

TRANSPORTATION PLANNING REPORT

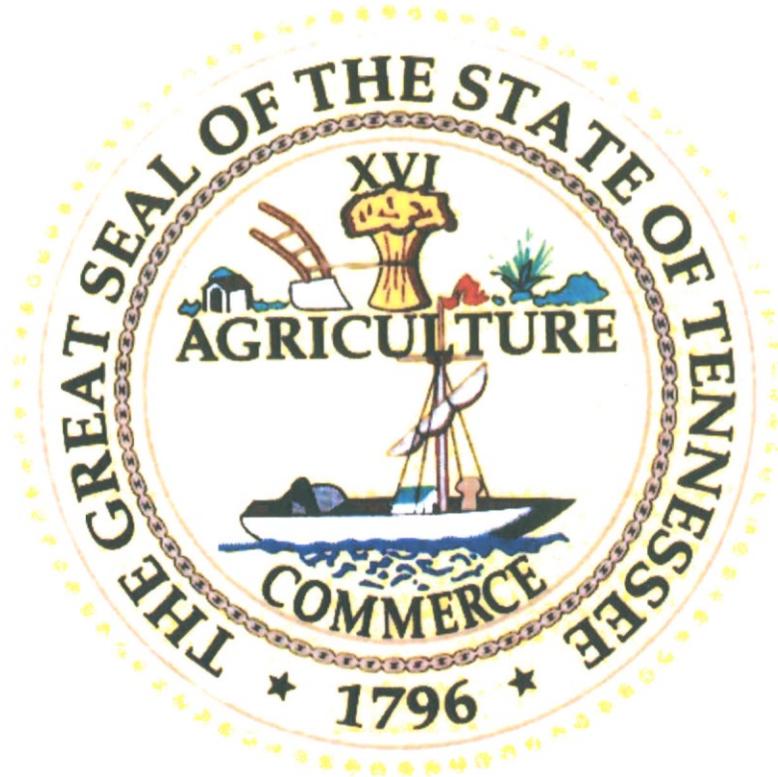
State Route 186

(U.S. Highway 45 Bypass/Keith Short Bypass)

FROM OLD HICKORY BOULEVARD (LOG MILE 2.83)

TO INTERSTATE 40 (LOG MILE 3.33)

CITY OF JACKSON, MADISON COUNTY



PREPARED BY
RAGAN-SMITH-ASSOCIATES

For the
TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION

Approved by:	Signature	DATE
CHIEF OF ENVIRONMENT AND PLANNING		12/28/09
TRANSPORTATION DIRECTOR PROJECT PLANNING DIVISION		12-23-09
TRANSPORTATION MANAGER 2 PROJECT PLANNING DIVISION		12/21/09

This document is covered by 23 USC § 409 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 409.

TRANSPORTATION PLANNING REPORT
State Route 186 (US 45 Bypass/Keith Short Bypass)

EXECUTIVE SUMMARY

State Route 186 (US 45BP/Keith Short Bypass) begins at State Route 5 (US 45/S Highland Avenue) in the City of Jackson central business district and continues north for approximately nine miles. The US 45 Bypass designation ends at State Route 5 (US 45) north of Jackson but the State Route 186 designation continues north as an alternate route to the City of Trenton, Tennessee.

In the project study area, increased development along State Route 186 (US 45BP/Keith Short Bypass) has resulted in steadily increasing traffic volumes for many years. Traffic volumes are projected to increase significantly during the period from 2009 to 2033. Traffic operations on State Route 186 (US 45BP/Keith Short Bypass) will reach the level of minimum acceptability in 2013 and will continue to worsen without roadway improvements.

The purpose of the improvements to State Route 186 (US 45BP/Keith Short Bypass) between Old Hickory Boulevard at Interstate 40 is to address the following needs:

- To accommodate the existing and project traffic at an improved level of service.
- To provide additional right-of-way and capacity for the future extension of Casey Jones Lane as a link between two principal arterials.
- To correct existing geometric deficiencies and improve the efficiency of the minor street access by removing obstacles and routes that require high driver judgement in order to help to reduce crashes, improve safety characteristics of the intersection, and increase the appeal to the tourist attractions and undeveloped land west of State Route 186 (US 45BP/Keith Short Bypass).
- To fulfill the planning precedent set forth in the Jackson Area 2035 Long Range Transportation Plan for improvements to State Route 186 (US 45BP/Keith Short Bypass) at the intersection of Carriage House Drive.

Four options are presented for evaluation to meet the improvement needs of this project.

- Option A (no build) does not provide any changes or improvements to roadways in the project study area. Improved access to Casey Jones Lane and the more efficient operation of the connection to the State Route 186 Frontage Road would not be provided as part of this option. There are no estimated construction costs associated with Option A.
- Options B provides geometric and traffic signal improvements to the State Route 186 and Carriage House Drive intersection in order to allow direct eastbound left turn and through movements onto State Route 186 and Carriage House Drive. This option provides a limited short-term improvement in traffic operations but does not significantly increase the service life of the intersection. The cost of Option B is estimated at approximately \$84,000.
- Option C reconstructs a portion of the I-40 eastbound exit ramp in order to lengthen the weave area on State Route 186 between Interstate 40 and Carriage House Drive. This option provides a limited improvement in traffic operations but does not significantly increase the service life of the intersection. The cost of Option C is estimated at approximately \$122,000.
- Option D addresses the need to improve access and system linkage to Casey Jones Lane by aligning Casey Jones Lane with Carriage House Drive and providing additional turn lanes and traffic signal improvements at the intersection of State Route 186 and Carriage House Drive. Access to properties west of State Route 186 (US 45BP/Keith Short Bypass) is improved and the possibility of creating a new east-west link between State Route 186 (US 45BP/Keith Short Bypass) and State Route 20 (US 412/Hollywood Drive) is established without creating a new intersection on the State Route 186 corridor. The cost of Option D is estimated to be approximately \$4,700,000.

TABLE OF CONTENTS

	<u>PAGE</u>
I. <u>PURPOSE OF STUDY</u>	- 1 -
II. <u>HISTORY AND BACKGROUND</u>	- 2 -
III. <u>EXISTING CONDITIONS</u>	- 4 -
A. <u>Project Vicinity</u>	- 4 -
B. <u>Crash History</u>	- 6 -
C. <u>Roadway Geometry</u>	- 7 -
D. <u>Multi-modal Facilities</u>	- 12 -
E. <u>Existing Conditions Level of Service Analysis</u>	- 12 -
IV. <u>STAKEHOLDER MEETING</u>	- 14 -
V. <u>PRELIMINARY PURPOSE AND NEED</u>	- 15 -
A. <u>Introduction</u>	- 15 -
B. <u>System Linkage</u>	- 16 -
C. <u>Capacity</u>	- 16 -
D. <u>Safety</u>	- 16 -
E. <u>Economic Development</u>	- 16 -
F. <u>Planning Precedent</u>	- 17 -
VI. <u>OPTIONS FOR IMPROVEMENT</u>	- 19 -
A. <u>Previously Studied Alternatives</u>	- 19 -
B. <u>Improvements Studied in the TPR Process</u>	- 19 -
C. <u>Level of Service Analysis Summary</u>	- 27 -
D. <u>Estimated Costs</u>	- 27 -
VII. <u>DISCUSSION OF IMPROVEMENT OPTION IMPACTS</u>	- 29 -
A. <u>Environmental Impacts</u>	- 29 -
B. <u>Cultural Impacts</u>	- 29 -
VIII. <u>ASSESSMENT OF OPTIONS</u>	- 30 -
IX. <u>SUMMARY</u>	- 32 -

APPENDIX A - STAKEHOLDER MEETING MINUTES AND ATTENDEE LIST

APPENDIX B - COST ESTIMATE SPREADSHEETS

APPENDIX C - AERIAL MAPPING WITH CONCEPTUAL LAYOUTS

LIST OF FIGURES

<u>FIGURE</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1	REGIONAL VICINITY MAP	- 3 -
2	TPR STUDY AREA LOCATION MAP	- 11 -
3	IMPROVEMENT OPTION B	- 22 -
4	IMPROVEMENT OPTION C	- 25 -
5	IMPROVEMENT OPTION D	- 26 -

LIST OF TABLES

<u>TABLE</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1	MAJOR EMPLOYERS IN JACKSON/MADISON COUNTY	- 4 -
2	HISTORICAL POPULATION DATA	- 6 -
3	CRASH RATE SUMMARY	- 7 -
4	SUMMARY OF EXISTING ROADWAY GEOMETRICS	- 10 -
5	DESCRIPTIONS OF LEVELS OF SERVICE	- 12 -
6	EXISTING CONDITIONS LEVEL OF SERVICE SUMMARY	- 13 -
7	IMPROVEMENT OPTION LEVEL OF SERVICE COMPARISON	- 27 -
8	IMPROVEMENT OPTION COST ESTIMATES	- 28 -

I. PURPOSE OF STUDY

The purpose of this Transportation Planning Report (TPR) is to document the immediate and long-term needs for improvement to the portion of State Route 186 (US 45BP/Keith Short Bypass) from near Old Hickory Boulevard to Interstate 40 on the west side of the City of Jackson, Tennessee. Specifically, the need for improving mobility and access to Carriage House Drive, Casey Jones Lane, and the Frontage Roads along State Route 186 (US 45BP/Keith Short Bypass) will be considered in this TPR. The study will also address options for meeting these needs.

In November of 2007, the City of Jackson formally contacted the Tennessee Department of Transportation (TDOT) requesting a commitment to fulfill intersection modifications to improve safety and traffic operations at State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive. In December of 2007, TDOT responded that continued involvement with the Jackson Metropolitan Planning Organization (MPO) was imperative as all federal funding must be approved through the MPO process.

This TPR identifies the preliminary need, purpose, and goals of the project. These items include inadequate roadway infrastructure for future growth and economic development, existing operational deficiencies and safety issues, and poor connectivity and mobility options within the general study area.

This TPR presents and evaluates options developed as part of the planning process. These include options presented in previously completed traffic studies and options developed as part of the current TPR process. The options in this TPR are presented as conceptual spot improvements that the NEPA process can use to establish a specific improvement. Environmental screening and locations of cultural significance have been presented to assist planners and engineers in identifying options that would minimize the impact to known sensitive areas. Capacity analysis and planning level cost data are also presented in the TPR.

II. HISTORY AND BACKGROUND

State Route 186 (US 45BP/Keith Short Bypass) was constructed to provide a parallel route and relieve congestion on State Route 5 (US 45/N Highland Avenue) between the City of Jackson Central Business District and Interstate 40. On a national scale, US 45 and the US 45 suffixed routes create a principal arterial highway beginning in Ontonagon, Michigan and ending in Mobile, Alabama. Within the region, US 45 provides connections from the City of Jackson north to Paducah, Kentucky and south to Tupelo, Mississippi. The limits of this study are within the City of Jackson between Interstate 40 to the north and Old Hickory Boulevard to the south. Figure 1 shows the regional vicinity of the TPR study area.

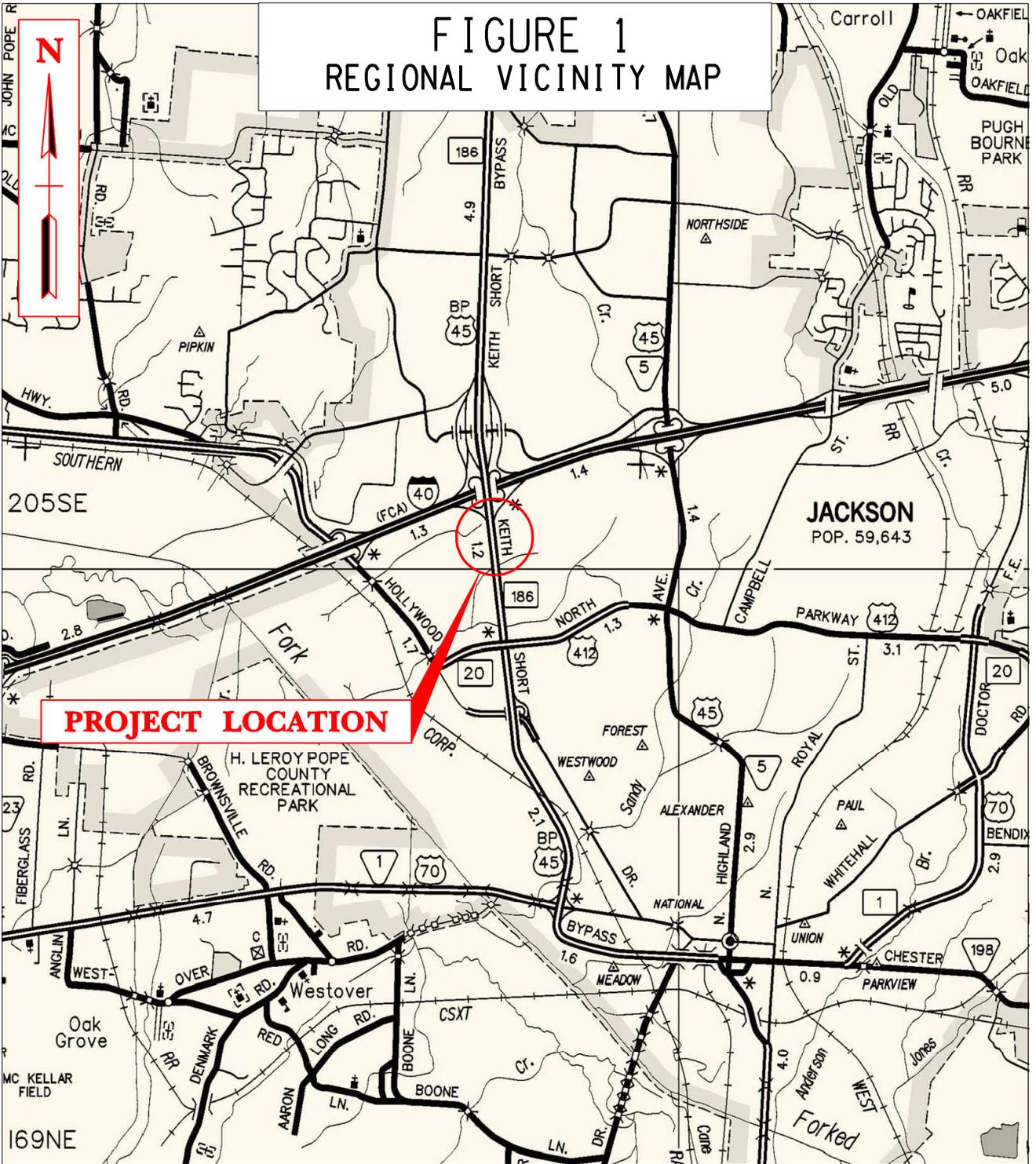
The recent planning history for improvements to this portion of State Route 186 (US 45BP/Keith Short Bypass) began in 1995 when a group of over 20 local business owners petitioned TDOT for improvements at the intersection of State Route 186 and Carriage House Drive to be incorporated into an interchange modification project occurring north of Interstate 40. At that time, an Advanced Planning Report (APR) was initiated for a proposal to align Carriage House Drive with Casey Jones Lane and extend Heritage Square Road to Casey Jones Lane. This project did not move forward after the APR was completed in 1996.

