lengths needed, such that flood elevations upstream of the project would not be increased. This proposed alternate would result in the removal of two existing bridges, at Woods Mill Road and at Ladue Road. Three new bridges would be constructed, at Route 141, at relocated Ladue Road and at relocated Woods Mill Road.

Along Maryville Creek, a multi-cell box culvert to pass creek flows beneath Route 141 and adjacent ramps would replace the existing bridge at Woods Mill Road.

*Creve Coeur Creek*

Creve Coeur Creek was studied from just downstream of Olive Boulevard to a distance of about 2,000 feet upstream of existing Ladue Road. The stream length studied was approximately 17,400 feet.

The HEC-RAS step-backwater computer program was used to compute water surface elevations for the proposed Alignment B-Interchange E and Alignment B-Interchange G alternatives. Data from the existing Flood Insurance Study (FIS) analysis of Creve Coeur Creek was imported into the HEC-RAS program. The existing cross-section data was

supplemented with data from digital topographic mapping developed for the project. From this data, a revised existing condition analysis was performed. The water surface elevations for the revised existing condition are significantly higher than the elevations contained in the FIS report from Olive Boulevard to about 7,000 feet upstream of Olive Boulevard. This is primarily due to the presence of the Old Olive Street Road bridge abutments located downstream of Olive Boulevard. These abutments were not analyzed in the original FIS.

The studied combined alternates would encroach on the regulatory floodway at several locations. The alignment was kept close to the edge of the floodplain to minimize impacts to base flood (100-year) elevations. Several mitigation features would be implemented so that base flood profiles are not increased. These features consist of the following. Bluff areas adjacent to the floodplain would be excavated to compensate and replace the floodplain conveyance lost due to the roadway encroachments. The existing abutments at Old Olive Street Road would be removed. The waterway opening through the existing Olive Boulevard bridge would be improved by excavating additional area above the low-water channel. Concrete lining would also be placed in the areas outside the low-water channel. At the interchange location where the project would cross Creve Coeur Creek, proposed bridge openings have been analyzed and recommended that will result in relatively small hydraulic losses.

The combined effect of the mitigation features will result in a zero-rise condition for the base flood upstream of the project improvements. Since the regulatory floodway is being encroached upon, and the currently mapped floodway location would be shifted due to placement of the roadway embankment, a Letter of Map Revision (LOMR) will be necessary from FEMA. The request for a map revision would require concurrence from the requesting community, any adjacent affected communities and any affected property owners.

*Maryville Creek*

Maryville Creek was studied for a distance of about 1,500' upstream from its confluence with Creve Coeur Creek using the HEC-RAS program and FIS data. As part of the Interchange E concept, the existing channel will be filled and relocated about 200 feet south of its current location. The new trapezoidal channel will have vegetated banks with 1 on 3 side-slopes. A four cell box culvert consisting of two 13'W x 12'H center cells and two 13'W x 10'H outer cells will be constructed under the interchange. The new channel and box culvert would result in a zero-rise condition upstream of the project.

Interchange G will utilize two separate culvert structures to pass Maryville Creek under Route 141. Another culvert will allow Maryville Creek to cross under the Ladue/Woods Mill roundabout. The two structures under Route 141 will consist of a primary culvert with a 28'W x 12'H cell and a high-water bypass culvert with three 16'W x 9'H cells. The first culvert is located along the current channel of Maryville Creek. The second culvert will be set upstream at a higher elevation and will only accept flow when the water level rises to its invert elevation. This two culvert system, shown in **Sheet 13** of **Appendix A**, will allow most flows to travel the full length of Maryville Creek and pass under Route 141 through the low-flow culvert. However, for larger storm events, the bypass culvert will provide the additional capacity necessary to keep water levels from

rising upstream. West of Route 141, the high-water bypass channel will merge with the low-water channel and the combined flow will pass under the roundabout in a culvert with two 32'W x 12' H cells.

Permits

A floodplain development permit will be required; the State Emergency Management Agency (SEMA) issues floodplain development permits for projects that involve the state of Missouri. For projects that involve regulatory floodways, MoDOT should issue a "no-rise" certificate prior to the permit application.

### *7. Wild and Scenic Rivers*

There are no streams or rivers within the project area that are either part of the National Wild and Scenic Rivers System or under study for designation to that system. Therefore, the proposed project will not impact any part of the National Wild and Scenic Rivers System or potential candidates to the system.

### *8. Air Quality Impacts*

Pollutants of common concern in highway planning studies are carbon monoxide (CO), ozone, and nitrous oxides (NOx). The primary air pollutant standards are shown in **Table 11** below.

The proposed highway improvement is located in an area where the State Implementation Plan (SIP) contains transportation control measures. As the designated Metropolitan Planning Organization (MPO) for the eight-county St. Louis metropolitan area, the East-West Gateway Coordinating Council (EWGCC) is required to prepare and approve the Transportation Improvement Program (TIP), a three-year schedule of transportation improvements planned for the area, in order for these projects to use federal funds. The Clean Air Act Amendments of 1990 (CAAA) require that the TIP conform to plans to improve air quality in the St. Louis metropolitan area since the entire region is currently categorized as "non-attainment" for ozone.

The control requirements for a nonattainment area are more stringent than for attainment areas. The conformity procedures of 23 CFR 770 apply to this project. The MPO is responsible for making the conformity determinations, which must additionally be approved by the FHWA, the FTA, and the U.S. Environmental Protection Agency (EPA). The EWGCC has completed the air quality conformity analysis on the project; the proposed improvements to Missouri Route 141 between Olive Boulevard and U.S. Route 40 do not significantly affect the conformity finding and do meet the federal requirements of all the conformity tests. The project will be included in the Transportation Improvement Program for the appropriate year when funding is approved.

It should be noted that the 7th U.S. Circuit Court of Appeals in Chicago ruled (Sierra Club and Missouri Coalition for the Environment v. EPA) on November 25, 2002, that the Environmental Protection Agency (EPA) must reclassify the St. Louis area for failing to meet the Clean Air Act's standard for ozone. The court ordered the EPA to bump St. Louis from "moderate nonattainment" status to "serious nonattainment."

The fact that the region has met the ozone level monitoring requirements over the last three years further complicates the ozone classification determination in St. Louis. This typically allows a region to ask for reclassification to a maintenance ozone area and St. Louis has requested such reclassification in 2003 based on compliance with the ozone level monitoring requirements. It is being argued that the court decision does not impact the region's demonstration of meeting the ozone level monitoring requirements and thus the region should be reclassified as maintenance.

In summary, the St. Louis region is currently classified as a moderate nonattainment area, by court order may be reclassified to serious by the end of January 2003, and has requested reclassification to a maintenance ozone area in 2003 based on compliance with the ozone level monitoring requirements. Any forthcoming reclassification could change the conformity requirements for the area. When the EPA and the courts determine how to proceed, MoDOT will adhere to that decision.

**National Ambient Air Quality Standards** **Table 11**

| Criteria Air Pollutant | Averaging Time | Primary Standard | Secondary Standard |
|---|---|---|---|
| Carbon Monoxide | 1-Hour Maximum[a] | 40 mg/m$^3$ [b] (35 ppm[c]) | |
| | 8-Hour Maximum[a] | 10 mg/m$^3$ (9 ppm) | |
| Lead | 3-Month Arithmetic Mean | 1.5 g/m$^3$ [d] | Same As Primary |
| Nitrogen Dioxide | Annual Arithmetic Mean | 100 g/m$^3$ (0.05 ppm) | Same As Primary |
| Ozone | 1-Hour Average[a] | 0.12 ppm (235 g/m$^3$) | Same As Primary |
| | 8-Hour Average[e] | 0.08 ppm (157 g/m$^3$) | Same As Primary |
| Particulate Matter ($PM_{10}$) | Annual Arithmetic Mean | 50 g/m$^3$ | Same As Primary |
| | 24-Hour Average[f] | 150 g/m$^3$ | |
| Particulate Matter ($PM_{2.5}$) | Annual Arithmetic Mean[g] | 15 g/m$^3$ | Same As Primary |
| | 24-Hour Average[h] | 65 g/m$^3$ | |
| Sulfur Dioxide | 24-Hour Maximum[a] | 365 g/m$^3$ (0.14 ppm) | |
| | Annual Arithmetic Mean | 80 g/m$^3$ (0.03 ppm) | |
| | 3-Hour Maximum[a] | | 1300 g/m$^3$ (0.5 ppm) |

[a]Not to be exceeded more than once a year for primary and secondary standards
[b]mg/m$^3$ = milligrams per cubic meter
[c]ppm = part per million
[d]g/m$^3$ = micrograms per cubic meter
[e]Established for a 3-year average of the 4$^{th}$ highest daily maximum concentration.
[f]Established for a 3-year average of the 99$^{th}$ percentile of data
[g]Established for a 3-year average
[h]Established for a 3-year average of the 98$^{th}$ percentile of data

### *9. Noise Impacts*

Traffic noise impacts occur when projected traffic noise levels exceed predetermined noise abatement threshold levels for certain land uses. Noise is defined as unwanted sound. Sound is produced by the vibration of sound pressure waves in the air. The loudness or intensity of sound is measured by sound pressure levels and described in terms of decibels (dB). Sound is composed of varying frequencies, which provide the tonal quality of sound. Since the human ear does not respond equally to all frequencies, sound level meters filter out selected frequencies in order to approximate the frequency response of the human ear.

The A-scale on a sound level meter best approximates the frequency response of the human ear; sound pressure levels measured on the A-scale of a sound meter are abbreviated as dBA. Since noise varies with time, an additional descriptor, $L_{eq}$, is used to express noise levels; $L_{eq}$ is defined as the equivalent steady-state sound level over a stated time period. The equivalent A-weighted sound level ($L_{eq}$ dBA) defines a single number indicator to describe the mean energy or intensity level over a specified period of time during which the sound level fluctuated. The range of sound pressure levels most frequently encountered in evaluating traffic-generated noise on highways is 50 to 95 dBA.

The Federal Aid Highway Act of 1970 established the requirements contained in 23 CFR Part 772 that noise control be a part of the planning and design of all federally aided highway projects. The requirements state that when the predicted noise level for sensitive receptors, such as the exteriors of houses, schools, or libraries, exceeds 67 dBA, noise abatement will be considered as part of the highway construction project unless the receptor site does not meet policy approved noise abatement criteria.

Based on the requirements of 23 CFR Part 772, the MoDOT has implemented a noise abatement policy that is approved by FHWA. When the predicted $L_{eq}$ for noise sensitive receptors exceeds 66 dBA, MoDOT will consider noise abatement measures as part of the highway construction project if it is deemed reasonable and feasible, unless any one of the following cannot be satisfied:

(a) Noise wall must provide noise reduction of at least 5 dBA for all primary receptors. Primary receptors are those which are closest to the highway.
(b) Noise wall must provide attenuation for more than one receptor.
(c) Noise wall must be 18 feet or less in height above normal grade.
(d) Noise wall must not interfere with normal access to the property.
(e) Noise wall must not pose a traffic safety hazard.
(f) Noise wall must not exceed a cost of $30,000 per benefited receptor. A benefited receptor is defined as a receptor that receives a noise reduction of 5 dBA or more.
(g) The majority of the affected residents (primary and benefited receptors) must concur that a noise wall is desired.

**Noise Abatement Criteria in 23 CFR Part 772** **Table 12**

| Activity Category | $L_{eq}(h)$* | Description of Activity Category |
|---|---|---|
| A | 57 (exterior) | Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of these qualities is essential if the area is to continue to serve its intended purpose. |
| B | 67 (exterior) | Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals. |
| C | 72 (exterior) | Developed lands, properties, or activities not included in Categories A and B above. |
| D | No criterion | Undeveloped lands. |
| E | 52 (interior) | Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums. |

* $L_{eq}(h)$ is the hourly A-weighted sound level in decibels (dBA).

Feasibility deals with the engineering considerations of noise abatement, such as topography, access, drainage, safety, maintenance, and the presence of other noise sources. Feasibility is the ability to provide abatement in a given location, with consideration of the physical and acoustical limitations of the site. Reasonableness implies use of good judgment and is more subjective than the evaluation of feasibility.

Existing noise levels along the project corridor and its alternatives were field measured in January 2001. The measured noise levels ranged from an $L_{eq}(h)$ of 33.4 dBA to 79.6 dBA. Noise receptor locations along the project corridor were then computer modeled using the FHWA's Traffic Noise Prediction Model (TNM).

The computer modeling used the design year projected peak-hour traffic along the new alternates. This analysis was based on the morning and evening peak-hour traffic, derived from the 20-year average daily traffic (ADT). Three-dimensional sound models based on actual topography and proposed roadway grades were created using the TNM model; the resulting models were used to design sound walls, since mitigation for noise impacts must be considered at noise levels of 66 dBA or greater. Numerous noise-sensitive receptors were modeled, and the results and the corresponding noise reductions that would result from mitigating the noise impact are included in **Appendix B**.

Based on the models and as indicated in the Sound Study Summary, mitigation of noise impacts along the highway improvement is likely. Sound Wall A, with a length of approximately 510 feet, would be located at the northwest quadrant of the Olive Boulevard/Route 141 interchange. Sound Walls D, E, and F would connect end to end, forming a continuous sound wall from just south of Olive Boulevard to existing Route 141 near Parkway Central High School, with a total length of approximately 4400 feet.

These sound walls (depicted on Sheets 9-12 in Appendix A) would reduce the traffic noise for approximately 152 receptors. Additional sound walls (labeled B, C, G, H, I, and J) were modeled but do not meet MoDOT's approved noise abatement policy (criteria a through g listed previously). Locations of sound walls and estimated costs are included in Appendix B.

The final criterion that must be met is that "The majority of the affected residents (primary and benefited receptors) must concur that a noise wall is desired." This criterion will be addressed with the homeowners' participation in the public meeting process.

Traffic-generated noise impacts on sensitive receivers affected by the proposed project will be evaluated as the engineering design-phase refinements are made and during final design if conditions change substantially. Consideration of noise barriers for residential properties adjacent to the highway project will be in accordance with the MoDOT policy on noise abatement.

To reduce the impacts of construction noise, MoDOT includes special provisions in the construction contract that require all contractors to comply with all applicable local, state, and federal laws and regulations relating to permissible noise levels within and adjacent to the project construction site. Construction equipment will be required to have mufflers constructed in accordance with the equipment manufacturer's specifications. In addition, MoDOT will monitor project construction noise and require noise abatement in cases where the criterion is exceeded.

With the relocation of Missouri Route 141 between Olive Boulevard and Ladue Road to an eastern bypass, traffic volume trends on Woods Mill Road would be affected mainly by local traffic, resulting in an expected reduction in vehicular pollutants and at least a stabilization of traffic noise through the project area.

### *10. Threatened or Endangered Species*

As part of MoDOT's early coordination process, letters requesting comments on the project were sent (December 1999) to the Columbia Field Office of the U.S. Fish and Wildlife Service (FWS) and the Missouri Department of Conservation (MDC). The agencies were also invited to attend a January 20, 2000, agency coordination meeting on the project at the Federal Highway Administration office in Jefferson City. Neither agency responded to the request for comments nor attended the meeting.

A review of the Heritage Database Information provided by the Missouri Department of Conservation (MDC) indicates that no threatened, endangered, or otherwise sensitive species or their habitats are reported within the project limits. The MDC's Missouri Natural Features Inventory lists no sensitive natural features within the study corridor.

The FWS now considers the entire state of Missouri to be within the summer breeding range of the federally endangered Indiana Bat (*Myotis sodalis*). Female Indiana bats form maternity colonies during the summer and roost under the bark or in the cavities of

trees. Potential Indiana bat roost trees include dead or dying trees with loose and peeling bark attached and a diameter at breast height of 9 inches or more. Living shagbark hickories and white oaks and any tree with cracks or cavities present and a 9-inch or greater diameter at breast height are also considered suitable breeding habitat for the species. If suitable roost trees occur within the project limits, they must be removed outside the maternity season; FWS guidelines state that such trees can only be removed from October 1 through March 31. If suitable roost trees are present and project plans necessitate the removal of these trees within the maternity period, a mist net and acoustic survey must be conducted at the site and consultation with the FWS must be conducted before the project can proceed.

### *11. Historical and Archaeological Resources*

In accordance with NEPA and Section 106 of the National Historic Preservation Act (as amended), the MoDOT Cultural Resources Section conducted a background search to identify known and potential cultural resources within the three alternate alignments. A field reconnaissance of three alternate corridors (Alternate A comprises Interchange Alternates A and D, E, or G with Alignment A; Alternate B comprises Interchange Alternates B and D, E, or G with Alignment B; and Alternate E comprises Interchange Alternates B and D, E, or G with Alignment E) was also conducted to provide a preliminary assessment of potential effects the project might have on architectural resources.

The background search included a literature review conducted at the cultural resources library of the Missouri State Historic Preservation Office (SHPO) to determine the extent of previous cultural resources surveys in the vicinity of the Route 141 project area. A Site File search was also conducted at the Archaeological Survey of Missouri (ASM) to document locations of previously recorded sites.

A systematic cultural resources survey of the selected alternate (Alignment B with Interchange B at Olive and Interchange G at Ladue) was conducted between October 2001 and January 2002. That survey included approximately 134 acres of existing and proposed new right of way (as described in **Table 13** and illustrated in **Figure 27**) and included right of way for the new alignment as well as the overbank excavation areas required for flood control. Two right-of-way parcels (Parcel 3 and Parcel 103) could not be included in the archaeological survey due to a lack of landowner permission. Parcel 3 and Parcel 103 will be surveyed prior to construction of the project once landowner permission is obtained or the right of way has been purchased.

As specified in the MOA developed for this project, any archaeological sites discovered during survey of Parcel 3 and Parcel 103 that might be affected by the project will be addressed in accordance with the regulations (36 C.F.R. 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470). Identified cultural resources will be evaluated according to the Department of the Interior's "Standards and Guidelines for Archaeology and Historic Preservation," in consultation with the Missouri State Historic Preservation Officer.

Previous Investigations

The alternatives under consideration for improvements to Route 141 between Olive Boulevard and Ladue Road are located within the boundaries of the Chesterfield and Creve Coeur Quadrangles of the USGS topographic standard quadrangle map series. The Cultural Resources Library at SHPO has on file reports of 53 cultural resources studies that have been conducted within the boundaries of the Chesterfield Quad and 25 reports for projects within the boundaries of the Creve Coeur Quad. Four previously reported cultural resources studies have been conducted within the limits of the proposed improvements to Route 141 (Nixon 1983; Hamilton 1989; Naglich and Nixon 1989; Clark 2000).

In 1983 Joseph Nixon conducted a walkover reconnaissance of a 15-foot- (4.6-meter-) wide corridor for a proposed sewer line, which runs parallel to an existing sewer along the west side of Creve Coeur Creek. A portion of the sewer corridor evaluated by Nixon is located in or near the selected alignment (Alternate B). Nixon's reconnaissance did not involve any subsurface testing and did not result in discovery or evaluation of any archaeological sites in the Route 141 study area.

Easley Hamilton recorded the circa 1880 Rudolph Sahm house (located on Alignment A at 912 N. Woods Mill Road) in 1989 during an inventory of historic buildings in the Chesterfield area.

A 1989 report by Naglich and Nixon describes a cultural resources survey of an area between Olive Boulevard and Creve Coeur Lake conducted in association with a proposed realignment of Creve Coeur Mill Road by St. Louis County. This report documents three sites (23SL734, 23SL735, and 23SL746) located within the Interchange Alternate B portion of the project area.

These are the only previously documented sites within the St. Louis 141 project area.

A study by Clarke (2000) for a proposed cell phone tower near the intersection of Woods Mill Road and Olive Boulevard considered potential effects to the circa 1880 Rudolph Sahm house on Woods Mill Road as well as the three sites recorded by Naglich and Nixon in 1989.

In summary, previous studies in the vicinity of the Route 141 project area have documented two historic buildings, the Rudolph Sahm house at 912 N. Woods Mill Road and the Prestien Farm at 13342 Olive Boulevard (part of site 23SL735), as well as three archaeological sites, 23SL734, 23SL735, and 23SL746.

Archaeology

A review of the ASM site files indicates that three previously reported sites (23SL734, 23SL735, and 23SL746) are located within the boundaries of the selected alternate. Naglich and Nixon (1989) recorded two sites (23SL734 and 23SL746) north of Olive Boulevard within the proposed footprint of Interchange B and another site (23SL735),

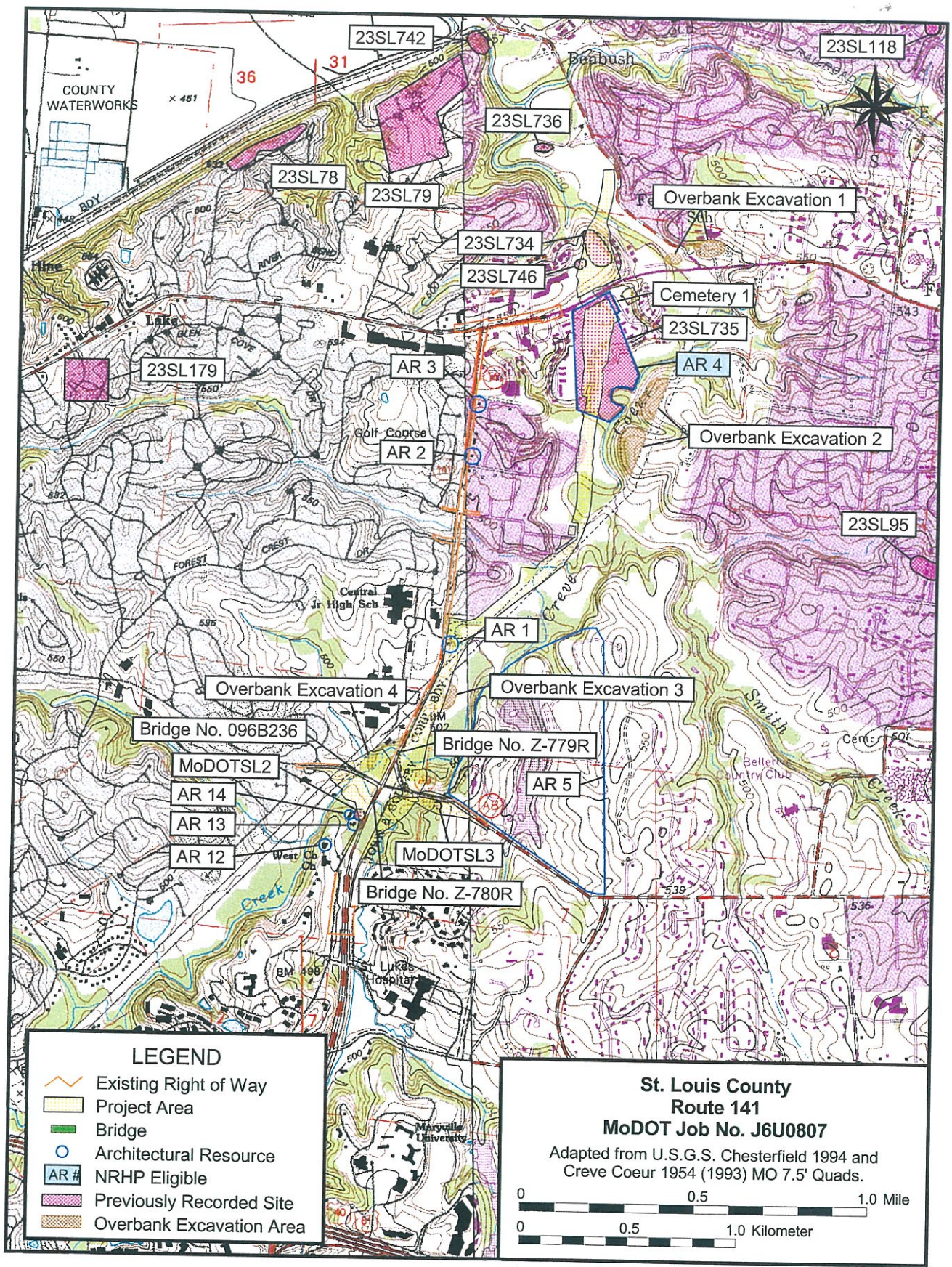



Figure 27. Location of Architectural Resources

which included buildings at the Prestien Farm (designated AR-4 in this document) along with the neighboring Arminia Lodge Cemetery, south of Olive.

The master plan for management of archaeological resources in St. Louis (Harl 1995) documents sites in the vicinity of the study area that include components representing the complete range of cultural periods found in the region. A number of historic and prehistoric sites have been recorded along Creve Coeur Creek both up and downstream from the project area (23SL736, 23SL742, 23SL179, 23SL180, and 23SL181). Archaeological site types identified along Creve Coeur Creek include prehistoric lithic scatters, camps, and villages as well as historic house sites. Among the prehistoric sites known from the Creve Coeur drainage are several Late Archaic village sites (SL095, SL178, SL180, SL181, and SL463), which are noteworthy because they contain large numbers of subsurface pit features (Harl 1995:110-121).

23SL734 is an archaeological site located on the north side of Olive Boulevard on the edge of a terrace overlooking Creve Coeur Creek. This site includes both historic and prehistoric components. The prehistoric component consists of a low-density culturally and temporally non-diagnostic surface/plowzone lithic scatter. The historic component includes material dating from the early to mid-nineteenth century that may correspond with the residence of George Gordon, who acquired the property in 1796 in partnership with Andrew Kinkade. Robert Ramsey (1807-1810), John Lewis (1810-1836), and John Hempsted (1836-1878) subsequently owned the tract of land that includes this site. Shovel testing at 23SL734 indicated that the artifacts are confined to the surface and plowzone. Site 23SL734 lacks integrity and is considered to be ineligible for the National Register of Historic Places (NRHP).

23SL735 is a historic site located on the south side of Olive Boulevard. Recorded by Naglich and Nixon in 1989, site 23SL735 includes the Arminia Lodge Cemetery (circa 1874-1905) as well as the buildings at the neighboring Prestien Farm complex. The Prestien Farm complex is considered eligible for the National Register of Historic Places in the areas of architecture and agriculture. The Arminia Lodge Cemetery is not considered to be exceptionally significant and is considered ineligible for the NRHP.

23SL746 is a historic archaeological site located west of site 23SL734 in a grove of trees on a high terrace north of Olive Boulevard. This site marks the location of an early twentieth-century house. The county razed the building at 23SL746 in the 1980s. Historic artifacts recovered from the surface include modern plastic and aluminum objects as well as historic domestic refuse, including plain and decorated earthenware, ironstone, and bottle glass. No intact features were identified. Site 23SL746 lacks significance and integrity and is considered ineligible for the NRHP.

Two previously unrecorded sites, designated MoDOTSL2 and MoDOTSL3, were discovered during the archaeological survey of the selected alternate.

MoDOTSL2 is a culturally and temporally non-diagnostic lithic scatter located southeast of the confluence of Maryville and Creve Coeur Creeks. Chert flakes resulting from

episodes of stone tool manufacture or maintenance were recovered from two shovel tests located west of existing Route 141 and southwest of the Maryville Creek bridge. Historic materials in what appeared to be a fill zone were also recovered from a third shovel test. An additional chert flake was recovered from a shovel test 98.4 feet (30 meters) east of existing Route 141 and 525 feet (160 meters) south of Maryville Creek. Site MoDOTSL2 extends outside the proposed selected alignment of Route 141 and could not be completely evaluated; thus the NRHP eligibility of the site cannot be determined. However, based on the low density of artifacts present within the surveyed portion of the site, the portion of the site affected by the Route 141 project appears unlikely to yield information important to history or prehistory, and therefore, the proposed improvements to Route 141 are considered to have "no adverse effect" on this resource.

MoDOTSL3 is a historic site located on the south side of Ladue Road east of the confluence of Maryville Creek and Creve Coeur Creek on a high terrace or bluff overlooking the Creve Coeur Creek valley. The site is about 984 feet (300 meters) east of the Woods Mill Road bridge at Maryville Creek. Early to mid-twentieth-century materials including brick, glass, wire nails, and ceramics were observed in six positive shovel tests. The site does not include any standing architecture, although some in situ concrete foundations were evident. The site appears to correspond with a residential structure indicated at this location on the 1932 Manchester N.E. 7.5′ quadrangle. MoDOTSL3 lacks both integrity and significance and is considered ineligible for the NRHP.

Bridges

Construction of the selected alternate (Alignment B with Interchange B at Olive and Interchange G at Ladue) would lead to replacement of three bridges (Z779R, Z780R, and County Bridge 096B236).

Bridge Z-779R over Creve Coeur Creek is a single-span, concrete T-beam built in 1932; it is 52 feet (16 meters) in length with a 40-foot (12-meter) roadway. The balustrades and substructure are concrete. This project will replace the bridge, which is classified as functionally obsolete. Some repairs have been made since construction. Fraser's 1996 draft *Missouri Historic Bridge Inventory* excluded this bridge from further consideration for NRHP eligibility, and it is considered to be NRHP non-eligible. The replacement of Bridge Z-779R will not affect a historic property.

Bridge Z-780R over Maryville Creek, also built in 1932, is a single-span, concrete T-beam measuring 32 feet (10 meters) in length with a 40-foot (12-meter) roadway. The balustrades and substructure are concrete. It is classified as functionally obsolete and will be replaced by this project. Some repairs have been made since construction. Fraser's 1996 draft *Missouri Historic Bridge Inventory* excluded this bridge from further consideration for NRHP eligibility, and it is considered to be NRHP non-eligible. The replacement of Bridge Z-780R will not affect a historic property.

County Bridge 096B236 over Creve Coeur Creek is a three-span, concrete T-beam built in 1965; it is 98 feet (30 meters) in length with a 35.5-foot (10.8-meter) roadway. The

safety barriers are wood beam, and the substructure is concrete. This project will replace the bridge, which is currently classified as structurally deficient. Some repairs have been made since construction. Fraser's 1996 draft *Missouri Historic Bridge Inventory* did not address this bridge, which is considered to be NRHP non-eligible. The replacement of Bridge 096B236 will not affect a historic property.

The Missouri SHPO has concurred with MoDOT's recommendation that these three bridges are not eligible for the National Register of Historic Places.

Architecture

A review of records on file at the Missouri SHPO's Cultural Resources Inventory indicates that there are no architectural resources within the project area listed in the National Register of Historic Places (NRHP).

On January 3, 2001, MoDOT cultural resources staff conducted an architectural reconnaissance of the Route 141 project area to identify historic buildings that might be affected by the project. An effort was made to photograph and consider the NRHP potential of every building greater than 50 years of age in the vicinity of the alternates considered herein. Observations were limited to buildings visible from the public road. The field reconnaissance and a review of the 1954 USGS quadrangle maps indicate that the majority of buildings in the project area are less than 50 years old.

The initial architectural reconnaissance resulted in identification of five architectural resources (AR-1, AR-2, AR-3, AR-4, and AR-5) shown in **Figure 27**. Two of the architectural resources identified during the initial study (AR-2 and AR-3) are located along Alignment A (the improve existing alternate) and will not be affected by construction of the selected alternate (Alignment B with Interchange B at Olive and Interchange G at Ladue).

The Hunter Farms property (AR-5), located on the east side of Woods Mill Road north of Ladue Road, was initially considered potentially eligible for the NRHP. Although the circa 1962 house and landscape at Hunter Farms are less than 50 years old, the property was thought to be NRHP-eligible under Criterion G by virtue of its "exceptional importance" as an example of the work of a noted St. Louis architect, Harris Armstrong. Subsequent research in the Harris Armstrong archives at the Washington University School of Architecture demonstrated that the buildings and landscape at Hunter Farms are not the work of Armstrong. The archives do include plans for a house Armstrong designed in 1954 for the Hunter Farms property; however, the house Armstrong designed in 1954 was never built and the house that was built in 1962 was not designed by Armstrong.

Even without the Harris Armstrong association, the house at Hunter Farms is still considered an important example of contemporary twentieth-century architecture; when the house and landscape meet the 50-year minimum age criterion in 2012, they are likely to be considered eligible for the National Register (NRHP). The selected alternate will

require some right of way from Hunter Farms but will not require right of way from or adversely affect the historically significant areas of the property (see **Figure 27**).

*Architectural Resources*

AR-1 Located on the east side of Woods Mill Road opposite the Parkway Central Middle School, AR-1 is a 1939 Cape Cod style house with asbestos shingle siding, asphalt shingle gable roof, rectangular plan central doorway portico, screened porch and deck on the rear façade. Associated with the house is one outbuilding, a gambrel-roofed barn/garage (AR 1.1) also constructed circa 1939. These buildings have no apparent historical or architectural significance and are considered as not eligible for the NRHP.

AR-2 Located on the east side of Woods Mill Road at the corner of Land-O-Woods Road on Alignment Alternate A, the Rudolph Sahm house is a circa 1880 folk Victorian five-bay, central-hall, two-story I house with 6/9 windows on the first story and 6/6 sashes on the second. Alterations to this building include a large rear addition, a side porch, a deck, and vinyl siding. Despite the numerous alterations, the Rudolph Sahm house may be considered eligible for the NRHP. This building is located outside the selected alternate and will not be affected by the project.

AR-3 This circa 1940 single-story four-bay side-gabled bungalow with Masonite siding and 3/1 windows is located on Alignment A, on the east side of Woods Mill Road at the corner of Forestlac Road. AR-3 is located outside the selected alternate and will not be affected by the project.

AR-4 The circa 1939 Prestien Farm complex (AR-4) is located on the south side of Olive Boulevard within Interchange Alternate B. Along with the neighboring Arminia Lodge Cemetery, buildings at the Prestien Farm have been considered a part of site 23SL735.

The Prestien Farm complex includes six architectural resources — a Tudor-style brick house (AR-4), a rock-faced concrete block garage (AR-4.1), and four wood-frame agricultural outbuildings including large and small barns (AR-4.2 and AR-4.3), a poultry barn (AR-4.4), and a swine farrowing barn (AR-4.5) — and approximately 30 acres of adjoining cropland. The house shows few external alterations and includes many Tudor design elements including an arched door, multiple chimneys and gables, a steeply pitched roof, and tall narrow windows including one of multiple leaded-glass panes. The Missouri SHPO has concurred with recommendations that the Prestien Farm be considered eligible for the NRHP in the areas of Agriculture and Architecture.

