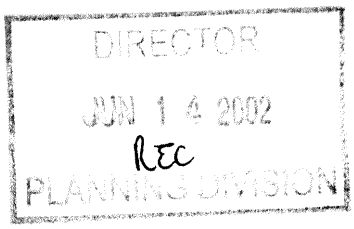
U.S. Department
of Transportation
Federal Highway Administration

Tennessee Division Office
640 Grassmere Park
Nashville, TN 37211

June 13, 2002



Mr. Dennis Cook
Assistant Chief Engineer for Planning
Tennessee Department of Transportation
Nashville, Tennessee 37243-0349

Dear Mr. Cook:

Subject: Modification Study for the Interstate 75/24 Directional Interchange Area
Hamilton County

An Interchange Modification Study and request for approval of revised Interstate access was submitted for the subject project. This area has been identified as a "choke point" location. The study identifies three proposed improvements that could function concurrently or independently.

1. Eliminate I-75 Northbound to I-24 Westbound Lane Drop on Directional Ramp

   The existing directional ramp from I-75 northbound to I-24 westbound tapers down to one lane prior to merging with the two-lane ramp from I-75 southbound to I-24 westbound. The proposed improvement involves extending the second lane from I-75 northbound to I-24 westbound and maintaining an auxiliary lane on I-24 with three options for dropping the fourth lane on I-24. As identified in Chapter Four of the Study, the recommended option for dropping the auxiliary lane on I-24 is beyond the off-ramp to Belvoir Road and then taper the inside lane into the existing three lanes.

2. Eliminate Weaving Conflicts at I-75 Welcome Center

   The existing configuration requires drivers to enter and exit the Welcome Center using back-to-back loop ramps, creating a problematic weaving section on I-75. The proposed improvement would provide Welcome Center access by way of a new access road originating from Ringgold Road.

3. Eliminate Weaving Section within I-75/Ringgold Road (US 41) Interchange

   The proposed improvement would remove the existing loop ramp in the northeast quadrant of the interchange and redirect the northbound loop off-ramp traffic to the southeast quadrant off-ramp. The off-ramp would be modified to allow for left turns and a new traffic signal added at its intersection with Ringgold Road.

Based on an engineering review of the Interchange Modification Study, the proposed modifications are considered operationally acceptable. Final approval of the modifications may be given upon completion of the National Environmental Policy Act (NEPA) procedures.

Sincerely,

Mark Doctor

Mark A. Doctor
Field Operations Team Leader

INTERCHANGE MODIFICATION STUDY

INTERSTATE 75 @ INTERSTATE 24
DIRECTIONAL INTERCHANGE AREA

CHATTANOOGA, HAMILTON COUNTY

PREPARED BY

PBS&J

FOR THE
TENNESSEE DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING AND DEVELOPMENT

MAY, 2002

TABLE OF CONTENTS

APPENDICES

CHAPTER 1 – INTRODUCTION

A. PURPOSE OF STUDY

The purpose of this study is to investigate the directional interchange area at Interstate 24 and Interstate 75 in Chattanooga and identify "choke point" locations for evaluation. This area has been identified by the Strategic Planning Office's Goal Team 2 as a major traffic problem spot on the Interstate System in the Chattanooga Urban Area.

An early "scoping meeting" was held in TDOT's Regional Office in Chattanooga to discuss and agree on the study limits of the area to be included in this study. It was agreed that the study limits should begin on I-75 at the Tennessee-Georgia State Line and extend through the Moore Road Interchange on I-24 and the Chickamauga Creek Bridge on I-75. This area will include the I-75/Ringgold Road (US41,SR8) interchange and also the Welcome Center ingress and egress.

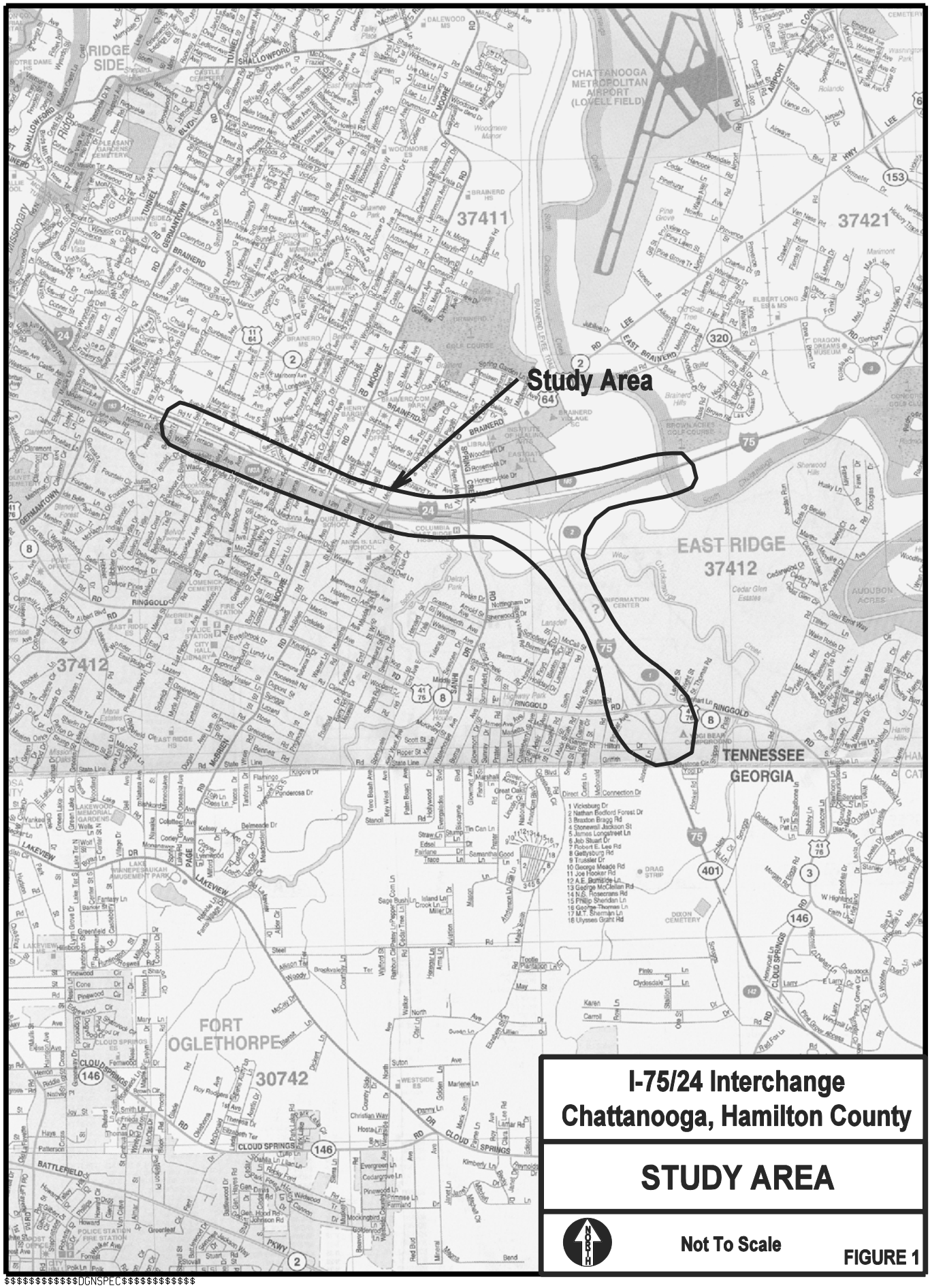
The objectives of the study are to investigate reasonable improvement options for each identified problem spot, develop functional plans and cost estimates, prepare existing and future traffic analysis, and identify environmentally sensitive areas for historic, archaeological, and ecological considerations. This study will also include review and coordination of improvement recommendations with previous plans for the "ultimate" redesign of this directional interchange.

B. DESCRIPTION OF PROJECT LOCATION

The directional interchange is located at mile marker 2 on I-75 just north of the Georgia State Line in the East Ridge area of Chattanooga. The mile marker for I-24 is 185 which represents the ending terminus point for I-24. I-75 proceeds north from Chattanooga toward Knoxville and I-24 proceeds west toward Nashville. The nearest interchange to the south of the directional interchange is I-75 at Ringgold Road (US 41), mile marker 1, while the nearest interchange to the west is on I-24 at Moore Road, mile marker 184. The nearest interchange to the north is I-75 at East Brainerd Road (SR 320), mile marker 3. The maps included in this chapter of the report depict the location and surrounding area of this interchange.

C. RELATIONSHIP TO THE LONG RANGE TRANSPORTATION PLAN AND PROGRAM

I-75 and I-24 in this area are both basic six-lane facilities on the National Highway System. The Chattanooga Urban Area Transportation Plan for 2015 recommends improvements to I-24 and I-75 in the 1999-2015 time period. This section of I-75 calls for widening to 8 lanes with High Occupancy Vehicle (HOV) lanes and I-24 is proposed to go to 10 lanes with HOV lanes. The recommendations in this report are short-term


Study Area
I-75/24 Interchange
Chattanooga, Hamilton County
STUDY AREA
Not To Scale
NORTH
FIGURE 1
37411
37421
37412
37412
30742
EAST RIDGE
FORT OGLETHORPE
TENNESSEE
GEORGIA
CHATTANOOGA METROPOLITAN AIRPORT (LOVELL FIELD)
RIDGE SIDE

$$$$$$$$$$$$DGNSPEC$$$$$$$$$$$$

solutions to address the "choke point" areas and will not conflict with any long-term traffic recommendations for the interstate system in the Chattanooga area.

CHAPTER 2 – PRELIMINARY PLANNING DATA

A. LAND USE

The land use in the vicinity of the directional interchange is mixed commercial and residential. The area surrounding the I-75/Ringgold Road interchange consists of motels, service stations, restaurants, and other service oriented businesses. West of the interchange in the vicinity of the Moore Road interchange is residential with some mixture of retail establishments, (furniture stores, electronics shops, etc.). A major shopping center (East Gate Mall) is located north of the interstate and fronts on US11, (SR2), Brainerd Road. The area north and east of the interchange is public use (golf course) with residential areas located off other major routes. West Chickamauga Creek and Spring Creek pass through the interchange area and consist of significant areas of wetlands along the floodplain of these two tributaries.

B. TRAFFIC SERVED

Base year (2005) and design year (2025) traffic volumes were developed for this location based on 1999 ramp and cycle counts. The future traffic assignments were based on growth rates from the Chattanooga computer assignment model and the Adam Computer Program.

The base year traffic volumes on I-75 between the Ringgold Road interchange and I-24 is 102,000 vehicles per day with 15% trucks. The design year volumes for this section is 167,280 vehicles with 15% trucks.

The base year traffic volumes on I-75 northeast of the directional interchange is 123,670 vehicles per day with 10% trucks. The design year volumes for this section is 202,820 vehicles per day with 10% trucks.

The base year traffic volumes on I-24 west of the directional interchange are 116,980 vehicles per day with 20% trucks. The design year volumes are 191,700 vehicles per day with 20% trucks.

The directional ramps within the interchange area accommodate a base year traffic volume of 171,280 vehicles per day while the design year volumes are projected to be 280,900 vehicles per day.

The traffic diagrams showing the base year and design year traffic volumes are included in Appendix A of this report.

C. PROPOSED MODIFICATIONS

Based on existing conditions traffic analysis completed for the study area using 2005 and 2025 traffic projections, several "short-range" solutions were identified that will improve traffic operations at selected locations. The following is a discussion of the problem areas and proposed solutions which were analyzed:

1. I-75 Northbound to I-24 Westbound Lane Drop

The northbound directional ramp from I-75 to I-24 Westbound tapers down to one lane prior to it merging with the two-lane ramp from I-75 southbound to I-24 westbound. Based on the traffic analysis, one-lane is insufficient to accommodate current and future traffic volumes.

The proposed improvements are to remove the taper and extend the second lane of the I-75 to I-24 westbound movement and add an additional lane on I-24 making the section 4 lanes rather than the current 3 lanes. Three options were identified for dropping the fourth lane on I-24;

1) Continue the second lane until it merges with I-24 and then taper back to the existing three lanes;

2a) Continue the four lane section beyond the off-ramp to Moores Lane and then taper the inside lane into the existing three lanes; or,

2b) Continue the four lane section beyond the off-ramp to Belvoir Road and then taper the inside lane into the existing three lanes.

Under option 2b, drivers will have a minimum of 3400 feet to merge with through traffic from I-75 rather than 2800 feet provided under option 2a.

2. I-75 Welcome Center

The current configuration of the Welcome Center allows drivers to enter and exit the facility using back-to-back loop ramps, creating a weaving section on I-75. The ramps to and from the Welcome Center are located approximately 1200 feet north of the Ringgold Road interchange and approximately 2100 feet south of the I-24/75 interchange. Due to the close proximity of the Welcome Center to the adjacent interchanges as well as problems created by the back-to-back loop ramps, this section of I-75 experiences operational problems that need to be addressed.

The following proposed solutions were identified for analysis as part of this study:

1) Remove the welcome Center from its current location and relocate to a new site on I-75 North.

2) *Keep the Welcome Center at its current location and provide access by way of a new access road that originates from Ringgold Road. This*

option requires that traffic desiring to access the Welcome Center exit and enter I-75 at the Ringgold Road interchange.

3. I-75/Ringgold Road (US41) Interchange

Based on the existing conditions traffic analysis, the existing weaving section on I-75 northbound between the back-to-back loop ramps to and from Ringgold Road operates at Level of Service (LOS) E in the peak hours of operation. This section will go to LOS F by 2025.

The proposed solutions to this problem include the following options:

1) *Remove the loop ramp in the northeast quadrant of the interchange and redirect the northbound loop off-ramp traffic to the southeast quadrant off-ramp. The off-ramp would be modified to allow for left turns and a new traffic signal added at its intersection with Ringgold Road.*
2) *This option calls for the closing and relocating the Welcome Center. Under this option, the northbound on-ramp from Ringgold Road would be carried all the way to the added lane that now begins at the Welcome Center creating a four-lane section on I-75 through this area.*
3) *This option allows for the Welcome Center to remain in its current location but access would be provided by way of a new access road from Ringgold Road. Traffic destined for the Welcome Center would exit at the southeast off-ramp at Ringgold Road, cross Ringgold Road at the new traffic signal, and travel by the new two-way access road to and from the Welcome Center. The improvement solutions described in options 1 and 2 would be implemented under this scenario with adjustments to the northbound on-ramp to provide space for the new access road.*

D. ENVIRONMENAL CONCERNS

While detailed environmental technical studies were not conducted for this phase of the interchange modification study, preliminary investigations were done to identify site-specific environmentally sensitive areas for historic, archaeological, and ecological considerations. A detailed environmental assessment (EA) will be required in subsequent phases pursuant to FHWA/NEPA requirements. The detailed EA will specifically address the impact of the proposed modifications and include further coordination with resource agencies as well as needed public involvement. The ***"Checklist of Determinants for Location Study"*** included in Appendix D identifies the ESE categories related to this proposal.

CHAPTER 3 – ENGINEERING INVESTIGATIONS

A. TRAFFIC OPERATIONS

An analysis was conducted to determine the impacts the proposed improvement options would have on traffic operations along the sections of I-75 and I-24.

1. I-24/75 Directional Interchange and I-24 Westbound

The impact of the proposed short-range improvements for this area was determined by performing level of service (LOS) analysis on the sections of freeway to be improved as described in Chapter 2.

As shown in Figure 3 and Table 1 in Appendix B, the proposed improvements included in options 1 and 2a will allow this section of I-75 to operate at LOS D or better in 2005. As shown in Figure 4 and Table 2 in Appendix B, the proposed improvements in option 1 and 2b will also allow this section of I-75 to operate at LOS D or better in 2005.

Additional analysis was completed to determine the service life of options 1, 2a, and 2b. The analysis showed that the additional lane described in option 1 would last 17 years (2005 to 2022) until its capacity is exceeded. The basic freeway sections on I-24 between the directional interchange and Moore Road described in option 2a would have a 6-year service life (2005 to 2011). Also, the proposed improvements described in option 2b would have a service life of 9 years (2005 to 2014).

Note: Pages 1-1 thru 1-3 along with Figures 1, 2, 3, and 4 and Tables 1 and 2 in Appendix B give the results of the Traffic Operations Analysis for this section.

2. I-75 Welcome Center

An analysis was conducted to determine the impact of the proposed improvements described in Chapter 2 by performing LOS analysis on the sections of freeway affected.

The section of I-75 will improve from LOS E to LOS D in 2005 under option 1 (close and relocate the Welcome Center). In addition, by removing the loop ramps to and from the Welcome Center the weave from the exit of the Welcome Center to I-24 west is eliminated. The proposed improvements included in option 2 (new access road) will allow I-75 to operate at LOS D or better in 2005. The traffic analysis also showed that there would be no significant impact caused by redirecting the Welcome Center traffic to the Ringgold Road interchange.

An analysis was also conducted to leave the Welcome Center access from the mainline of I-75. This study does not recommend that this situation remain in place with the improvements recommended at the I-24/Ringgold Road interchange. The back-to-back loop ramps create a confusing ingress and egress to the Welcome Center. The weaving section on I-75 between the back-to-back loops currently operates at LOS D in the peak

hour and will go to LOS F before the year 2025. The ramps are located only 1200 feet north of the I-24/Ringgold Road interchange and 2100 feet south of the I-24/75 interchange. Due to the close proximity of the Welcome Center to adjacent interchanges, the current access arrangement will not provide for safe traffic operations.

Note: Pages 2-1 and 2-2 along with Figures 5, 6, 7, and 8 and Table 3 in Appendix B give the results of the Traffic Operations Analysis for this section.

3. I-75/Ringgold Road (US 41, SR 8) Interchange

An analysis was conducted to determine the impact of the proposed improvements to this interchange described in Chapter 2.

By removing the northeast quadrant loop ramp (option 1), I-75 will operate at LOS D in 2005. Also, the traffic analysis showed the northbound off-ramp to have sufficient capacity to accommodate the traffic currently using the loop ramp.

Under option 2 (removing the NE quadrant loop ramp and closing the Welcome Center) I-75 will improve from LOS E to LOS D in 2005. Also, under option 3 (removing the NE quadrant loop ramp and providing a new access road for the Welcome Center), I-75 will still operate at LOS D or better in 2005.

Additional LOS analysis was conducted to determine the remaining service life of the proposed improvements. The analysis showed that options 1 and 3 would allow I-75 to have a service life of 7 to 8 years (2005 to 2011/2012) and 15 years (2005 to 2020) under option 2.

Note: Pages 3-1 and 3-2 along with Figures 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20 and Tables 4, 5, and 6 in Appendix B give the results of the Traffic Operations Analysis for this section.

B. ACCESS ANALYSIS

This analysis was undertaken in accordance with the Federal Highway Administration's policy regarding requests for additional or revised access points to the Interstate System. The FHWA policy is described in the Federal Register Notice, Vol. 63, No. 28, dated February 11, 1998. This analysis was conducted to demonstrate the impacts of revisions to the interchange configurations in the study area. The FHWA requirements are provided in bold italics with the response to those requirements immediately following.

The FHWA policy statement reads, *"It is in the national interest to maintain the Interstate System to provide the highest level of service in terms of safety and mobility. Adequate control of access is critical to providing such service. Therefore, new or*

revised access points to the existing Interstate System should meet the following requirements:"

1. The existing interchange and/or local roads and streets in the corridor can neither provide the necessary access nor be improved to satisfactorily accommodate the design year traffic demands while at the same time providing access intended by the proposal.

The existing interchange configuration and design components in the study area are such that traffic operation problems exist with the extremely high traffic volumes now using this section of the Interstate System. The inadequate weave sections and lane drop also create safety problems.

2. All reasonable alternatives for design options, location, and transportation system management type improvements (such as ramp metering, mass transit, and HOV lanes) have been assessed and provided for if currently justified, or provisions are included for accommodating such facilities if a future need is identified.

The purpose of this study is to address the "choke point" locations in the area of the I-75/24 directional interchange. The proposed short-term solutions only address these problems and do not address the ultimate design requirements. However, the solutions proposed in this study do not conflict with the ultimate design requirements for this section.

3. The proposed access point does not have a significant adverse impact on the safety and operation of the Interstate facility based on an analysis of current and future traffic. The operational analysis for existing conditions shall, particularly in urbanized areas, include an analysis of sections of Interstate to and including at least the first adjacent existing or proposed interchange on either side. Crossroads and other roads and streets shall be included in the analysis to the extent necessary to insure their ability to collect and distribute traffic to and from the interchange with new or revised access points.

The modifications are intended to improve safety and traffic operations of the Interstate System in the study area. The analysis conducted and shown in Appendix B indicates that the proposed solutions will have positive benefits for interstate motorist through the area.

4. The proposed access connects to a public road only and will provide for all traffic movements. Less the "full interchanges" for special purpose access for transit vehicles, for HOV's, or into park and ride lots may be considered on a case-by-case basis. The proposed access will be designed to meet or exceed current standards for Federal-aid projects on the Interstate System.

The proposed modifications do not alter the existing connections to public roads. All existing movements will be provided by the proposed modifications.

5. The proposal considers and is consistent with local and regional land use and transportation plans. Prior to final approval, all requests for new or revised access must be consistent with the metropolitan and/or statewide transportation plan, as appropriate, the applicable provisions of 23 CFR part 450 and the transportation conformity requirements of 40 CFR parts 51 and 95.

The proposal is consistent with the local land use plan and Chattanooga's 2015 Long

6. In areas where the potential exists for future multiple interchange additions, all requests for new or revised access are supported by a comprehensive Interstate network study with recommendations that address all proposed or desired access within the context of a long-term plan.

There are no new or revised access plans associated with this proposal; therefore, a network study is not required.

7. The request for a new or revised access generated by new or expanded development demonstrates appropriate coordination between the development and related or otherwise required transportation system improvements.

The need for the revisions to the interchanges in the study area are based on traffic operation and safety deficiencies. No change in development patterns will occur as a result of these modifications.

8. The request for new and revised access contains information relative to the planning requirements and the status of environmental processing of the proposal.

The planning requirements have been met and are consistent with Chattanooga's 2015 Long Range Transportation Plan. A preliminary environmental assessment was conducted as part of this study. However, a detailed EA will be conducted in a later phase if a decision is made to move forward with the proposed modifications.
Range Transportation Plan.

C. COST

The total estimated cost for each of the proposed modifications is:

I-75 Northbound to I-24 Westbound Lane Drop

Alternate 2A – Extend the additional lane from I-75 NB to I-24 WB from the current lane drop to beyond the Moores Lane overpass.
Length: 1.38 Miles
Cost: $7,800,000

Alternate 2B – Extend the additional lane from I-75 NB to I-24 WB from the current lane drop to beyond the Belvoir overpass.
Length: 2.12 Miles
Cost: $10,308,000

I-75/Ringgold Road (US 41) Interchange and Welcome Center access modification

Cost: $4,370,000

COST DATA SHEET
I-75/I-24 INTERCHANGE IMPROVEMENTS (ALTERNATE 2A)
MODIFICATIONS
LENGTH 1.38 MILES

RIGHT-OF-WAY			
Land, Improvements, and Damages	0.0	Acres	$0
Incidentals	0	Tracts	$0
Relocation Payments	0	Residences	$0
	0	Businesses	$0
	0	Non-Profits	$0
Total Right-of-Way Cost			$0
UTILITY RELOCATION			
Reimbursable			$0
Non-Reimbursable			$150,000
Total Utility Adjustment Cost			$150,000
CONSTRUCTION			
Clear and Grubbing			$15,000
Earthwork			$373,000
Pavement Removal			$37,000
Drainage (Includes Erosion Control)			$96,000
Structures			$3,665,000
Railroad Crossing or Separation			$0
Paving			$936,000
Retaining Walls			$0
Maintenance of Traffic			$150,000
Topsoil			$10,000
Seeding and Sodding			$10,000
Signing			$40,000
Lighting			$75,000
Signalization			$50,000
Fence			$84,000
Guardrail			$100,000
Curb & Gutter			$0
Sidewalk			$0
Rip Rap or Slope Protection			$5,000
Other Construction Items	8.5%		$480,000
Mobilization			$270,000
10% Engineering and Contingencies			$627,000
Total Construction Cost			$7,023,000
Preliminary Engineering Cost	**10%**		$627,000
TOTAL ESTIMATED PROJECT COST			$7,800,000

COST DATA SHEET
I-75/I-24 INTERCHANGE IMPROVEMENTS (ALTERNATE 2B)
MODIFICATIONS
LENGTH: 2.12 MILES

RIGHT-OF-WAY			
Land, Improvements, and Damages	0.0	Acres	$0
Incidentals	0	Tracts	$0
Relocation Payments	0	Residences	$0
	0	Businesses	$0
	0	Non-Profits	$0
Total Right-of-Way Cost			$0
UTILITY RELOCATION			
Reimbursable			$0
Non-Reimbursable			$200,000
Total Utility Adjustment Cost			$200,000
CONSTRUCTION			
Clear and Grubbing			$20,000
Earthwork			$584,000
Pavement Removal			$56,000
Drainage (Includes Erosion Control)			$109,000
Structures			$4,675,000
Railroad Crossing or Separation			$0
Paving			$1,274,000
Retaining Walls			$0
Maintenance of Traffic			$200,000
Topsoil			$16,000
Seeding and Sodding			$16,000
Signing			$55,000
Lighting			$113,000
Signalization			$75,000
Fence			$105,000
Guardrail			$130,000
Curb & Gutter			$0
Sidewalk			$0
Rip Rap or Slope Protection			$8,000
Other Construction Items	8.5%		$633,000
Mobilization			$353,000
10% Engineering and Contingencies			$843,000
Total Construction Cost			$9,265,000
Preliminary Engineering Cost	**10%**		$843,000
TOTAL ESTIMATED PROJECT COST			$10,308,000

COST DATA SHEET
I-75/RINGGOLD ROAD INTERCHANGE AND WELCOME CENTER MODIFICATIONS

RIGHT-OF-WAY			
Land, Improvements, and Damages	1.2	Acres	$121,000
Incidentals	2	Tracts	$5,000
Relocation Payments	0	Residences	$0
	0	Businesses	$0
	0	Non-Profits	$0
Total Right-of-Way Cost			$126,000
UTILITY RELOCATION			
Reimbursable			$0
Non-Reimbursable			$23,000
Total Utility Adjustment Cost			$23,000
CONSTRUCTION			
Clear and Grubbing			$6,000
Earthwork			$1,071,000
Pavement Removal			$46,000
Drainage (Includes Erosion Control)			$194,000
Structures			$0
Railroad Crossing or Separation			$0
Paving			$827,000
Barrier Walls			$140,000
Maintenance of Traffic			$100,000
Topsoil			$17,000
Seeding and Sodding			$100,000
Signing			$150,000
Lighting			$63,000
Signalization			$50,000
Fence			$21,000
Guardrail			$272,000
Curb & Gutter			$0.00
Sidewalk			$0.00
Rip Rap or Slope Protection			$50,000
Other Construction Items	8.5%		$265,000
Mobilization			$145,000
10% Engineering and Contingencies			$352,000
Total Construction Cost			$3,869,000
Preliminary Engineering Cost	**10%**		$352,000
TOTAL ESTIMATED PROJECT COST			$4,370,000

CHAPTER 4 SUMMARY AND CONCLUSION

This study was conducted in accordance with the requirements outlined in the Federal Highway Administration's Policy Statement "Additional Interchanges to the Interstate System", Federal Register Vol. 63, No. 28, dated February 11, 1998.

This study has documented the operational problems within the I-24/75 directional interchange and the I-75/Ringgold Road interchange and Welcome Center. Improvement solutions addressing specific "choke point" locations have been developed and analyzed.

Based on the information and analysis contained herein, it is recommended that the following short-term solutions be implemented:

1. *Extension of an additional lane for the I-75 NB to I-24 WB movement to extend beyond the Belvoir Road overpass (Alternate 2 B).*

2. *Modification of the I-24/Ringgold Road interchange and Welcome Center to include:*
   - *Elimination of the loop ramp in the northeast quadrant*
   - *Modification of the northbound off ramp to include a left turn movement at Ringgold Road*
   - *Modification of the northbound on ramp from Ringgold Road and addition of a northbound lane on I-75 to beyond the Welcome Center*
   - *Construction of a new access road from Ringgold Road to serve the I-75 Welcome Center*

These improvements are estimated to cost ***$14,678,000*** and will improve both the level of service and safety through this area of Interstate 75.

APPENDIX A

PROJECTED TRAFFIC VOLUMES

2000

TENNESSEE DEPARTMENT OF TRANSPORTATION
MAPPING AND STATISTICS OFFICE
TRAFFIC AND SAFETY PLANNING SECTION

(REV. 10/12/9

PROJECT NO.: _____ ROUTE: I-24 & I-75

COUNTY: HAMILTON CITY: CHATTANOOGA

PROJECT DESCRIPTION: PREPARE AN IMS FOR THE I-24 / I-75 INTERCHANGE AND EVALUATE THE SECTION OF I-75 FROM THE GEORGIA STATE LINE TO THE I-24 / I-75 INTERCHANGE.

DIVISION REQUESTING:

MAINTENANCE	☐	PUBLIC TRANS. & AERO.	☐
PLANNING	☒	STRUCTURES	☐
PAVEMENT DESIGN	☐	SURVEY & DESIGN	☐
PROG. DEVELOPMENT & ADM.	☐	OTHER _____	☐

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: _____

PROJECTED LETTING DATE: _____

TRAFFIC ASSIGNMENT:

BASE YEAR		[SEE ATTACHMENTS] DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
ADT	YEAR	ADT	DHV	%	YEAR	DIR.DIST.	DHV	ADT	FLEX	RIGID
	2005				2025					

REQUESTED BY: NAME MATT ASHBY DATE 10/19/00

DIVISION FACILITIES PLANNING

ADDRESS 900 J. K. POLK BUILDING

NASHVILLE TN. 37243

REVIEWED BY: STEVE ALLEN Steve Allen DATE 12-1-00

TRANSPORTATION MANAGER 1

SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: BONNIE H. BROTHERS Bonnie H. Brothers DATE 12-4-00

TRANSPORTATION MANAGER 2

SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

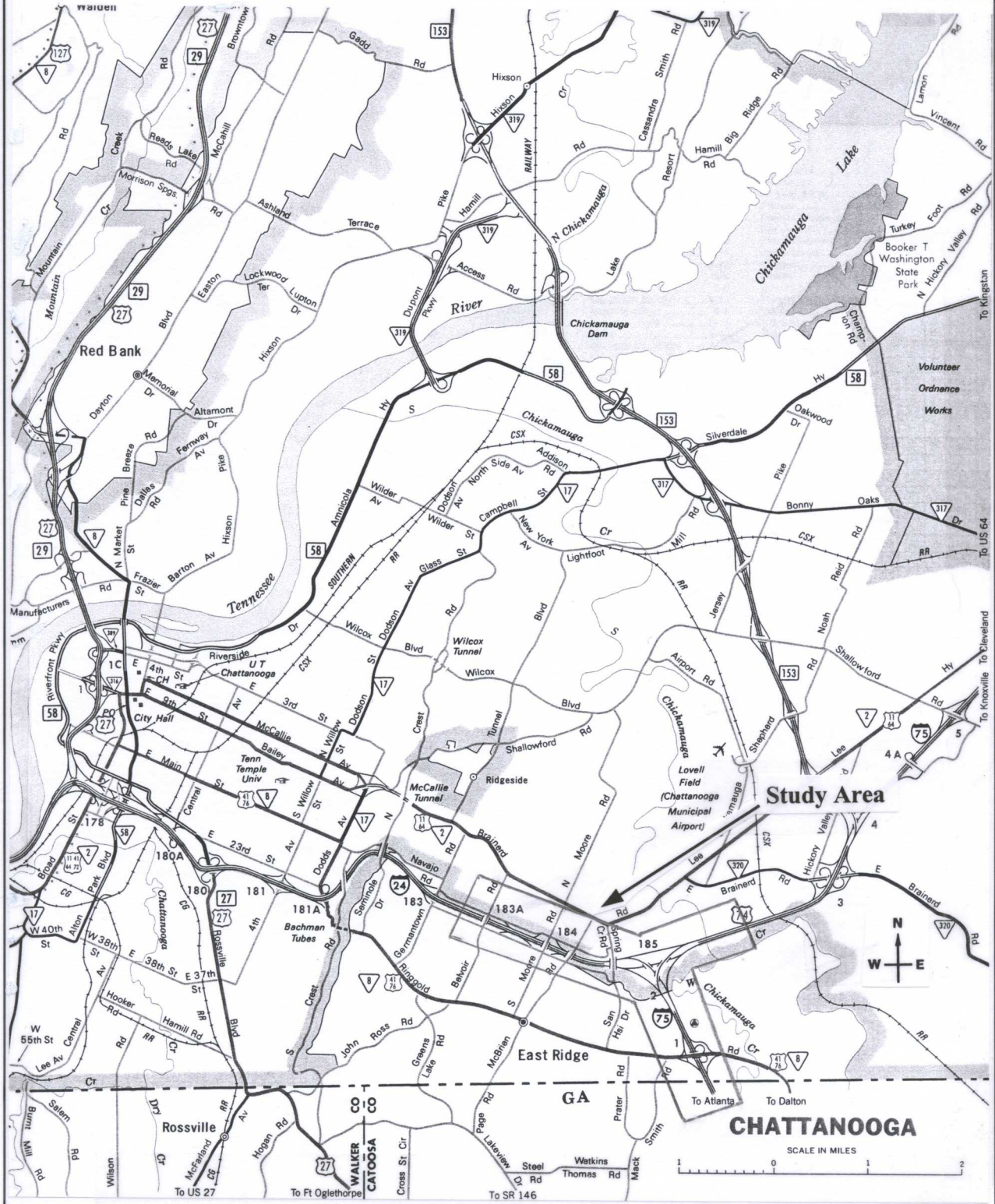
THIS LOCATION IS ONE OF THE FOUR CHOKE POINTS IN TENNESSEE AS IDENTIFIED BY GOAL TEAM 2.

THIS TRAFFIC BASED ON 1999 RAMP AND CYCLE COUNTS. THE FUTURE TRAFFIC BASED ON GROWTH RATE FROM THE CHATTANOOGA COMPUTER ASSIGNMENT AND THE ADAM COMPUTER PROGRAM.

DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 ADT.

NOTE: FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.



