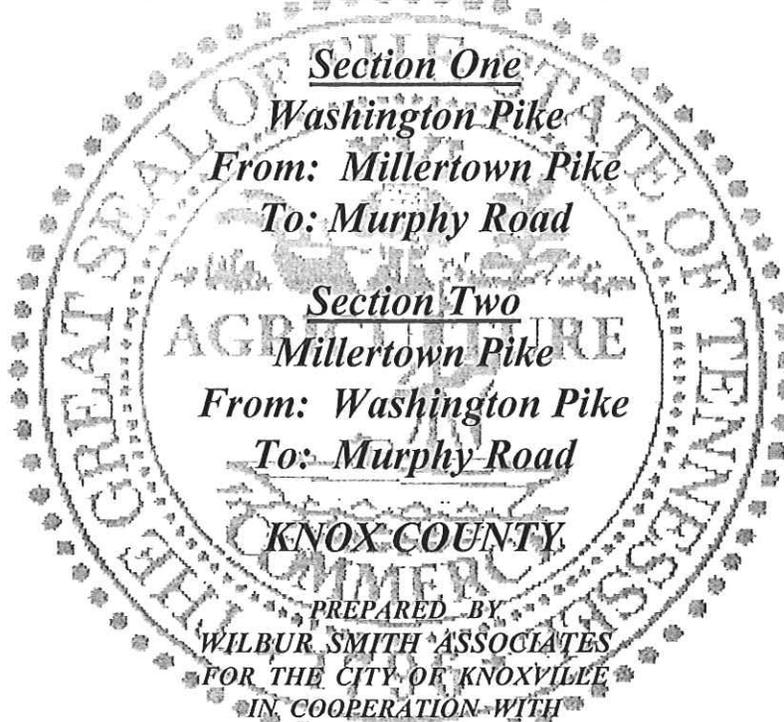


ADVANCE PLANNING REPORT

WASHINGTON PIKE AND MILLERTOWN PIKE



Section One

Washington Pike

From: Millertown Pike

To: Murphy Road

Section Two

Millertown Pike

From: Washington Pike

To: Murphy Road

KNOX COUNTY

PREPARED BY

WILBUR SMITH ASSOCIATES

FOR THE CITY OF KNOXVILLE

IN COOPERATION WITH

TENNESSEE DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING AND DEVELOPMENT

Approved by: _____ Date _____
Chief Engineer

REVISION

Recommended by:	INITIALS	DATE	Recommended by:	INITIALS	DATE
TRANS. DIRECTOR PLANNING DIVISION			TRANS. DIRECTOR PLANNING DIVISION		
TRANS. DIRECTOR ENV. PLN. AND PERMITS			TRANS. DIRECTOR ENV. PLN. AND PERMITS		
ENG. DIRECTOR DESIGN DIVISION			ENG. DIRECTOR DESIGN DIVISION		
ENG. DIRECTOR STRUCTURES DIVISION			ENG. DIRECTOR STRUCTURES DIVISION		
TRANS. DIRECTOR PROG. DEV. DIVISION			TRANS. DIRECTOR PROG. DEV. DIVISION		
ASSISTANT CHIEF ENGINEER			ASSISTANT CHIEF ENGINEER		
ASSISTANT CHIEF ENGINEER			ASSISTANT CHIEF ENGINEER		

September 21, 2001

Mr. Bill Hart
Tennessee Department of Transportation
Transportation Planning, Suite 900
James K. Polk Building
Nashville, Tennessee 37243- 0334

RE: Washington Pike and Millertown Pike Final Advanced Planning Report: Knoxville, Tennessee

Dear Mr. Hart:

Transmitted herein is the City of Knoxville's final Advanced Planning Report (APR) for Washington Pike and Millertown Pike, two roads that surround the Knoxville Center Mall. In addition to the corrected report document, the corrected functional sheets are also enclosed. Two copies of the ecological and archaeological studies were enclosed with the draft APR and the architectural study was submitted separately at the same time.

Our consultant, Wilbur Smith Associates, reviewed the comments and made the appropriate corrections. The cost data estimations were based on project fees at the time of design. The estimates have been recalculated based on the consultant's three most recent TDOT projects to obtain current Earthwork costs.

The APR recommends widening Washington and Millertown Pikes and extending Murphy Road to the southeast from Washington Pike to Millertown Pike near Loves Creek Road. Recently, the Knoxville Center area has seen a significant amount of retail development and that, coupled with substantial residential development in the northeast sector of Knox County, has created congested roads. These proposed improvements should provide better access to retail development and I-640.

Two public meetings have been held for this project, one at the beginning and one after the functional design and traffic analysis had been completed. The response was very positive.

Thank you for reviewing this final APR.

Sincerely,

DATA TABLE
Washington Pike

<u>ITEM</u>	<u>EXISTING</u>		<u>PROPOSED</u>
Functional Class	Urban Minor Arterial		Urban Minor Arterial
System	STP		STP
	1-A	0.53	0.53
	1-B	0.36	0.36
Length (Miles)	1-C	1.74	1.74
	1-A	22/50	64/84
	1-B	2@24/70/94	2@24/70/94
Cross Section (Feet)	1-C	22/50	2@24/70/94
	1-A	14,420	14,420
	1-B	15,850	17,500
Present ADT (2004)	1-C	16,960	12,170
	1-A	29,370	29,370
	1-B	32,290	34,800
Future ADT (2024)	1-C	34,540	23,940
	1-A	3,527	3,527
	1-B	3,872	4,176
DHV (2024)	1-C	4,141	2,875
	1-A	4	4
	1-B	4	4
% Trucks	1-C	4	4
	1-A		3.55
Estimated Right-of-Way Acquisition (Acres)*	1-B		0
	1-C		7.44
	1-A		38
Estimated Right-of-Way Tracts Affected	1-B		0
	1-C		56
	1-A		0
Estimated Family Displacements	1-B		0
	1-C		4
	1-A		0
Estimated Business Displacements	1-B		0
	1-C		1
	1-A		0
Estimated Non-Profit Displacements	1-B		0
	1-C		0
	1-A		\$ 409,000
	1-B		\$ -
Estimated Right-of-Way Cost	1-C		\$ 1,278,000
	1-A		\$ -
Estimated Utility Cost Reimbursable	1-B		\$ -
	1-C		\$ -
	1-A		\$ 722,000
Estimated Utility Cost Non-Reimbursable	1-B		\$ 288,000
	1-C		\$ 1,595,000
	1-A		\$ 2,029,000
	1-B		\$ 967,000
Estimated Construction Cost	1-C		\$ 5,464,000
	1-A		\$ 202,900
Estimated Preliminary Engineering Cost	1-B		\$ 96,700
	1-C		\$ 546,400
	1-A		\$ 3,362,900
	1-B		\$ 1,351,700
Total Estimated Project Cost	1-C		\$ 8,883,400

* Construction Easement not included.

DATA TABLE
Millertown Pike

<u>ITEM</u>	<u>EXISTING</u>		<u>PROPOSED</u>
Functional Class	Urban Minor Arterial		Urban Minor Arterial
System	STP		STP
	2-A	0.90	0.90
	2-B	0.35	0.35
Length (Miles)	2-C	0	1.47
	2-A	22/50	64/84
	2-B	22/50	2@36/94/118
Cross Section (Feet)	2-C	22/50	2@24/70/94
	2-A	10,200	10,200
	2-B	27,210	28,640
Present ADT (2004)	2-C	0	11,590
	2-A	20,790	20,790
	2-B	55,440	57,630
Future ADT (2024)	2-C	0	22,805
	2-A	2,495	2,495
	2-B	6,653	6,652
DHV (2024)	2-C	0	3,459
	2-A	4	4
	2-B	4	4
% Trucks	2-C	4	4
	2-A		3.45
Estimated Right-of-Way Acquisition (Acres)*	2-B		2.64
	2-C		16.78
	2-A		40
Estimated Right-of-Way Tracts Affected	2-B		6
	2-C		43
	2-A		0
Estimated Family Displacements	2-B		0
	2-C		8
	2-A		0
Estimated Business Displacements	2-B		1
	2-C		1
	2-A		0
Estimated Non-Profit Displacements	2-B		0
	2-C		0
	2-A		\$ 304,000
	2-B		\$ 641,500
Estimated Right-of-Way Cost	2-C		\$ 2,335,500
	2-A		\$ -
Estimated Utility Cost Reimbursable	2-B		\$ -
	2-C		\$ -
	2-A		\$ 820,500
Estimated Utility Cost Non-Reimbursable	2-B		\$ 762,000
	2-C		\$ 1,412,500
	2-A		\$ 2,930,500
Estimated Construction Cost	2-B		\$ 2,707,500
	2-C		\$ 5,371,500
	2-A		\$ 293,050
Estimated Preliminary Engineering Cost	2-B		\$ 270,750
	2-C		\$ 537,150
	2-A		\$ 4,348,050
	2-B		\$ 4,381,750
Total Estimated Project Cost	2-C		\$ 9,656,650

* Construction Easement not included.

PURPOSE OF STUDY

The purpose of this Advanced Planning Report (APR) is to evaluate existing traffic conditions and determine the need and feasibility of improving both Washington and Millertown Pikes located in northeast Knoxville adjacent to the Knoxville Center. This area of Knoxville has experienced significant development resulting in increased traffic without the necessary traffic accommodations to provide acceptable operations. Therefore, the transportation infrastructure must be developed to manage the existing traffic conditions and to prepare for future growth anticipated in the area. This APR addresses Washington Pike as Section 1 and Millertown Pike as Section 2. As an integral consideration of this APR and an APR being prepared for Tazewell Pike, this report will also examine the feasibility of extending Murphy Road, from Washington Pike to Millertown Pike north of the Knoxville Center access. The APR was commissioned by the City of Knoxville and has been developed in cooperation with the Tennessee Department of Transportation (TDOT).

Illustrated in Figure 1 is the project vicinity map showing the beginning and ending points of each project. Figure 2 illustrates and defines the locations of the three sub-sections of Washington and Millertown Pikes.

The APR analyzes existing (1999), projected 2004 baseline, and projected 2024 traffic conditions for the arterial streets surrounding Knoxville Center, estimates right-of-way, develops construction costs, and identifies environmental concerns.

DEFICIENCIES

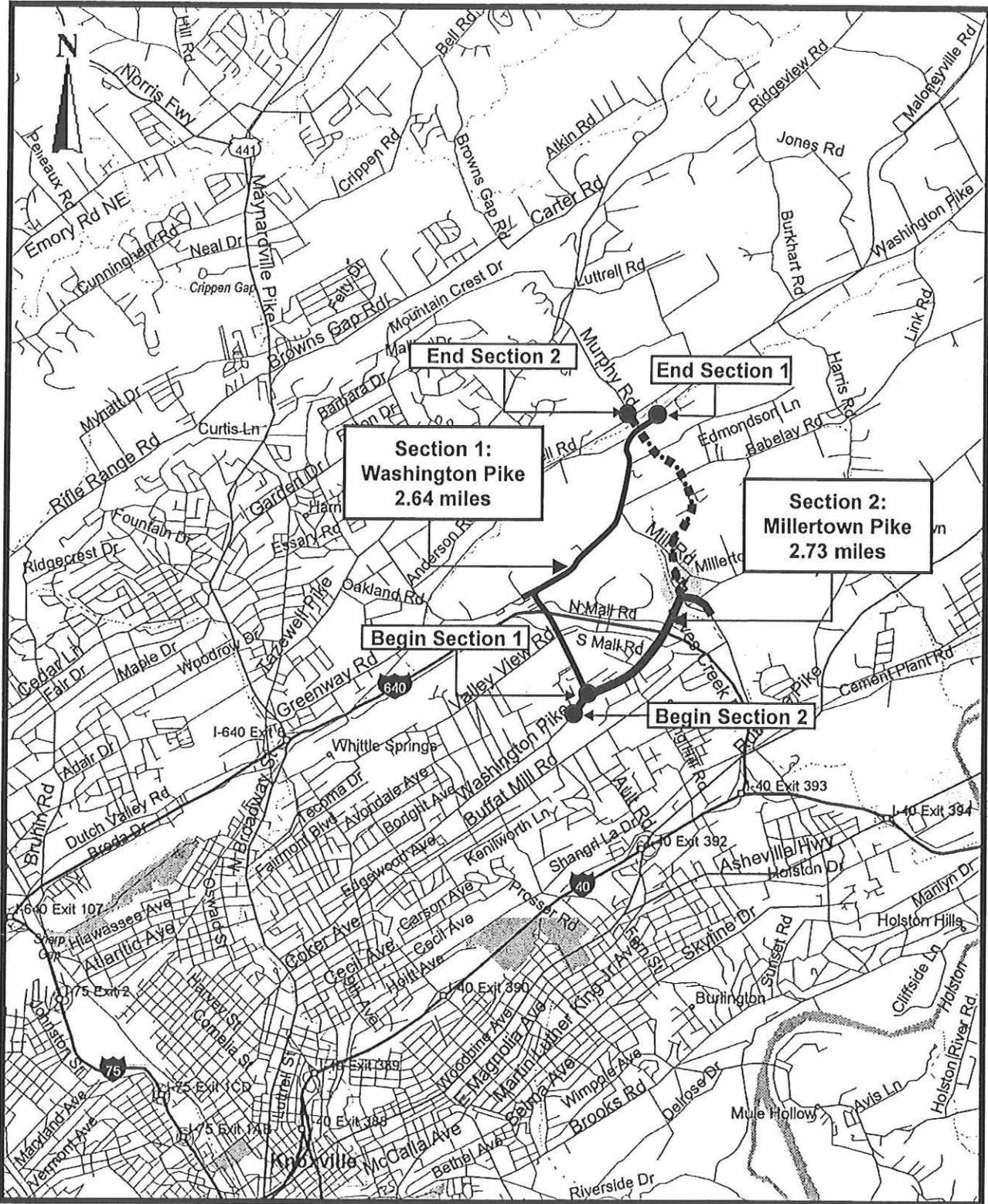
Section 1-A

Geometric X Structures _____ Operational X R/R Crossing _____
Accident Rate Washington Pike (So. of I-640)-4.50
Statewide Avg. Accident Rate Washington Pike (So. of I-640)-3.32
Other _____

Section 1-B

Geometric X Structures _____ Operational X R/R Crossing _____
Accident Rate Washington Pike (I-640 to Greenway)-20.47
Statewide Avg. Accident Rate Washington Pike (I-640 to Greenway)-2.98
Other _____

VICINITY MAP WASHINGTON PIKE AND MILLERTOWN PIKE APR



Section 1-C

Geometric X Structures _____ Operational X R/R Crossing _____
Accident Rate Washington Pike (from Greenway to Mill Rd.)-5.05
Statewide Avg. Accident Rate Washington Pike (from Greenway to Mill Rd.)-3.32
Other _____

Section 2-A

Geometric X Structures _____ Operational X R/R Crossing _____
Accident Rate Millertown Pike (So. of I-640)-7.06
Statewide Avg. Accident Rate Millertown Pike (So. of I-640)-3.32
Other _____

Section 2-B

Geometric X Structures _____ Operational X R/R Crossing _____
Accident Rate Millertown Pike (I-640 to Loves Creek)-24.36
Statewide Avg. Accident Rate Millertown Pike (I-640 to Loves Creek)-5.34
Other _____

Section 2-C

Geometric _____ Structures _____ Operational _____ R/R Crossing _____
Accident Rate _____
Statewide Avg. Accident Rate _____
Other Proposed Murphy Road Extension

EXISTING CONDITIONS

Washington Pike, which is classified as an urban minor arterial street, extends northeast and southwest of the Interstate 640 interchange. ADT's are 9,950 and 11,730 southwest and northwest of I-640 respectively. This facility provides a two-lane section southwest of I-640, a multi-lane section through the I-640 interchange and across the Southern Railroad to Greenway Drive where Washington Pike turns to the right and continues as a two-lane facility with an ADT of 7,580. Traffic signals exist at its intersections with Greenway Drive and the interchange ramps. Washington Pike intersects Millertown Pike and continues as Washington Pike to the southwest, where it intersects Broadway (US 441, SR 33).