AR-5 Hunter Farms occupies a large parcel located on the east side of Woods Mill Road. The architectural resources at the Hunter Farms complex are

located east of Creve Coeur Creek and north of Ladue Road and include a 1962 modern-style house (AR-5), a 1970s' ranch house (AR-5.2), a 1992 house (AR-5.3) and three outbuildings, a seven-car garage (AR-5.1), a barn (AR- 5.4), and a deck house (AR-5.5), plus a designed landscape. The 1962 house was constructed for Lee Hunter, a prominent engineer in the region.

While this property is not currently eligible for the NRHP because it is not fifty years old, it is likely to be considered eligible once it reaches the minimum age for consideration in 2012. Part of the Hunter Farms property lies within the selected alignment; however, the SHPO has agreed that the selected alignment will not affect the historically significant portions of the property.

AR-12 Records on file with the St. Louis County Assessors Office indicate that Architectural Resource 12 is a circa 1860 house that was substantially remodeled in 1963. The construction date of this building could not be verified. The house does not appear on the 1878 Atlas of St. Louis County or the 1909 Plat of St. Louis and may have been moved to this location. According to the caretaker, the original building was a two-story log cabin. Following a fire, the second story was removed. Currently the house appears to be a Ranch-style building consistent with the reported 1963 remodeling. Two stone retaining walls (AR12.1) that flank the driveway just west of Woods Mill Road are associated with the property. The walls are coursed, random ashlar that taper towards the road. AR-12 lacks integrity and is considered ineligible for the NRHP.

AR-13 This 1952 eclectic-style building has been substantially altered by its owner/architect and it is considered ineligible for the NRHP because of the recent alterations.

AR-14 This 1946 Ranch-style house is typical of the post-World War II period. This building is unexceptional and is considered ineligible for the NRHP.

Cemeteries

No public cemeteries are indicated on the Chesterfield or Creve Coeur Quad maps within any of the proposed alternates. However, the Arminia Lodge Cemetery (recorded as part of site 23SL735) is located immediately to the east of proposed Interchange Alternate B, on the south side of Olive Boulevard next to the Prestien Farmhouse (see **Figure 28**). The Arminia Lodge Cemetery is associated with the Harugari German Fraternal Society, which maintained a lodge on the east side of the cemetery during the late nineteenth century. The Arminia Lodge Cemetery includes at least 47 marked graves, most of which date from the period 1874-1905. Two graves located in the southwest corner of the cemetery date from 1923 and 1924, after the neighboring German Fraternal Lodge was no longer in existence. These two graves indicate some later use of the cemetery, perhaps by a neighboring landowner. The selected alternate will not require any right of

way from the Arminia Lodge Cemetery but construction of Interchange Alternate B will affect the setting and viewshed of the cemetery.

Although cemeteries are categorically excluded from NRHP eligibility, exceptions to this rule are common, and the Arminia Lodge Cemetery was evaluated to consider whether it might be NRHP-eligible under Criterion A (because of its association with the Harugari German Fraternal Society), under Criterion B (through association with significant individuals), under Criterion C (based on elements of its design or workmanship), or under Criterion D for important information it might yield concerning history. After consideration of these factors, in consultation with the Missouri SHPO, the cemetery was considered not to be eligible for the NRHP.

Any unmarked cemeteries that might be discovered within the selected alternate during construction will be treated in accordance with appropriate state law (Revised Statutes of Missouri (RSMO) 214 and 194).

Summary

Alternate A (comprising Interchange Alternates A and D, E, or G with Alignment Alternate A), which would entail expansion of the existing Woods Mill Road to four lanes, would potentially affect one significant architectural resource (AR-2, the Rudolph Sahm House) considered potentially eligible for the NRHP. The historically significant portions of the Hunter Farms property (potentially NRHP-eligible after 2012) east of Creve Coeur Creek would not be affected, although Alternate A would impinge on part of the Hunter Farms property.

Modern real estate development and past agricultural use have probably largely disturbed potential prehistoric and historic site locations along either side of existing Woods Mill Road. However, it is still possible that intact archaeological deposits or cultural features could be present.

The selected alternate, Alternate B (comprising Interchange Alternates B and G with Alignment Alternate B), would affect one NRHP-eligible architectural resource (AR-4, the Prestien Farm complex). The selected alternate would also affect two previously recorded archaeological sites (23SL734 and 23SL746) and two other sites (MoDOTSL2 and MoDOTSL3) identified during the archaeological survey of the selected alignment; however, none of these archaeological sites are considered eligible for the NRHP.

The Prestien Farm (AR-4) located in Interchange Alternate B south of Olive Boulevard is considered eligible for the NRHP under Criterion A in the area of Agriculture and under Criterion C in the area of Architecture. Although Alternate B includes an undeveloped portion of the Hunter Farms property west of Creve Coeur Creek, it would not affect AR-5, the potentially significant designed landscape or buildings located east of the creek.

Alternate E (comprising Interchange Alternates B and D, E, or G with Alignment Alternate E) would affect two architectural resources (AR-4, the Prestien Farm, and AR-5, the circa 1962 landscape and buildings at Hunter Farms). Alternate E would also

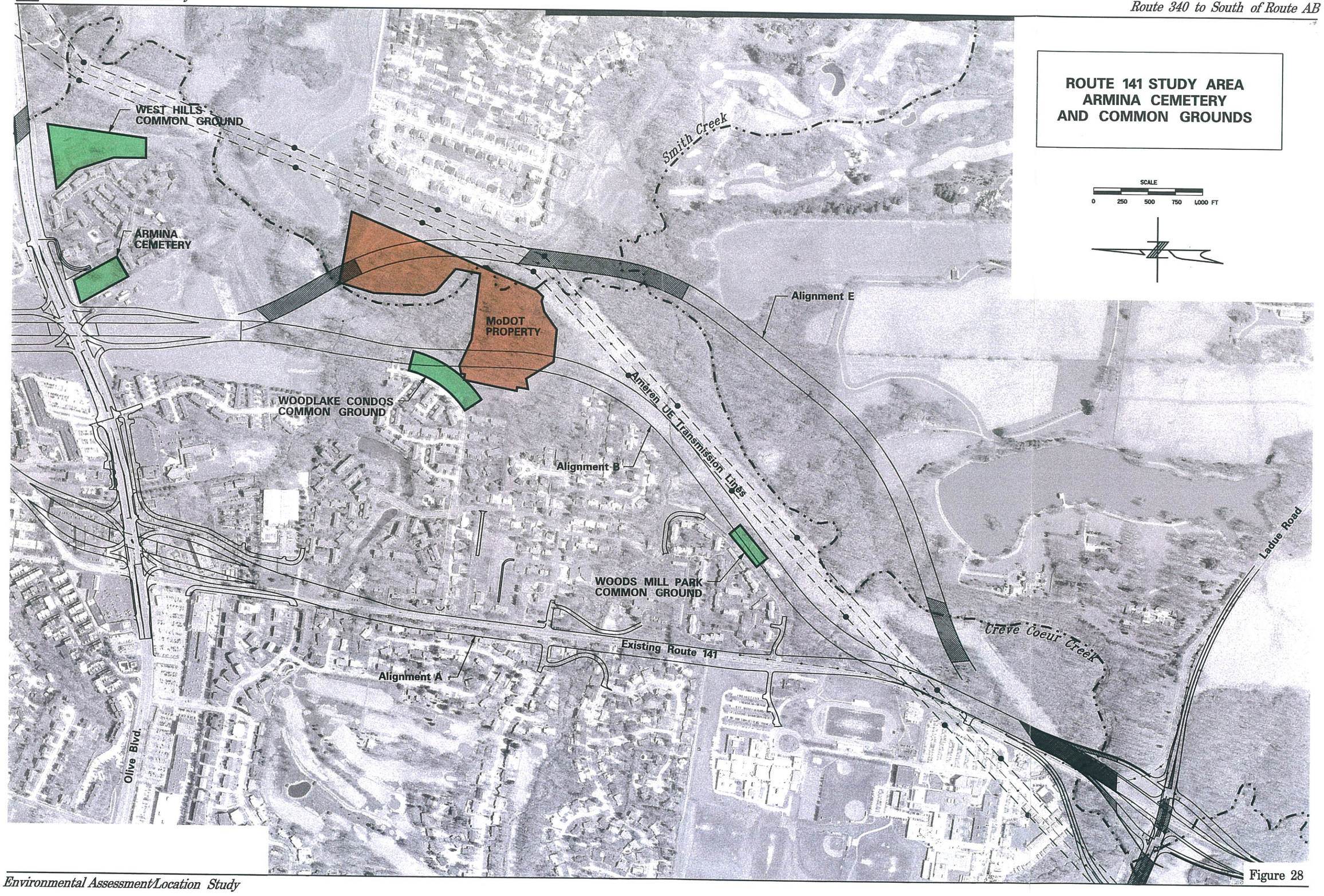

WEST HILLS COMMON GROUND
ARMINA CEMETERY
Smith Creek
MoDOT PROPERTY
Alignment E
WOODLAKE CONDOS COMMON GROUND
Ameren UE Transmission Lines
Alignment B
WOODS MILL PARK COMMON GROUND
Existing Route 141
Alignment A
Olive Blvd.
Creve Coeur Creek
Ladue Road
ROUTE 141 STUDY AREA
ARMINA CEMETERY
AND COMMON GROUNDS
SCALE
0 250 500 750 1,000 FT

Figure 28

affect four archaeological sites (two previously recorded archaeological sites, 23SL734 and 23SL746, north of Olive and two recently discovered sites, MoDOTSL2 and MoDOTSL3); however, three of the sites are considered NRHP-ineligible and impacts to the fourth site (MoDOTSL2) have been considered "no adverse effect."

Properties with potential Section 4(f) concerns for the St. Louis 141 project include the Rudolph Sahm House (AR-1) on Alternate A, the Prestien Farm (AR-4) on Alternates B and E, and the developed parts of the Hunter Farms property east of Creve Coeur Creek (AR-5) on Alternate E. A Section 4(f) evaluation was prepared only for the Prestien Farm (AR-4), since it is the only NRHP-eligible property that would be affected by construction of the selected alternate.

**Table 13** summarizes and compares the architectural resources, archaeological and historical resources, and potential Section 4(f) properties that might be affected by the Alternate A, B, and E corridors proposed for improvements to St. Louis Route 141 between Ladue Road and Olive Boulevard.

**Cultural Resource Potential** **Table 13**

| | Interchanges A and D, E, or G with Alignment A | Interchanges B and G with Alignment B | Interchanges B and D, E, or G with Alignment E |
|---|---|---|---|
| Approx. right-of-way acreage needed | 108 | 134 | 131 |
| # of NRHP-eligible architectural resources | 1 | 2 | 2 |
| # of Archaeological resources* | 5 | 5 | 7 |
| # of Potential Section 4(f) properties | 1 | 1 | 2 |

*The number of archaeological sites estimated to exist in each of the alternate corridors that were not surveyed is based on the acreage of the alignment, assuming a site density of .05 sites per acre. The site density value is an estimate based on previous surveys in St. Louis County described in the St. Louis Master Plan (Harl 1995:306).

While the number of cultural resources that might be affected by the proposed improvements to Route 141 appears similar for the three alternates considered, the integrity and significance of archaeological sites on the different routes is difficult to predict or compare. Results of the archaeological survey of the selected alternate indicate that no significant archaeological resources would be affected.

### *12. Impacts to Public Lands and Potential Section 4(f) Properties*

Section 4(f) of the Department of Transportation (DOT) Act of 1966 (now codified at 49 U.S.C. 303 and 23 U.S.C. 138) was designed to preserve public park and recreation lands, wildlife and waterfowl refuges. A Section 4(f) property is any publicly owned

park, public land, or any historic site eligible for inclusion on the NRHP that falls under the purview of Section 4(f) of the DOT Act of 1966. Relevant passages state that:

(a) It is the policy of the United States Government that special effort be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

(b) The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States, in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of lands crossed by transportation activities or facilities.

(c) The Secretary may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, recreation area, refuge, or site) only if—

(1) there is no feasible and prudent alternative to using that land; and

(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) mandates that all U.S. DOT-funded transportation projects must avoid impacts to public parkland, unless it is successfully demonstrated that no feasible and prudent alternative exists that avoids "use" or impacts to the park.

Section 6(f) is part of the Land and Water Conservation Fund (LWCF) Act, which was implemented to provide restrictions on the conversion of public recreation facilities funded with LWCF federal grants. The LWCF Act provides funds for the acquisition and development of public outdoor recreation facilities that could include community, county, and state parks, trails, fairgrounds, conservation areas, boat ramps, shooting ranges, etc. LWCF-assisted facilities require mitigation that includes replacement land of at least equal monetary value and recreational utility.

Public Parks

The study area encompasses portions of the Chesterfield, Creve Coeur, and Town and Country municipalities. There are no officially designated, existing public parks within the study area. However, the City of Chesterfield has identified a potential future park location in the vicinity of Olive Boulevard and Woods Mill Road. Based upon the approximate location of the site as shown in the document, *Parks System Master Plan, Bond Issue Summary, City of Chesterfield,* the potential park site is located outside the study area boundary.

The City of Chesterfield is exploring the possibility of acquiring as parkland an area currently functioning as common ground, located west of and adjacent to the Parkway Central High/Junior High School facility on Woods Mill Road. This area is located just outside the study area boundary and is noted for information only.

Designated Bicycle Routes

Ladue Road is identified as the Chesterfield Bikeway. The proposed project should not affect the status of Ladue Road as a designated bicycle route.

Public School Grounds

The Parkway School District has three school facilities in the study area. The Parkway Central High School and Parkway Central Junior High School are located at 369 N. Woods Mill Road and 471 N. Woods Mill Road, respectively. The school district allows local residents to recreate on some parts of school property. The track at Parkway Central is open for public recreation during hours when school is not in session. After-hours access to other athletic fields is available to the public only through a use-of-premises permit issued by the school district.

The Fern Ridge High School is located at 13157 N. Olive Spur Rd., on the north side of Olive Boulevard. No specific information is currently known regarding public recreational access to this facility.

Non-Public Recreation

*Common Ground*

Some residential subdivisions have common ground, **Figure 28**, where residents and their guests are allowed to recreate. Residents of Wood Lake Estates and Woods Mill Park subdivisions have access to common ground with recreational facilities available. These areas are neither publicly owned nor leased to a public recreational entity for management purposes. Additionally, access and general use of common ground is restricted to residents only. Therefore, provisions of Section 4(f) of the DOT Act would not apply to these properties. Nonetheless, common grounds do serve a recreational function for the community and are noted herein for that reason.

*Commercial/Private Recreational Facilities*

Two privately owned commercial recreation facilities are included in the study area. The Forest Lake Tennis and Swim Club is located on Woods Mill Rd. about two blocks south of Olive Boulevard. The Incarnate Word Parish, located on Olive Boulevard, maintains a baseball field at the rear of their property. The Four Seasons Golf Club and the Bellerive Country Club are located just beyond the study area boundaries. None of these facilities are considered subject to Section 4(f), because they are neither owned nor operated under long-term lease by a public entity.

Environmental Consequences

*Public Lands*

There are no existing public parks or wildlife and waterfowl refuges within the study area. However, the Parkway Central School allows the public to recreate on school

property. In particular, the public is allowed open access to the track area during reasonable hours when school is not in session. Some of the interchange and alignment build alternates would impact peripheral portions of the Parkway Central school grounds. However, these areas of impact for the various alternates would not affect the track area or the availability or accessibility of that facility to the public for recreational purposes. The Fern Ridge School, located on Olive Boulevard, would not be impacted by the proposed project.

*Non-Public Recreational Facilities*

Common Ground — Alignment Alternate B would impact common ground at the Woods Mill Park subdivision and the Woodlake Condominiums.

Commercial/Private Recreational Facilities — Alignment Alternate A and Interchange Alternate A would impact the Forest Lake Tennis and Swim Club, located on Woods Mill Road. Road frontage along Woods Mill Road would be affected, as would outdoor tennis courts.

Interchange Alternate A would affect the Incarnate Word Catholic Church property's frontage along Olive Boulevard. However, recreational facilities located on the grounds would not be affected.

***13. Hazardous Waste Sites***

MoDOT staff conducted a records review and field check for the project area. The following sources were searched for potential hazardous and solid waste concerns: Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); Environmental Protection Agency (EPA) Emergency Response Notification System (ERNS); Missouri Department of Natural Resources (DNR) Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites in Missouri, Fiscal Year 1999; Missouri Hazardous Waste Generators; DNR Missouri Hazardous Waste Treatment, Storage, and Disposal Facilities List; DNR Solid Waste Facilities List; and DNR Underground Storage Tank database.

Listed sites include underground petroleum storage tank sites at the northeast and southwest corners of the Woods Mill Road/Olive Boulevard intersection that would be impacted by Interchange Alternate A. The DNR database also indicates an underground storage tank site on the southeast corner of the same intersection that apparently was closed without DNR notification and replaced by an oil and lube change service. A detailed site investigation should be conducted during preliminary design if any of these sites will be impacted. The MoDOT field check found no other potential hazardous waste sites in the project area. Any unknown sites discovered during project construction will be handled in accordance with applicable federal and state laws and regulations.

If regulated solid or hazardous wastes are found unexpectedly during construction activities, the MoDOT construction inspector will direct the contractor to cease work at the suspect site. The construction inspector will contact the appropriate environmental

specialist to discuss options for remediation. The environmental specialist, the construction office, and the contractor will develop a plan for sampling, remediation if necessary, and continuing project construction. Independent consulting, analytical, and remediation services will be contracted if necessary. MoDOT has the capability to collect and analyze samples for volatile organics and heavy metals. If necessary, the Missouri Department of Natural Resources will be contacted for coordination and approval of required activities. In excavations where hazardous atmospheres could reasonably be expected to exist, such as in areas where hazardous substances are stored nearby, the contractor is responsible for appropriate worker safety precautions, as required by OSHA.

### *14. Construction Impacts*

There would be some short-term, temporary adverse impacts near the proposed action, including noise, dust, and pollutants discharged by construction equipment. Although it would be virtually impossible to totally avoid the kinds of short-term impacts typically associated with the construction phase of a highway project, generally these are among the most readily mitigated impacts.

To minimize impacts associated with the construction of any alternate, Pollution control measures outlined in the Missouri Standard Specifications for Highway Construction will be used; these measures pertain to air, noise, and water pollution as well as traffic control (e.g., detours) and safety measures. All practicable measures will be employed to minimize or mitigate any potential impacts. Implementing these measures will ensure as little impact as can be realistically achieved with a highway construction project of this magnitude.

Emissions from construction equipment will be controlled in accordance with emission standards prescribed under state and federal regulations. Materials resulting from clearing and grubbing, demolition, or other operations (except materials to be retained) will be removed from the project, burned, or otherwise disposed of by the contractor. Any burning, when permitted, will be conducted in accordance with applicable local laws and state regulations.

To reduce the impacts of construction noise, MoDOT has special provisions in the construction contract which require that all contractors comply with all applicable local, state, and federal laws and regulations relating to noise levels permissible within and adjacent to the project construction site. Construction equipment will be required to have mufflers constructed in accordance with the equipment manufacturer's specifications. Further, MoDOT will monitor project construction noise and require noise abatement in cases where the criterion is exceeded.

As discussed in detail in the earlier section on water quality, MoDOT's Pollution Prevention Plan provides for temporary erosion and sediment control measures that will be included within construction contract specifications. Erosion will be reduced by limiting the surface area of erodible material exposed during clearing and grubbing, excavation, and borrow and fill operations. Careful refueling practices will limit spills of

gasoline and diesel fuels. Oil spills can be minimized by frequent checks of construction equipment.

Removal of vegetation, for construction purposes, upslope from wetland areas can cause erosion and result in sedimentation in wetlands downslope and downstream from the construction site. Steps to prevent sedimentation in wetlands adjacent to construction sites shall be taken in accordance with MoDOT's best management practices for roadway construction.

Traffic will be handled during construction by use of temporary pavement whenever necessary to keep the existing number of lanes open at all times. Although none are anticipated for the construction of the Selected Alternate, temporary retaining walls may be necessary to separate construction from active traffic lanes.

Following completion of the improvement, existing Woods Mill Road will remain in use for local traffic; however, the new facility will be signed as Route 141. Maintenance of Woods Mill Road between Olive Boulevard and Ladue Road will be turned over to the local municipalities or St. Louis County.

# COORDINATION

# IV. COMMENTS AND COORDINATION

## A. AGENCY COORDINATION

An Agency Scoping Meeting was held on January 20, 2000 at the FHWA office in Jefferson City. The only agency that attended was the Missouri Department of Natural Resources. Because they were unable to attend the Agency Scoping Meeting, a separate scoping meeting with USACE was held on January 27, 2000 at the MoDOT District 6 office.

Another meeting was held with USACE on November 16, 2000. During this meeting, conceptual alternatives through the Creve Coeur Creek floodplain were discussed. Both MoDOT and USACE were in agreement that the two alternatives with the greatest impacts to the floodplain and wetlands should be eliminated from further study.

Following availability of the draft EA for agency and public review and comment, the Missouri Department of Natural Resources (DNR) provided comments in a letter dated September 18, 2001. The DNR commented that the selected alternative would impact more wetlands and more acres of floodplain and floodway than the other alternatives evaluated in the draft EA and cited state and federal executive orders requiring attempts at avoidance of wetlands and floodplains. They further indicated the opinion that reliance on NWI maps for selecting an alignment is not sufficient and that field wetland delineation is necessary. DNR staff also stated that the draft EA did not contain any comments regarding wetland impacts or stream avoidance from the area USACE Regulatory Branch.

As indicated at the beginning of this section, MoDOT met to discuss the project with the USACE in January and again in November 2000. MoDOT was in close consultation with the USACE throughout development and evaluation of alternatives. Since the USACE was involved in ongoing project coordination and MoDOT addressed concerns as they were raised, the USACE did not submit comments on the draft EA. Given the study area's sensitive setting, selecting an alignment that meets the defined needs, is feasible both economically and from an engineering perspective, and that minimizes all adverse impacts as much as possible is especially challenging. The reality is that in this situation wetland impacts and stream impacts must be weighed against other impacts, since all impacts cannot be totally avoided.

MoDOT recognizes that NWI mapping may not cover everything and is not a perfect tool, but it provides an equitable means of comparing the various alternatives. The wetland information obtained from NWI mapping is used as a screening tool for all the alternatives evaluated. Field delineation will be performed as project design advances and the selected alignment can be tweaked to avoid and minimize impacts before a Section 404 permit application is submitted.

A final meeting was held with USACE on December 17, 2001 to discuss changes to the Ladue interchange that had taken place since the Public Hearing held on July 10, 2001. The meeting was necessary to discuss the high-flow bypass concept suggested for passing Maryville Creek under Route 141.

The United States Department of the Interior (DOI) provided comments on the DEA and Draft Section 4(f) Evaluation in a July 26, 2002, letter. The DOI concurred that the Prestian Farm is a likely Section 4(f) property and that there are no prudent and feasible alternatives to the proposed action resulting in adverse effect to the farm. The letter further stated that the agency would concur with the proposed measures to minimize harm upon evidence (signed copy of the Memorandum of Agreement [MOA]) in the final document that the SHPO concurs that the proposed mitigation is sufficient. The Final Section 4(f) Evaluation herein includes a copy of the signed MOA.

The DOI states it is their understanding that the complete Route 141 project includes the Earth City Expressway project and eventual connection to I-70. The EA is correct in stating that the NEPA documentation for the portion of Route 141 from Route 340 (Olive Boulevard) to south of Route AB (Ladue Road) is the last leg of Route 141 to be upgraded to a four-lane expressway. Improvements to Route 141 have been properly addressed through the NEPA process, based upon the establishment of logical project termini, and according to Federal Highway Administration regulation and guidance. The northern terminus of Route 141 is Route 340, which is also the northern terminus of the project evaluated in the EA. MoDOT is certainly aware that the City of Maryland Heights has proposed and plans to construct the City of Maryland Heights Expressway, which could connect to the northern terminus of Route 141 at Olive Blvd. However, MoDOT's roadway system jurisdiction for Route 141 is south of Route 340 and does not extend north beyond that point. Actions by others, such as the City of Maryland Heights, toward constructing connecting roadways to Route 141 in areas north of Route 340 are outside of MoDOT's jurisdiction and control. Moreover, MoDOT has no plans to expand its current system to include future roadways that may connect to Route 141 at Route 340. (Please refer to footnote 1 on page 3 of the DEA also.)

As stated on page 3 of the DEA, the U.S. Army Corps of Engineers is the lead federal agency conducting the preparation of a comprehensive EIS that will address planned development in the Howard Bend/Maryland Heights floodplain of the Missouri River. The environmental impact of the proposed City of Maryland Heights Expressway is being appropriately addressed within the scope of that NEPA document.

The DOI comments that preferred alternative would impact a larger area of forested and emergent wetlands than the other alternatives considered and recommends addressing the impacts within project mitigation proposals. Additionally, it is stated that DOI's Fish and Wildlife Service (FWS) would appreciate an opportunity to review the compensatory mitigation plan before the EA is finalized. MoDOT will develop such a mitigation plan as the time to apply for a Section 404 permit is nearer.

## B. MUNICIPAL COORDINATION

A meeting with the City of Chesterfield was held at the MoDOT District 6 office on January 6, 2000. The purpose of the meeting was to inform the city of the Route 141 study and to ask the city about any issues in the study area. The city's representatives stated that Chesterfield supports the project's goals of reducing congestion and flooding and improving safety within the corridor.

A coordination meeting with the mayors of Chesterfield and Town & Country was held at the MoDOT District 6 office on August 7, 2001. The purpose of the meeting was to maintain a line of communication regarding the project. Both mayors stated that their cities are supportive of the project in general. However, some concerns remained about certain design elements, primarily the impact on the Judson Manor subdivision and the Ladue interchange.

## C. COORDINATION WITH OTHER STUDIES

A meeting was held with the City of Maryland Heights and Harding/ESE, the consultant for the Howard Bend EIS, on February 7, 2001. The purpose of this meeting was to coordinate the northern terminus of the Route 141 study with the southern terminus of the Howard Bend EIS.

A second coordination meeting was held on May 9, 2001 regarding the Howard Bend EIS. The purpose of this meeting was to update each group on the progress of the two studies. A preliminary copy of the Draft Environmental Assessment was provided to Harding/ESE for coordination purposes.

## D. PUBLIC INVOLVEMENT

Several meetings have been held between MoDOT and representatives from the subdivisions along existing Route 141. These meetings were held to keep the local residents informed of the project's scope and progress.

A public meeting was held on June 27, 2000 at Parkway Central High School. Over 700 people attended the meeting. At this meeting, information regarding the project's purpose and need, schedule, and preliminary corridors was presented.

The Public Hearing presenting the results of the Draft Environmental Assessment was held on July 10, 2001 at Parkway Central School District. Approximately 1,000 people attended the meeting, which was an open-house format held over a twelve hour period.

As a follow-up to the Public Hearing, another public meeting was held on August 25, 2001 at Incarnate Word Church on Olive Boulevard. Over 500 people attended this meeting, which began with a presentation by MoDOT and was followed by open-microphone comments from the public.

# SECTION 4(f)

# FINAL SECTION 4(f) EVALUATION

ROUTE 141, ST. LOUIS COUNTY
MoDOT JOB NO. J6U0807

PRESTIEN FARM

Prepared pursuant to 23 U.S.C. 138,
and 49 U.S. C. 303

by the
United States Department of Transportation
Federal Highway Administration
and the
Missouri Department of Transportation

12-18-02
Date of Approval

For FHWA

Div. Admin.
Title

# V. SECTION 4(f) EVALUATION

## A. DESCRIPTION OF THE PROPOSED ACTION

The St. Louis Route 141 improvement project (MoDOT Job No. J6U0807) is a future project designed to improve safety, prevent flooding, and reduce congestion along a 1.5-mile (2.4-kilometer) segment of Route 141 between Olive Boulevard (Route 340) and Ladue Road (Route AB) in St. Louis County. Route 141 was built in the 1930s and cannot accommodate the current traffic volume. More than 23,000 vehicles a day use this two-lane stretch of roadway and several intersections are highly congested. Flooding along Creve Coeur Creek and Maryville Creek, which converge near the intersection of Route 141 and Ladue Road, also has been a problem. The existing roadway and bridges near this intersection are several feet below the 10-year flood elevation and the intersection of Route 141 and Ladue Road must be closed periodically because of flooding.

The proposed project would improve Route 141 to a six-lane facility from north of Olive Boulevard to south of Ladue Road. Alternatives under consideration include improving Route 141 along the existing corridor or moving the alignment to the east. Access to the improved Route 141 will be limited to interchanges located at Olive Boulevard (Route 340) and Ladue Road (Route AB).

Development of the project along the preferred alternate (Alignment B) would require approximately 103 acres (41.7 hectares) of new right of way and would impact one historic farm complex considered eligible for the National Register of Historic Places (NRHP). **Figure 27** and **Appendix 2** show the location of the farm complex in relation to the alternates.

The use of any land from public parks, recreation areas, wildlife and waterfowl refuges, and historic sites as a result of transportation plans and programs are scrutinized through Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303). As set forth by the legislation, the Federal Highway Administration may approve programs or projects which require the use of these lands *only* if "(1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use."

In accordance with the DOT Act of 1966, this Section 4(f) Evaluation addresses one property determined eligible for the NRHP that will be adversely affected by the project: the Prestien Farm (Architectural Resource 4). The Prestien Farm complex is located south of Olive Boulevard and west of Creve Coeur Creek within Land Grant Survey 367. The farmhouse, outbuildings, and a significant portion of the associated farm fields will be affected by a planned single point urban interchange (Interchange B) at Olive Boulevard (Route 340).

## B. PREVIOUS INVESTIGATIONS

Archival research and field surveys were used to obtain information regarding the Prestien Farm. Resources at the State Historic Preservation Office Historic Preservation Program (SHPO-HPP), Department of Natural Resources, Jefferson City; State Historical Society of Missouri, Columbia, Missouri; Missouri State Archives, Jefferson City, Missouri; and Elmer Ellis Library, University of Missouri-Columbia, Columbia, Missouri were consulted. A 1989 cultural resources survey conducted in association with planned improvements to Creve Coeur Mill Road (Naglich and Nixon 1989:50-54) included the buildings at the Prestien Farm within the boundaries of site 23SL735. Site 23SL735 also includes the neighboring Arminia Cemetery which was associated with the former site of a circa 1885-1905 German Fraternal Lodge (German Order of Harugari Arminia Lodge No. 374). Additional field investigations include a reconnaissance survey of the Prestien Farm by MoDOT Cultural Resources staff members in January 2001.

MoDOT applied the National Register Criteria for Evaluation (36CFR 60.4) and determined that the Prestien Farm is a historic property. The Prestien Farm property is considered significant at the local level under Criterion A (properties associated with events that have made a significant contribution to the broad patterns of our history) in the area of Agriculture as a representative example of one of St. Louis County's more rapidly vanishing historical resources, small German-American Family Farms. The farmhouse and associated barns and outbuildings at the Prestien Farm are considered eligible for the NRHP under Criterion C in the area of Architecture as good examples of their type and the entire farm is considered eligible under Criterion A in the area of Agriculture.

The Prestien farmstead has been evaluated for its historical and architectural significance and in consultation with the Missouri SHPO has been found to be eligible for the NRHP.

## C. DESCRIPTION OF THE SECTION 4(f) RESOURCE

The Prestien Farm complex is located south of Olive Boulevard (Route 340), between Creve Coeur Creek and Woods Mill Road (Route 141) within Land Grant Survey 367. The property's street address is 13342 Olive Boulevard and its legal description is SW Lot 5 of the F. M. Wright Estate. The 33.61-acre (13.6-hectare) Prestien Farm is located within a region of west St. Louis County that was historically dominated by German-American family farms. Since the mid-1960s, this once-rural area has undergone extensive commercial and residential development, leaving the Prestien Farm as one of the last remaining agricultural parcels in the area (compare aerial photos in **Appendices 3 and 4**).

The Prestien Farm complex is comprised of agricultural fields and six architectural resources: a circa 1939 Tudor-style brick house (AR-4), a rock-faced concrete block garage (AR-4.1), and four wood frame agricultural outbuildings including a small barn (AR-4.2), a large stock barn (AR-4.3), a poultry barn (AR-4.4), and a farrowing (swine) barn (AR-4.5) (see **Appendix 5**).

The six-room, one-and-one-half-story Tudor-style brick farmhouse (AR-4) faces north toward Olive Boulevard (Route 340). The roof-ridge on this side-gabled house trends east-west and large chimneys are located asymmetrically on each gable end. The north façade includes a front facing gable with multi-paned leaded glass windows located above and beside an arched entry. The remaining windows are paired 2/1 and 3/1 sashes. Two dormer windows project from the roof on the south façade. Decorative brickwork is present on the chimneys and above and below the bays on the front façade. This building is a good example of its type and is in unaltered condition.

A 21- X 26-foot (6.4- X 7.9-meter) two-car garage (AR-4.1) constructed of rock-faced concrete block is located southeast of the house. The garage has fixed four-light windows on the north and south walls and an entry door on the north wall. The gable ends are finished with horizontal weatherboard siding. The asphalt shingle roof has exposed rafter tails. South of the garage is a single story 20- X 24-foot (6- X 7.3-meter) pole barn (AR-4.2) with vertical plank siding and a sheet metal roof. A larger one-and-one-half-story 20- X 82-foot (6- X 25-meter) pole barn (AR-4.3) with a concrete and limestone block foundation and a shed-roofed addition is located south of the house. This large stock barn also has vertical plank siding and a sheet metal roof. West of the large barn is a 16- X 26-foot (4.9- X 7.9-meter) poultry barn (AR-4.4) with board and batten siding and a shed-roofed rear addition. South of the large barn is a 20- X 24-foot (6- X 7.3-meter) farrowing barn (AR-4.5) with vertical plank siding.