In 2005, the City of Jackson initiated a feasibility study at the intersection of State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive to assess options and impacts for removing through and left turn restrictions and providing signalized control of the eastbound approach. The recommendations of this feasibility study were that the signalization of the eastbound approach to this intersection should be completed in conjunction with a project to reconfigure the intersection to provide a continuous through route to Casey Jones Lane and to relocate the Frontage Road further to the west to provide additional separation between State Route 186 (US 45BP/Keith Short Bypass) and the Frontage Road.

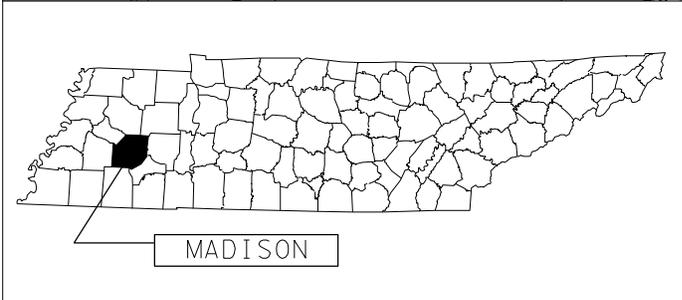
As a result of the feasibility study, the City of Jackson contacted TDOT in November 2007 to seek assistance with this project and identified the intersection of State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive as a future improvement need for the period from 2010 to 2015 in the 2035 Jackson Area Long Range Transportation Plan.

The 2035 Jackson Area Long Range Transportation Plan also includes another improvement project on State Route 186 (US 45BP/Keith Short Bypass) adjacent to the TPR study area. Currently, the six lane divided section of State Route 186 (US 45BP/Keith Short Bypass) narrows to a four lane divided section south of Old Hickory Boulevard. To address existing and future roadway capacity deficiencies, the future projects for the period from 2016 to 2020 shown in the 2035 Jackson Area Long Range Transportation Plan include plans to widen State Route 186 (US 45BP/Keith Short Bypass) to a six lane divided highway for approximately 1.3 miles south of Old Hickory Boulevard.

**FIGURE 1
REGIONAL VICINITY MAP**



PROJECT LOCATION



**S.R. 186
(U.S. Hwy 45/Keith Short Bypass)**

**FROM OLD HICKORY BOULEVARD
TO INTERSTATE 40
CITY OF JACKSON, MADISON COUNTY**

III. EXISTING CONDITIONS

A. Project Vicinity

As shown in Figure 1, the study area for the State Route 186 (US 45BP/Keith Short Bypass) TPR is generally located near Interstate 40 in the west and northwest portions of the City of Jackson. Jackson is located approximately 85 miles east of Memphis and 129 miles west of Nashville along Interstate 40 in Madison County. Jackson is centrally located in West Tennessee and is the largest agricultural, industrial, and distribution center for several surrounding counties.

The City of Jackson is home to four colleges and universities and ten different employers with over 500 employees. Collectively, Jackson's four colleges and universities and smaller educational institutions such as junior colleges, technical and business schools, and grade schools generate a notable amount of traffic as students and faculty from throughout the city and region travel to and from school. Principal employment sectors in Jackson include health care, social services, and manufacturing. Table 1 below shows the major employers in the City of Jackson and Madison County as reported by the Jackson Chamber of Commerce.

TABLE 1		
MAJOR EMPLOYERS IN JACKSON/MADISON COUNTY		
Employer	# of Employees for 2008	Approximate Distance from Study Area
West Tennessee Healthcare	4,362	2.2 mi.
Jackson-Madison County School System	1,987	4.3 mi.
Proctor & Gamble	873	4.9 mi.
City of Jackson	786	3.7 mi.
Delta Faucet	750	5.2 mi.
DeVilbiss Air Power Company	650	3.3 mi.
Union University	637 (4,000 students)	1.5 mi.
Whirlpool-Jackson Dishwashing Products (to close September 2009)	610	4.1 mi.
Carlisle Tire and Wheel (to purchase Whirlpool facility)	440 (future)	
Black and Decker	600	5.4 mi.
Pinnacle Foods	584	4.5 mi.
<i>Source: Jackson Chamber of Commerce</i>		

As shown in the table above, many of the largest traffic generators in the City of Jackson and Madison County are located several miles from the TPR study area. However, it is reasonable to expect that there is a regional contribution to traffic from these facilities with some portion of truck, employee, or student trips using State Route 186 (US 45BP/Keith Short Bypass) for travel.

The business and manufacturing sectors in Jackson and Madison County make use of highway, water, rail, and air facilities for freight movement, business trips, and commuting. Major modes and facilities for the transport of people or freight in the Jackson and Madison County area include:

- Highway - In addition to Interstate 40, U.S. Highways 45, 70, and 412 and State Routes 18, 198, and 223 radiate from Jackson providing north-south and east-west routes for travel. With these connections, the Jackson Chamber of Commerce reports that 76 percent of the United States' major markets are within a day's drive of Jackson.
- Water - The International Port of Memphis on the Mississippi River, the Tennessee-Tombigbee Waterway, and the Port of Cates Landing are all located within a two-hour drive of Jackson and Madison County.
- Rail - The City of Jackson is served directly by CSX Transportation and the West Tennessee Railroad. CSX Transportation is a Class I railroad serving 23 states in the eastern United States. According to the TDOT Rail System Inventory, CSX Transportation operates 1,137 miles of track and has approximately 2,600 employees in Tennessee. The West Tennessee Railroad is a shortline railroad running from Fulton, Kentucky to Corinth, Mississippi with a branch from Jackson, Tennessee to Kenton, Tennessee. TDOT's Shortline Railroad Directory shows the West Tennessee Railroad having principal connections to the Canadian National at Fulton, Kentucky; CSX Transportation at Humboldt, TN; the Kansas City Southern at Corinth, Mississippi; and the Norfolk Southern at Corinth, Mississippi. There are no railroad facilities in the TPR study area that would require special permitting as part of a State Route 186 (US 45BP/Keith Short Bypass) improvement project.
- Air - The McKellar-Sipes Regional Airport is located southwest of the City of Jackson and is owned jointly by Madison County and the City of Jackson. McKellar-Sipes Regional Airport includes over 800 acres of land, two runways, and provides commercial and charter flight services. Additionally, the Memphis International Airport and Nashville International Airport are both within a two-hour drive of the City of Jackson. The McKellar-Sipes Regional Airport is located 5.5 miles from the TPR study area and will not impact improvements to State Route 186 (US 45BP/Keith Short Bypass).

Growth in the business and manufacturing sectors have caused the City of Jackson to experience population growth greater than the statewide average. This growth results in the continuing development of residential and retail areas. Population growth data for the City of Jackson, Madison County, and the State of Tennessee is shown below in Table 2.

TABLE 2			
HISTORICAL POPULATION DATA			
Year	Population		
	City of Jackson	Madison County	Tennessee
1990	48,949	77,982	4,877,185
2000	59,643	91,837	5,689,283
2008 (estimate)	63,158	96,376	6,214,888
% change 1990 - 2008	+29.0%	+23.6%	+27.4%
<i>Source: U.S. Census Bureau</i>			

State Route 186 (US 45BP/Keith Short Bypass) was constructed during the 1960's to provide congestion relief on State Route 5 (US 45/N Highland Avenue). However, completion of the bypass spurred new development of retail and service centers along this new route from downtown Jackson to Interstate 40. Within the immediate TPR study area, land uses are primarily commercial with SC-1 (Planned Unit Commercial Development), B-4 (General Business) and B-5 (Highway Business) zoning districts. The City of Jackson is a regional retail destination and sites along State Route 186 (US 45BP/Keith Short Bypass) continue to attract new business and developments which contribute to the current population growth trend and the current traffic operational, safety, and access management issues.

B. Crash History

Crash rate data for State Route 186 (US 45BP/Keith Short Bypass) in the TPR study area was reviewed to gauge the relative safety of this location in comparison to other similar roadway facilities in the state. The combination of crash frequency (crashes per year) and vehicle exposure (traffic volumes or miles traveled) results in a crash rate. Crash rates are expressed as "crashes per Million Vehicle Miles Traveled" (MVMT) for roadway segments and as "crashes per Million Entering Vehicles" (MEV) for intersection locations.

The portion of State Route 186 (US 45BP/Keith Short Bypass) from Old Hickory Boulevard to Interstate 40 is divided into two segments for the analysis of crash data. For the segment from Old Hickory Boulevard to Carriage House Drive, the statewide average crash rate for a roadway of the same functional class is 1.857. The actual rate for State Route 186 (US 45BP/Keith Short Bypass) on this segment

is 5.562, three times greater than the statewide average. For the segment from Carriage House Drive to Interstate 40, the statewide average crash rate for a roadway of the same functional class is 0.259. The actual rate for State Route 186 (US 45BP/Keith Short Bypass) on this segment is 0.796, more than three times greater than the statewide average.

Signalized intersections are located on State Route 186 (US 45BP/Keith Short Bypass) at Old Hickory Boulevard and Carriage House Drive within the TPR study area. The statewide average crash rate for signalized intersections on highways of the same functional class is 0.919. The actual crash rates on State Route 186 (US 45BP/Keith Short Bypass) at Old Hickory Boulevard and Carriage House Drive are 1.841 and 1.776, respectively. Local officials and stakeholders have indicated that they feel safety is an issue due to the lack of guidance and intuitive design and the high amount of driver judgement required to maneuver onto or off of State Route 186 (US 45BP/Keith Short Bypass).

Table 3 summarizes the actual crash rates and statewide average crash rates for State Route 186 (US 45BP/Keith Short Bypass) from Old Hickory Boulevard to Interstate 40.

TABLE 3				
CRASH RATE SUMMARY				
Location	Type	Actual Rate	Statewide Rate (SW)	Ratio of Actual/SW Rate
Old Hickory Blvd to Carriage House Dr	Segment	5.562	1.857	3.0
Carriage House Dr to Interstate 40	Segment	0.796	0.259	3.1
State Route 186 at Old Hickory Blvd	Intersection	1.841	0.919	2.0
State Route 186 at Carriage House Dr	Intersection	1.776	0.919	1.9
<i>Source: TDOT Safety Planning Section</i>				

C. Roadway Geometry

The primary roadway through the TPR study area, State Route 186 (US 45BP/Keith Short Bypass), is classified as an urban principal arterial. Carriage House Drive and Old Hickory Boulevard are other roads in the study area that are shown as urban minor arterials on the urban functional classification system.

State Route 186 (US 45BP/Keith Short Bypass) is the main north-south corridor in the project area and is shown as an urban principal arterial on TDOT's urban functional classification system. Between Old Hickory Boulevard and Interstate 40, State Route 186 (US 45BP/Keith Short Bypass) is a six-lane divided highway with a grass median from Old Hickory Boulevard to Carriage House Drive and a raised concrete median from Carriage House Drive to Interstate 40. The right-of-way on State Route 186 (US 45BP/Keith Short Bypass) is 200 feet throughout the project area. The speed limit on State Route 186 (US 45BP/Keith Short Bypass) is 55 mph.

Old Hickory Boulevard is a four-lane urban minor arterial running east-west from State Route 20 (US 412/Hollywood Drive) to State Route 5 (US 45/N. Highland Avenue). At the intersection with State Route 186 (US 45BP/Keith Short Bypass), dedicated left and right turn lanes are provided on Old Hickory Boulevard. The right-of-way width on Old Hickory Boulevard is 60 feet and the speed limit is 30 mph.

Carriage House Drive is a four-lane urban minor arterial generally running east-west from Wallace Road to State Route 186 (US 45BP/Keith Short Bypass). On the east approach to the intersection with State Route 186 (US 45BP/Keith Short Bypass), a dedicated right turn lane is provided on Carriage House Drive. In the project area, the right-of-way width on Carriage House Drive is 80 feet and the speed limit is 30 mph.



State Route 186 looking north from Old Hickory Boulevard



State Route 186 looking south from near Interstate 40



State Route 186 looking south at U-turn between Carriage House Dr. and Old Hickory Blvd

The configuration of the intersection at State Route 186 (US45BP/Keith Short Bypass) and Carriage House Drive currently does not permit eastbound through movements to Carriage House Drive or left turns for the eastbound to northbound traffic movement. In order to proceed north on State Route 186 (US 45BP/Keith Short Bypass), vehicles must turn right off the Casey Jones Lane/Frontage Road access and then make a U-turn on State Route 186 (US 45BP/Keith Short Bypass) approximately 700 feet to the south.

As mentioned previously, this corridor

has become a densely developed commercial area with the possibility to attract more development in the future. Existing Frontage Roads which parallel State Route 186 (US 45BP/Keith Short Bypass) on both the east and west sides, the close proximity of Interstate 40, and the limitations for turning movements at this intersection are possibly contributing factors to the existing traffic congestion and higher than average crash rates.

A summary of the existing roadway geometrics is shown in Table 4. Figure 2 shows an aerial map of the TPR study area.



Right turn only restriction onto State Route 186 from Casey Jones Lane/Frontage Road Approach

TABLE 4

SUMMARY OF EXISTING ROADWAY GEOMETRICS

Roadway	Length	ROW Width	Total # of Lanes	# of Lanes in Each Direction	Avg. Lane Width	Average Shoulder Width	Median Type	Average Median Width	Bicycle Facilities	Sidewalk	Terrain
State Route 186 (US 45BP/Keith Short Bypass) from Old Hickory Blvd to Carriage House Dr)	0.25 mi.	200	6	3	12	10	Grass	30	None	None	Rolling
State Route 186 (US 45BP/Keith Short Bypass) from Carriage House Dr to Interstate 40)	0.25 mi.	200	6	3	12	10	Conc.	4	None	None	Rolling
Old Hickory Boulevard (from log mile 0.71 to log mile 1.24)	0.53 mi.	60	4	2	10	Curb	None	None	None	Yes	Flat
Carriage House Drive (from log mile 1.26 to State Route 186)	0.11 mi.	80	4	2	11	Curb	None	None	None	Yes	Rolling