Millertown Pike is also an urban minor arterial, which begins south of Interstate 640 at the T-intersection with Washington Pike and extends to the northeast. Southwest of the I-640 interchange, Millertown Pike is a two-lane facility with an average daily traffic (ADT) volume of 5,480. Northeast of the interchange, Millertown Pike is multi-lane facility carrying 20,160 ADT through the Knoxville Center access before it transitions back to a two-lane facility and crosses

the Southern Railroad. Traffic signals exist at the intersections of Loves Creek Road, Knoxville Center / Wal-Mart, and the I-640 ramps.

Regional facilities providing access to the Knoxville Center area include I-640, Broadway and I-75 to the west and I-40 to the south.

Figure 3 illustrates the principal intersections and their geometry. Traffic counts, which were conducted for an eight-hour period thereby providing peak-hour traffic volumes, are illustrated in Figures A1 and A2. Capacity and level of service analyses were conducted for the principal intersections and the results are illustrated in Figures A3 and A4 for the AM and PM peaks. From the 1999 traffic counts conducted, design hour volumes (DHV) were developed for 2004 and are illustrated in Figures A5 and A6. The corresponding level of service results are depicted in Figures A7 and A8.

Traffic projections were determined using historical traffic counts for the past ten years which identified an annual growth rate of 7.0 percent; therefore the five year baseline traffic was calculated by factoring the 1999 DHV by 1.35. This rate of growth not only represents the historical growth in the study area, but also, the trend from residential characteristics to greater commercialization. Continued commercial and other more intense land uses are expected in the study area for many more years.

PROPOSED IMPROVEMENTS

Improvements for the Knoxville Center area include widening both Washington and Millertown Pikes and extending Murphy Road on new location from Washington Pike to a new intersection with Millertown Pike near Knoxville Center.

Washington Pike (Sections 1-A, 1-B, 1-C)

Washington Pike would be upgraded to five lanes south of I-640, Section 1-A, and four lanes divided northeast of the Greenway Drive intersection, Section 1-C. The typical section of the five-lane facility in Section 1-A would be an 84-foot minimum R.O.W. with five 12-foot travel lanes, 2-foot curb and gutter, and 7-foot sidewalk. The four-lane divided section between Greenway Drive and Murphy Road (Section 1-C) would have a minimum R.O.W. of 94 feet including a median width of 22 feet with an 18-foot raised median, four 12-foot travel lanes, 2-

1999 GEOMETRY KNOXVILLE CENTER APR AREA Knoxville, Tennessee

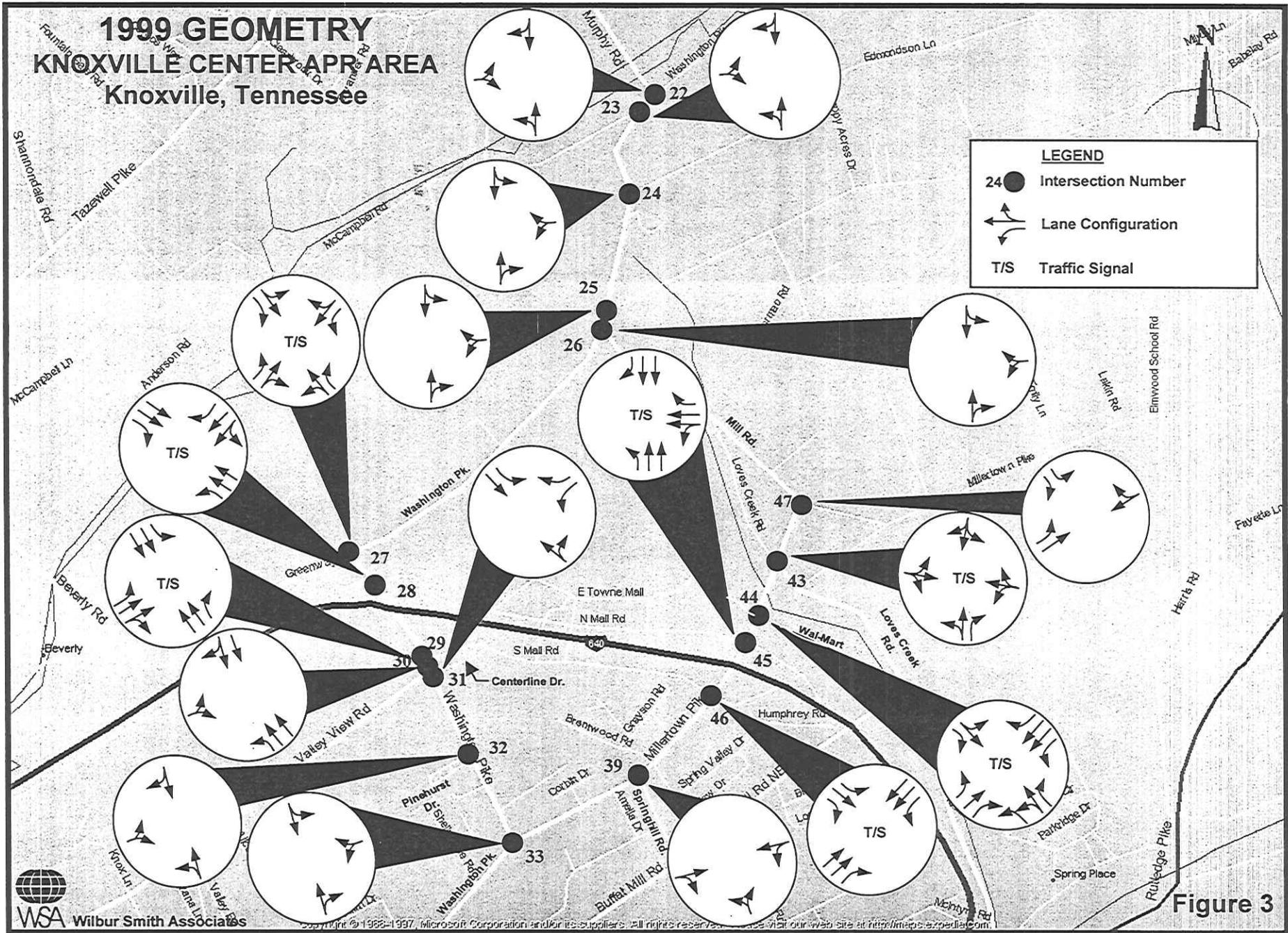


Figure 3

foot curb and gutter, and a 7-foot sidewalk. The existing roadway section (1-A) through the interchange would remain unchanged, however, to improve the Washington Pike interchange operation, relocation of Valley View Drive several hundred feet south to a point opposite Centerline Drive is proposed. The existing intersection of Valley View Drive would be limited to right-turns-only and the existing median opening would be eliminated. Section 1-B would require a lane addition to the structure over the Southern Railroad to provide double right-turn lanes at the intersection of Greenway Drive. Section 1-C includes the realignments of Mill, Babelay and McCampbell Roads. New traffic signals would be anticipated for the intersections of Washington Pike at Millertown Pike, Centerline Drive, Mill Road, Babelay Drive, and Murphy Road.

Millertown Pike (Sections 2-A, 2-B, 2-C)

Millertown Pike would transition from the existing two lanes to a five-lane undivided roadway in Section 2-A with a continuous left-turn lane south of the I-640 interchange and to a six-lane divided facility in Section 2-B north of the interchange to Loves Creek Road where the section transitions to four-lane divided within Section 2-C. The five-lane undivided typical section would be the same as Washington Pike including a 2-foot curb and gutter, four 12-foot travel lanes, a 12-foot continuous center turn lane, and 7-foot sidewalks within an 84-foot minimum R.O.W. The typical cross-section for Section 2-B would be a six-lane facility with a 118-foot minimum R.O.W width. The six-lane section would have a median width of 22 feet (18-foot raised), six at 12-foot travel lanes, 2-foot curb and gutter, and a 7-foot sidewalk. The four-lane divided roadway in Section 2-C, the proposed Murphy Road Extension, would have a minimum R.O.W. of 94 feet and include a 22-foot median, four at 12-foot travel lanes, 2-foot curb and gutter, and a 7-foot sidewalk. In Section 2-A, the existing intersection of Washington and Millertown Pikes would be improved by providing a better defined through movement and signal control. New traffic signals for Sections 2-A and 2-B would be anticipated for the intersections of Millertown Pike at Washington Pike and Loves Creek Road.

Murphy Road Extension (Section 2-C)

In addition, Murphy Road would be extended from Washington Pike to Millertown Pike. Two alternatives were explored for the new intersection of Murphy Road and Millertown Pike. The first alternative is a four-legged intersection with Murphy Road intersecting Millertown Pike opposite Loves Creek Road. The second and preferred alternative is aligning Millertown Pike

with the Murphy Road extension, thereby making it the primary movement between Washington Pike and the I-640 interchange. Loves Creek Road would intersect Millertown Pike separately, creating a T-intersection. Existing Millertown Pike north across the railroad would be terminated and vacated. This change in traffic pattern would require the realignment of Loves Creek Road and Mill Road at their intersections with Millertown Pike. The second alternative is preferred due to the movement of traffic between Millertown Pike and the extension of Murphy Road. The first alternative would require a long double left-turn lane for the northbound Millertown Pike approach and a transition of the double left-turn shadow on the southbound approach. This geometry impacts the existing bridge over the railroad. The intersection with this configuration operates at a Level of Service F. With a through movement between Millertown Pike and Murphy Road (the second alternative), the intersection of Loves Creek Road can operate at an acceptable level of service. For extended Murphy Road, traffic signals would be anticipated at the intersections of Mill Road, Babelay Drive, and Washington Pike.

The projected 2024 ADT on Washington Pike is 34,800 north of I-640, and 27,360 south of the interchange. On Millertown Pike, the projected 2024 ADT is 57,630 and 15,070 north and south of I-640, respectively. The extended Murphy Road is projected to have a 15,610 to 22,805 ADT. The Appendix of this report includes projected ADT's and DHV's for the roads and intersections within the study area.

Peak hour DHV's for 2024 can be found in Figures A9-A12 with and without Murphy Road extended. The calculated capacity and LOS for the study intersections are illustrated in Figures A13-A16 with and without geometric improvements, illustrated in Figure 4, and Murphy Road extended. The illustration of the Washington Pike and Murphy Road Extension intersection's geometry, shown in Figure 4, does not reflect the functional plans. The added lanes are necessary to provide capacity for the intersection to operate at an acceptable LOS based on the projected traffic volumes. Several intersections may experience unacceptable levels of service even with the proposed improvements. Mitigation of these failing or poorly operating intersections will require consideration of additional improvements as operations deteriorate over the next 20 years.

2024 PROPOSED GEOMETRY WITH MURPHY ROAD EXTENDED

KNOXVILLE CENTER APR AREA Knoxville, Tennessee

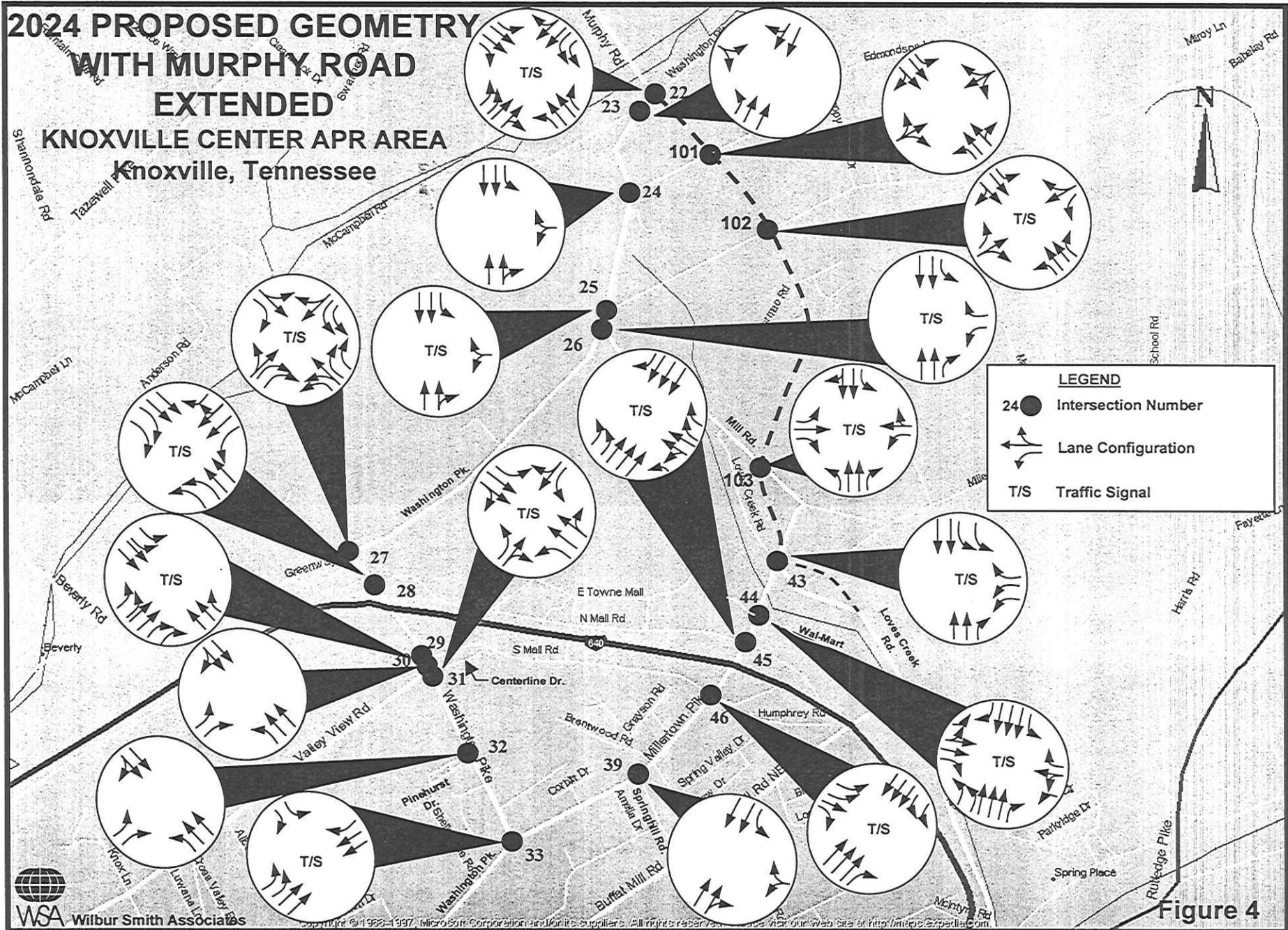


Figure 4

ENVIRONMENTAL CONSIDERATIONS

The environmental characteristics for both the Washington Pike and Millertown Pike corridors were investigated to identify archaeological, architectural, and ecological resources within the project right-of-way and to evaluate whether proposed improvements within the project area would impact these resources. Environmental documents have been submitted separately.

No defined archaeological sites or cultural materials of archaeological interest were found thru an assessment of the project area by Du Vall and Associates, Inc. These negative survey results are not completely unexpected due to the recent commercial and residential development, which would have removed any and all traces of previous settlement and use. It was considered likely that many such sites present would be difficult to identify within the narrow confines of the right of ways surveyed, regardless of their state of preservation.

A report by Thomason and Associates concludes that the project area does not contain any cultural resources listed or eligible for listing on the National Register of Historic Places.

The ecology report concluded that there would be no significant impact to threatened and/or endangered species, wetlands, public parks, or rare naturally occurring areas from the implementation and completion of the proposed project.