The Prestien Farm is part of a Spanish Land Grant (Survey 367) originally issued to Andrew Kinkead and George Gordon. Robert Ramsey next owned the property, followed by John Hempstead, who held it from approximately 1836 to 1878. The 1850 Agricultural Census shows that Hempstead owned 238 acres (96.3 hectares) valued at $15,000, on which corn, wheat, and orchard products were grown (US Census 1850). Frederick M. Wright held the property south of Olive Boulevard along Creve Coeur Creek through the remainder of the nineteenth century. The 1880 census indicates that Wright was then farming 100 acres (40.5 hectares) of corn, wheat and hay, owning another 40 acres (16.2 hectares) of woodland. Wright also operated a quarry on his property, east of Creve Coeur Creek, and ran a general store in the village of Fernridge, located about one mile (1.6 kilometer) east of the present Prestien Farm. Wright and his wife Mary Josephine had eight children. Frederick M. Wright died in 1896 at the age of 51. Wright and four of his children are buried in the Arminia Cemetery adjacent to the Prestien farmhouse.

A St. Louis County Plat Map dating from 1909 is the earliest map showing the property with its current boundaries. The owner in 1909 was "P. Welzel," who remains unidentified. By 1930, however, the property had evidently passed to Christ Bopp. Earlier, through at least 1920, Bopp owned a farm and fruit orchard located along Emerson Road in Central Township. Bopp may have purchased the farm on Olive Boulevard in the late 1920s and although he probably planted the orchard visible on the 1964 and 1979 aerial photographs, historic maps suggest that there were no buildings at the farm prior to the late 1930s.

The property next passed to Christ Bopp's daughter, Elizabeth M. Bopp, and her husband, Charles John Prestien. The son of a German immigrant, John Prestien had grown up on a neighboring farm bordering Creve Coeur Creek. Prestien married Elizabeth Bopp in 1919 and they had three children, including one son, Clarence Prestien, who continued ownership and management of the farm until his death in 1990. The farm is currently owned by Clarence Prestien's widow Margaret Prestien and is operated by her son Donald Prestien.

The 1996, 1979, and 1964 aerial photos (see **Appendices 3, 4**, and **5**) help to illustrate the integrity of the Prestien Farm complex. The boundaries at this property have remained essentially unchanged since the 1909 plat and the farm retains all of its original circa 1939 buildings. However, some changes in the organizational structure of the farm are evident. A system of fences and corrals that once linked pastures in the southeast part of the farm with the large stock barn disappeared after 1964, and those pastures were subsequently converted to crop production. After 1964 the large stock barn and the poultry barn were expanded with shed-roofed additions. The disappearance of features associated with livestock suggests that animal husbandry declined in importance after 1964. The alteration of buildings seems to reflect an increased need to shelter equipment rather than animals. The field patterns also show changes over time. The number of small plots devoted to diverse crops declined after 1964 suggesting a shift toward a more commodity based row crop farming strategy. The orchard southwest of the farmhouse was uprooted sometime after 1979 and that acreage was devoted to row crops.

Historical research indicates that members of the German-American Prestien family have farmed land along the banks of Creve Coeur Creek for four generations. The Prestien farmstead on Olive Boulevard is one of the last surviving family farm complexes in an area once dominated by similar small family farms. In 1935, shortly before the Prestien farmhouse was built, there were 4,186 farms in St. Louis County comprising about 57% of the county's land area. At the time the Prestien Farm was founded, the average St. Louis County farm included less than 50 acres (20 hectares). By 1997, the number of farms in St. Louis County had declined by over 90% to just 291, while the average farm size had tripled to over 150 acres (61 hectares). The last active farm in Creve Coeur ceased operations on April 14, 1999, when 75-year-old Robert Hezel retired from farming. Hezel's 35-acre (14-hectare) farm was located near Olive Boulevard and Mason Road. Now virtually surrounded by modern urban development, the Prestien Farm remains a good example of the small family subsistence farms that typified the Creve Coeur and Chesterfield area during the mid-twentieth century.

A historical study of this farm has the potential to illustrate changes in agricultural methods and economic strategies during the twentieth century. This portion of west St. Louis County had been a center of progressive agriculture during the late nineteenth century. Norman J. Colman, who was named the nation's first Secretary of Agriculture in 1899, maintained a farm immediately to the north of the Prestien Farm. Later, the Prestien Farm defied persistent agricultural trends such as declining farm numbers and

farm consolidation, surviving with limited acreage as a small, diversified family farm operating in the midst of suburban sprawl.

## D. IMPACTS TO THE SECTION 4(f) PROPERTY

The Prestien Farm is located within the footprint of Interchange B, a proposed single point urban interchange (SPUI) planned for the intersection of Route 141 and Olive Boulevard on the preferred alternate (Alignment B) (**Appendix 6**). As planned, the SPUI would direct traffic on Route 141 under Olive Boulevard. Although SPUIs are space saving compared with more traditional interchange designs, improvements to Route 141 on Alignment B and grading necessary for Route 141 to pass under Olive Boulevard at Interchange B would still require a significant amount of right of way from the Prestien Farm. All of the buildings at the farm complex are located within the area of proposed new right of way and would be demolished to make way for the proposed improvements. Impacts to the property cannot be avoided through redesign since the corridor at Olive Boulevard is so narrowly constrained that the highway would still bisect the farm and significantly alter the historic setting of the complex. There is no practical alternative for construction of the proposed highway improvements on the preferred alignment that would not result in an adverse effect on the historic Prestien Farm property.

## E. PROPOSED ACTION ALTERNATIVES TO AVOID THE SECTION 4(f) PROPERTY

The following alternatives were considered to avoid impacts to section 4(f) properties.

### 1.) No Build, No Action

The no-build alternative is not an acceptable alternative as it does not address the project's purpose and need to improve existing highway deficiencies with regard to flooding, traffic flow, and safety in the project area.

### 2.) Avoidance Alternative – Alignment A

The avoidance alternative (see **Appendix 2** and **Appendix 6**) known as Alignment A would improve Route 141 by widening along the existing corridor. The avoidance alternative could be designed to meet the project's purpose and need criteria with regard to flooding and satisfactory traffic flow. However, the cost of right-of-way acquisition and construction for the "improve existing" alternate would be 25 million dollars higher than for the selected alternative (see **Appendix 7**). This alternative would also impact or displace many more private residences and businesses, which would be unacceptable to the public. Furthermore, the avoidance alternative does not serve regional traffic needs as well as the selected alternate. Another 4(f) property, the NRHP-eligible Rudolph Sahm house at 912 N. Woods Mill Road, is located within this alignment but could be avoided.

### 3.) Avoidance Alternative – Alignment E

A second alternate (Alignment E) for relocating Route 141, on a new alignment east of Creve Coeur Creek, also was considered (see **Appendix 6**) but is not a true avoidance

alternate. It would have the same impact to Prestien Farm as the selected alternate [(see discussion in previous section, "D. Impacts to the Section 4(f) Property"], because it would also connect Route 141 with Olive Boulevard via Interchange B.

## F. MEASURES TO MINIMIZE HARM TO THE SECTION 4(f) PROPERTY

Measures to minimize or mitigate adverse effects to the Prestien Farm are defined in the attached Memorandum of Agreement (MOA) detailing stipulations to address the project's impacts to the Prestien Farm property. The following is a summary of the mitigation stipulations that MoDOT proposes to complete:

> Prior to demolition of the buildings at Prestien Farm, the following recordation measures shall be carried out in consultation with the Missouri SHPO:
>
> 1. MoDOT shall provide 5 x 7 inch black and white photographs of the exterior and interior of the circa 1939 farmhouse and the five associated outbuildings. Photographs will be taken with a 35mm camera. A minimum of eighteen (18) photographs will be printed on archival quality (fiber base) paper, and labeled on the back in accordance with NRHP Bulletin #16A.
>
> 2. MoDOT shall prepare floor plan sketches of the basement, first, and second floors of the farmhouse and a floor plan for the five associated outbuildings, along with a plan map of the farm for a total of nine (9) drawings.
>
> 3. MoDOT shall develop a contextual history of the Prestien Farm and its operation including information about the operation of this farm compared with similar twentieth-century family farms in western St. Louis County.
>
> 4. The above documentation shall be provided to the Missouri SHPO.

## G. COORDINATION

MoDOT has coordinated with officials having jurisdiction over the Section 4(f) property. The draft MOA concerning mitigation measures for the property was reviewed by the Department of the Interior; the approved MOA is included in this document as **Appendix 8**. The SHPO and Federal Highway Administration (FHWA) are the parties to the MOA, although the Advisory Council on Historic Preservation (Council) was notified of the project's adverse effects according to 36 CFR 800.6(a)(1) and given the opportunity to participate in the execution of the MOA according to 36 CFR 800.6(b)(2). MoDOT offered the public an opportunity to comment on the project during a public meeting held on June 27, 2000, at the Parkway Central High School. A description of the project is available on MoDOT's web page at

http://www.modot.state.mo.us/local/d6/hottopics/Projects/rte141study.html,

where opportunity for public comment also is provided. A public hearing was held July 10, 2001, and comments were solicited after the Draft EA was approved.

## H. CONCLUSION

In conclusion, there appears to be no viable option that would avoid impact to the Prestien Farm. Neither the no-build, no-action alternate nor the total avoidance alternate are feasible in light of cost, safety, and the need to provide efficient transportation facilities at this location.

The proposed action includes all possible planning to minimize harm to the Prestien Farm. Because the farm cannot be avoided, an MOA has been prepared to address its disposition. The SHPO was consulted regarding the property's eligibility for the NRHP and the project's effects and was afforded an opportunity to comment on the development/refinement of the MOA. The final Section 4(f) Evaluation for this property contains a signed copy of the MOA. Proposed mitigation of the Section 4(f) property includes photographic and historic documentation of the property.

## I. APPENDICES

1. St. Louis County General Highway Map showing the project location

2. U.S.G.S. 7.5 Minute Topographic Quadrangle Map showing the location of the Prestien Farm and the preferred and avoidance alternates

3. Digital Orthophoto Quarter Quadrangle Map showing the location of the Prestien Farm

4. 1979 Aerial photo showing the location, layout, and setting of the Prestien Farm

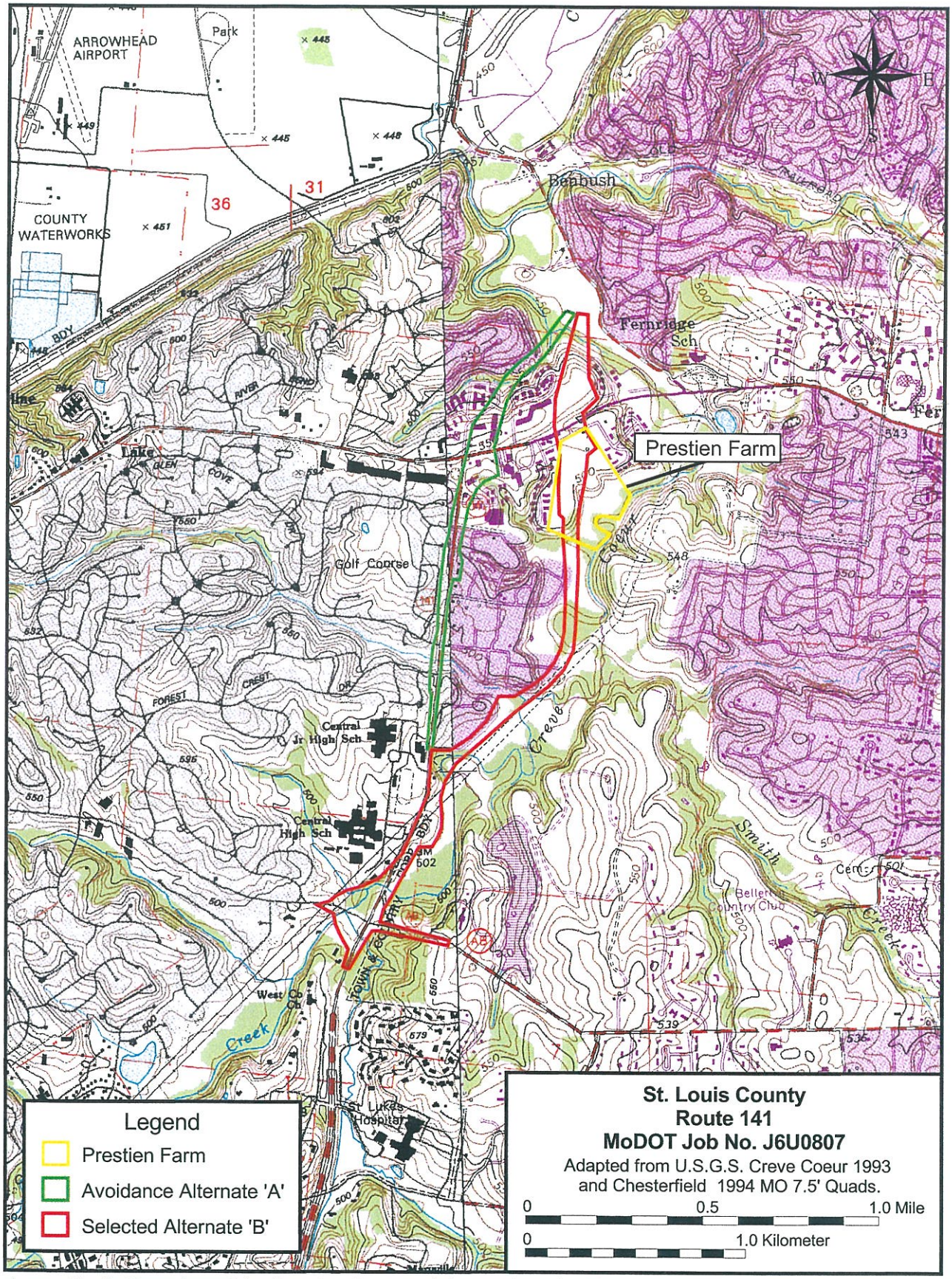
5. Photographic plates of the Prestien Farm, Historic Property Inventory Form, and a plan of the buildings and fields at the Prestien Farm based on a 1964 aerial photo

6. Schematic plans showing the selected and avoidance alternates

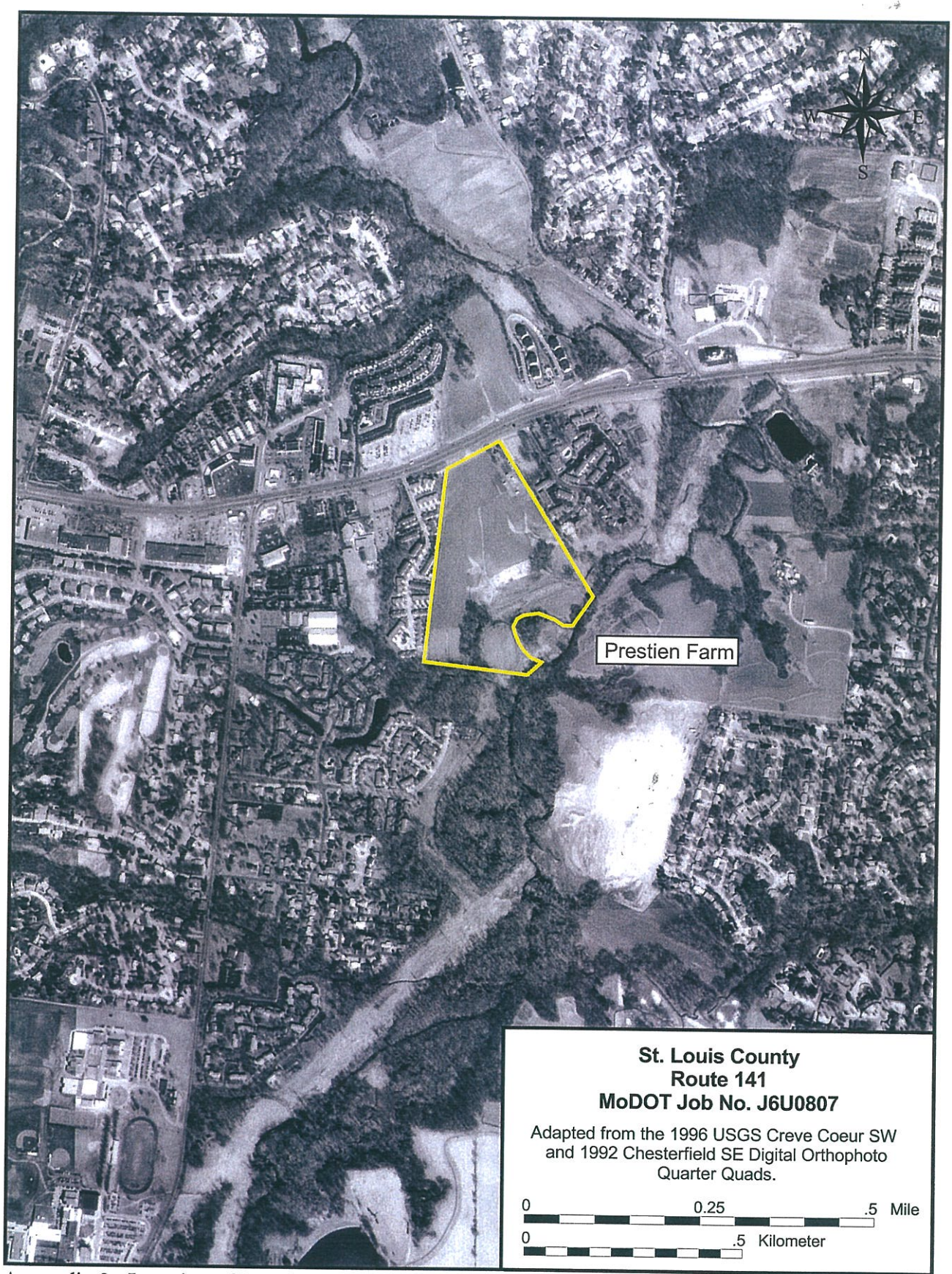
7. Estimated cost summaries for the selected and avoidance alternatives

8. Memorandum of Agreement (MOA) between the Federal Highway Administration and the Missouri State Historical Preservation Officer (SHPO) regarding Route 141 and the Prestien Farm, St. Louis County, Missouri, MoDOT Job No. J6U0807

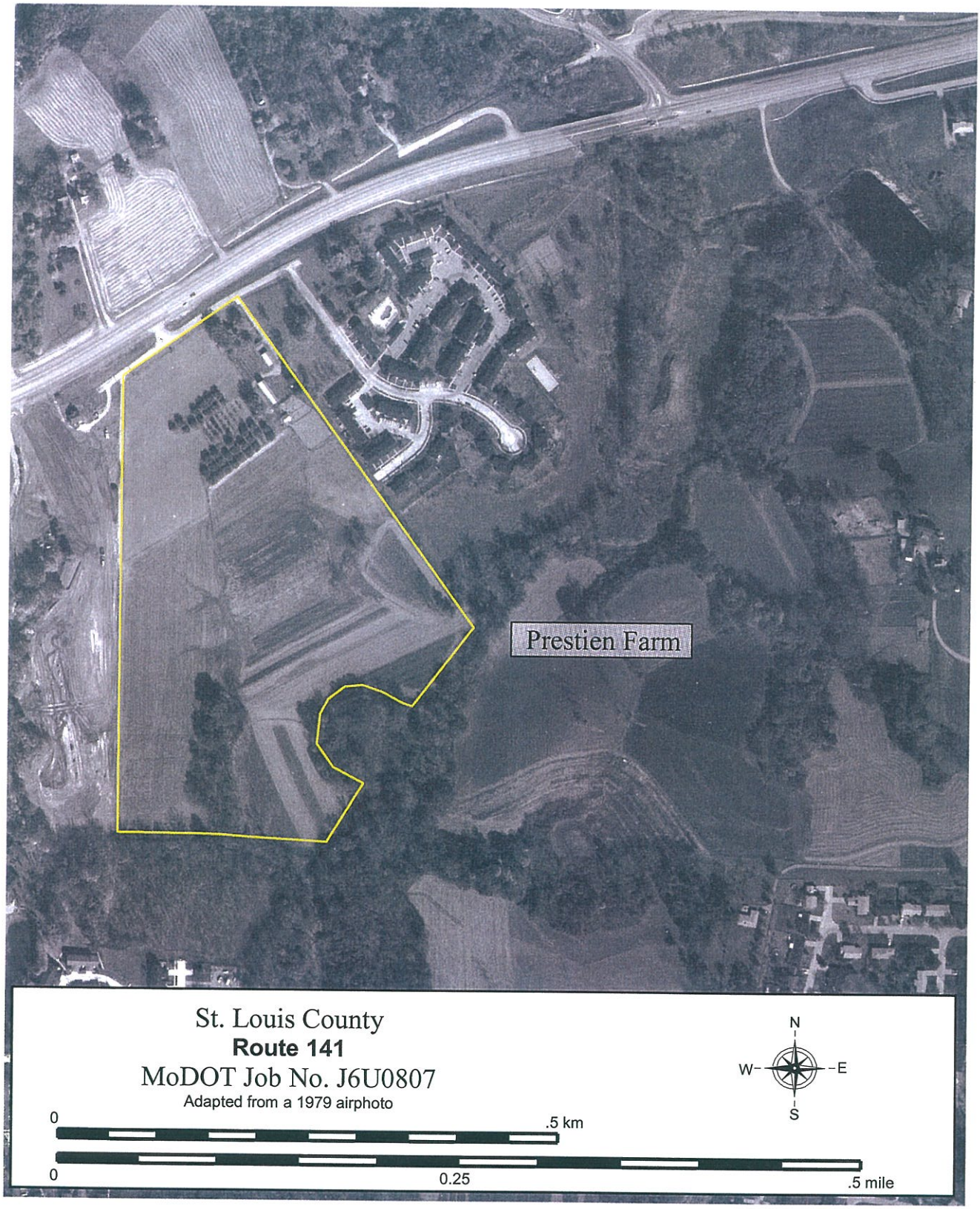
Appendix 1. St. Louis County Highway Map Showing the Project Location



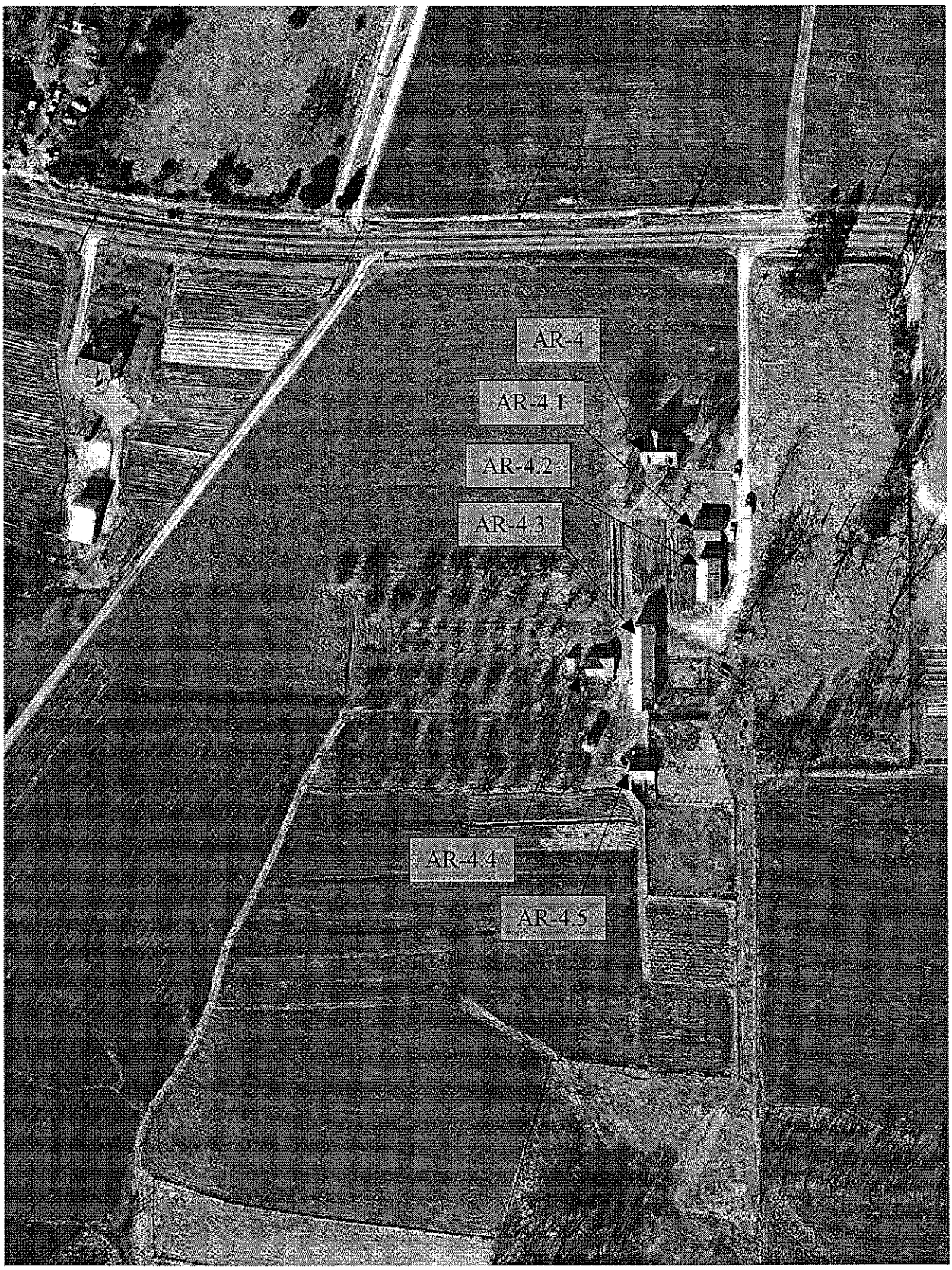

Appendix 2. Location of the Prestien Farm and the Preferred and Avoidance Alternates.




Appendix 3. Location of Prestien Farm.




Appendix 4. 1979 Aerial Photograph Illustrating the Boundaries of the Prestien Farm complex.




Appendix 5. 1964 Aerial photograph illustrating the buildings and fields at the Prestien Farm complex. AR-4 is the c.1939 Tudor style farmhouse, AR-4.1 the garage, AR-4.2 the small barn, AR-4.3 the large barn, AR-4.4 the poultry barn, AR-4.5 the swine-farrowing barn.

# MISSOURI HISTORIC PRESERVATION PROGRAM
## ARCHITECTURAL/HISTORIC INVENTORY SURVEY FORM

1. No. _____
2. County St. Louis
3. Location of MoDOT
   Negatives Cult. Res. Sec.
4. Present Local Name(s) or Designation(s) Prestien Farm, St. Louis Route 141 AR- 4
5. Other Name(s) builidings are included within boundaries of archaeological site 23SL735

6. Specific Legal Location
   Section S367 Township 46N Range 5E
   If City or Town, Street Address
   13342 Olive Boulevard
7. City or Town _____ If Rural, Vicinity
8. Description of Location
   West St. Louis County
   Bonhomme Township
   Town of Chesterfield
   South side of Olive Boulevard
   West of Creve Coeur Creek
   SW LOT 5 of F.M. Wright Est.
9. Coordinates UTM Zone 15
   Lat. N4284343
   Long. E718078
10. Site X Structure _____
    Building _____ Object _____
11. On National Register? No
12. Is It Eligible? Yes
13. Part of Estab. Hist. Dist.? No
14. Distirict Potential? No
15. Name of Established Dist. _____

16. Thematic Category _____
17. Date(s) or Period c.1939
18. Style or Design Tudor Farmhouse, vernacular outbuildings
19. Architect or Engineer _____
20. Contractor or Builder _____
21. Original Use, if apparent Farmstead
22. Present Use Residence and Farm
23. Ownership: Public ___ Private X
24. Owner's Name and Address
    Donald Prestien 13342 Olive Bvld.
25. Open to Public _____
26. Local Contact Person or Organization _____
27. Other Surveys in Which Included
    Naglich and Nixon *1989 Phase I Cultural Resource Survey of Proposed Creve Coeur Mill Road Extension, St. Louis County, Missouri.* –site 23SL735

28. Number of Stories 1 and 1/2
29. Basement? Yes
30. Foundation Material Concrete
31. Wall Construction Brick
32. Roof Type and Material Asphalt Shingle
33. Number of Bays
    Front 6 Side 6
34. Wall Treatment Brick
35. Plan Shape Rectangular
36. Changes: Addition No
    Explain in Altered No
    No. 42 Moved No
37. Condition: Interior Unk.
    Exterior Good
38. Preservation Underway: _____
39. Endangered? Yes
    By What? Highway Improvements
40. Visible from Public Road Yes
41. Distance from and Frontage on Road
    Farmhouse is 100' from old Olive St.
    Property has 600' of frontage on Olive

42. Further Description of Important Features East and West ends of farmhouse are gabled as is the center of the north façade. Two wooden dormers face south Brick chimneys are located offcenter on the gable ends. 3/1 and 2/1 windows except in front gable where multi-paned leaded glass is present. Decorative brick patterning is found above and below the windows on the front façade on the chimneys and in an arch around the front door

PHOTOS

43. History and Significance The farmhouse and outbuildings were build around 1939 Four generations of Prestiens have farmed in the area. The 33.61 acre farm is considered a good intact example of a small mid-twentieth century family farm complex.

44. Description of Environment and Outbuildings Front gabled rock faced concrete block garage is SE of the house. South of the garage is a small wood frame barn with a concrete foundation and vertical board siding and a sheet metal roof. To the southwest is a larger wood frame barn with a concrete slab and limestone block foundation. A shed roofed addition is located on the SE corner of this barn. Two additional outbuildings a poultry barn and a swine farrowing barn are located west and south of the large barn.

45. Sources of Information Reconnaissance Jan. 2001, Aerial Photos 1964, 1979 Naglich and Nixon 1989 *Phase I Cultural Resource Survey of Proposed Creve Coeur Mill Road Extension, St. Louis County, Missouri.* 1940 St. Louis Co. Highway Map 1934 USGS 7.5' Quadrangle, 1909 Plat Map of St. Louis Co. Pitzman's Atlas 1878

46. Prepared by: Rusty Weisman
47. Organization: MoDOT Cultural Resources Section

RETURN THIS FORM WHEN COMPLETED TO:
HISTORIC PRESERVATION PROGRAM
P.O. Box 176
Jefferson City, MO 65102
Phone (314) 751-4096

48. Date _____
49. Revision Date(s) March 12, 2001

The Prestien Farm is part of a Spanish Land Grant (Survey 367) originally issued to Andrew Kinkead and George Gordon. Robert Ramsey next owned the property, followed by John Hempstead, who held it from approximately 1836 to 1878. The 1850 Agricultural Census shows that Hempstead owned 238 acres valued at $15,000 on which corn, wheat, and orchard products were grown (US Census 1850). Frederick Maudrid Wright held the property south of Olive Boulevard along Creve Coeur Creek through the remainder of the nineteenth century. The 1880 census indicates that Wright was then farming 100 acres of corn, wheat and hay, owning another forty acres of woodland. Wright also operated a quarry on his property east of Creve Coeur Creek, and ran a general store in the village of Fernridge, located about one mile east of the present Prestien Farm. Wright and his wife Mary Josephine had eight children. Frederick M. Wright died in 1896 at the age of 51. Wright and four of his children are buried in the Arminia Cemetery adjacent to the Prestien farmhouse.

A St. Louis County Plat Map dating from 1909 indicates the owner as "P. Welzel," who remains unidentified. By 1930, however, the property had evidently passed to Christ Bopp. Earlier, through at least 1920, Bopp owned a farm and fruit orchard located along Emerson Road in Central Township. Bopp may have purchased the farm on Olive Boulevard in the late 1920s and although he probably planted the orchard visible on the 1964 and 1979 aerial photographs, historic maps suggest that there were no buildings at the farm prior to the 1930s.

The property next passed to Christ Bopp's daughter Elizabeth M. Bopp and her husband Charles John Prestien. The son of a German immigrant, John Prestien had grown up on a neighboring farm bordering Creve Coeur Creek. Prestien married Elizabeth Bopp in 1919 and they had three children, including one son Clarence Prestien who continued ownership and management of the farm until his death in 1990. The farm is currently owned by Clarence Prestien's widow Margaret Prestien and is operated by her son Donald Prestien.

Prestien farmhouse (AR-4) located at 13342 Olive Boulevard, Chesterfield. View of the north or front façade facing south.

Prestien farmhouse (AR-4) view of the rear and east facades facing northwest

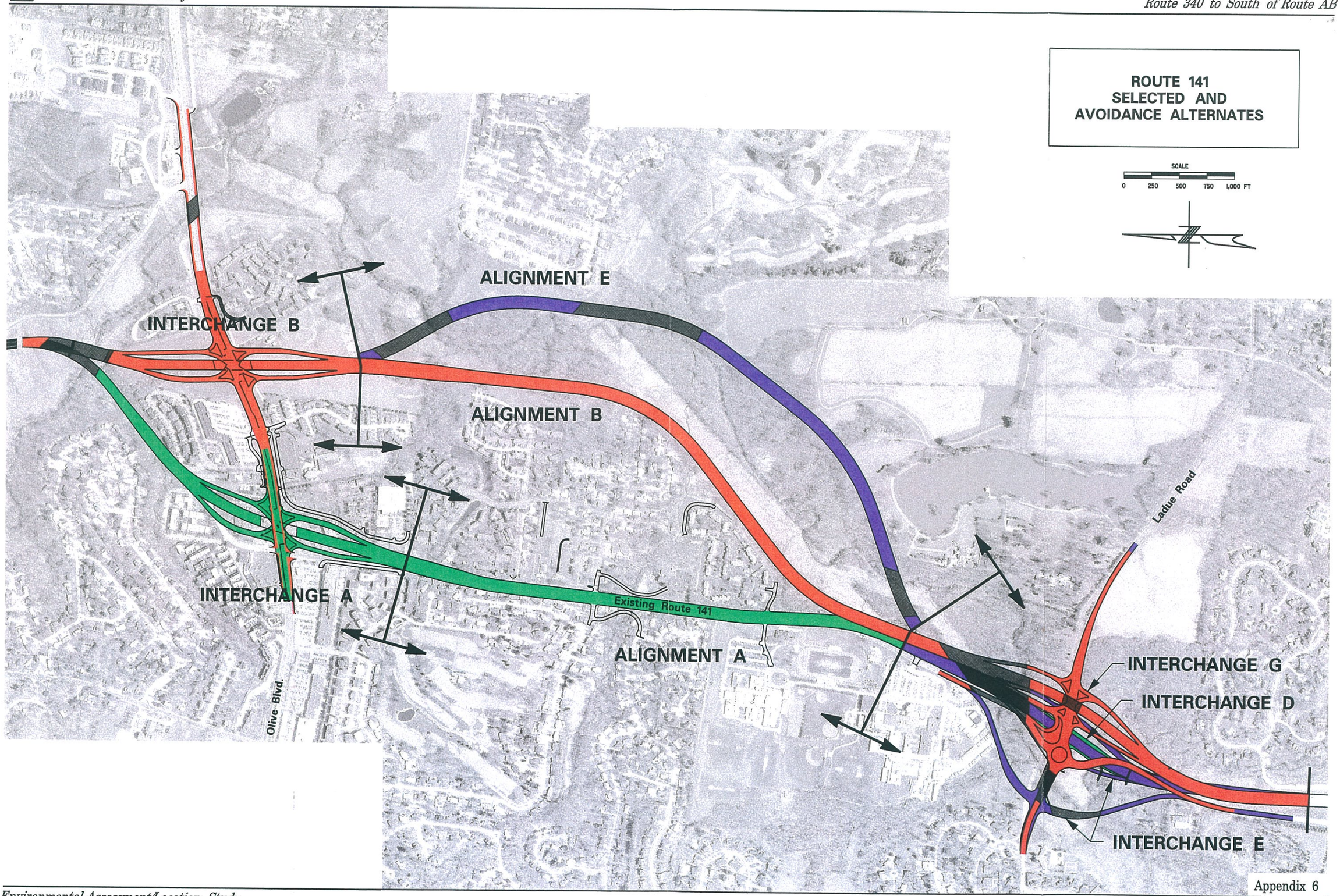
Prestien farm complex (AR-4.1) rock faced concrete block garage located southeast of house at 13342 Olive Boulevard, Chesterfield. View of the east and north facades facing southwest.