Source: TDOT TRIMS Database and field observations by project planners

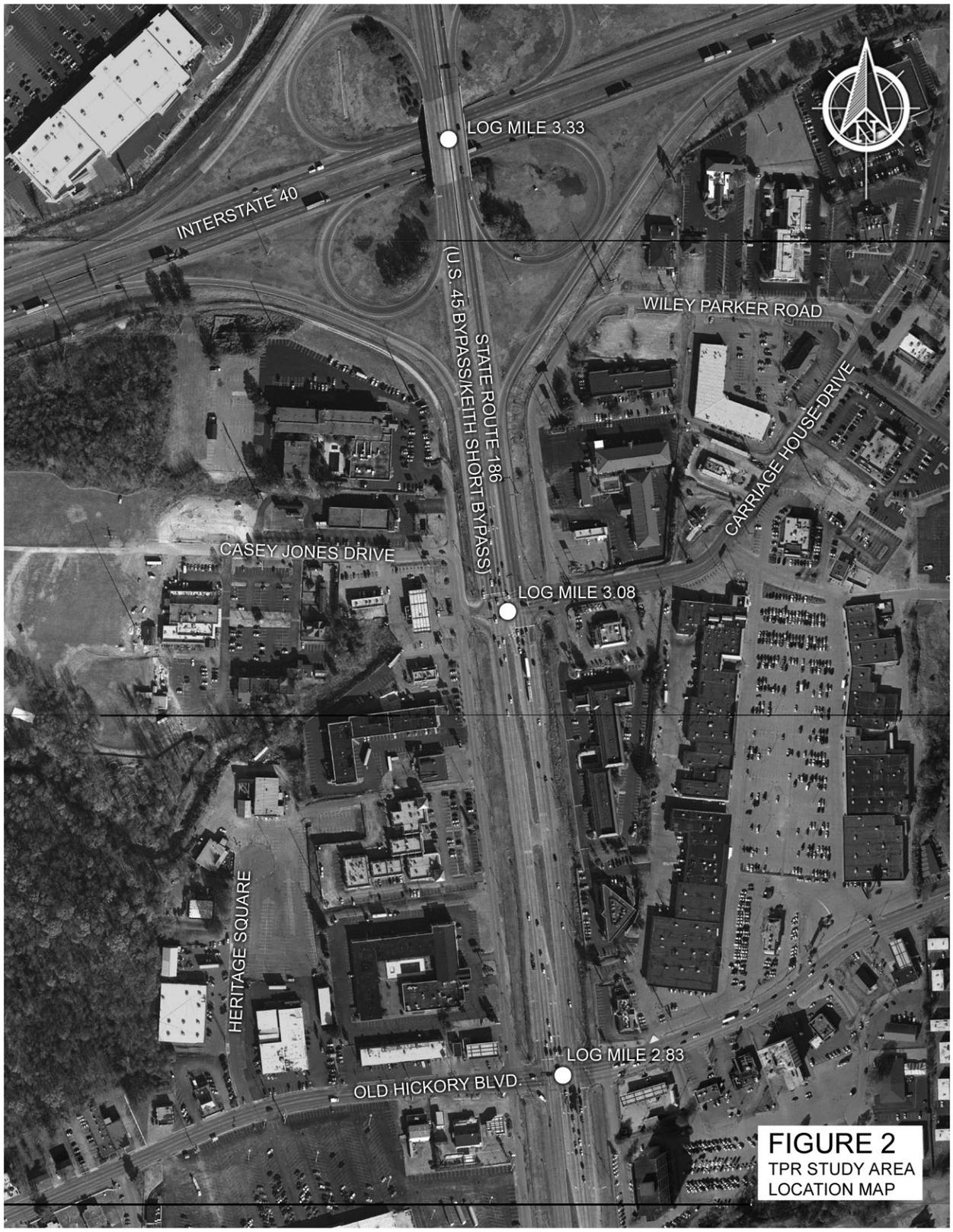


FIGURE 2
TPR STUDY AREA
LOCATION MAP

D. Multi-modal Facilities

The City of Jackson chartered the Jackson Transit Authority in April 1966. Since that time, the Jackson Transit Authority has provided bus route transit service to the City of Jackson. Currently, service is provided Monday through Saturday from 6:00 a.m. to 10:30 p.m. on eight different routes. The “Hollywood” route currently runs once an hour along a schedule that includes Carriage House Drive, Old Hickory Boulevard, and the State Route 186 West Side Frontage Road in the project area. Improvements to the intersection of State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive could provide better mobility for service at Casey Jones Village.

E. Existing Conditions Level of Service Analysis

A “Level of Service” (LOS) index was used to gauge the operational performance at each intersection/roadway segment. The LOS is a qualitative measure that describes traffic conditions related to speed and travel time, freedom to maneuver, traffic interruptions, etc. There are six levels ranging from “A” to “F” with “F” being the worst. Each level represents a range of operating conditions. Table 5 shows traffic flow conditions and approximate driver comfort level at each level of service.

TABLE 5	
DESCRIPTIONS OF LEVELS OF SERVICE	
LOS	Traffic Flow Conditions
A	Free flow operations. Vehicles are almost completely unimpeded in their ability to maneuver with the traffic stream. The general level of physical and psychological comfort provided to the driver is high.
B	Reasonable free flow operations. The ability to maneuver within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to the driver is still high.
C	Flow with speeds at or near free flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more vigilance on the part of the driver. The driver notices an increase in tension.
D	Speeds decline with increasing traffic. Freedom to maneuver within the traffic stream is more noticeably limited. The driver experiences reduced physical and psychological comfort levels.
E	At lower boundary, the facility is at capacity. Operations are volatile because there are virtually no gaps in the traffic stream. There is little room to maneuver. The driver experiences poor levels of physical and psychological comfort.
F	Breakdowns in traffic flow. The number of vehicles entering the highway section exceeds the capacity or ability of the highway to accommodate that number of vehicles. There is little room to maneuver. The driver experiences poor levels of physical and psychological comfort.

Capacity analysis was performed to determine the peak hour levels of service in the study area for the existing roadway network. To determine the future levels of service, assuming no change in geometry or laneage, capacity analysis was also performed using traffic volumes for the project base year and design year, 2013 and 2033, respectively. Traffic projections for the years 2013 and 2033 were provided by TDOT Project Planning Division staff.

Table 6 below shows the results of the existing and future level of service analysis for the existing roadway conditions.

TABLE 6			
EXISTING CONDITIONS LEVEL OF SERVICE SUMMARY			
Location	Year	Level of Service (Avg. Int. Delay - sec/veh)	
		A.M.	P.M.
State Route 186 (US 45BP/Keith Short Bypass) at Old Hickory Blvd	2008	C (28.0)	D (42.1)
	2013	C (32.1)	E (60.1)
	2033	D (50.3)	F (111.2)
State Route 186 (US 45BP/Keith Short Bypass) at Carriage House Dr (with prohibited left turn and through movements on eastbound approach)	2008	C (30.4)	C (31.3)
	2013	D (39.6)	D (38.1)
	2033	F (105.7)	F (88.6)
State Route 186 (US 45BP/Keith Short Bypass) SB weave from I-40 Ramp to Carriage House Dr.	2013	B	B
	2033	D	B

As shown in the table above, analysis indicates that the 2013 base year level of service at the intersection of State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive is C, meaning maneuverability is noticeably restricted and lane changes require more judgement and effort.

It is important to recognize that while the existing level of service is acceptable, 95th percentile queues exceed 1,000 feet on State Route 186 (US 45BP/Keith Short Bypass). In 2033, this intersection as it is currently configured will be characterized by level of service F, meaning that there is little to no room to maneuver and that the highway cannot accommodate the vehicles trying to enter it. Traffic volumes are expected to increase during this time from 45,536 Annual Average Daily Traffic (AADT) in 2008 to 53,250 AADT in the 2013 base year and to 70,290 in the design year 2033. This growth represents a 54 percent increase in the traffic on State Route 186 (US 45BP/Keith Short Bypass) from 2008 to 2033.

IV. STAKEHOLDER MEETING

A stakeholder meeting for the project was held on April 7, 2009 to discuss purpose and need issues and to discuss improvement options that would satisfy the needs in the area. Representatives from the City of Jackson, Madison County, the Jackson Metropolitan Planning Organization (MPO), TDOT Project Planning Division, TDOT Region 4, TDOT Environmental Division, Tennessee Department of Environment and Conservation (TDEC), Jackson Energy Authority, and many local business and property owners attended the meeting. A summary of the meeting, including a list of attendees, is included in Appendix B of this report.

The stakeholder meeting provided agencies and citizens the opportunity to identify issues and concerns, gather information, and collaborate on possible improvement options. The meeting included an introduction and overview of the project and TPR process as well as discussions of other project phases and tasks such as the National Environmental Policy Act (NEPA) study and public hearings. A review of the project programming and funding mechanisms through the Jackson MPO was also included in the project overview. Meeting attendees were encouraged to comment on the purpose and need for the project, identify issues and constraints in the area, and to suggest possible improvement options for improvements.

Based upon the discussions with local stakeholders present at the meeting, the intersection of State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive is the primary concern for safety, operational, and economic reasons. The inefficiency of ingress/egress to businesses provided by the Frontage Roads is also related to the operational and economic interests in the vicinity. Additionally, land owners are aware that there are 155 undeveloped acres between Casey Jones Village and Hollywood Drive. It is possible that this undeveloped land could be developed at a greater density than is currently included in the Jackson Long Range Transportation Plan and the future traffic projections generated for this study. The future development of this land will increase traffic in the project area and may require additional roadway improvements.

Local stakeholder suggestions for the roadway improvement project focused primarily on increased mobility to and from the west side of the intersection at State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive. Local stakeholders also expressed safety concerns traveling through the study area. The safety discussion focused on the weaving area from the Interstate 40 eastbound off-ramp to Carriage House Drive and the 55 mph speed limit on State Route 186 (US 45BP/Keith Short Bypass).

V. PRELIMINARY PURPOSE AND NEED

A. Introduction

The preliminary purpose and need for this project has been identified through coordination and discussions with local officials, local agencies, stakeholders, City of Jackson staff, and TDOT staff. Previous studies and correspondence have also been reviewed to evaluate the purpose and need for improvements. The identified project needs include:

1. Improving the traffic operations for existing and future traffic and providing additional right-of-way and capacity for the future extension of Casey Jones Lane as a link between two principal arterials.
2. Correcting existing deficiencies in the roadway geometry and improving the safety and efficiency of minor street access by removing obstacles and routes that require high driver judgment.
3. Relieving congestion and correcting existing geometric deficiencies to increase the appeal to tourism attractions and undeveloped land west of State Route 186 (US 45 BP/Keith Short Bypass).

Issues that have been considered as part of the evaluation of the purpose and need for this project.

- System Linkage
- Capacity
- Safety
- Economic Development
- Legislation/Planning

Descriptions of these issues and the specific needs or goals for this project are included below.

B. System Linkage

State Route 186 (US 45BP/Keith Short Bypass) is an important connector in the City of Jackson, in Madison County, and in the regional transportation system. It is the primary route from the Jackson Central Business District to Interstate 40 and carries a large portion of the truck and through traffic coming north from Mississippi and the Tennessee counties south of Jackson. Additionally, dense commercial development in the area has added local trip traffic to this highway. The need to serve through traffic and local traffic will add congestion in the future and result in a degradation of level of service on State Route 186 (US 45BP/Keith Short Bypass).

Improvements will be needed to provide mobility along intersection roadways and access to adjacent property.

Carriage House Drive is currently listed as an urban minor arterial on the functional classification system. This road connects the urban principal arterial system and provides service to trips of moderate length at a somewhat lower level of travel mobility than a principal arterial. Currently, 155 acres of undeveloped land is situated along Interstate 40 between State Route 20 (US 412/Hollywood Drive) and State Route 186 (US 45BP/Keith Short Bypass). It is reasonable to expect that the future development of this land will involve roadway improvements and an internal roadway infrastructure that will extend the link currently provided by Carriage House Drive at State Route 186 (US 45BP/Keith Short Bypass) to State Route 20 (US 412/Hollywood Drive) approximately 1.1 miles to the west. Improvements will be necessary at the intersection of State Route 186 (US 45BP/Keith Short Bypass), Carriage House Drive, and Casey Jones Lane to provide the opportunity for this future roadway link extension between two principal arterials.

C. Capacity

Traffic volumes on State Route 186 (US 45BP/Keith Short Bypass) are expected to increase approximately 54 percent during the period from 2008 to 2033. With a 2008 AADT of 45,536, the signalized intersections on State Route 186 (US 45BP/Keith Short Bypass) in the study area are generally operating at levels of service C/D. However, the AADT will increase to 53,250 in 2013 and to 70,290 in the design year 2033. This growth will result in the degradation of levels of service on State Route 186 (US 45BP/Keith Short Bypass) to LOS D/E in 2013 and LOS F in 2033. Improvements are needed to accommodate the projected traffic on State Route 186 (US 45BP/Keith Short Bypass) and the ability of traffic to enter or exit State Route 186 (US 45BP/Keith Short Bypass) from intersecting roads such as Carriage House Drive and Casey Jones Lane.

D. Safety

As shown previously in Table 3, the crash rates on State Route 186 (US 45BP/Keith Short Bypass) in the TPR study area are higher than expected on urban principal arterials statewide. The proposed improvements would simplify traffic operations at a location that currently requires high driver judgement. Improving the efficiency of the minor street access by removing obstacles and routes that are not intuitive to many drivers could help to reduce crashes and improve safety.

E. Economic Development

Safe and efficient access to the regional transportation network is necessary for business, retail centers, and attractions to remain economically viable. Congestion on State Route 186 (US 45BP/Keith Short Bypass) as well as the configuration that

forces left turns and through traffic movements from the Frontage Road and Casey Jones Lane to be made via a right turn and U-turn increases the amount of potential vehicle conflicts and driver judgement required to use the West Frontage Road on State Route 186 (US 45BP/Keith Short Bypass). As expected, the ingress/egress issues at this location limit the growth and economic development opportunities west of State Route 186 (US 45BP/Keith Short Bypass).

According to the Tennessee Department of Tourist Development, the Casey Jones Village, located on Casey Jones Lane, is one of Tennessee's top ten tourist attractions. In June 2009 the Casey Jones Museum opened, which will be an additional tourist attraction on Casey Jones Lane west of State Route 186 (US 45BP/Keith Short Bypass). The inefficient access to and from Casey Jones Lane currently makes marketing and developing the Casey Jones Village and Museum and the undeveloped land west of the museum a difficult task. An improved intersection and new roadway alignment would help relieve congestion by correcting existing geometric deficiencies and increase the accessibility to tourist attractions and undeveloped land west of State Route 186 (US 45BP/Keith Short Bypass).

F. Planning Precedent

The City of Jackson, in coordination with the Jackson Area Metropolitan Planning Organization, has completed a feasibility study for improving traffic safety and flow through the State Route 186 (US 45BP/Keith Short Bypass) at Carriage House intersection. This study was completed by Neel-Schaeffer, Inc. in March 2005. The results of the evaluation have indicated to the City that a realignment of Casey Jones Lane to provide a single intersection with State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive is necessary to address the capacity deficiencies and higher than expected accident rates.

The continued success of the Casey Jones Village, Old Country Store and Restaurant, and the recently completed Casey Jones Railroad Museum tourist attractions, are indicators that additional traffic will be added to the west approach of Casey Jones Lane to State Route 186 (US 45BP/Keith Short Bypass). Additionally, 155 acres of undeveloped land could be accessed via a Casey Jones Lane extension but would require additional roadway improvements and approvals of zoning changes and/or master plans in order to be developed. Additional roadway improvements may be necessary if this land develops at a greater density than is currently included in the Jackson Long Range Transportation Plan and the future traffic projections generated for this study.

The Jackson Area MPO has identified the intersection improvement as a future need in the 2035 Jackson Area Long Range Transportation Plan and has set aside future funds to be used on a portion of this project. The improvement was modeled in order to assess its impact on traffic conditions and future growth through the year 2035. Based upon the recommendations and modeling in the Long Range Plan,

the primary benefit was shown as the immediate improvement of mobility on Casey Jones Lane and Carriage House Drive, and the provision of an eastbound signalized approach for Casey Jones Lane providing a safer and more efficient traffic pattern for the area. The City of Jackson has requested a commitment from TDOT to have this project completed.

VI. OPTIONS FOR IMPROVEMENT

A. Previously Studied Alternatives

The City of Jackson and TDOT have previously reviewed options for improvements at the intersection of State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive but have not yet implemented a project to complete the appropriate improvements at this intersection.