A review of four fuel facilities in the project area, which use underground storage tanks (UST), found that two functioning fuel facilities are without a file, one is in compliance, and one is not. No information was available for the facilities without files. The facility with a violation remains functioning, but has requested a Closure Application for the four UST's on the property.

FIELD INVESTIGATION

The field review of this project occurred on April 13, 1999 and included the following personnel from Wilbur Smith Associates, Tennessee Department of Transportation, Du Vall & Associates, and the City of Knoxville.

Charles Graves-Tennessee Department of Transportation-Special Design and Estimates Office
Mark Geldmeirer-City of Knoxville
Glen Du Vall-Du Vall & Associates
W. Hollis Loveday-Wilbur Smith Associates
Robert Bowers-Wilbur Smith Associates

APPENDIX

WILBUR
SMITH
ASSOCIATES
ENGINEERS • PLANNERS

5401 KINGSTON PIKE • SUITE 490 • KNOXVILLE, TN 37919-0522 • (423) 584-8584 • FAX: (423) 584-5936

September 1, 1999

Mr. Steve Allen
Tennessee Department of Transportation
Suite 1000 James K. Polk Building
Nashville, Tennessee 37243-0344

RE: Tazewell Pike (SR 331) and Knoxville Center Mall Area; Knoxville, Tennessee

Dear Mr. Allen:

Transmitted herein are our traffic projections for the referenced project. We have a contract with the City of Knoxville to conduct two Advanced Planning Reports. The first is SR 331 from Jacksboro Pike to Murphy Road. The second is a series of roads surrounding the Knoxville Center Mall, formally called East Town Mall. The roads include Washington Pike, Millertown Pike, and Mill Road.

Besides widening the existing roads, several new road sections are proposed. Functional plans have been prepared to extend Murphy Road to the south to intersect with Loves Creek Road. Re-aligning Valley View Road opposite Centerline Drive is also proposed. Finally, a reconfiguration of the Jacksboro Pike, Tazewell Pike, and Sanders Road is being examined.

A regression analysis of historical traffic count data on Tazewell Pike suggest that an annual growth rate of 3 percent can be expected up to the 2024 design year. By contrast, traffic growth around the Knoxville Center Mall area has been much higher and significant growth in the future is expected since there is a great deal of vacant property and recent development has been substantial. Over the past 10 years, traffic has grown by 3.3 to 6.3 percent (see attached table), with Station 308 (6.3 percent annual growth) probably being the best indicator of future growth.

In addition to the traffic projections themselves, we have also enclosed the following information:

- Raw 8-hour turning movement counts;
- Worksheets that estimate ADT's and DHV's for the intersections and roadway links;
- Regression analysis of traffic growth;
- Historical traffic data of TDOT count stations and MPO count stations;
- MINUTP model traffic assignments for the area;
- A map depicting study area intersections;
- The public hearing handout (Charlie Graves attended);
- Hour-by-hour count data at the relevant TDOT and MPO stations; and,
- Preliminary functional plans of the improvements.

Thanks for your help. If you need anything else, please let me know.

Sincerely,

WILBUR SMITH ASSOCIATES


W. Hollis Loveday, P.E.

ACCRA, GHANA • ALBANY, NY • ANAHEIM, CA • ATLANTA, GA • BALTIMORE, MD • BANGKOK, THAILAND • CARACAS, VENEZUELA • CHARLESTON, SC • CHICAGO, IL
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LEXINGTON, KY • LONDON, ENGLAND • MILWAUKEE, WI • NEW HAVEN, CT • ORLANDO, FL • OVERLAND PARK, KS • PHILADELPHIA, PA • PITTSBURGH, PA • RALEIGH, NC
RICHMOND, VA • SALT LAKE CITY, UTAH • SAN FRANCISCO, CA • SAN JOSE, CA • TALLAHASSEE, FL • TAMPA, FL • TORONTO, CANADA • WASHINGTON, DC

EMPLOYEE-OWNED COMPANY



September 8, 1999

Mr. Steve Allen
TDOT Traffic & Safety Planning Division
Suite 1000, James K. Polk Building
500 Deaderick Street
Nashville, TN 37243-0332

RE: Design Traffic Volume Projections for Millertown/Washington Pike APR

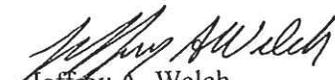
Dear Mr. Allen:

Knoxville Urban Area MPO staff have reviewed the proposal by the consulting firm (Wilbur Smith Associates) to use a 7% growth rate when projecting future traffic volumes in the preparation of the above referenced advance planning report. The staff believes that this growth rate is acceptable despite the fact that our travel demand forecasting model, MINUTP, only predicts an approximate 1% future growth. We feel that the difference in these two growth rates can be reconciled due to the following two reasons:

- MINUTP is intended to model traffic flows on more of a regional level, and can therefore not always accurately predict future growth on specific links within the network.
- The City of Knoxville has recently proposed to include a large portion of northeast Knox County as an urban growth area as part of the new Tennessee state law requiring cities and counties to designate 20-year urban growth boundaries. As a result, future growth on the roadway network in this area may increase more than originally predicted as more city services are extended in this area.

For these reasons we believe that the methodology used by the consultant, which bases the future traffic growth on historical trend analysis rather than using the MINUTP model would be appropriate in this instance. If you have any questions please feel free to contact me or Mike Conger at (423) 215-2500.

Sincerely yours,


Jeffrey A. Welch
MPO Coordinator

C: Hollis Loveday, Wilbur Smith Associates ✓

SUITE 403 • CITY COUNTY BUILDING • 400 MAIN STREET • KNOXVILLE, TENNESSEE 37902 • 423 215-2500 • FAX 215-2068

The MPO coordinates a comprehensive, multi-modal transportation planning process for the Knoxville Urban Area.
Participants: Alcoa, Farragut, Knoxville, Maryville, Blount County, Knox County, East Tennessee Development District, and the State of Tennessee

WILBUR
SMITH
ASSOCIATES
ENGINEERS • PLANNERS

5401 KINGSTON PIKE • SUITE 490 • KNOXVILLE, TN 37919-0522 • (423) 584-8584 • FAX: (423) 584-5936

September 7, 1999

Mr. Steve Allen
Tennessee Department of Transportation
Suite 1000, James K. Polk Building
Nashville, Tennessee 37243-0344

RE: Tazewell Pike (SR 331) and Knoxville Center Area Advanced Planning Reports;
Knoxville

Dear Mr. Allen:

Thanks for meeting with us last Thursday regarding the referenced project. Enclosed are two sets of revisions to the original traffic projections. The first revision is Intersection 17, Beverly Place at Tazewell Pike. The second revision is restricting the eastbound left turn on "Old" Valley View Road at Washington Pike as part of the realignment proposal.

Mike Conger and I met on Friday to talk about the model traffic projections versus the Wilbur Smith Associates projections for the Knoxville Center Area. Small land use growth projections, only one Traffic Analysis Zone, and constricted roads seems to attribute to the low traffic growth rates. Mike agreed that something was wrong with the model and will send you a letter or call to discuss.

Let me know if you need anything else from us.