Prestien farm complex (AR-4.2) Small barn. View of the rear and east facades facing northwest.

Prestien farm complex (AR-4.3) Large Barn located south of house at 13342 Olive Boulevard, Chesterfield. View of the east and south facades facing northwest. Shed roofed addition sheltering combine was constructed sometime after 1964.

Prestien farm complex (AR-4.4) Poultry Barn located south of house at 13342 Olive Boulevard. View of the north and east facades facing southwest. The shed roofed addition sheltering equipment at the rear of this building was constructed sometime after 1964.

Prestien farm complex (AR-4.5) Swine Farrowing Barn located south of house at 13342 Olive Boulevard, Chesterfield. View of the west and north facades facing southeast.


ROUTE 141
SELECTED AND
AVOIDANCE ALTERNATES
SCALE
0 250 500 750 1,000 FT
ALIGNMENT E
INTERCHANGE B
ALIGNMENT B
INTERCHANGE A
Existing Route 141
ALIGNMENT A
Olive Blvd.
Ladue Road
INTERCHANGE G
INTERCHANGE D
INTERCHANGE E

APPENDIX 7

ESTIMATED COST SUMMARIES FOR THE SELECTED AND AVOIDANCE ALTERNATIVES

Cost Estimates, Route 141-St. Louis County, South of Ladue Road to North of Olive Boulevard

| Alternate Route | Right of Way | Construction | Total |
|---|---|---|---|
| Alignment 'B' - Selected | 14,143,000 | 60,513,000 | **74,656,000** |
| Alignment 'A' - Avoidance | 51,168,000 | 48,430,000 | **99,598,000** |

## APPENDIX 8

# MEMORANDUM OF AGREEMENT

**BETWEEN THE FEDERAL HIGHWAY ADMINISTRATION AND THE MISSOURI STATE HISTORIC PRESERVATION OFFICER**

**Regarding Route 141 and the Prestien Farm, St. Louis County, Missouri, Missouri Department of Transportation Job No. J6U0807**

# MEMORANDUM OF AGREEMENT
## BETWEEN THE FEDERAL HIGHWAY ADMINISTRATION AND THE MISSOURI STATE HISTORIC PRESERVATION OFFICER

**Regarding Route 141 and the Prestien Farm, St. Louis County, Missouri, Missouri Department of Transportation Job No. J6U0807**

WHEREAS, the Federal Highway Administration (FHWA) has determined that the proposed relocation of Route 141, St. Louis County, Missouri, (MoDOT Job No. J6U0807) will have an adverse effect upon the Prestien Farm, a property determined eligible for inclusion on the National Register of Historic Places (NRHP), and has consulted with the Missouri State Historic Preservation Officer (SHPO) pursuant to the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the Missouri Department of Transportation (MoDOT) participated in the consultation and has been invited to concur in this Memorandum of Agreement; and

WHEREAS, the archaeological survey of Right of Way Parcel 3 and Parcel 103 remains incomplete due to a lack of landowner permission, FHWA agrees to complete the survey of these parcels and submit to the SHPO an addendum to the 106 Survey Memo, prior to development of the project; and

WHEREAS, in the event that significant archaeological resources are identified in Parcel 3 or Parcel 103, in accordance with 36 CFR Part 800, the FHWA acknowledges and accepts the advice and conditions outlined in the Advisory Council on Historic Preservation's (Council) "Recommended Approach for Consultation on the Recovery of Significant Information from Archaeological Sites" published in the Federal Register on May 18, 1999; and

WHEREAS, the consulting parties agree that it is in the public interest to expend funds to implement this project through the recovery of significant information from National Register eligible archaeological site(s) to mitigate the adverse effects of the project; and

WHEREAS, to the best of our knowledge and belief, no human remains, associated or unassociated funerary objects or sacred objects, or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001), are expected to be encountered in the archaeological work; and

NOW, THEREFORE, the FHWA shall ensure that the following terms and conditions will be implemented in a timely manner and with adequate resources in compliance with the National Historic Preservation Act of 1966 (16 U.S.C. 470).

### STIPULATIONS

FHWA will ensure that the following measures are carried out:

1) Prior to demolition of the buildings at Prestien Farm, 13342 Olive Boulevard, Chesterfield, Missouri, the following recordation measures shall be carried out in consultation with the Missouri SHPO:

a. MoDOT shall provide 5 x 7 inch, black and white photographs of the exterior and interior of the farmhouse and the five associated outbuildings. Photographs will be taken with a 35mm camera. A minimum of eighteen (18) photographs will be printed on archival quality (fiber base) paper, and labeled on the back in accordance with NRHP Bulletin #16A.

b. MoDOT shall prepare floor plan sketches of the basement, first, and second floors of the farmhouse, floor plan sketches for the five associated outbuildings, and a base map of farm showing the buildings and fields for a total of nine (9) scaled drawings.

c. MoDOT shall develop a contextual history of the Prestien Farm including information about the operation of this farm compared to similar twentieth-century family farms in western St. Louis County.

d. The above documentation shall be provided to the Missouri SHPO.

2) Prior to construction of the Route 141 project, MoDOT shall conduct an archaeological survey of ROW Parcel 3 and the unsurveyed portion of Parcel 103.

a. MoDOT shall submit to the SHPO an addendum to the Route 141 Section 106 Survey Memo detailing the results of the archaeological survey of Parcel 3 and Parcel 103.

b. In the event that NRHP-eligible archaeological resources are identified within Parcel 3 or Parcel 103, MoDOT, in consultation with the SHPO and any Indian tribe that attaches religious and cultural significance to the identified historic properties, shall apply the criteria of adverse effect.

c. In the event that the project will result in an adverse effect on any NRHP-eligible archaeological site within Parcel 3 or Parcel 103, MoDOT will consult with the SHPO and interested Indian tribes to consider actions, including modifications to the undertaking, that could minimize or mitigate adverse effects on the historic properties.

1. In consultation with the SHPO and interested Indian Tribes, MoDOT will implement a plan to mitigate any unavoidable adverse effects through recovery of significant archaeological information by means of controlled excavation and other scientific recording methods.

2. In consultation with the SHPO and interested Indian Tribes, MoDOT will develop and implement a research design and data recovery plan based on firm background data, sound planning, and accepted archaeological methods. Data recovery and analysis will be accomplished in a thorough, efficient manner, using the most cost-effective techniques practicable. Results of the data recovery excavations will be disseminated in a technical report submitted to the SHPO and available upon request to other interested parties. Appropriate arrangements for curation of archaeological materials and records will be made. Adequate time and funds will be budgeted for fulfillment of the overall plan.

3) Any party to this agreement may request that it be amended, whereupon the proposed changes shall be submitted to the other parties and the Council in accordance with 36 CFR 800.6(c)(7).

4) If any signatory determines that the terms of this agreement cannot be carried out, the signatories shall consult to seek amendment of the MOA. If the agreement is not amended, any signatory may terminate it in accordance with 36 CFR Part 800.6(b)(8). If FHWA cannot carry out terms of the agreement, it shall not take or sanction any action or make any irreversible commitment that may affect historic properties until such time as the Council has been given the opportunity to comment on the full range of project alternatives, which might avoid or mitigate any adverse effects.

5) Should the Missouri SHPO object within 30 days to any plans or specifications provided for review or action proposed pursuant to this agreement, FHWA shall consult with the objecting party to resolve the objection. If FHWA determines that the objection cannot be resolved, FHWA shall request the comments of the Council pursuant to 36 CFR Section 800.7(a)(1). Any Council comment provided in response to such a request will be taken into account by FHWA in accordance with 36 CFR 800.7(c)(4) with reference only to the subject of the dispute; FHWA's responsibility to carry out all actions under this agreement that are not the subjects of the dispute will remain unchanged.

6) This Agreement shall commence upon its signature by FHWA and SHPO and shall be null and void if its terms are not carried out within five (5) years from the date of its signature, unless FHWA and SHPO agree in writing to an extension.

Once executed, the Memorandum of Agreement by FHWA and the Missouri SHPO, its subsequent filing by the Advisory Council on Historic Preservation (Council), and implementation of its terms will be evidence that FHWA has afforded the SHPO and Council an opportunity to comment on the relocation of Route 141 in St. Louis County and its effect on the Prestien Farm and any archaeological resources that may be present within the area of potential effect in Parcel 3 and Parcel 103, and that FHWA has taken into account the effects of the project on historic properties, in accordance with Section 106 of the National Historic Preservation Act.

Federal Highway Administration

By: _____ Date: 11-01-02

Missouri State Historic Preservation Office

By: _____ Date: 31 Oct. 02

Concur:

Missouri Department of Transportation

By: _____ for Diane Hecktemeyer Date: 11/01/02

INFORMATION TO ACCOMPANY THE MEMORANDUM OF AGREEMENT FOR DOCUMENTATION OF THE PRESTIEN FARM AND ARCHAEOLOGICAL SURVEY OF PARCEL 3 AND PARCEL 103, ROUTE 141, ST. LOUIS COUNTY, MISSOURI
MoDOT JOB NO. J6U0807

Prepared by the Missouri Department of Transportation (MoDOT) and the Federal Highway Administration (FHWA), U.S. Department of Transportation

## 1. Project Description

The St. Louis Route 141 improvement project (MoDOT Job No. J6U0807) is a future project designed to improve safety, prevent flooding and reduce congestion along a 1.5 mile segment of Route 141 between Olive Boulevard (Route 340) and Ladue Road (Route AB) in St. Louis County. Route 141 was built in the 1930s and cannot accommodate the current traffic volume. More than 23,000 vehicles a day use this two-lane stretch of roadway and several intersections are highly congested. Flooding along Creve Coeur Creek and Maryville Creek, which converge near the intersection of Route 141 and Ladue Road, has also been a problem. The existing roadway and bridges near this intersection are several feet below the 10-year flood elevation and due to flooding the intersection of Route 141 and Ladue Road must be periodically closed.

The proposed project would improve Route 141 to a six-lane facility from north of Olive Boulevard to south of Ladue Road. Alternatives under consideration included improving Route 141 along the existing corridor or moving the alignment to the east.

The Federal Highway Administration (FHWA) and the Missouri Department of Transportation (MoDOT) are funding the project.

## 2. Previous Investigations

Archival research was conducted at the SHPO's office to identify previously recorded sites and determine areas within the Route 141 corridor that have been previously surveyed. Joseph Nixon conducted a walkover archaeological survey of part of the Route 141 study area in 1983. Nixon surveyed a 15' wide corridor west of Creve Coeur Creek parallel to an existing sewer line in advance of a planned storm sewer (Nixon 1983). The 1983 survey did not include any subsurface investigations and did not result in discovery or evaluation of any archaeological sites within the Route 141 study area. A 1989 report by Naglich and Nixon describes a survey of an area between Olive Boulevard (Route 340) and Creve Coeur Lake conducted in advance of a plan by St. Louis County to realign Creve Coeur Mill Road. The 1989 report documented three sites (23SL734, 23SL735 and 23SL746) within the Route 141 study area, but no sites were identified in the area of proposed new ROW within Parcel 3.

MoDOT conducted an archaeological survey of the Route 141 project area in October and December 2001, with additional work south of Ladue Road in January 2002. Permission to survey two parcels, Parcel 3 (2.84 acres) and Parcel 103 (1.26 acres), could not be obtained. Parcel 3 is located at the northern end of the project area, north of Creve Coeur Creek and west of Creve Coeur Mill Road (see Appendix 6). Parcel 103 is located near the south end of the project area, on the east site of Woods Mill Road, south and west of Maryville Creek (see

Appendix 6). Conditions attached to the survey of Parcel 103 made it impossible to complete the survey of that 1.26-acre parcel. The northern part of Parcel 103 was shovel tested, and one positive shovel test was recorded. A single fragmentary chert flake and a piece of wood charcoal were recovered from a buried soil stratum 60-80cm below the surface in a shovel test located 160m south of the Maryville Creek bridge and 30m east of Woods Mill Road. These materials were considered to be part of site MoDOTSL2, a low density lithic scatter identified in two positive shovel tests excavated on a neighboring parcel (Parcel 93). The portion of site MoDOTSL2 within the tested portion of the project area does not appear likely to contain information important to history or prehistory; however, additional fieldwork is necessary in the southern part of Parcel 103 to better define the site in that area.

Archival research and field surveys were also used to obtain information regarding the Prestien Farm. Resources at the State Historic Preservation Office (SHPO), Department of Natural Resources, Jefferson City; State Historical Society of Missouri, Columbia, Missouri; Missouri State Archives, Jefferson City; and Elmer Ellis Library, University of Missouri-Columbia, Columbia, Missouri were consulted. A 1989 cultural resources survey conducted in association with planned improvements to Creve Coeur Mill Road (Naglich and Nixon 1989:50-54) included the buildings at the Prestien Farm within the boundaries of site 23SL735. Site 23SL735 also includes the neighboring Arminia Cemetery and the former site of a c. 1885-1905 German Fraternal Lodge (German Order of Harugari Arminia Lodge No. 374). Additional field investigations include a reconnaissance survey of the Prestien Farm by MoDOT Cultural Resources staff members in January 2001.

On August 22, 2002, MoDOT submitted photographs and information describing the Prestien Farm property to the Missouri State Historic Preservation Office (SHPO) Historic Preservation Program for preliminary review and assessment (Appendix 8). On (INSERT DATE), the SHPO determined that the Prestien Farm is eligible for the National Register of Historic Places (NHRP). The SHPO considers this property eligible under Criteria A and C, with Agriculture and Architecture identified as the areas of significance (Appendix 8). Criterion A identifies properties "that are associated with events that have made a significant contribution to the broad patterns of our history (36 CFR 60.4)." Criterion C applies to properties "that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (36 CFR 60.4)." The SHPO determined that the Tudor-style Prestien Farmhouse is a good, unaltered example of its type and hence eligible under Architecture. The associated barns and fields represent changing farming practices during the twentieth century, and are considered eligible under Criterion A in the area of Agriculture. The planned relocation of Route 141 through the farm constitutes an adverse effect.

3. Description of the Historic Property

Prestien Farm

The Prestien Farm complex at 13342 Olive Boulevard is located south of Olive Boulevard (Route 340) between Creve Coeur Creek and Woods Mill Road (Route 141) within Land Grant Survey 367. The legal description of the property is SW Lot 5 of the F. M. Wright Estate. The 33.61-acre Prestien Farm is located within a region of west St. Louis County that was historically dominated by German-American family farms. Since the 1960s, this once-rural area has undergone extensive commercial and residential development, leaving the Prestien Farm as one of the last remaining agricultural properties in the area.

The Prestien Farm complex is comprised of agricultural fields and six architectural resources: a c. 1939 Tudor-style brick house (AR-4), a rock-faced concrete block garage (AR-4.1), and four wood-frame agricultural outbuildings including large and small barns (AR-4.2 and AR4.3), a poultry barn (AR-4.4), and a farrowing barn (AR-4.5) (see Appendix 4).

The six-room, one-and-one-half story Tudor-style brick farmhouse (AR-4) is oriented facing north toward Olive Boulevard (Route 340). The side-gabled roof ridge trends east-west and large chimneys are located asymmetrically on each gable end. The north façade includes a front facing gable with multi-paned leaded glass windows above and beside an arched entry. The remaining windows are paired 2/1 and 3/1 sashes. Two dormer windows project from the roof on the south façade. Decorative brickwork is present on the chimneys and above and below the bays on the front façade. This building is in good unaltered condition.

A 21- x 26-foot two-car garage (AR-4.1) constructed of rock-faced concrete block is located southeast of the house. The garage has fixed four-light windows and an entry door on the north wall. The gable ends are finished with horizontal weatherboard siding. The asphalt shingle roof has exposed rafter tails. South of the garage is a single-story 20- x 24-foot pole barn (AR-4.2) with vertical plank siding and a sheet metal roof. A larger one-and-one-half story 20- x 82-foot pole barn (AR-4.3) with a concrete and limestone block foundation and a shed-roofed addition is located south of the house. This large barn also has vertical plank siding and a sheet metal roof. West of the large barn is a 16- x 26-foot poultry barn (AR-4.4) with board and batten siding and a shed-roofed rear addition. South of the large barn is a 20- x 24-foot swine-farrowing barn (AR-4.5) with vertical plank siding.

Parcels 3 and 103

Right of Way Parcel 3 and Parcel 103 do not include any historic buildings or bridges and are not known to include significant archaeological resources. However, a low-density lithic scatter designated MoDOTSL2 appears to extend into the unsurveyed portion of Parcel 103. MoDOT will conduct an archaeological survey of these parcels once the ROW has been purchased and will then evaluate the significance of any archaeological resources that are present.

4. Adverse Effects

The development of the Route 141 project on the preferred alignment would result in construction of a six-lane expressway and interchange within the boundaries of the Prestien farm. A single point urban interchange would be constructed at Olive Boulevard with Route 141 passing beneath Olive. Construction of the interchange and the six-lane expressway would require about 10 acres of ROW from the Prestien Farm and would require demolition of the c. 1939 Tudor-style farmhouse and the farm buildings. The planned development would adversely affect this historic property.

It is not known whether any significant archaeological resources are present within unsurveyed portions of Parcel 3 and Parcel 103 nor is it known whether the project would have an adverse effect on any sites that might be present within these parcels. Once these parcels are surveyed, the significance of any sites that are detected will be evaluated in consultation with the SHPO and MoDOT will apply the criteria of adverse effect.

5. Alternative Courses of Action

Several alternates for development of Route 141 were considered.

a. No Build

The No Build alternate was not viable since it would not address safety issues (flooding at the intersection of Woods Mill Road and Ladue Road) and would not fulfill the project's purpose and need with respect to traffic.

b. Widen Existing

The Widen Existing alternate avoided impacts to the Prestien Farm but was not selected because it required substantially more residential and business relocations resulting in a 25% higher project cost. The Widen Existing option also would have affected an historic property (AR-2 Rudolph Sahm house, a c. 1880 folk Victorian five-bay two story I-house).

c. New Alignment

Two alignment options were considered for relocation of Route 141 between Ladue and Olive Boulevard. Option B routed along the west side of Creve Coeur Creek and Option E routed east of Creve Coeur Creek. Both options utilize the same interchange options at Ladue and Olive and the effects on the Prestien Farm and the unsurveyed parcels are the same.

6. Proposed Action

MoDOT proposes to mitigate the impact to the Prestien Farm from MoDOT Job No. J6U0807 through photographic and historical documentation. As agreed upon by the SHPO, the proposed action will include the following stipulations:

1) Prior to demolishing any of the buildings at the Prestien Farm, MoDOT will:

a. photograph the exterior and interior of the building and provide archival quality prints;

b. prepare floor plan sketches of the buildings and a map of the farm;

c. develop a contextual history of the Prestien Farm and its operation compared to similar twentieth-century family farms in western St. Louis County;

d. provide the above information to the SHPO.

2) Prior to construction of the Route 141 project, MoDOT shall conduct an archaeological survey of ROW Parcel 3 and the unsurveyed portion of Parcel 103.

a. MoDOT shall submit to the SHPO an addendum to the Route 141 106 Memo detailing the results of the survey of Parcel 3 and Parcel 103.

b. In the event that any NRHP-eligible archaeological resources are identified within Parcel 3 or Parcel 103, MoDOT in consultation with the SHPO and any Indian tribe that attaches religious and cultural significance to identified historic properties, shall apply the criteria of adverse effect.

c. In the event that the project will result in an adverse effect on any NRHP-eligible archaeological site within Parcel 3 or Parcel 103, MoDOT will consult with the SHPO and interested Indian tribes, to consider actions, including modifications to the undertaking, that could minimize or mitigate adverse effects on the historic properties.

1) In consultation with the SHPO and interested Indian Tribes, MoDOT will implement a plan to mitigate any unavoidable adverse effects through recovery of significant archaeological information by means of controlled excavation and other scientific recording methods.

2) In consultation with the SHPO and interested Indian Tribes, MoDOT will develop and implement a research design and data recovery plan based on firm background data, sound planning, and accepted archaeological methods. Data recovery and analysis will be accomplished in a thorough, efficient manner, using the most cost-effective techniques practicable. Results of the data recovery excavations will be disseminated in a technical report submitted to the SHPO and available upon request to other interested parties. Appropriate arrangements for curation of archaeological materials and records will be made. Adequate time and funds will be budgeted for fulfillment of the overall plan.

Failure to carry out the actions proposed above require that FHWA request Advisory Council on Historic Preservation's (Council) comments in accordance with 36 CFR Part 800. If FHWA cannot carry out these actions it shall not take or permit any action or make any irreversible commitment that would result in an adverse effect with respect to the National Register eligibility of properties affected by these actions, or that would foreclose on the consideration of modifications or alterations to the proposed highway improvements that could avoid or mitigate the adverse effects until the commenting period has been completed.

7. Public Participation

MoDOT offered the public an opportunity to comment on the project during a public meeting held on June 27, 2000, at the Parkway Central High School. A description of the project is available on MoDOT's web page at

http://www.modot.state.mo.us/local/d6/hottopics/Projects/rte141study.html,

where further opportunity for public comment is provided. A public hearing was held July 10, 2001, and comments were solicited after the Draft EA was approved.

8. Conclusion

There appears to be no viable option that would meet the purpose and need of the Route 141 project and avoid impacts to the Prestien Farm. Because the farm cannot be avoided, an MOA was prepared to address appropriate mitigation measures, which include photographic and historic documentation of the property.

Two parcels (Parcel 3 — 2.84 acres and Parcel 103 — the southern part including approximately 1.26 acres) within the Route 141 project area could not be surveyed to determine whether any significant archaeological resources would be affected by the proposed improvements to Route 141. Once these ROW Parcels have been purchased, they will be surveyed and if any significant archaeological resources discovered, they will be treated in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation and the stipulations set forth in the attached MOA.

Appendices

1. St. Louis County General Highway Map showing the project location
2. U.S.G.S. 7.5 Minute Topographic Quadrangle Map showing the location of the Prestien Farm (AR-4) and the route of the preferred and avoidance alternates
3. 1979 Aerial Photo showing the location, layout, and setting of the Prestien Farm
4. Photographic Plates of the Prestien Farm, Historic Property Inventory Form, and a plan of the buildings and fields at the Prestien Farm based on a 1964 aerial photo
5. Determination of Eligibility for the Prestien Farm
6. Figures Illustrating the Location of the Unsurveyed Portion of the Route 141 Project Area in Parcel 3 and Parcel 103

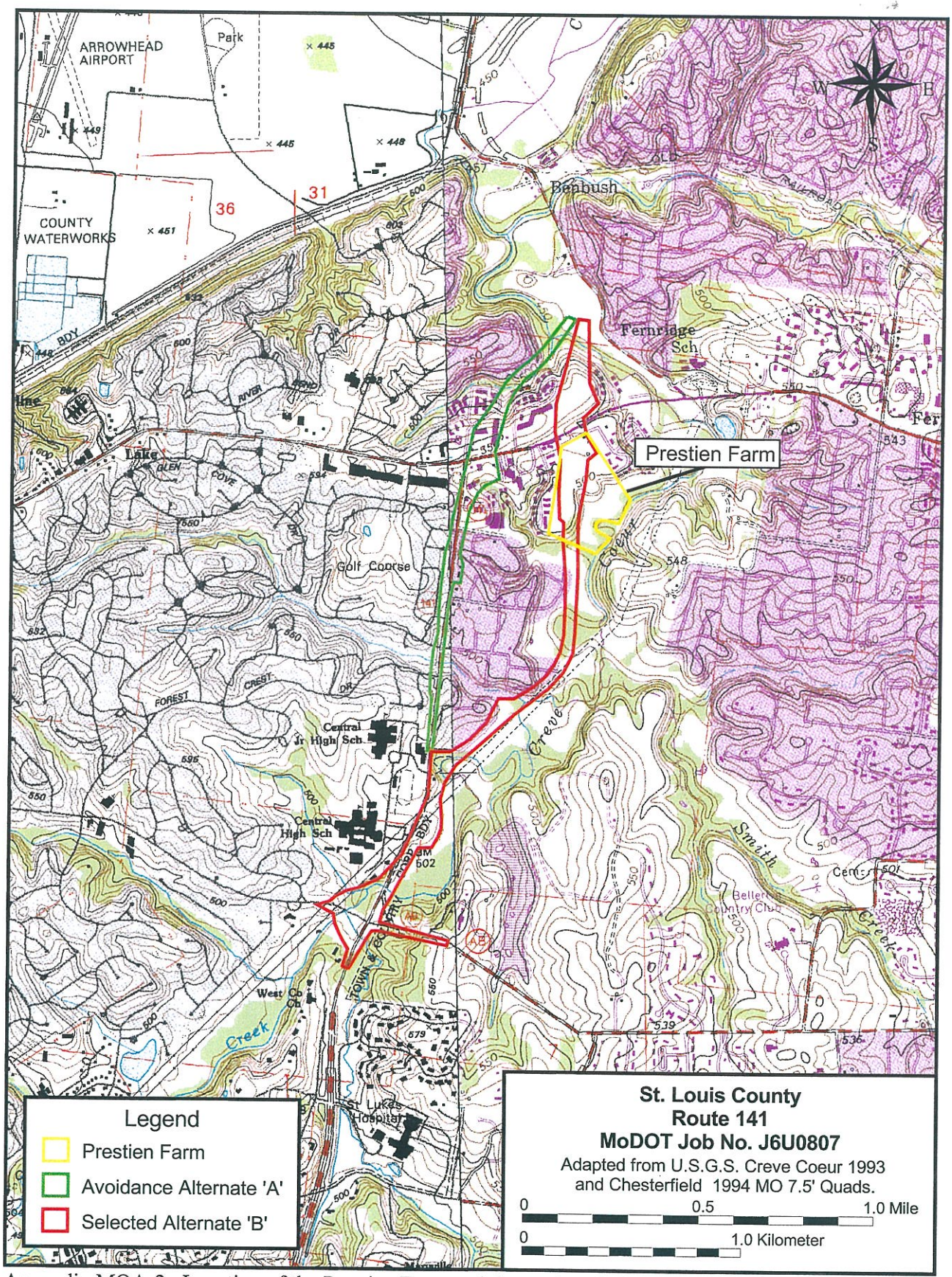
Appendix MOA-1

St. Louis County General Highway Map showing the project location

Appendix MOA-1. St. Louis County Highway Map Showing the Project Location

Appendix MOA-2

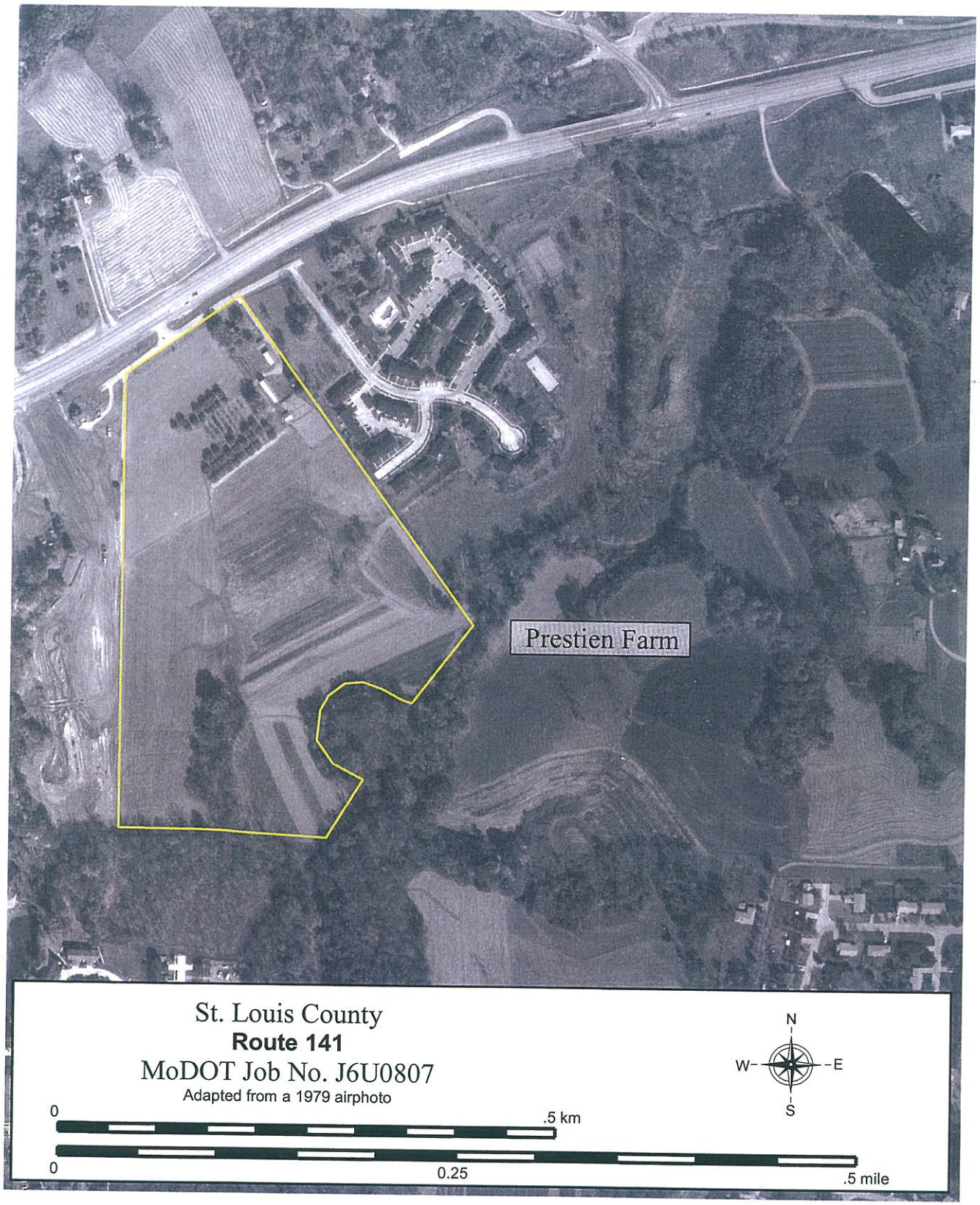
U.S.G.S. 7.5-minute topographic quadrangle map showing the location of the Prestien Farm (AR-4) and the route of the preferred and avoidance alternates




Appendix MOA-2. Location of the Prestien Farm and the Preferred and Avoidance Alternates.

Appendix MOA-3

1979 Aerial Photo showing the location, layout, and setting of the Prestien Farm




Appendix MOA-3. 1979 Aerial Photograph Illustrating the Boundaries of the Prestien Farm complex.

Appendix MOA-4:

Photographic Plates of the Prestien Farm, Historic Property Inventory Form, and a plan of the buildings and fields at the Prestien Farm based on a 1964 aerial photo

Appendix MOA-4. 1964 Aerial photograph illustrating the buildings and fields at the Prestien Farm complex. AR-4 is the c.1939 Tudor style farmhouse, AR-4.1 the garage, AR-4.2 the small barn, AR-4.3 the large barn, AR-4.4 the poultry barn, AR-4.5 the swine-

# MISSOURI HISTORIC PRESERVATION PROGRAM
## ARCHITECTURAL/HISTORIC INVENTORY SURVEY FORM

1. No. _____
2. County St. Louis
3. Location of MoDOT
   Negatives Cult. Res. Sec.
4. Present Local Name(s) or Designation(s) Prestien Farm, St. Louis Route 141 AR- 4
5. Other Name(s) builidings are included within boundaries of archaeological site 23SL735

6. Specific Legal Location
   Section S367 Township 46N Range 5E
   If City or Town, Street Address
   13342 Olive Boulevard
7. City or Town _____ If Rural, Vicinity
8. Description of Location
   West St. Louis County
   Bonhomme Township
   Town of Chesterfield
   South side of Olive Boulevard
   West of Creve Coeur Creek
   SW LOT 5 of F.M. Wright Est.
9. Coordinates UTM Zone 15
   Lat. N4284343
   Long. E718078
10. Site X Structure _____
    Building _____ Object _____
11. On National Register? No
12. Is It Eligible? Yes
13. Part of Estab. Hist. Dist.? No
14. Distirict Potential? No
15. Name of Established Dist.