In January 1995, a group of business owners along State Route 186 (US 45BP/Keith Short Bypass) contacted TDOT regarding the possibility of including improvements to the intersection of State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive as part of a larger interchange project that TDOT was planning at the time. As a result of the business owners' request, TDOT prepared an APR that included options for aligning Casey Jones Lane with Carriage House Drive and for extending Heritage Square Road to Casey Jones Lane. The APR was completed in 1996 but the project did not move forward at that time.

In 2005, the City of Jackson hired Neel-Schaeffer, Inc. to complete a feasibility study at the intersection of State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive to assess options and impacts for providing signalized control of the eastbound approach. The recommendations of this study were that the signalization of the eastbound approach to this intersection should be completed in conjunction with a project to reconfigure the intersection to provide a continuous through route to Casey Jones Lane and provide additional separation between State Route 186 (US 45BP/Keith Short Bypass) and the Frontage Road south of the intersection.

B. Improvements Studied in the TPR Process

The City of Jackson along with TDOT and the consultants worked with project area stakeholders to develop appropriate improvement options to address the preliminary purpose and need. Option A is a No Build option which would include no significant change to the current roadway conditions outside of minor safety improvements and maintenance activities. Options B, C, and D present spot or intersection improvements to address the goals for this project.

It is important to note that the options presented below are not exclusive of one another. For example, multiple improvement options could be selected and implemented as phases of a project for the study area. Option A, which generally includes minor intersection improvements, could be implemented within a short time frame while additional planning and engineering occurs on Options B and/or C. When conditions warrant and/or when funding becomes available through TDOT and the Jackson MPO, the final phase or option could be implemented to complete the overall improvement project for the study area.

Option A - No Build

As previously mentioned, Option A would not provide for improvements to any of the roads in the study area with the exception of minor safety improvements or regular maintenance activities. The no build option does not address the safety, capacity, or economic development and connectivity issues defined in the preliminary purpose and need of the project.

Option B - Intersection Improvement

Option B consists of intersection modifications at State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive. This option addresses the need for improved access for the State Route 186 west side Frontage Road and Casey Jones Lane by removing the raised concrete island on the eastbound approach and providing new pavement and traffic signal equipment to provide signalized control of left, through, and right turn movements.

As a result of the intersection improvements, the left turn lane and median cut between Carriage House Drive and Old Hickory Boulevard will be removed. Removing the left turn lane and U-turn median cut addresses the need to reduce congestion on State Route 186 (US 45BP/Keith Short Bypass) by eliminating the weaving that occurs from Carriage House Drive to the U-turn median cut and the impact of the unsignalized U-turn movement to the progression of northbound vehicles on State Route 186 (US 45BP/Keith Short Bypass). The improvement of Frontage Road access at State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive will provide new routes for traffic north of Old Hickory Boulevard. It is likely that some of the existing access issues at the intersection of Old Hickory Boulevard and the west side State Route 186 Frontage Road will be alleviated by this improvement option.

Design elements that are important when considering the effectiveness of Option B include the traffic signal operation at State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive and the traffic control at the Frontage Road access to the west approach at this intersection. Specifically, the lane configuration on the east approach at Carriage House Drive will require split phasing to be implemented on the minor street phases. Additionally, vehicles entering the Frontage Road must have the right-of-way to avoid queues that extend onto State Route 186 (US 45BP/Keith Short Bypass). Intersection control signs, guidance signs, and pavement markings will be important design elements to effectively communicate the new method of operations on the Frontage Road and eastbound approach. It may also be necessary to prohibit right turn on red maneuvers on State Route 186 (US 45BP/Keith Short Bypass) southbound at this intersection.

There are safety concerns related to the poor existing geometry and lack of appropriate vehicle storage at the west Frontage Road and Carriage House Drive.

As traffic volumes increase at this intersection, mobility and safety will decrease. The operation of this improvement would need to be monitored by the City of Jackson and TDOT.

The cost of Option B is estimated at \$83,700 and is detailed further in Section VI.D and in Appendix B.

An illustration of improvement Option B is shown in Figure 3 as well as on the conceptual layouts in Appendix C.

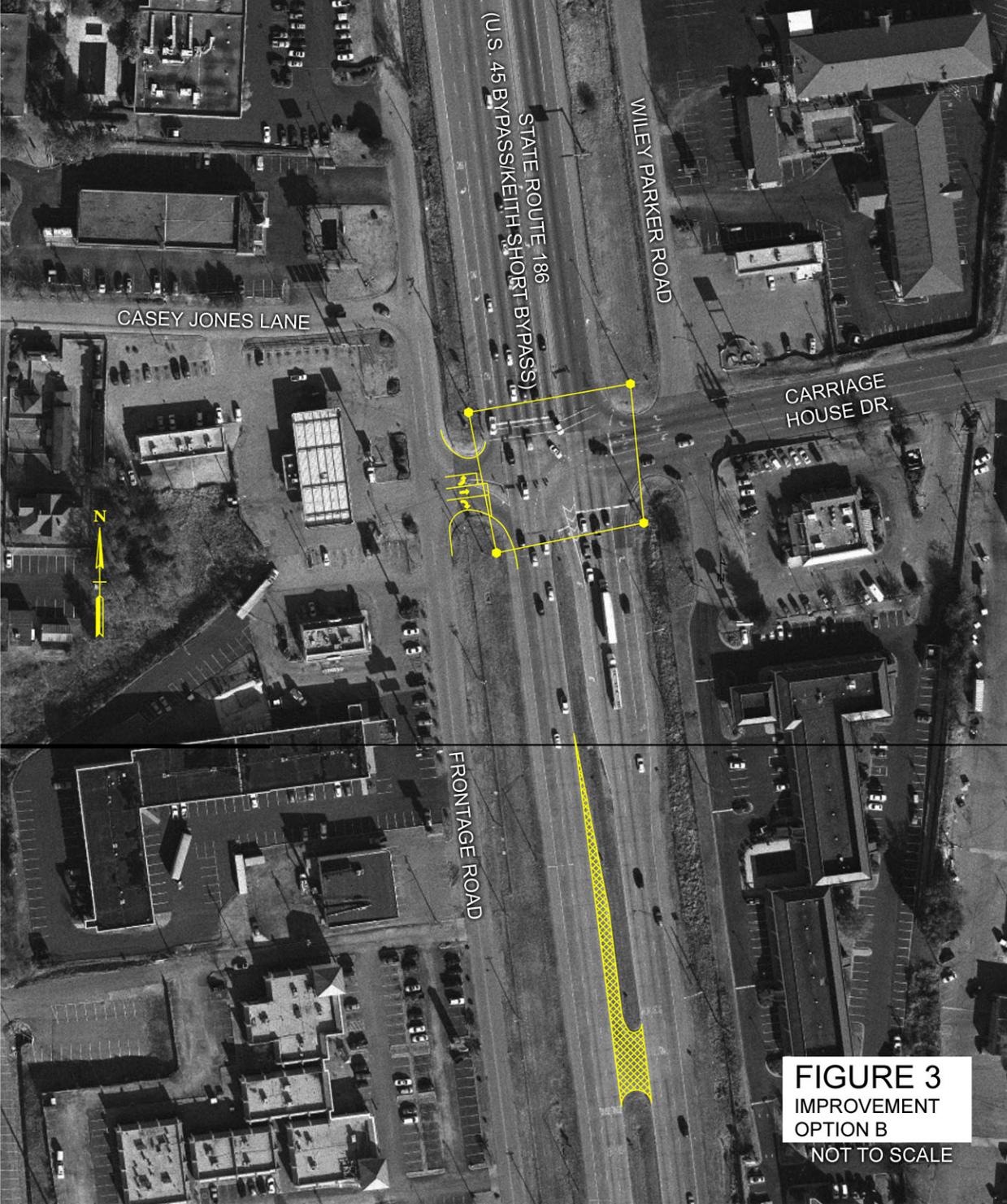


FIGURE 3
IMPROVEMENT
OPTION B
NOT TO SCALE

Option C - Weave Improvement

The purpose of Option C is to provide additional length between the Interstate 40 eastbound off-ramp and Carriage House Drive. Vehicles exiting Interstate 40 wanting to turn left onto Carriage House Drive are currently required to weave across the three lanes of State Route 186 (US 45BP/Keith Short Bypass) in order to enter the left turn lanes to Carriage House Drive. Option C would increase the length of the weave area but may not provide a significant improvement in vehicle maneuverability through this area.

Option C consists of reconstructing the Interstate 40 eastbound off-ramp on a new alignment for approximately 500 feet as it approaches State Route 186 (US 45BP/Keith Short Bypass). The benefit of this option is that the weave area on State Route 186 (US 45BP/Keith Short Bypass) can be increased approximately 75 feet. However, the new ramp alignment may be difficult to design without utilizing design speeds under 30 miles per hour.

Other potential ramp configurations were discussed to resolve the weave problem. However, changing the configuration of the interchange and ramps would require an Interchange Modification Study.

While this improvement addresses stakeholder concerns, it is questionable whether this option significantly improves the safety and operations of the weave at this location.

The cost of Option C is estimated at \$121,700 and is detailed further in Section VI.D and in Appendix B.

An illustration of improvement Option C is shown in Figure 4 as well as on the conceptual layouts in Appendix C.

Option D - Intersection Realignment

Option D addresses the needs to reduce congestion, to improve access and connectivity by linking Carriage House Drive and Casey Jones Lane, and to improve safety by improving current intersection deficiencies. The State Route 186 (US 45BP/Keith Short Bypass) corridor would benefit from Option D by being able to make better use of the traffic signal cycle. Improved minor street efficiency will result in longer green times on State Route 186 (US 45BP/Keith Short Bypass) which will allow for greater control of traffic progression and greater priority to the vehicles on the heavily traveled State Route 186 (US 45BP/Keith Short Bypass) corridor.

The proposed improvements as part of Option D include the realignment of Carriage House Drive and Casey Jones Lane to create a single four way

intersection with State Route 186 (SR 45BP/Keith Short Bypass). The proposed realignment would begin on Casey Jones Lane approximately 380 feet west of State Route 186 (SR 45BP/Keith Short Bypass) and would continue to the east on Carriage House Drive approximately 285 feet east of State Route 186 (SR 45BP/Keith Short Bypass). The total length of the realigned portions of Casey Jones Lane and Carriage House Drive will be approximately 820 feet. The turn lane storage lengths and realignment limits have been shown based upon the available and feasible lengths provided by adjacent property impacts, existing roadway geometry and laneage, and current design standards.

Modifications to the existing Frontage Roads and business access drives will improve the spacing and configuration of these elements. It may be appropriate to consider closing or restricting access to one or more Frontage Roads and/or Wiley Parker Road to meet the need for improved efficiency related to access and intersection spacing. The Jackson Area 2035 Long Range Transportation Plan includes the recommendation that as many as two commercial driveways on Carriage House Drive near State Route 186 (US 45BP/Keith Short Bypass) should be closed as part of safety improvement projects. These drives could include the State Route 186 Frontage Roads or Wiley Parker Road as shown in this improvement option. The improvement of Frontage Road access at State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive will also provide new routes for traffic north of Old Hickory Boulevard. It is likely that some of the existing access issues at the intersection of Old Hickory Boulevard and the west side State Route 186 Frontage Road will be alleviated by this improvement option.

In order to provide an improvement in traffic operations, the intersection of State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive/Casey Jones Lane should permit concurrent left turns on the major and minor approaches to avoid split phasing. Additionally, new sidewalks and crosswalks should be considered as part of this project to allow greater mobility between the commercial districts on Carriage House Drive, Casey Jones Lane, and along the State Route 186 Frontage Roads. Providing large turning radii will allow local transit agencies and bus operators to use this intersection more effectively when traveling on State Route 186 (US 45BP/Keith Short Bypass) along a route or to a local attraction such as the Casey Jones Village and Museum.

The cost of Option D is estimated at \$4,706,400 and is detailed further in Section VI.D. and in Appendix B.

An illustration of improvement Option D is shown in Figure 5 as well as on the conceptual layouts in Appendix C.