	Hamilton County **I-24 and I-75**	**Functional Roadway Study Area**	

Not to Scale

MATCH LINE (SHT. 3 OF 4)

(97,680)
59,560

(57,480)
35,050

(99,960)
60,950

20
(191,700)
116,890

I-24

(42,480)
25,900

I-75

10
(202,820)
123,670

(56,140)
34,230

(57,330)
94,020

(102,860)
62,720

(40,200)
24,510

(37,880)
23,100

(46,720)
28,490

(80,360)
49,000

(86,920)
53,000

15
(167,280)
102,000

I-75

(2,300)
1,920

Welcome Center

(80,360)
49,000

(86,920)
53,000

15
(167,280)
102,000

MATCH LINE (SHT. 2 OF 4)

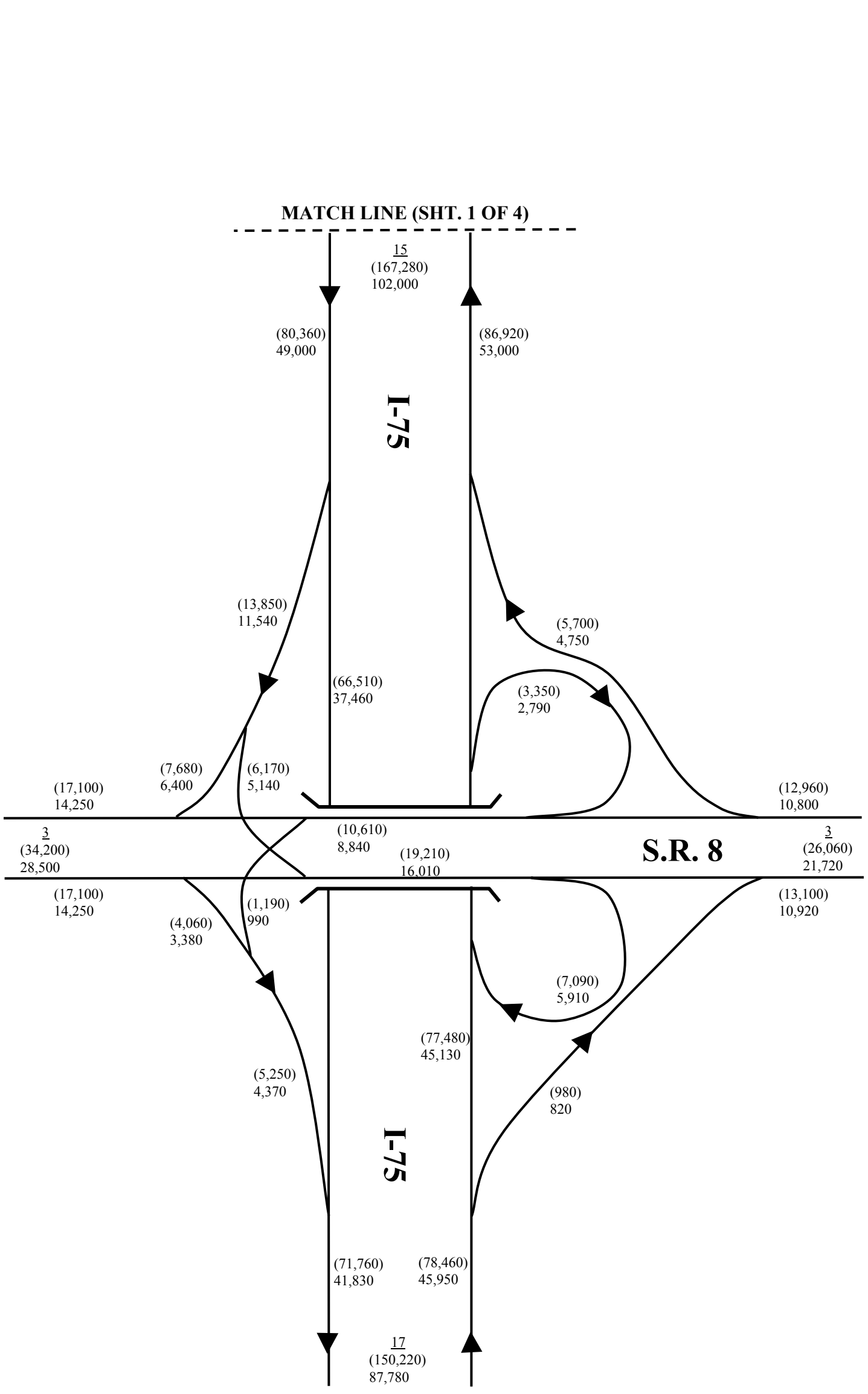
Legend:

2005 ADT 000

2025 ADT (000)

ADT TRUCK % 0

11-29-00	**Hamilton County I-24 and I-75 Interchange**	**2005 and 2025 Average Daily Traffic (ADT)**	**SHT. 1 of 4**



Legend:

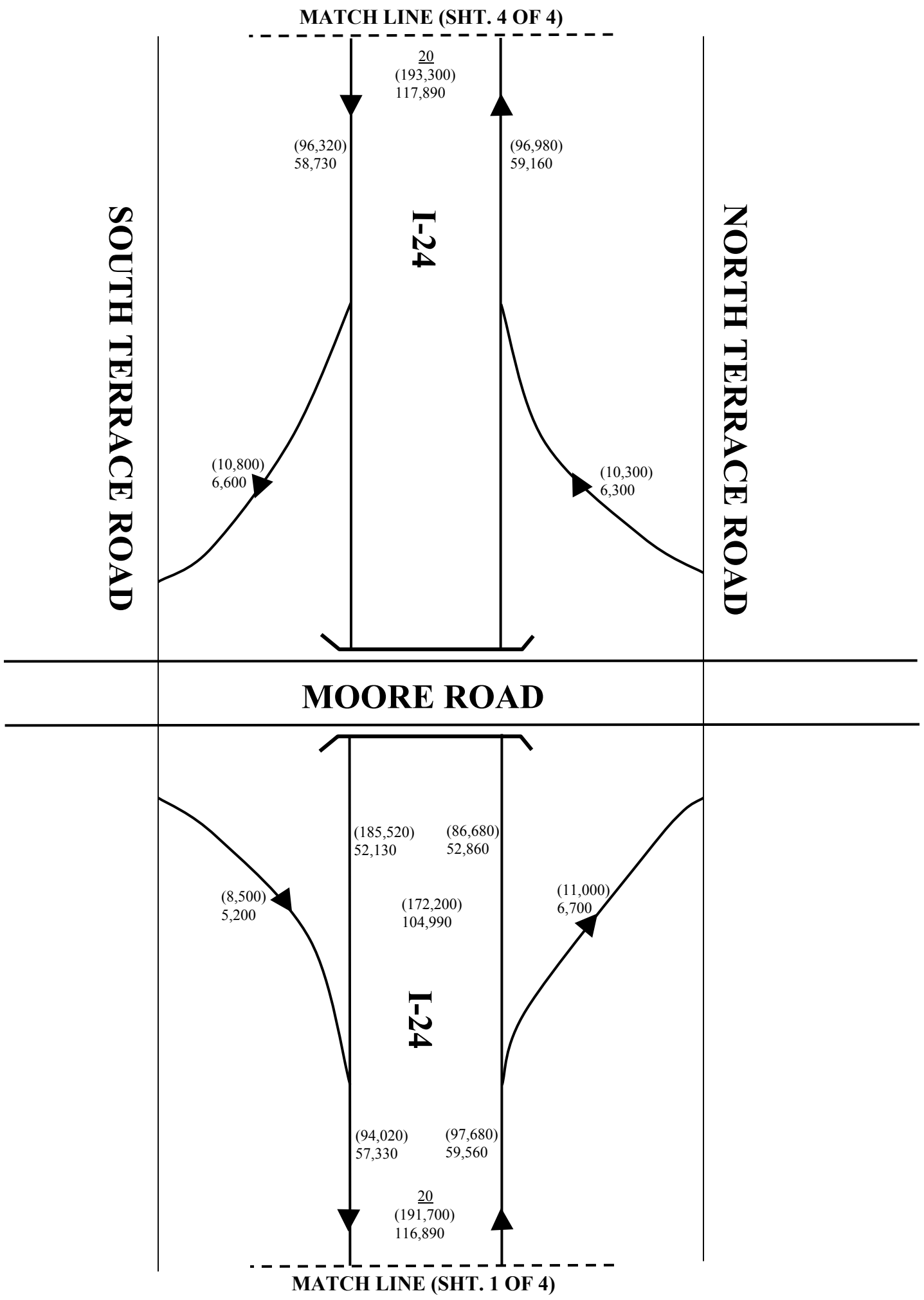
2005 ADT 000

2025 ADT (000)

ADT TRUCK % 0

11-30-00	**Hamilton County I-75 and S.R. 8 Interchange**	**2005 and 2025 Average Daily Traffic (ADT)**	**SHT. 2 of 4**

Not to Scale



Legend:

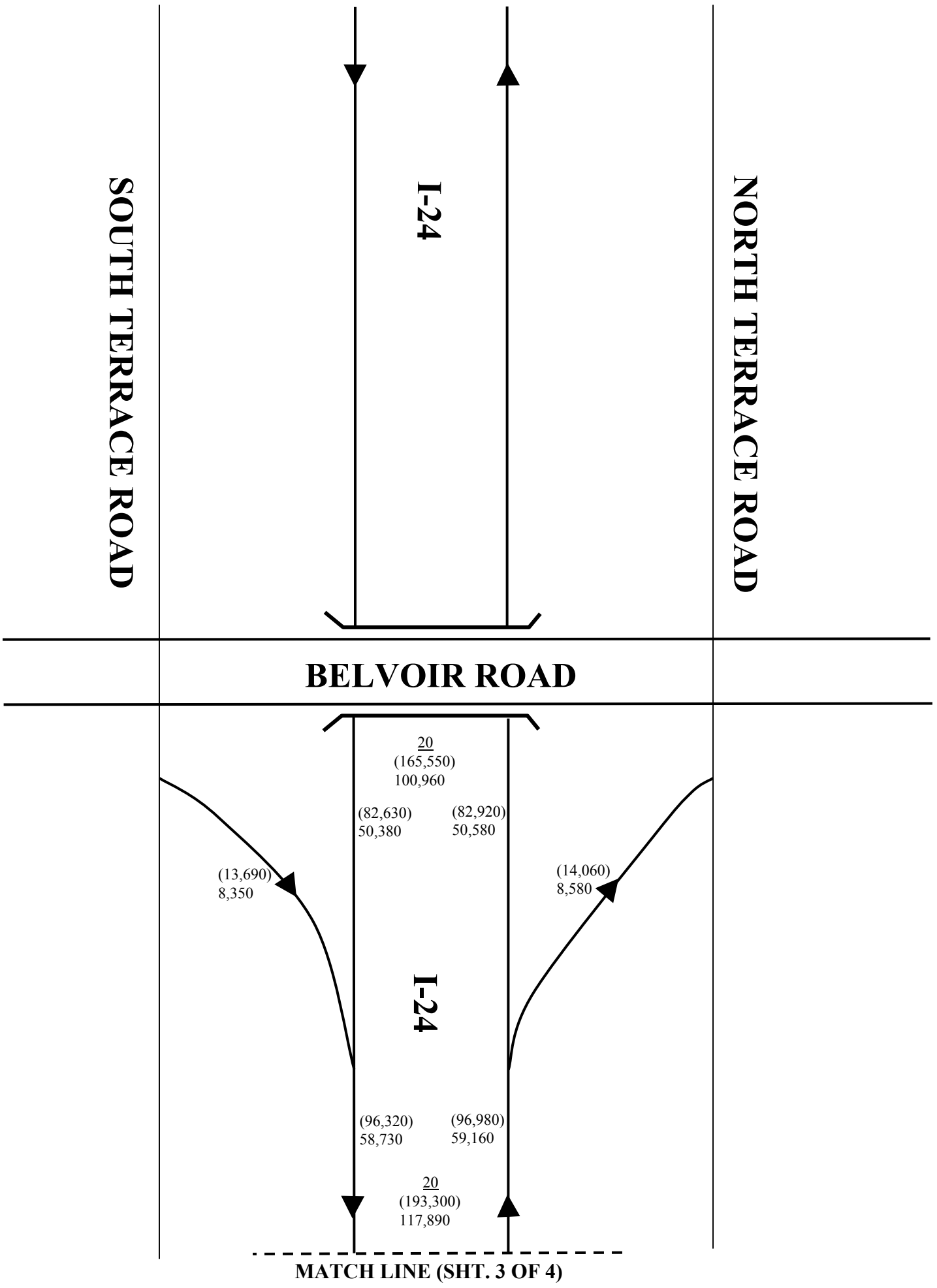
2005 ADT 000

2025 ADT (000)

ADT TRUCK % 0

12-07-01	**Hamilton County I-24 at Moore Road**	**2005 and 2025 Average Daily Traffic (ADT)**	**SHT. 3 of 4**

Not to Scale



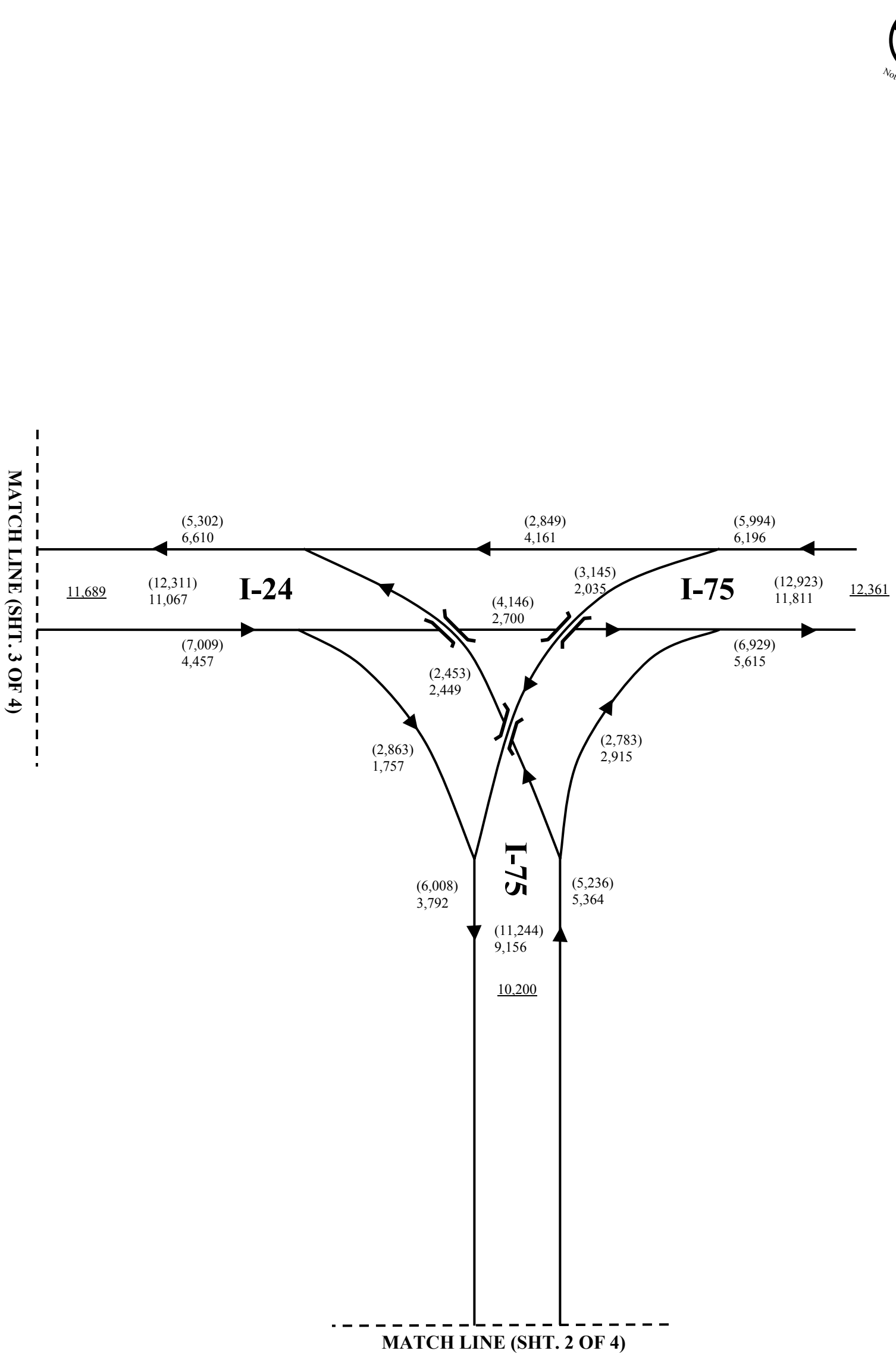
Legend:

2005 ADT 000

2025 ADT (000)

ADT TRUCK % 0

4-30-01	**Hamilton County I-24 at Belvoir Road**	**2005 and 2025 Average Daily Traffic (ADT)**	**SHT. 4 of 4**



Legend:

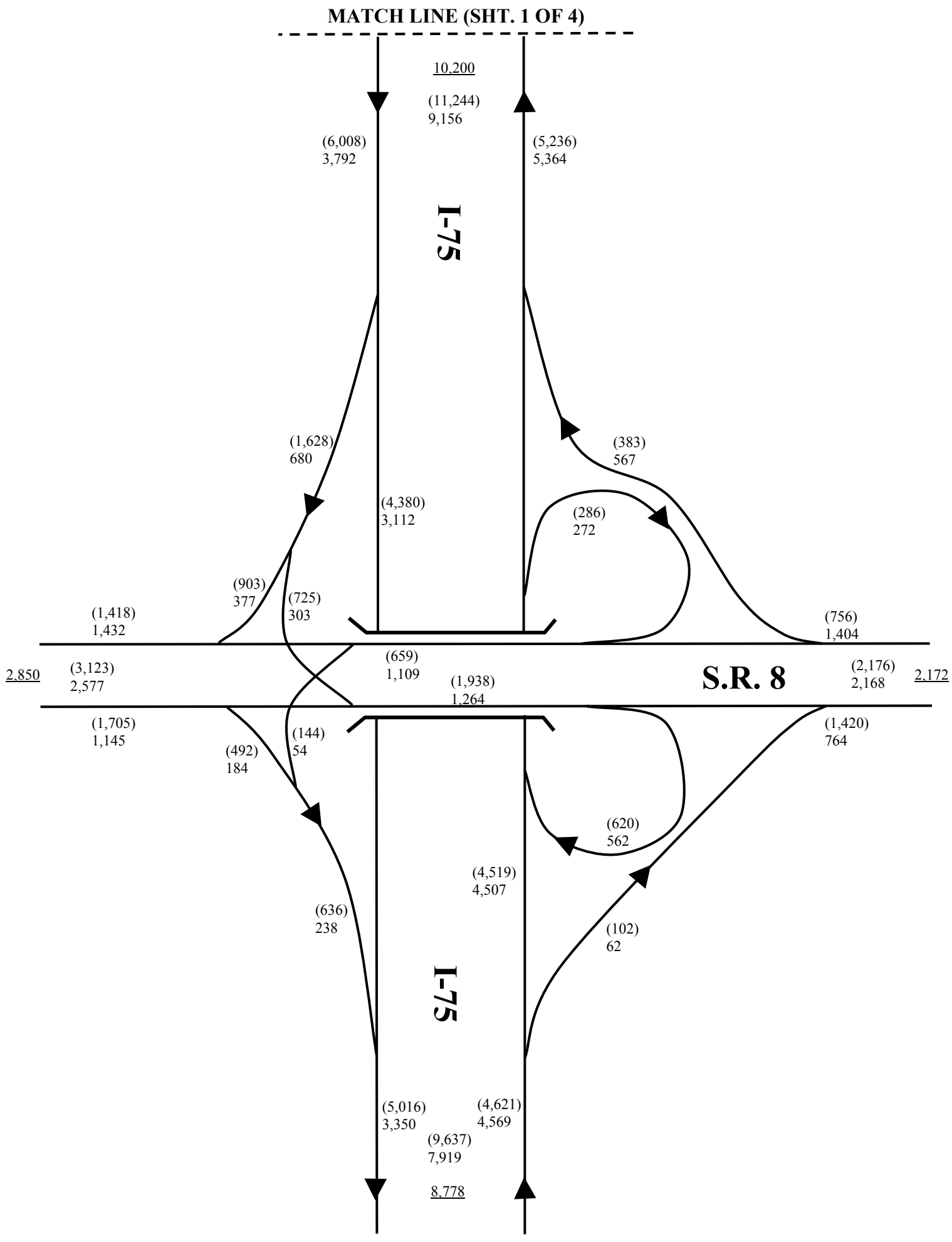
2005 AM DHV 000

2005 PM DHV (000)

AVERAGE DHV 000

12-01-00	**Hamilton County I-24 and I-75 Interchange**	**2005 Design Hourly Volume (DHV)**	**SHT. 1 of 4**

Not to Scale



Legend:

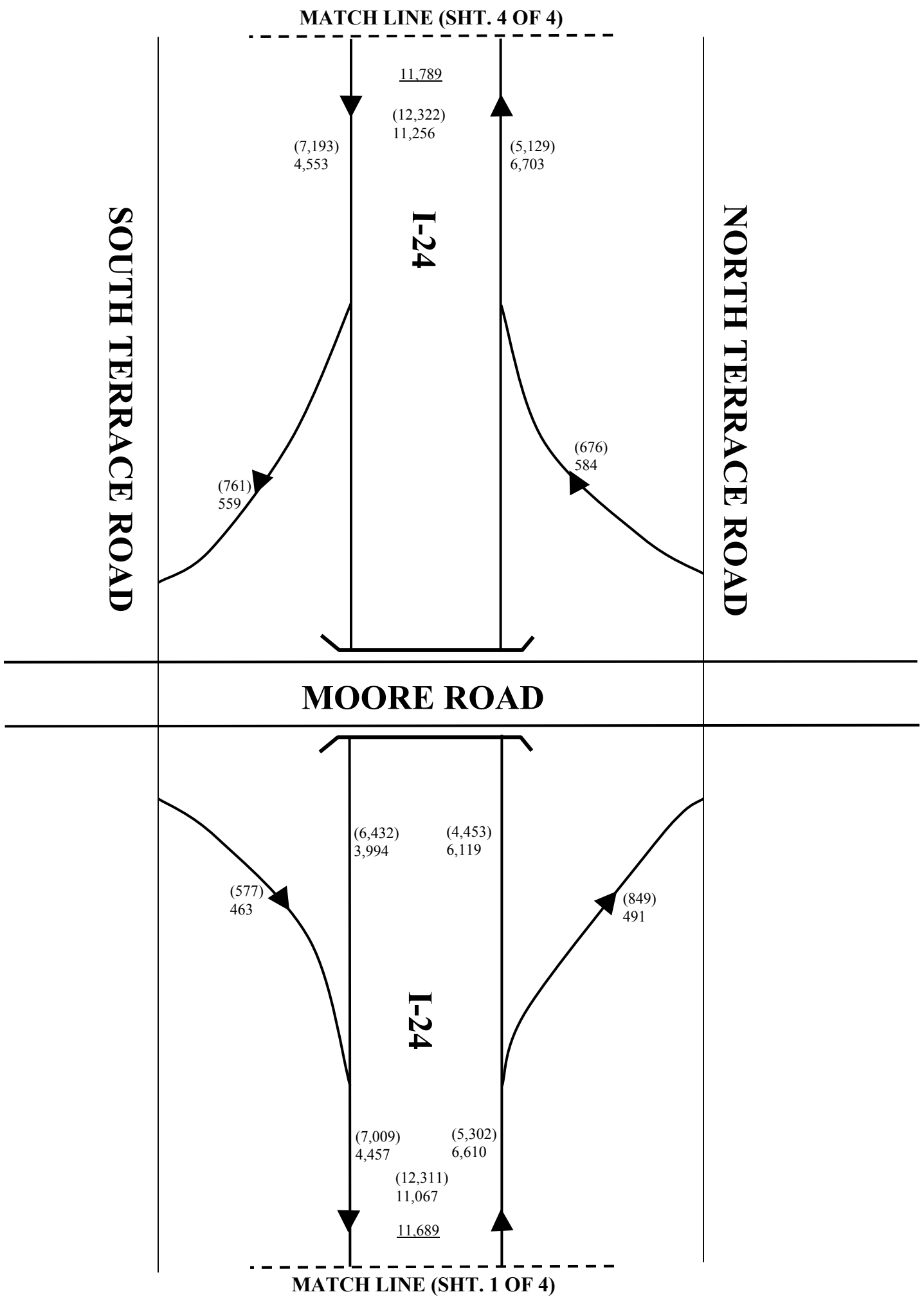
2005 AM DHV 000

2005 PM DHV (000)

AVERAGE DHV 000

12-01-00	Hamilton County I-75 and S.R. 8 Interchange	2005 Design Hourly Volume (DHV)	SHT. 2 of 4

Not to Scale



Legend:

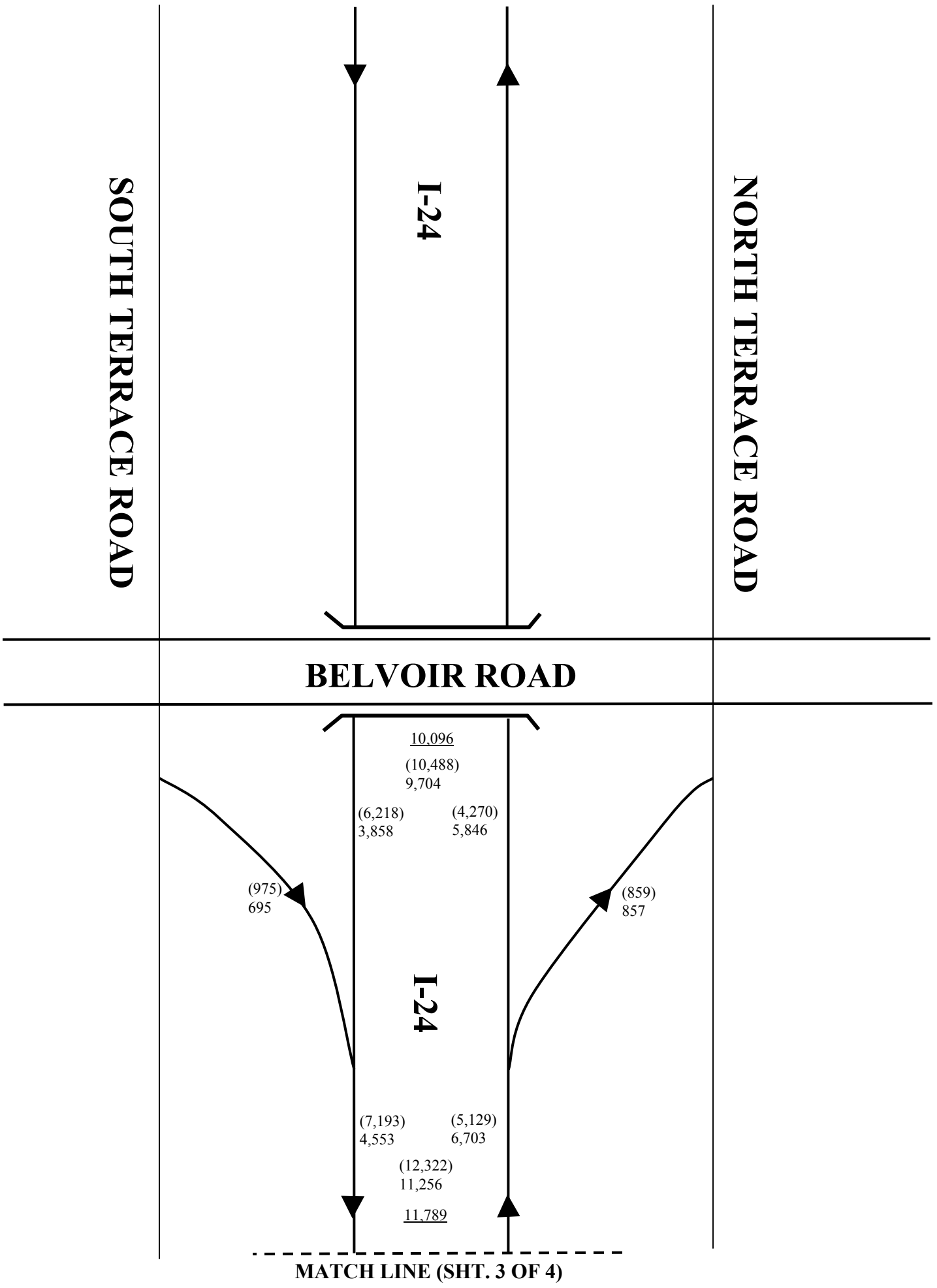
2005 AM DHV 000

2005 PM DHV (000)

AVERAGE DHV 000

12-07-01	**Hamilton County I-24 at Moore Road**	**2005 Design Hourly Volume (DHV)**	**SHT. 3 of 4**

Not to Scale



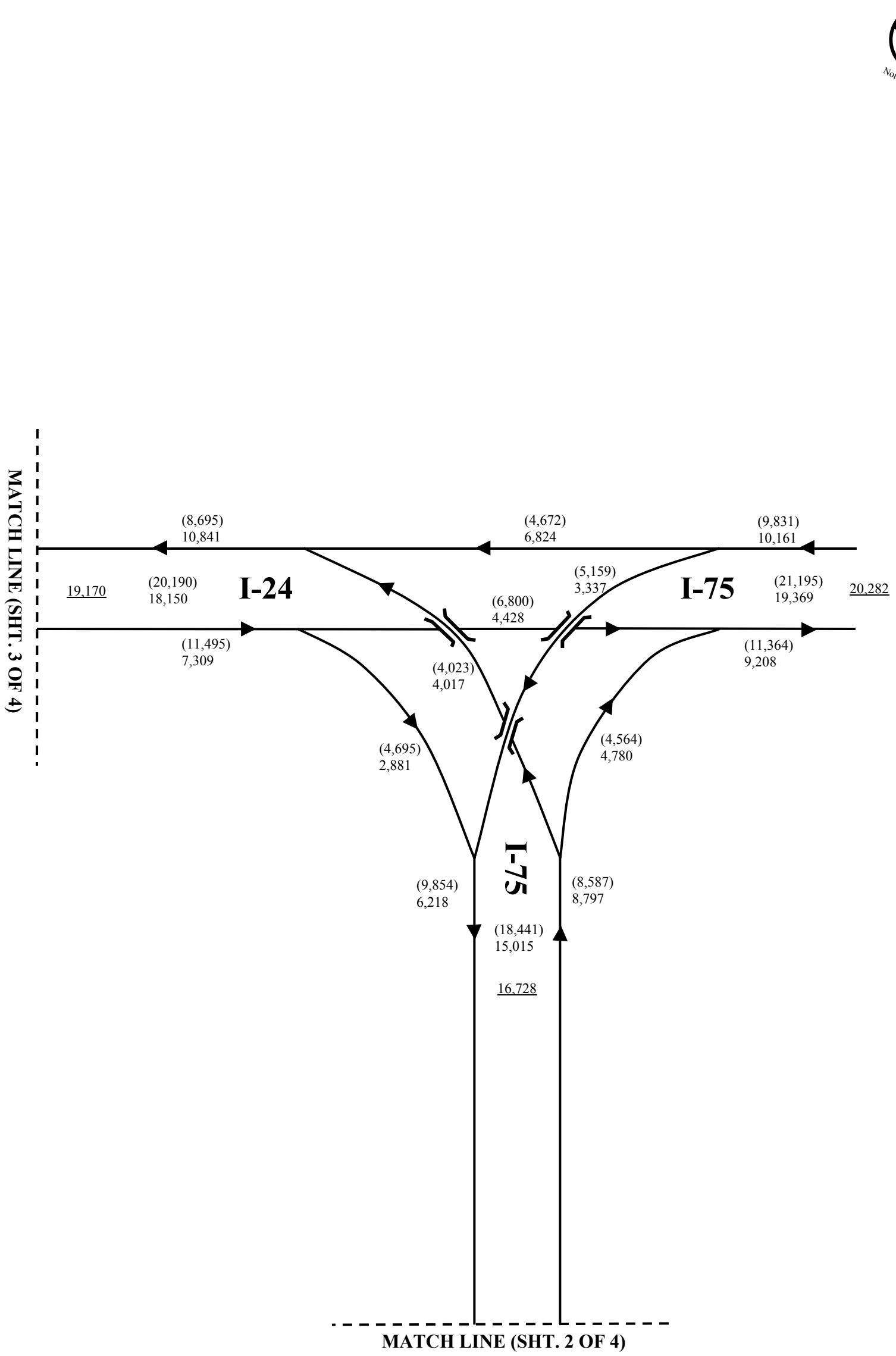
Legend:

2005 AM DHV 000

2005 PM DHV (000)

AVERAGE DHV 000

4-30-01	**Hamilton County I-24 at Belvoir Road**	**2005 Design Hourly Volume (DHV)**	**SHT. 4 of 4**