16. Thematic Category _____
17. Date(s) or Period c.1939
18. Style or Design Tudor Farmhouse, vernacular outbuildings
19. Architect or Engineer _____
20. Contractor or Builder _____
21. Original Use, if apparent Farmstead
22. Present Use Residence and Farm
23. Ownership: Public ___ Private X
24. Owner's Name and Address
    Donald Prestien 13342 Olive Bvld.
25. Open to Public _____
26. Local Contact Person or Organization
27. Other Surveys in Which Included
    Naglich and Nixon *1989 Phase I Cultural Resource Survey of Proposed Creve Coeur Mill Road Extension, St. Louis County, Missouri.* –site 23SL735

28. Number of Stories 1 and 1/2
29. Basement? Yes
30. Foundation Material Concrete
31. Wall Construction Brick
32. Roof Type and Material Asphalt Shingle
33. Number of Bays
    Front 6 Side 6
34. Wall Treatment Brick
35. Plan Shape Rectangular
36. Changes: Addition No
    Explain in Altered No
    No. 42 Moved No
37. Condition: Interior Unk.
    Exterior Good
38. Preservation Underway: _____
39. Endangered? Yes
    By What? Highway Improvements
40. Visible from Public Road Yes
41. Distance from and Frontage on Road
    Farmhouse is 100' from old Olive St.
    Property has 600' of frontage on Olive

42. Further Description of Important Features East and West ends of farmhouse are gabled as is the center of the north façade. Two wooden dormers face south Brick chimneys are located offcenter on the gable ends. 3/1 and 2/1 windows except in front gable where multi-paned leaded glass is present. Decorative brick patterning is found above and below the windows on the front façade on the chimneys and in an arch around the front door

PHOTOS

43. History and Significance The farmhouse and outbuildings were build around 1939 Four generations of Prestiens have farmed in the area. The 33.61 acre farm is considered a good intact example of a small mid-twentieth century family farm complex.

44. Description of Environment and Outbuildings Front gabled rock faced concrete block garage is SE of the house. South of the garage is a small wood frame barn with a concrete foundation and vertical board siding and a sheet metal roof. To the southwest is a larger wood frame barn with a concrete slab and limestone block foundation. A shed roofed addition is located on the SE corner of this barn. Two additional outbuildings a poultry barn and a swine farrowing barn are located west and south of the large barn.

45. Sources of Information Reconnaissance Jan. 2001, Aerial Photos 1964, 1979 Naglich and Nixon 1989 *Phase I Cultural Resource Survey of Proposed Creve Coeur Mill Road Extension, St. Louis County, Missouri.* 1940 St. Louis Co. Highway Map 1934 USGS 7.5' Quadrangle, 1909 Plat Map of St. Louis Co. Pitzman's Atlas 1878

46. Prepared by: Rusty Weisman
47. Organization: MoDOT Cultural Resources Section

RETURN THIS FORM WHEN COMPLETED TO:
HISTORIC PRESERVATION PROGRAM
P.O. Box 176
Jefferson City, MO 65102
Phone (314) 751-4096

48. Date _____
49. Revision Date(s) March 12, 2001

The Prestien Farm is part of a Spanish Land Grant (Survey 367) originally issued to Andrew Kinkead and George Gordon. Robert Ramsey next owned the property, followed by John Hempstead, who held it from approximately 1836 to 1878. The 1850 Agricultural Census shows that Hempstead owned 238 acres valued at $15,000 on which corn, wheat, and orchard products were grown (US Census 1850). Frederick Maudrid Wright held the property south of Olive Boulevard along Creve Coeur Creek through the remainder of the nineteenth century. The 1880 census indicates that Wright was then farming 100 acres of corn, wheat and hay, owning another forty acres of woodland. Wright also operated a quarry on his property east of Creve Coeur Creek, and ran a general store in the village of Fernridge, located about one mile east of the present Prestien Farm. Wright and his wife Mary Josephine had eight children. Frederick M. Wright died in 1896 at the age of 51. Wright and four of his children are buried in the Arminia Cemetery adjacent to the Prestien farmhouse.

A St. Louis County Plat Map dating from 1909 indicates the owner as "P. Welzel," who remains unidentified. By 1930, however, the property had evidently passed to Christ Bopp. Earlier, through at least 1920, Bopp owned a farm and fruit orchard located along Emerson Road in Central Township. Bopp may have purchased the farm on Olive Boulevard in the late 1920s and although he probably planted the orchard visible on the 1964 and 1979 aerial photographs, historic maps suggest that there were no buildings at the farm prior to the 1930s.

The property next passed to Christ Bopp's daughter Elizabeth M. Bopp and her husband Charles John Prestien. The son of a German immigrant, John Prestien had grown up on a neighboring farm bordering Creve Coeur Creek. Prestien married Elizabeth Bopp in 1919 and they had three children, including one son Clarence Prestien who continued ownership and management of the farm until his death in 1990. The farm is currently owned by Clarence Prestien's widow Margaret Prestien and is operated by her son Donald Prestien.

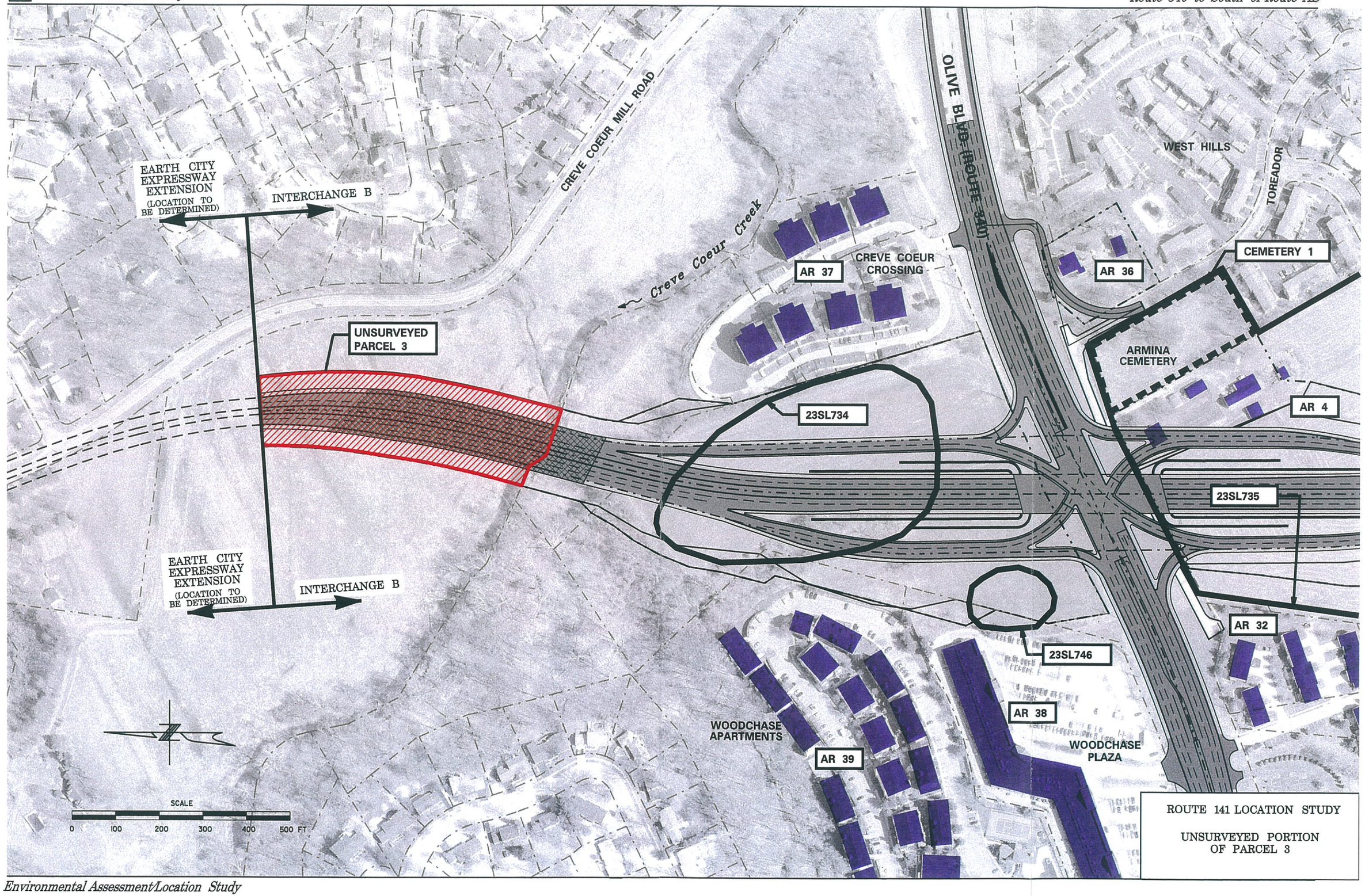
Appendix MOA-5:

Determination of Eligibility for the Prestien Farm

The project was submitted to the SHPO on August 22, 2002, and will be forwarded to the Advisory Council once SHPO comment is received.

Appendix MOA-6:

Figures Illustrating the Location of the Unsurveyed Portion of the Route 141 Project Area in Parcel 3 and Parcel 103


EARTH CITY EXPRESSWAY EXTENSION (LOCATION TO BE DETERMINED)
INTERCHANGE B
CREVE COEUR MILL ROAD
Creve Coeur Creek
OLIVE BLVD. (ROUTE 340)
WEST HILLS
TOREADOR
AR 37
CREVE COEUR CROSSING
AR 36
CEMETERY 1
ARMINA CEMETERY
AR 4
UNSURVEYED PARCEL 3
23SL734
23SL735
EARTH CITY EXPRESSWAY EXTENSION (LOCATION TO BE DETERMINED)
INTERCHANGE B
AR 32
23SL746
AR 38
WOODCHASE APARTMENTS
AR 39
WOODCHASE PLAZA
SCALE
0 100 200 300 400 500 FT
ROUTE 141 LOCATION STUDY
UNSURVEYED PORTION OF PARCEL 3

OVERBANK EXCAVATION AREA 4

AR 18

BRIDGE NO. 096B236

AR 17

LADUE ROAD

LADUE ROAD (ROUTE AB)

BRIDGE NO. Z-780R

AR 16

Creve Coeur Creek

AR 14

AR 15

AMEREN UE TRANSMISSION LINES

AR 13

VACANT

AR 12

AR 10

SCALE

0 100 200 300 400 500 FT

UNSURVEYED PORTION PARCEL 103

LADUE FARM ROAD

Maryville Creek

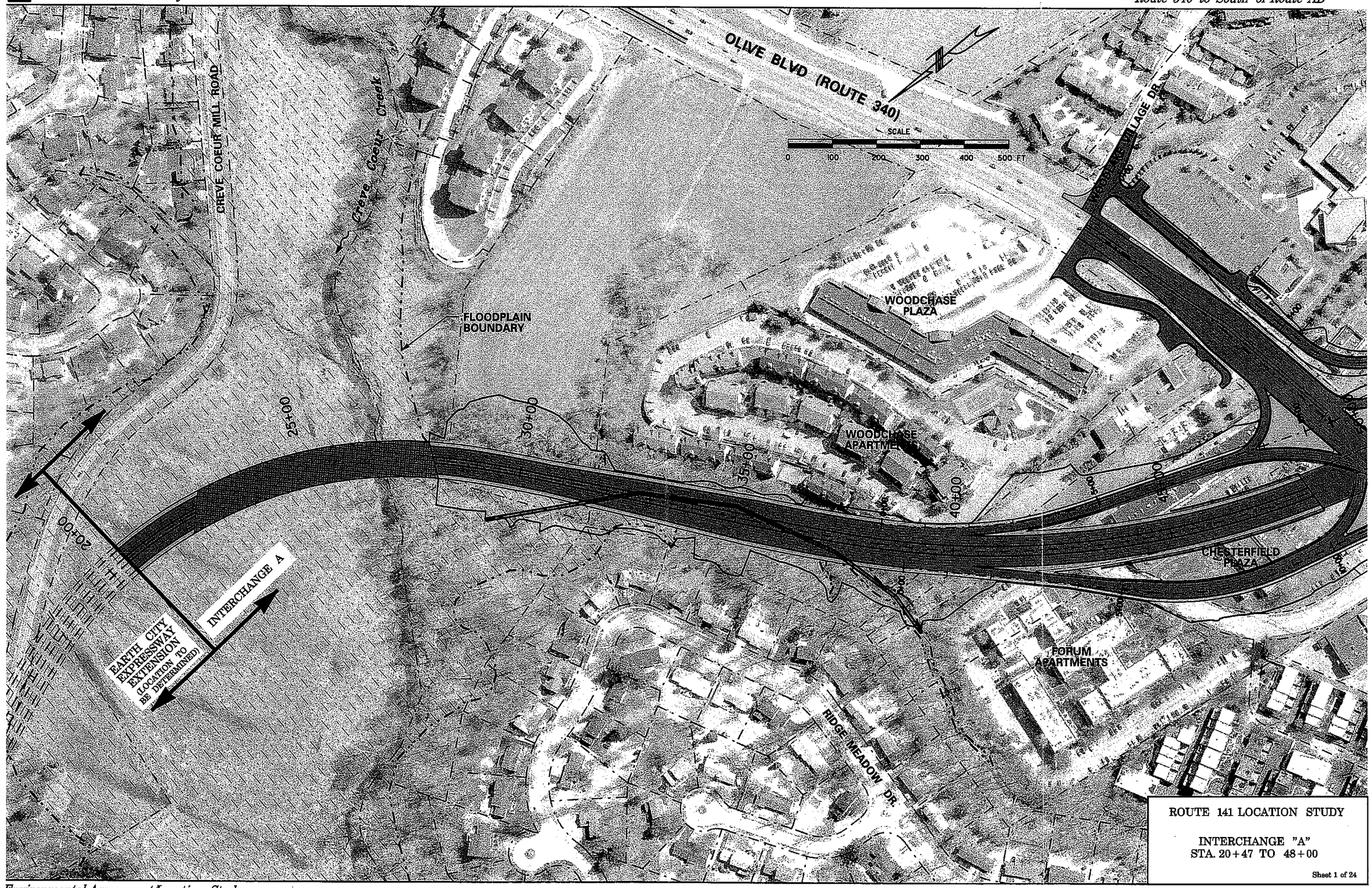
AR 11

AR 8

ROUTE 141 LOCATION STUDY

UNSURVEYED PORTION OF PARCEL 103

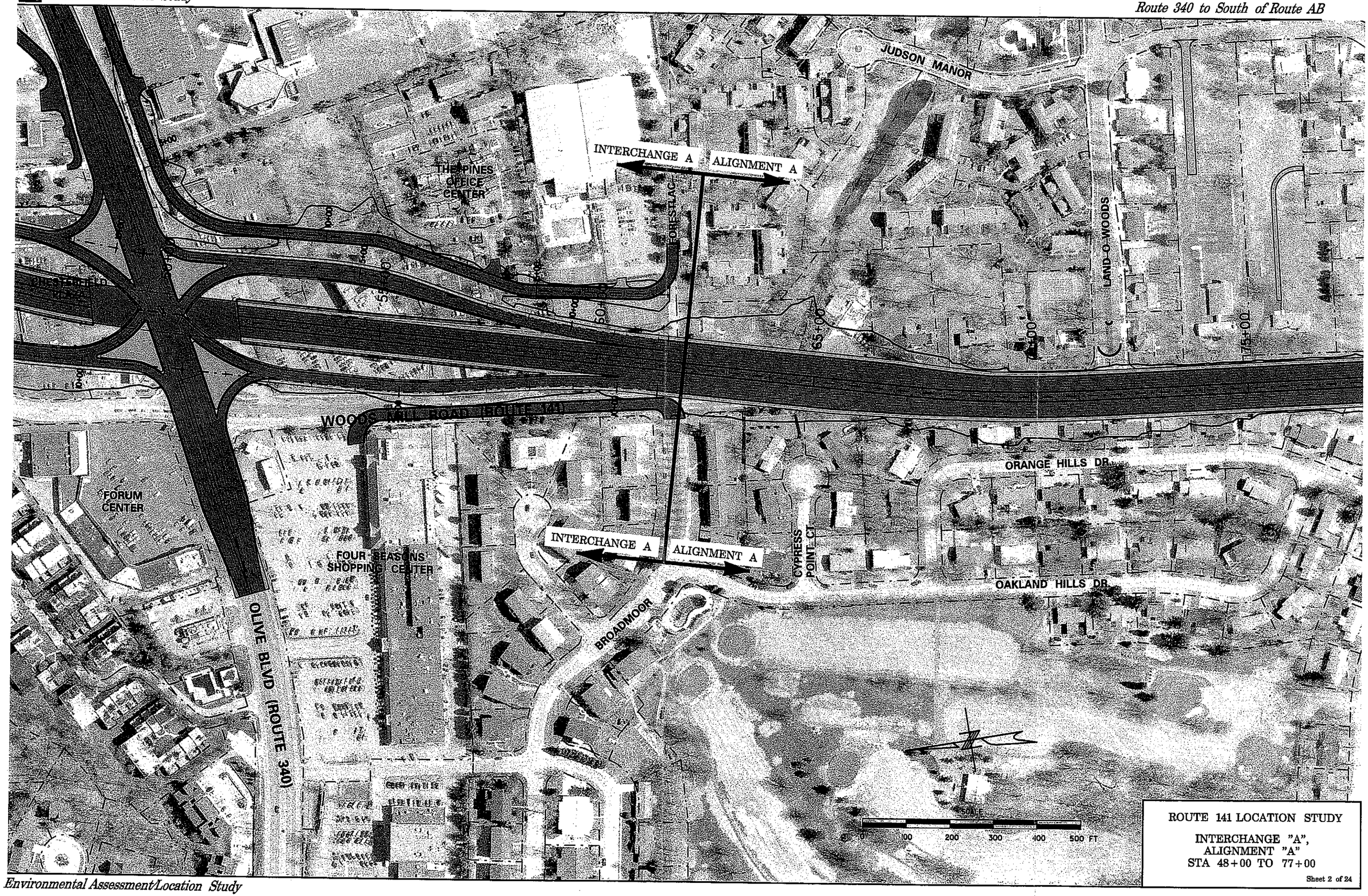
# APPENDIX A




ROUTE 141 LOCATION STUDY

INTERCHANGE "A"
STA. 20+47 TO 48+00

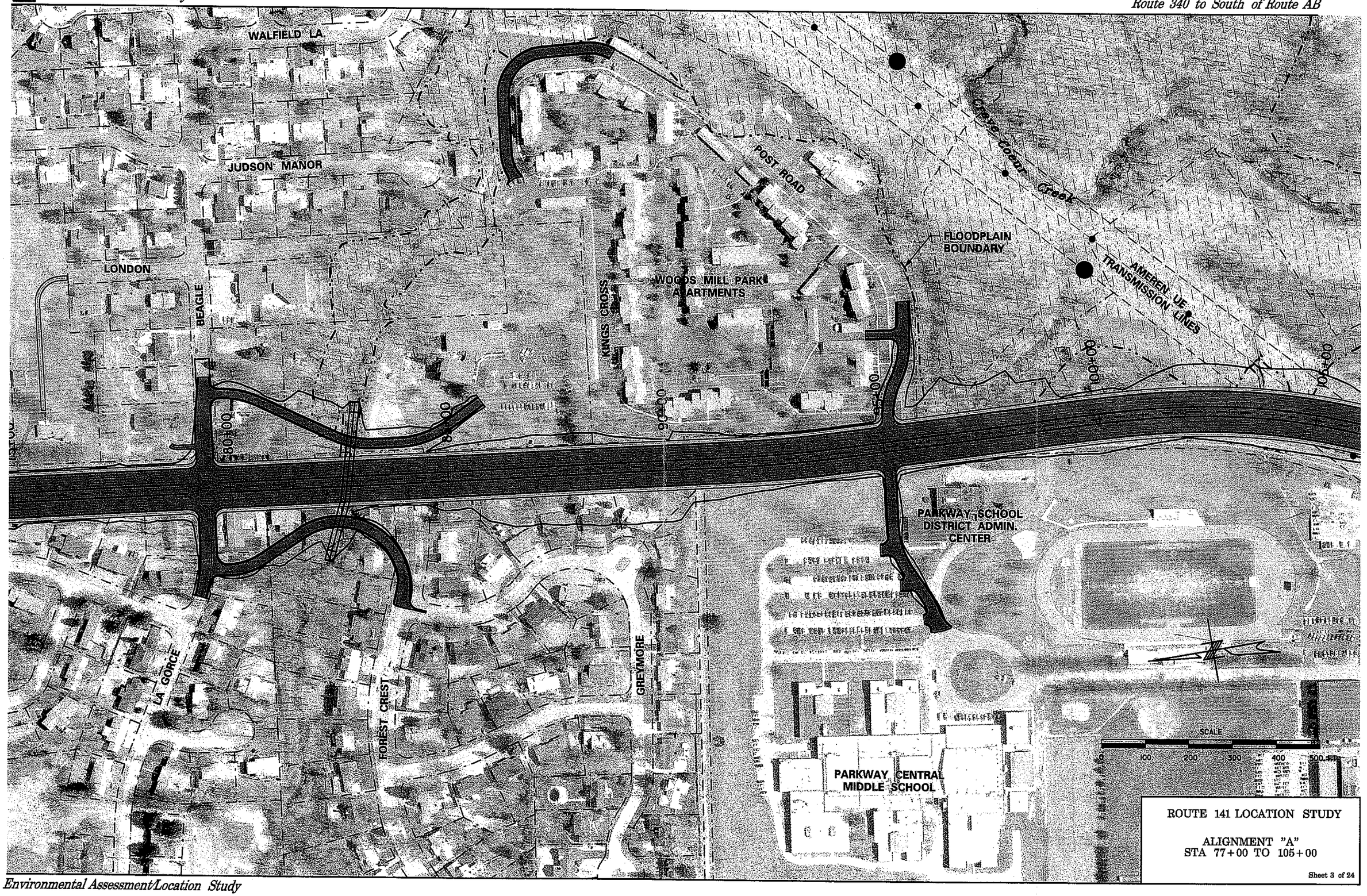
Sheet 1 of 24




ROUTE 141 LOCATION STUDY

INTERCHANGE "A",
ALIGNMENT "A"
STA 48+00 TO 77+00

Sheet 2 of 24




ROUTE 141 LOCATION STUDY

ALIGNMENT "A"
STA 77+00 TO 105+00

Sheet 3 of 24

ROUTE 141 LOCATION STUDY

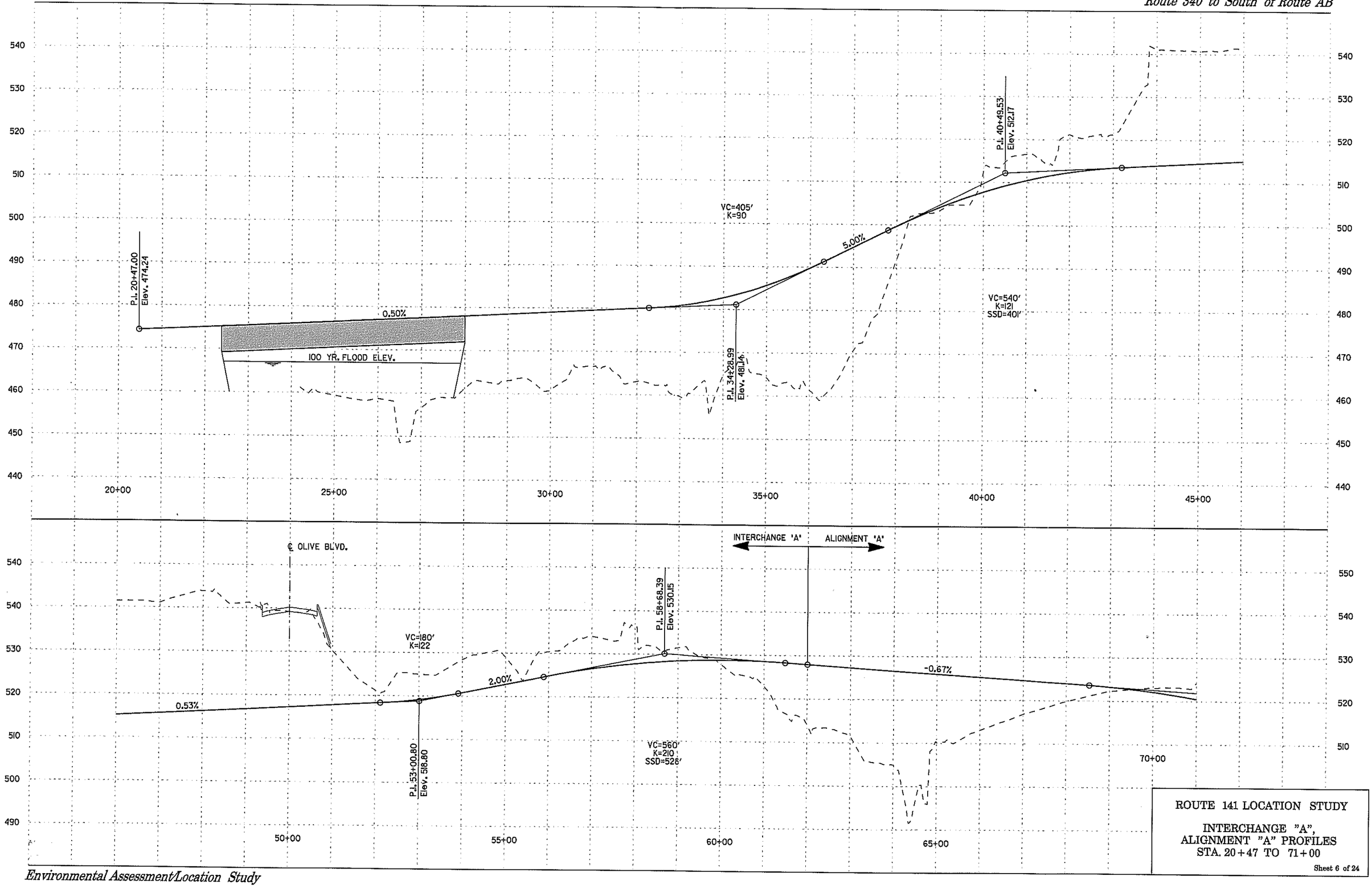
ALIGNMENT "A",
INTERCHANGE "D"
STA 105+00 TO 134+00

Sheet 4 of 24

LADUE ROAD (ROUTE AB)
25+00
130+00
135+00
140+00
AMEREN UE TRANSMISSION LINES
Grave Creek
Marryille Creek
FLOODPLAIN BOUNDARY
LADUE FARM ROAD
SCALE
0 100 200 300 400 500 FT
ROUTE 141 LOCATION STUDY
INTERCHANGE "D"
Sheet 5 of 24