Sincerely,

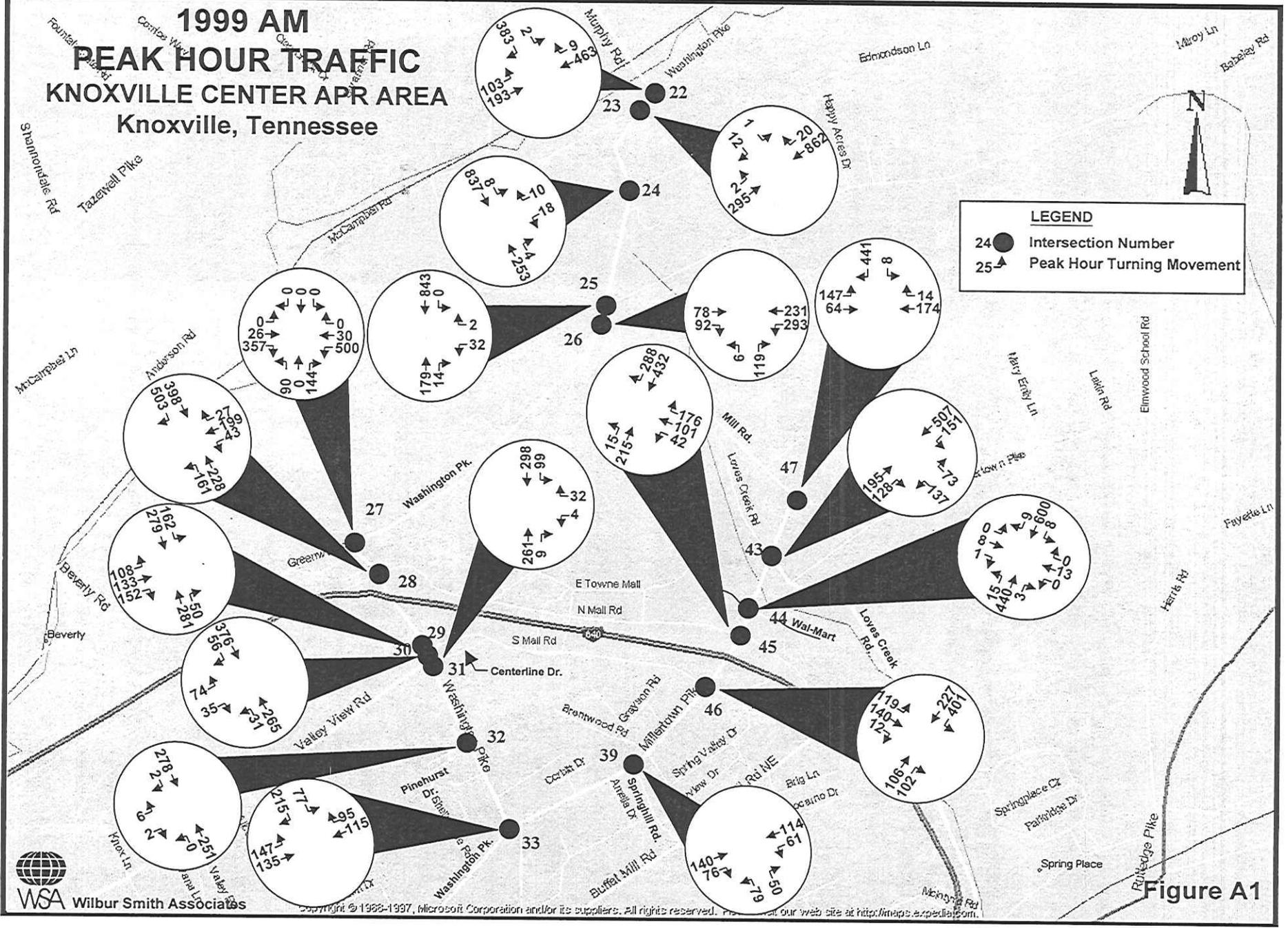
WILBUR SMITH ASSOCIATES



W. Hollis Loveday, P.E.

TRAFFIC

1999 AM PEAK HOUR TRAFFIC KNOXVILLE CENTER APR AREA Knoxville, Tennessee



WSA Wilbur Smith Associates

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Figure A1

1999 PM PEAK HOUR TRAFFIC KNOXVILLE CENTER APR AREA Knoxville, Tennessee

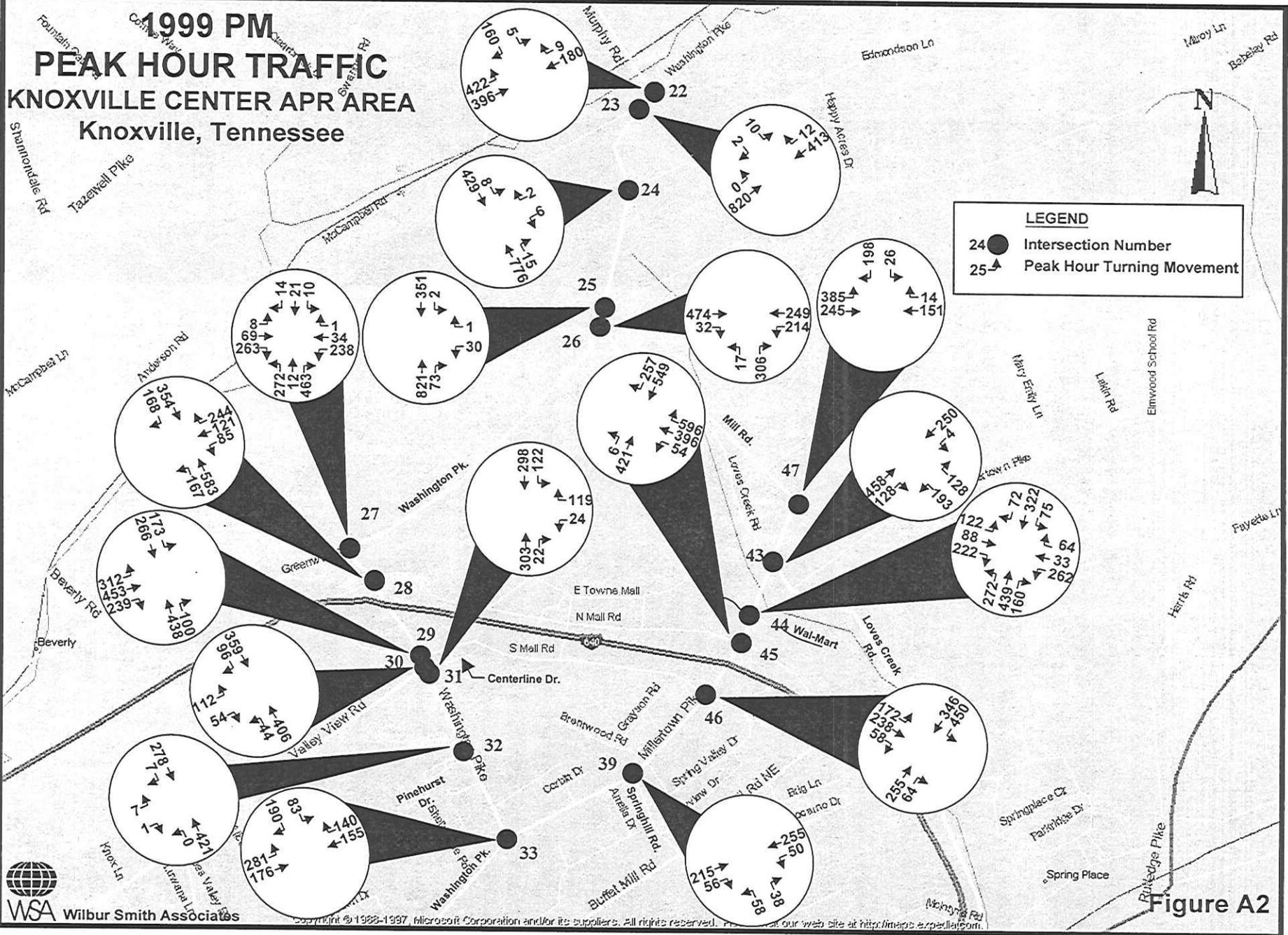


Figure A2

1999 AM PEAK HOUR LEVELS OF SERVICE KNOXVILLE CENTER APR AREA Knoxville, Tennessee

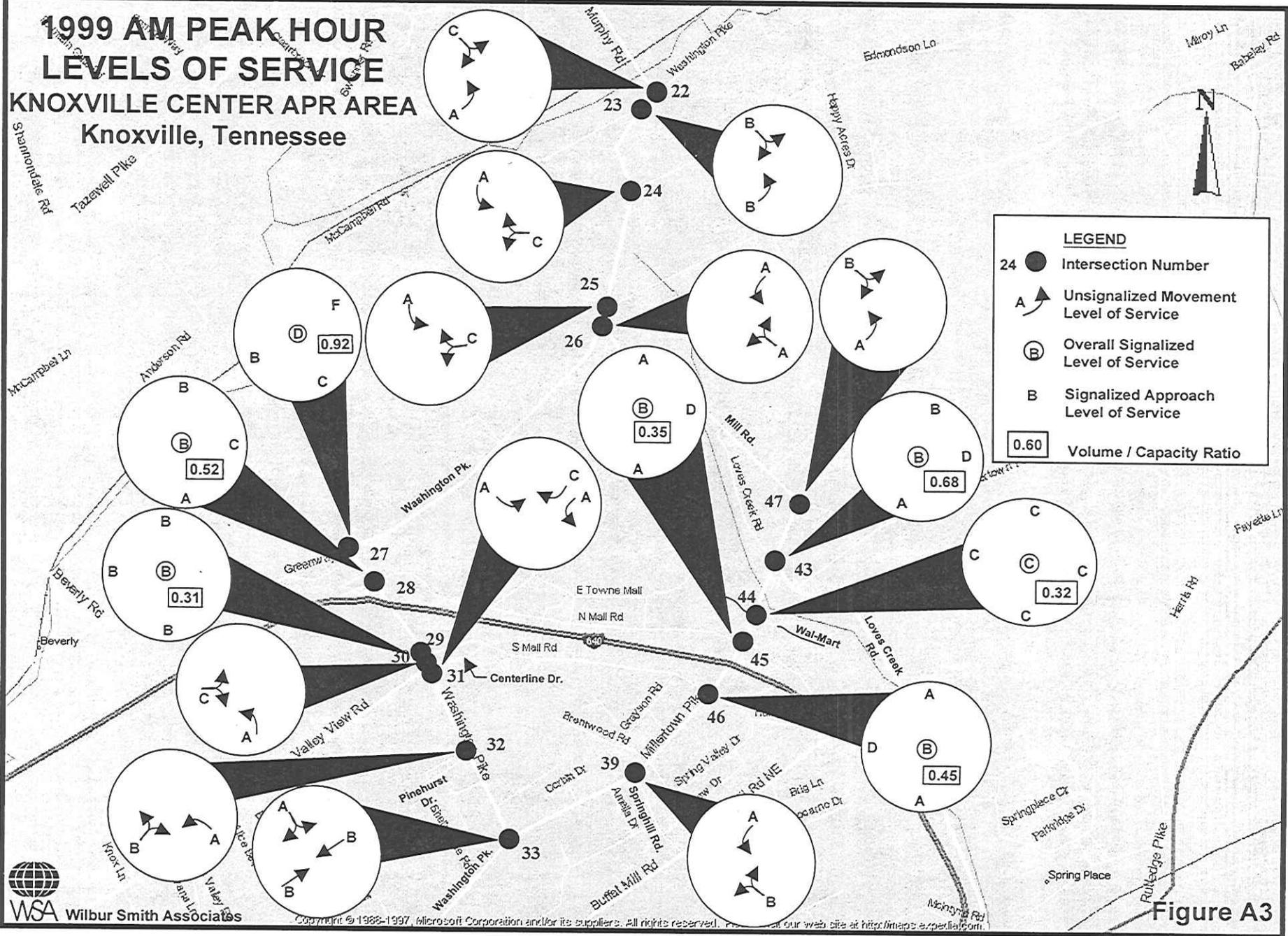
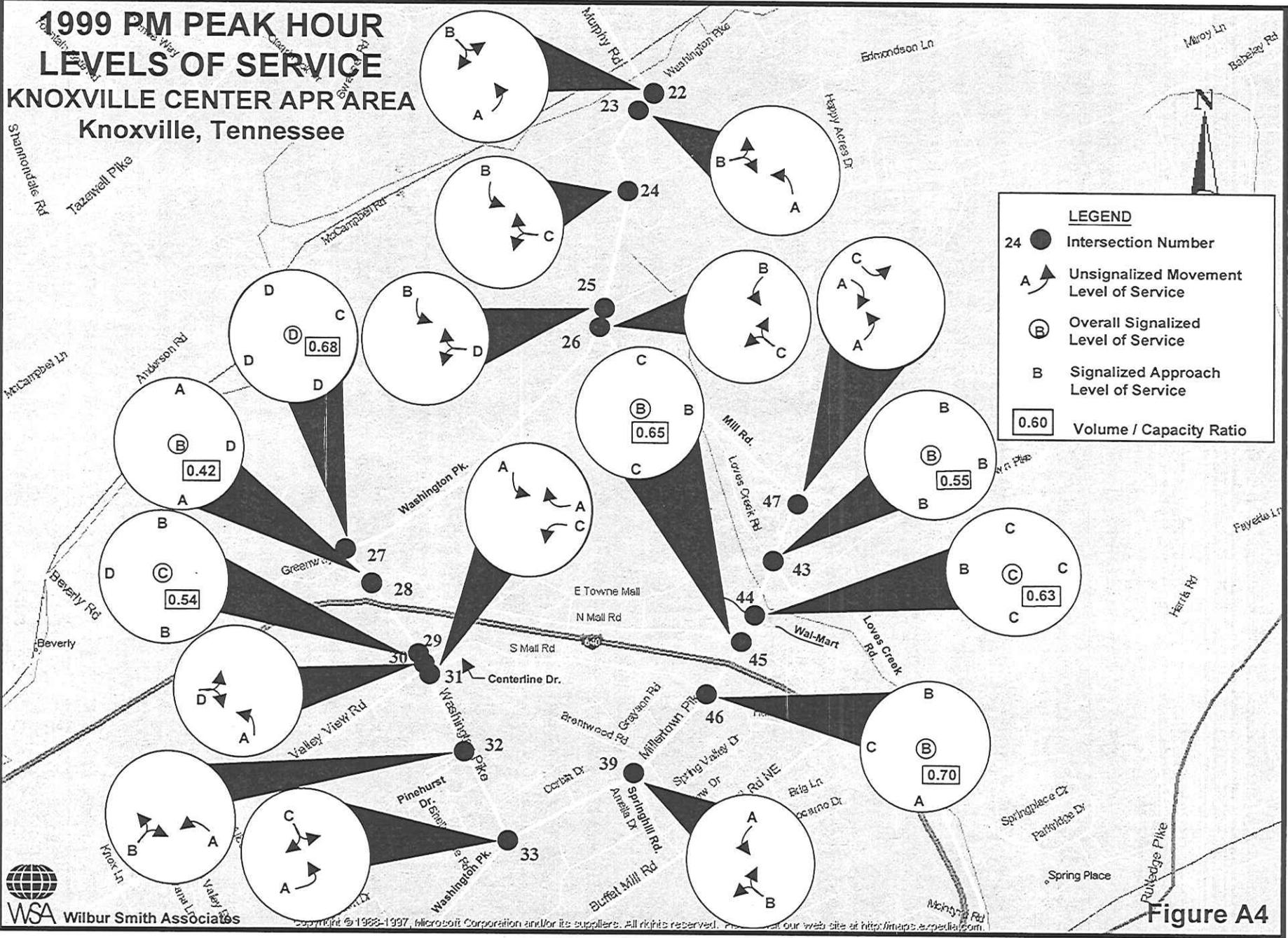


Figure A3

1999 PM PEAK HOUR LEVELS OF SERVICE KNOXVILLE CENTER APR AREA Knoxville, Tennessee



LEGEND

- 24 ● Intersection Number
- A ↗ Unsignalized Movement Level of Service
- Ⓟ Overall Signalized Level of Service
- B Signalized Approach Level of Service
- 0.60 Volume / Capacity Ratio