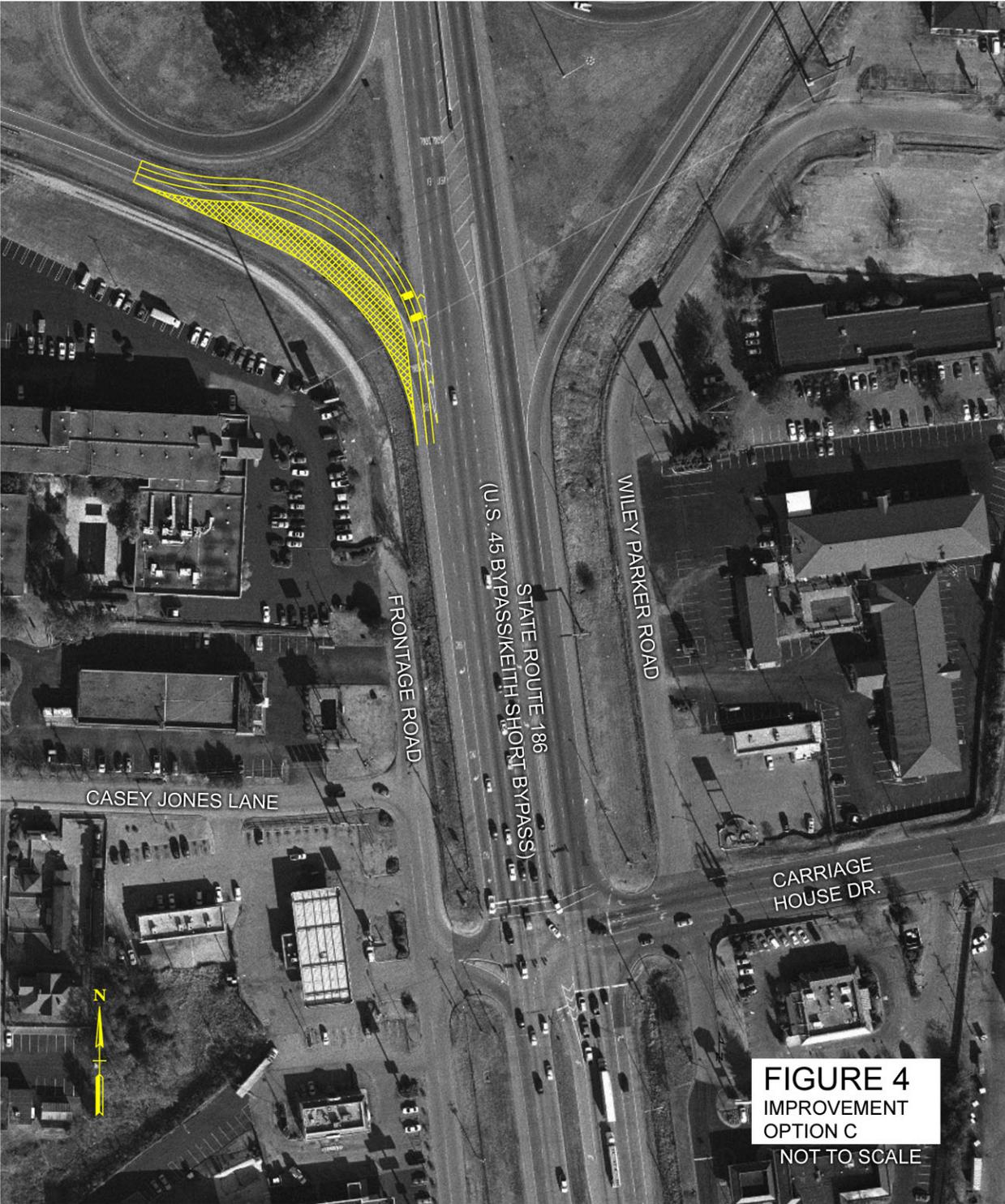


FIGURE 4
IMPROVEMENT
OPTION C
NOT TO SCALE

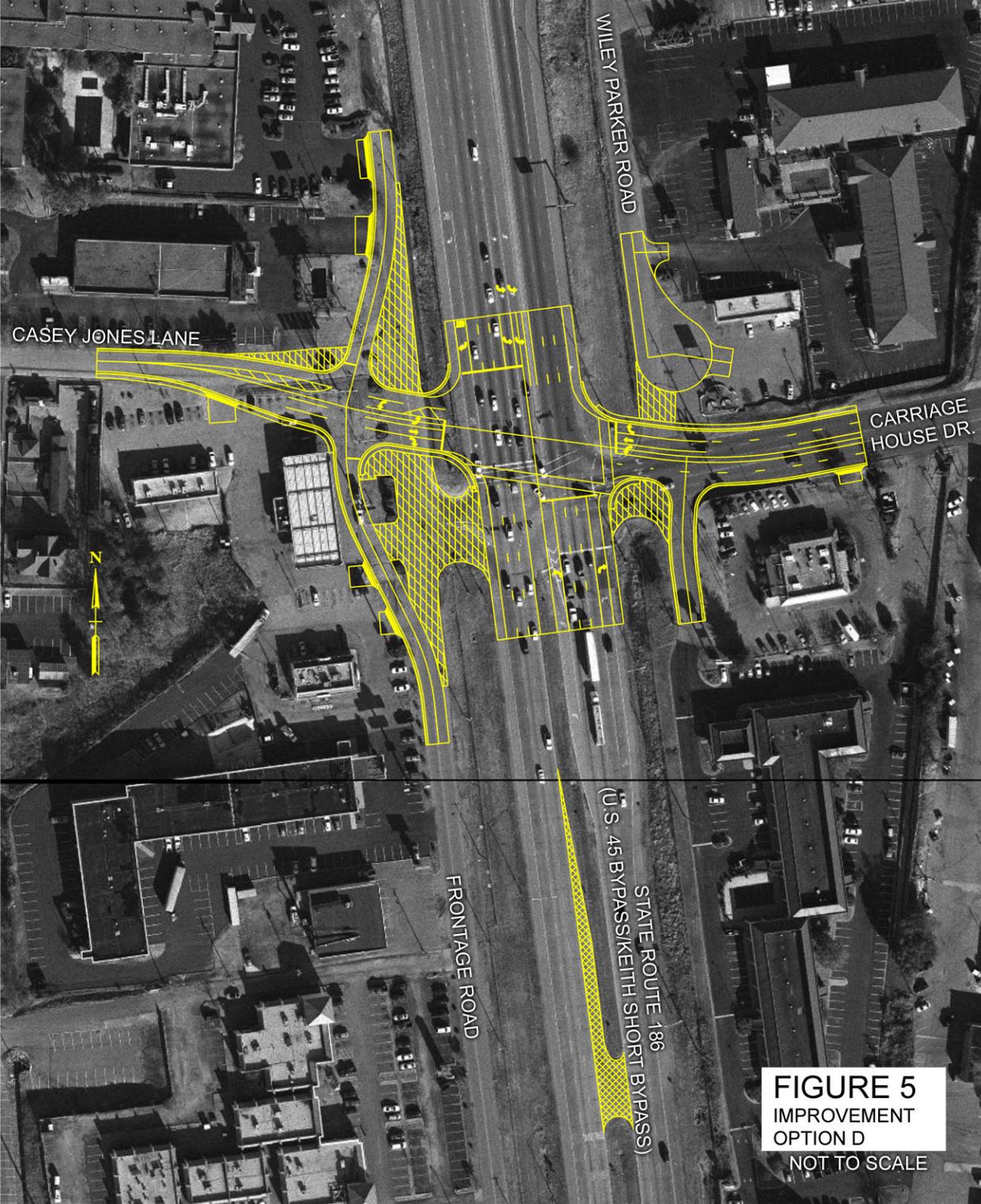


FIGURE 5
IMPROVEMENT
OPTION D
NOT TO SCALE

C. Level of Service Analysis Summary

The future peak hour levels of service were determined by performing a capacity analysis on the existing study area (no build option) and each of the improvement options described in this TPR. As discussed previously, the results of a capacity analysis are expressed in the form of a level of service (LOS). The LOS is a qualitative measure that describes traffic conditions related to speed and travel time, freedom to maneuver, traffic interruptions, etc. The traffic flow conditions and approximate driver comfort level at each level of service were previously shown in Table 5.

Table 7 shows a comparison of the capacity analysis and level of service results at the intersection of State Route 186 (US 45BP/Keith Short Bypass) at Carriage House Drive and at the weave section from the Interstate 40 eastbound off-ramp to the left turn lane at Carriage House Drive for Option A (no build) and improvement options B, C, and D.

TABLE 7									
IMPROVEMENT OPTION LEVEL OF SERVICE COMPARISON									
Location	Year	Level of Service							
		Option "A"		Option "B"		Option "C"		Option "D"	
		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
State Route 186 (US 45BP/Keith Short Bypass) at Carriage House Dr	2008	C	C	-	-	-	-	-	-
	2013	D	D	C	D	-	-	C	D
	2033	F	F	F	F	-	-	E	E
State Route 186 (US 45BP/Keith Short Bypass) SB weave from I-40 Ramp to Carriage House Dr	2013	B	B	-	-	B	B	-	-
	2033	D	B	-	-	C	B	-	-

D. Estimated Costs

Cost estimates have been prepared for the improvement options presented as part of this TPR. A range of low and high bid prices was established based upon a review of the bid summaries at 2008 and 2009 lettings for projects in Madison County. Costs for major construction line items were developed and items that are estimated as a percentage of the construction cost were added to determine the total cost for each option. The impact of inflation was applied to the project cost by increasing the total cost at a rate of 6% per year over the period from 2009 to the base year 2013.

Table 8 below summarizes the cost estimates for each of the improvement options presented in this TPR. Additional cost estimate information and calculations are shown in Appendix B.

TABLE 8			
IMPROVEMENT OPTION COST ESTIMATES			
Item	Option B	Option C	Option D
Right-of-Way	n/a	n/a	\$1,800,000
Utilities	n/a	n/a	\$147,000
Construction	\$47,500	\$70,000	\$1,310,000
Mobilization	\$4,200	\$4,800	\$45,600
Erosion Control	\$1,500	\$2,300	\$31,900
Other Const. Items (15%)	\$7,100	\$10,500	\$218,300
Preliminary Engineering	\$6,000	\$8,800	\$175,100
2009 Total	\$66,300	\$96,400	\$3,727,900
Inflation	\$17,400	\$25,300	\$978,500
TOTAL	\$83,700	\$121,700	\$4,706,400

VII. DISCUSSION OF IMPROVEMENT OPTION IMPACTS

A. Environmental Impacts

The improvements identified in Options B, C, and D generally follow the existing alignments of the Interstate 40 Eastbound Off-ramp, Casey Jones Lane, and Carriage House Drive. By following existing alignments, the amount of right-of-way acquisition has been limited to only what is necessary to accomplish the improvements. As a result of the developed conditions surrounding the project site and the use of existing alignments where possible, the environmental impacts of this project to previously undisturbed areas are minimal.

A review of possible hazardous material sites in the project area found that underground storage tanks are located at the Phillips 66 gas station property on the southwest corner of the intersection of Casey Jones Lane and the State Route 186 Frontage Road. These tanks would very likely need to be removed as part of the construction of improvement option D. According to previous review information provided by TDOT, no other adverse environmental conditions were observed in the project area.

According to the list of rare and endangered species maintained by the Tennessee Department of Environment and Conservation (TDEC) Natural Heritage Program, the location of the project on the Jackson North USGS quadrangle is not in the vicinity of any known rare or endangered species.

B. Cultural Impacts

The National Historic Register does not list any properties of significance in the study area. Additionally, field observations and a review of aerial mapping indicate that improvement options B, C, and D will not impact any cemeteries, churches, schools, or public buildings.

It should be noted that the project study area does include the Casey Jones Village, Old Country Store and Restaurant, and the recently completed Casey Jones Railroad Museum. These locations are significant because they are listed by the Tennessee Department of Tourist Development as one of Tennessee's top ten tourist attractions.

VIII. ASSESSMENT OF OPTIONS

The Tennessee Department of Transportation has adopted seven guiding principles against which all transportation projects are to be evaluated. These guiding principles address concerns for system management, mobility, economic growth, safety, community, environmental stewardship, and fiscal responsibility. These guiding principles are discussed in the following paragraphs as they relate to the options for improvement on State Route 186 (US 45BP/Keith Short Bypass) between Old Hickory Boulevard and Interstate 40.

Guiding Principle 1 - Preserve and Manage the Existing Transportation System

The improvement options presented in this TPR will preserve the existing transportation system by integrating possibilities for future connectivity and improvements to address safety and capacity into the existing roadway network. TDOT's goal of managing the existing transportation system is satisfied by improving system access to local businesses, important destinations, and vacant land for future development without increasing the number of intersections on the important State Route 186 (US 45BP/Keith Short Bypass) corridor.

Guiding Principle 2 - Move a Growing, Diverse, and Active Population

Access to the local businesses, restaurants, and commercial properties located on the west side of State Route 186 (US 45BP/Keith Short Bypass) will be improved with the options presented in this TPR. For example, the current difficulties that transit buses, tour company motorcoaches, and recreational vehicles experience when accessing the Casey Jones Village, Old Country Store and Restaurant, and Casey Jones Railroad Museum would be alleviated by aligning Casey Jones Lane with Carriage House Drive. Additionally, the connection of Casey Jones Lane to State Route 186 (US 45BP/Keith Short Bypass) creates the opportunity for a future extension of Casey Jones Lane into undeveloped land along Interstate 40 between exits 79 and 80. It is possible that Casey Jones Lane will be part of a future extension west to State Route 20 (US 412/Hollywood Drive). Providing connections between major roads such as State Route 186 and State Route 20 enable the development of activity centers and the movement of people. Operation efficiency is increased with Option D improvements.

Guiding Principle 3 - Support the State's Economy

A significant economic resource in the project area is the Casey Jones Village, Old Country Store and Restaurant, and the recently completed Casey Jones Railroad Museum. The Tennessee Department of Tourist Development has listed these locations as one of Tennessee's top ten tourist attractions. Improving the existing transportation system around a major attraction will also impact many of the restaurant, gas station, lodging, and other commercial properties in the area. The options presented in this TPR will improve the efficiency of access and provide opportunities for new business to many properties

along Casey Jones Lane, the State Route 186 Frontage Road, and Carriage House Drive. Additionally, the future extension of Casey Jones Lane will provide access to 155 acres of currently undeveloped land.

Guiding Principle 4 - Maximize Safety and Security

The evaluation of the improvement options in this TPR as they relate to mobility in a reliable and safe fashion is particularly relevant given the existing prohibited left turn and through movements on the eastbound approach to the intersection at State Route 186 (US45BP/Keith Short Bypass) and Carriage House Drive. Providing the ability to make left, through, and right turns from all four approaches to this intersection will allow for the removal of the unusual right turn only and U-turn elements on State Route 186 (US 45BP/Keith Short Bypass) that currently require high driver judgement to navigate. Removing these roadway components will improve the safety on State Route 186 (US 45BP/Keith Short Bypass) near the intersection of Carriage House Drive.

Guiding Principle 5 - Build Partnerships for Livable Communities

This study was initiated in response to requests by local officials and stakeholders. A stakeholder meeting was conducted with local officials and stakeholders with many discussions and comments related to the need for improved access to businesses and attractions along the State Route 186 (US 45BP/Keith Short Bypass) corridor, especially between Carriage House Drive and Old Hickory Boulevard. As this project moves into the NEPA phase where one or more of the improvement options will be selected for implementation, coordination with local officials and public meetings will be held to receive input from the community into the option selection process.

Guiding Principle 6 - Promote Stewardship of the Environment

To determine a project's potential benefit or harm to the environment, NEPA requires an assessment of environmental impacts and an evaluation of options to avoid any identified adverse impacts to the environment. A cursory environmental review for this project has indicated that the use of existing roadway alignments will result in minimal environmental impacts to previously undisturbed areas.

Guiding Principle 7 - Emphasize Financial Responsibility

This project is included in the Jackson Area 2035 Long Range Transportation Plan and will be funded through the comprehensive planning and programming mechanisms at the Jackson MPO and TDOT. Cost estimates have been prepared for the improvement options in the TPR based upon currently available data and have been included in this report for future planning purposes. It is TDOT's goal to follow a comprehensive transportation planning process, promote coordination among public and private operators of transportation systems, and support efforts to provide stable funding for the public component of the transportation system.

IX. SUMMARY

State Route 186 (US 45BP/Keith Short Bypass) begins at State Route 5 (US 45/S Highland Avenue) in the City of Jackson Central Business District and continues north for approximately nine miles. The US 45 Bypass designation ends at State Route 5 (US 45) north of Jackson but the State Route 186 designation continues north as an alternate route to the City of Trenton, Tennessee. In the project study area, increased development along State Route 186 (US 45BP/Keith Short Bypass) has resulted in steadily increasing traffic volumes for many years. Traffic volumes are projected to increase to 53,250 Annual Average Daily Traffic (AADT) in 2013 and 70,290 AADT in 2033. Levels of service on State Route 186 (US 45BP/Keith Short Bypass) will be D in 2013 and F in 2033.

The improvements to State Route 186 (US 45BP/Keith Short Bypass) in the vicinity of the intersection at Carriage House Drive are needed to address the following needs:

- To accommodate the existing and projected traffic at an improved level of service and to provide additional right-of-way and capacity for the future extension of Casey Jones Lane as a link between two principal arterials.
- To correct existing geometric deficiencies and improve the efficiency of the minor street access by removing obstacles and routes that require high driver judgement in order to help to reduce crashes, improve safety characteristics of the intersection, and increase the appeal to the tourist attractions and undeveloped land west of State Route 186 (US 45BP/Keith Short Bypass).
- To relieve congestion, correct existing geometric deficiencies, and increase the appeal to the tourist attractions and undeveloped land west of State Route 186 (US 45BP/Keith Short Bypass).
- To fulfill the planning precedent set forth in the Jackson Area 2035 Long Range Transportation Plan for improvements to State Route 186 (US 45BP/Keith Short Bypass) at the intersection of Carriage House Drive.

Four options were presented for evaluation in this TPR. Option A (no build) does not provide for the mobility and capacity needs of the future. Improved access to Casey Jones Lane and the more efficient operation of the connection to the State Route 186 Frontage Road would not be provided as part of this option. Options B and C provide improvements that will be effective but not significantly increase the service life of the intersection of State Route 186 (US 45BP/Keith Short Bypass) and Carriage House Drive for the 20 year planning horizon in this TPR. Option D addresses the need to improve access and system linkage to Casey Jones Lane. By aligning Casey Jones Lane with Carriage House Drive, access to properties west of State Route 186 (US 45BP/Keith Short Bypass) is improved and the possibility of creating a new east-west link between State Route 186 (US 45BP/Keith Short Bypass) and State Route 20 (US 412/Hollywood Drive) is established without creating a new intersection on the State Route 186 corridor.