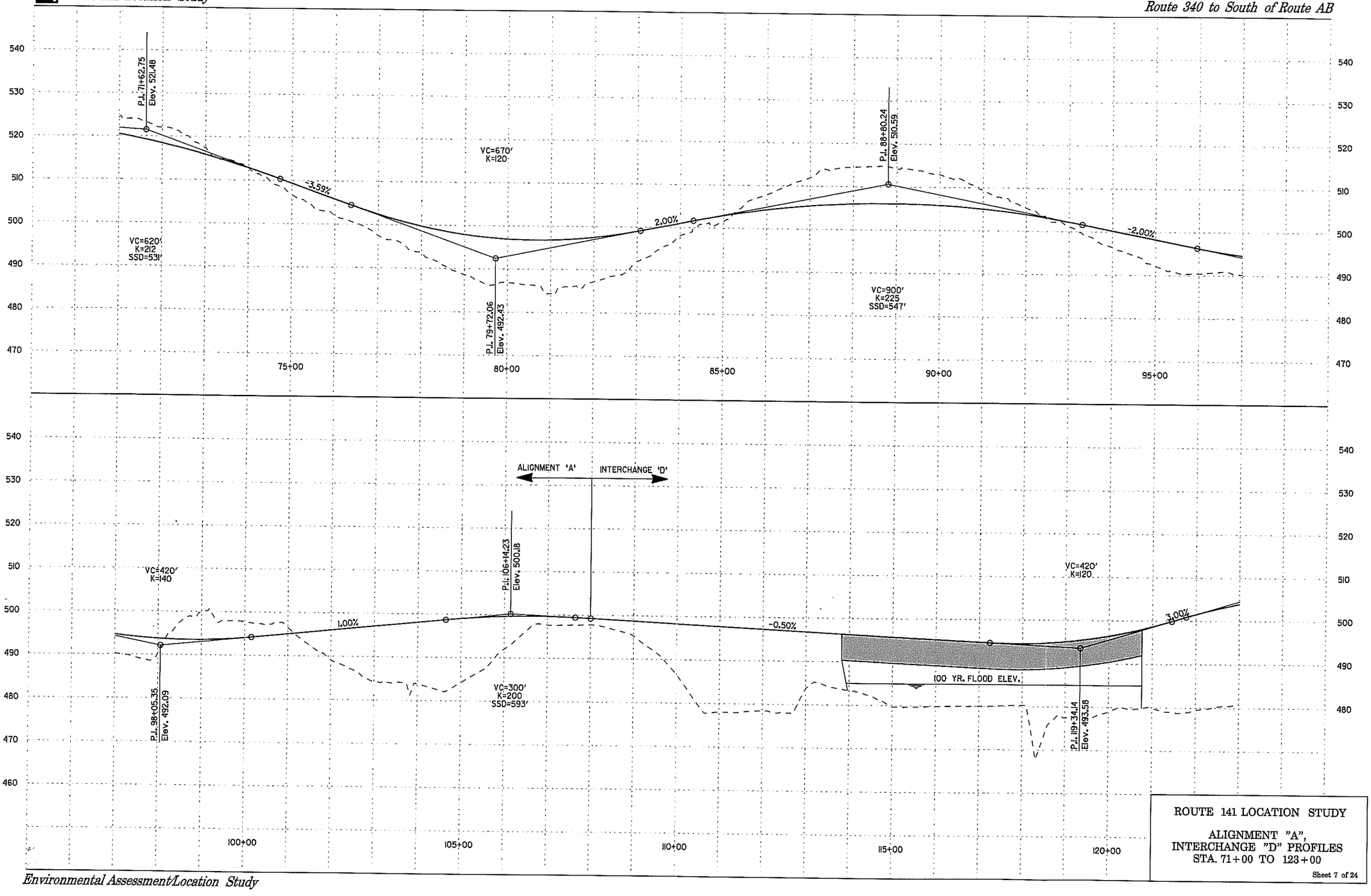
30-OCT-2002




ROUTE 141 LOCATION STUDY

INTERCHANGE "A",
ALIGNMENT "A" PROFILES
STA. 20+47 TO 71+00

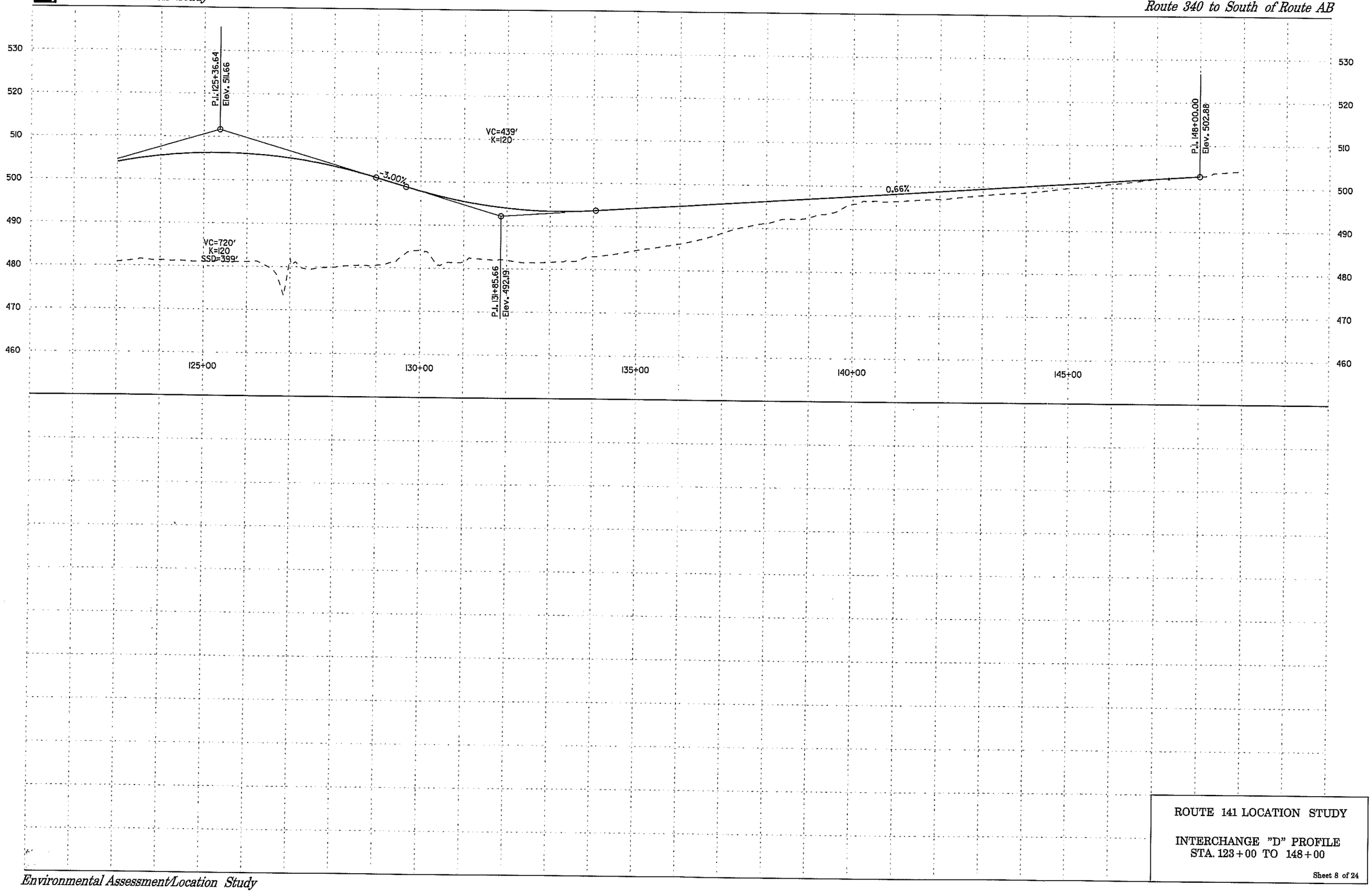
Sheet 6 of 24




ROUTE 141 LOCATION STUDY

ALIGNMENT "A",
INTERCHANGE "D" PROFILES
STA. 71+00 TO 123+00

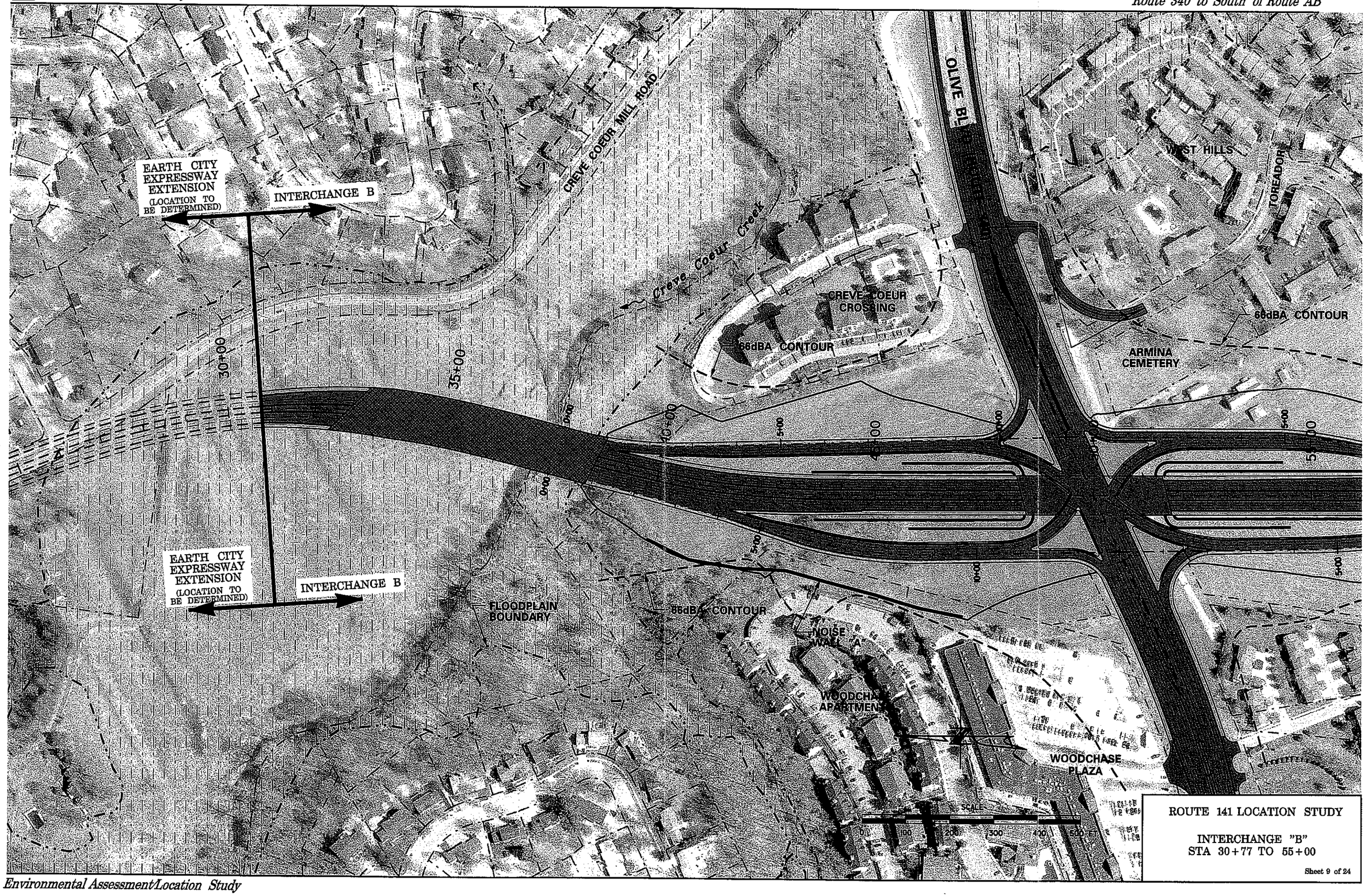
Sheet 7 of 24




ROUTE 141 LOCATION STUDY

INTERCHANGE "D" PROFILE
STA. 123+00 TO 148+00

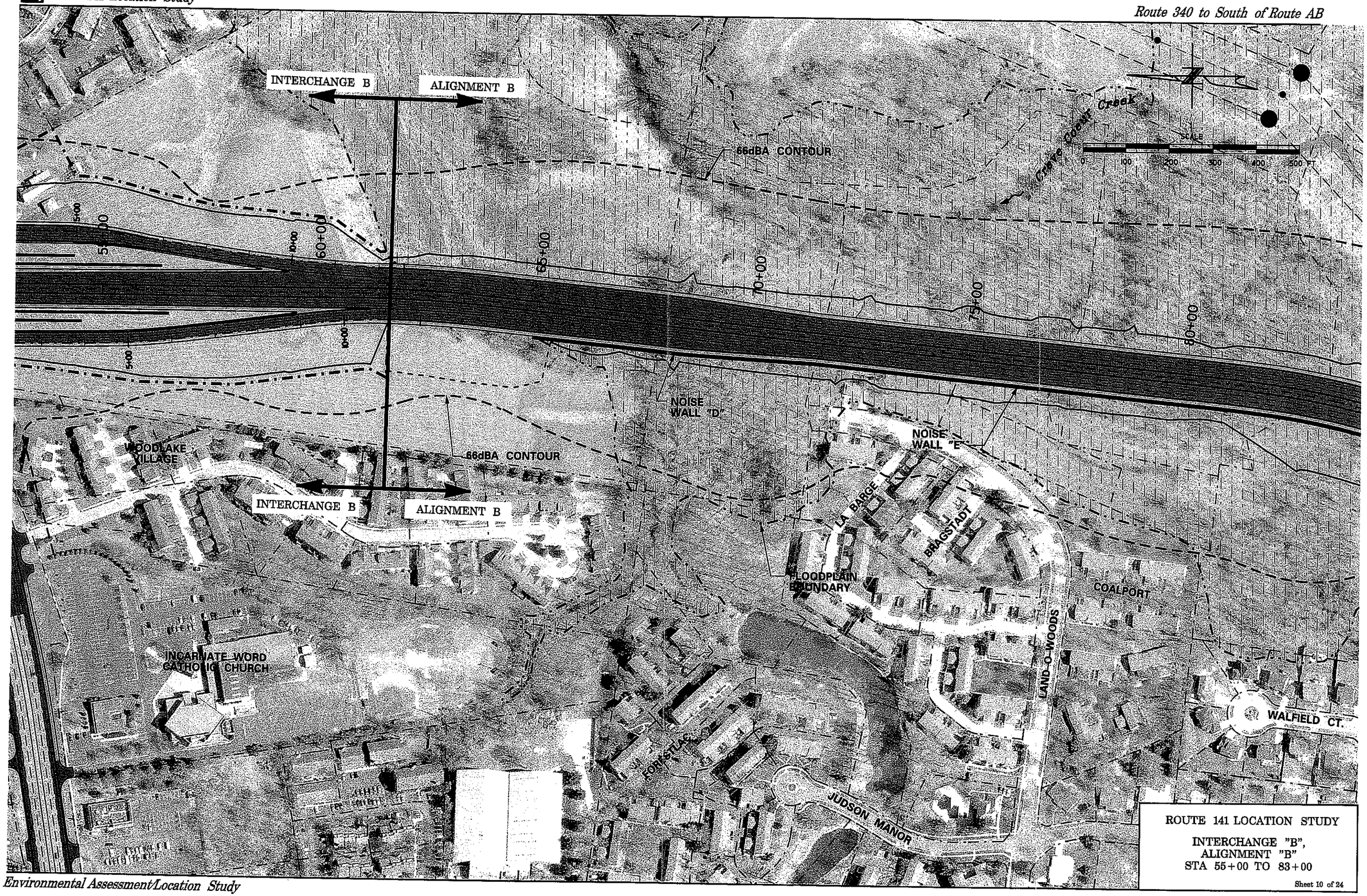
Sheet 8 of 24




ROUTE 141 LOCATION STUDY

INTERCHANGE "B"
STA 30+77 TO 55+00

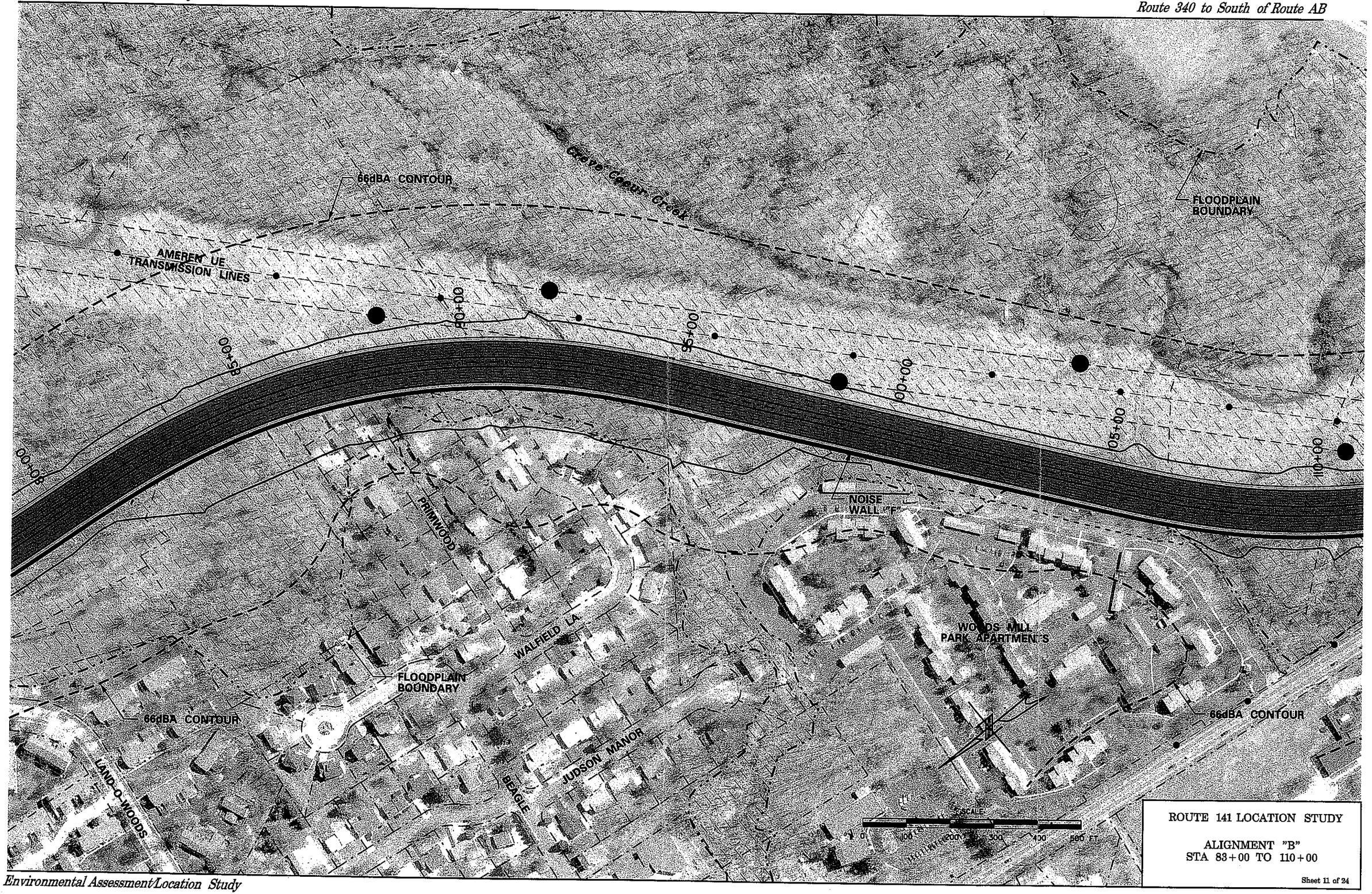
Sheet 9 of 24




ROUTE 141 LOCATION STUDY

INTERCHANGE "B",
ALIGNMENT "B"
STA 55+00 TO 83+00

Sheet 10 of 24

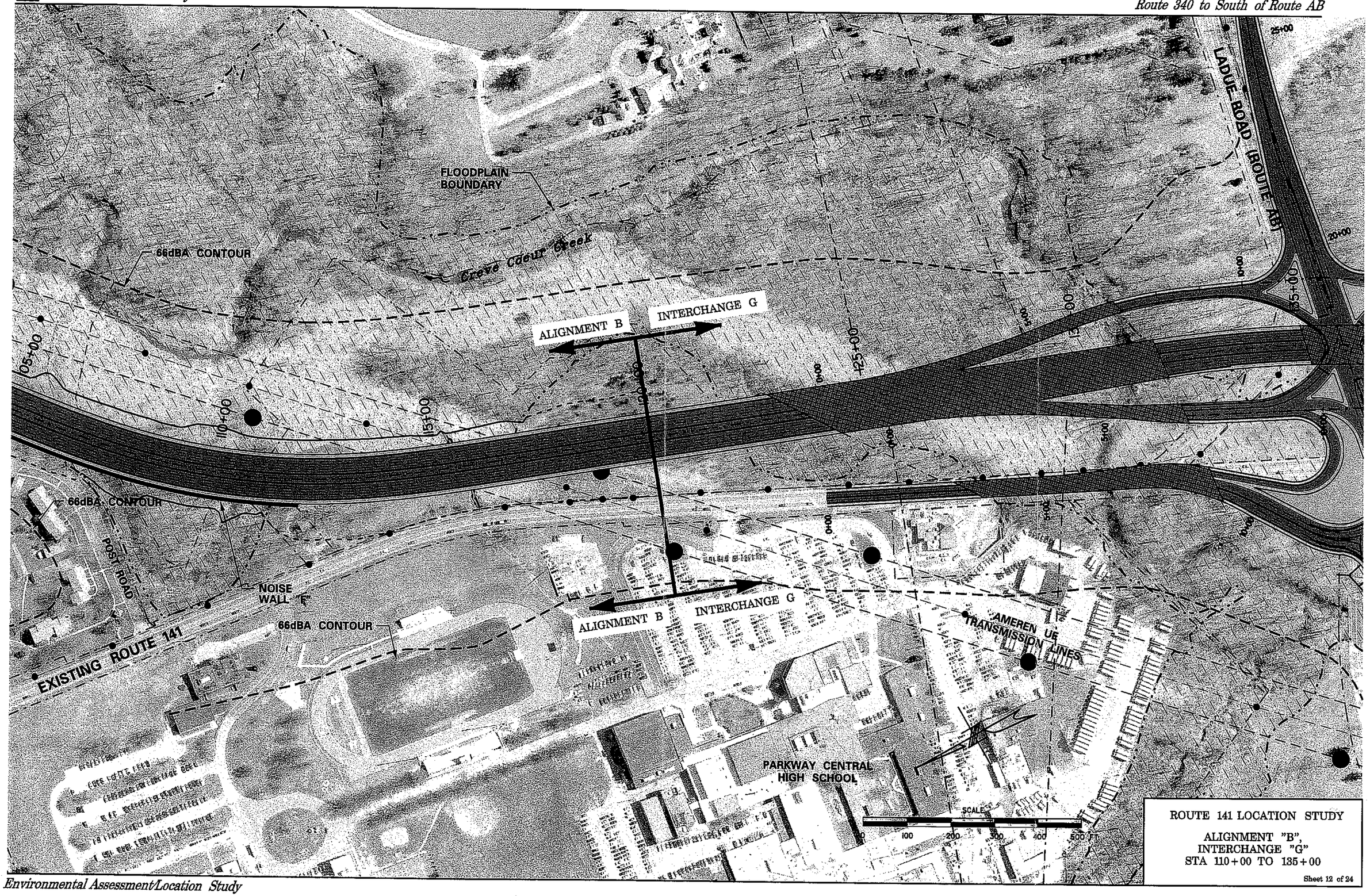



ROUTE 141 LOCATION STUDY

ALIGNMENT "B"
STA 83+00 TO 110+00

Sheet 11 of 24

30-OCT-2002




ROUTE 141 LOCATION STUDY

ALIGNMENT "B",
INTERCHANGE "G"
STA 110+00 TO 135+00

Sheet 12 of 24



31-OCT-2002

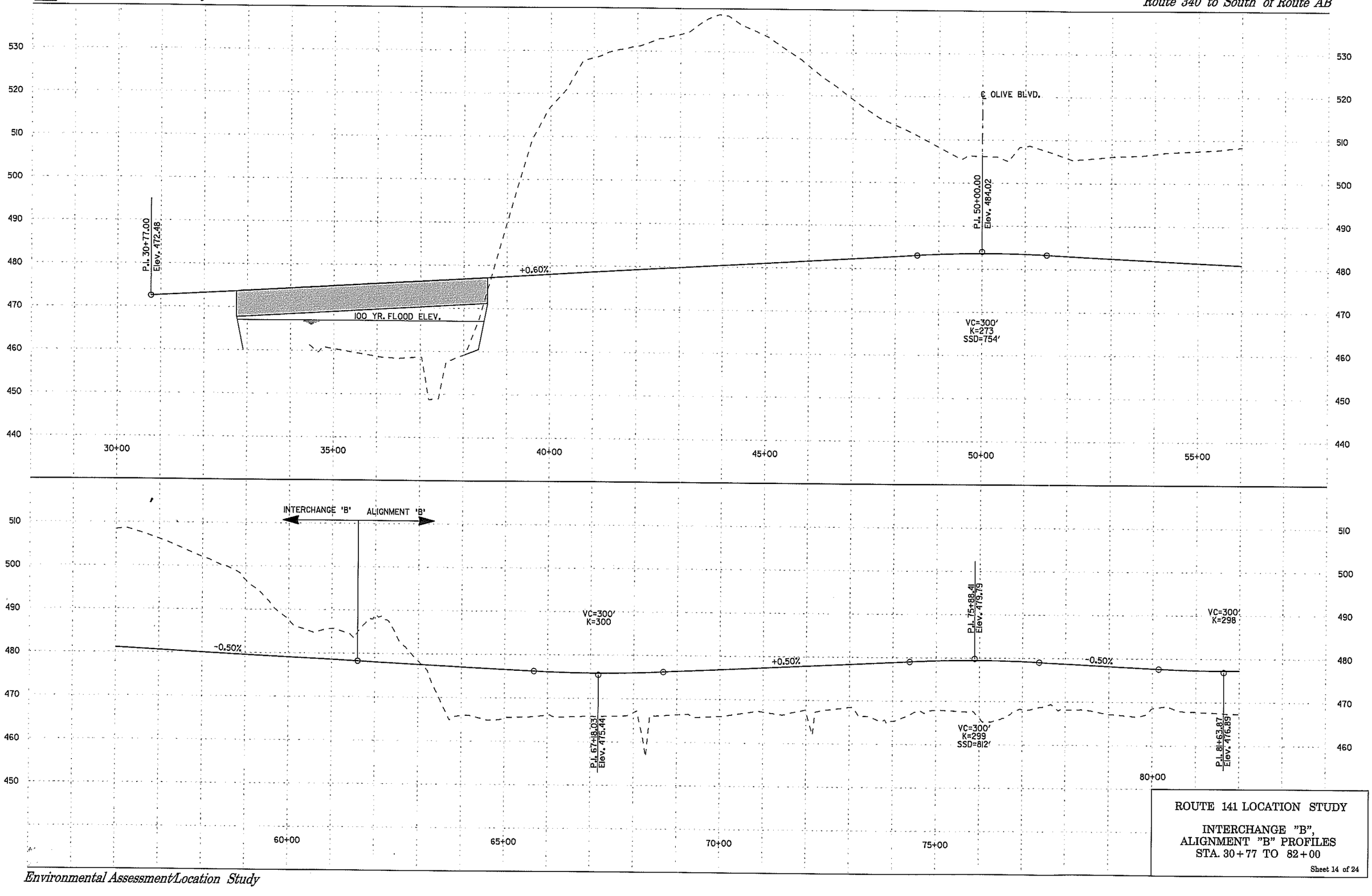
ROUTE 141 LOCATION STUDY

INTERCHANGE "G"