Figure A4

2004 AM PEAK HOUR DHV'S KNOXVILLE CENTER APR AREA Knoxville, Tennessee

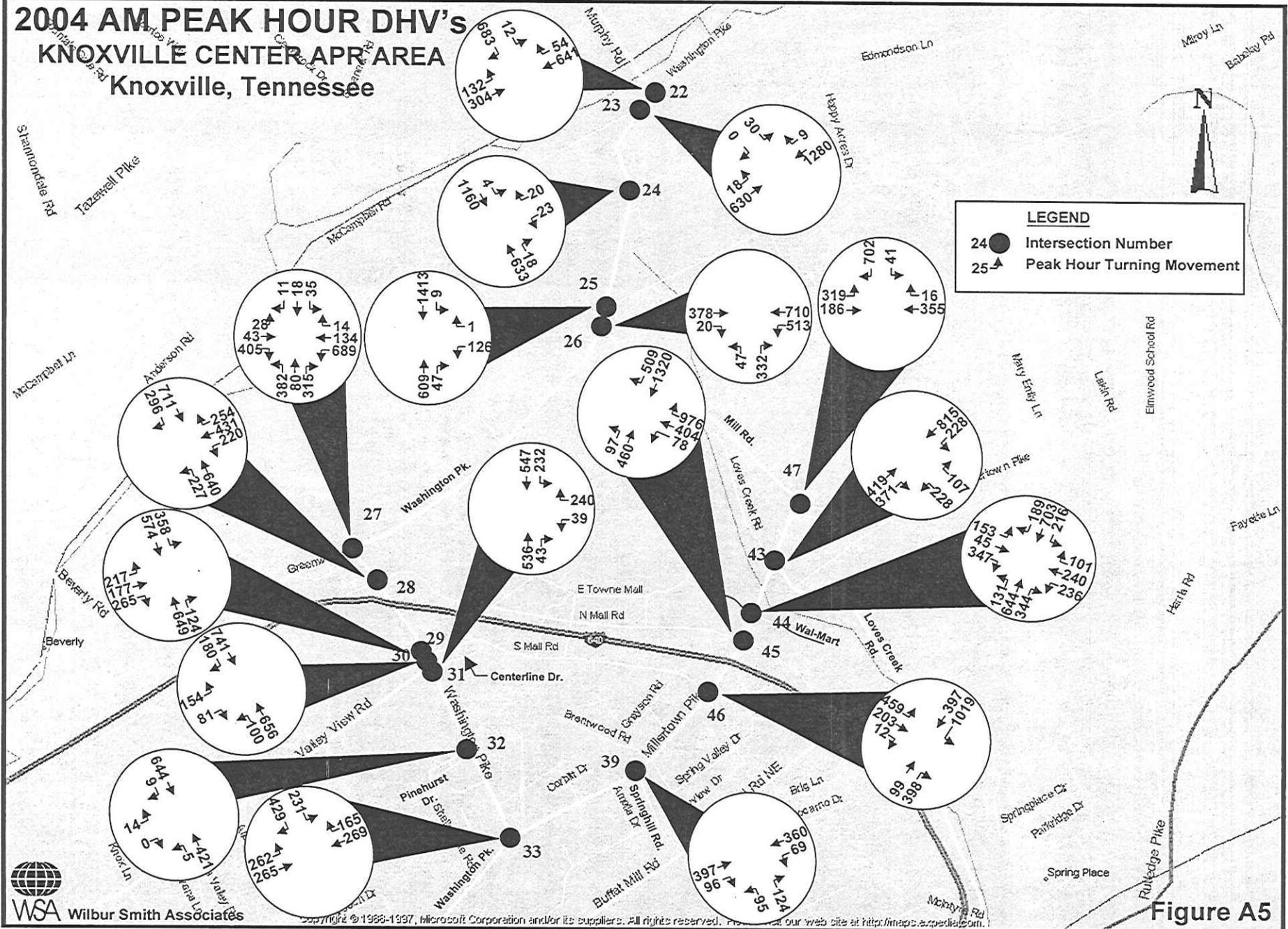


Figure A5

2004 PM PEAK HOUR DHV'S KNOXVILLE CENTER APR AREA Knoxville, Tennessee

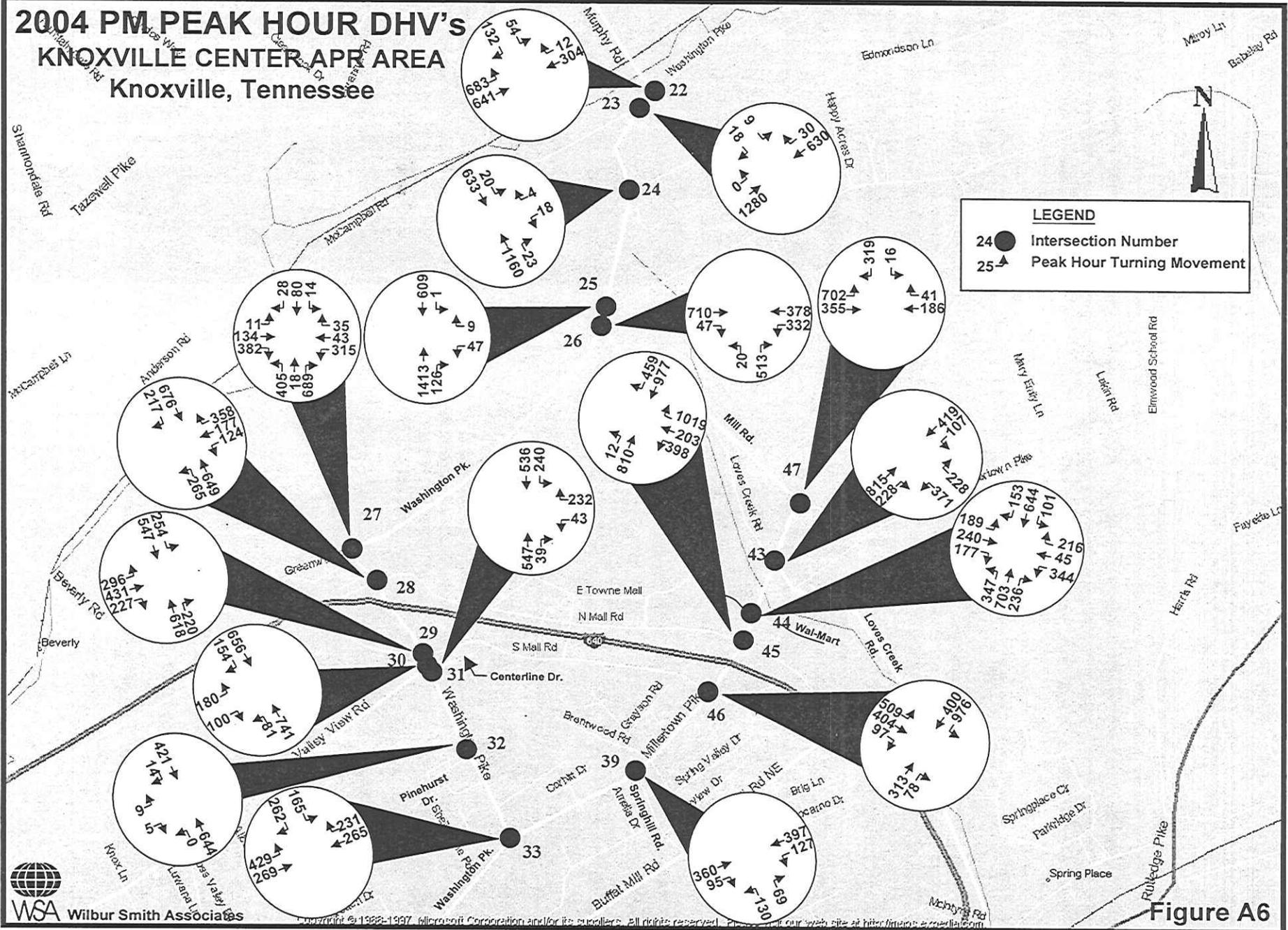


Figure A6

2004 AM PEAK HOUR LEVELS OF SERVICE KNOXVILLE CENTER APR AREA Knoxville, Tennessee

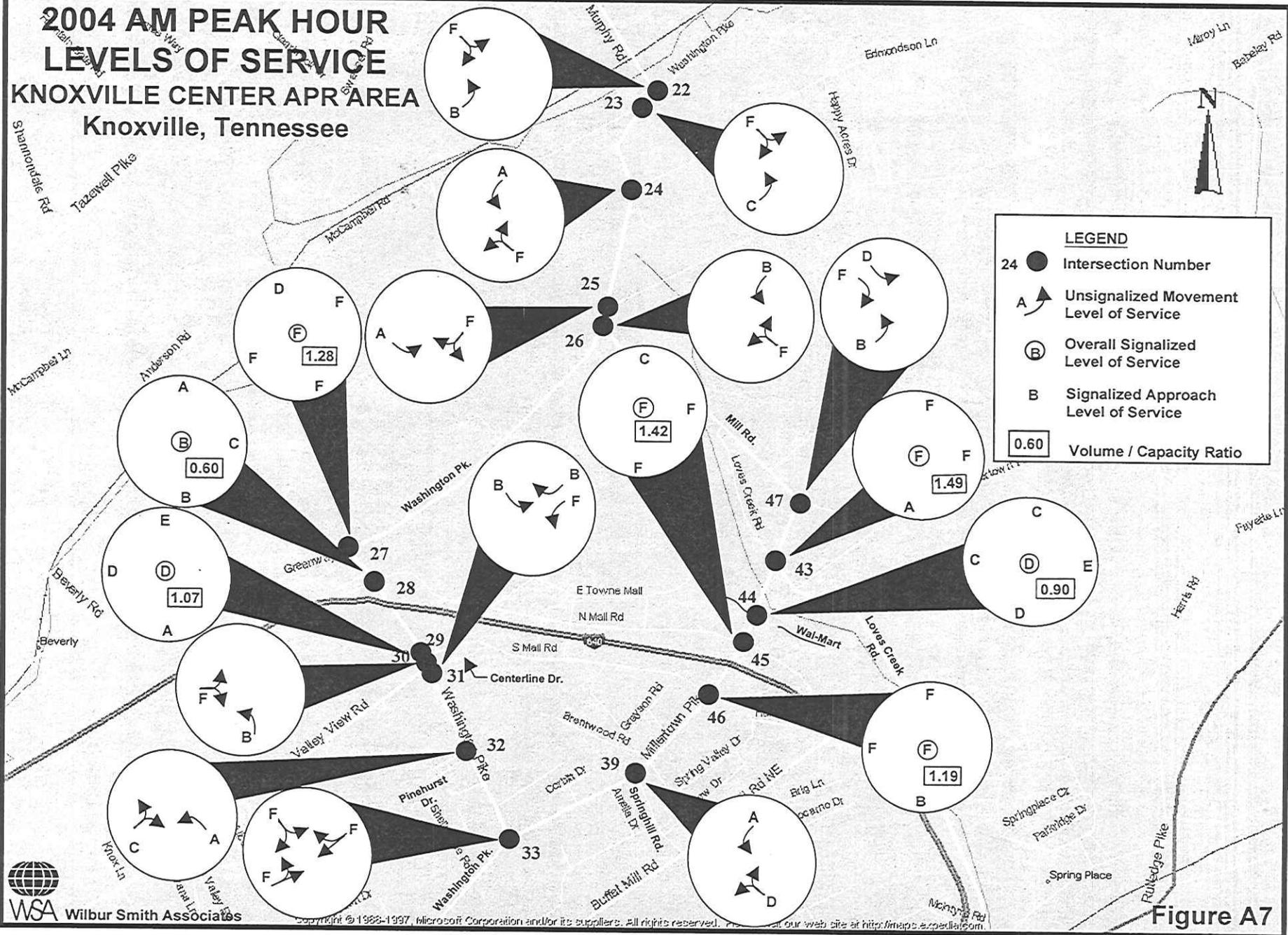


Figure A7

2004 PM PEAK HOUR LEVELS OF SERVICE KNOXVILLE CENTER APR AREA Knoxville, Tennessee

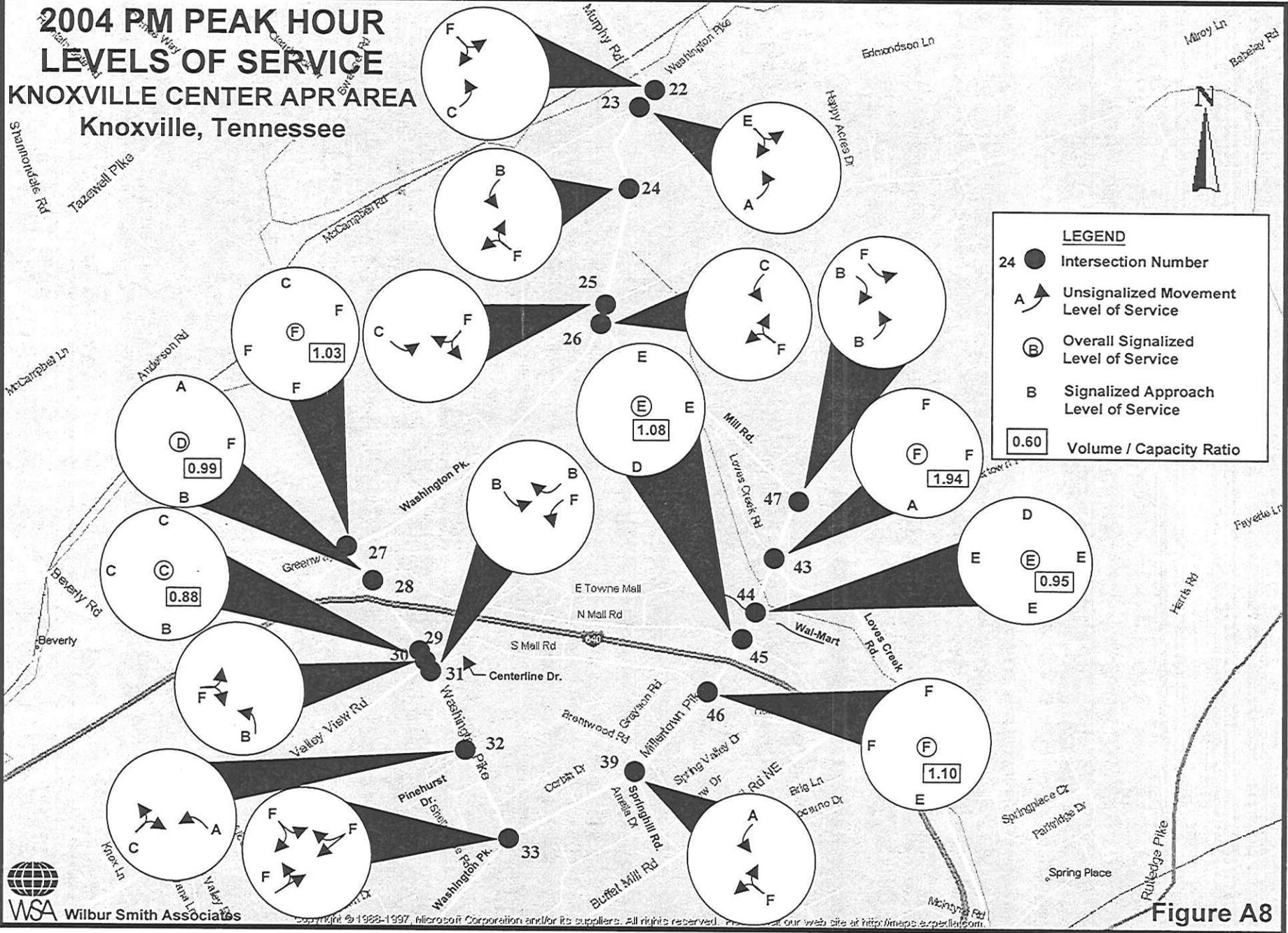


Figure A8

2024 AM PEAK HOUR DHV'S KNOXVILLE CENTER APR AREA Knoxville, Tennessee

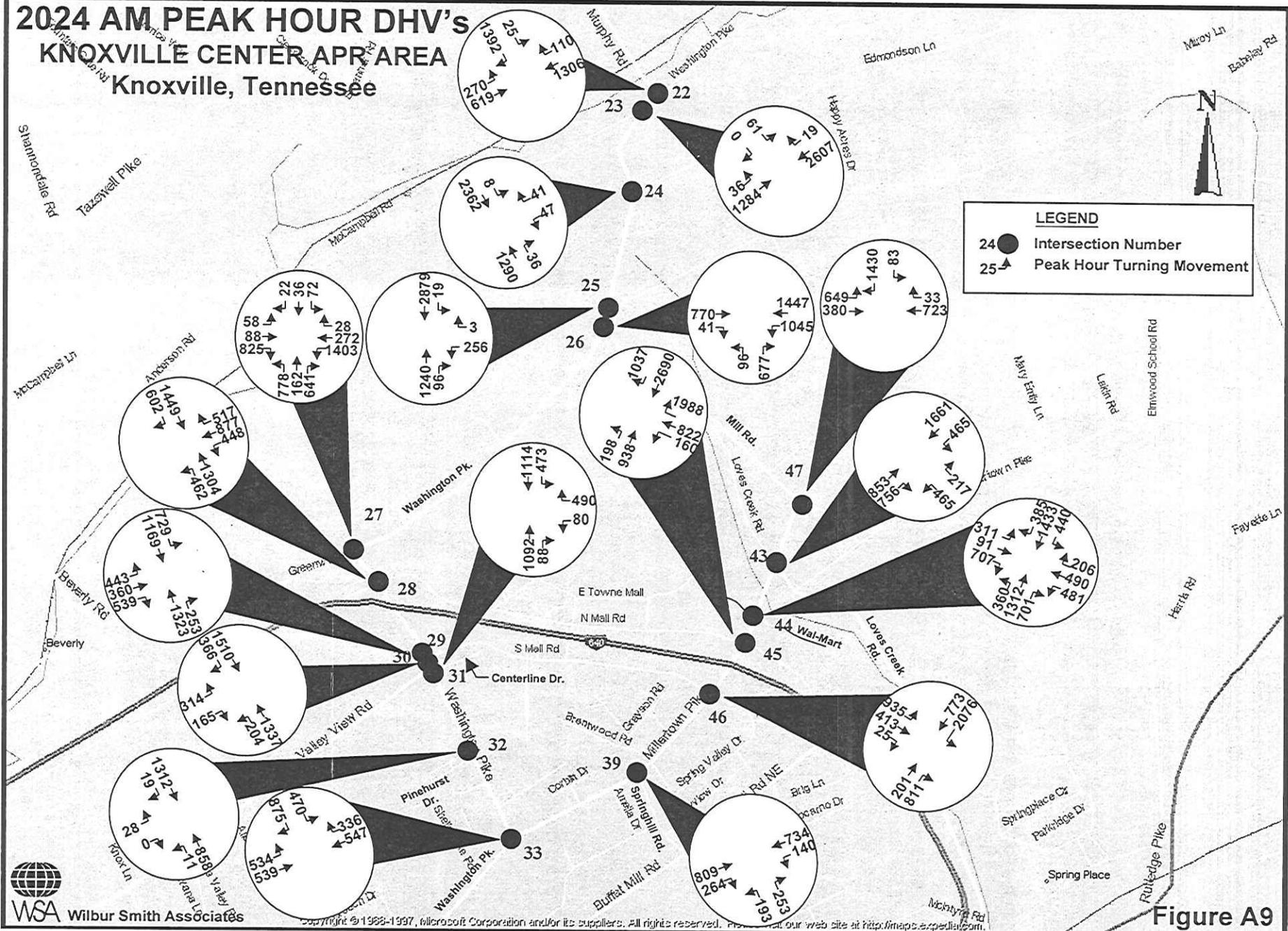
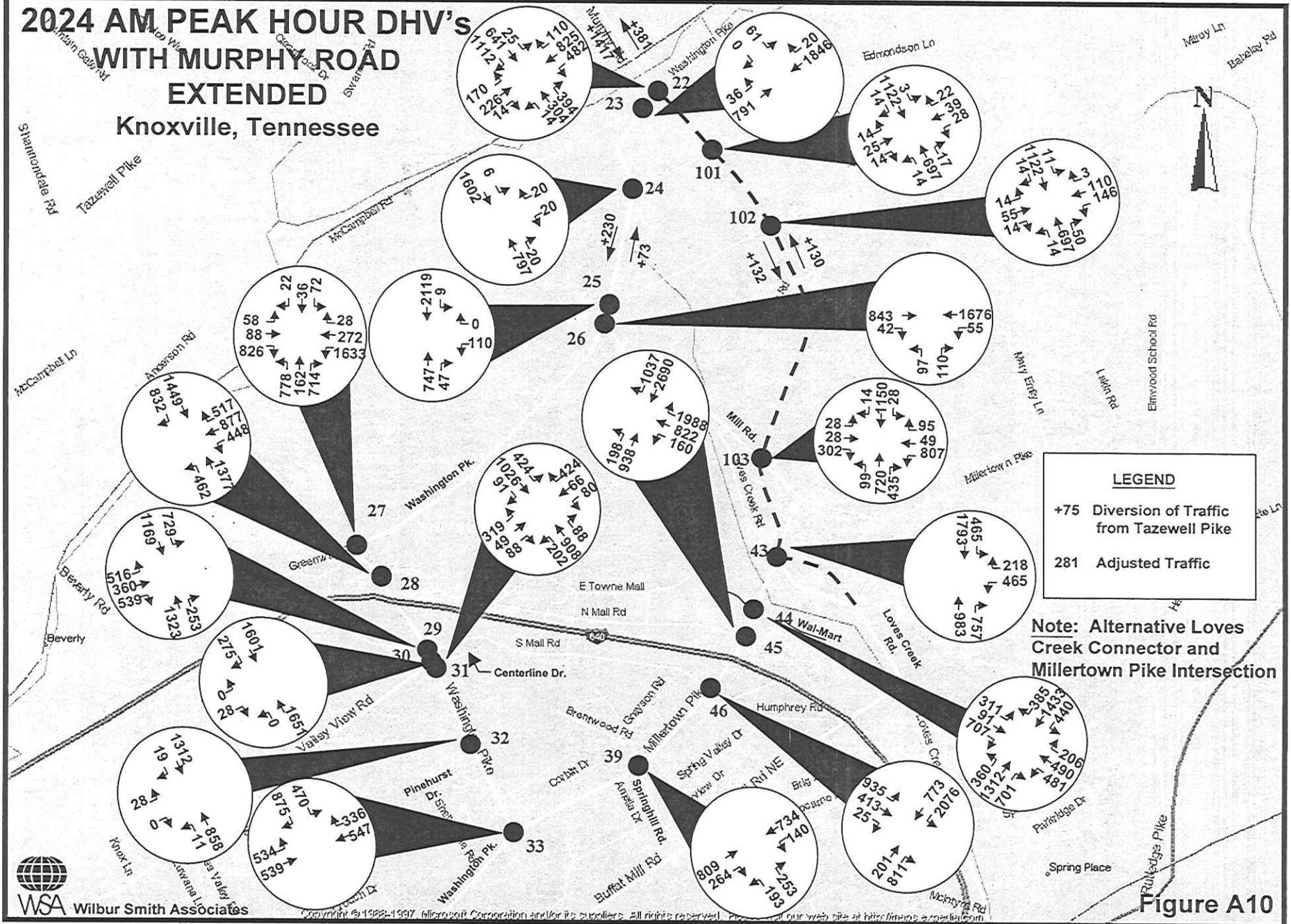