APPENDIX A

**STAKEHOLDER MEETING MINUTES
AND ATTENDEE LIST**

4. A connection between the Keith Short Bypass and Hollywood Drive would improve access. This connection would also allow the undeveloped 155 acres between Casey Jones Village and Hollywood Drive to be developed.
5. According to Jackson representatives, improvements to Hollywood Drive are being let by TDOT in May as part of the use of ARRA funds.
6. The purpose of the stakeholder meeting is to establish dialogue and to discuss ideas and concerns with neighbors and involved agencies. No solutions are being presented at this meeting.
7. Travelers who are unfamiliar with Jackson are confused by the intersections and road layout. The lack of guidance and intuitive design hurts safety.
8. Transportation Planning Reports review the mobility, economic, and environmental issues related to a project. Options are presented in the TPR regardless of cost for NEPA evaluation.
9. The stakeholders are hopeful for opportunities and solutions in this area. Safety and congestion problems have been documented and property development is restricted because of the access issues on the Keith Short Bypass. The Jackson community and tourists in the area want to see this project move forward.
10. The issues in the area are not limited to the intersection of the Keith Short Bypass and Carriage House Drive. A small project will simply be a short term fix for a bigger problem.
11. Traffic issues on the Keith Short Bypass have been studied before and not fixed. There is a fear that this project will be put on hold and never completed. Phasing one big project into smaller projects ensures that manageable solutions can be installed.
12. The timeframe for completion of the TPR is between 3 and 4 months. TDOT and Jackson MPO will move the project forward after the TPR is completed.
13. The closure of any driveways or public roads (such as Wiley Parker Drive) is anticipated in the LRTP for Jackson.
14. According to TDOT Environmental Office, the TPR will be for all phases of the project, including an ultimate project scenario. This approach permits a single environmental document to be prepared addressing all the various phases of the project.
15. The stakeholders are concerned that this project may be delayed due to the many other projects currently being planned for in TDOT Region 4.
16. TVA has a primary electrical line generally paralleling Interstate 40 and Carriage House Drive through the project area.
17. The scope of the Transportation Planning Report:
 - includes the Keith Short Bypass from the SB I-40 Ramps to Old Hickory Boulevard
 - will include analysis of new road connections/intersections and traffic signals
 - is not a part of the I-40/I-81 Corridor Study

Summary of Local Input

Based upon the discussions with local stakeholders present at the meeting, the intersection of Keith Short Bypass (S.R. 186) and Carriage House Drive is the primary concern for safety, operational, and economic reasons. The inefficiency of ingress/egress to businesses provided by the frontage roads is also related to the operational and economic interests in the vicinity. Additionally, land owners are aware that there are 155 undeveloped acres between Casey Jones Village and Hollywood Drive. The future development of this land will increase traffic in the project area and may require additional roadway improvements.

Local stakeholder suggestions for the roadway improvement project consisted of implementing an intersection improvement project at Keith Short Bypass (S.R. 186) and Carriage House Drive. A larger, comprehensive solution project could be planned and implemented once funding is available through the Jackson MPO.

Closing Remarks

Brandon Baxter thanked everyone for their participation. He encouraged the stakeholders to contact the Jackson MPO office, TDOT, or Ragan-Smith if they had any questions or if they would like to discuss any additional items.

The draft TPR will be available for review at the Jackson MPO and at TDOT for 30 days. After the final TPR is complete, the NEPA process will begin and the schedule for the public hearing will be advertised at that time.

To the best of our knowledge, this is a summary of the items discussed and actions to be taken as a result of this meeting. If there are any corrections to be made, please call Brandon Baxter at (615) 244-8591.



KEITH SHORT BYPASS**STAKEHOLDER MEETING****LIST OF ATTENDEES FROM SIGN-IN SHEET**

<u>Name</u>	<u>Agency</u>	<u>Phone / Email</u>
Jimmy Harris	Mayor, Madison County	jharris@co.madison.tn.us
Jerry Gist	Mayor, City of Jackson	mayor@cityofjackson.net
Stan Pilant	City of Jackson	spilant@cityofjackson.net
Scott Chandler	City of Jackson	schandler@cityofjackson.net
Gary Leforgee	City of Jackson	gleforgee@cityofjackson.net
Keith Donaldson	City of Jackson/MPO	kdonaldson@cityofjackson.net
Ron Baker	TDOT	ron.baker@tn.gov
Mike Updike	TDOT	mike.updike@tn.gov
Joe Warren	TDOT Region 4	joe.warren@tn.gov
Joe W. Matlock	TDOT, Environmental Div.	Joe.Matlock@tn.gov
Brian Canada	TDEC	Brian.Canada@tn.gov
Leroy Johnson	Land Owner	731/423-0535
James Johnson	Land Owner	731/422-1750
Flora J. Young	Land Owner Representative	901/606-8269
Frank W. Johnson, Jr.	Land Owner P.O.A.	731/217-3615
Vandy Starnes	Land Owner	901/240-2342
Anne Starnes	Land Owner	901/830-8966
Gloria Kusch	Native American Legacy - Casey Jones Village	nativeamerlegacy@aol.com
Clark Shaw	Casey Jones Village	cshaw@caseyjones.com
Norwood Jones	Casey Jones Village	norwoodjones@aeneas.net
Lawrence Taylor	Casey Jones Museum	ltaylor@caseyjones.com
Deborah Shaw Laman	Casey Jones Village	dlaman@caseyjones.com
Cleve Marsh	Marsh Overhead Door	sales@marshoverheaddoor.com
Kathy Marsh	Marsh Overhead Door	sales@marshoverheaddoor.com
Chris Coughlin	Jackson Energy Authority	ccoughlin@jaxenergy.com
George Flew	Jackson Energy Authority	glfew@jaxenergy.com
Steve Bowers	Jackson Energy Authority	sbowers@jaxenergy.com
Fred Zimmerle	Madison Wholesale Co.	731/845-6327
Ajay Patel	Days Inn	731/394-7535
Reggie Smith	Town & Country Realtors	jrsmith@tcincrealtors.com
Phillip Jackson	Omni Center - Cody - Mix	731/426-7061
Frankie Lax	Omni Center - Cody - Mix	731/467-7222
Bill Williamson	Church at the Village	bwilliamson@churchatthevillage.com
Bob Beare	Coldwell Banker	bob.beare@coldwellbanker.com
Fran Beare	Coldwell Banker	bob.beare@coldwellbanker.com
Joe Griffin	Ragan-Smith-Associates	jgriffin@ragansmith.com
Scott Niesen	Ragan-Smith-Associates	sniesen@ragansmith.com
Brandon Baxter	Ragan-Smith-Associates	bbaxter@ragansmith.com
Patrick Leap	Ragan-Smith-Associates	pleap@ragansmith.com

STAKEHOLDER KICK-OFF MEETING

**KEITH SHORT BYPASS (S.R. 186/U.S. 45 BYPASS)
FROM INTERSTATE 40 RAMPS TO SOUTH OF OLD HICKORY BOULEVARD**

**Location: Casey Jones Village, City of Jackson, Tennessee
April 7, 2009**

AGENDA

I. Introduction

II. Purpose of Meeting

- A. Transportation Planning Report (TPR) Process
- B. History (Advanced Planning Reports, Local Planning, Project Programming & Request)

III. Summary of TPR Data Collection

- A. Traffic Counts
- B. Traffic Projections
- C. Accident History

IV. Funding and Programming

V. Comments and Discussion from Stakeholders

VI. Identification of Purpose and Need

- A. Congestion
- B. Safety
- C. Economic
- D. Regional Mobility

VII. Closing Remarks

**Exhibits: Aerial Photograph
Technical Data Summary
TPR Process**

SUMMARY OF TRANSPORTATION PLANNING REPORT DATA COLLECTION

1. TRAFFIC COUNTS

- Completed in November 2008
- Intersection turning movement counts conducted at:
 1. Keith Short Bypass at Carriage House Drive
 2. Carriage House Drive at Frontage Road
 3. Casey Jones Lane at Frontage Road
 4. Keith Short Bypass at Old Hickory Boulevard
 5. Old Hickory Boulevard at Frontage Road
- Average Daily Traffic on Keith Short Bypass - 47,637 vehicles/day

2. TRAFFIC PROJECTIONS

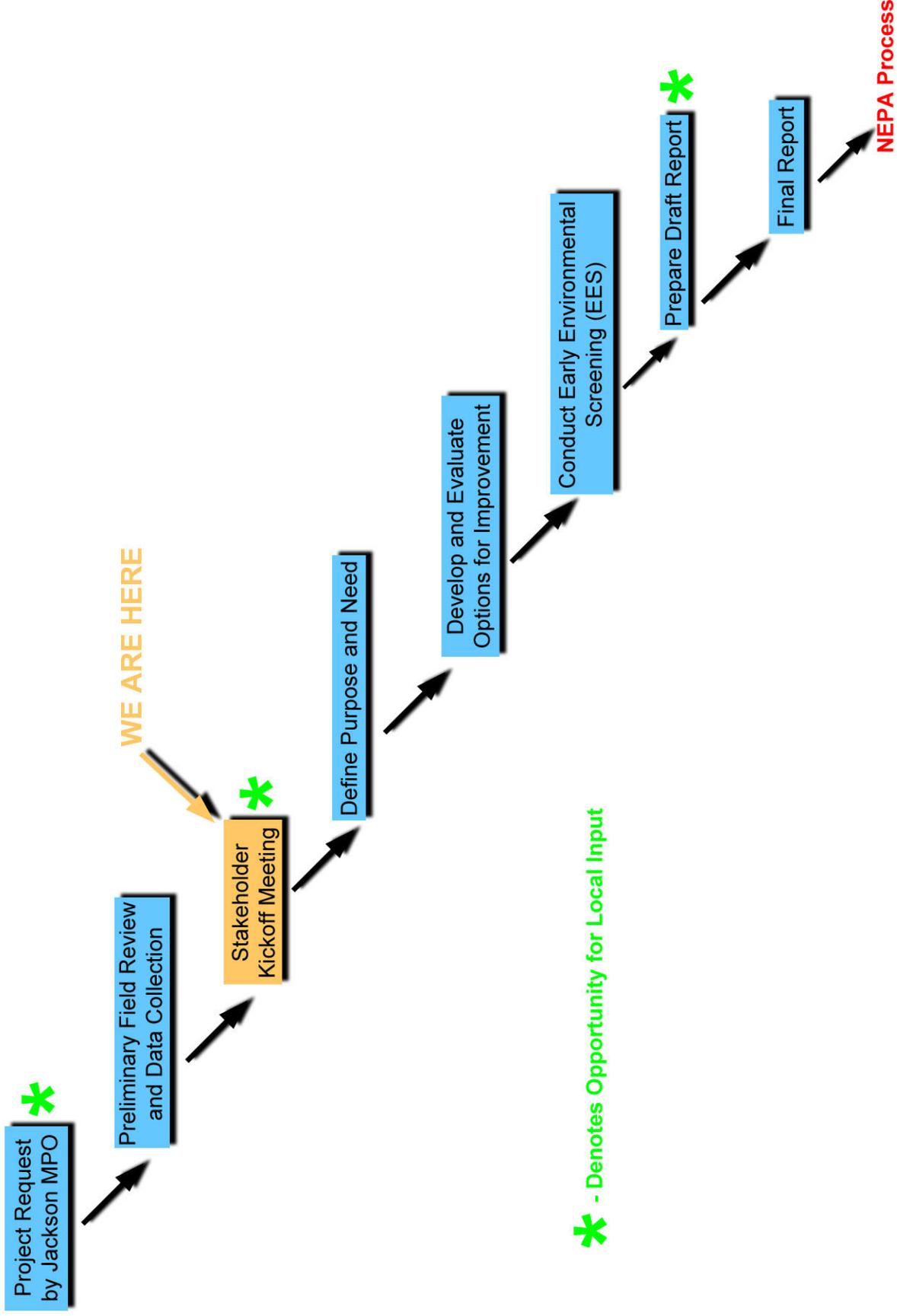
- Completed by TDOT Planning Staff in January 2009
- Includes Average Daily Traffic (ADT) and Design Hour Volumes (DHV) on:
 1. Keith Short Bypass
 2. Carriage House Drive
 3. Casey Jones Lane
 4. Old Hickory Boulevard
 5. Frontage Roads
- Projected Average Daily Traffic on Keith Short Bypass:
 1. Year 2013 - 54,280 vehicles/day
 2. Year 2033 - 71,650 vehicles/day

3. ACCIDENT HISTORY

- Crash data available for period from 2004 to 2006
- Accident Rates on Keith Short Bypass from Carriage House Drive to Old Hickory Boulevard are *2 to 3 times higher* than the statewide average

Transportation Planning Report (TPR) Process

Keith Short Bypass (S.R. 186/U.S. Highway 45 Bypass)



MEETING MINUTES

RAGAN • SMITH

To: Mr. Ron Baker, TDOT
From: Brandon Baxter

Attendees: Steve Allen, TDOT
Ron Baker, TDOT
Joe Carpenter, TDOT
Mike Updike, TDOT
Scott Chandler, City of Jackson
Keith Donaldson, Jackson MPO
Brandon Baxter, Ragan-Smith
Joe Griffin, Ragan-Smith
Scott Niesen, Ragan-Smith

Date: May 8, 2009
Proj. No.: Ragan-Smith Job No. - 08-100/8854
Reference: Keith Short Bypass (S.R. 186)
Stakeholder Meeting Review

c:

A meeting to discuss and review the project initiation history, Transportation Planning Report scope, and stakeholder meeting comments was held on May 5, 2009 in the TDOT Project Planning Office conference room. The minutes from this meeting will be attached as "Addendum No. 1" to the minutes of the April 7, 2009 stakeholder meeting.

The discussion items relating to the initiation and scope of the Transportation Planning Report for the Keith Short Bypass (US 45.SR 186) are summarized below.

1. Comments and discussion at the April 7, 2009 stakeholder meeting indicated that the project scope may need to be redefined to more accurately represent the Jackson Long Range Transportation Plan and the stakeholders present at the meeting.
2. Keith Donaldson explained that the intent of the projects in the Jackson Long Range Transportation Plan were to improve the US 45/SR 186 corridor south of Interstate 40. Specifically, project T8 was intended to address the portion of US 45/SR186 between Interstate 40 and Old Hickory Boulevard, including the intersection at Carriage House Drive/Casey Jones Drive.
3. The City of Jackson is in favor of looking at a phased approach or at multiple options so that some improvements can be implemented quickly without missing the opportunity for a project that will provide a comprehensive improvement to the US 45/SR 186 corridor.
4. Modifications to the interchange of US 45/SR 186 with Interstate 40 would require an Interchange Modification Study (IMOD) and FHWA approval. TDOT can not initiate work on an IMOD until the Jackson MPO programs an interchange modification project in the Long Range Transportation Plan.
5. The Transportation Planning Report for the Keith Short Bypass (SR 186) between Interstate 40 and Old Hickory Boulevard will review and provide improvement options the following items.
 - o The weave on the Keith Short Bypass (SR 186) between the EB I-40 exit ramp and the left turn onto Carriage House Drive.
 - o Capacity deficiencies and improvement options for the intersection of Keith Short Bypass (SR 186) and Carriage House Drive/Casey Jones Drive. Three or four improvement options of varying sizes and costs should be presented for consideration in the NEPA process.
 - o Adjacent intersections that will be affected by the improvement options should be analyzed for impacts.