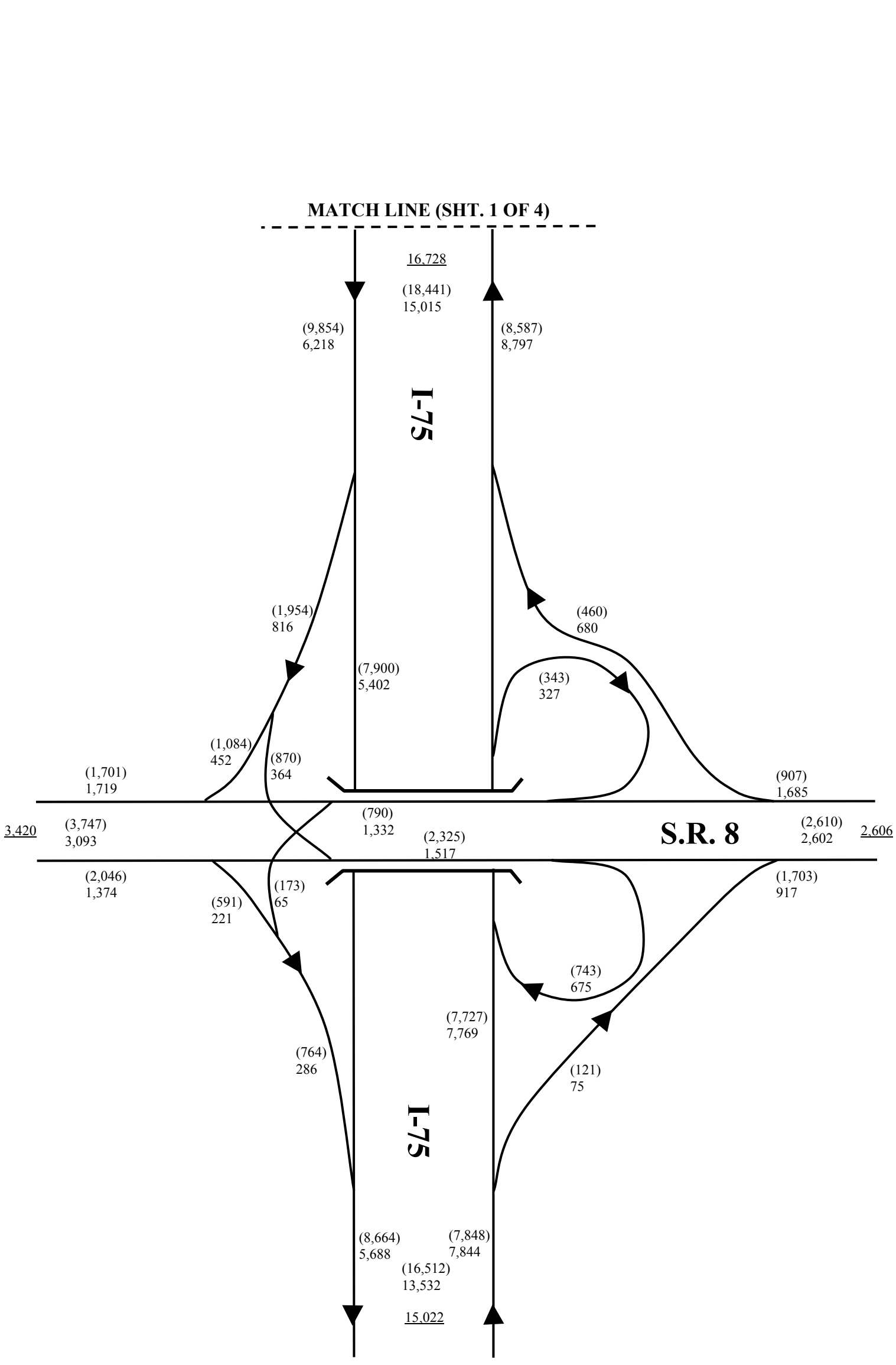
Legend:

2025 AM DHV 000

2025 PM DHV (000)

AVERAGE DHV 000

11-29-00	**Hamilton County I-24 and I-75 Interchange**	**2025 Design Hourly Volume (DHV)**	**SHT. 1 of 4**



Legend:

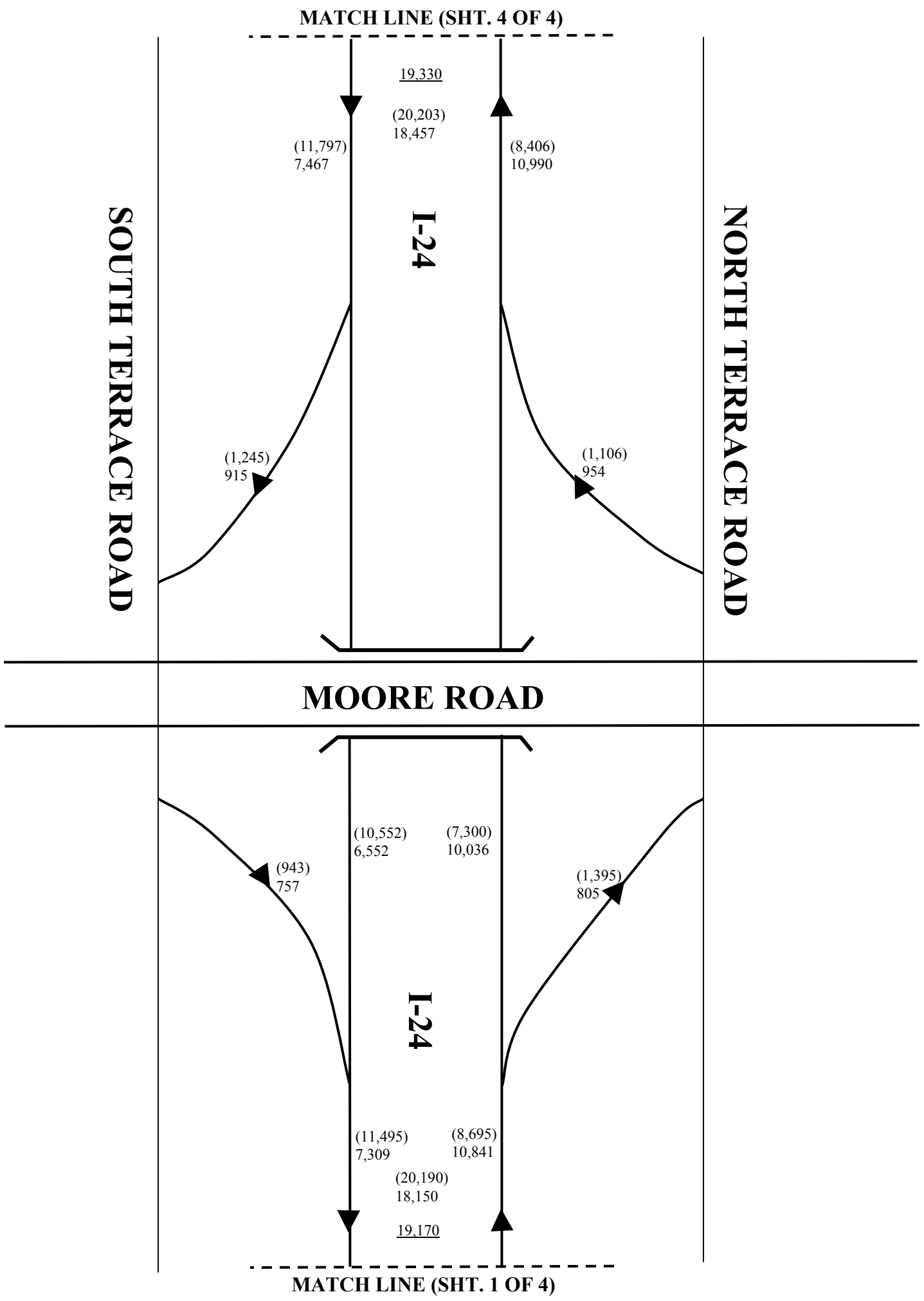
2025 AM DHV 000

2025 PM DHV (000)

AVERAGE DHV 000

11-30-00	**Hamilton County I-75 and S.R. 8 Interchange**	**2025 Design Hourly Volume (DHV)**	**SHT. 2 of 4**

Not to Scale



Legend:

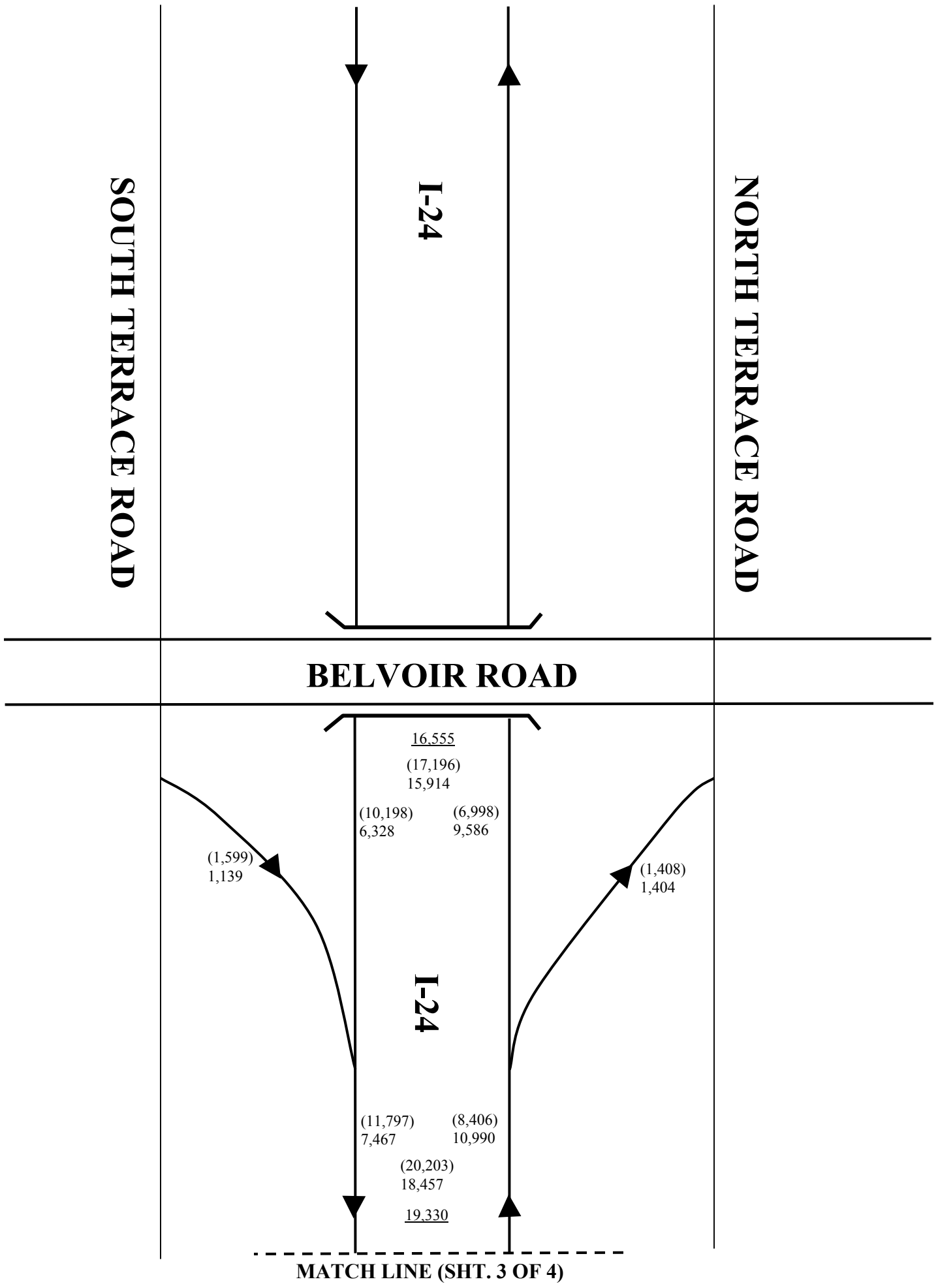
2025 AM DHV 000

2025 PM DHV (000)

AVERAGE DHV 000

12-07-01	**Hamilton County I-24 at Moore Road**	**2025 Design Hourly Volume (DHV)**	**SHT. 3 of 4**

Not to Scale



Legend:

2025 AM DHV 000

2025 PM DHV (000)

AVERAGE DHV 000

4-30-01	**Hamilton County I-24 at Belvoir Road**	**2025 Design Hourly Volume (DHV)**	**SHT. 4 of 4**

APPENDIX B

CAPACITY AND LEVEL OF SERVICE ANALYSIS

Preliminary Short-Range Improvements for I-24/I-75 Interchange Study Area

Based on existing conditions traffic analysis completed for the I-24/I-75 study area using 2005 and 2025 traffic projections, PBS&J has identified several short-range improvements that will improve traffic operations at selected locations in the study area.

I-24/I-75 Interchange & I-24 WB:

Problem:

The northbound directional ramp from I-75 northbound to I-24 westbound tapers down to one lane before it merges with the two-lane ramp from I-75 westbound. Based on the traffic analysis, one lane is not sufficient to accommodate the current or future traffic on this ramp.

Proposed Improvements:

1. Remove the taper and extend the second lane of the northbound directional ramp from I-75 northbound to I-24 westbound. When this ramp merges with I-24 westbound, I-24 will consist of four lanes, instead of the existing three lanes. The inside lane of this newly formed four-lane section will be considered an auxiliary lane since it will be dropped downstream of the I-24/I-75 interchange. *It is important to note that the proposed second lane on the directional ramp from I-75 northbound will now be aligned with the existing middle lane on I-24, while the inside lane of the current ramp from I-75 westbound will now be aligned with the new auxiliary lane.* Since there is no space to add a lane in the median between the eastbound and westbound lanes of I-24, the new auxiliary lane must be added on the north side of I-24 rather than in the median.

   The widening of I-24 westbound to four lanes will require that the bridges over I-24 at Spring Creek Road and McBrien Road be reconstructed in order to provide the necessary clearance for four lanes on I-24 westbound. The next two improvements will provide options as to how long the new auxiliary lane can be extended and where it will be dropped from I-24 westbound. See Figure 1 for a graphical display of this proposed improvement.

2a. Continue the four-lane section on I-24 westbound beyond the off-ramp to Moore Road and then taper the inside through lane (i.e. auxiliary lane) into the remaining through lanes. The current distance between the I-24/I-75 interchange and the off-ramp to Moore Road is approximately 2,800 feet. Therefore, through traffic in the I-24 westbound auxiliary lane will have just over 2,800 feet to merge over to the remaining three lanes before the exit to Moore Road. By continuing the auxiliary lane past the exit-ramp to Moore Road, a recovery lane is provided for drivers who inadvertently remain in the discontinued lane. This recovery lane preludes the

situation where drivers get "trapped" into a lane that only exits to Moore Road. It is important to note that this recovery lane will be tapered into the other remaining through lanes on I-24 *before* the on-ramp from Moore Road merges with I-24 westbound. The distance between the Moore Road off-ramp and on-ramp is approximately 1900 feet and should be long enough to extend the recovery lane past the off-ramp gore and then taper the lane into the remaining through lanes.

In order to extend the auxiliary/recovery lane on I-24 westbound beyond the off-ramp to Moore Road, the Moore Road bridge over I-24 will possibly need to be reconstructed in order to provide the necessary clearance for four lanes on I-24 westbound. Also, the existing I-24 westbound deceleration lane leading to the off-ramp to Moore Road will need to be moved to the north in order to provide space for the new auxiliary lane. See Figure 1 for a graphical display of these proposed improvements.

-or-

2b. Continue the four-lane section on I-24 westbound beyond the off-ramp to Belvoir Road and then taper the inside, or first, through lane (i.e. auxiliary lane) into the remaining through lanes. The added benefit to drivers on I-24 westbound by extending the auxiliary lane all the way to the Belvoir Road interchange is that drivers will have a longer distance (a minimum of 3,400 additional feet) to merge with through traffic on I-24 before the auxiliary lane is dropped.

Currently, there is an auxiliary lane located between the Moore Road on-ramp and the Belvoir off-ramp that forms a weaving section. In order to preserve this weaving section between the Moore Road and Belvoir Road ramps, improvement option "2b" proposes to extend the new auxiliary lane past this weaving section and then taper the new auxiliary lane into the remaining through lanes. The new auxiliary lane will be tapered into the remaining through lanes before the Germantown Road on-ramp, located downstream of Belvoir Road, merges with I-24 westbound. The distance between the off-ramp to Belvoir Road and the on-ramp from Germantown Road is long enough to extend the auxiliary lane past the Belvoir Road off-ramp gore and then taper the auxiliary lane into the remaining through lanes before the Germantown Road on-ramp.

In order to extend the auxiliary lane on I-24 westbound beyond the off-ramp to Belvoir Road, the Moore Road bridge over I-24 and possibly the Belvoir Road bridge over I-24 will need to be reconstructed in order to provide the necessary clearance for four lanes on I-24 westbound. Also, the existing I-24 westbound deceleration lane leading to the off-ramp to Moore Road will need to be moved to the north in order to provide space for the new auxiliary lane. The existing I-24 westbound auxiliary lane between the Moore Road on-ramp and the Belvoir off-ramp will also have to be moved to the north in order to provide space for the new auxiliary lane. See Figure 2 for a graphical display of these proposed improvements.

Impact of Proposed Improvements:

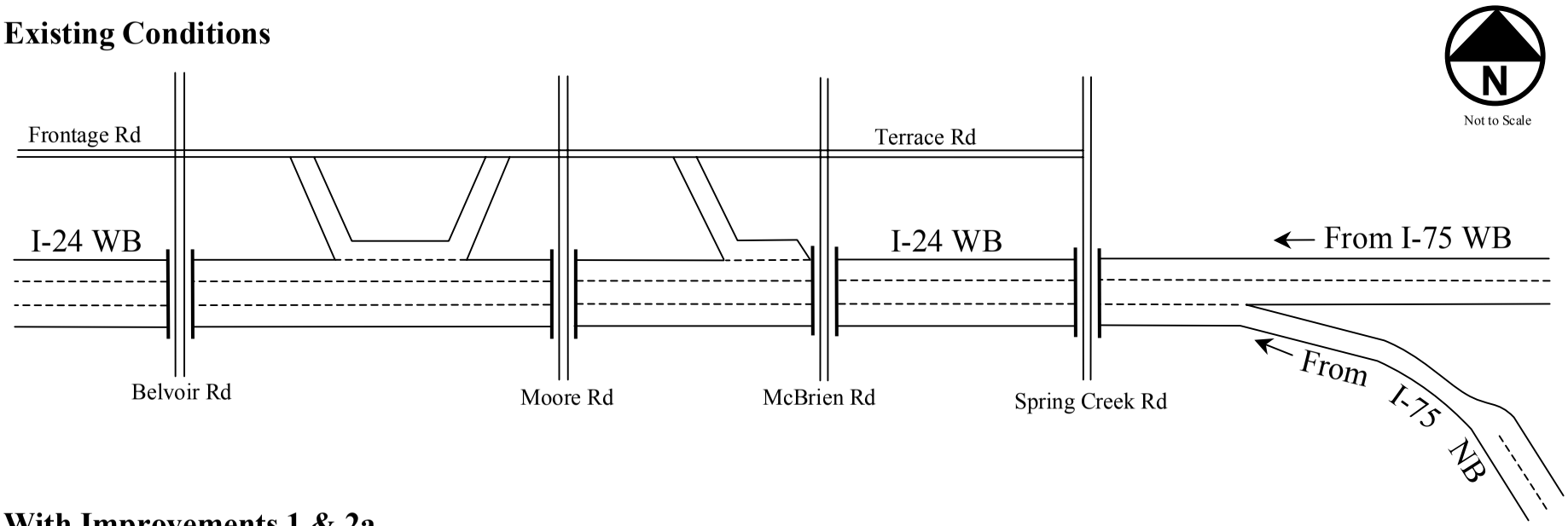
The impact of the proposed short-range improvements was determined by performing level of service (LOS) analysis on the sections of freeway that were improved. See Figure 3 and Table 1 for the LOS analysis completed for improvement options (1) and (2a). As seen on Figure 3 and Table 1, the proposed improvements included in improvement options (1) and (2a) will allow the sections of freeway that are impacted by these improvements to operate at LOS D or better in 2005. See Figure 4 and Table 2 for the LOS analysis completed for improvement option (2b). As seen on Figure 4 and Table 2, the proposed improvements included in improvement option (2b) will also allow the sections of freeway that are impacted by the improvements to operate at LOS D or better in 2005.

Additional LOS analysis was completed to determine the service life of the proposed improvements in options (1), (2a), and (2b). This analysis showed that the additional lane on the ramp from I-75 northbound to I-24 westbound, as described in option (1), will last 17 years (from 2005 to 2022) until its capacity to accommodate the expected future travel demand is exceeded. The proposed improvements to the basic freeway section on I-24 westbound located between the I-24/I-75 interchange and the Moore Road off-ramp, as described in option (2a), will have a 6-year service life (from 2005 to 2011). Also, the proposed improvements to the freeway ramp section located at the I-24 westbound off-ramp to Moore Road, as described in option (2a), will also have a 6-year service life (from 2005 to 2011).

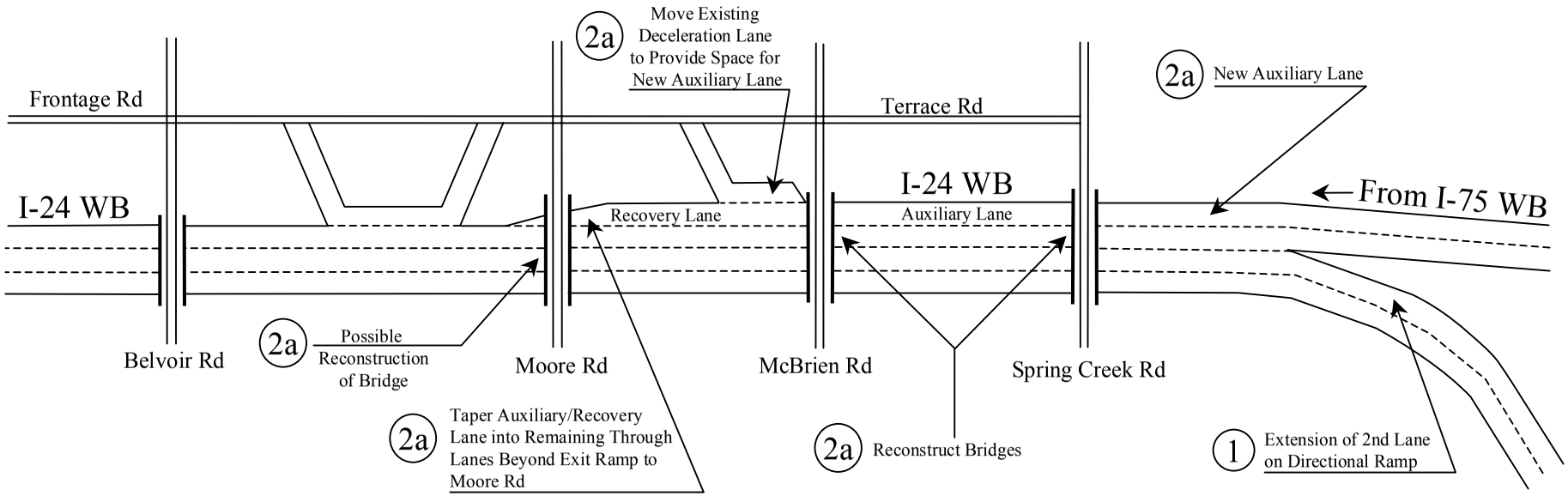
If the proposed improvements in option (2b) are implemented, the freeway section on I-24 westbound located between the Moore Road off and on-ramps will have a 9-year service life (from 2005 to 2014). Also, the freeway weaving section on I-24 westbound located between the Moore Road on-ramp and the Belvoir Rd off-ramp will have a 7-year service life (from 2005 to 2012). Finally, the freeway section on I-24 westbound that includes the auxiliary lane west of the Belvoir Road off-ramp will have a service life of 11 years (from 2005 to 2016).

It is important to note that the traffic operations and expected service lives of these proposed improvements are only based on the capacity of the freeway system and the expected traffic patterns in the vicinity of the I-24/I-75 interchange. However, the traffic operations of the sections of I-24 analyzed in this study area are also dependent on the traffic operations on I-24 west of this study area. If traffic is prevented from flowing westbound on I-24 at an acceptable level, then congestion may occur in the vicinity of the I-24/I-75 interchange regardless of the improvements made to the freeway system in this area. The short-range improvements proposed in this analysis, however, will provide a significant increase in capacity to the I-24/I-75 interchange and to I-24 westbound.

Existing Conditions

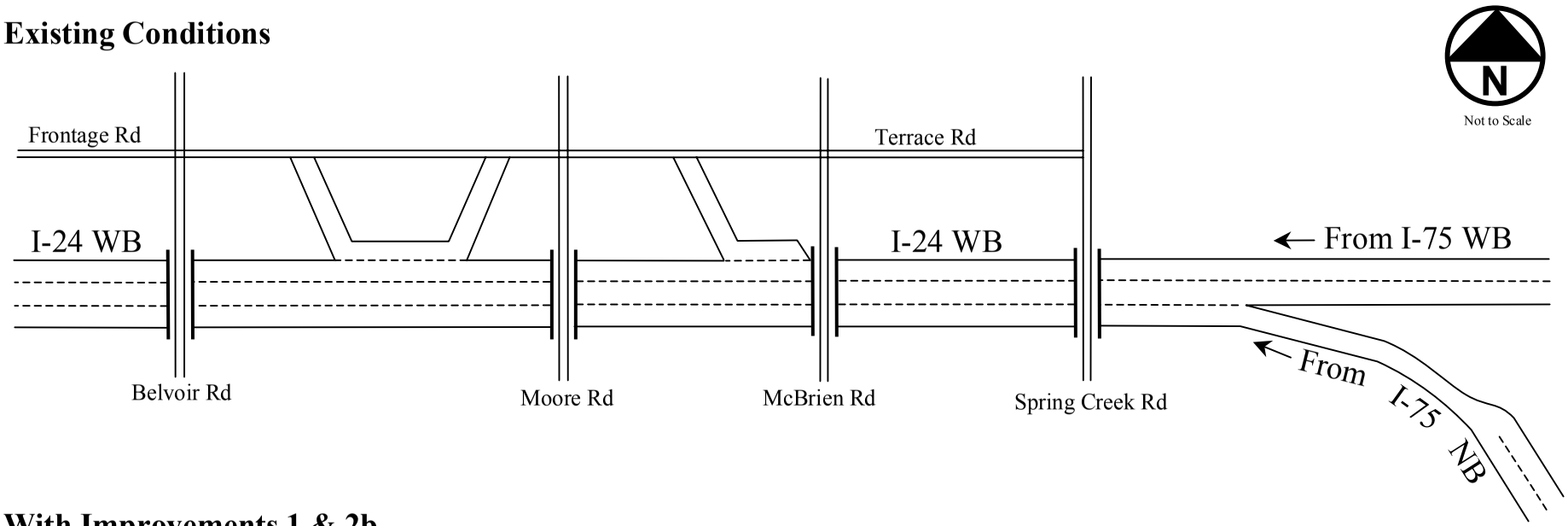


With Improvements 1 & 2a

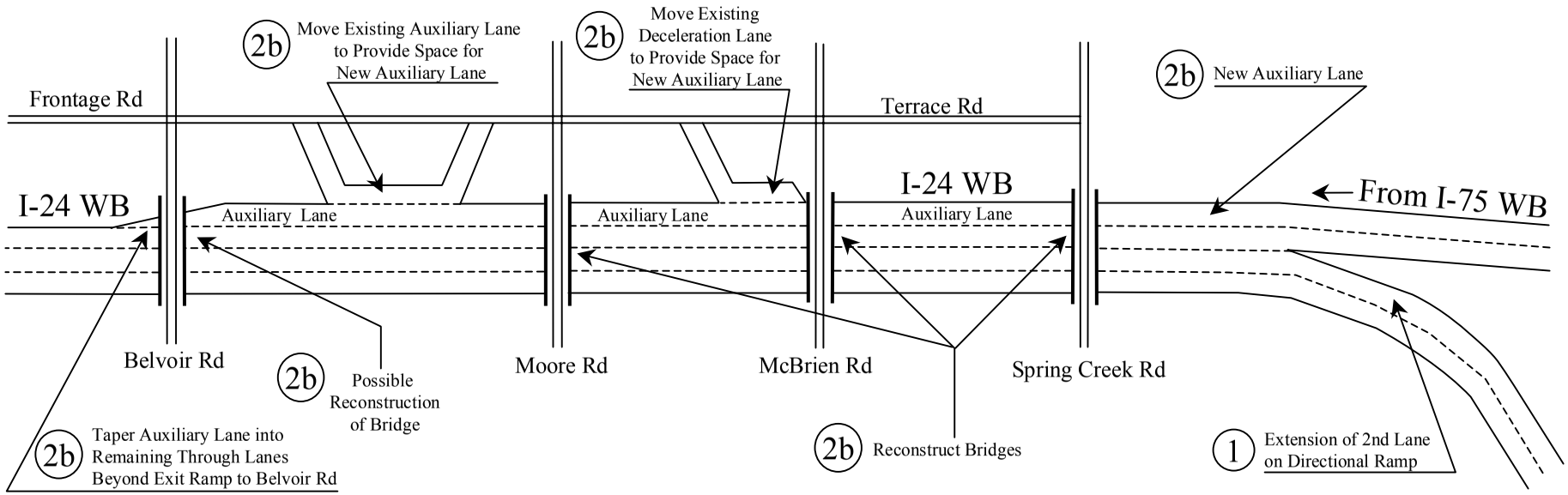


	I-24/I-75 Interchange Modification Study	**Preliminary Short-Range Improvements** ***I-24/I-75 Interchange & I-24 WB***	**Figure 1**

Existing Conditions

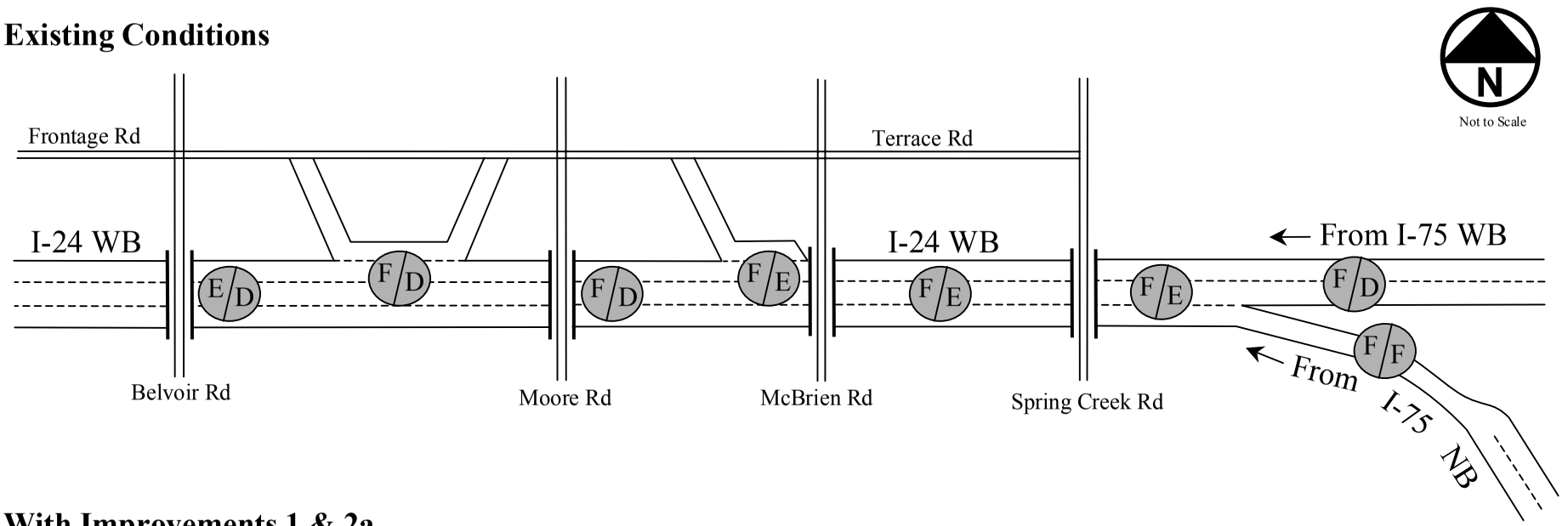


With Improvements 1 & 2b

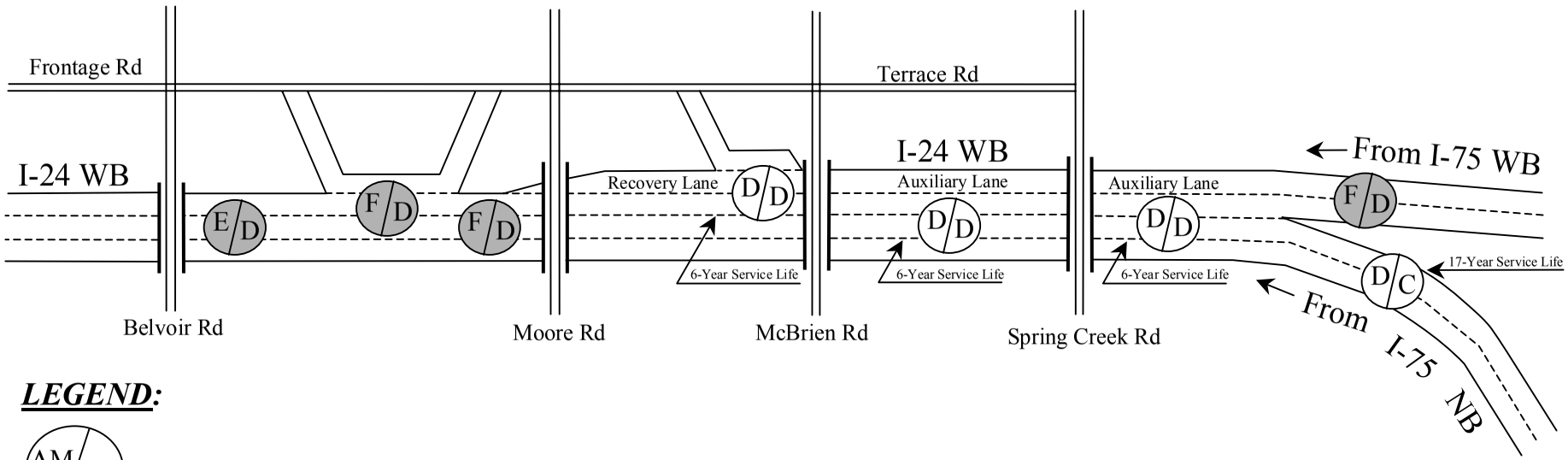


	I-24/I-75 Interchange Modification Study	**Preliminary Short-Range Improvements** *I-24/I-75 Interchange & I-24 WB*	**Figure 2**

Existing Conditions



With Improvements 1 & 2a



LEGEND:

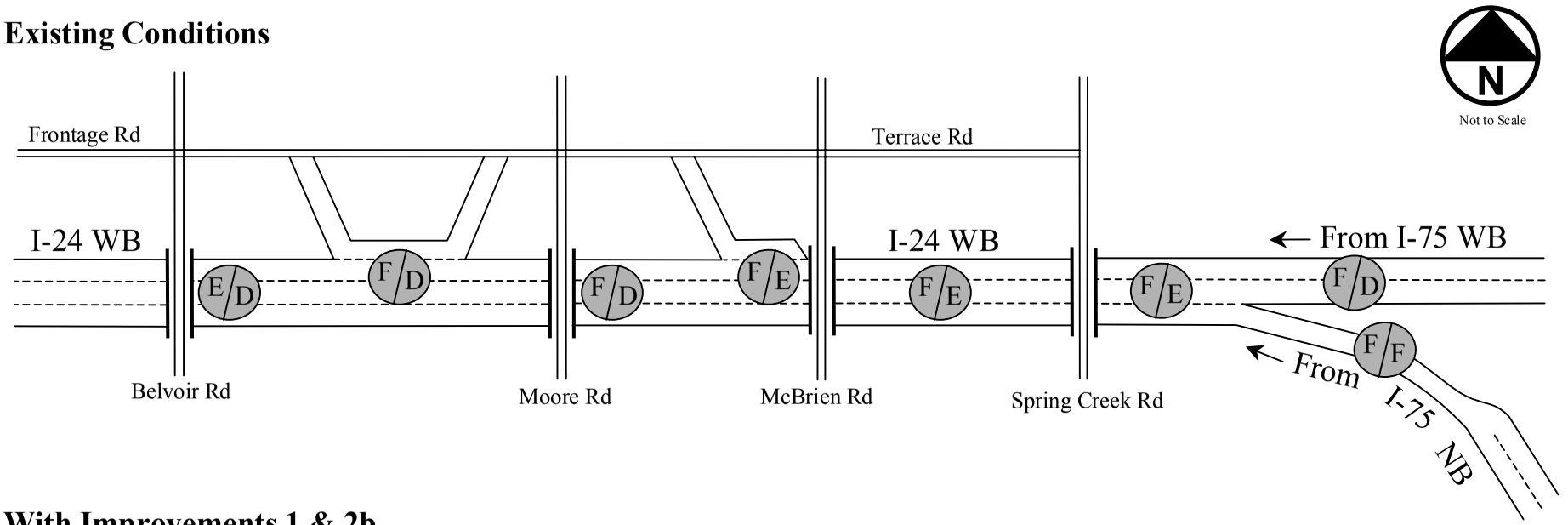
AM/PM Level of Service

	I-24/I-75 Interchange Modification Study	**2005 Level of Service with Preliminary Short-Range Improvements** *I-24/I-75 Interchange & I-24 WB*	**Figure 3**

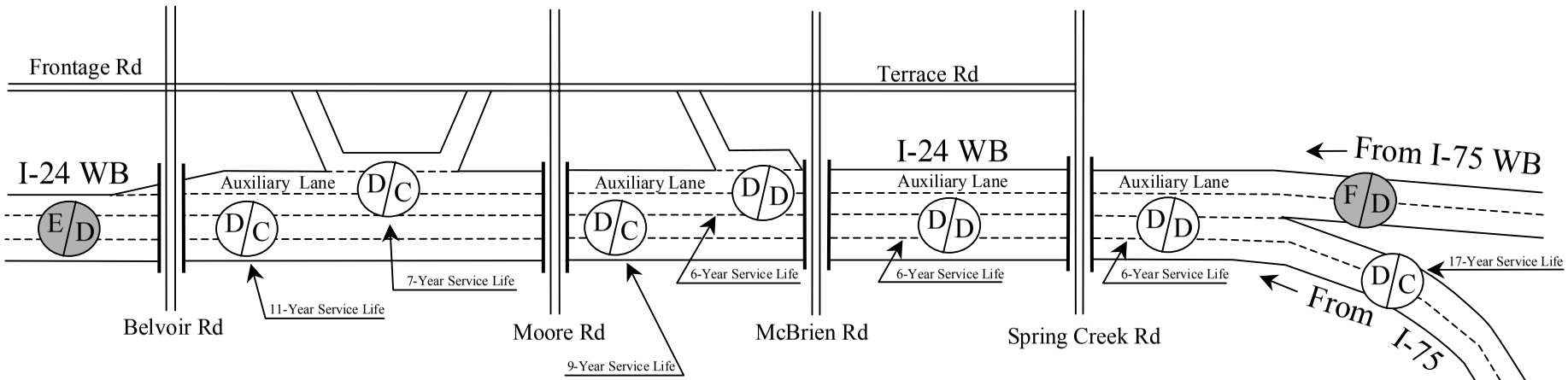
Table 1
I-24/I-75 IMR
Chattanooga/Hamilton County
2005 Level of Service Analysis with Short-Range Improvements to I-24/I-75 Interchange (1) and I-24 Westbound (2a)

Location Description	Section Type	2005 AM Peak		2005 PM Peak	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-24 and I-75 Freeway Sections					
I-24 WB between Moore Road & I-24/I-75 Interchanges	Basic Freeway	33.9	D	27.1	D
I-24/I-75 Directional Interchange					
I-75 WB Ramp to I-24 WB	Major Merge	**>45.0**	**F**	28.6	D
I-75 NB Ramp to I-24 WB	Major Merge	26.0	D	25.7	C
I-24 WB, downstream of merge	Major Merge	33.9	D	27.1	D
Moore Road and I-24 Interchange					
I-24 WB Off-Ramp to Moore Road	Off-Ramp	32.9	D	29.2	D
I-24 WB between Moore Road On & Off-Ramps	Basic Freeway	**>45.0**	**F**	30.4	D

Existing Conditions



With Improvements 1 & 2b



LEGEND:

AM/PM Level of Service

	I-24/I-75 Interchange Modification Study	**2005 Level of Service with Preliminary Short-Range Improvements** *I-24/I-75 Interchange & I-24 WB*
		Figure 4

Table 2
I-24/I-75 IMR
Chattanooga/Hamilton County
2005 Level of Service Analysis with Short-Range Improvements to I-24/I-75 Interchange (1) and I-24 Westbound (2b)

Location Description	Section Type	2005 AM Peak		2005 PM Peak	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-24 and I-75 Freeway Sections					
I-24 WB west of Belvoir Rd Off-Ramp without Auxiliary Lane	Basic Freeway	**42.8**	**E**	29.1	D
I-24 WB west of Belvoir Rd Off-Ramp with Auxiliary Lane	Basic Freeway	29.9	D	21.9	C
I-24 WB Weave between Belvoir Rd & Moore Rd Interchanges	Weave Type A	33.0	D	25.7	C
I-24 WB between Moore Road & I-24/I-75 Interchanges	Basic Freeway	33.9	D	27.1	D
I-24/I-75 Directional Interchange					
I-75 WB Ramp to I-24 WB	Major Merge	**>45.0**	**F**	28.6	D
I-75 NB Ramp to I-24 WB	Major Merge	26.0	D	25.7	C
I-24 WB, downstream of merge	Major Merge	33.9	D	27.1	D
Moore Road and I-24 Interchange					
I-24 WB Off-Ramp to Moore Road	Off-Ramp	32.9	D	29.2	D
I-24 WB between Moore Road On & Off-Ramps	Basic Freeway	31.3	D	22.8	C

I-75 Welcome Center:

Problem:

The current configuration of the I-75 Welcome Center access, located on I-75 northbound between the S.R. 8 (Ringgold Road) interchange and the I-24/I-75 directional interchange, allows drivers to enter and exit the Welcome Center using back-to-back loop ramps. These loop ramps to and from the Welcome Center create a weaving section on I-75 as well as create a confusing ingress/egress to the Welcome Center (i.e. to enter the Welcome Center, drivers must exit I-75 *north* of the Welcome Center and then to exit the Welcome Center, drivers must enter I-75 *south* of the Welcome Center). Based on the existing conditions traffic analysis, the weaving section on I-75 at the Welcome Center currently operates at level of service (LOS) C and D in the peak hours of operation. By 2025, this weaving section is expected to operate at LOS F in the peak hours of operation. The ramps to and from the Welcome Center are located approximately 1,200 feet north of the Ringgold Road interchange and approximately 2,100 feet south of the I-24/I-75 interchange. Due to the close proximity of the I-75 Welcome Center to the adjacent interchanges as well as the problems created by the back-to-back loop ramp access to the Welcome Center, this section of I-75 currently requires operational improvements.

Proposed Improvements:

1. Remove the Welcome Center from its current location and relocate to a new site on I-75, north of the current location. As part of this improvement option, a fourth lane will be carried through this section of I-75, starting back at the I-75 northbound on-ramp from Ringgold Road, to where it joins the existing four-lane section adjacent to the Welcome Center. See Figure 5 for a graphical display of improvement option (1).

-or-

2. Keep the Welcome Center at its current location, but remove the current back-to-back loops ramps on I-75 and provide new access to the Welcome Center through an access road that originates from Ringgold Road. This option proposes that traffic wishing to travel to the Welcome Center should exit I-75 at the Ringgold Road exit and then take the access road to the Welcome Center. Then to get back on I-75 from the Welcome Center, traffic will use the access road to get back to Ringgold Road and then take the northbound on-ramp to I-75. A fourth lane, starting at the I-75 northbound on-ramp to I-75 from Ringgold Road, will be carried through this section of I-75 to where it joins the existing four-lane section adjacent to the Welcome Center. See Figure 6 for a graphical display of improvement option (2).

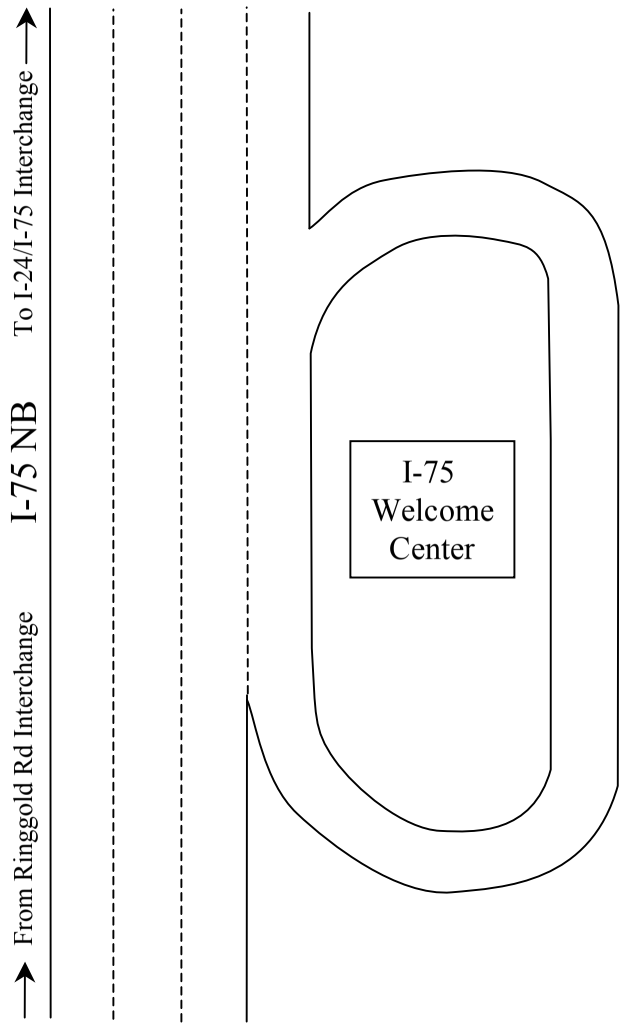
Impact of Proposed Improvements:

The impact of the proposed short-range improvements was determined by performing level of service (LOS) analysis on the sections of freeway that were improved. See Figure 7 and Table 3 for the LOS analysis completed for improvement option (1). As seen on Figure 7 and Table 1, the proposed improvements included in improvement option (1) will allow I-75 to operate at LOS D in 2005. The section of I-75 south of the Welcome Center will improve from LOS E to LOS D in 2005. In addition, by removing the I-75 loop ramps to and from the Welcome Center, traffic will no longer have to weave over across several lanes on I-75 in order to travel from the Welcome Center to the ramp to I-24. See Figure 8 and Table 3 for the LOS analysis completed for improvement option (2). As seen on Figure 8 and Table 3, the proposed improvements included in improvement option (2) will also allow I-75 to operate at LOS D or better in 2005. Similar to the impact of improvement option (1), the section of I-75 south of the Welcome Center will also improve from LOS E to LOS D in 2005 with improvement option (2).

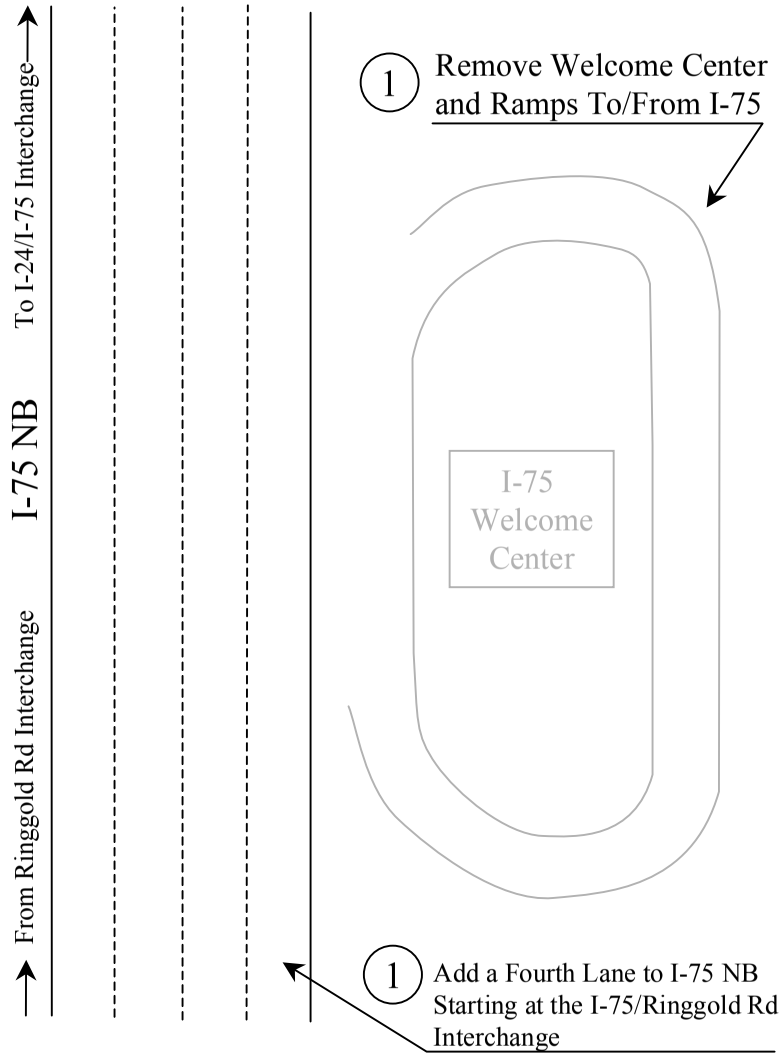
The traffic analysis also showed that there will be no significant impact caused by redirecting the Welcome Center traffic to the Ringgold Road interchange. (See the analysis completed for the I-75/Ringgold Road interchange later in this report.) The I-75 northbound on and off-ramps at Ringgold Road will have the capacity to accommodate the Welcome Center traffic.

Additional LOS analysis was completed to determine the service life of the proposed improvements in options (1) and (2). This analysis showed that by eliminating the weaving section on I-75 adjacent to the Welcome Center, as described in options (1) and (2), the basic freeway section on I-75 northbound will last 15 years (from 2005 to 2020) until its capacity to accommodate the expected future travel demand is exceeded.

Existing Conditions



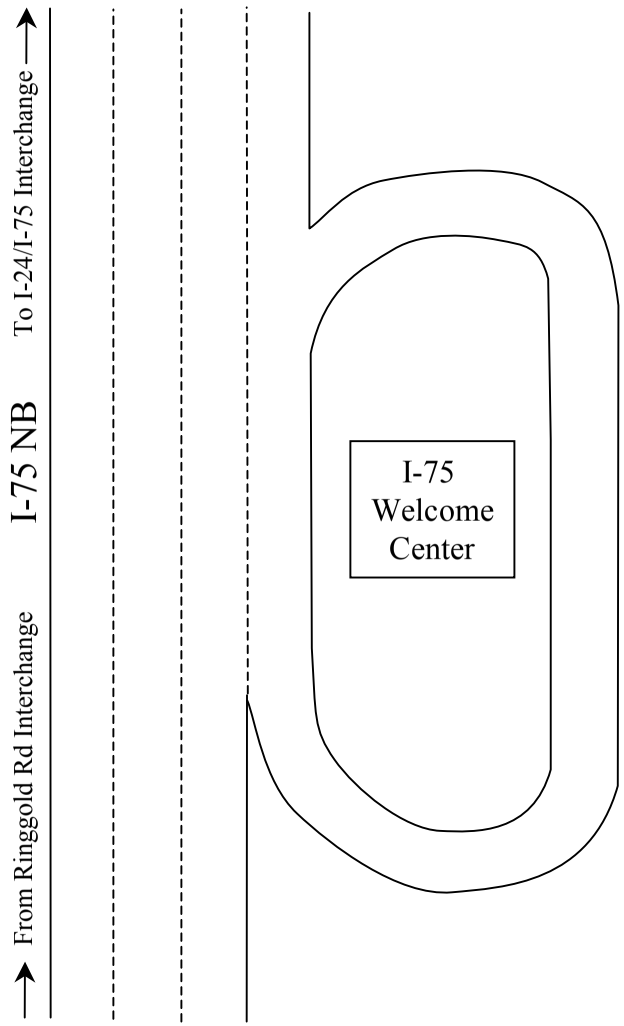
With Improvement 1



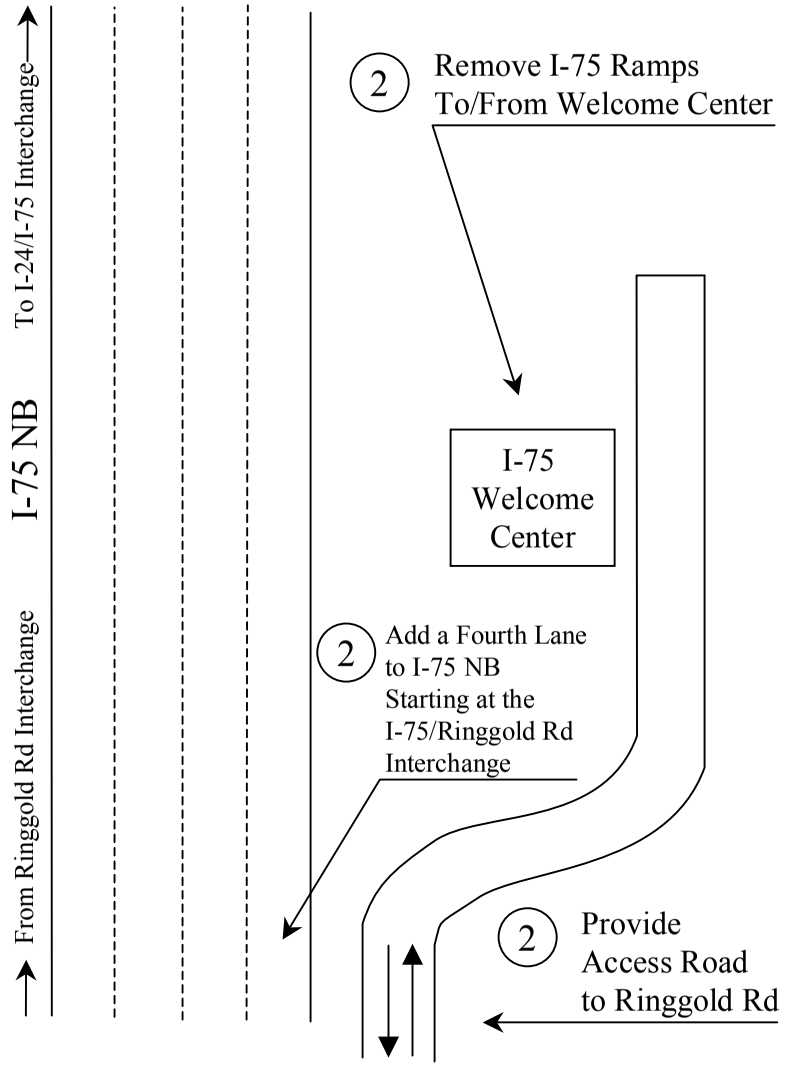
Not to Scale

	I-24/I-75 Interchange Modification Study	**Preliminary Short-Range Improvements** ***I-75 Welcome Center***	**Figure 5**

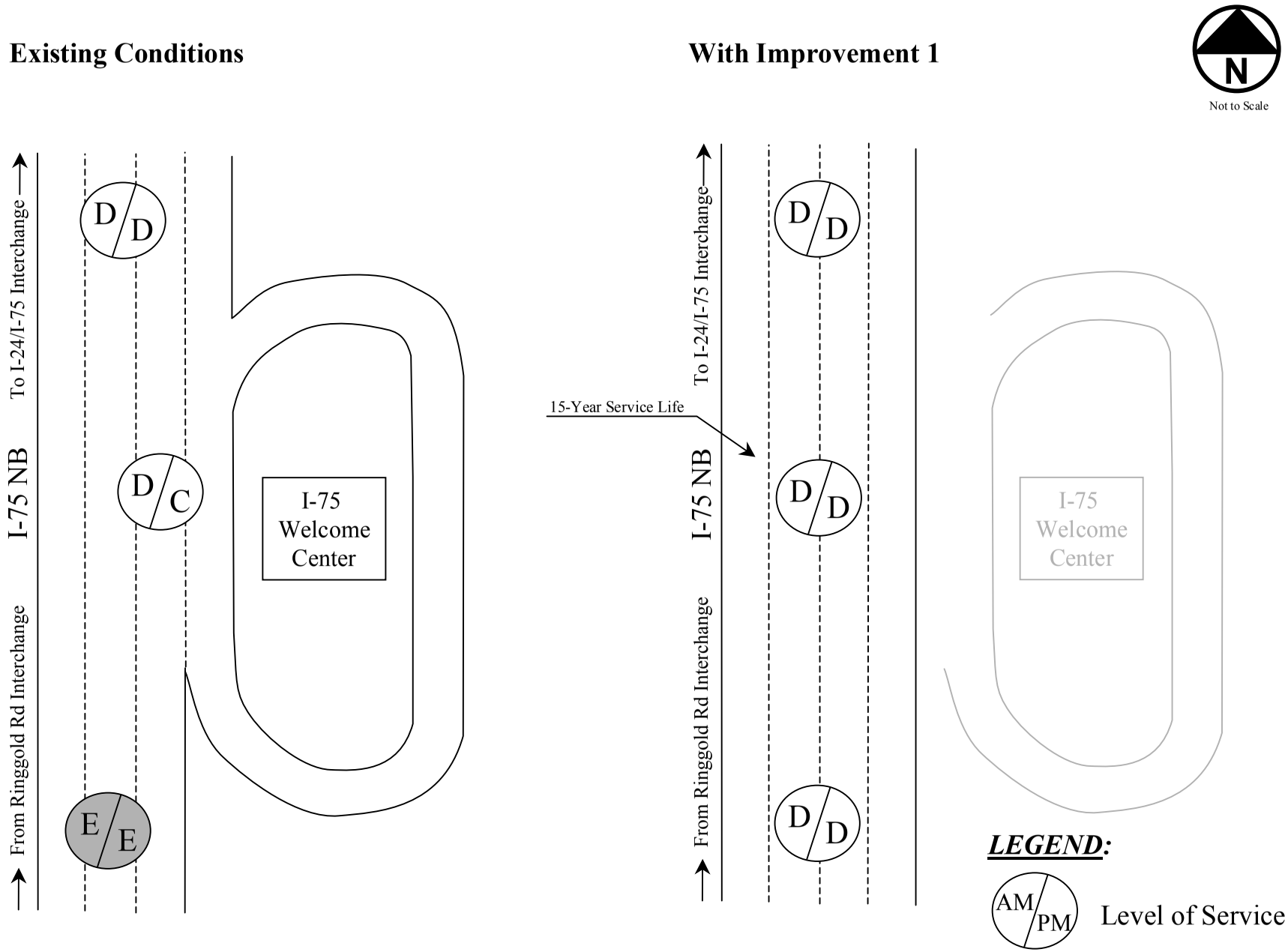
Existing Conditions



With Improvement 2



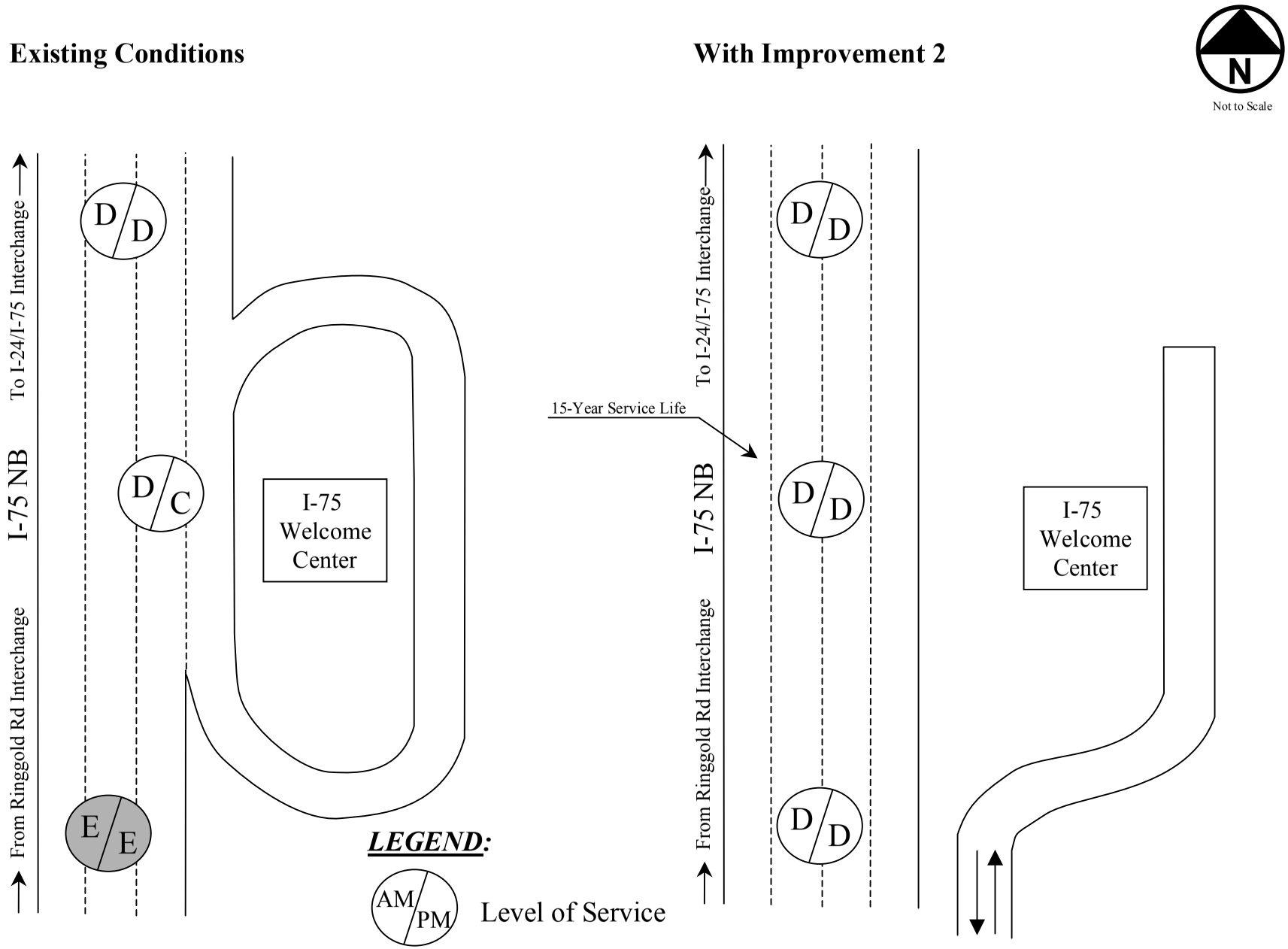
	I-24/I-75 Interchange Modification Study	**Preliminary Short-Range Improvements** ***I-75 Welcome Center***	**Figure 6**



	I-24/I-75 Interchange Modification Study	2005 Level of Service with Preliminary Short-Range Improvements *I-75 Welcome Center*	**Figure 7**

Table 3
I-24/I-75 IMR
Chattanooga/Hamilton County
2005 Level of Service Analysis with Short-Range Improvements to I-75 Welcome Center (1 and 2)

Location Description	Section Type	2005 AM Peak		2005 PM Peak	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-75 Freeway Sections					
I-75 NB where Welcome Center Weaving Section was Located	Basic Freeway	27.1	D	26.4	D
I-75 NB south of Welcome Center	Basic Freeway	27.1	D	26.4	D



	I-24/I-75 Interchange Modification Study	2005 Level of Service with Preliminary Short-Range Improvements *I-75 Welcome Center*	Figure 8

I-75/S.R. 8 (Ringgold Road) Interchange:

Problem:

Based on the existing conditions traffic analysis, the existing weaving section on I-75 northbound located between the back-to-back loop ramps to and from Ringgold Road currently operates at level of service (LOS) E in the peak hours of operation. The traffic analysis indicates that this weaving section will operate at LOS F by 2025 in the peak hours of operation.

Proposed Improvements:

1. Remove the loop ramp in the northeast quadrant of the I-75/Ringgold Road interchange. This loop ramp currently serves traffic that travels from I-75 northbound to Ringgold Road westbound. The traffic that currently uses this loop ramp will be redirected to the northbound off-ramp in the southeast quadrant of the interchange, where it will then make a left turn at the end of the northbound ramp in order to access Ringgold Road. A new signal is proposed where the northbound ramp, carrying the left-turning traffic, intersects Ringgold Road. See Figure 9 for a graphical display of improvement option (1). See Figures 10 and 11 for the adjusted 2005 A.M. and P.M. design hour traffic with the improvements included in option (1).

2. Extend the existing I-75 northbound on-ramp acceleration lane (starting from the northbound on-ramp from Ringgold Road) all the way to the existing lane-add that starts at the on-ramp from the Welcome Center. This will create a four-lane section on I-75 northbound between the Ringgold Road interchange and the existing Welcome Center. This improvement option is viable only if the Welcome Center loop ramps are removed. See Figure 12 for a graphical display of improvement option (2) and see Figures 13 and 14 for the adjusted 2005 A.M. and P.M. design hour traffic with the improvements included in option (2).

3. In addition to removing the loop ramp in the northeast quadrant of the I-75/Ringgold Road interchange, as described in option (1), option (3) includes an adjustment of the northbound on-ramp located in the northeast quadrant. Option (3) proposes to shift the intersection of the northbound on-ramp where it intersects Ringgold Road over to the west by 400 to 500 feet in order to provide space for an access road to the existing I-75 Welcome Center. The northbound on-ramp itself will also need to be shifted to the west in order to provide space for the access road to the existing I-75 Welcome Center. The new access road to the Welcome Center will be aligned directly across from the proposed northbound off-ramp left-turn/through lane. See Figure 15 for a graphical display of improvement option (3) and see Figures 16 and 17 for the adjusted 2005 A.M. and P.M. design hour traffic with the improvements included in option (3).

Impact of Proposed Improvements:

The impact of the proposed short-range improvements for the I-75/Ringgold Road interchange was determined by performing level of service (LOS) analysis on the sections of freeway that were improved. See Figure 18 and Table 4 for the LOS analysis completed for improvement option (1). By removing the existing deficient weaving section on I-75 northbound located between the back-to-back loop ramps to and from Ringgold Road, I-75 will operate at LOS D in 2005. Also, the traffic analysis showed that the northbound off-ramp to Ringgold Road will have the capacity to accommodate the traffic that currently uses the loop ramp located in the northeast quadrant of the I-75/Ringgold Road interchange: the northbound off-ramp from I-75 to Ringgold Road will operate at LOS C in 2005.

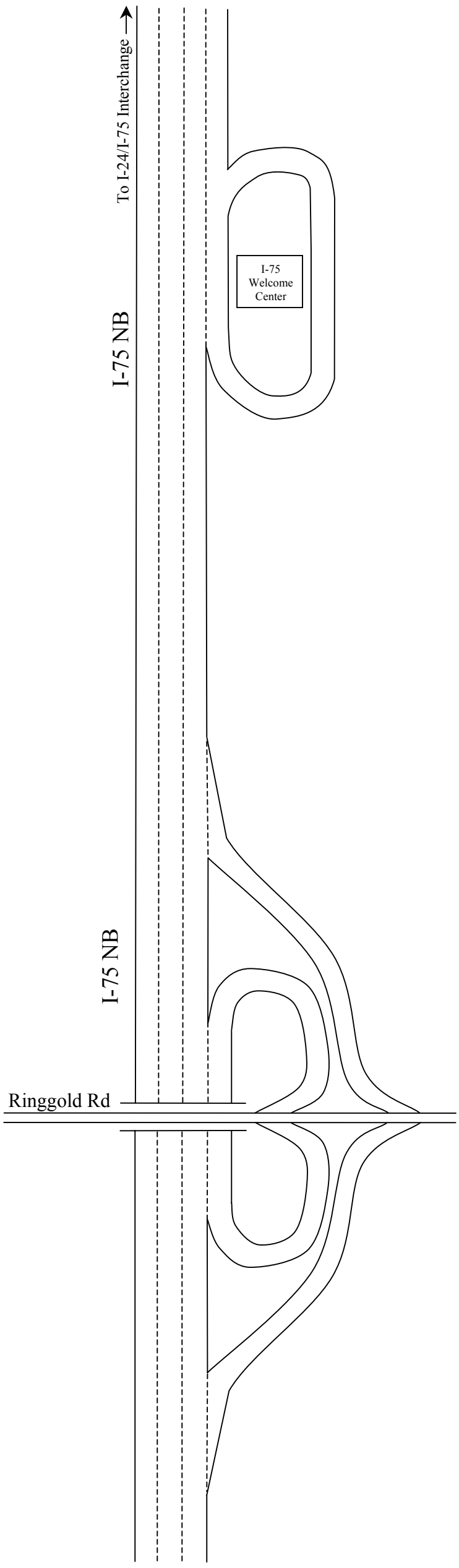
Figure 19 and Table 5 summarize the LOS analysis completed for improvement option (2). The section of I-75 north of the Ringgold Road interchange will improve from LOS E to LOS D in 2005 with improvement option (2). Finally, Figure 20 and Table 6 summarize the LOS analysis completed for improvement option (3). The LOS analysis showed that by providing a new access road to the Welcome Center that will tie into Ringgold Road, all sections of I-75 in the Ringgold Road interchange will still operate at LOS D or better in 2005.

Additional LOS analysis was completed to determine the service life of the proposed improvements in options (1), (2), and (3). This analysis showed that the proposed improvements included in options (1) and (3) will allow I-75 to have a service life of approximately 7 to 8 years (from 2005 to 2011/2012) until its capacity to accommodate the expected future travel demand is exceeded. The service life analysis also showed that section of I-75 north of the Ringgold Road interchange (improved in option 2) will last approximately 15 years (from 2005 to 2020).