Figure A9

2024 AM PEAK HOUR DHV'S WITH MURPHY ROAD EXTENDED Knoxville, Tennessee



2024 PM PEAK HOUR DHV's KNOXVILLE CENTER APR AREA Knoxville, Tennessee

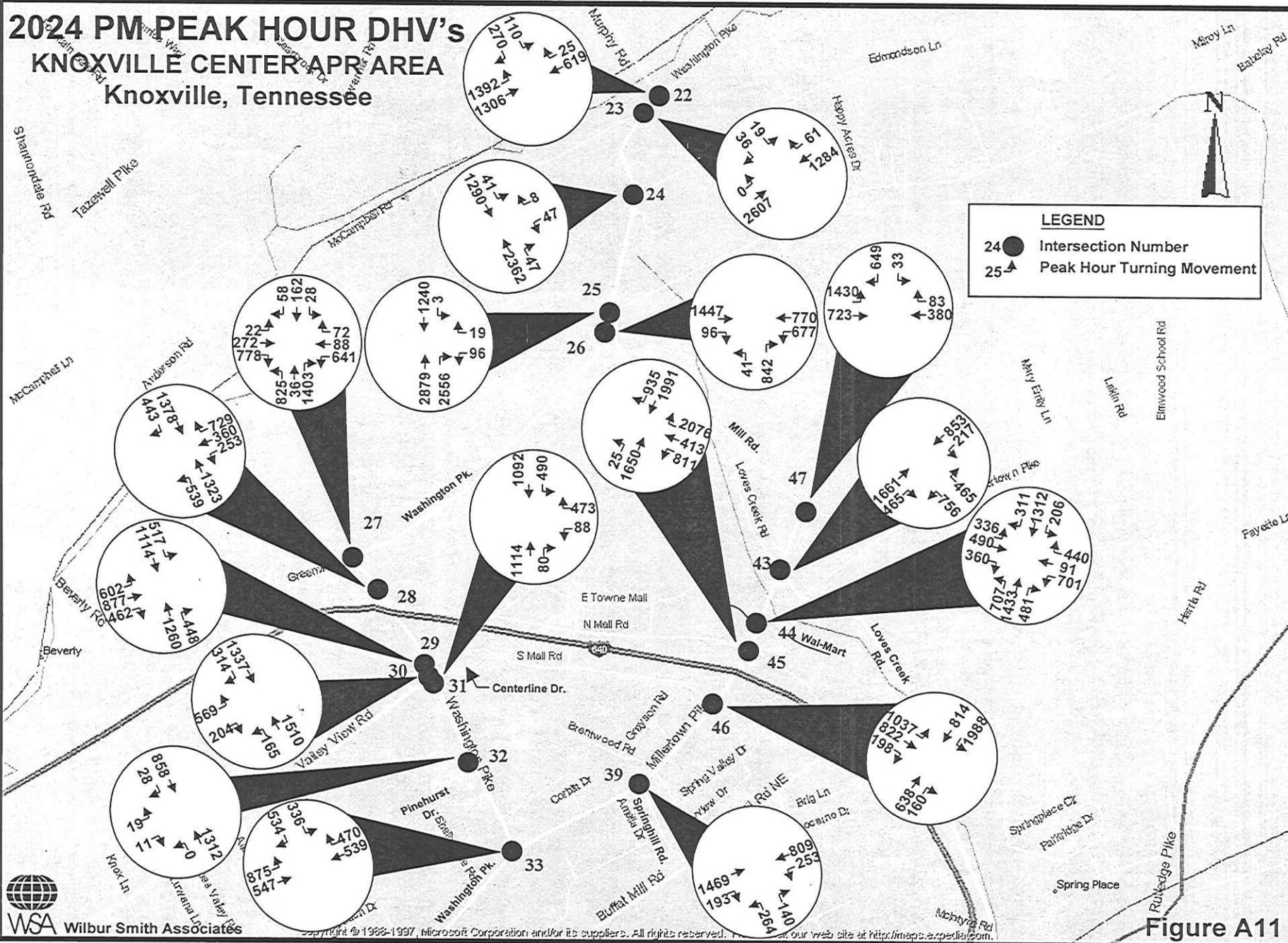


Figure A11

2024 PM PEAK HOUR DHV'S WITH MURPHY ROAD EXTENDED Knoxville, Tennessee

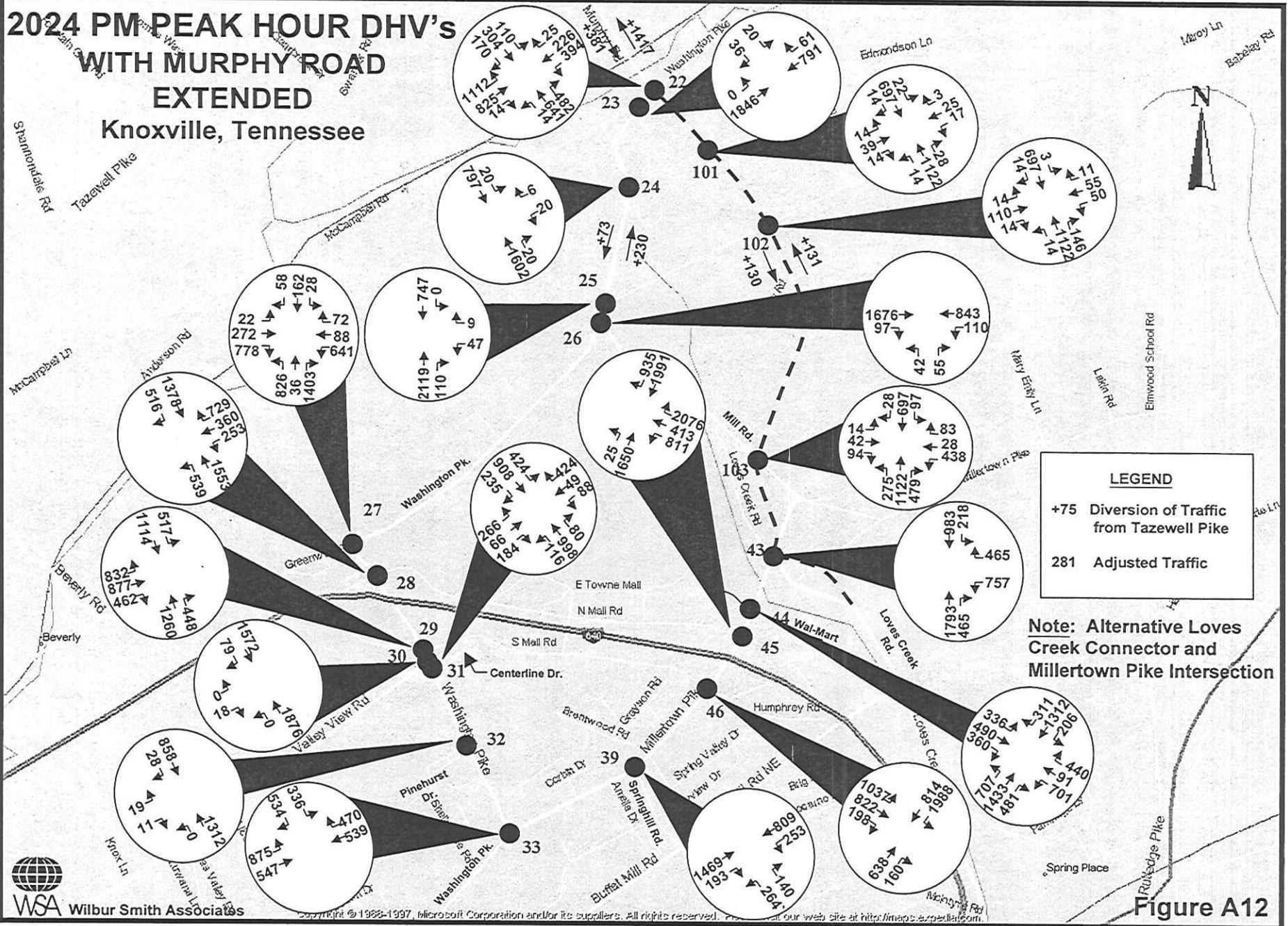


Figure A12

2024 AM PEAK HOUR LEVELS OF SERVICE KNOXVILLE CENTER APR AREA Knoxville, Tennessee

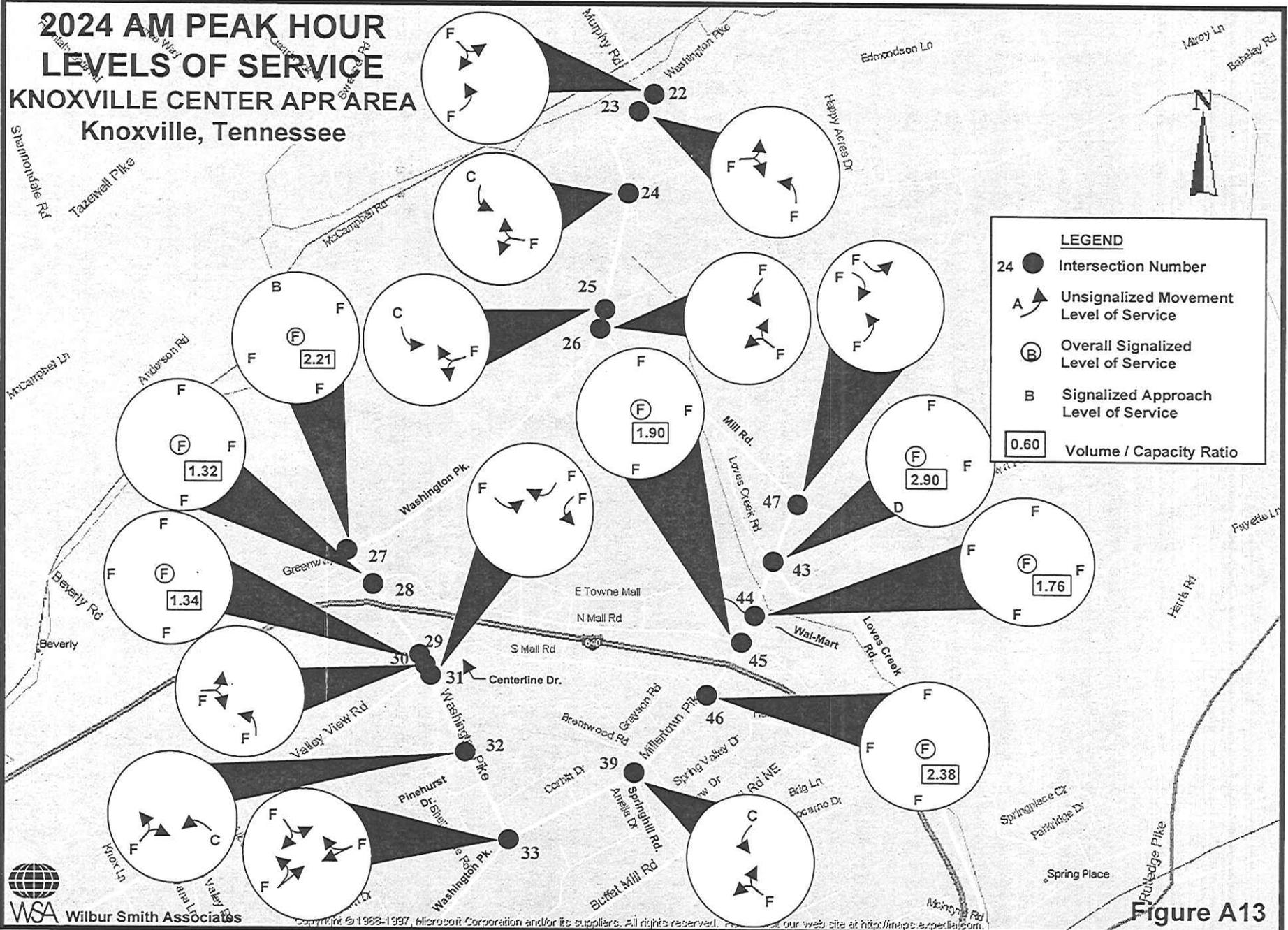
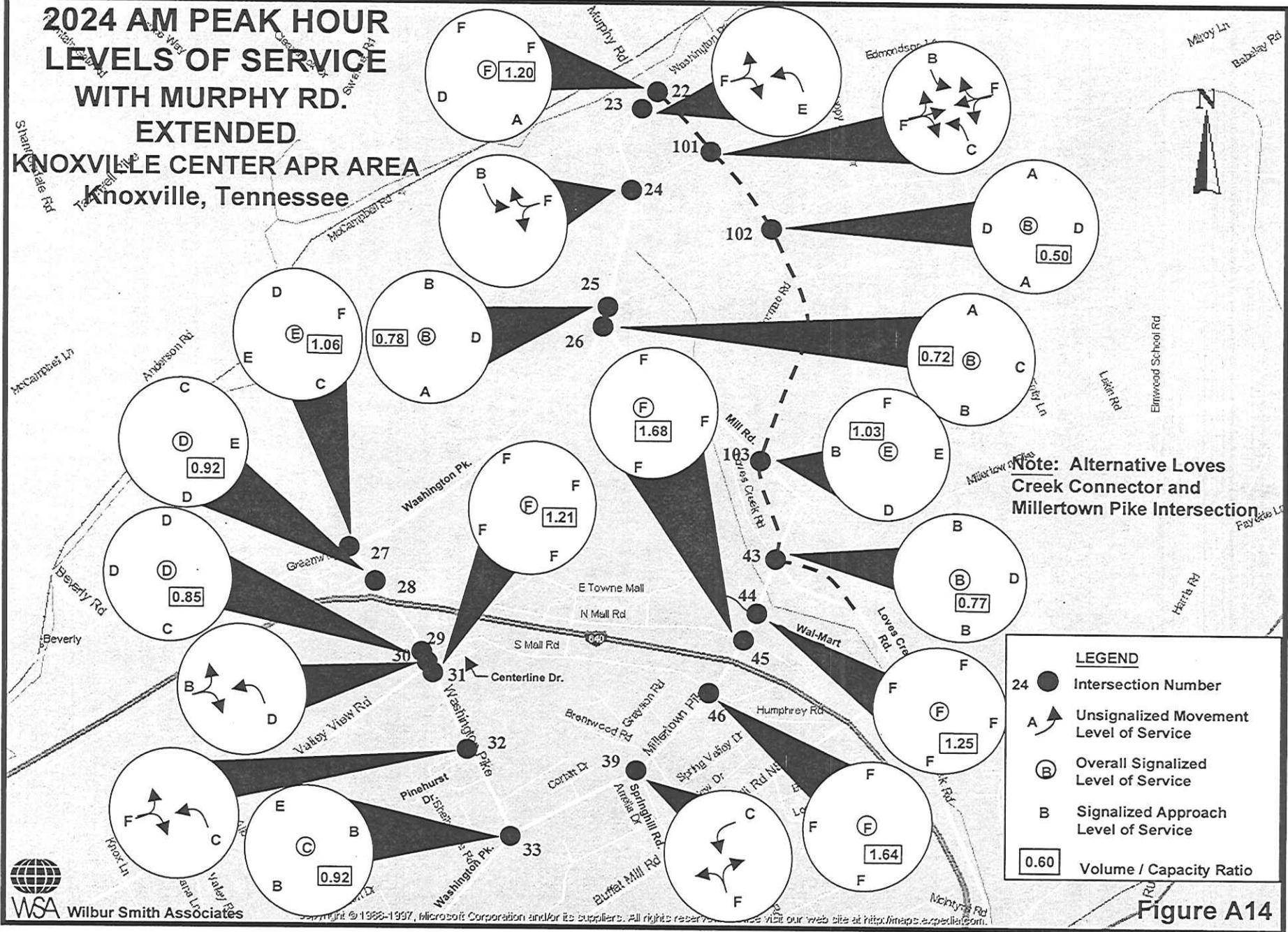