To the best of our knowledge, this is a summary of the items discussed and actions to be taken as a result of this meeting. If there are any corrections to be made, please call Brandon Baxter at (615) 244-8591.

APPENDIX B

COST ESTIMATE SPREADSHEETS

ESTIMATED ROADWAY QUANTITIES - OPTION B

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	PRICE PER	TOTAL
203-01	ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED)	C.Y.	267	7.21	\$1,925
203-07	FURNISHING & SPREADING TOPSOIL	C.Y.	89	15	\$1,335
716-02.01	PLASTIC PAVEMENT MARKING (4" LINE)	L.M.	0.063	3566.75	\$225
716-02.05	PLASTIC PAVEMENT MARKING (STOP LINE)	L.F.	47	14.07	\$661
716-02.06	PLASTIC PAVEMENT MARKING (TURN LANE ARROW)	EACH	3	182.08	\$546
801-01	SEEDING (WITH MULCH)	UNIT	20	89.27	\$1,785
716-08.01	REMOVAL OF PAVEMENT MARKING (LINE)	L.F.	130	0.85	\$111
202-03	REMOVAL OF RIGID PAVEMENT, SIDEWALK, ETC.	S.Y.	32	8.08	\$259
730-01	TRAFFIC SIGNALS	LS	1	30000	\$30,000
303-01	MINERAL AGGREGATE, TYPE A BASE, GRADING D	TON	136.2	22.22	\$3,026
307-01.01	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING A	TON	5.5	114.66	\$631
307-01.08	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING B-M2	TON	3.6	127.63	\$459
402-01	BITUMINOUS MATERIAL FOR PRIME COAT (PC)	TON	0.048	267.67	\$13
402-02	AGGREGATE FOR COVER MATERIAL (PC)	TON	0.2	14.14	\$3
403-01	BITUMINOUS MATERIAL FOR TACK COAT (TC)	TON	0.003	597.85	\$2
411-01.10	ACS MIX(PG64-22) GRADING D	TON	2.1	150.84	\$317
717-01	MOBILIZATION	LS	1	4130	\$4,130
209-01.10	EROSION AND SILTATION CONTROL (DESCRIPTION)	LS	1	1445	\$1,445
712-01	TRAFFIC CONTROL	LS	1	6195	\$6,195
	TOTAL				\$53,067

ESTIMATED ROADWAY QUANTITIES - OPTION C

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	PRICE PER	TOTAL
203-01	ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED)	C.Y.	1005	7.21	\$7,246
203-07	FURNISHING & SPREADING TOPSOIL	C.Y.	185	15	\$2,775
303-01	MINERAL AGGREGATE, TYPE A BASE, GRADING D	TON	658	22.22	\$14,621
307-01.01	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING A	TON	180.3	29.75	\$5,364
307-01.08	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING B-M2	TON	118	127.63	\$15,060
402-01	BITUMINOUS MATERIAL FOR PRIME COAT (PC)	TON	14.2	267.67	\$3,801
402-02	AGGREGATE FOR COVER MATERIAL (PC)	TON	56.5	14.41	\$814
403-01	BITUMINOUS MATERIAL FOR TACK COAT (TC)	TON	0.81	597.85	\$484
411-01.10	ACS MIX(PG64-22) GRADING D	TON	69	150.84	\$10,408
716-03.06	PLASTIC WORD PAVEMENT MARKING (SIGNAL AHEAD)	EACH	1	546	\$546
716-02.04	PLASTIC PAVEMENT MARKING(CHANNELIZATION STRIPING)	S.Y.	2	24.41	\$49
716-02.10	PLASTIC PAVEMENT MARKING (6" LINE)	L.M.	0.17	4353	\$740
716-08.01	REMOVAL OF PAVEMENT MARKING (LINE)	L.F.	158	0.85	\$134
716-08.04	REMOVAL OF PAVEMENT MARKING (CHANNELIZATION STRIPING)	S.Y.	41	12.44	\$510
716-08.11	REMOVAL OF WORD PAVEMENT MARKING (SIGNAL)	EACH	1	25	\$25
716-08.11	REMOVAL OF WORD PAVEMENT MARKING (AHEAD)	EACH	1	25	\$25
209-01.10	EROSION AND SILTATION CONTROL (DESCRIPTION)	LS	1	2230.14461	\$2,230
712-01	TRAFFIC CONTROL	LS	1	6371.84175	\$6,372
717-01	MOBILIZATION	LS	1	4778.88131	\$4,779
801-01	SEEDING (WITH MULCH)	UNIT	12.5	89.27	\$1,116
	TOTAL				\$77,099

ESTIMATED ROADWAY QUANTITIES - OPTION D

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
105-01	CONSTRUCTION STAKES, LINES AND GRADES	LS	1	\$10,000	\$10,000
201-01	CLEARING AND GRUBBING	LS	1	\$17,500	\$17,500
202-01	REMOVAL OF STRUCTURES AND OBSTRUCTURES	LS	1	\$2,000	\$2,000
202-03	REMOVAL OF RIGID PAVEMENT, SIDEWALK, ETC.	S.Y.	349	\$5.50	\$1,919.50
202-08.10	REMOVAL OF CURB (EXTRUDED)	L.F.	969	\$2.00	\$1,938.00
202-08.15	REMOVAL OF CURB AND GUTTER (TYPE 6-30)	L.F.	1,976	\$2.50	\$4,940.00
203-01	ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED)	C.Y.	4,756	\$8.50	\$40,426
203-04	PLACING AND SPREADING TOPSOIL	C.Y.	245	\$4.50	\$1,103
203-06	WATER	M.G.	43	\$9.00	\$387.00
203-07	FURNISHING & SPREADING TOPSOIL	C.Y.	1,069	\$14.00	\$14,966
209-01.10	EROSION AND SILTATION CONTROL (COMPLETE)	LS	1	\$31,900	\$31,900
303-01	MINERAL AGGREGATE, TYPE A BASE, GRADING D	TON	5,018	\$23.00	\$115,414
307-01.01	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING A	TON	1,111	\$115.00	\$127,765
307-01.08	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING B-M2	TON	923	\$128.00	\$118,144
402-01	BITUMINOUS MATERIAL FOR PRIME COAT (PC)	TON	13	\$300.00	\$3,900.00
402-02	AGGREGATE FOR COVER MATERIAL (PC)	TON	52	\$15.00	\$780.00
403-01	BITUMINOUS MATERIAL FOR TACK COAT (TC)	TON	3	\$625.00	\$1,875.00
407-20.05	SAW CUTTING ASPHALT PAVEMENT	L.F.	1,195	\$2.75	\$3,286.25
411-01.07	ACS MIX (PG64-22) GRADING E SHOULDER	TON	33	\$85.00	\$2,805.00
411-01.10	ACS MIX (PG64-22) GRADING D	TON	839	\$155.00	\$130,045.00
415-01.02	COLD PLANING BITUMINOUS PAVEMENT	S.Y.	4,487	\$1.50	\$6,730.50
701-01.01	CONCRETE SIDEWALK (4")	S.F.	3,380	\$3.00	\$10,140.00
701-02.02	CONCRETE DRIVEWAY (8")	S.F.	1,024	\$6.50	\$6,656.00
701-02.03	CONDRETE HANDICAP RAMP	S.F.	500	\$14.50	\$7,250.00
702-01.01	EXTRUDED MOUNTABLE CURB	L.F.	314	\$15.00	\$4,710.00
702-03	CONCRETE COMBINED CURB & GUTTER	C.Y.	178	\$215.00	\$38,270.00
705-02.02	SINGLE GUARDRAIL (TYPE 2)	L.F.	90	\$20.50	\$1,845.00
705-04.03	GUARDRAIL TERMINAL (TYPE 13)	EACH	2	\$610.00	\$1,220.00
705-04.07	TAN ENERGY ABSORBING TERM (NCHRP 350, TL3)	EACH	1	\$2,500.00	\$2,500.00
706-01	GUARDRAIL REMOVED	L.F.	116	\$2.00	\$232
706-10.26	ROUNDED END ELEMENT	EACH	2	\$55.00	\$110.00
712-01	TRAFFIC CONTROL	LS	1	\$136,600	\$136,600
713-01.10	SIGNING	LS	1	\$68,300.00	\$68,300.00
713-15	REMOVAL OF SIGNS, POSTS AND FOOTINGS	LS	1	\$10,300.00	\$10,300.00
716-02.01	PLASTIC PAVEMENT MARKING (4" LINE)	L.M.	0.9	\$3,600.00	\$3,240.00
716-02.03	PLASTIC PAVEMENT MARKING (CROSS-WALK)	L.F.	222	\$10.00	\$2,220.00
716-02.04	PLASTIC PAVEMENT MARKING (CHANNELIZATION STRIPING)	S.Y.	14	\$30.00	\$420.00
716-02.05	PLASTIC PAVEMENT MARKING (STOP LINE)	L.F.	315	\$15.00	\$4,725.00
716-02.06	PLASTIC PAVEMENT MARKING (TURN LANE ARROW)	EACH	12	\$200.00	\$2,400.00
716-02.10	PLASTIC PAVEMENT MARKING (6" LINE)	L.M.	0.4	\$4,600.00	\$1,840.00
716-02.11	PLASTIC PAVEMENT MARKING (6" DOTTED LINE)	L.F.	165	\$2.50	\$412.50
717-01	MOBILIZATION	LS	1	\$45,600.00	\$45,600.00
730-01	TRAFFIC SIGNALS	LS	1	\$200,000.00	\$200,000.00
801-01	SEEDING WITH MULCH	UNIT	84	\$90.00	\$7,560.00
801-01.07	TEMPORARY SEEDING (WITH MULCH)	UNIT	4	\$80.00	\$320.00
801-03	WATER (SEEDING & SODDING)	M.G.	22	\$75.00	\$1,650.00
803-01	SODDING (NEW SOD)	S.Y.	1,691	\$4.00	\$6,764.00
805-01.65	TEMPORARY MULCH	UNITS	2	\$40.00	\$80.00
920-10	PROJECT STORM DRAINAGE	LS	1	\$182,100.00	\$182,100.00
	TOTAL				\$1,385,288.25

APPENDIX C

AERIAL MAPPING WITH CONCEPTUAL LAYOUTS

Index Of Sheets

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS
3-4	OPTION "B"
5-6	OPTION "C"
7-8	OPTION "D"

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING

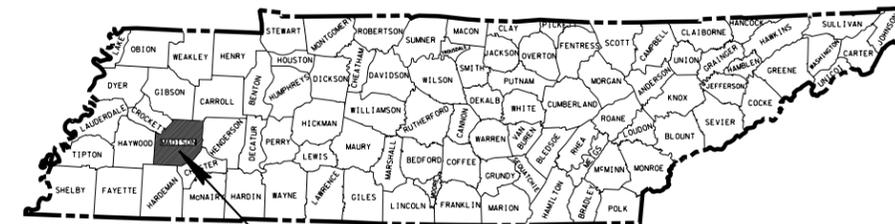
MADISON COUNTY

STATE ROUTE 186
(US 45BP/KEITH SHORT BYPASS)

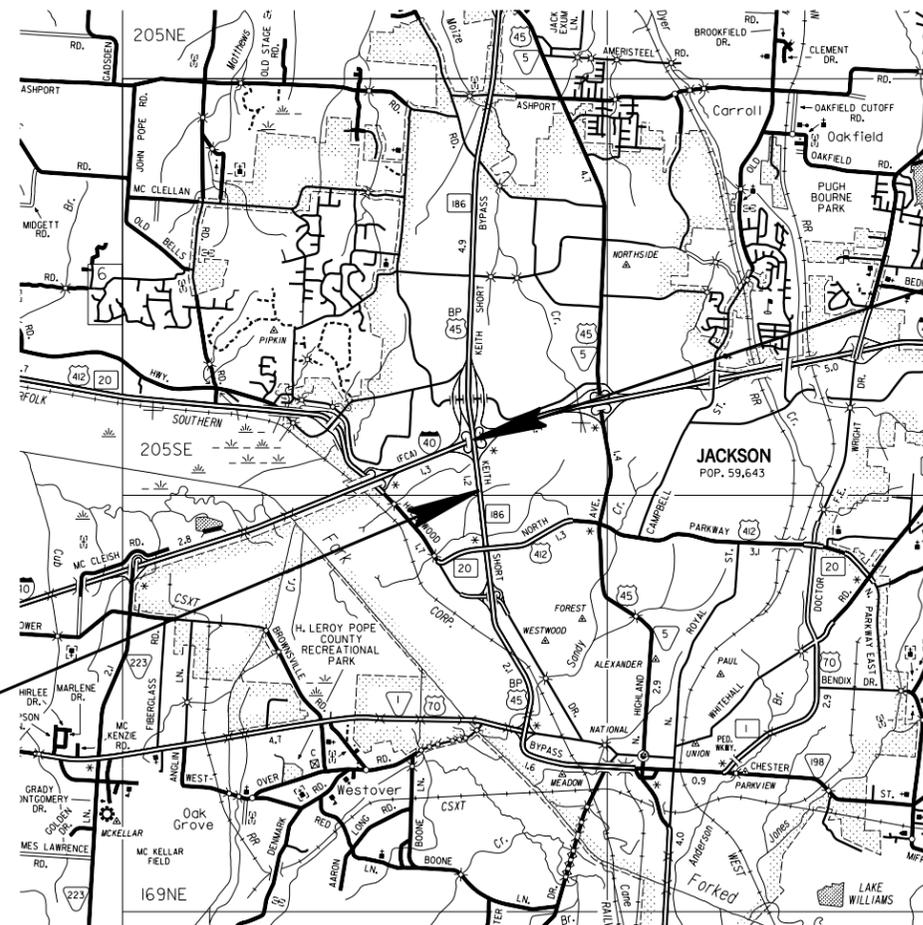
TRANSPORTATION PLANNING REPORT

STATE HIGHWAY NO. 186 F.A.H.S. NO. 45 BYPASS

TENN.	YEAR	SHEET NO.
	2009	1
FED. AID PROJ. NO.		
STATE PROJ. NO.	99108-7018-04	



PROJ. NO. MADISON CO.
99108-7018-04



BEGIN PROJECT
S.R. 186 / U.S. 45BP
LOG MILE 2.83

END PROJECT
S.R. 186 / U.S. 45BP
LOG MILE 3.30

SPECIAL NOTES

PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED MARCH 1, 2006 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT.