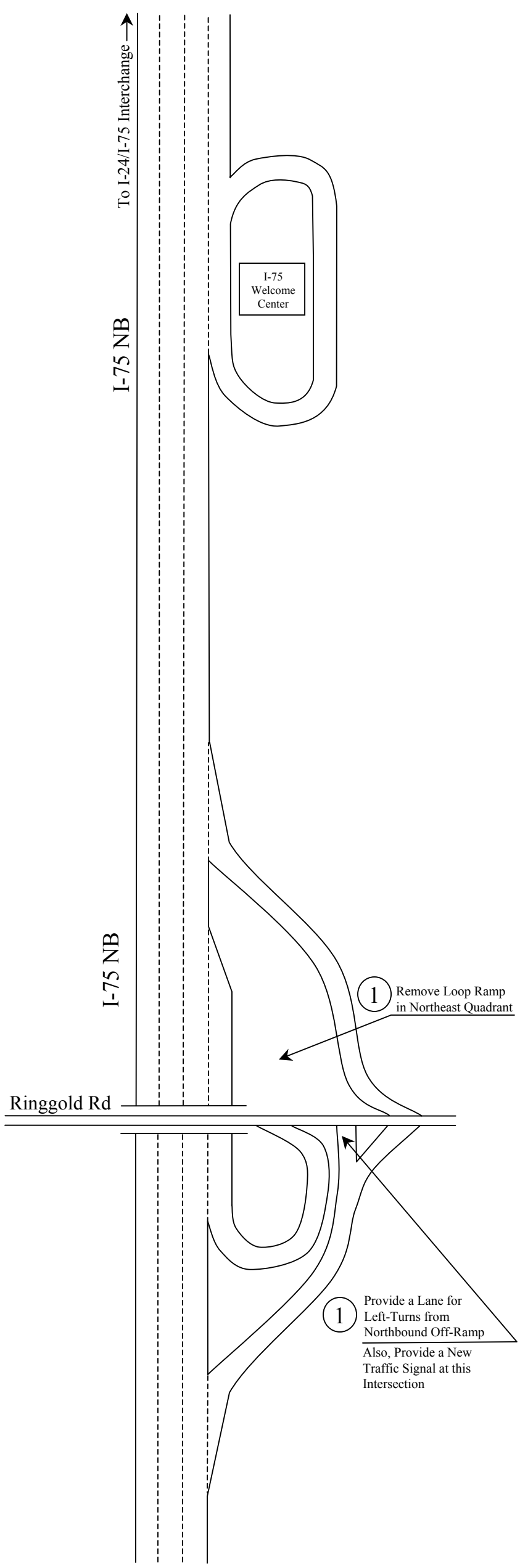
N

Not to Scale

Existing Conditions



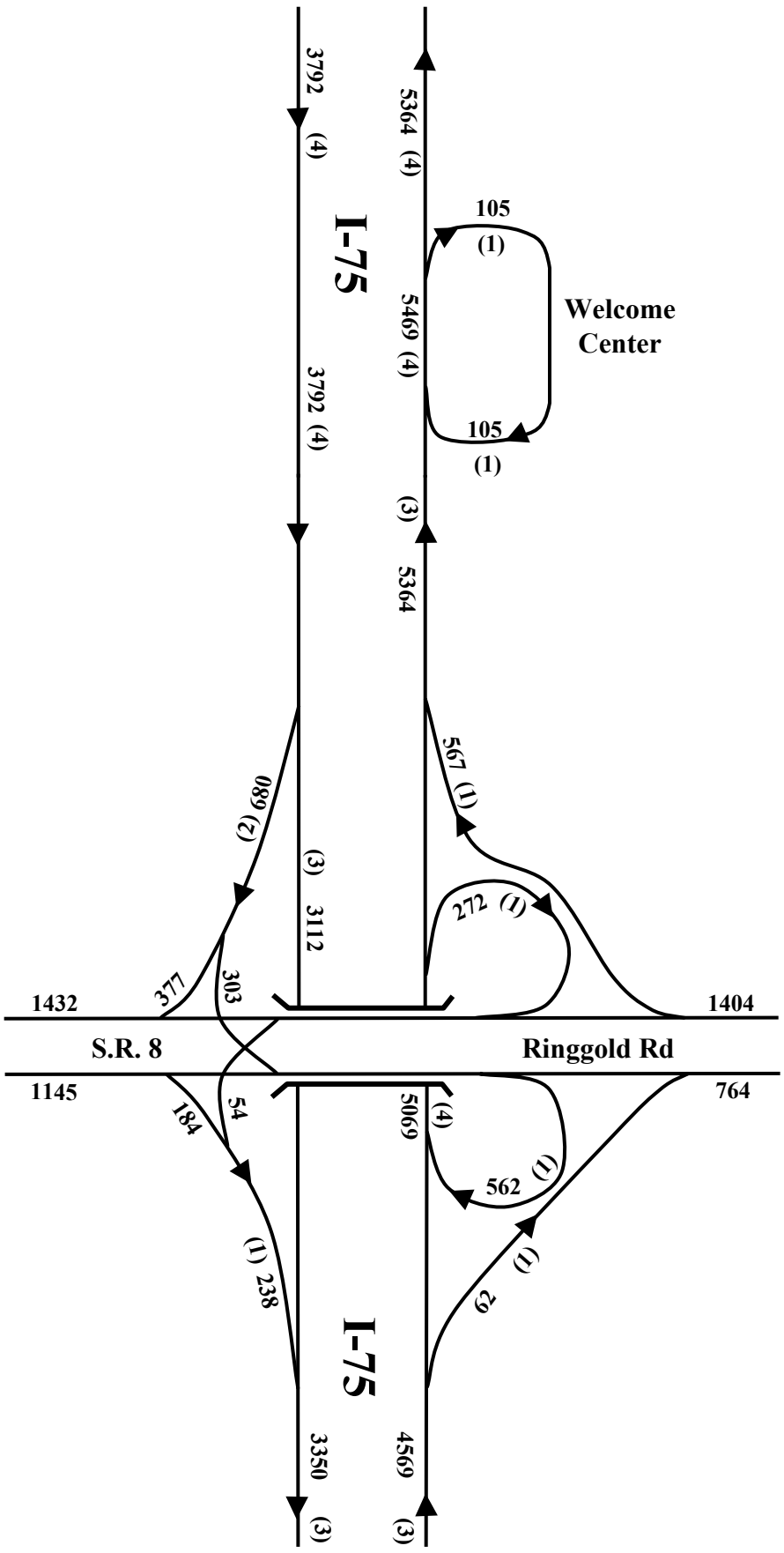
With Improvement 1



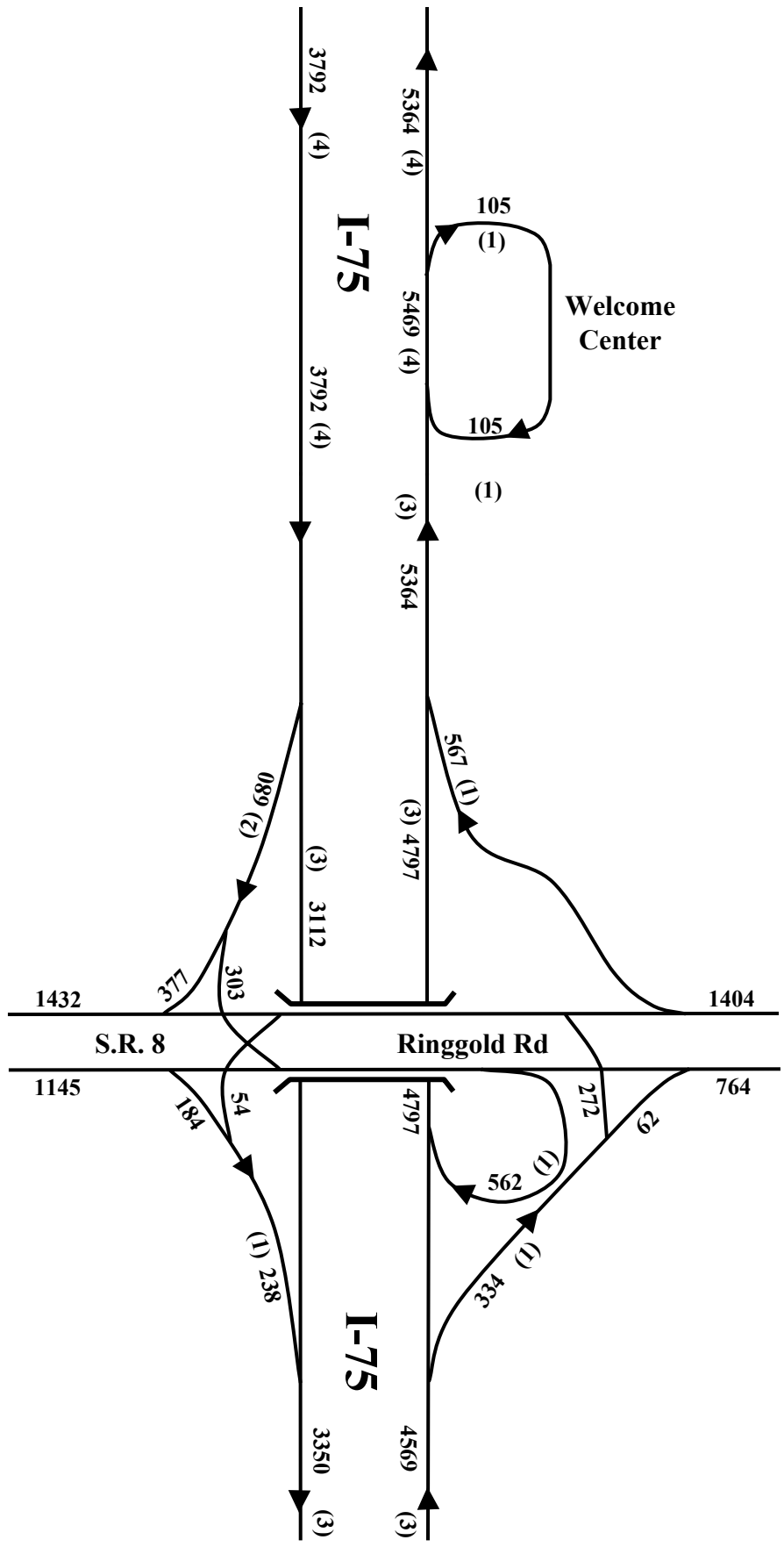
	I-24/I-75 Interchange Modification Study	**Preliminary Short-Range Improvements** ***I-75/S.R. 8 (Ringgold Road) Interchange***	**Figure 9**

Not to Scale

Existing Conditions



With Improvement 1



Legend:

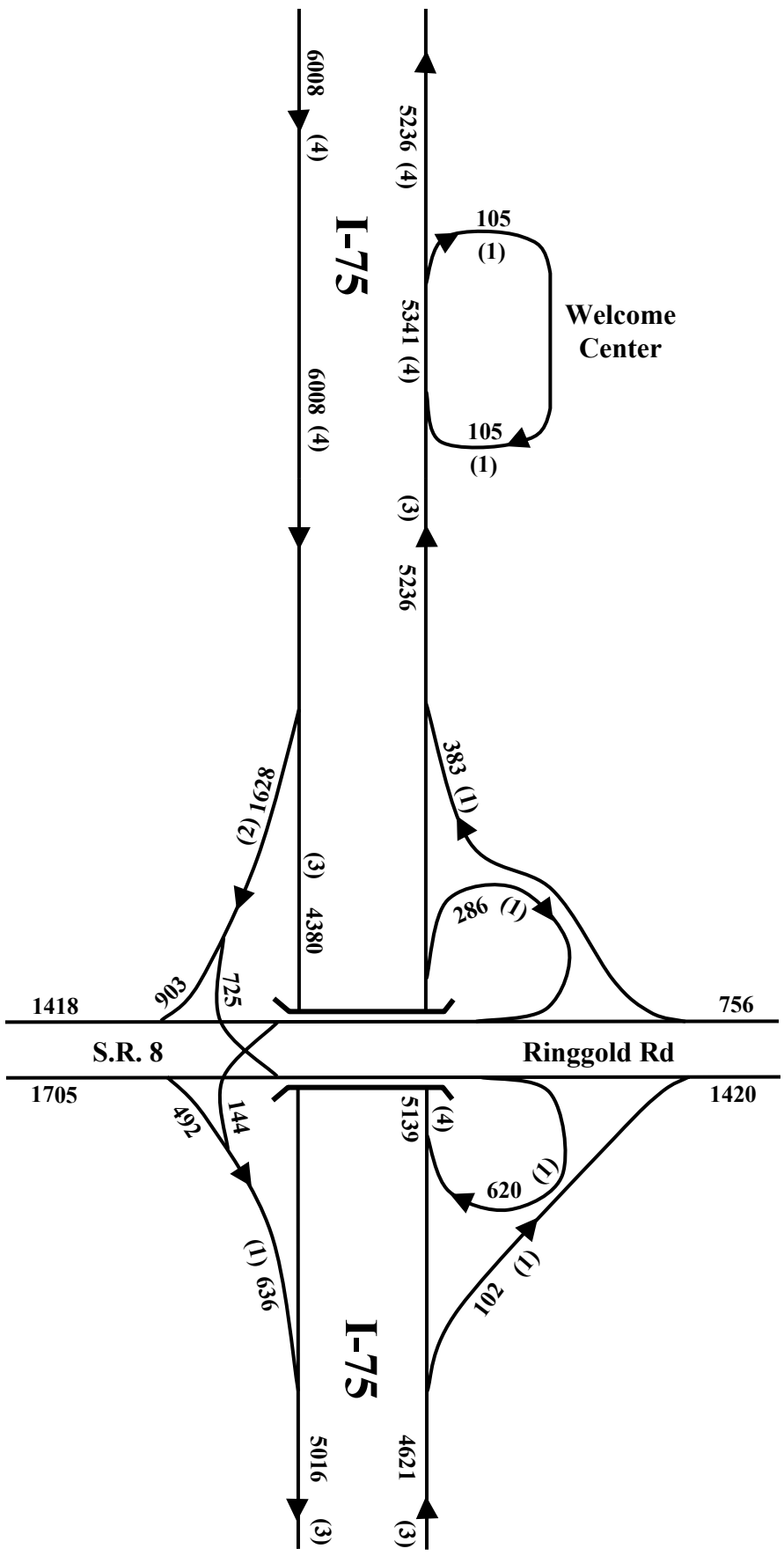
1000 - 2005 A.M. Design Hour Volume

(1) - Number of Lanes

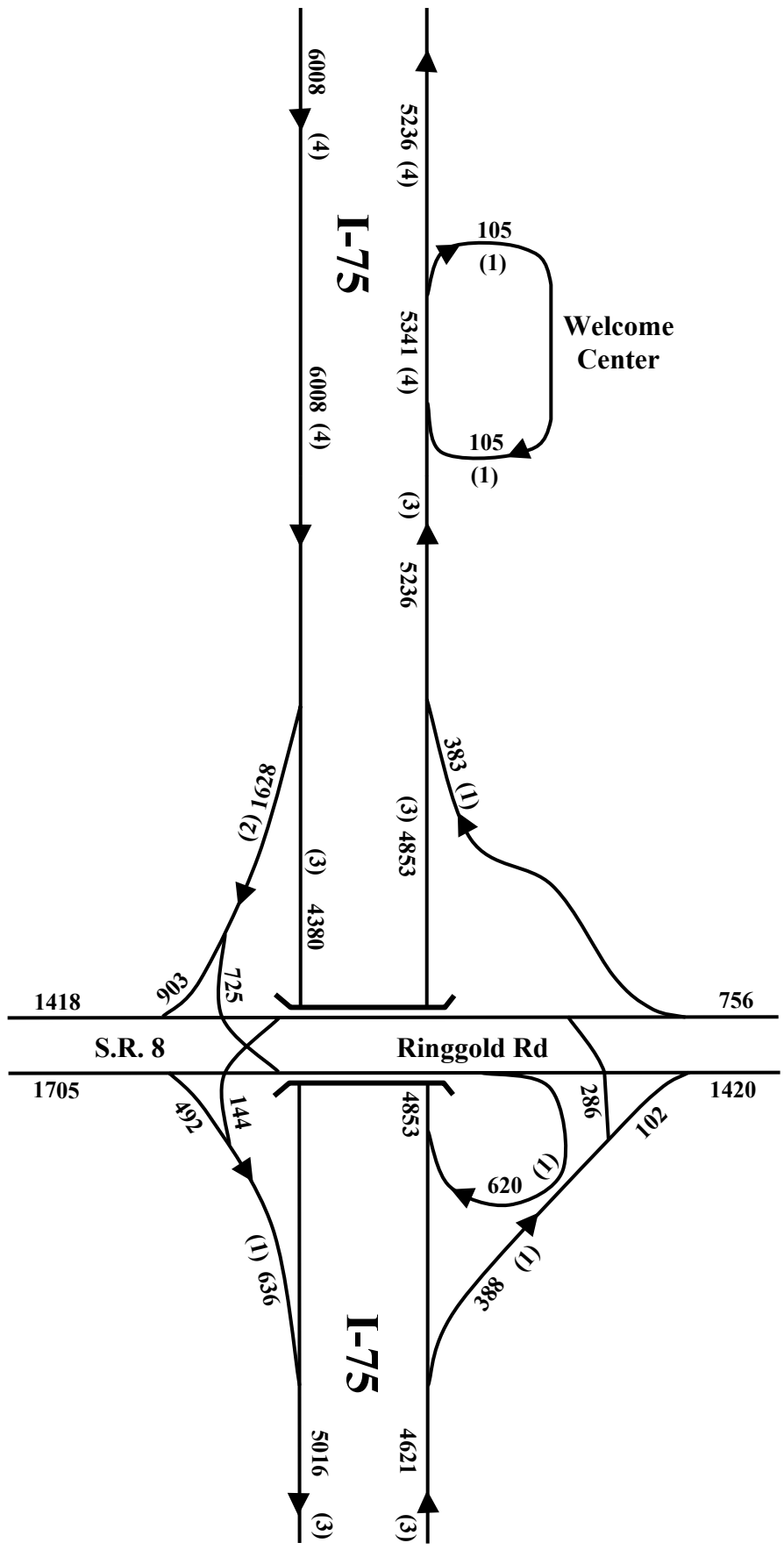
	I-24/I-75 Interchange Modification Study	**2005 A.M. Design Hour Traffic with Preliminary Short-Range Improvements** *I-75/S.R. 8 (Ringgold Road) Interchange*	**Figure 10**

Not to Scale

Existing Conditions



With Improvement 1



Legend:

1000 - 2005 P.M. Design Hour Volume

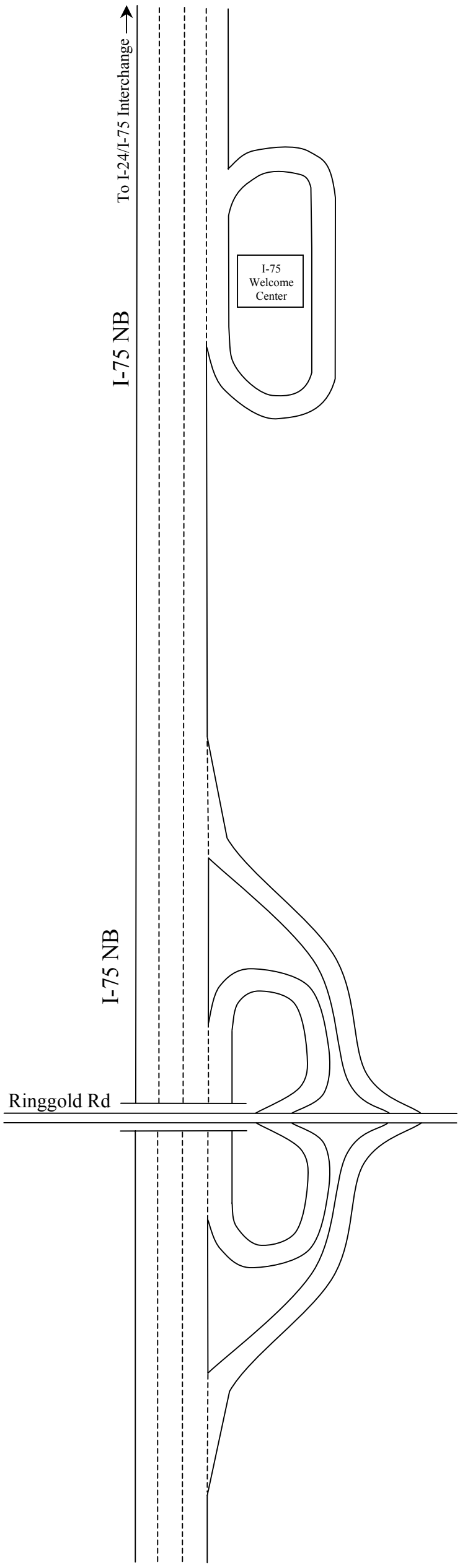
(1) - Number of Lanes

	I-24/I-75 Interchange Modification Study	**2005 P.M. Design Hour Traffic with Preliminary Short-Range Improvements** *I-75/S.R. 8 (Ringgold Road) Interchange*	**Figure 11**

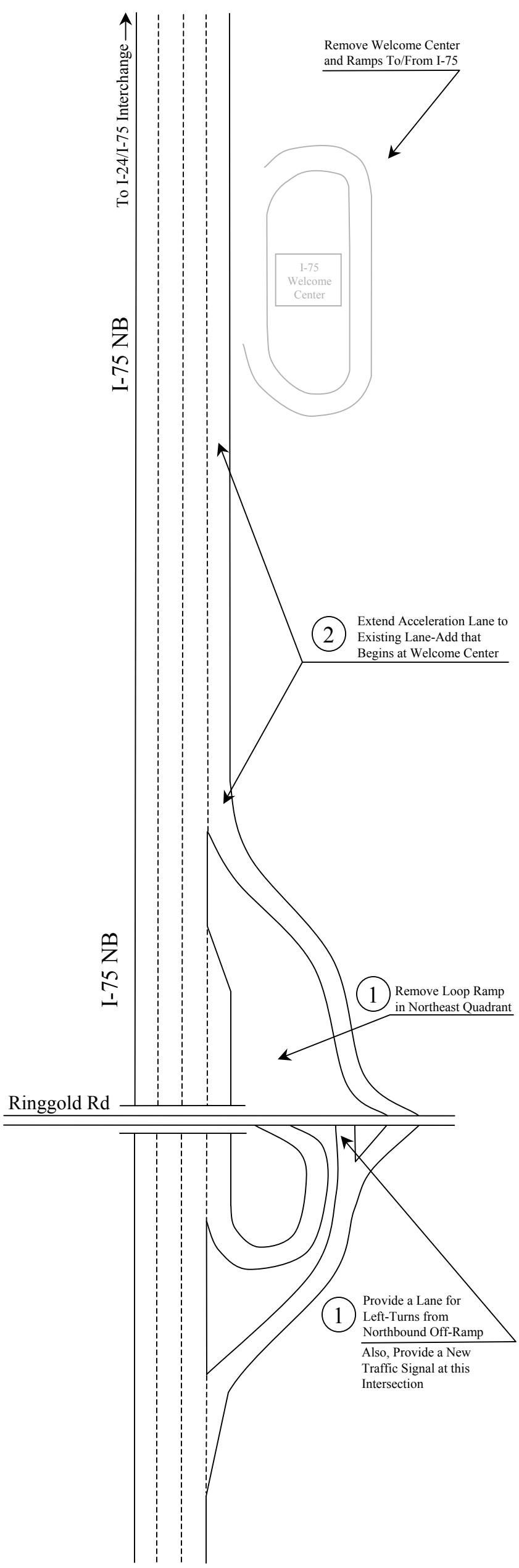
N

Not to Scale

Existing Conditions



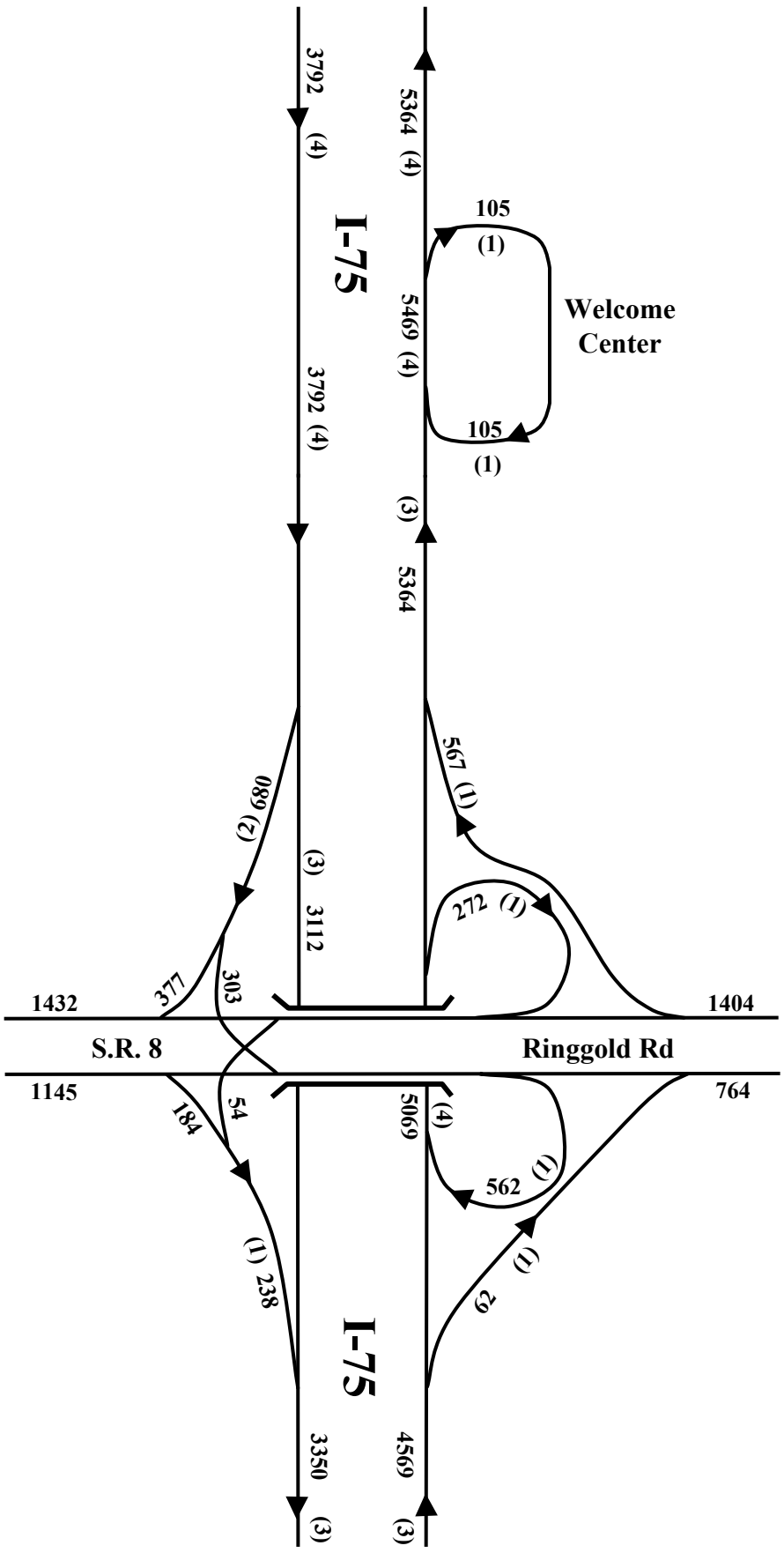
With Improvements 1 & 2



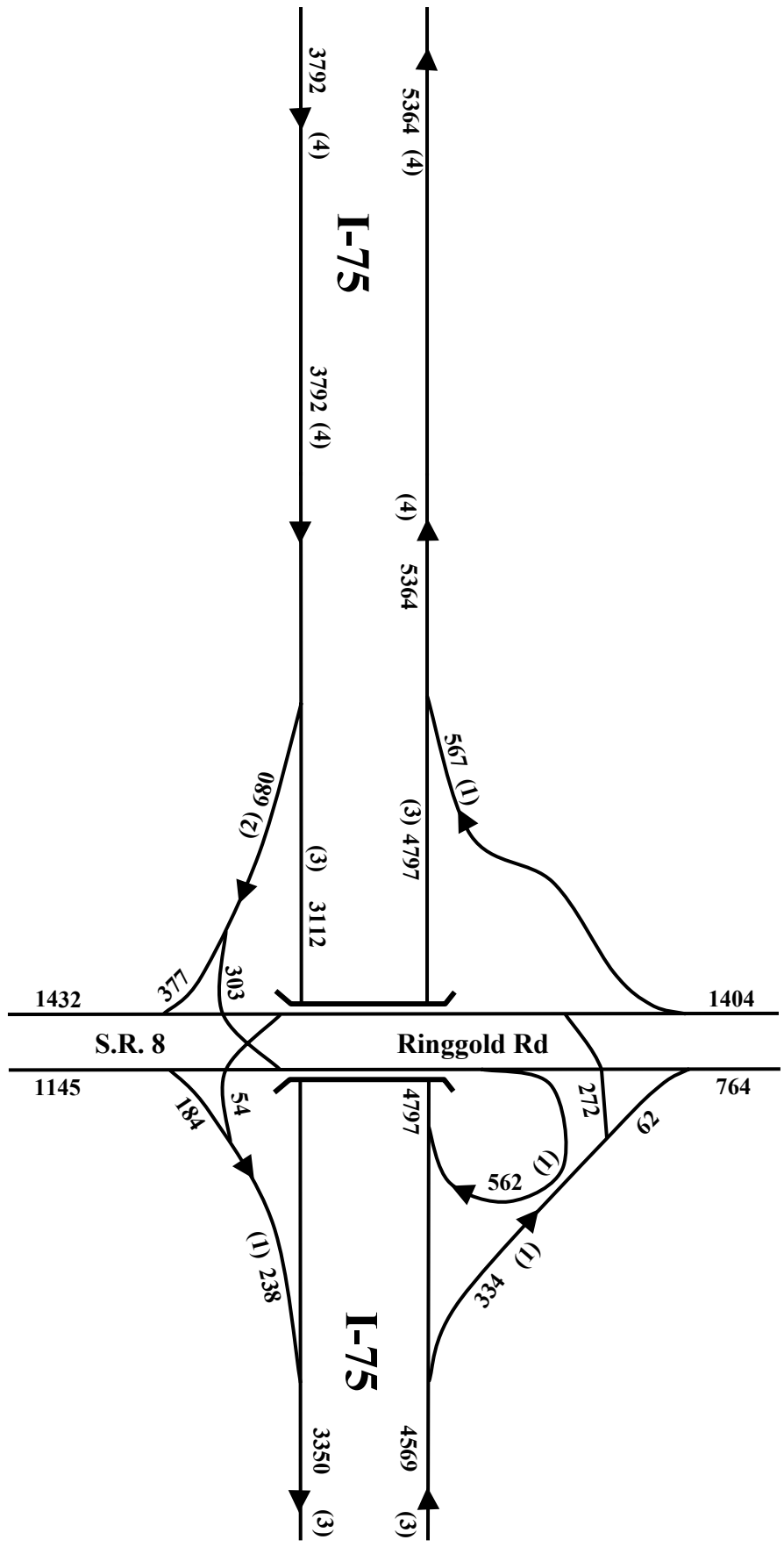
	I-24/I-75 Interchange Modification Study	**Preliminary Short-Range Improvements** ***I-75/S.R. 8 (Ringgold Road) Interchange***	**Figure 12**

Not to Scale

Existing Conditions



With Improvements 1 & 2



Legend:

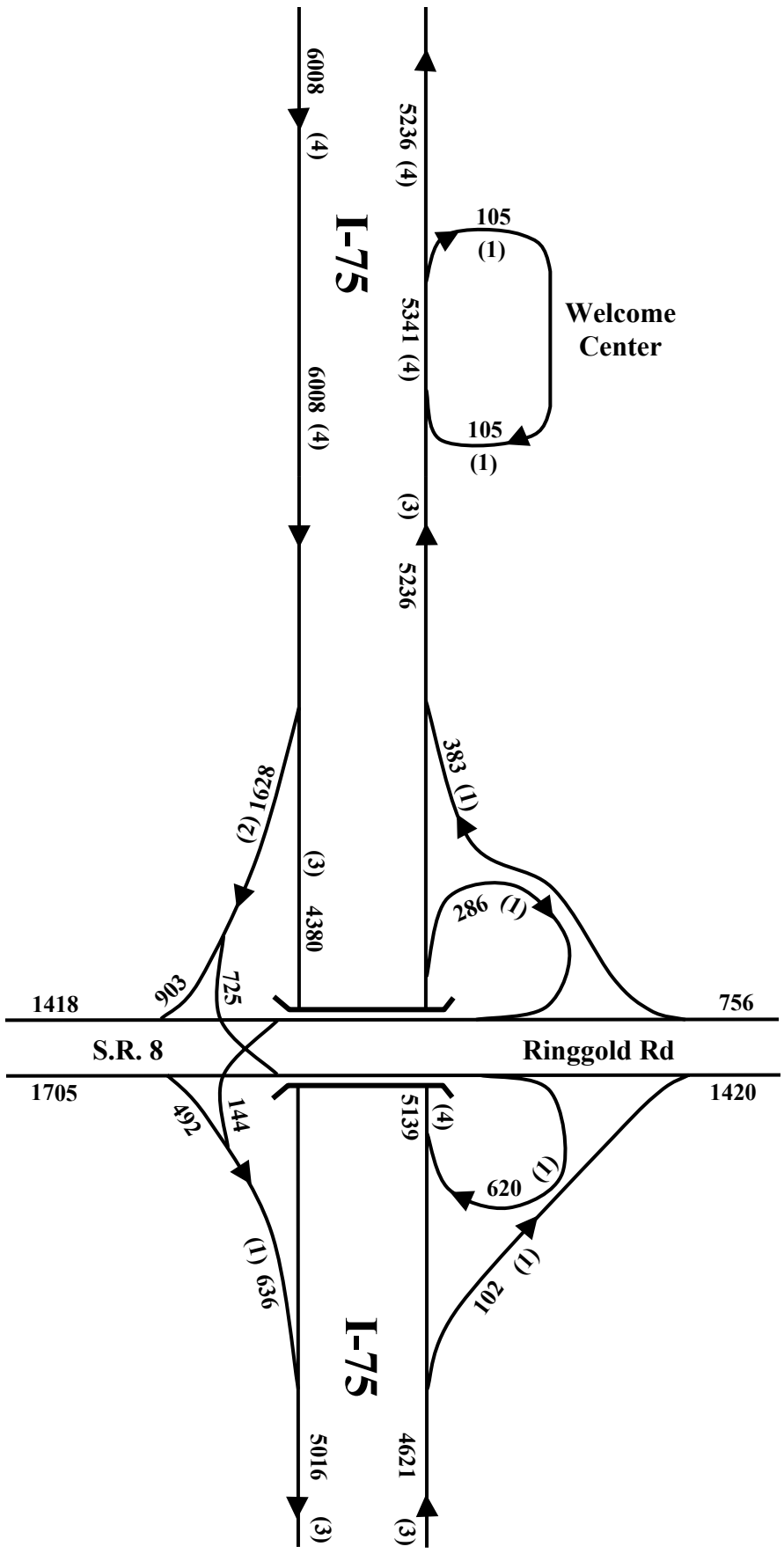
1000 - 2005 A.M. Design Hour Volume

(1) - Number of Lanes

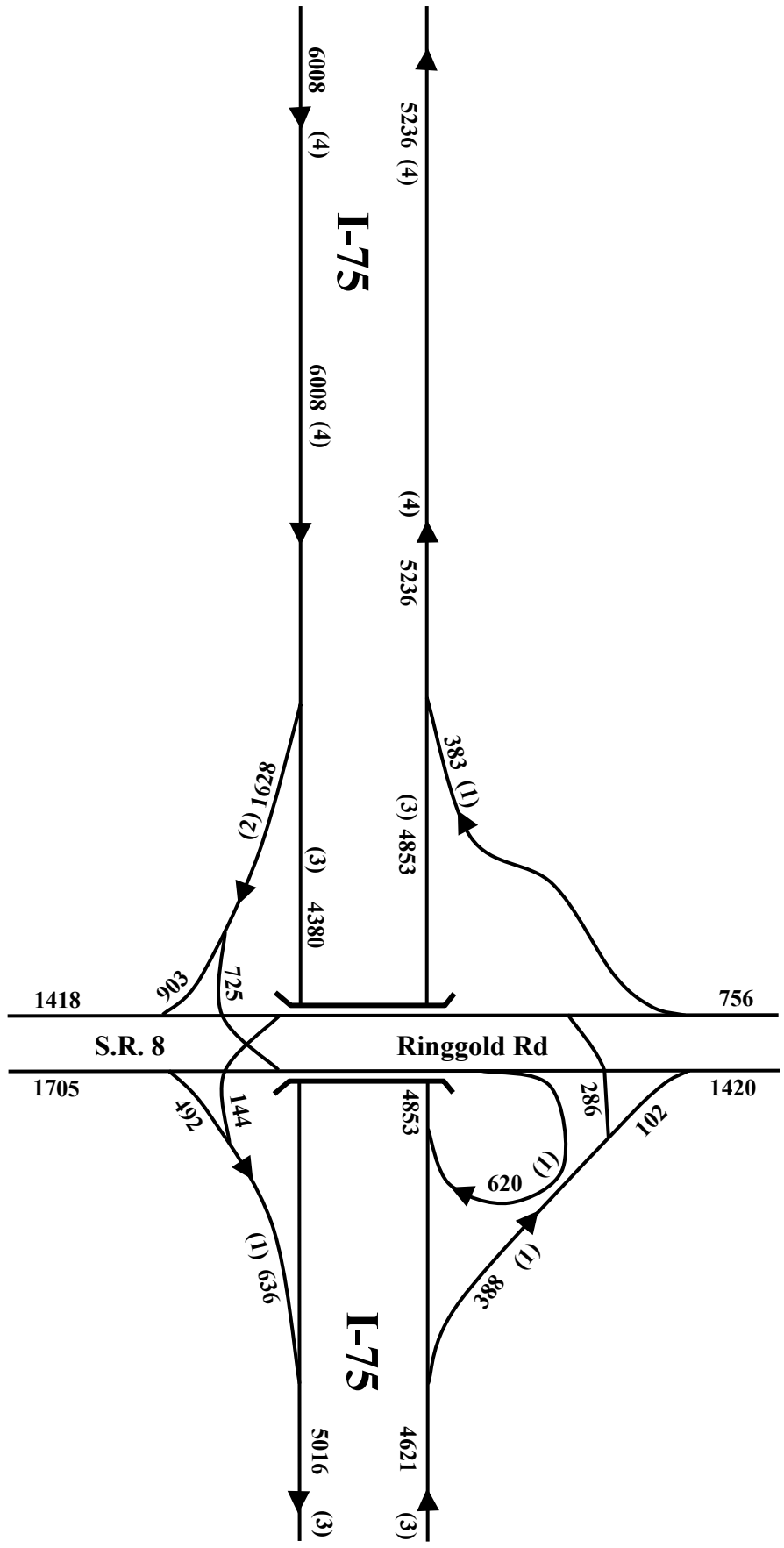
	I-24/I-75 Interchange Modification Study	**2005 A.M. Design Hour Traffic with Preliminary Short-Range Improvements** *I-75/S.R. 8 (Ringgold Road) Interchange*	**Figure 13**

Not to Scale

Existing Conditions



With Improvements 1 & 2



Legend:

1000 - 2005 P.M. Design Hour Volume

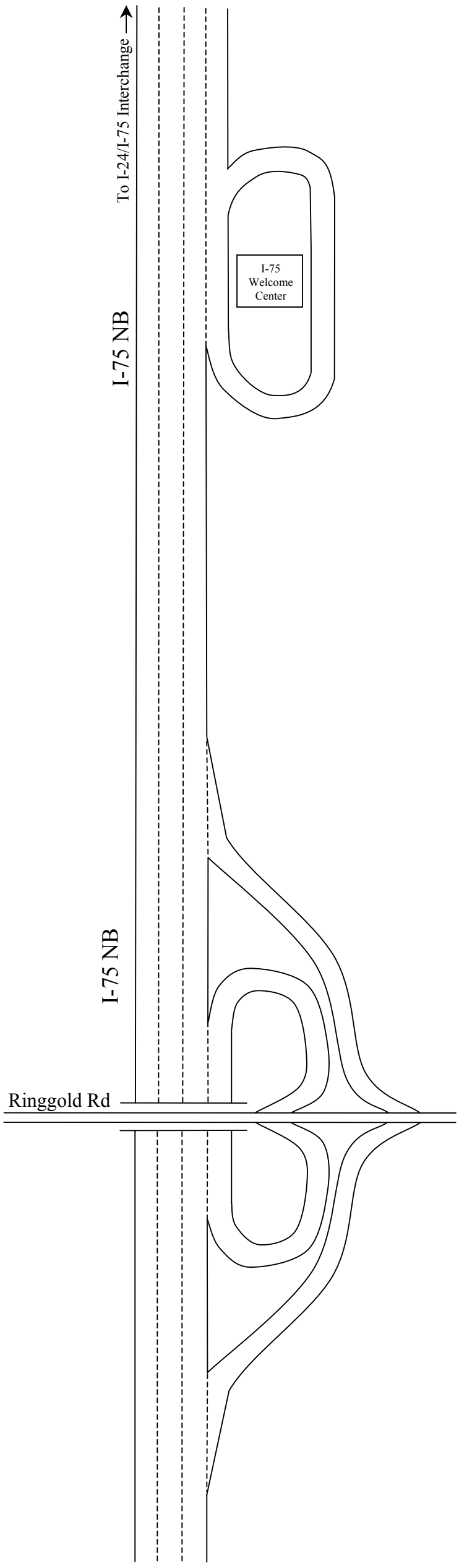
(1) - Number of Lanes

	I-24/I-75 Interchange Modification Study	**2005 P.M. Design Hour Traffic with Preliminary Short-Range Improvements** *I-75/S.R. 8 (Ringgold Road) Interchange*	**Figure 14**

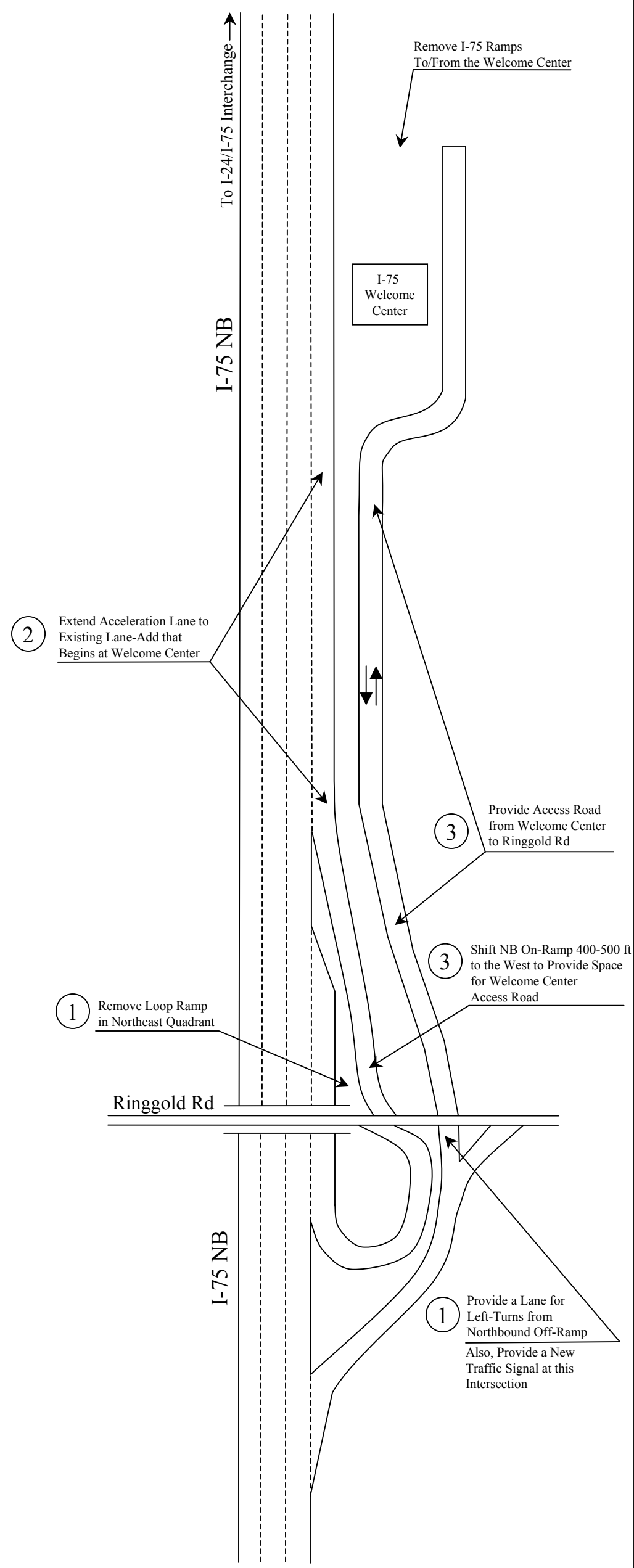
N

Not to Scale

Existing Conditions



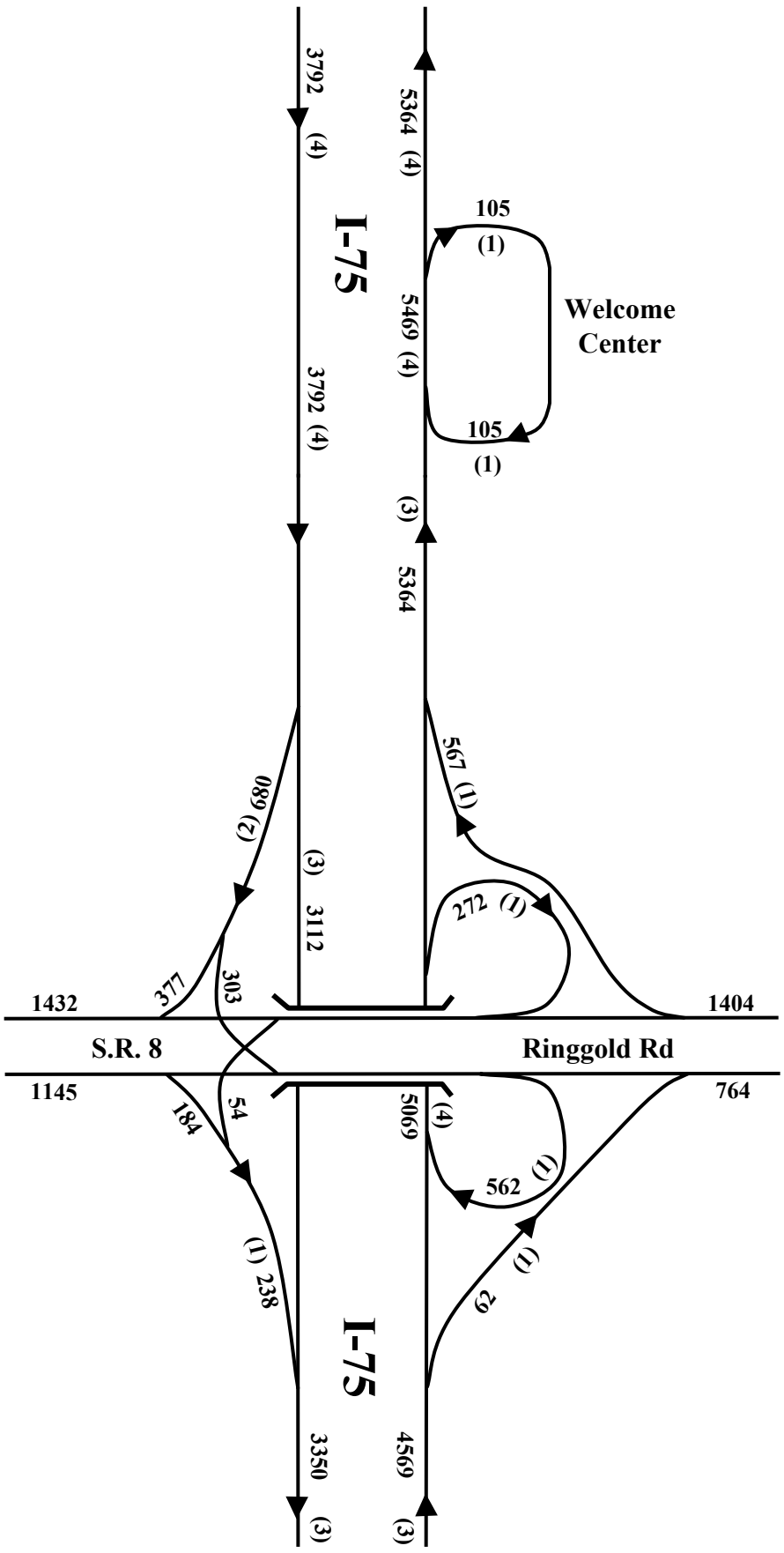
With Improvements 1, 2 & 3



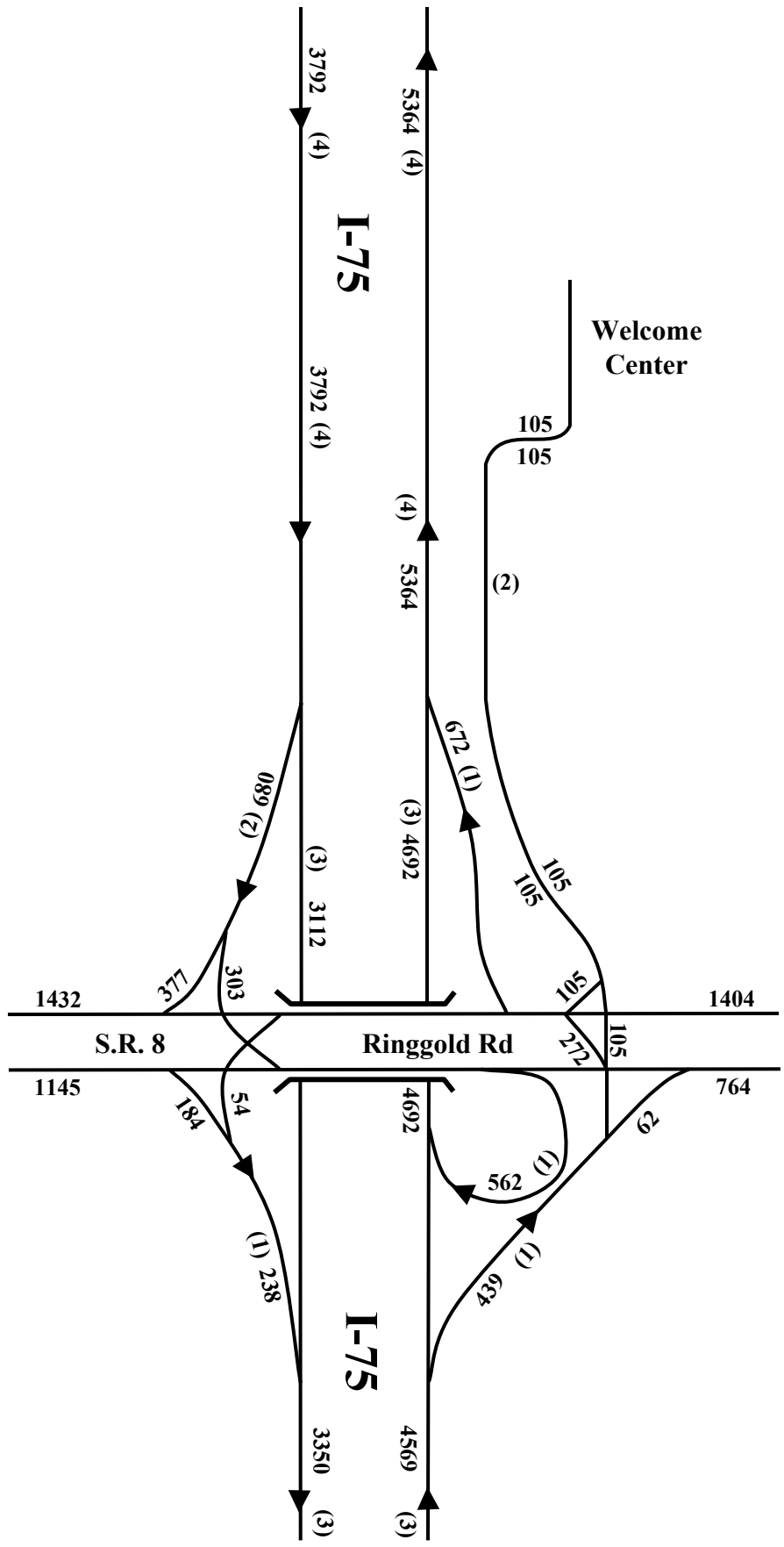
	I-24/I-75 Interchange Modification Study	**Preliminary Short-Range Improvements** ***I-75/S.R. 8 (Ringgold Road) Interchange***	**Figure 15**

Not to Scale

Existing Conditions



With Improvements 1, 2 & 3



Legend:

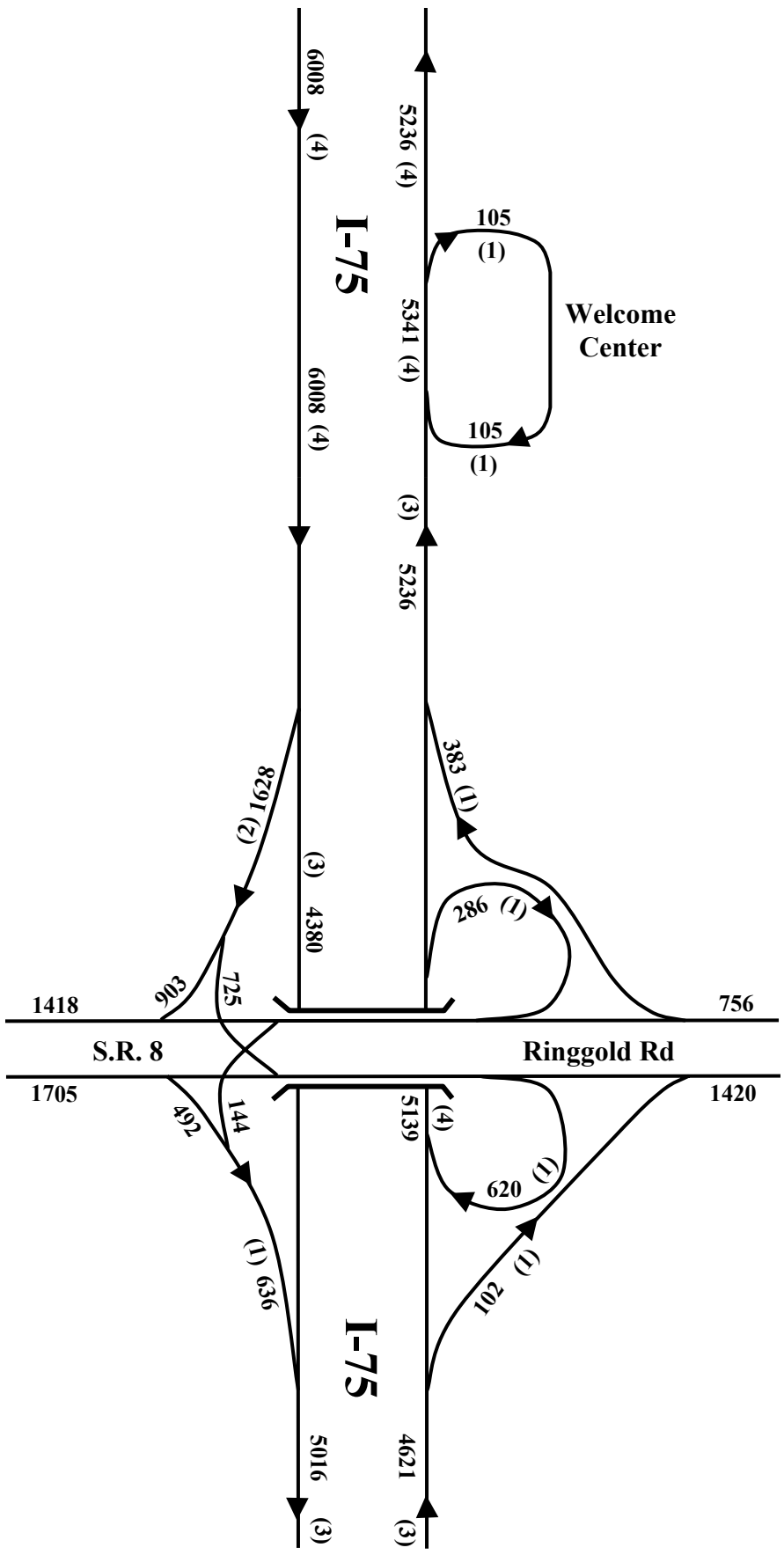
1000 - 2005 A.M. Design Hour Volume

(1) - Number of Lanes

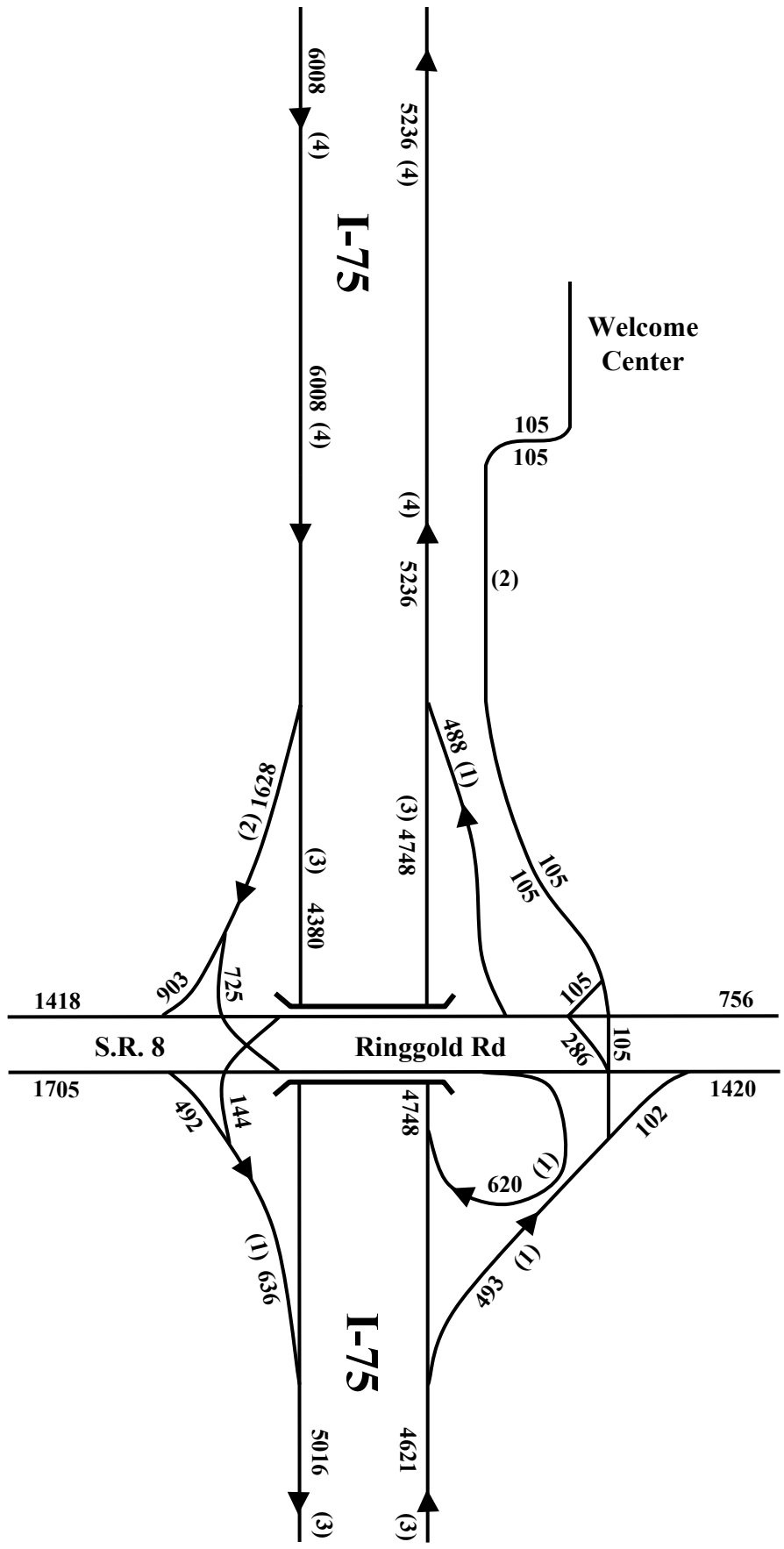
	I-24/I-75 Interchange Modification Study	**2005 A.M. Design Hour Traffic with Preliminary Short-Range Improvements** *I-75/S.R. 8 (Ringgold Road) Interchange*	**Figure 16**

Not to Scale

Existing Conditions



With Improvements 1, 2 & 3



Legend:

1000 - 2005 P.M. Design Hour Volume

(1) - Number of Lanes

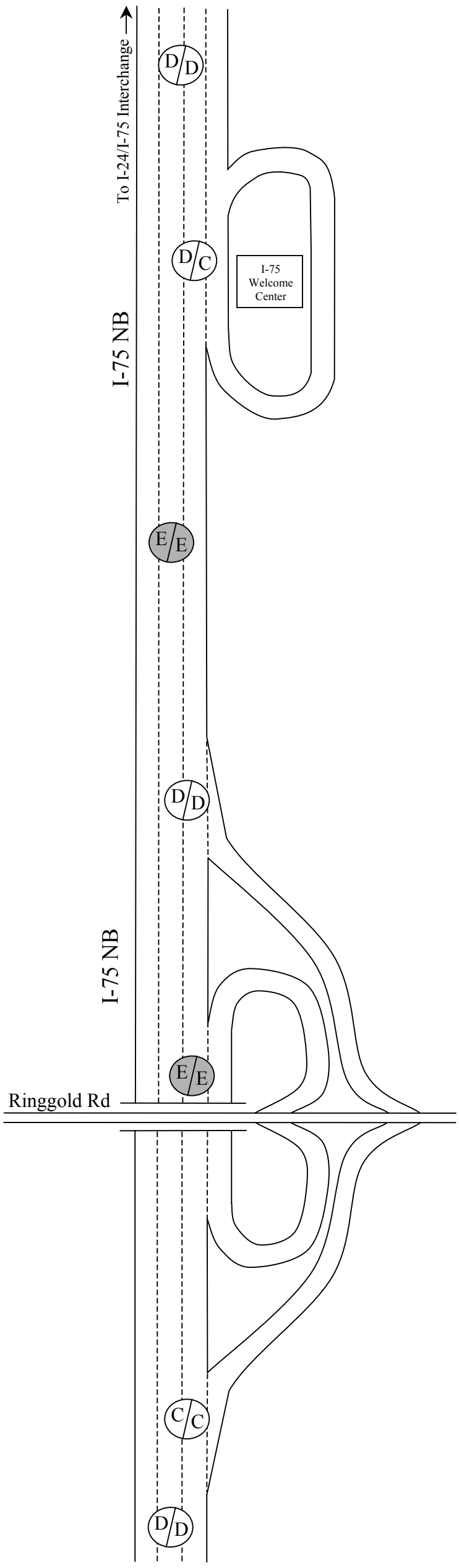
	I-24/I-75 Interchange Modification Study	**2005 P.M. Design Hour Traffic with Preliminary Short-Range Improvements** *I-75/S.R. 8 (Ringgold Road) Interchange*	**Figure 17**

Table 4
I-24/I-75 IMR
Chattanooga/Hamilton County
2005 Level of Service Analysis with Short-Range Improvements to I-75/Ringgold Road Interchange (1)

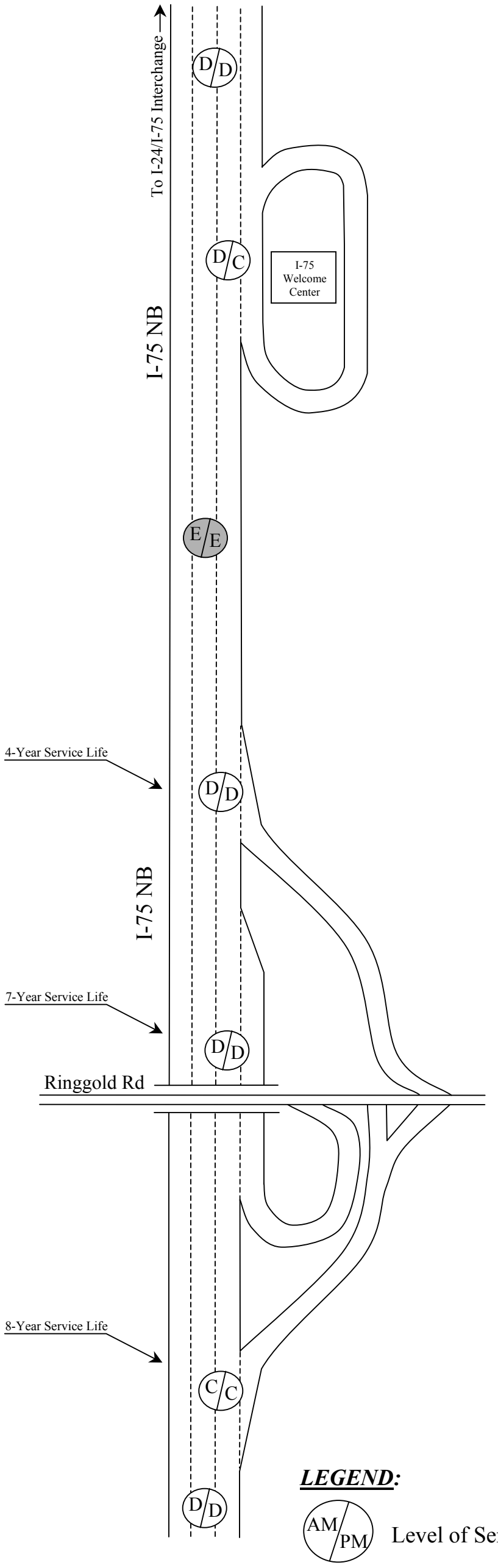
Location Description	Section Type	2005 AM Peak		2005 PM Peak	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
S.R. 8 (Ringgold Road) and I-75 Interchange					
S.R. 8 On-Ramp to I-75 NB	On-Ramp	30.6	D	29.4	D
S.R. 8 On-Ramp (Loop Ramp) to I-75 NB	On-Ramp	28.4	D	28.9	D
I-75 NB Off-Ramp to S.R. 8	Off-Ramp	27.5	C	27.8	C

Not to Scale

Existing Conditions



With Improvement 1



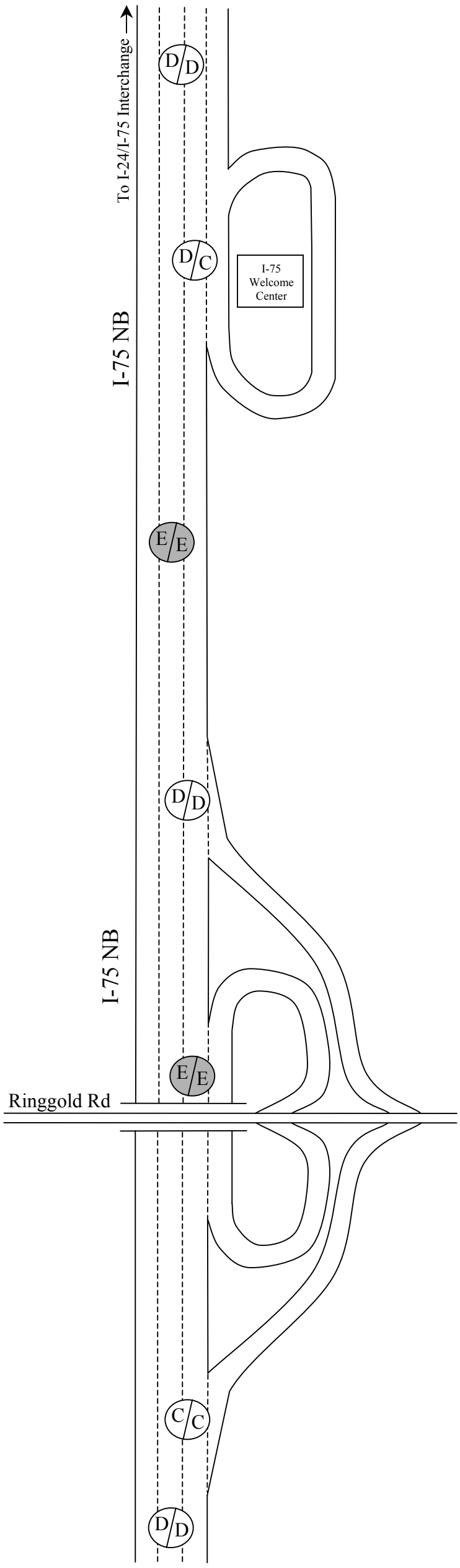
	I-24/I-75 Interchange Modification Study	**2005 Level of Service with Preliminary Short-Range Improvements** *I-75/S.R. 8 (Ringgold Road) Interchange*	**Figure 18**