Figure A13

2024 AM PEAK HOUR LEVELS OF SERVICE WITH MURPHY RD. EXTENDED KNOXVILLE CENTER APR AREA Knoxville, Tennessee



Note: Alternative Loves Creek Connector and Millertown Pike Intersection

Figure A14

2024 PM PEAK HOUR LEVELS OF SERVICE KNOXVILLE CENTER APR AREA Knoxville, Tennessee

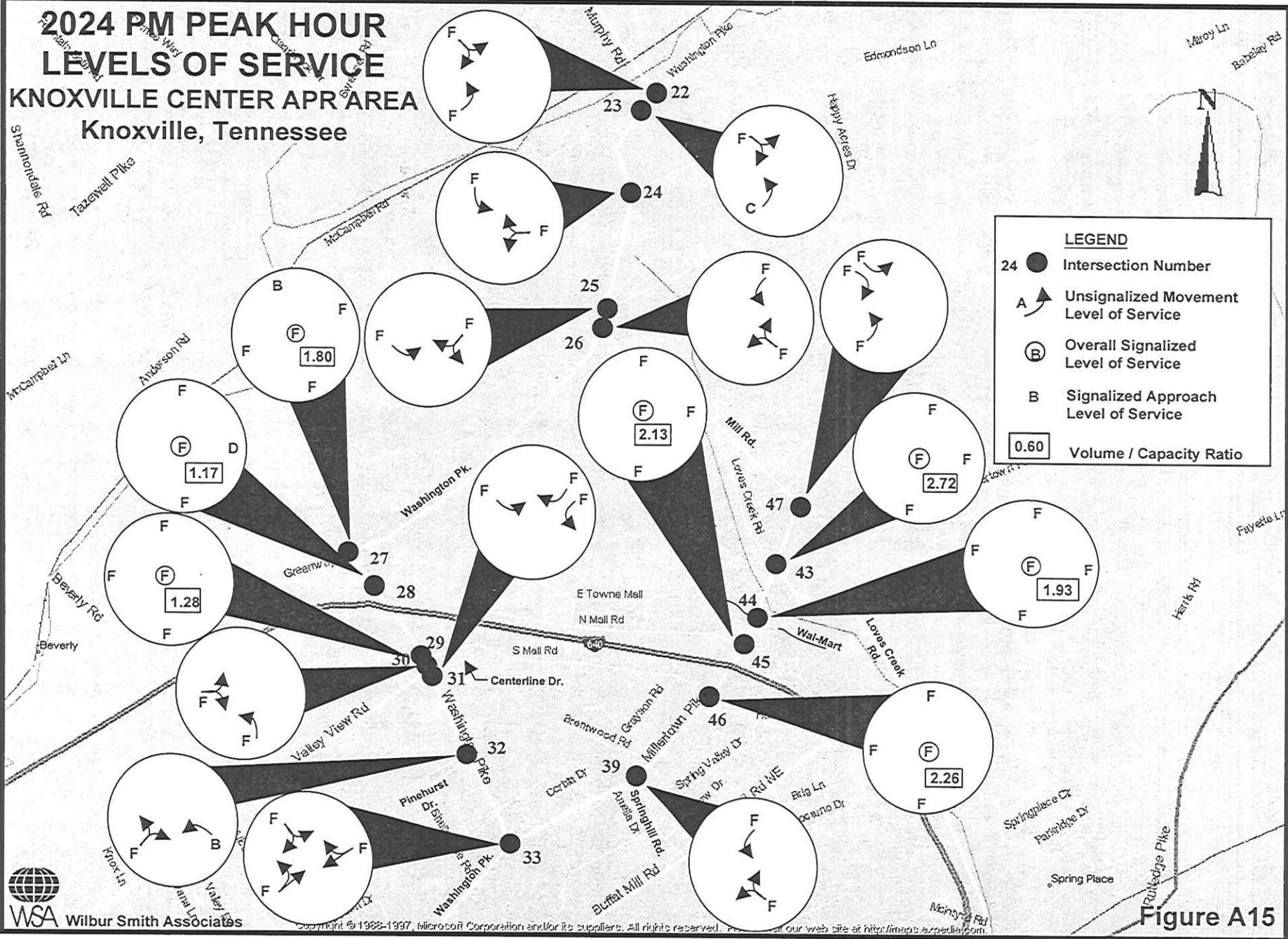


Figure A15

2024 PM PEAK HOUR LEVELS OF SERVICE WITH MURPHY RD. EXTENDED KNOXVILLE CENTER APR AREA Knoxville, Tennessee

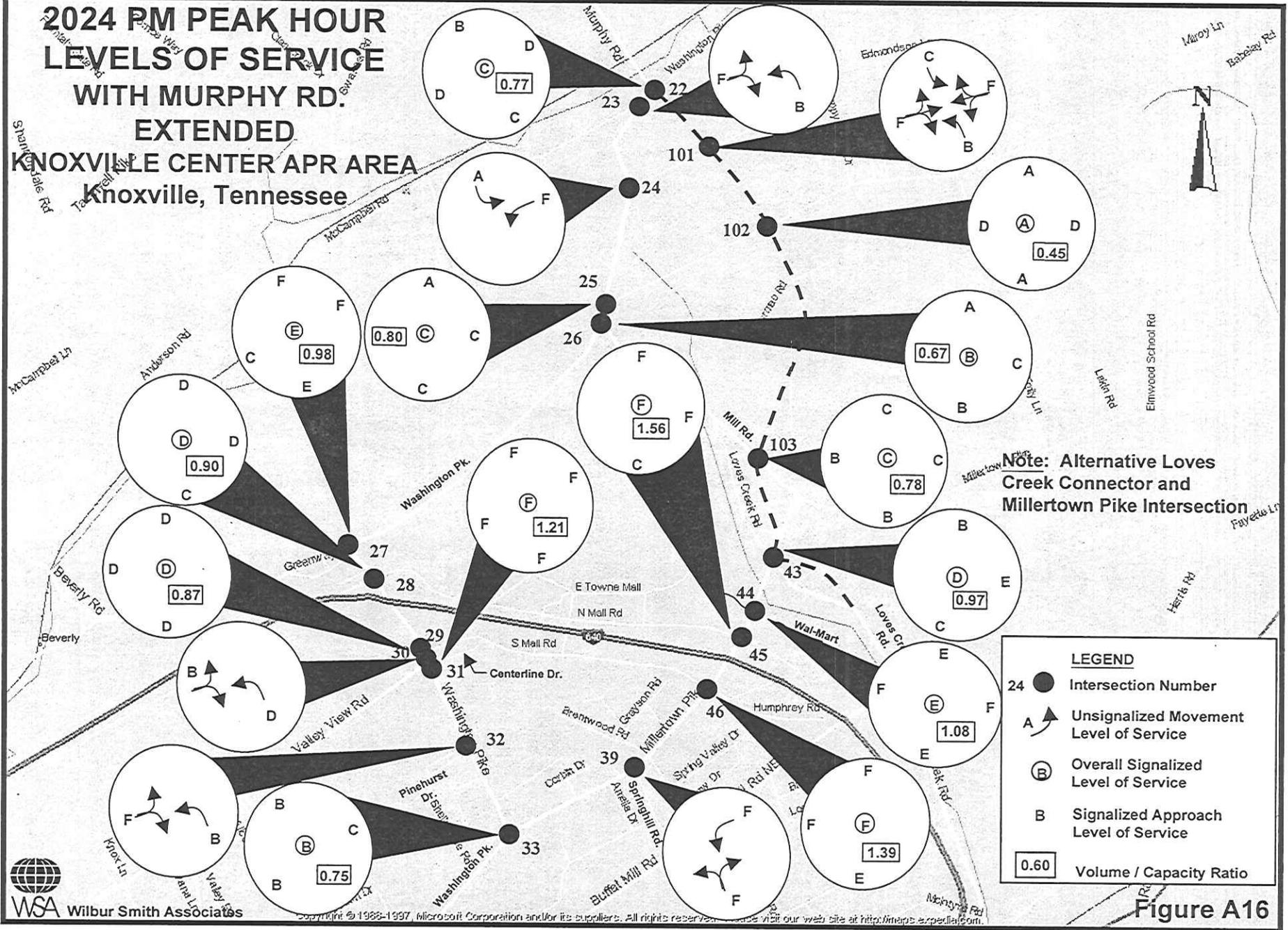
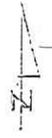