Sheet 13 of 24



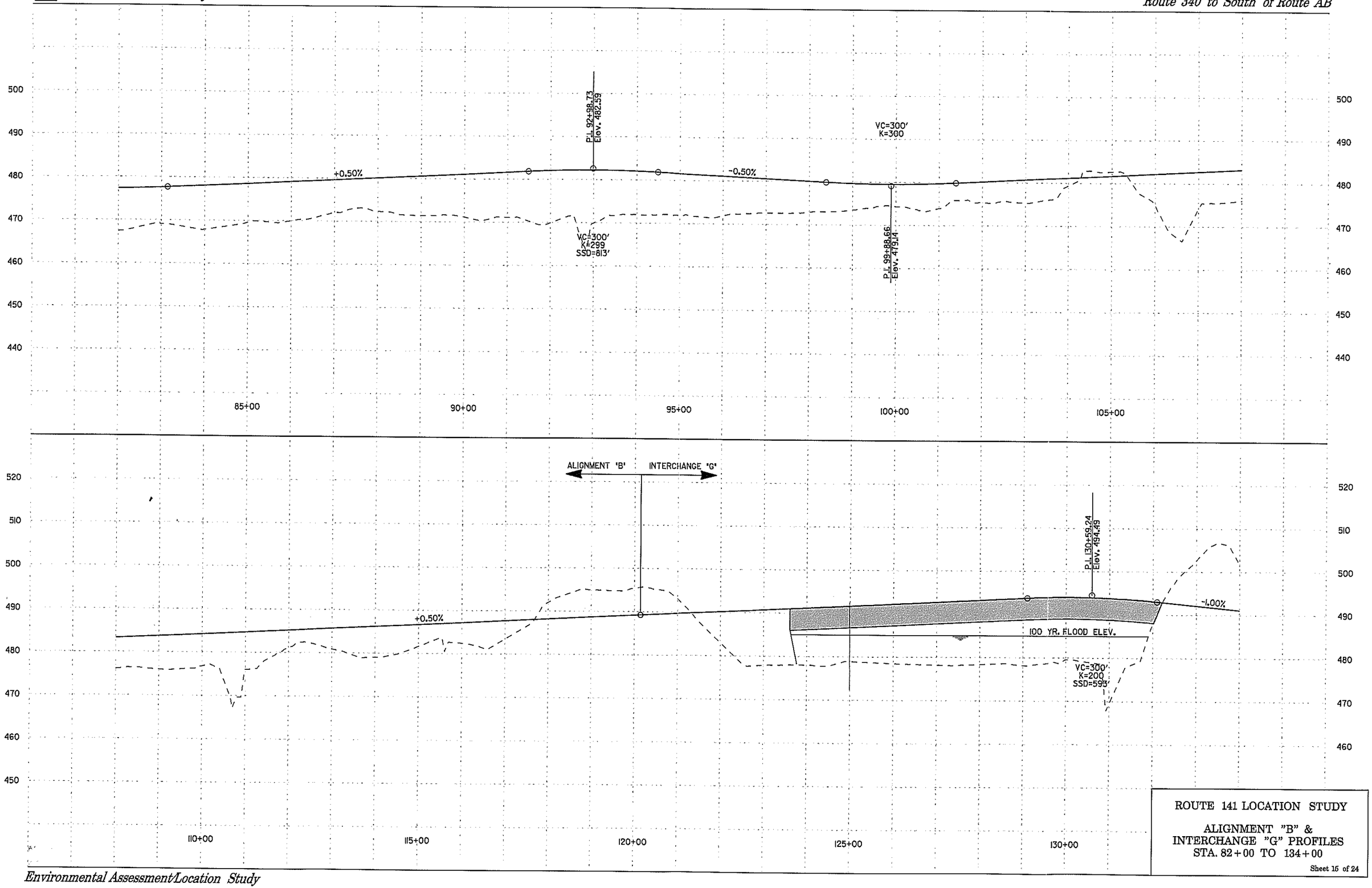
30-OCT-2002




ROUTE 141 LOCATION STUDY

INTERCHANGE "B",
ALIGNMENT "B" PROFILES
STA. 30+77 TO 82+00

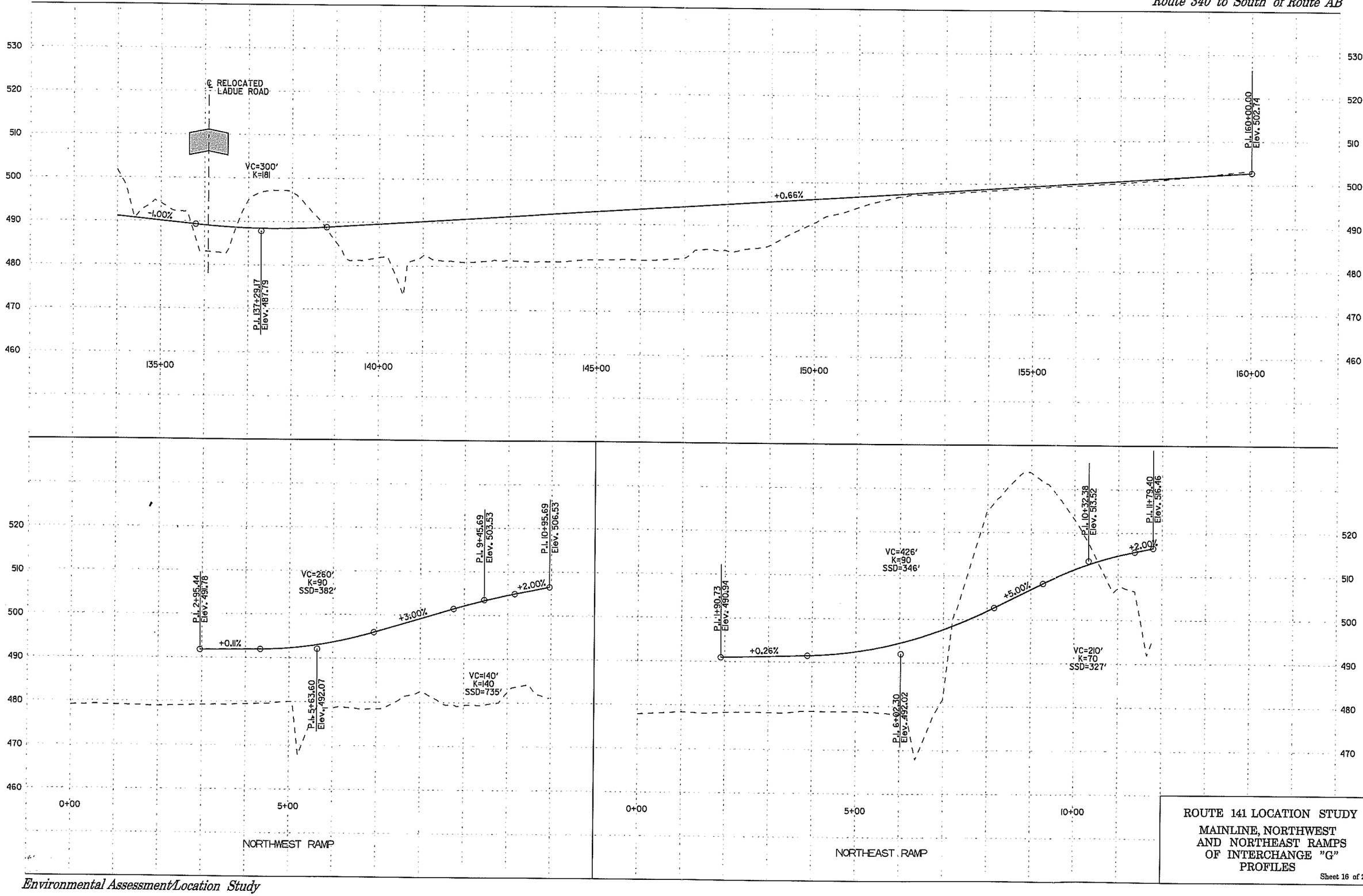
Sheet 14 of 24



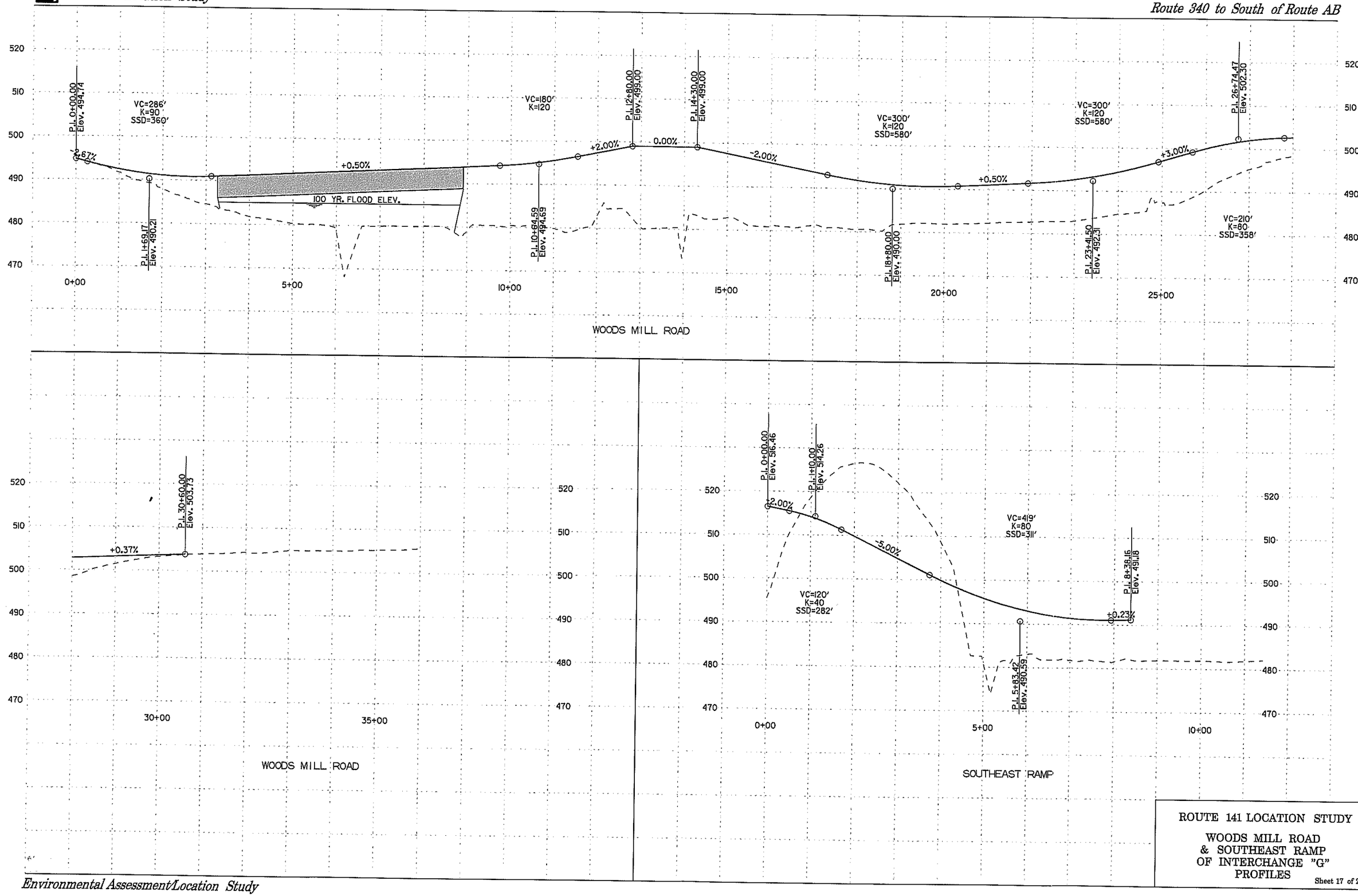

ROUTE 141 LOCATION STUDY

ALIGNMENT "B" &
INTERCHANGE "G" PROFILES
STA. 82+00 TO 134+00

Sheet 16 of 24



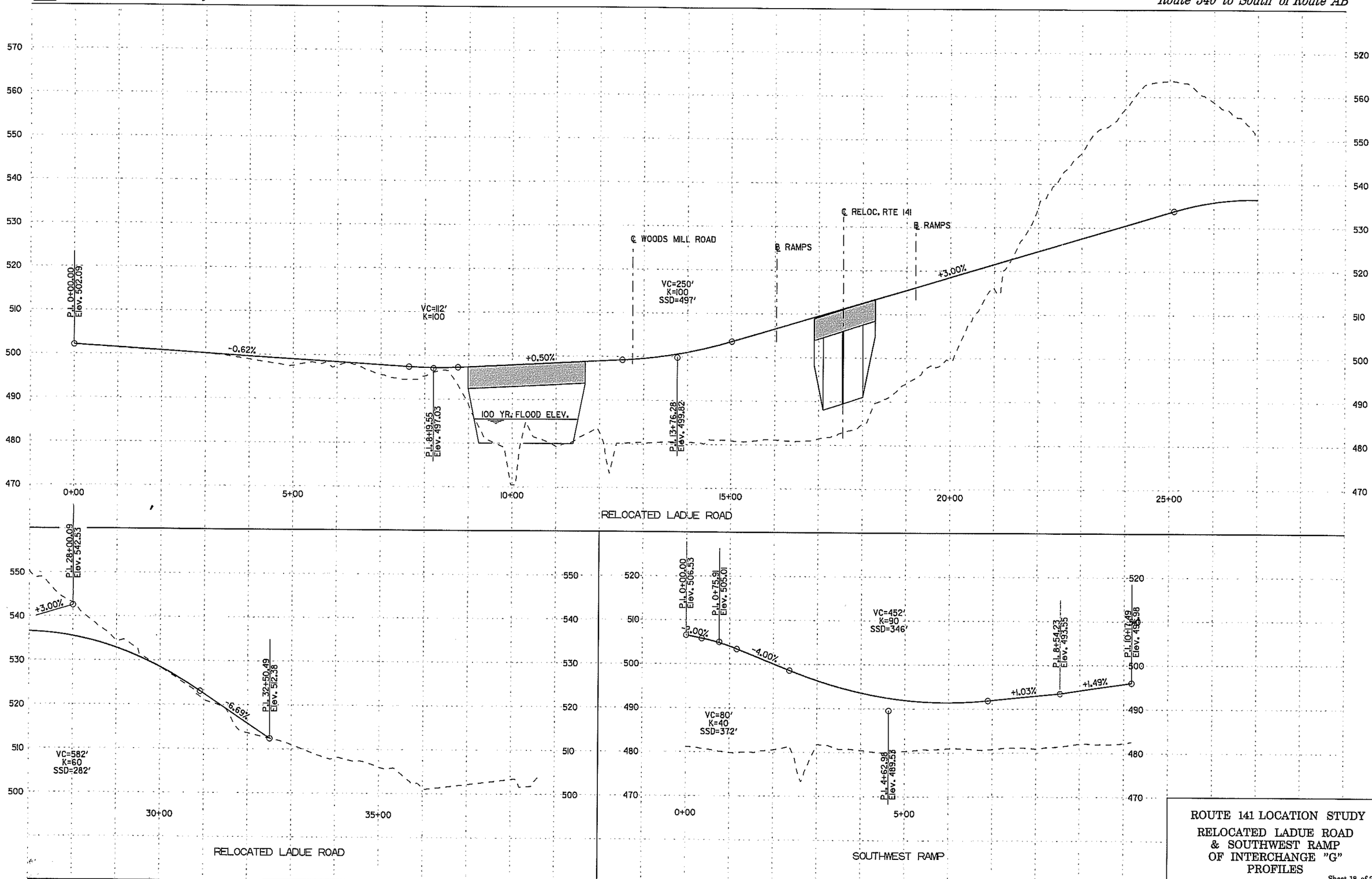

ROUTE 141 LOCATION STUDY
MAINLINE, NORTHWEST AND NORTHEAST RAMPS OF INTERCHANGE "G" PROFILES
Sheet 16 of 24



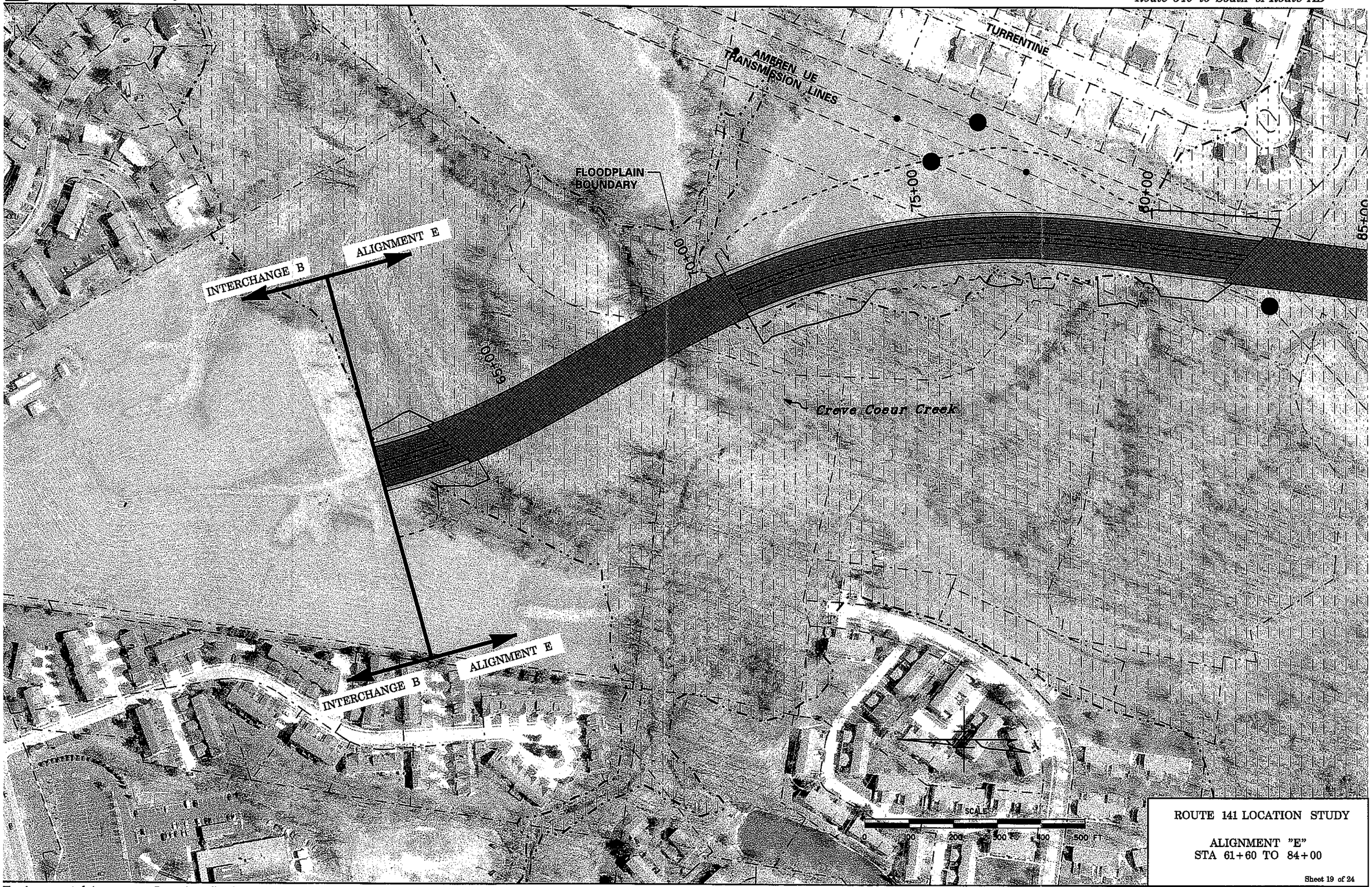

ROUTE 141 LOCATION STUDY

WOODS MILL ROAD
& SOUTHEAST RAMP
OF INTERCHANGE "G"
PROFILES

Sheet 17 of 24




ROUTE 141 LOCATION STUDY
RELOCATED LADUE ROAD
& SOUTHWEST RAMP
OF INTERCHANGE "G"
PROFILES
Sheet 18 of 24




ROUTE 141 LOCATION STUDY

ALIGNMENT "E"
STA 61+60 TO 84+00

Sheet 19 of 24



30-OCT-2002
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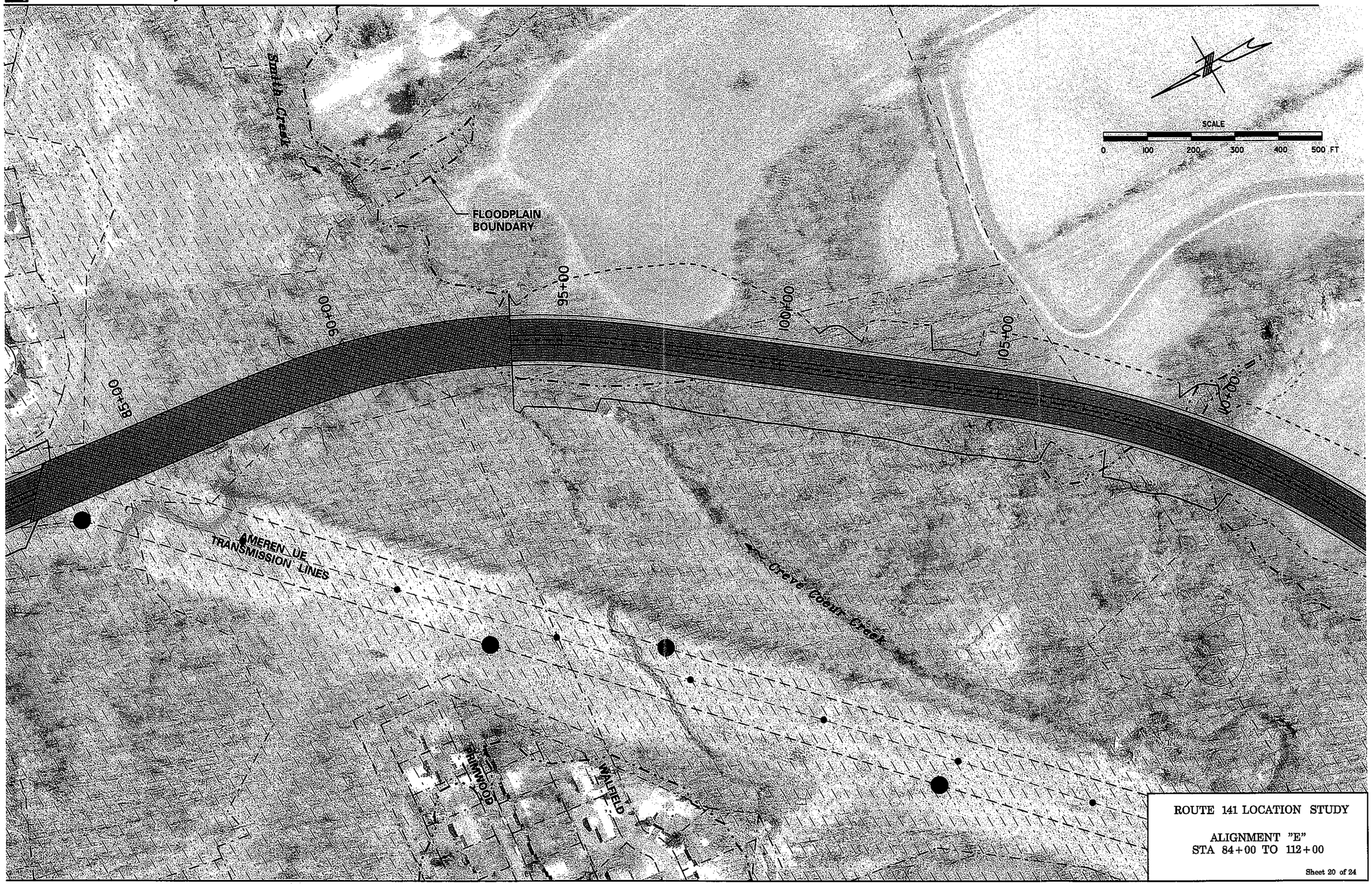
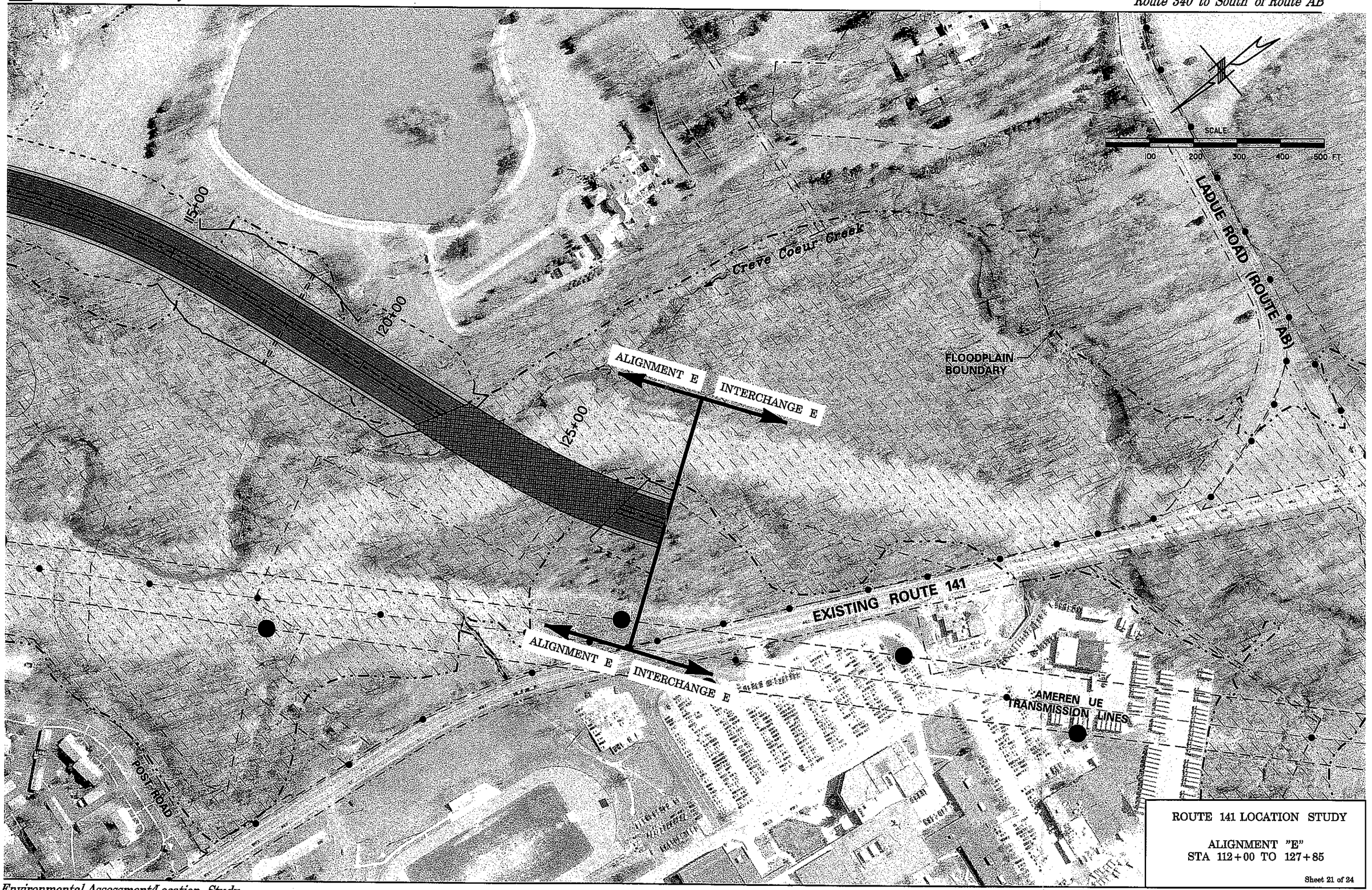



ROUTE 141 LOCATION STUDY

ALIGNMENT "E"
STA 84+00 TO 112+00

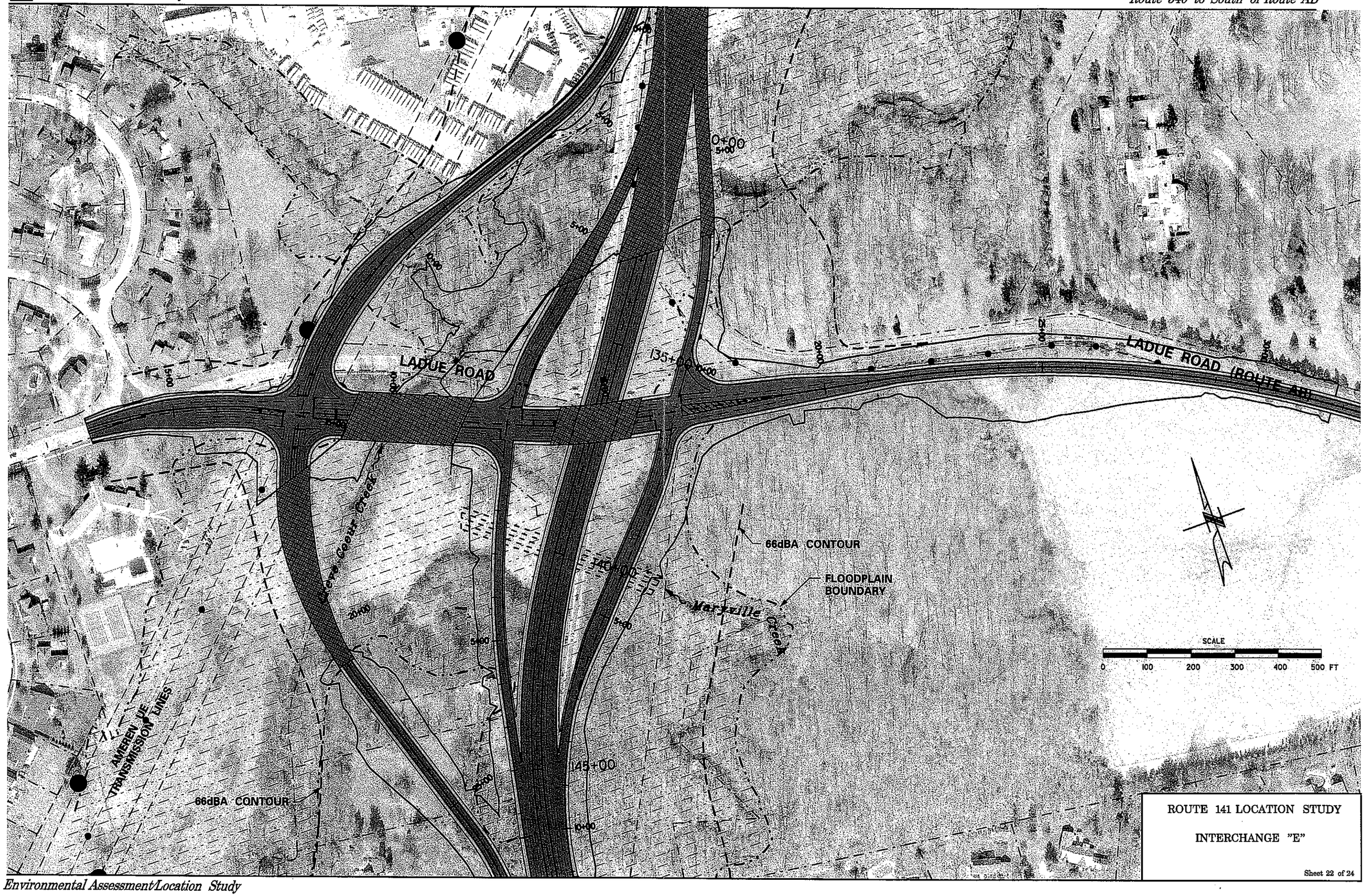
Sheet 20 of 24




ROUTE 141 LOCATION STUDY

ALIGNMENT "E"
STA 112+00 TO 127+85

Sheet 21 of 24



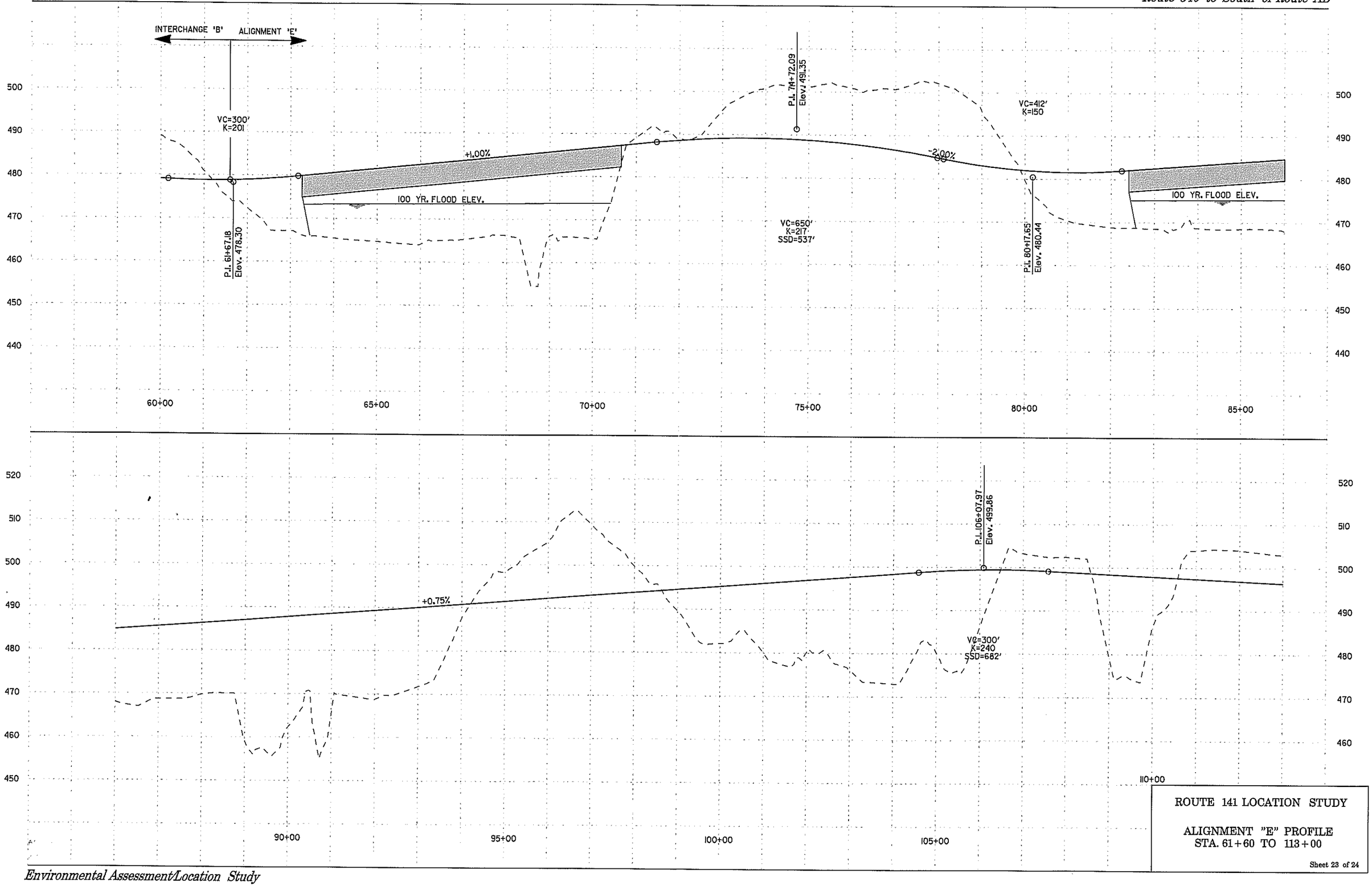

ROUTE 141 LOCATION STUDY

INTERCHANGE "E"

Sheet 22 of 24



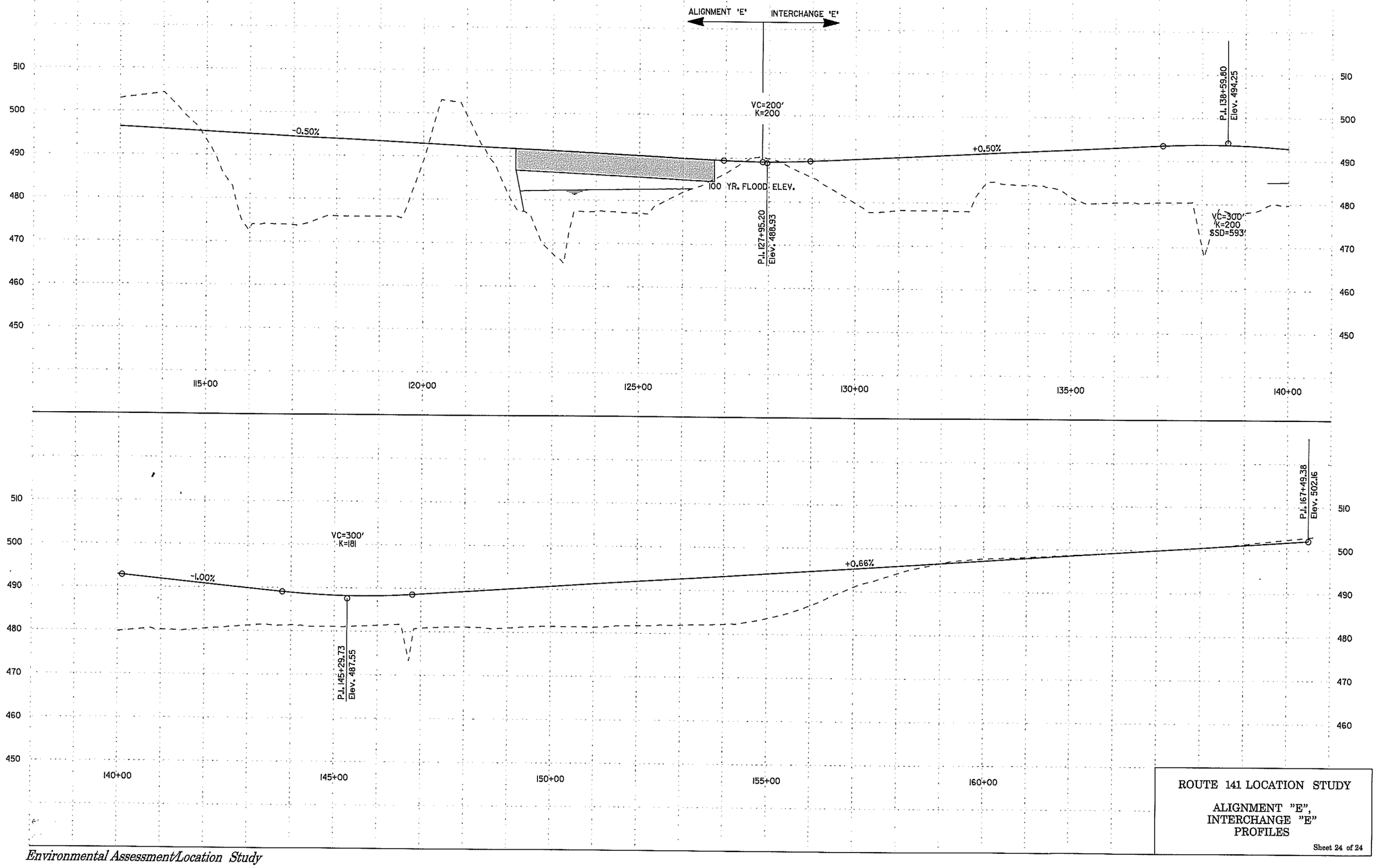
30-OCT-2002




ROUTE 141 LOCATION STUDY

ALIGNMENT "E" PROFILE
STA. 61+60 TO 113+00

Sheet 23 of 24




ROUTE 141 LOCATION STUDY

ALIGNMENT "E",
INTERCHANGE "E"
PROFILES

Sheet 24 of 24

# APPENDIX B

# SOUND STUDY SUMMARY

ROUTE 141
ST LOUIS COUNTY
JOB NO 6U0807

2/21/01

| SOUND WALL | MODEL NUMBER/ RECEIVER NUMBER | LOCATION STA. | LOCATION OFFSET | SOUND WALL HEIGHT | SOUND WALL LENGTH | COMP. SIMULATION dBA $L_{eq}$ W/O WALL | COMP. SIMULATION dBA $L_{eq}$ WITH WALL | COMP. SIMULATION dBA $L_{eq}$ REDUCTION | NUMBER OF SITES PROTECTED | ESTIMATED COST FOR EACH SOUNDWALL $ | COST PER PROJECTED SITE | MEETS CRITERIA FOR CONSIDERATION (a) - (f) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | M1/R1 | 42+84 | 400' Rt. | 10' | 511' +/- | 60.0 | 59.3 | 0.7 | 6 Apt 6 | $124,000 | $20,670 | YES | M1/R3 was an impacted receiver by exceeding a 66 dBA level and by increasing more than 15 dBA above the existing noise level. |
| | M1/R2 | 42+03 | 307' Rt. | | | 62 5 | 61.9 | 0.6 | | | | | |
| | M1/R3 *# | 43+48 | 271' Rt. | | | 67 5 | 61.9 | 5.6 | | | | | |
| | M1/R4 | 45+22 | 363' Rt. | | | 57.8 | 55.8 | 2.0 | | | | | |
| | M1/R5 | 45+09 | 456' Rt. | | | 56.7 | 56.4 | 0.3 | | | | | |
| B | M2/R1 | 41+83 | 257' Lt. | 18' | 214' +/- | 65.2 | 65.2 | 0.0 | | $93,300 | | NO | M2/R4 was an impacted receiver by exceeding a 66 dBA level, but was not benefitted by any wall. The noise on Olive Blvd. was too great to allow noise level to drop by 5 dBA. An 18' wall reduced the noise level by 1.3 dBA |
| | M2/R2 | 43+23 | 339' Lt. | | | 61.6 | 61.2 | 0.4 | | | | | |
| | M2/R3 | 44+43 | 367' Lt. | | | 62 7 | 62.0 | 0.7 | | | | | |
| | M2/R4 * | 45+87 | 396' Lt. | | | 68.6 | 67.3 | 1.3 | | | | | |
| C | M3/R1 * | 54+02 | 403' Lt. | 18' | 1126' +/- | 63.5 | 61.7 | 1.8 | | $491,500 | | NO | M3/R1 was an impacted receiver by exceeding a 66 dBA level, but was not benefitted by any wall. The noise wall is too distant from receiver to create a noise level drop of 5 dBA. An 18' wall reduced the noise level by 2.0 dBA. |
| | M3/R2 | 54+70 | 446' Lt. | | | 61.4 | 59.4 | 2 0 | | | | | |
| | M3/R3 | 55+93 | 515' Lt. | | | 60.1 | 58.1 | 2.0 | | | | | |
| | M3/R4 | 56+93 | 550' Lt. | | | 59.6 | 58.1 | 1 5 | | | | | |
| | M3/R5 | 56+45 | 649' Lt. | | | 58.9 | 57.9 | 1.0 | | | | | |
| | M3/R6 | 56+04 | 716' Lt. | | | 59.7 | 59.2 | 0.5 | | | | | |
| | M3/R7 | 55+44 | 762' Lt. | | | 59.4 | 59.2 | 0.2 | | | | | |
| | M3/R8 | 54+64 | 566' Lt. | | | 60.7 | 58.7 | 2.0 | | | | | |
| | M3/R9 | 52+37 | 540' Lt. | | | 63.6 | 63.3 | 0.3 | | | | | |
| | M3/R10 | 53+45 | 622' Lt. | | | 60.9 | 60.7 | 0.2 | | | | | |
| | M3/R11 | 56+19 | 836' Lt. | | | 53.2 | 53.3 | -0.1 | | | | | |
| | M3/R12 | 56+73 | 851' Lt. | | | 51.8 | 51.8 | 0.0 | | | | | |
| | M3/R13 | 57+14 | 899' Lt. | | | 52.3 | 52.1 | 0.2 | | | | | |
| | M3/R14 | 57+75 | 1025' Lt. | | | 53.2 | 52.9 | 0.3 | | | | | |

* - Sound Level at or above 66 dBA.
\# - Sound Level increased by 15 dBA or more.

# SOUND STUDY SUMMARY

ROUTE 141
ST. LOUIS COUNTY
JOB NO. 6U0807

2/21/01

| SOUND WALL | MODEL NUMBER/ RECEIVER NUMBER | LOCATION STA. | LOCATION OFFSET | SOUND WALL HEIGHT | SOUND WALL LENGTH | COMP. SIMULATION dBA $L_{eq}$ W/O WALL | COMP. SIMULATION dBA $L_{eq}$ WITH WALL | COMP. SIMULATION dBA $L_{eq}$ REDUC-TION | NUMBER OF SITES PROTECTED | ESTIMATED COST FOR EACH SOUNDWALL $ | COST PER PROJECTED SITE | MEETS CRITERIA FOR CONSIDERATION (a) - (f) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M4/R1 # | 53+39 | 267' Rt. | | | 69.5 | 68.1 | 1.4 | | | | | M4/R1 and M4/R2 were impacted receivers by exceeding the 66 dBA level, but were not benefilted by any wall. The noise on Olive Blvd. was too great to allow noise levels to drop by 5 dBA. An 18' wall reduced the noise level by 1.6 and 3.1 dBA respectively. R9 and R10 were impacted receivers by increasing more than 15 dBA above the existing noise level. The south end of this wall connects to the north end of Wall "E". |
| | M4/R2 # | 54+45 | 281' Rt. | | | 66.9 | 64.1 | 2.8 | | | | | |
| | M4/R3 | 55+71 | 300' Rt. | | | 64.5 | 62.6 | 1.9 | | | | | |
| | M4/R4 | 57+06 | 313' Rt. | | | 64.0 | 63.1 | 0.9 | | | | | |
| | M4/R5 | 59+28 | 345' Rt. | | | 64 0 | 63.7 | 0.3 | | | | | |
| | M4/R6 | 61+51 | 368' Rt. | | | 62.5 | 62.0 | 0.5 | | | | | |
| | M4/R7 | 62+22 | 392' Rt. | | | 60.4 | 59.0 | 1.4 | | | | | |
| | M4/R8 | 63+71 | 412' Rt. | | | 59.2 | 53.8 | 5.4 | | | | | |
| D | M4/R9 * | 65+63 | 414' Rt. | 16' | 400' +/- | 63.0 | 57.1 | 5.9 | 6 Apt 9 | $155,200 | $17,244 | YES | |
| | M4/R10 * | 67+07 | 387' Rt. | | | 63.3 | 58.2 | 5.1 | 3 Apt | | | | |
| | M4/R11 | 65+22 | 549' Rt. | | | 50.6 | 48.3 | 2.3 | | | | | |
| | M4/R12 | 63+78 | 556' Rt. | | | 56 1 | 53.3 | 2.8 | | | | | |
| | M4/R13 | 62+85 | 572' Rt. | | | 51 4 | 50.8 | 0.6 | | | | | |
| | M4/R14 | 61+77 | 581' Rt. | | | 52.3 | 51.8 | 0.5 | | | | | |
| | M4/R15 | 60+27 | 535' Rt. | | | 55.6 | 55.6 | 0.0 | | | | | |
| | M4/R16 | 58+28 | 432' Rt. | | | 59 7 | 59.7 | 0.0 | | | | | |
| | M4/R17 | 56+95 | 454' Rt. | | | 59 4 | 59.2 | 0.2 | | | | | |
| | M4/R18 | 56+20 | 482' Rt. | | | 60.7 | 60.0 | 0 7 | | | | | |
| | M4/R19 | 53+81 | 433' Rt. | | | 56 6 | 54.5 | 2.1 | | | | | |

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# SOUND STUDY SUMMARY

ROUTE 141
ST. LOUIS COUNTY
JOB NO. 6U0807

2/21/01

| SOUND WALL | MODEL NUMBER/ RECEIVER NUMBER | LOCATION | | SOUND WALL HEIGHT | SOUND WALL LENGTH | COMP. SIMULATION dBA $L_{eq}$ | | | NUMBER OF SITES PROTECTED | ESTIMATED COST FOR EACH SOUNDWALL $ | COST PER PROJECTED SITE | MEETS CRITERIA FOR CONSIDERATION (a) - (f) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | STA. | OFFSET | | | W/O WALL | WITH WALL | REDUC-TION | | | | | |
| E | M5/R1 *# | 72+69 | 160' Rt | 12-18' | 1000' +/- | 72.0 | 63.4 | 8.6 | 4 Apt | | | | M5/R18, M5/R19, and M5/R23 were impacted receivers by increasing more than 15 dBA above the existing noise level, but were not benefitted by any wall. An 18' wall reduced the noise level by 4.7, 3.4, and 1.4 dBA, respectively. The north end of this wall connects with the south end of Wall "D". The south end of this wall connects with the north end of Wall "F" |
| | M5/R2 *# | 74+33 | 201' Rt. | | | 69.6 | 61.9 | 7.7 | 4 Apt | | | | |
| | M5/R3 *# | 75+07 | 238' Rt. | | | 66.9 | 59.7 | 7.2 | 2 Apt | | | | |
| | M5/R4 * | 75+99 | 320' Rt. | | | 65.4 | 58.5 | 6.9 | 4 Apt | | | | |
| | M5/R5 * | 76+48 | 365' Rt. | | | 64.3 | 57.5 | 6.8 | 4 Apt | | | | |
| | M5/R6 * | 78+40 | 392' Rt. | | | 63.8 | 56.9 | 6.9 | 4 Apt | | | | |
| | M5/R7 * | 79+39 | 402' Rt. | | | 63.6 | 56.8 | 6.8 | 4 Apt | | | | |
| | M5/R8 | 79+48 | 517' Rt. | | | 55.1 | 51.5 | 3.6 | | | | | |
| | M5/R9 * | 78+28 | 503' Rt. | | | 59.3 | 53.1 | 6.2 | 4 Apt | | | | |
| | M5/R10 * | 76+40 | 488' Rt. | | | 60.2 | 52.1 | 8.1 | 4 Apt | | | | |
| | M5/R11 * | 75+06 | 489' Rt. | | | 59.8 | 52.1 | 7.7 | 4 Apt | 56 | $354,100 | $6,323 | YES |
| | M5/R12 | 73+95 | 462' Rt. | | | 52.7 | 48.3 | 4.4 | | | | | |
| | M5/R13 * | 74+04 | 352' Rt. | | | 60.0 | 54.1 | 5.9 | 4 Apt | | | | |
| | M5/R14 * | 73+59 | 307' Rt. | | | 64.4 | 58.4 | 6.0 | 2 Apt | | | | |
| | M5/R15 * | 73+07 | 367' Rt. | | | 64.5 | 57.5 | 7.0 | 4 Apt | | | | |
| | M5/R16 * | 72+00 | 394' Rt. | | | 65.6 | 59.0 | 6.6 | 4 Apt | | | | |
| | M5/R17 * | 72+58 | 544' Rt. | | | 62.6 | 57.1 | 5.5 | 4 Apt | | | | |
| | M5/R18 * | 73+57 | 600' Rt. | | | 59.7 | 55.3 | 4.4 | | | | | |
| | M5/R19 * | 74+30 | 605' Rt. | | | 57.7 | 54.5 | 3.2 | | | | | |
| | M5/R20 | 75+21 | 609' Rt. | | | 54.8 | 53.4 | 1.4 | | | | | |
| | M5/R21 | 76+21 | 604' Rt. | | | 54.7 | 51.2 | 3.5 | | | | | |
| | M5/R22 | 78+19 | 627' Rt. | | | 53.8 | 49.9 | 3.9 | | | | | |
| | M5/R23 * | 79+49 | 617' Rt. | | | 56.7 | 55.4 | 1.3 | | | | | |

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\# - Sound Level increased by 15 dBA or more.