Table 5
I-24/I-75 IMR
Chattanooga/Hamilton County
2005 Level of Service Analysis with Short-Range Improvements to I-75/Ringgold Road Interchange (1 and 2)

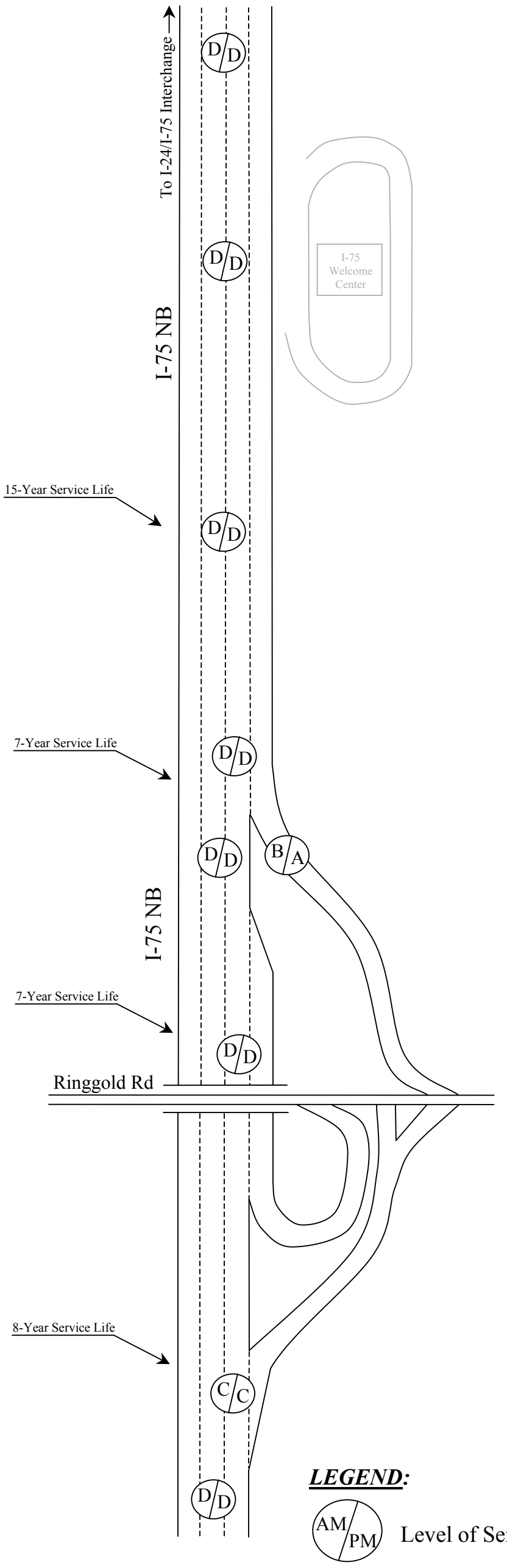
Location Description	Section Type	2005 AM Peak		2005 PM Peak	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-75 Freeway Sections					
I-75 NB north of S.R 8 Interchange	Basic Freeway	27.1	D	26.4	D
S.R. 8 (Ringgold Road) and I-75 Interchange					
I-75 NB, upstream of S.R. 8 On-Ramp	Major Merge	32.3	D	32.7	D
S.R. 8 Northbound On-Ramp	Major Merge	11.0	B	7.4	A
I-75 NB, downstream of S.R. 8 On-Ramp	Major Merge	27.1	D	26.4	D
S.R. 8 On-Ramp (Loop Ramp) to I-75 NB	On-Ramp	28.4	D	28.9	D
I-75 NB Off-Ramp to S.R. 8	Off-Ramp	27.5	C	27.8	C

Not to Scale

Existing Conditions



With Improvements 1 & 2



	I-24/I-75 Interchange Modification Study	**2005 Level of Service with Preliminary Short-Range Improvements** *I-75/S.R. 8 (Ringgold Road) Interchange*	**Figure 19**

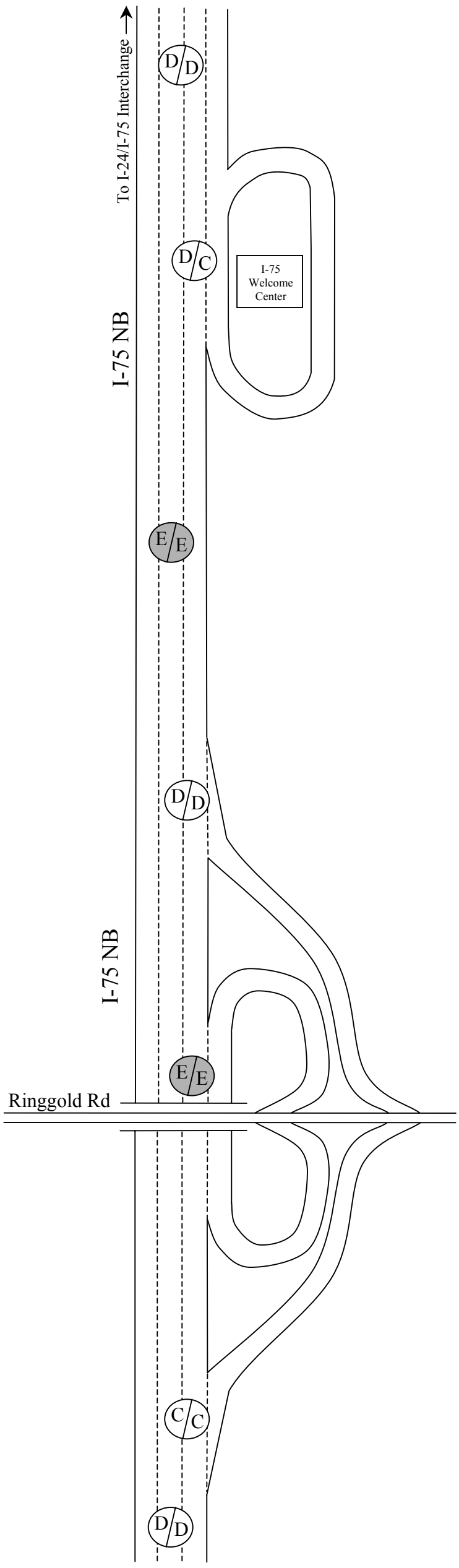
Table 6
I-24/I-75 IMR
Chattanooga/Hamilton County
2005 Level of Service Analysis with Short-Range Improvements to I-75/Ringgold Road Interchange (1, 2 and 3)

Location Description	Section Type	2005 AM Peak		2005 PM Peak	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-75 Freeway Sections					
I-75 NB north of S.R 8 Interchange	Basic Freeway	27.1	D	26.4	D
S.R. 8 (Ringgold Road) and I-75 Interchange					
I-75 NB, upstream of S.R. 8 On-Ramp	Major Merge	31.6	D	32.0	D
S.R. 8 Northbound On-Ramp	Major Merge	13.1	B	9.5	A
I-75 NB, downstream of S.R. 8 On-Ramp	Major Merge	27.1	D	26.4	D
S.R. 8 On-Ramp (Loop Ramp) to I-75 NB	On-Ramp	27.9	C	28.3	D
I-75 NB Off-Ramp to S.R. 8	Off-Ramp	27.7	C	28.0	C

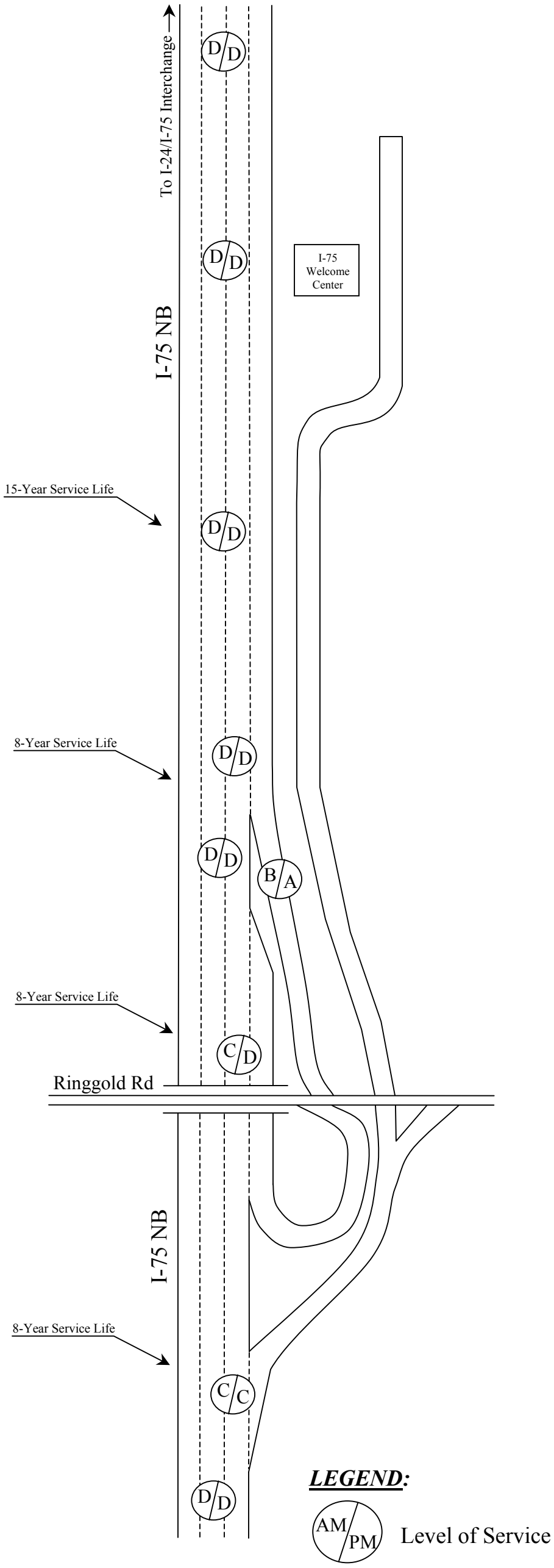
N

Not to Scale

Existing Conditions



With Improvements 1, 2 & 3



	I-24/I-75 Interchange Modification Study	**2005 Level of Service with Preliminary Short-Range Improvements** *I-75/S.R. 8 (Ringgold Road) Interchange*	**Figure 20**

APPENDIX C

MINUTES OF MEETINGS/RELATED CORRESPONDENCE

MEETING NOTES

SUBJECT: INTERCHANGE MODIFICATION STUDY, INTERSTATE 24 AND INTERSTATE 75, CHATTANOOGA, HAMILTON COUNTY

DATE: DECEMBER 11, 2000

ATTENDEES:
Bob Brown, Regional Director
Ray Rucker, Regional Maintenance Engineer
Glen Paschal, Regional Traffic Coordinator
Alan Wolfe, Regional Traffic Manager
Jim Johnston, Civil Engineer Manager 1
Bill Allen, City of Chattanooga
Harry Rice, PBS&J
Bill Wallace, PBS&J

This meeting was scheduled in response to a request from **TDOT Planning** to submit a **"Scope of Work"** and man-day estimate to evaluate the subject interchange area. The purpose of the meeting was to discuss this location and identify "problem spots" and study short-term solutions that would relieve these locations. This area was identified by Goal Team 2 as a "choke point" on the interstate system in Chattanooga.

It was agreed that the limits of the study should begin at the **Georgia State Line and extend to the Moore Road interchange on I-24 and to the Chickamauga Creek Bridge on I-75.** Traffic assignments (present and future) will be developed for this study area. Capacity analysis and Level of Service calculations will be done to determine traffic operations for present and future traffic volumes under existing conditions. Accident data will be obtained and plotted on aerial photography to identify accident prone locations and the type of accidents that are occurring. Traffic volumes will also be shown on aerial photos.

The "ultimate design" scheme developed by Arcadis for this section will be overlaid on the aerial photos in order that any interim improvement recommendations can be evaluated for compatibility with the ultimate scheme.

The initial problem locations identified by the group that needs attention are summarized as follows:

1. *I-75/Ringgold Road interchange* – weave section between the back-to-back loop ramps
2. *I-75 Welcome Center* – On-off ramps and the proximity to the Ringgold Road interchange and the I-24/75 directional.

3. *I-75 north to I-24 east lane drop* – This movement transitions form 2 lanes to 1 lane as it approaches the Spring Creek Road bridge due to the horizontal clearance under the bridge.
4. *Truck rollover problem* on I-75 northbound movement and the I-75 southbound movement.
5. *Motorist information needs* for negotiating this area – ITS applications need to be considered.

It was agreed that the consultant would coordinate with **GDOT** on their future plans for I-75. Also, the **University of Tennessee Transportation Research Center** has conducted research on truck rollover accidents and the results of that study will be obtained and reviewed. Wetlands in the directional interchange area were identified as a major issue.

A "Scope of Work" and man-day estimate will be prepared and submitted to TDOT for review.

MEMORANDUM

TO: Files

FROM: Bill Wallace

SUBJECT: I-24/75 Interchange Study (Choke Points), Hamilton County, Meeting to Review Traffic Analysis

DATE: July 31, 2001

A meeting was held in TDOT's 9th Floor Conference Room at 1:30 PM, July 25, to discuss the subject project. In attendance were:

Bill Hart	**TDOT**
Matt Ashby	**TDOT**
Charles Graves	**TDOT**
Steve Allen	**TDOT**
Jerry Moorhead	**TDOT**
Mark Doctor	**FHWA**
David Martin	**FHWA**
Bill Wallace	**PBS&J**
Scott Rumble	**PBS&J**

An overview of the study area was given aided by aerial photographs. Scott Rumble discussed the results of the traffic analysis of existing conditions and identification of "problem spots". The areas of traffic operations problems were:

1. **Lane Drop on the I-75 NB to I-24 WB movement**

2. **Weave Section at the I-75 Welcome Center**

3. **Weave Section at the I-75/Ringgold Road Interchange**

In addition to the HCS analysis results of the study area, Scott Rumble presented the results of the CORSIM evaluation simulating the traffic operations at each of the problem locations under existing conditions and with proposed modifications.

Steve Allen requested an analysis of an additional option, which would change the entrance and exit ramps at the Welcome Center consisting of back-to-back entrance, and exit, which would eliminate to weave section.

It was agreed to proceed with the study and develop functional plans and cost estimates on the following options:

1. **Lane Drop**
   - **Develop the additional lane to past the Moore Road off-ramp. (This will involve rebuilding the structures at Spring Creek Road and Moore Road).**
   - **Develop the additional lane to past the Belvoir Road off-ramp. (This will involve rebuilding the structures at Spring Creek Road, Moore Road, and Belvoir Road).**

2. **Welcome Center**
   - **Make Welcome Center modifications part of the I-75/Ringgold Road interchange improvements.**

3. **I-75/Ringgold Road Interchange**
   - **Eliminate the loop ramp in the NE quadrant; add lane between the NB quadrant loop on-ramp and the Welcome Center.**
   - **Eliminate the loop ramp in the NE quadrant; develop a new access road to serve the Welcome Center from Ringgold Road; add lane between the NB quadrant loop on-ramp and the Welcome Center.**

PBS&J will complete the analysis on the option discussed by Steve Allen and develop functional plans and costs for the options described above. After the functional plans are developed, a review (probably in Chattanooga) will be held.

Meeting Notes

Project / Location: I-75/I-24 Interchange Modifications;
I-75 Welcome Center/ Ringgold Road Interchange Modifications
PBS&J Project Number 630109

Meeting Location: TDOT Region 2 Headquarters

Date / Time: November 1, 2001, 9:30 A.M. E.S.T.

Purpose: APR Field Review

Attendees:
Matt Ashby – TDOT Planning
Dudley Daniel – TDOT Functional Design
Laura Fulton – TDOT GTA
Paul Lane – TDOT Environmental Planning
Alan Wolfe – TDOT Region 2 Traffic
Jim Johnston – TDOT Region 2 Design
Gary Chapman – TDOT Region 2 Survey
John Steele – FHWA
Bill Allen – City of Chattanooga
R.C. Hoff – City of Chattanooga
Bill Wallace – PBS&J, Inc.
Joe Chester – PBS&J, Inc.
Scott Rumble – PBS&J, Inc.
Robbie Stephens – PBS&J, Inc.
Joshua Dragan – PBS&J, Inc.

Discussion / Comment:

The meeting began with PBS&J providing a general overview / summary of the project. Next, the proposed lane additions for the ramp to I-24 westbound were discussed, then the proposed lane additions for I-24 west of the I-75 / 24 interchange were discussed.

It was noted that the costs for expanding the existing overpasses to accommodate the ultimate interchange configurations would be included in the cost estimates of this APR.

It was questioned why the additional fourth lane (added to I-24 westbound to accommodate the proposed two-lane I-24 westbound flyover) was carried beyond the Moore Road exit. PBS&J (Scott Rumble) explained that if the lanes were configured in this manner, there would be a risk of trapping unfamiliar motorists in that outside lane. Scott stated that this might cause an unsafe condition for those trapped motorist when they try to suddenly change lanes to continue on down I-24 westbound. Scott also stated that the sudden slowing or stopping of the trapped motorists could cause instability in the traffic flow along that section of I-24 westbound.

Based on the forgoing, the functional drawings for this portion of the project did not need corrections.

The meeting continued with PBS&J providing a general overview / summary of the I-75 / Welcome Center and Ringgold Road Interchange project. Two alternatives were presented. The first alternative represented access to the Welcome Center from I-75. The second alternative represented access to the Welcome Center from an access road originating from the Ringgold Road interchange.

Gary Chapman identified the area labeled as Camp Jordan Park near the proposed access road was very swamp-like and could possibly be designated as a wetland. Paul Lane mentioned that if the property to be taken was a park, it may need to undergo the full 4(f) process. John Steele (FHWA) said the full 4(f) process might not be necessary. He said depending on the size of the area that would be impacted, an abbreviated 4(f) statement could be done. PBS&J was asked to minimize the impact to this area as much as possible.

Dudley Daniel asked PBS&J to modify the single lane thru-left movement on the proposed I-75 Northbound off ramp to accommodate two lanes, one for traffic going into the Welcome Center access road and one for the left turn movement onto Westbound Ringgold Road. Dudley also asked that a barrier wall be shown between the existing on-ramp loop to I-75 located in the southeast quadrant of the interchange and the aforementioned proposed left turn and thru lanes.

Matt Ashby and Dudley Daniel asked if it was possible to move the gore area for the proposed I-75 northbound on-ramp further west to provide a smoother transition for vehicles coming from the welcome center as well as those motorists traveling through the proposed intersection. Motorists would be able to better understand the movements that they needed to make to reach their route of choice if they had some length between the beginning of the proposed ramp and the proposed intersection.

Dudley Daniel asked that the edge of pavement radii on the access road coming from the welcome center be shown to accommodate larger truck traffic.

Bill Wallace stated that comments identified on each portion of the project would be addressed and that cost estimates for the alternatives would be prepared and a draft copy of the APR would be sent to TDOT for approval within the next two to three weeks.

CHATTANOOGA URBAN AREA MAJOR ROUTE PLAN (Financially Constrained)

1996-1998 TRANSPORTATION IMPROVEMENT PROGRAM FOR TENNESSEE

	PROJECT	TERMINI	DESCRIPTION	COST (millions)	Fed. & State FUNDING SOURCE	COMPLETION YEAR
1	I-75	S.R. 153 to Shallowford Road	widen to 8 lanes	$ 40.00	NHS	1998
2	US-27	I-24 to Signal Mountain Blvd.	R-O-W & construct bridge	$ 25.00	NHS	1996
3	SR-153	I-75 TO SR-58	reconstruct to 6 lanes	$ 12.50	NHS	1998
4	US-27	Interchange at Harrison Lane	construct	$ 3.40	NHS	1996
5	I-75	Bonny Oaks interchange at I-75	Interchge/Conn. to Jenkins	$ 3.52	STA	1997
6	Signal Mountain Rd.	S.R. 27 to U.S. 27/29	widen to 7 lanes	$ 8.20	STA	2003
7	Shallowford RD	Polymer Drive to Chapman Rd.	add 1 lane and turn lanes	$ 2.08	STP	1996
8	Shallowford RD	Chapman Road to Lee Highway	Add 3 lanes	$ 8.06	STP	1996
9	Ringgold Road	From TN state line .3 miles N	add 3 lanes	$ 0.90	STP	1996
10	Roberts Mill Rd. Bridge	Parker Rd. to Jackson Rd.	replace bridge	$ 0.25	STP	1996
11	Edwards Point Rd.	Sig. Mtn city lim. to Shack Rg. Rd.	reconstruct	$ 0.70	STP	1996
12	Ashland Terrace	Norcross Rd. to Chatt city limits	add 3 lanes	$ 5.42	STP	1998
13	Shallowford Rd.	Gunbarrel Rd. to Jenkins Rd.	add 3 lanes	$ 3.30	STP	1998
14	Coll Dr. E./Coll Dr. W.	Apison Pk near Wilkinson Rd.	rehab and resurface	$ 0.89	STP	1996
15	MiddleValley Road	7500 blk. at Gann-flatten rev.cur	reconstruct	$ 0.39	STP	1996
16	Dayton Pike	Tsati Terrace - Soddy Daisy city lm.	reconstruct/resurface	$ 2.06	STP	1998

1999 -2015 PROPOSED IMPROVEMENTS FOR TENNESSEE

17	I-24	Marion Co. line to GA state line	widen to 6 lanes	$ 1.10	NHS	2004
18	I-24	Georgia state line to S.R. 2	widen to 6 lanes	$ 11.20	NHS	2005
19	I-24	S.R. 2 to U.S. 27	widen to 6 lanes	$ 24.50	NHS	2004
* 20	I-24	U.S. 27 to I-75	widen/HOV to 10 lanes	$ 106.00	NHS	2005
* 21	I-75	Georgia state line to S.R. 153	widen/HOV to 8 lanes	$ 60.00	NHS	2000
22	I-75	Shallowford Road - Bonny Oaks Rd	widen to 6 lanes	$ 9.00	NHS	2002
23	I-75	Bonny Oaks to Ooltewah Interchange	widen to 6 lanes	$ 17.00	NHS	2003
24	Amnicola Highway	Battery Pl./13th St. to S.R. 153	reconstruct to 6 - 7 lanes	$ 24.70	NHS	2004
25	S.R. 153	Amnicola Hwy to S.R. 58	reconstruct to 6 lanes	$ 2.60	NHS	2002
26	I-75	Ooltewah interchange to Bradley Co.	widen to 6 lanes	$ 13.40	NHS	2004
27	S.R. 17 replacement	Alton Park Blvd. to GA 193	construct 5 lane facility	$ 11.90	NHS	2000
28	Rossville Blvd.	I-24 to 32nd Street	reconstruct to 7 lanes	$ 3.80	NHS	2004
29	Birchwood Pike (S.R. 312)	S.R. 60 to S.R. 58	widen to 12' lanes	$ 29.70	STA	2010
30	Hixson Pike	Sequoyah Access Rd.- E. of U.S. 27	widen to 12' lanes	$ 10.20	STA	2004
31	Hixson Pike	Masters Rd. to Lyons Lane	reconstruct to 5 lanes	$ 25.50	STA	2010
32	Hixson Pike	S.R. 153 to Northpoint Blvd.	reconstruct to 7 lanes	$ 1.90	STA	1999
33	Ridgeway/Taft Highway	Key Street to Sequatchie Co. line	reconstruct to 4 - 5 lanes	$ 20.10	STA	2001
34	Signal Mtn. Road	Glendale Dr. to Shoal Creek Rd.	reconstruct to 4 lanes	$ 4.00	STA	1999
35	Dayton Blvd./Cherokee Blvd.	Stringers Tunnel and approaches	reconstruct to 4 lanes	$ 36.10	STA	2003
36	Cummings Hwy (US 11/S.R. 2)	I-24 to E. of S.R. 318	reconstruct to 5 lanes/RR under	$ 7.10	STA	2010
37	Broad Street (U.S. 11/S.R. 2)	S.R. 17 to I-24	reconstruct to 5 lanes	$ 7.10	STA	2000
38	Ringgold Rd. (U.S. 41/S.R. 8)	Dover Lane to I-24	reconst to 6 - 7 lanes (tunnel)	$ 120.40	STA	2005
39	Dodson,Glass,Campbell, B.Oaks	3rd Street to S.R. 153	reconstruct to 5 lanes	$ 21.60	STA	2005
40	E. Brainerd Road	Lee Hwy. to I-75	reconstruct to 5 lanes	$ 5.80	STA	2001
41	S.R. 58	S.R. 153 to Cross Street	reconstruct to 5 lanes	$ 0.50	STA	1999
42	S.R. 58	Eller Rd. to Church Street	reconstruct to 7 lanes	$ 9.90	STA	2001
43	Bonny Oaks Road	S.R. 153 to I-75	reconstruct to 5 lanes	$ 15.60	STA	1999
44	Lee Highway (U.S. 11/S.R. 2)	Shallowford Road to Bonny Oaks	reconstruct to 5 lanes	$ 7.80	STA	2000
45	Old Lee Highway (S.R. 317)	I-75 to Apison Pike	reconstruct to 5 lanes	$ 7.80	STA	2001
46	Apison Pike (S.R.317)	Old Lee Highway to Ool./Ring Road	reconstruct to 5 lanes	$ 9.80	STA	2002
47	Ooltewah-Ringgold Road	Bill Reed Road to Apison Pike	reconstruct to 5 lanes	$ 3.50	STA	2005
48	Ooltewah-Ringgold Road	Bill Reed Rd. to GA state line	reconstruct to 4 lanes	$ 18.00	STA	2010
49	E. Brainerd Road	E. of Graysville Rd. to Bel Air Rd.	reconstruct to 5 lanes	$ 7.40	STA	2000
50	Apison Pike	Ooltewah-Ringgold Rd. to College Dr.	reconstruct to 5 lanes	$ 4.90	STA	2002
51	S.R. 317	Wesleyan Road to Bradley Co. line	widen to 12' lanes	$ 2.00	STA	2003
52	Anderson Road (S.R. 60)	Bradley Co. line to S.R. 58	reconstruct to 4 lanes	$ 3.20	STA	2005
53	Boy Scout Road	Middle Valley Road to S.R. 153	widen to 12' lanes	$ 2.53	STP	2005
54	Hixson Pike	Lupton Dr. to Haywood Avenue	widen to 12' lanes	$ 1.82	STP	2002
55	Holtzclaw Ave	Main St. to I-24	add 2 lanes	$ 2.60	STP	2000
56	Spring Creek Road	Brainerd Rd. To Ringgold Rd	add 3 lanes	$ 4.75	STP	2000
57	Mack Smith Road	Ringgold Rd. to state line	add 2 lanes	$ 0.41	STP	1999
58	Shallowford Road	Wilcox Blvd to Polymer Dr.	add 3 lanes	$ 5.00	STP	2001
59	Collegedale Conn.	Apison Pk. to Oolte/Ringg. Rd.	construct 4 lanes	$ 2.90	STP	2000
60	Harrison Connector	Mtn. View. Rd. to Snow Hill at Short Tail Spr.	construct 2 lanes	$ 3.53	STP	2006
61	Ooltewah-Georgetown Rd.	Lee Hwy. to Mtn. View Road	add 1 lane	$ 2.50	STP	2015
62	38th St. Extension	38th St. to Cummings Highway	construct 4 lane facility	$ 2.80	STP	2000
63	Airport Road	Shallowford Rd. to Lee Highway	add 3 lanes	$ 3.10	STP	1999
64	E. Brainerd Road	Kenmore to Jenkins Road	add 2 lanes	$ 2.03	STP	1999
65	Graysville Rd. Ext	Jenkins Road to E.Brainerd Road	construct 2 lane facility	$ 1.20	STP	2002
66	Graysville Road	E.Brainerd Rd. to GA state line	widen to 12' lanes	$ 0.54	STP	2002
89	Wilcox Boulevard	Holtzclaw Ave. to Wilcox Tunnel	widen to 5 lanes	$ 1.80	STP	2005
90	Wilcox Boulevard	Shallowford Road to Wilcox Tunnel	widen to 5 lanes	$ 3.40	STP	2005
91	US-27	I-24 to Signal Mountain Boulevard	reconstruct to 8 lanes	$ 87.0	NHS	2001

1996-1998 TRANSPORTATION IMPROVEMENT PROGRAM FOR GEORGIA

APPENDIX D

CHECKLIST OF DETERMINANTS FOR LOCATION STUDY

I-24/I-75 INTERCHANGE MODIFICATION STUDY
CHATTANOOGA, HAMILTON COUNTY

CHECKLIST OF DETERMINANTS FOR LOCATION STUDY

If preliminary field reviews indicate the presence of any of the following facilities or ESE categories, place a "X" in the blank opposite the item. Where more than one alternate is to be considered, place its letter designation in the blank.

1. Agricultural land usage..... _____
2. Airport (existing or proposed)..... _____
3. Commercial area, shopping center..... _____
4. Floodplains..... X
5. Forested land..... _____
6. Historical, archaeological, cultural, or natural landmark, or cemeteries..... _____
7. Industrial park, factory..... _____
8. Institutional usage's
   a. School or other educational institution..... _____
   b. Church or other religious institution..... _____
   c. Hospital or other medical facility..... _____
   d. Public building, e.g., fire station..... _____
   e. Defense installation..... _____
9. Recreational usage's
   a. Park or recreational area, State Natural Area.... X
   b. Wildlife refuge or wildlife management area..... _____
10. Residential establishment..... _____
11. Urban area, town, city, or community..... X
12. Waterway, lake, pond, river, stream, spring, wetland.. X
    Permit required: Coast Guard _____ Section 404 _____
    Section 10 _____ TVA Section 26a review _____
    NPDES X Aquatic Resource Alteration Permit X
    Class V Injection Wells _____
13. Location coordinated with local officials..... X
14. Railroad Crossings..... _____
15. Hazardous Material Site..... _____
    (Underground Storage Tanks - U.S.T.)
16. Other _____..... _____

APPENDIX E

FUNCTIONAL LAYOUTS

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TENN.	YEAR	SHEET NO.
	2001	1
FED. AID PROJ. NO.		
STATE PROJ. NO.		

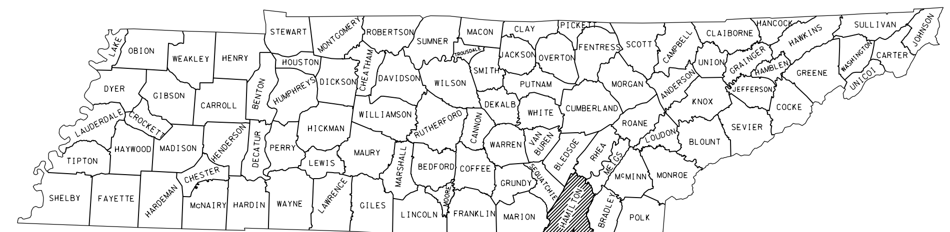
Index Of Sheets

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING AND DEVELOPMENT

HAMILTON COUNTY

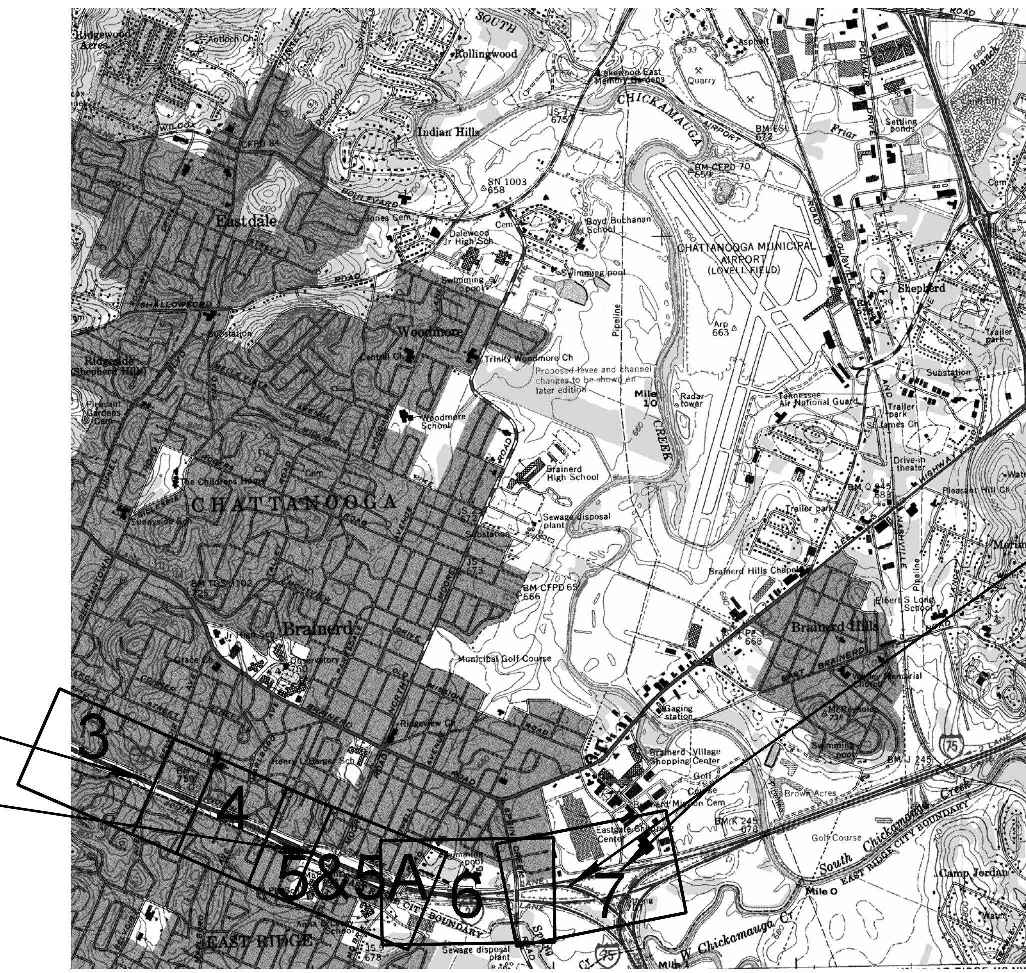
PROPOSED IMPROVEMENTS
I-24 EAST, I-75 NORTH & I-75 WEST
BELVOIR ROAD TO I-24/I-75 JUNCTION
ALTERNATES 2A & 2B

STATE HIGHWAY NO. F.A.H.S. NO.