TDOT C.E. MANAGER 1 OR
 TDOT DESIGN MANAGER 1 _____
 TDOT ROAD SP. SV. 2 _____
 DESIGNED BY _____
 DESIGNER _____ CHECKED BY _____
 P.E. NO. _____
 PIN NO. _____

SCALE: 1" = 5280'

APPROVED: *Paul D. Decker*
CHIEF ENGINEER

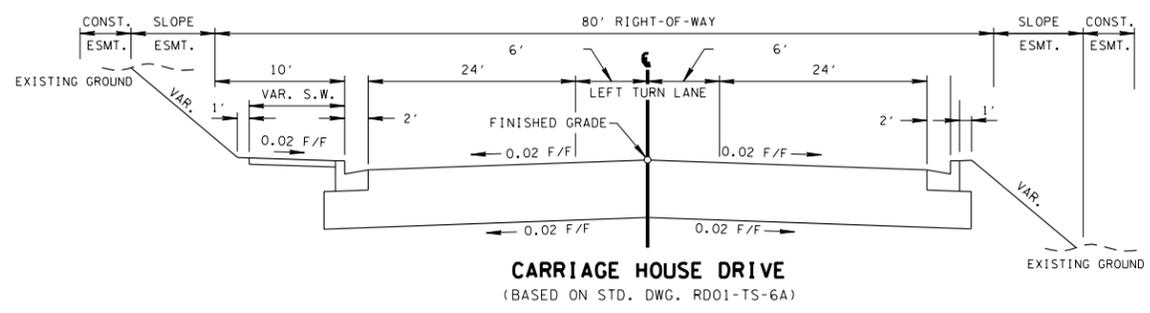
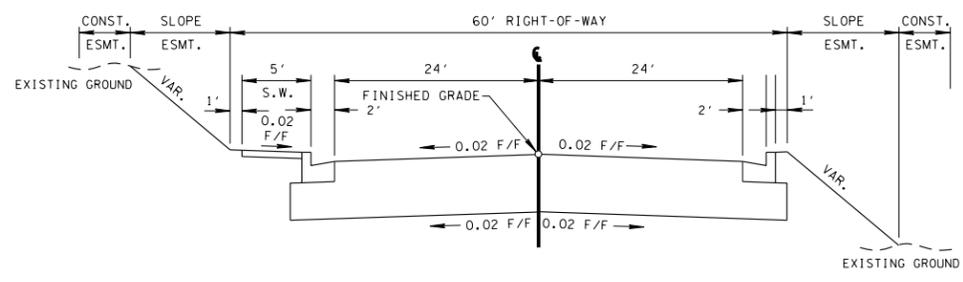
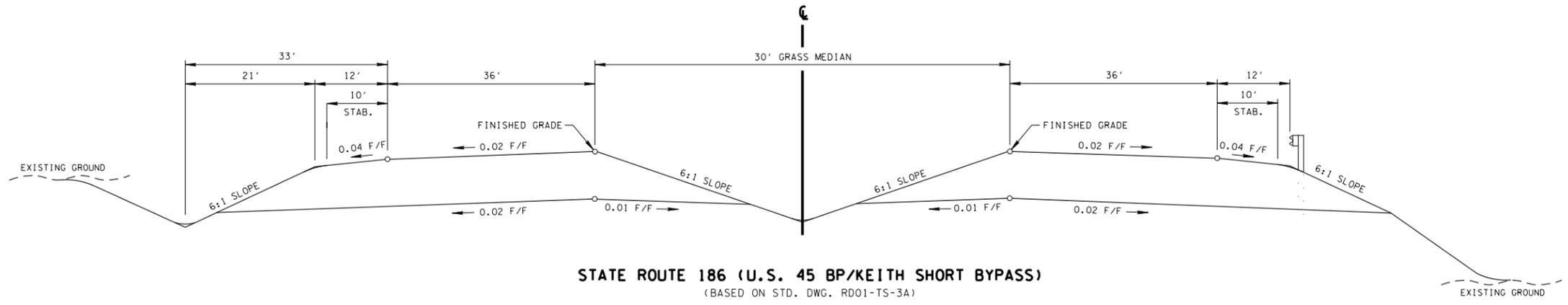
DATE: _____

APPROVED: *Scott F. Nicks*
COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

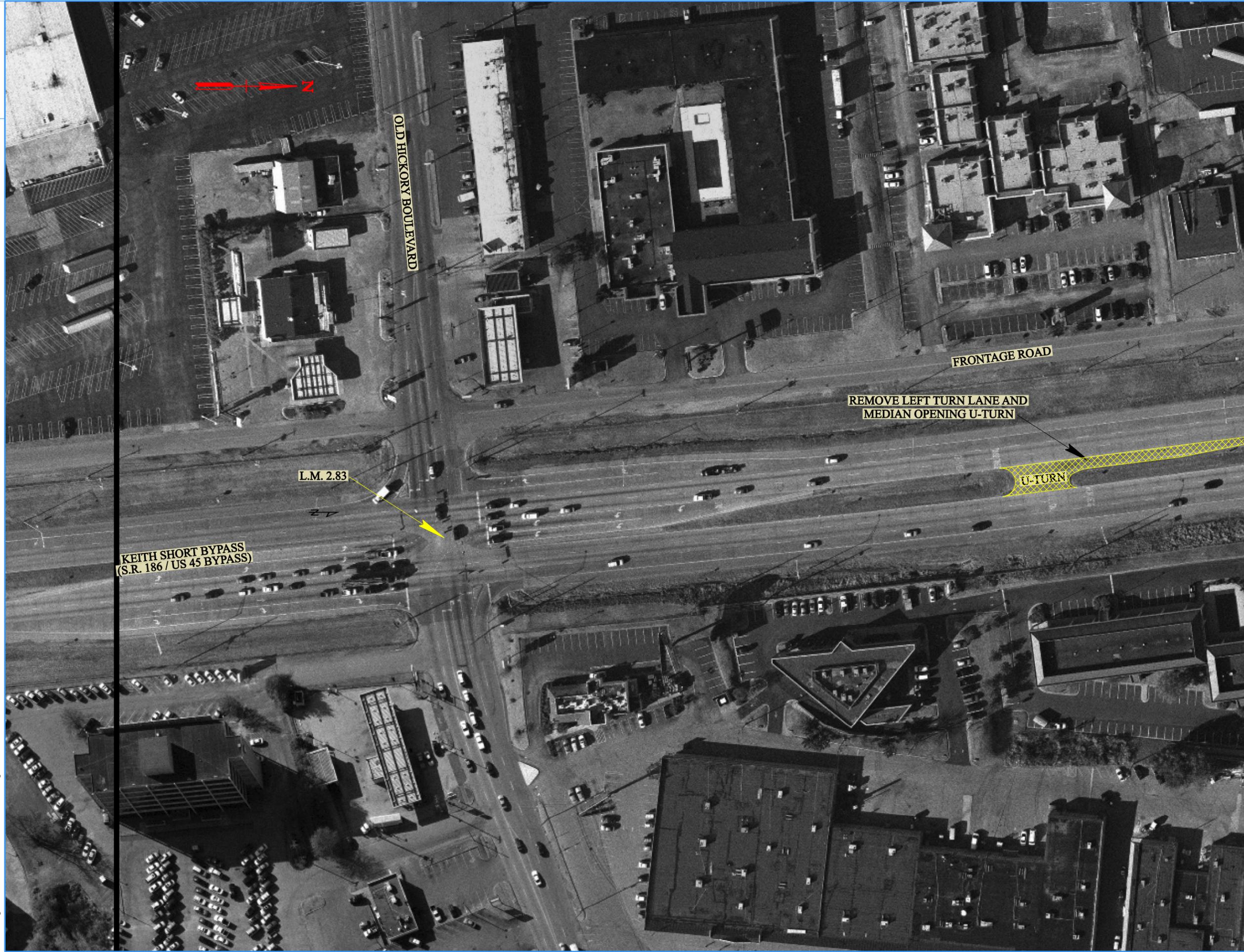
APPROVED: _____
DIVISION ADMINISTRATOR DATE

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009	99108-7018-04	2

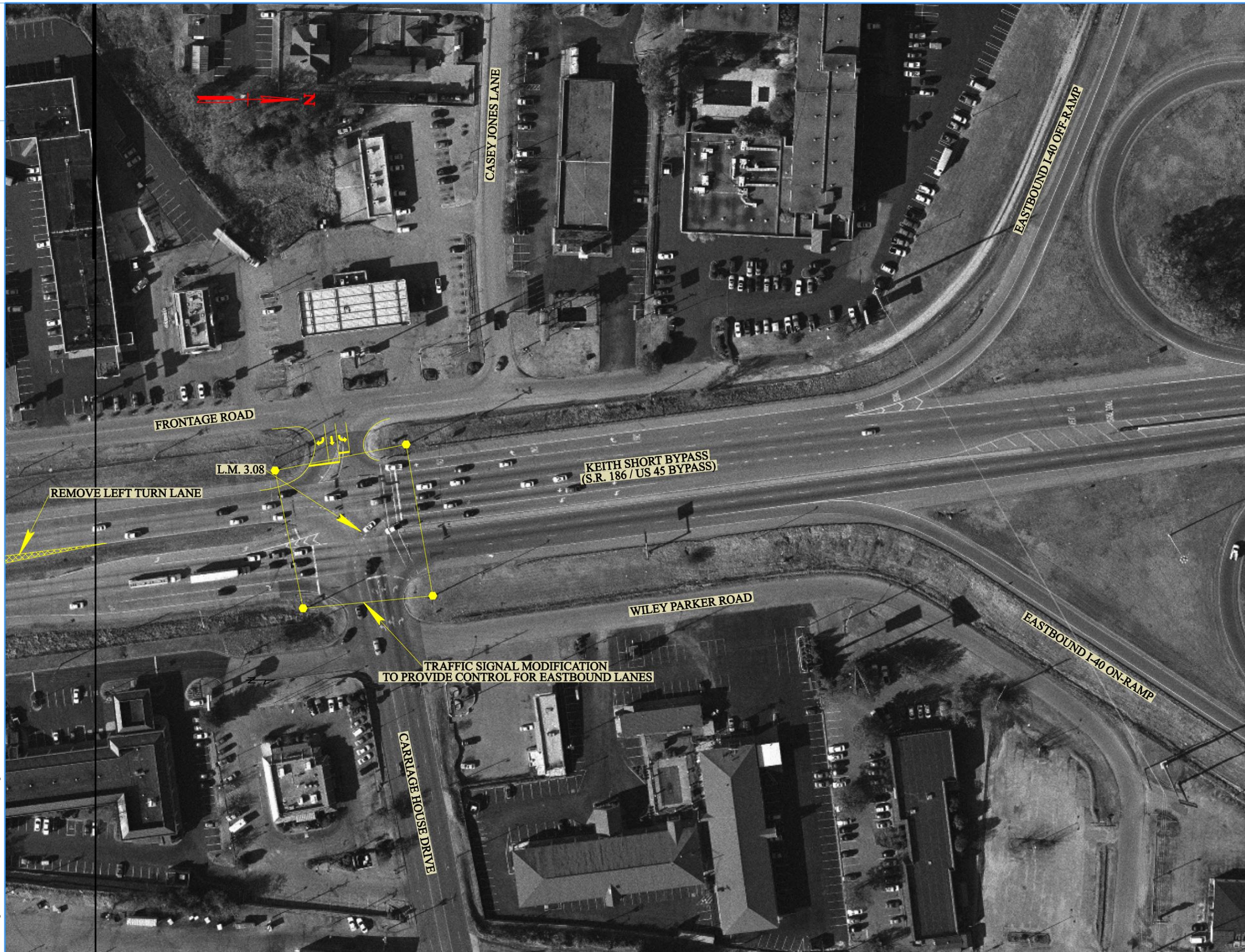


12/15/2009 3:00:29 PM J:\Planning\08100-8854 Jackson\Exhibits\02.dgn

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		3



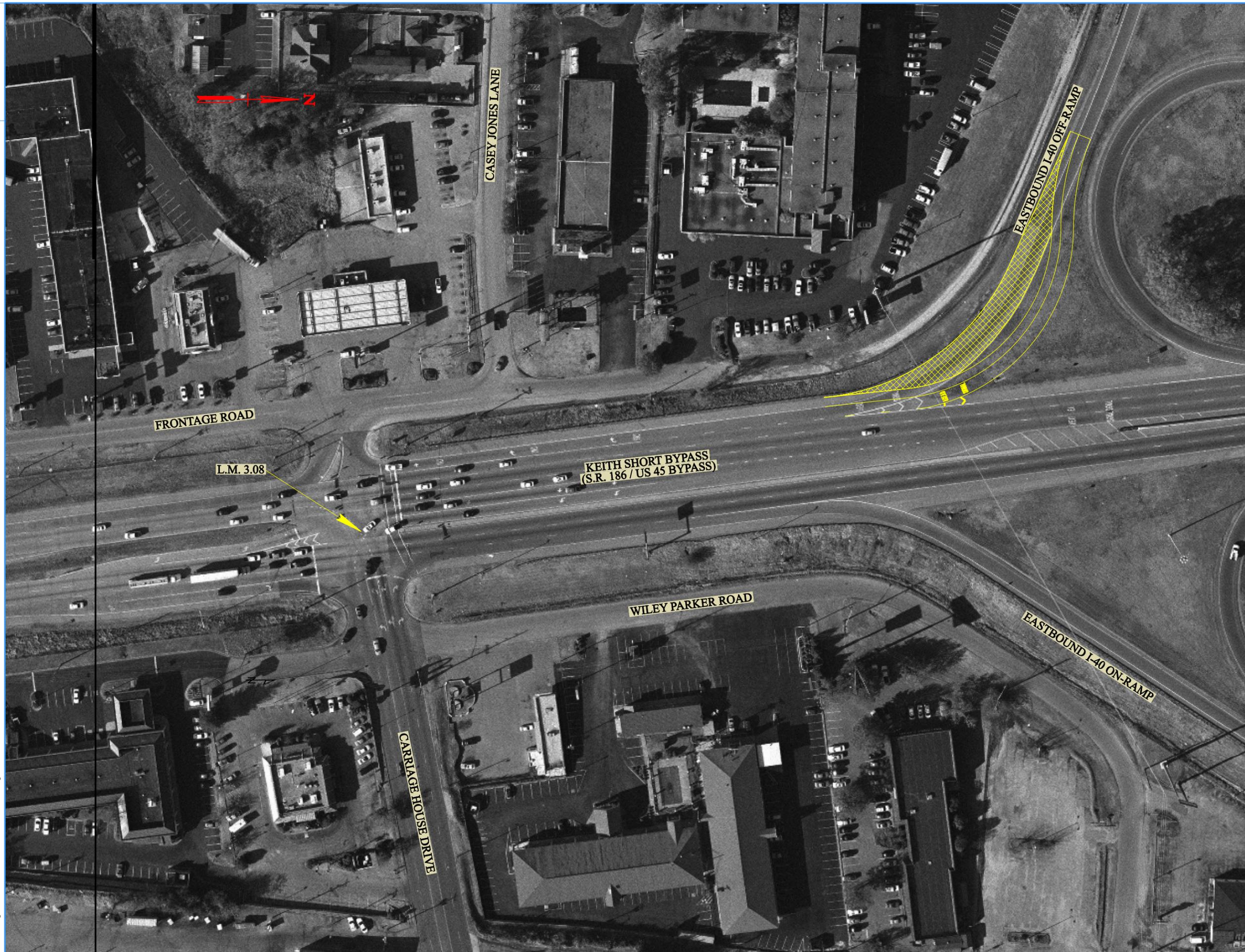
TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		4



12/15/2009 3:04:52 PM
 J:\Planning\08100-8854 Jackson\Exhibits\04.dgn



TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		6



12/15/2009 3:42:00 PM
 J:\Planning\08100-8854 Jackson\Exhibits\06.dgn

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		7



12/15/2009 3:43:29 PM
 J:\Planning\08100-8854 Jackson\Exhibits\07.dgn



12/15/2009 3:20:32 PM
 J:\Planning\0800-8854 Jackson\Exhibits\08.dgn