# SOUND STUDY SUMMARY

ROUTE 141
ST. LOUIS COUNTY
JOB NO. 6U0807

2/21/01

| SOUND WALL | MODEL NUMBER/ RECEIVER NUMBER | LOCATION STA. | LOCATION OFFSET | SOUND WALL HEIGHT | SOUND WALL LENGTH | COMP. SIMULATION dBA $L_{eq}$ W/O WALL | COMP. SIMULATION dBA $L_{eq}$ WITH WALL | COMP. SIMULATION dBA $L_{eq}$ REDUC-TION | NUMBER OF SITES PROTECTED | ESTIMATED COST FOR EACH SOUNDWALL $ | COST PER PROJECTED SITE | MEETS CRITERIA FOR CONSIDERATION (a) - (f) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M6/R1 * | 80+70 | 598' Rt. | | | 60.0 | 54.4 | 5.6 | 1 H | | | | M7/R7 was an impacted receiver by exceeding the 66 dBA level, but was not benefitted by any wall. An 18' wall reduced the noise level by 4.9 dBA. The north end of this wall connects to the south end of Wall "E". M7/R15 and M7/R16 represent receivers placed at the Parkway Central Middle School an High School. |
| | M6/R2 * | 82+32 | 598' Rt. | | | 60.7 | 53.5 | 7.2 | 1 H | | | | |
| | M6/R3 * | 83+90 | 591' Rt. | | | 60 3 | 53.0 | 7.3 | 1 H | | | | |
| | M6/R4 * | 85+06 | 581' Rt. | | | 59.8 | 52.7 | 7.1 | 1 H | | | | |
| | M6/R5 * | 86+32 | 570' Rt. | | | 61.9 | 54.4 | 7.5 | 1 H | | | | |
| | M6/R6 * | 88+43 | 491' Rt. | | | 64 5 | 55.2 | 9.3 | 1 H | | | | |
| | M6/R7 * | 88+07 | 405' Rt. | | | 65.5 | 56.5 | 9.0 | 1 H | | | | |
| | M6/R8 * | 87+66 | 338' Rt. | | | 64.5 | 55.6 | 8.9 | 1 H | | | | |
| | M6/R9 *# | 87+41 | 265' Rt. | | | 66 2 | 57.1 | 9.1 | 1 H | | | | |
| | M6/R10 *# | 87+04 | 192' Rt. | | | 70.5 | 58.9 | 11.6 | 1 H | | | | |
| | M6/R11 *# | 86+87 | 112' Rt. | | | 75 7 | 61.7 | 14.0 | 1 H | | | | |
| | M6/R12 *# | 89+48 | 116' Rt. | | | 75.7 | 61.5 | 14 2 | 1 H | | | | |
| | M6/R13 *# | 89+92 | 180' Rt. | | | 72.2 | 59.7 | 12.5 | 1 H | | | | |
| | M6/R14 *# | 90+29 | 248' Rt. | | | 68.2 | 58.6 | 9.6 | 1 H | | | | |
| | M6/R15 *# | 90+89 | 313' Rt. | | | 68.0 | 57.6 | 10.4 | 1 H | | | | |
| | M6/R16 *# | 91+42 | 374' Rt. | | | 66.1 | 56.1 | 10.0 | 1 H | | | | |
| | M6/R17 * | 92+07 | 437' Rt. | | | 63.6 | 54.6 | 9.0 | 1 H | | | | |
| | M6/R18 * | 92+70 | 497' Rt. | | | 63.0 | 54.5 | 8.5 | 1 H | | | | |
| | M6/R19 * | 94+00 | 407' Rt. | | | 63.8 | 56.3 | 7.5 | 1 H | | | | |
| F | M6/R20 * | 93+41 | 352' Rt. | 6-18' | 3000' +/- | 65.5 | 57.5 | 8.0 | 1 H | 81 | $1,028,200 | $12,694 | YES |
| | M6/R21 *# | 92+32 | 296' Rt. | | | 66.6 | 58.6 | 8.0 | 1 H | | | | |
| | M6/R22 *# | 91+25 | 203' Rt. | | | 69.9 | 59.9 | 10.0 | 1 H | | | | |
| | M6/R23 *# | 90+68 | 123' Rt. | | | 75.5 | 61.6 | 13.9 | 1 H | | | | |
| | M6/R24 *# | 92+13 | 146' Rt. | | | 74.3 | 61.2 | 13.1 | 1 H | | | | |
| | M6/R25 *# | 94+46 | 148' Rt. | | | 73.5 | 61.4 | 12.1 | 1 H | | | | |
| | M6/R26 *# | 95+21 | 193' Rt. | | | 72.1 | 61.0 | 11 1 | 1 H | | | | |
| | M6/R27 *# | 95+45 | 276' Rt. | | | 69.6 | 59.5 | 10.1 | 1 H | | | | |
| | M6/R28 * | 95+86 | 408' Rt. | | | 63.4 | 57.1 | 6.3 | 1 H | | | | |
| | M6/R29 * | 94+95 | 499' Rt. | | | 62.1 | 55.2 | 6.9 | 1 H | | | | |
| | M6/R30 * | 96+27 | 560' Rt. | | | 59.9 | 54.5 | 5.4 | 1 H | | | | |
| | M6/R31 * | 98+09 | 537' Rt. | | | 61.5 | 52.3 | 9.2 | 1 H | | | | |
| | M6/R32 | 97+28 | 715' Rt. | | | 56.3 | 51.7 | 4.6 | | | | | |
| | M6/R33 | 96+92 | 745' Rt. | | | 56.0 | 51.5 | 4.5 | | | | | |
| | M6/R34 * | 95+36 | 654' Rt. | | | 58.4 | 53.2 | 5.2 | 1 H | | | | |
| | M6/R35 * | 94+65 | 712' Rt. | | | 58.9 | 52.7 | 6.2 | 1 H | | | | |
| | M6/R36 * | 93+99 | 767' Rt. | | | 59.5 | 52.1 | 7.4 | 1 H | | | | |
| | M6/R37 | 93+46 | 853' Rt. | | | 58.2 | 52.1 | 6.1 | | | | | |
| | M6/R38 | 92+59 | 798' Rt. | | | 58.5 | 52.5 | 6.0 | | | | | |
| | M6/R39 * | 91+45 | 725' Rt. | | | 61.3 | 53.9 | 7.4 | 1 H | | | | |

* - Sound Level at or above 66 dBA.
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# SOUND STUDY SUMMARY

ROUTE 141
ST. LOUIS COUNTY
JOB NO. 6U0807

2/21/01

| SOUND WALL | MODEL NUMBER/ RECEIVER NUMBER | LOCATION STA. | LOCATION OFFSET | SOUND WALL HEIGHT | SOUND WALL LENGTH | COMP. SIMULATION dBA $L_{eq}$ W/O WALL | COMP. SIMULATION dBA $L_{eq}$ WITH WALL | COMP. SIMULATION dBA $L_{eq}$ REDUC-TION | NUMBER OF SITES PROTECTED | ESTIMATED COST FOR EACH SOUNDWALL $ | COST PER PROJECTED SITE | MEETS CRITERIA FOR CONSIDERATION (a) - (f) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M6/R40 * | 92+70 | 670' Rt. | | | 62.2 | 55.0 | 7.2 | 1 H | | | | |
| | M6/R41 * | 93+67 | 616' Rt. | | | 62.3 | 55.8 | 6.5 | 1 H | | | | |
| | M6/R42 * | 94+47 | 558' Rt. | | | 64.3 | 57.7 | 6.6 | 1 H | | | | |
| | M6/R43 * | 88+71 | 573' Rt. | | | 63.3 | 54.3 | 9.0 | 1 H | | | | |
| | M6/R44 * | 89+41 | 640' Rt. | | | 61.9 | 53.3 | 8.6 | 1 H | | | | |
| | M6/R45 * | 87+46 | 729' Rt. | | | 59.7 | 52.9 | 6.8 | 1 H | | | | |
| | M6/R46 * | 86+11 | 756' Rt. | | | 57.7 | 53.3 | 4.4 | 1 H | | | | |
| | M6/R47 * | 84+40 | 771' Rt. | | | 58.5 | 53.2 | 5.3 | 1 H | | | | |
| | M6/R48 * | 81+80 | 795' Rt. | | | 58.6 | 52.9 | 5.7 | 1 H | | | | |
| | M6/R49 * | 80+59 | 746' Rt. | | | 61.2 | 55.8 | 5.4 | 1 H | | | | |
| | M6/R50 * | 81+52 | 906' Rt. | | | 57.8 | 52.8 | 5.0 | 1 H | | | | |
| | M6/R51 | 83+05 | 900' Rt. | | | 55.7 | 49.8 | 5.9 | | | | | |
| | M6/R52 | 84+80 | 893' Rt. | | | 55.5 | 49.7 | 5.8 | | | | | |
| | M6/R53 | 86+44 | 872' Rt. | | | 55.2 | 48.7 | 6.5 | | | | | |
| | M6/R54 | 89+00 | 835' Rt. | | | 59.4 | 52.4 | 7.0 | | | | | |
| | M6/R55 | 89+97 | 909' Rt. | | | 58.5 | 51.4 | 7.1 | | | | | |
| F (Con't) | M6/R56 | 94+60 | 979' Rt. | | | 54.9 | 50.4 | 4.5 | | | | | |
| | M6/R57 | 95+26 | 918' Rt. | | | 56.1 | 51.4 | 4.7 | | | | | |
| | M6/R58 | 95+78 | 863' Rt. | | | 55.7 | 52.1 | 3.6 | | | | | |
| | M6/R59 | 96+34 | 806' Rt. | | | 55.7 | 51.7 | 4.0 | | | | | |
| | M7/R1 * | 97+91 | 352' Rt | | | 64.5 | 58.8 | 5.7 | 4 Apt | | | | |
| | M7/R2 *# | 98+36 | 282' Rt. | | | 68.4 | 60.6 | 7.8 | 3 Apt | | | | |
| | M7/R3 *# | 99+61 | 202' Rt. | | | 71.8 | 63.6 | 8.2 | 4 Apt | | | | |
| | M7/R4 *# | 100+59 | 165' Rt. | | | 72.8 | 64.8 | 8.0 | 5 Apt | | | | |
| | M7/R5 *# | 104+46 | 143' Rt. | | | 73.9 | 67.6 | 6.3 | 5 Apt | | | | |
| | M7/R6 *# | 106+43 | 137' Rt. | | | 74.8 | 69.4 | 5.4 | 6 Apt | | | | |
| | M7/R7 # | 107+86 | 279' Rt. | | | 68.0 | 67.1 | 0.9 | | | | | |
| | M7/R8 | 106+10 | 346' Rt. | | | 62.6 | 61.2 | 1.4 | | | | | |
| | M7/R9 | 104+46 | 263' Rt. | | | 63.5 | 60.8 | 2.7 | | | | | |
| | M7/R10 | 103+80 | 393' Rt. | | | 61.1 | 58.6 | 2.5 | | | | | |
| | M7/R11 *# | 101+85 | 226' Rt. | | | 69.1 | 63.6 | 5.5 | 8 Apt | | | | |
| | M7/R12 | 101+54 | 349' Rt. | | | 55.7 | 51.4 | 4.3 | | | | | |
| | M7/R13 | 100+87 | 280' Rt. | | | 56.4 | 51.5 | 4.9 | | | | | |
| | M7/R14 | 100+07 | 371' Rt. | | | 56.0 | 50.5 | 5.5 | | | | | |
| | M7/R15 | 109+18 | 667' Rt. | | | 64.7 | 64.1 | 0.6 | | | | | |
| | M7/R16 # | 117+92 | 143' Rt. | | | 78.0 | 78.0 | 0.0 | | | | | |

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# SOUND STUDY SUMMARY

ROUTE 141
ST. LOUIS COUNTY
JOB NO. 6U0807

2/21/01

| SOUND WALL | MODEL NUMBER/ RECEIVER NUMBER | LOCATION STA. | LOCATION OFFSET | SOUND WALL HEIGHT | SOUND WALL LENGTH | COMP. SIMULATION dBA $L_{eq}$ W/O WALL | COMP. SIMULATION dBA $L_{eq}$ WITH WALL | COMP. SIMULATION dBA $L_{eq}$ REDUC-TION | NUMBER OF SITES PROTECTED | ESTIMATED COST FOR EACH SOUNDWALL $ | COST PER PROJECTED SITE | MEETS CRITERIA FOR CONSIDERATION (a) - (f) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G | M8/R1 | 132+71 | 1023' Rt. | | | 61.1 | 61.1 | 0.0 | | | | NO | M8/R4 was an impacted receiver by exceeding the 66 dBA level. M8/R7 was an impacted receiver by increasin more than 15 dBA above the existing noise level. Because these two receivers are on different sides of Ladue, any wall in this area would only benefit one unit. Therefore, no wall was designed in this area. |
| | M8/R2 | 134+42 | 948' Rt. | | | 62.1 | 62.1 | 0.0 | | | | | |
| | M8/R3 | 135+46 | 882' Rt. | | | 63.7 | 63.7 | 0.0 | | | | | |
| | M8/R4 # | 136+77 | 813' Rt. | | | 66.1 | 66.1 | 0.0 | | | | | |
| | M8/R5 | 137+55 | 920' Rt. | | | 65.2 | 65.2 | 0.0 | | | | | |
| | M8/R6 | 136+14 | 922' Rt. | | | 64.2 | 64.2 | 0.0 | | | | | |
| | M8/R7 * | 140+52 | 765' Rt. | | | 65.6 | 65.6 | 0.0 | | | | | |
| H | M9/R1 # | 150+80 | 154' Lt. | 8-10' | 1450' +/- | 71.0 | 65.8 | 5.2 | 1 H | $327,400 | $54,567 | NO | M9/R1 through M9/R7 were impacted receivers by exceeding the 66 dBA level. M9/R7 could not be benefitted because the sound wall could not be extended any farther south, due to the intersection at M-141 and Ladue Farms Rd. M9/R16 represents a receiver placed at the West County Christian Church. |
| | M9/R2 *# | 152+22 | 109' Lt. | | | 72.9 | 65.1 | 7.8 | 1 H | | | | |
| | M9/R3 # | 153+86 | 141' Lt. | | | 71.7 | 65.3 | 6.4 | 1 H | | | | |
| | M9/R4 # | 156+46 | 189' Lt. | | | 70.1 | 64.6 | 5.5 | 1 H | | | | |
| | M9/R5 # | 158+74 | 214' Lt. | | | 69.0 | 62.4 | 6.6 | 1 H | | | | |
| | M9/R6 # | 161+02 | 216' Lt. | | | 69.0 | 63.0 | 6.0 | 1 H | | | | |
| | M9/R7 # | 163+00 | 213' Lt. | | | 68.9 | 65.3 | 3.6 | | | | | |
| | M9/R8 | 161+13 | 632' Lt. | | | 59.4 | 57.9 | 1.5 | 6 | | | | |
| | M9/R9 | 159+70 | 556' Lt. | | | 55.5 | 53.1 | 2.4 | | | | | |
| | M9/R10 | 157+75 | 428' Lt. | | | 65.2 | 60.8 | 4.4 | | | | | |
| | M9/R11 | 157+95 | 678' Lt. | | | 56.1 | 53.3 | 2.8 | | | | | |
| | M9/R12 | 155+08 | 607' Lt. | | | 60.2 | 58.7 | 1.5 | | | | | |
| | M9/R13 | 154+91 | 444' Lt. | | | 65.3 | 60.9 | 4.4 | | | | | |
| | M9/R14 | 153+21 | 444' Lt. | | | 65.2 | 61.9 | 3.3 | | - | | | |
| | M9/R15 # | 148+60 | 360' Lt. | | | 66.2 | 65.2 | 1.0 | | | | | |
| | M9/R16 # | 149+38 | 155' Rt. | | | 77.7 | 77.7 | 0.0 | | | | | |

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ST. LOUIS COUNTY
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2/21/01

| SOUND WALL | MODEL NUMBER/ RECEIVER NUMBER | LOCATION STA. | LOCATION OFFSET | SOUND WALL HEIGHT | SOUND WALL LENGTH | COMP SIMULATION dBA $L_{eq}$ W/O WALL | COMP SIMULATION dBA $L_{eq}$ WITH WALL | COMP SIMULATION dBA $L_{eq}$ REDUC-TION | NUMBER OF SITES PROTECTED | ESTIMATED COST FOR EACH SOUNDWALL $ | COST PER PROJECTED SITE | MEETS CRITERIA FOR CONSIDERATION (a) - (f) | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I-a | M10/R1 * | 170+22 | 117' Rt. | 8' | 643' +/- | 78.0 | 68.8 | 9.2 | 3 | $124,700 | $41,567 | NO | Wall 10A is designed without Montessori Preschool being obstructed by the wall. Wall 10B is designed with a the wall extending to near Conway, reducing sound to the Montessori Preschool. M10/R1 through M10/R7 were impacted receivers by exceeding the 66 dBA level. M10/R4 could not be reduced by 5 dBA due to its distance and high elevation relative to the wall. M10/7 represents a receiver placed at the Hebrew Congregation. M10/R8 and M10/R9 represent receivers place at St. Lukes Hospital |
| | M10/R2 * | 171+85 | 124' Rt. | | | 77.7 | 64.7 | 13.0 | | | | | |
| | M10/R3 * | 174+07 | 124' Rt. | | | 78.1 | 66.4 | 11.7 | | | | | |
| | M10/R4 * | 177+18 | 386' Rt. | | | 67.8 | 67.5 | 0.3 | | | | | |
| | M10/R5 * | 177+42 | 113' Rt. | | | 78.3 | 78.3 | 0.0 | | | | | |
| | M10/R6 * | 179+10 | 331' Rt. | | | 69.1 | 69.0 | 0.1 | | | | | |
| | M10/R7 * | 186+55 | 172' Rt. | | | 75.7 | 75.7 | 0.0 | | | | | |
| | M10/R8 * | 166+75 | 370' Lt. | | | 64.0 | 64.0 | 0.0 | | | | | |
| | M10/R9 * | 169+96 | 487' Lt. | | | 64.1 | 64.1 | 0.0 | | | | | |
| I-b | M10/R1 * | 170+22 | 117' Rt. | 8' | 843' +/- | 78.0 | 68.8 | 9.2 | 4 | $163,600 | $40,900 | NO | |
| | M10/R2 * | 171+85 | 124' Rt. | | | 77.7 | 64.7 | 13.0 | | | | | |
| | M10/R3 * | 174+07 | 124' Rt. | | | 78.1 | 66.1 | 12.0 | | | | | |
| | M10/R4 * | 177+18 | 386' Rt. | | | 67.8 | 66.5 | 1.3 | | | | | |
| | M10/R5 * | 177+42 | 113' Rt. | | | 78.3 | 70.0 | 8.3 | | | | | |
| | M10/R6 * | 179+10 | 331' Rt. | | | 69.1 | 68.8 | 0.3 | | | | | |
| | M10/R7 * | 186+55 | 172' Rt. | | | 75.7 | 75.7 | 0.0 | | | | | |
| | M10/R8 * | 166+75 | 370' Lt. | | | 64.0 | 64.0 | 0.0 | | | | | |
| | M10/R9 * | 169+96 | 487' Lt. | | | 64.1 | 64.1 | 0.0 | | | | | |
| J | M11/R1 | 80+35 | 857' Lt. | | | 55.3 | 55.3 | 0.0 | | | | NO | None of these receivers were above the 66 dBA level or increased more than 15 dBA above the existing noise level. Therefore, no wall was designed for this area. |
| | M11/R2 | 80+71 | 845' Lt. | | | 55.6 | 55.6 | 0.0 | | | | | |
| | M11/R3 | 81+54 | 842' Lt. | | | 56.0 | 56.0 | 0.0 | | | | | |
| | M11/R4 | 81+98 | 905' Lt. | | | 55.1 | 55.1 | 0.0 | | | | | |

* - Sound Level at or above 66 dBA.
# - Sound Level increased by 15 dBA or more.

# APPENDIX C

## APPENDIX C

TRAFFIC ACCIDENT AND SAFETY DATA

The National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4370f, requires that this analysis of the proposed project must consider and discuss its effects and impacts on mankind, and its effects and impacts on plants, animals, resources, and the natural world in general. One of the key elements to be discussed in any NEPA analysis of a proposed highway project is its effects and impacts on the safety of those who use those highways. However, Congress has recognized that even while this document summarizes and presents traffic accident and safety information for the general information and benefit of the public, pursuant to its mandate, some people may attempt to use the information for the purpose of establishing liability against us in lawsuits arising from accidents on the highways. Congress has found and declared that use of the safety data we have collected at their request to be improper, and they have enacted a federal law, 23 USC Section 409, which prohibits the discovery or use of such safety data in litigation seeking damages for accidents and occurrences on these highways. Congress's rationale is obvious: that safety data was compiled and collected by us at their request, to help us prevent future accidents, injuries and death on our highways. If this information can be used against us in expensive damage suits, then the millions of dollars the litigation may cost us will not be available for us to use to make our highways safer.

Traffic accident statistics and safety data are compiled, presented and summarized in several sections of this NEPA document. Where noted in an introductory footnote to a section of this document, the discussion, reports, lists, tables, diagrams and data presented throughout that section of this analysis was compiled or collected for the purpose of identifying, evaluating or planning the safety enhancement of potential accident sites or hazardous roadway conditions pursuant to federal law. Thus, that information and its supporting reports, schedules, lists, tables, diagrams and data are not subject to discovery, and they are prohibited by federal law (23 USC § 409) from being admitted into evidence in a federal or state court proceeding, or from being considered for other purposes, in any action for damages arising from an occurrence on the highways, intersections or interchanges discussed in this document.

# APPENDIX D

# United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

ER-02/455

JUL 26 2002

Mr. Allen Masuda
Division Administrator
Federal Highway Administration
Missouri Division
209 Adams Street
Jefferson City, Missouri 65101

Dear Mr. Masuda:

The Department of the Interior (Department) has reviewed the Draft Environmental Assessment (DEA) and Section 4(f) Evaluation for the SR-141 improvements, between Olive Boulevard (Route 340) and Ladue Road (Route AB), St. Louis County, Missouri. The Department offers the following comments and recommendations for your consideration:

**Section 4(f) Comments**

We concur with the Federal Highway Administration (FHWA) and the Missouri Department of Transportation (MoDOT) that there are no feasible and prudent alternatives to the project, if project objectives are to be met. However, we cannot concur that all possible planning needed to minimize harm to natural resources has been employed.

The Section 4(f) property under evaluation is the Prestian Farm, a historic farmstead located near the proposed interchange for SR-141 and Olive Boulevard. The documentation for the farmstead is very complete and would appear to be a compelling argument for the site's significance. However, we note that the Missouri State Historic Preservation Officer (SHPO) has not yet (as of the printing of this document under review) been consulted on the eligibility of the property or the effects of the undertaking. Therefore, the Department is conditioning its recommendations on the assumption that the SHPO will agree with the determination of eligibility by the FHWA.

The FHWA and the MoDOT propose two action alternatives that would avoid all impacts to the property. The first would utilize the existing corridor but result in a significantly higher cost and impact a large number of private residences. We note that the proposed impact to a second Section 4(f) property (setting and viewshed) by this avoidance alternative does not necessarily outweigh the impacts to the Prestian Farm (complete removal). The second alternative considered would construct an interchange further east of the property; but this alternative would not avoid impacts to the Prestian Farm, since the interchange would remain at the same location. The no-action alternative would avoid all of these impacts but would not address the purpose and need for the action. The project area is highly constrained by modern development and any relocation out of the valleys of Smith and Creve Coeur Creeks would entail considerable disturbances to homes and businesses, causing considerable community disruption. Therefore, the Department concurs that there are no feasible and prudent alternatives to the proposed alternative.

FHWA
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8/21/02
cc'd
to MoDOT

The FHWA and the MoDOT propose a program of data recovery to document the structures at the farmstead, including measured drawings and documentary photography. The purpose would be to recover the data necessary to preserve the site's significant values. Since the SHPO has not been consulted on the site's significance, not to mention the mitigation proposed to preserve those values, it would be premature to concur with the measures to reduce harm. The Department will concur with those measures if the SHPO, the FWHA and the MoDOT would come to an agreement on the necessary mitigation measures. Therefore, we would expect the final evaluation to include confirmation of concurrence by the SHPO by including a copy of a signed Memorandum of Agreement (MOA).

**Environmental Assessment Comments**

The EA indicates that Route 141 extends from Olive Boulevard to I-55. This study area includes the only portion of the route that is not upgraded or in the process of being upgraded, to a four-lane expressway. This last link would provide a continuous four-lane major artery from Olive Boulevard to I-55 through St. Louis and Jefferson counties.

The Fish and Wildlife Service (FWS) has reviewed and commented on various segments of the Route 141 improvements through the National Environmental Policy Act (NEPA) process and Section 404 permits under the Clean Water Act. We are confused that the EA is calling this project the last link for the Route 141 project. It is our understanding that the complete Route 141 project includes the Earth City Expressway project, which will eventually connect to Interstate 70, on the Missouri River floodplain.

We are concerned about the environmental review of the Route 141 corridor in a piecemeal fashion by dividing the analysis into several EAs and environmental impact statements. Piecemeal environmental analysis constrains the number of available alternatives to avoid impacts to wetlands and aquatic habitat, and obscures the cumulative environmental impacts of the overall action.

It appears that the preferred alternative (alternative B) will impact more forested (12.0 acres) and emergent wetlands (0.6 acres) than the other two alternatives considered (alignment A, 5.6 acres and alignment E, 8.7 acres). Approximately 8,000 feet of the alignment in the preferred alternative will be constructed on an elevated berm through the floodway. Forested wetlands are dynamic, productive systems that depend on intermittent flooding for maintenance and function. Many of the diverse functions performed by bottomland forests (e.g., flood control, sediment trapping, fish and wildlife habitat) are directly or indirectly valued by humans.

These forested areas provide food and cover to numerous mammals including white-tailed deer, fox, grey squirrels, turkeys, raccoons, minks, beavers, muskrats, flying squirrels, opossums, striped skunks, various bats, and small rodents. Many birds, including waterfowl and neotropical migratory songbirds, depend on bottomland forests for survival. The wood duck nests in forested areas and raises its young in the wooded and shrub wetlands. Migratory waterfowl seasonally stop over in wooded and emergent wetlands and numerous species of songbirds nest in the under and overstory of forested wetlands. During the spring and fall, many migratory birds utilize bottomland forests on their way to and from their over-wintering grounds. These wetlands may provide important seasonal habitat for various reptiles and year-round habitat for several species of amphibians.

Even though fragmented forested areas, such as the area in question, may be less valuable to fish and wildlife species than contiguous large tracts of bottomland forest, they still are important and provide a critical refuge in the largely urban landscapes that occur in St. Louis County. Compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required. We recommend that the final EA for this project recognize and describe the direct and cumulative impacts of all stream crossings and impacts to wetland habitat and address those impacts

within project mitigation proposals. The FWS recommends that all wooded riparian and wetland habitat losses be mitigated in a manner that provides for the replacement of lost acreage and function. The general recommendation of the FWS is that forested wetlands be mitigated at a 3:1 ratio, preferably on-site. The FWS would appreciate an opportunity to review the compensatory mitigation plan before the EA is finalized. Compensatory mitigation success depends on very careful planning, design, construction, and monitoring.

**Endangered Species Act Comments**

Although not acknowledged in the EA, the Indiana bat *(Myotis sodalis)* may occur in the project area. From late fall through winter, Indiana bats in Missouri, hibernate in caves in the Ozarks. During the spring and summer, Indiana bats utilize living, injured (e.g., split trunks and broken limbs from lightening strikes or wind), and dead or dying trees for roosting throughout the state. Indiana bat roost trees tend to be greater than 9 inches in diameter at breast height (dbh) (optimally greater than 20 inches dbh) with loose or exfoliating bark. Most important are structural characteristics that provide adequate space for bats to roost.

Preferred roost sites are located in forest openings, at the forest edge, or where the overstory canopy allows some sunlight exposure to the roost tree, which is usually within 1 km (0.6 mi.) of water. Indiana bats forage for flying insects (particularly moths) in and around the tree canopy of floodplain, riparian, and upland forests.

If trees suitable for use by Indiana bats are to be removed for the proposed project, they must be removed between October 1st and March 30th, in order to avoid the potential injury or death of roosting Indiana bats. If it is not feasible to schedule tree removal during this period, the FWS requires a survey be conducted by a qualified biologist to determine the presence or absence of Indiana bats. Survey efforts should include using a combination of mist nets and bat detection devices (e.g., "Anabat" (© Titley Electronics, Ballina, New South Wales, Australia). If it is determined that a survey for Indiana bats is needed, please contact the Missouri Ecological Services Field Office, to obtain specific information regarding survey protocol. If surveys indicate that Indiana bats are using trees proposed to be removed during the bat breeding and nursery season (April 1st to September 30th), further consultation with the FWS under Section 7 of the Endangered Species Act will be required.

**Fish and Wildlife Coordination Act Comments**

The draft EA indicates that a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act will be required for the proposed project. The Department's comments on the draft EA and Section 4(f) Evaluation do not preclude separate evaluation and comment by the FWS when reviewing any forthcoming permit applications. The FWS may concur, with or without stipulations, or recommend denial of the permit depending upon effects. The FWS has indicated that it would likely not object to issuance of such a permit if adequate mitigation measures consistent with the recommendations above were incorporated into final project plans.

**Summary Comments**

We concur with the FHWA and the MoDOT that the Prestian Farm is likely to be a Section 4(f) property; and that there are no feasible or prudent alternatives to the proposed action resulting in the removal of the farm. We would concur with the proposed measures to minimize harm if the final Section 4(f) Evaluation provides evidence that the SHPO concurs that the mitigation proposed is sufficient to preserve the site's significant value. A signed copy of the MOA should be included in the final document.

The destruction of forested and emergent wetlands will result in a significant loss of valuable wildlife habitat in the urban project area. The improvements of Route 141 have resulted in significant indirect impacts with the resulting development in Jefferson and St. Louis Counties. The placement of fill material to construct the elevated berm in the floodway of Creve Coeur Creek may increase flood elevations, decreased flood storage capacity, and adversely impact riparian and aquatic habitats.

The Department has a continuing interest in working with the FHWA and the MoDOT to ensure that impacts to resources of concern to the Department are adequately addressed. For matters related to fish and wildlife resources and federally listed threatened and endangered species, please continue to coordinate with the Field Supervisor, U.S. Fish and Wildlife Service, Ecological Services, 608 E. Cherry St., Room 200, Columbia, Missouri 65201, telephone 573-876-1911. For matters related to Section 4(f), please contact the Regional Environmental Coordinator, National Park Service, Midwest Regional Office, 1709 Jackson Street, Omaha, Nebraska 68102, telephone 402- 221-7286.

We appreciate the opportunity to provide these comments.

Sincerely,

Willie R. Taylor

Willie R. Taylor
Director, Office of Environmental
Policy and Compliance