PROJECT LOCATION

N



SCALE: 1"= 4000'

NOTE: ALTERNATE 2A TRANSITIONS INTO THE EXISTING LANES OF I-24 WB AT THE MOORE ROAD INTERCHANGE.
ALTERNATE 2B TRANSITIONS INTO THE EXISTING LANES OF I-24 WB BEYOND THE BELVOIR ROAD OVERPASS.

APPROVED: ______________________
DIRECTOR, DESIGN DIVISION

DATE: ______________________

APPROVED: ______________________
COMMISSIONER

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, 1995 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT

TDOT ROAD SP. SV. 2 ______________________

DESIGNER PBS&J ______________________ CHECKED BY ______________________

P.E. NO. ______________________

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

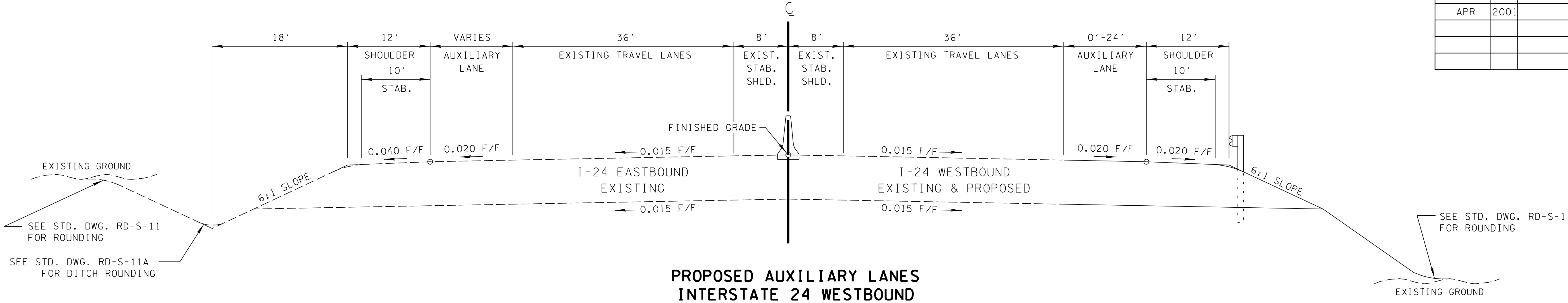
DIVISION ADMINISTRATOR DATE

$$$$DGNSPEC$$$
$$$$SYTIME$$$$$$$

Survey & Design Division

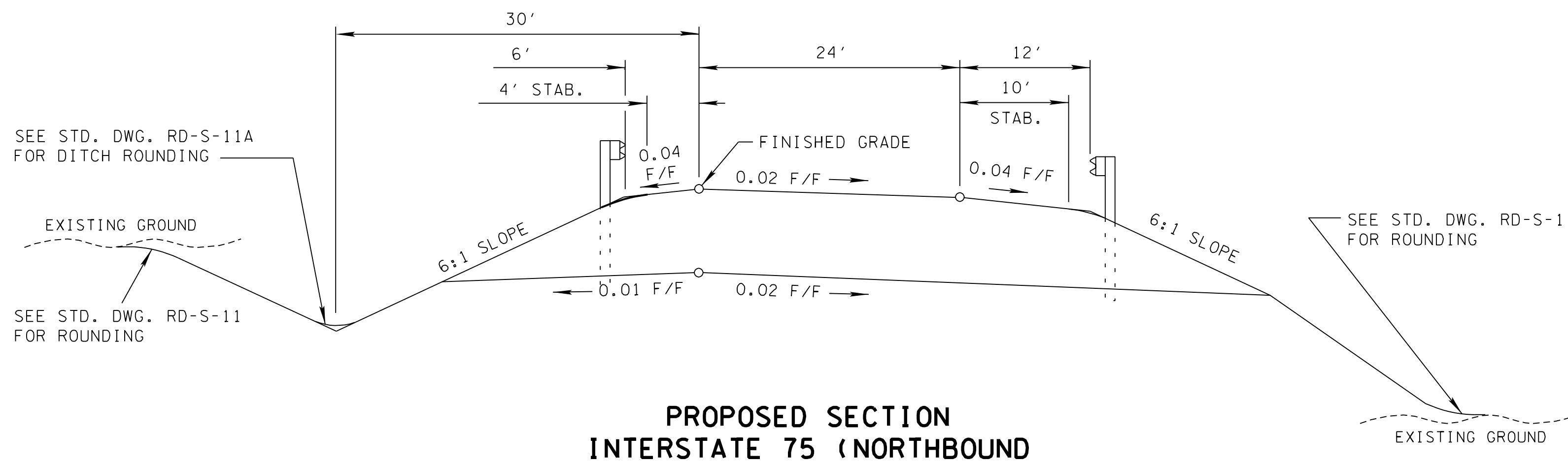
TENNESSEE D.O.T.	DESIGN DIVISION	FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		2



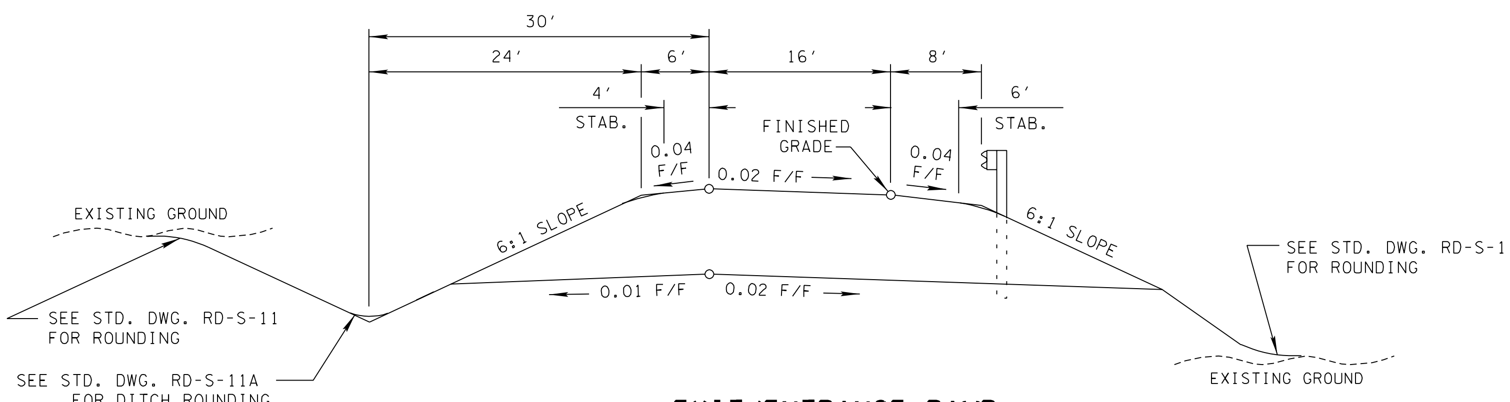
PROPOSED AUXILIARY LANES
INTERSTATE 24 WESTBOUND

(BASED ON STD. DWG. RD-TS-5B)



PROPOSED SECTION
INTERSTATE 75 (NORTHBOUND & WESTBOUND)

(BASED ON STD. DWG. RD-TS-5A)



EXIT/ENTRANCE RAMP
INTERSTATE 24 WESTBOUND

(BASED ON STD. DWG. RD-TS-4)

$$$$SYTIME$$$$$$
$$$$DGNSPEC$$$

Survey & Design Division

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

TYPICAL SECTIONS

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		3

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

PROPOSED LAYOUT

I-24 WESTBOUND
ALTERNATIVE 2B

SCALE 1"=200'

$$$$SYTIME$$$$$$
$$$$DGNSPEC$$

Survey & Design Division

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		4

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

PROPOSED LAYOUT

I-24 WESTBOUND
ALTERNATIVE 2B

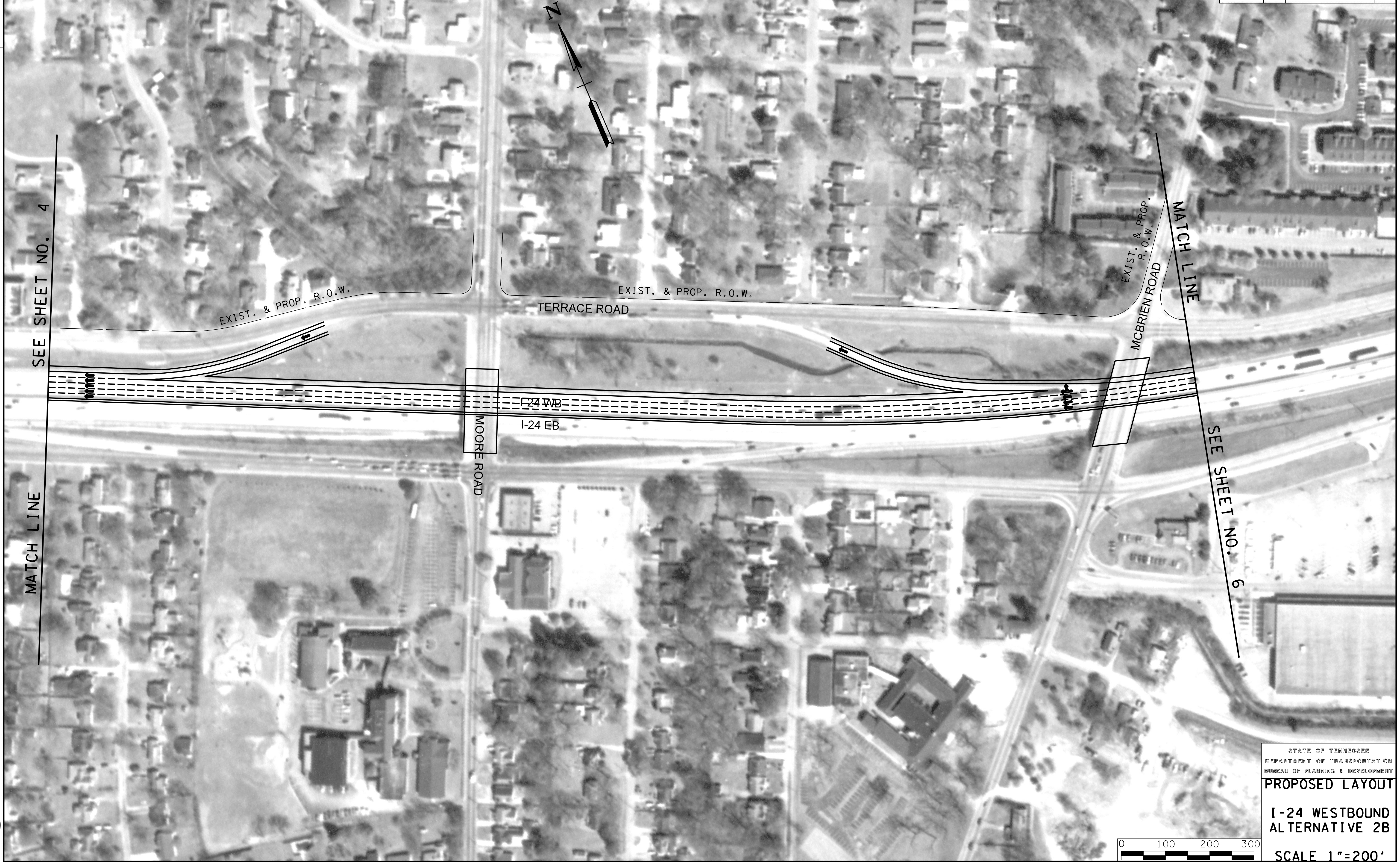
SCALE 1"=200'

$$$$SYTIME$$$$$$
$$$$DGNSPEC$$

Survey & Design Division

TENNESSEE D.O.T.	DESIGN DIVISION	FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		5



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

PROPOSED LAYOUT

I-24 WESTBOUND
ALTERNATIVE 2B

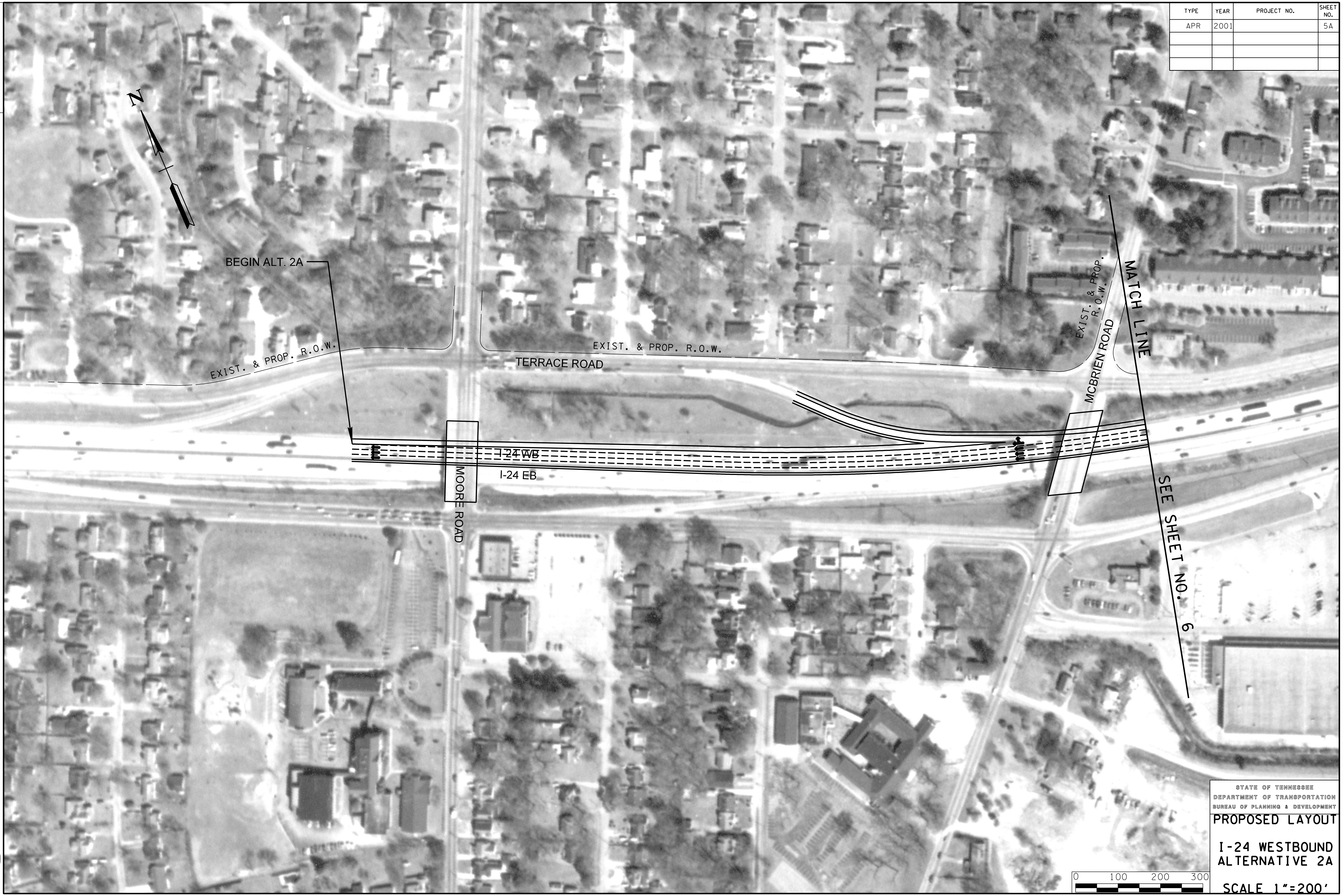
SCALE 1"=200'

$$$$SYTIME$$$$$$$
$$$$DGNSPEC$$

Survey & Design Division

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		5A



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

PROPOSED LAYOUT

I-24 WESTBOUND ALTERNATIVE 2A

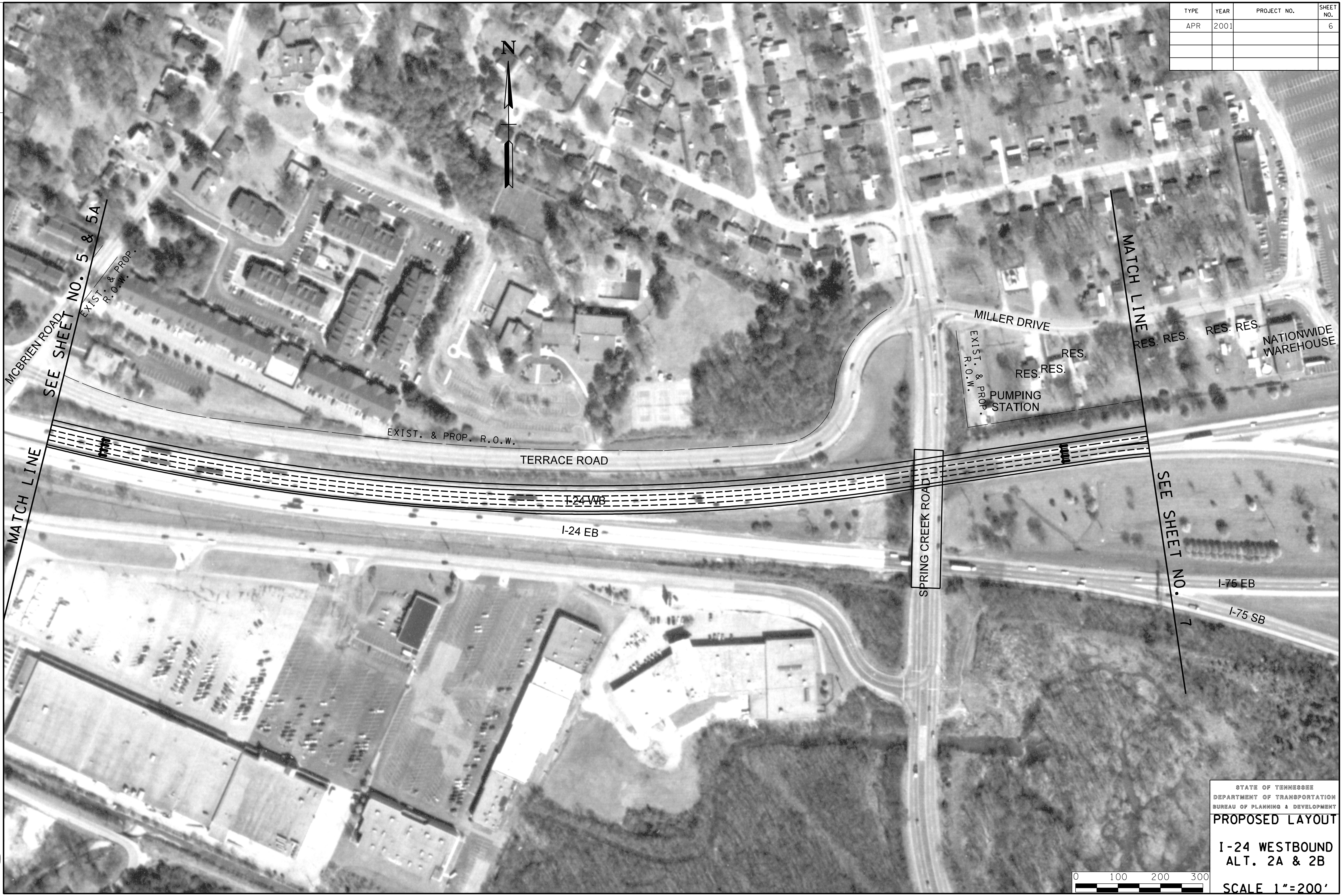
SCALE 1"=200'

$$$$SYTIME$$$$$$
$$$$DGNSPEC$$

Survey & Design Division

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		6



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

PROPOSED LAYOUT

I-24 WESTBOUND
ALT. 2A & 2B

SCALE 1"=200'

$$$$SYTIME$$$$$$
$$$$DGNSPEC$$$

Survey & Design Division

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		7

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

PROPOSED LAYOUT

I-24 WESTBOUND
ALT. 2A & 2B

SCALE 1"=200'

$$$$SYTIME$$$$$$$
$$$$DGNSPEC$$

Survey & Design Division

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

Index Of Sheets

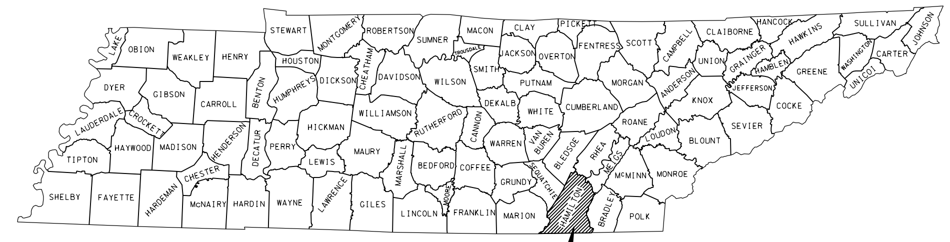
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING AND DEVELOPMENT

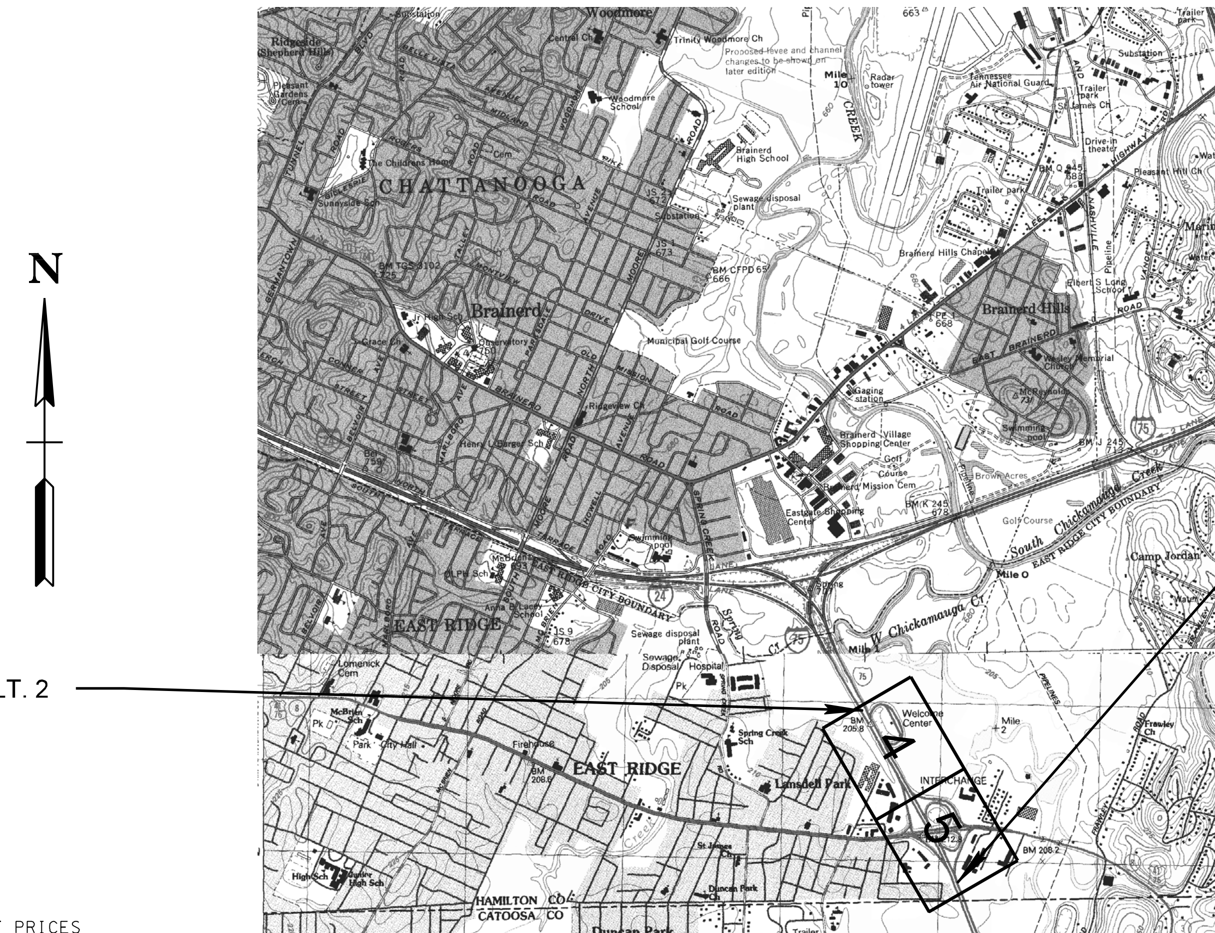
TENN.	YEAR	SHEET NO.
	2001	1
FED. AID PROJ. NO.		
STATE PROJ. NO.		

HAMILTON COUNTY

PROPOSED IMPROVEMENTS
I-75 NORTH AT RINGGOLD ROAD
INTERCHANGE AND WELCOME CENTER
ALTERNATIVE 2

STATE HIGHWAY NO. F.A.H.S. NO.





SCALE: 1"= 4000'

APPROVED: ______________________

DIRECTOR, DESIGN DIVISION

DATE: ______________________

APPROVED: ______________________

COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

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, 1995 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT

TDOT ROAD SP. SV. 2 ______________________

DESIGNER PBS&J CHECKED BY ______________________

P.E. NO. ______________________

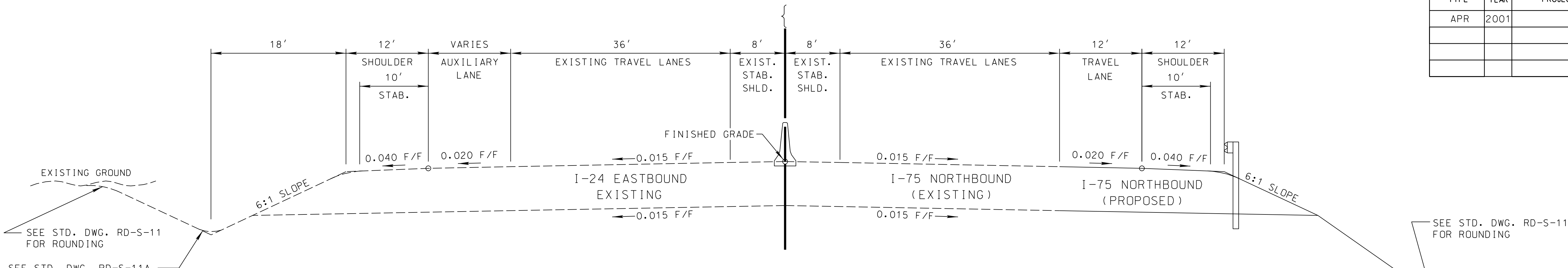
$$$$DGNSPEC$$$
$$$$SYTIME$$$$$$$$

Survey & Design Division

TENNESSEE D.O.T.
DESIGN DIVISION

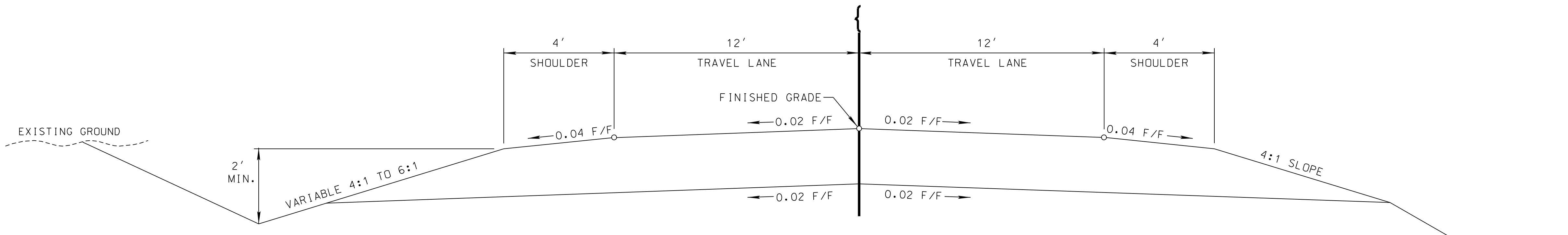
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		2



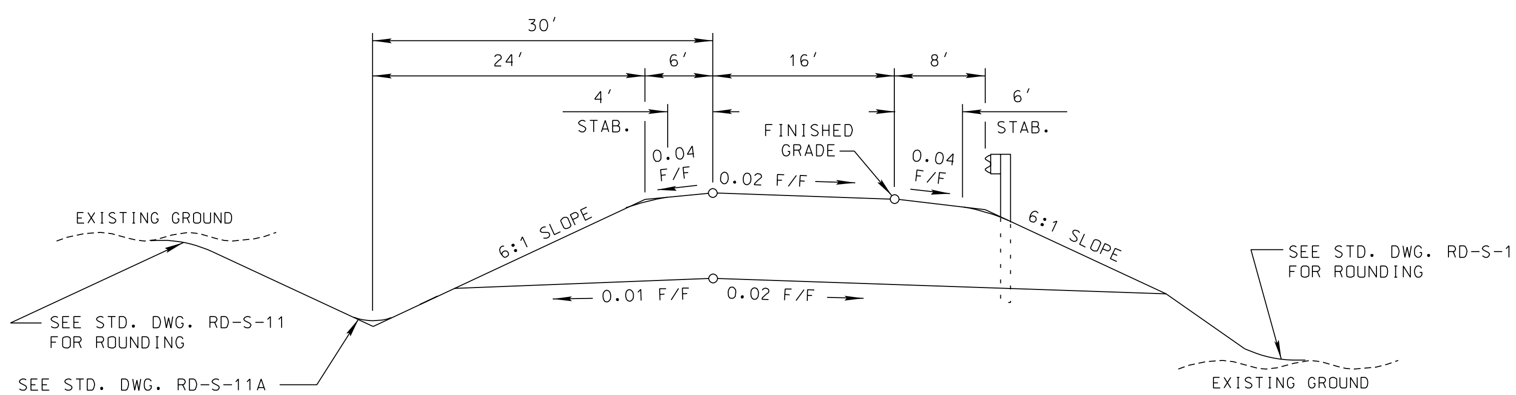
PROPOSED AUXILIARY LANES
INTERSTATE 75 NORTHBOUND

(BASED ON STD. DWG. RD-TS-5B)



PROPOSED LANES
WELCOME CENTER ACCESS ROAD

(BASED ON STD. DWG. RD-TS-2)



EXIT/ENTRANCE RAMP
INTERSTATE 75 NORTHBOUND

(BASED ON STD. DWG. RD-TS-4)

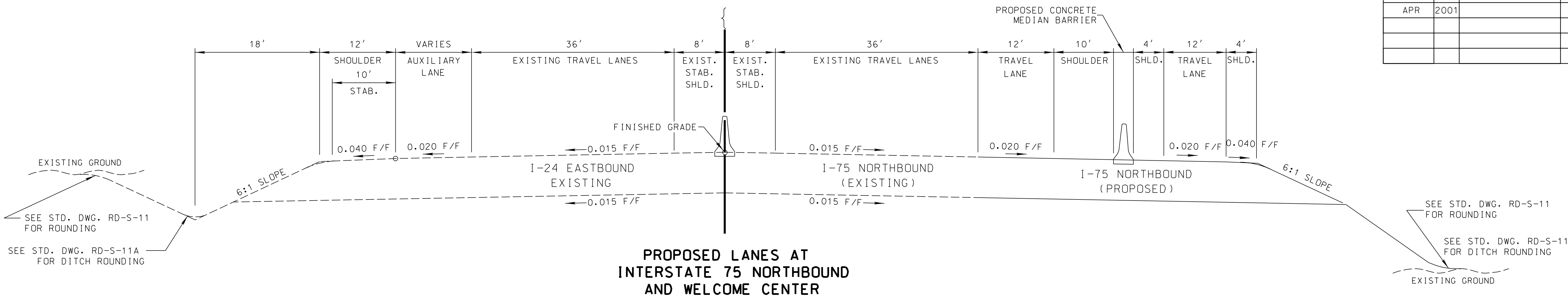
$$$$SYTIME$$$$$$
$$$$DGNSPEC$$$

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

TYPICAL SECTIONS

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		3



PROPOSED LANES AT INTERSTATE 75 NORTHBOUND AND WELCOME CENTER

(BASED ON STD. DWG. RD-TS-5B)

$$$$SYTIME$$$$$$$
$$$$DGNSPEC$$$$$$$$$$$$$$$$$$$$

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

TYPICAL SECTIONS

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		4

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

PROPOSED LAYOUT

I-75 AT RINGGOLD RD AND WELCOME CENTER ALTERNATIVE 2

SCALE: 1" = 200'

$$$$SYTIME$$$$$$
$$$$DGNSPEC$$$

Survey & Design Division

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
APR	2001		5

RES.
RES.
ECONO LODGE
SUBSTATION
RES.
RAMADA INN
ROAD TO CAMP JORDAN PARK
WETLANDS
EXISTING ACCESS CONTROL FENCE
EXISTING ACCESS CONTROL FENCE
END ALT. 2
PUBLIC STORAGE
KNIGHT'S INN
HOWARD JOHNSON'S MOTEL
KNIGHT'S INN
PROPOSED ACCESS CONTROL FENCE
EXISTING ACCESS CONTROL FENCE
PROPOSED ACCESS ROAD
PROPOSED RAMP TO I-75
END ALT. 2
BARRIER WALL
I-75 NORTH
I-75 SOUTH
END ALT. 2
SEE SHEET NO. 4
MATCH LINE
RED ROOF INN
ANTIQUE MALL
WALLY'S FAMILY DINING
RINGGOLD ROAD (S.R. 8)
ABAND. BLDG.
OFFICE PARK BUILDINGS

$$$$SYTIME$$$$$$$$
$$$$DGNSPEC$$$$$$$$

Survey & Design Division

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING & DEVELOPMENT

PROPOSED LAYOUT

I-75 AT RINGGOLD RD AND WELCOME CENTER ALTERNATIVE 2

SCALE: 1" = 200'

0 100 200 300