Figure A16



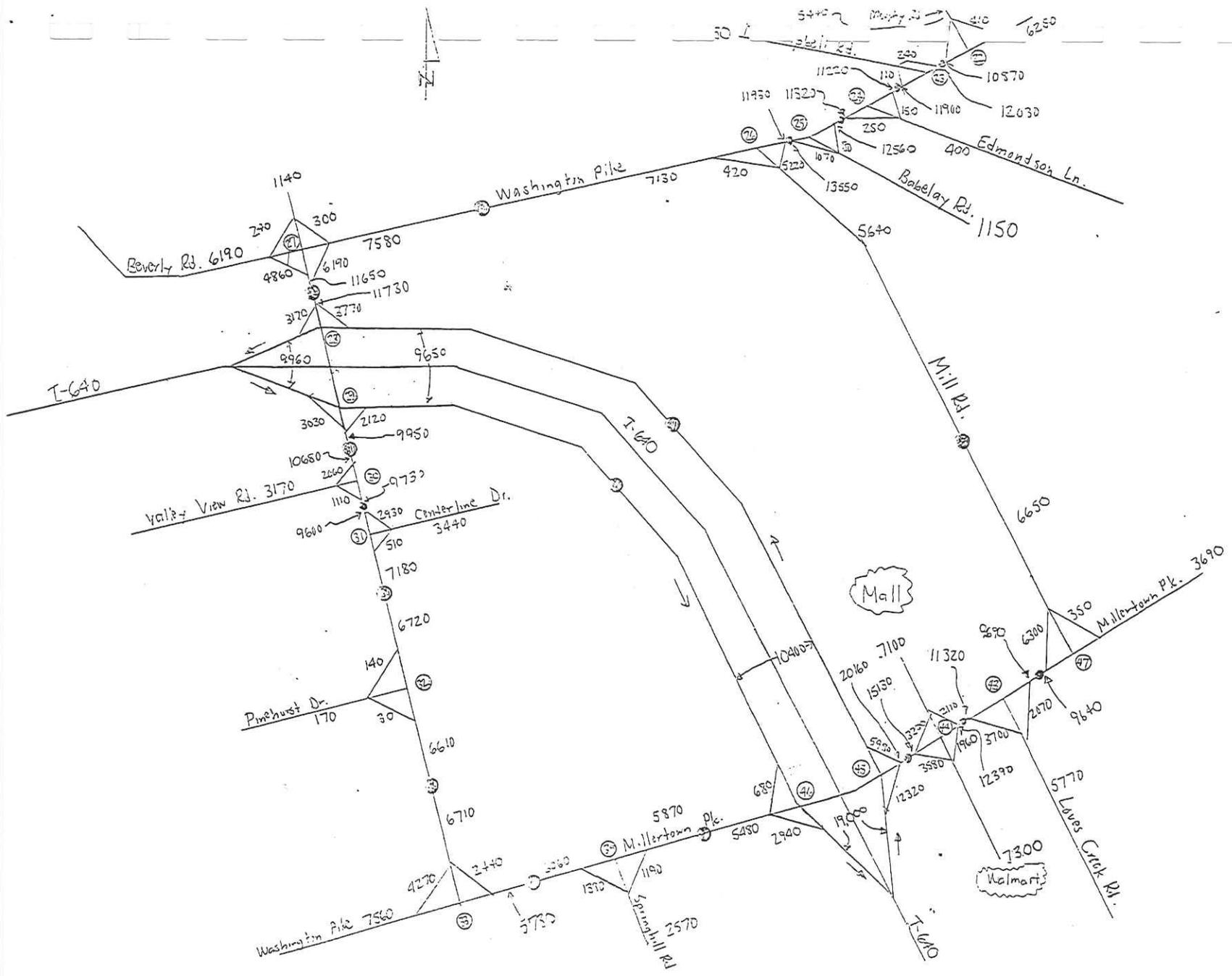
1999 ADT's

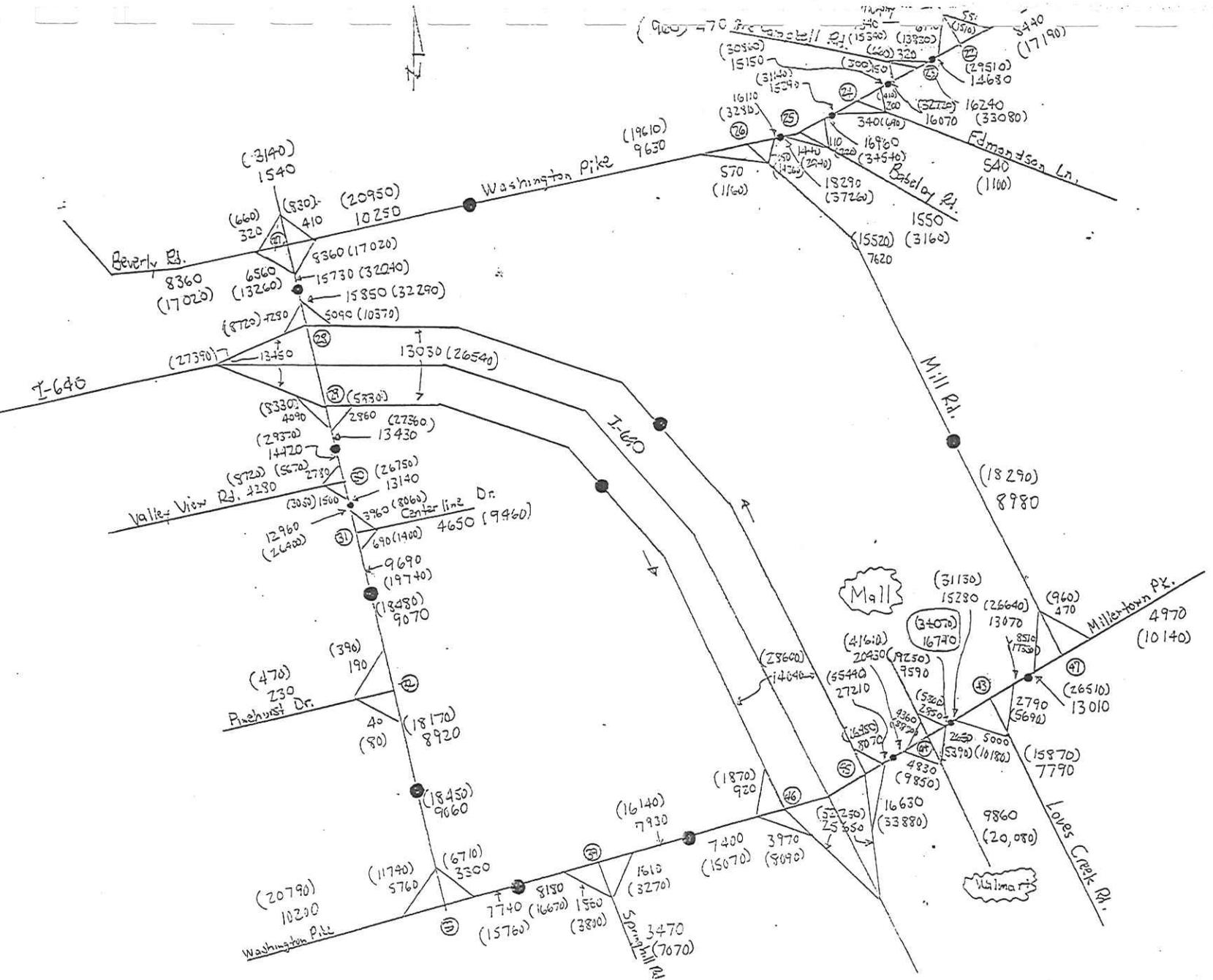
Knoxville, TN

Washington Pike,
Millertown Pike, Mill Road,
Loves Creek Road

JK

05-20-99





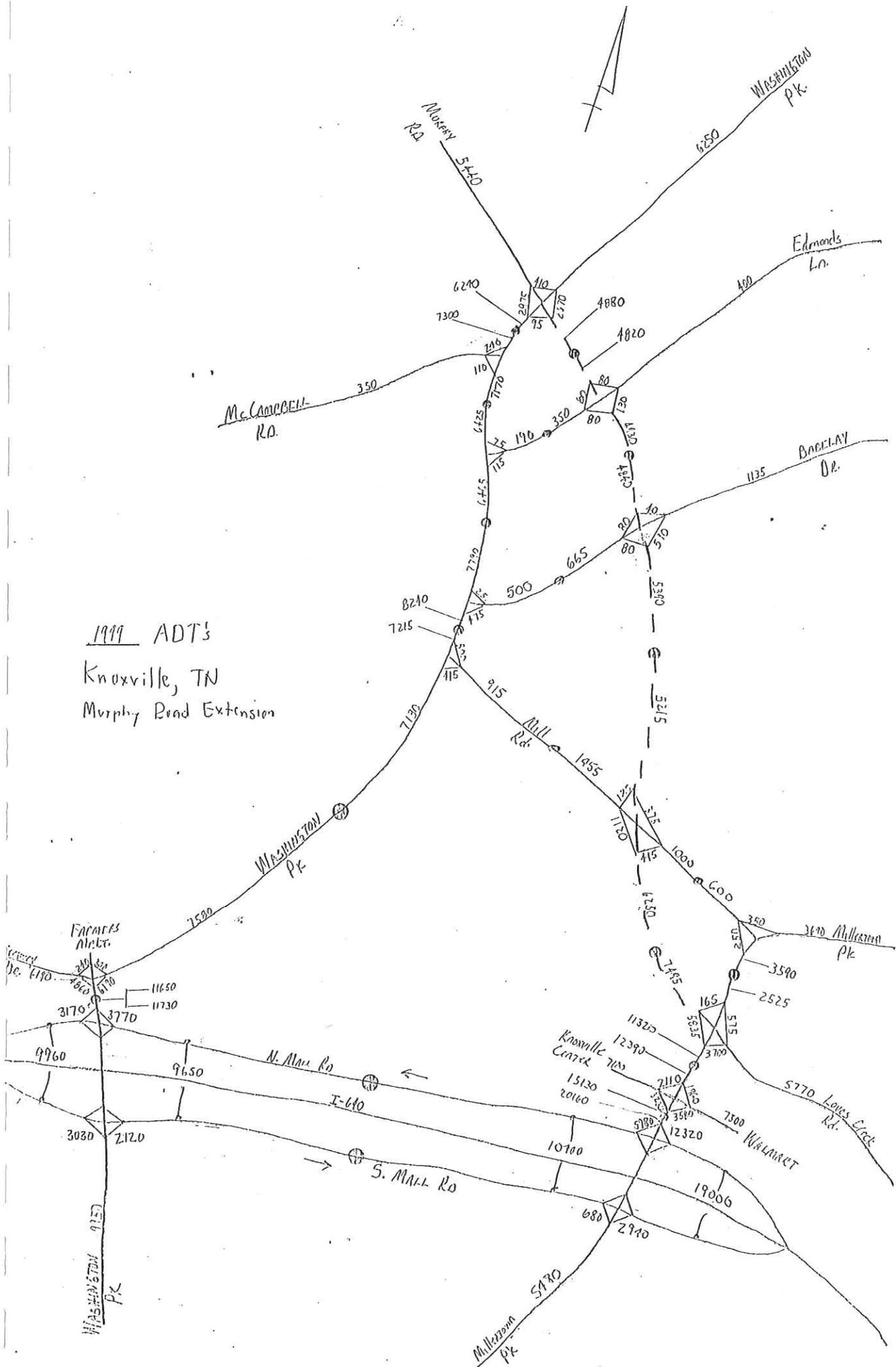
Knoxville, TN
 Washington Pike, Millertown Pike,
 Mill Road, Loves Creek Road

LEGEND

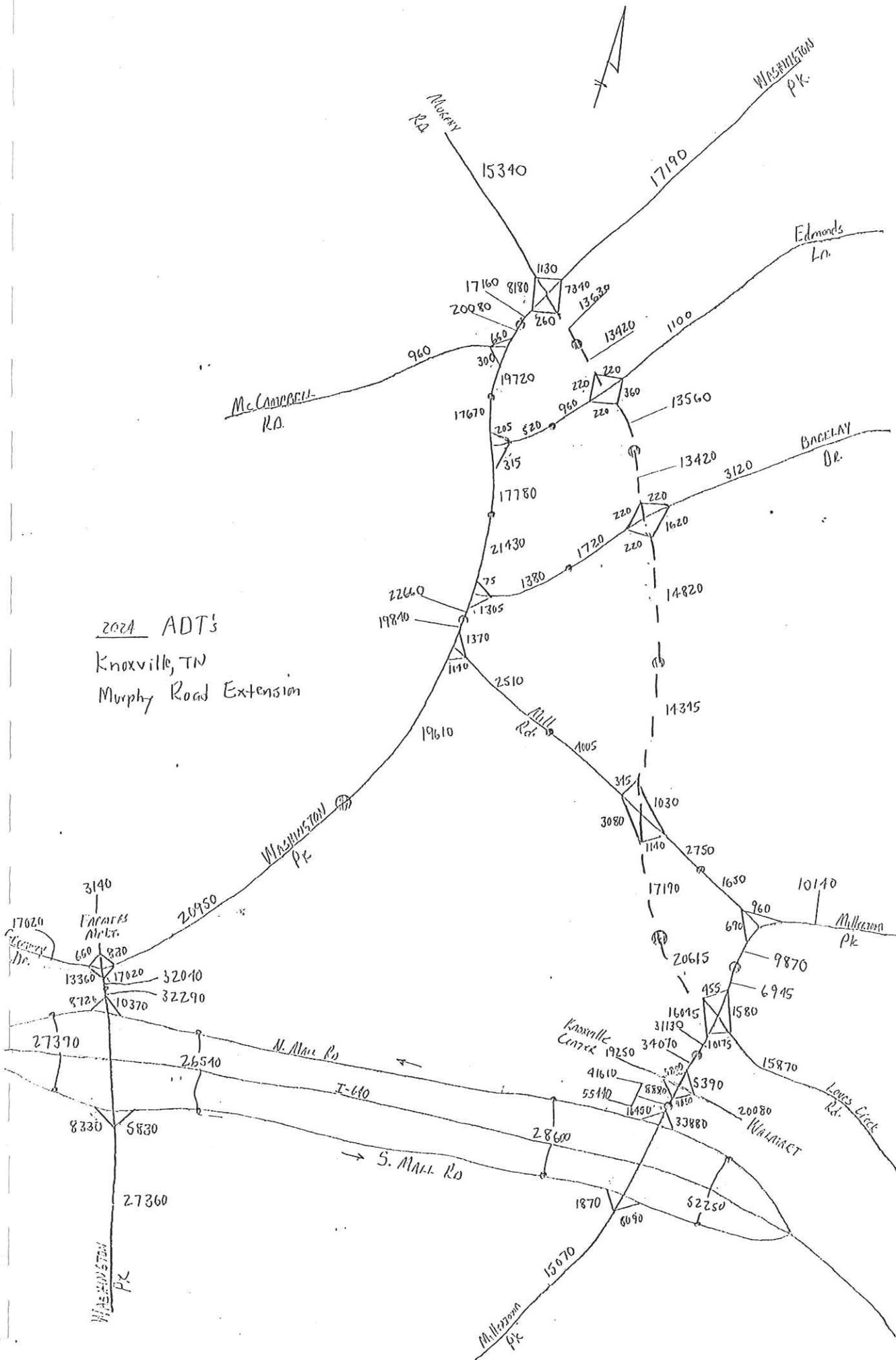
15000 2004 ADT
 (15000) 2024 ADT

05-20-99

1999 ADT's
 Knoxville, TN
 Murphy Road Extension



2024 ADT's
 Knoxville, TN
 Murphy Road Extension



MURPHY RD
+3080

WASHINGTON PK.

Edmonds Ln.

McCAMPBELL RD.

BAGLEY DR.

2004 ADT's +1650
Knoxville, TN
Murphy Road Extension
Diversion From Tower Hill Pike

+1430

WASHINGTON PK.

1540
FARMAS
ALERT.

MILLERSON PK.

KNOXVILLE
CONCRETE

LOUIS CRICK
RD.

N. MAIN RD.

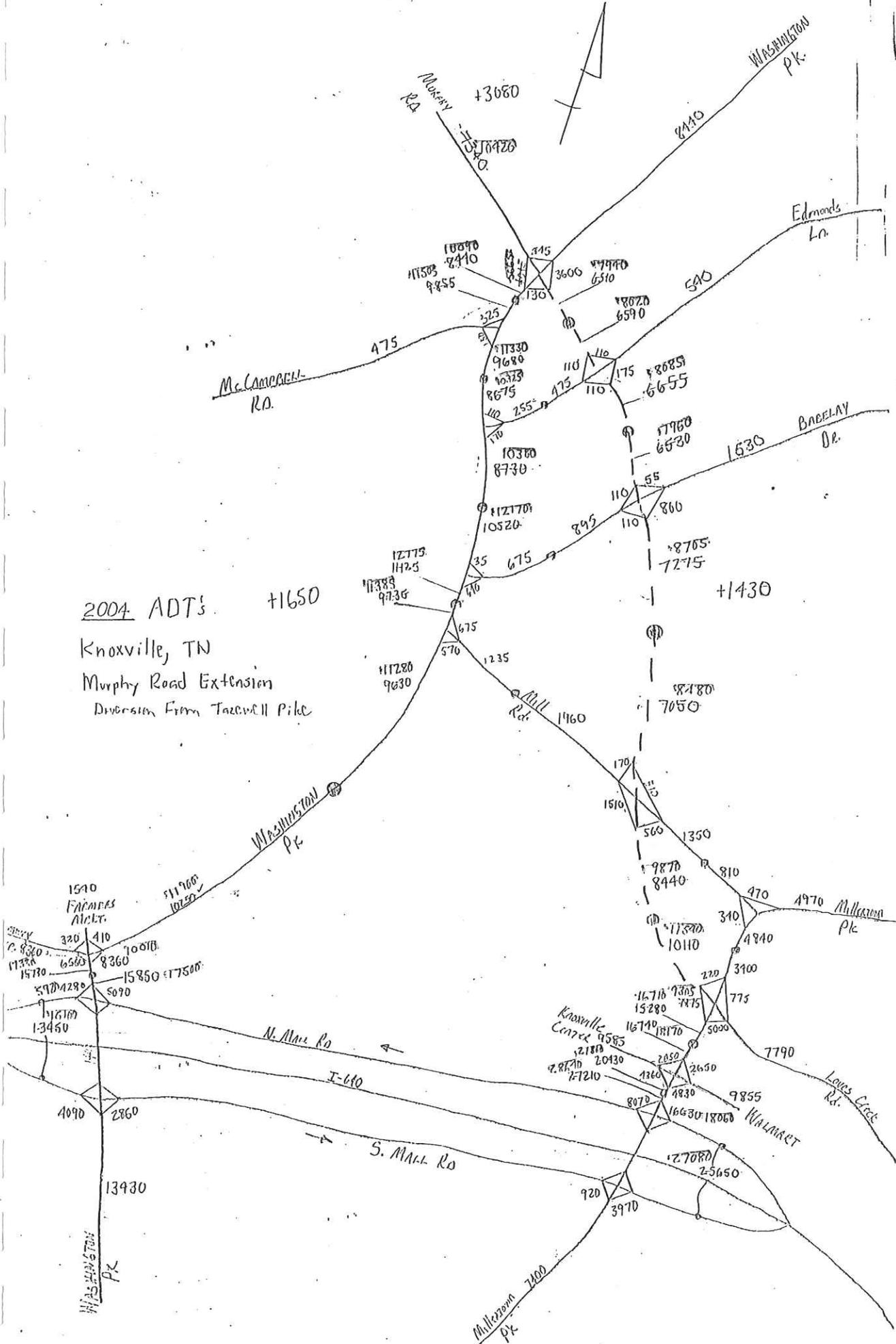
I-640

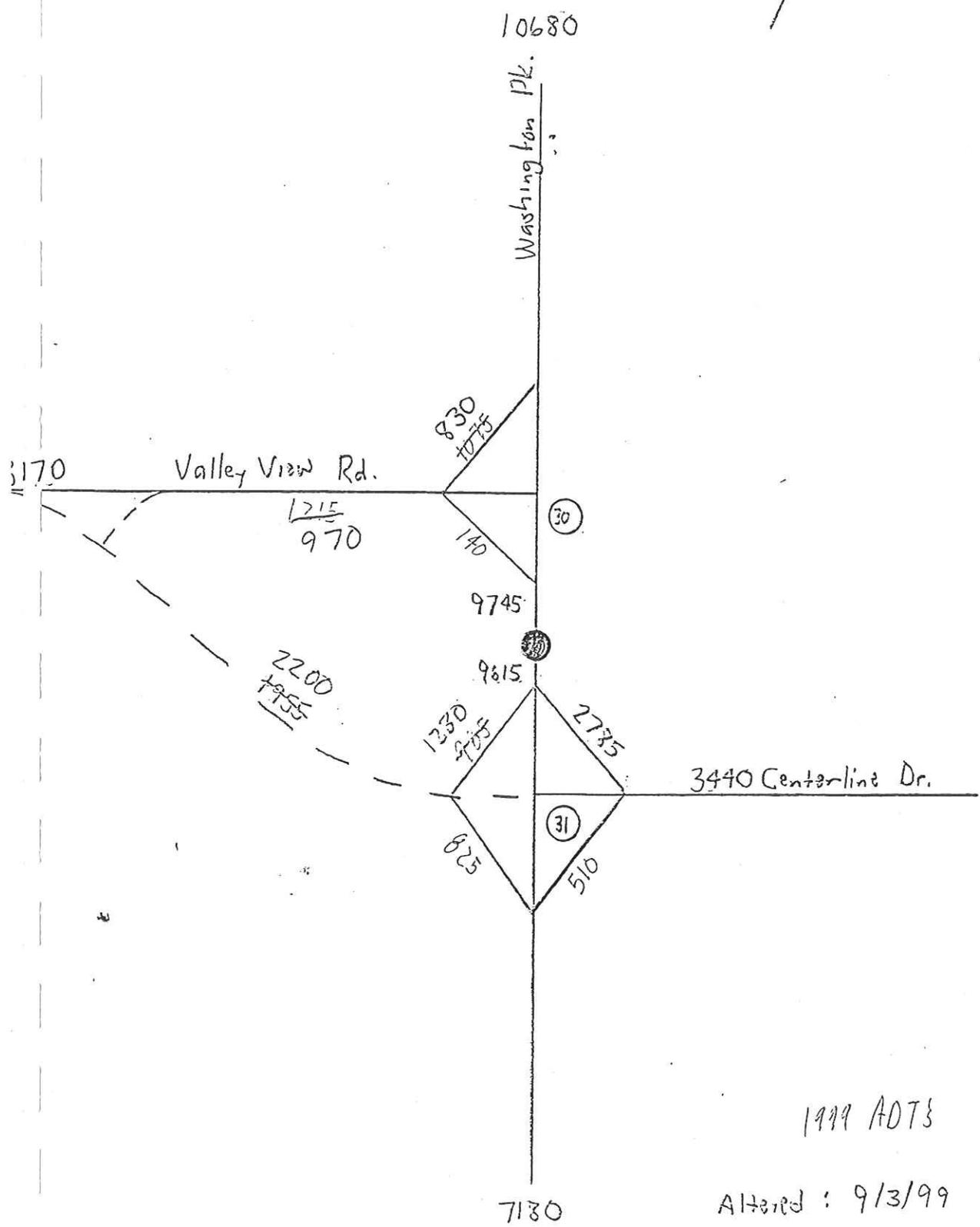
S. MAIN RD.

WALNUT

WASHINGTON PK.

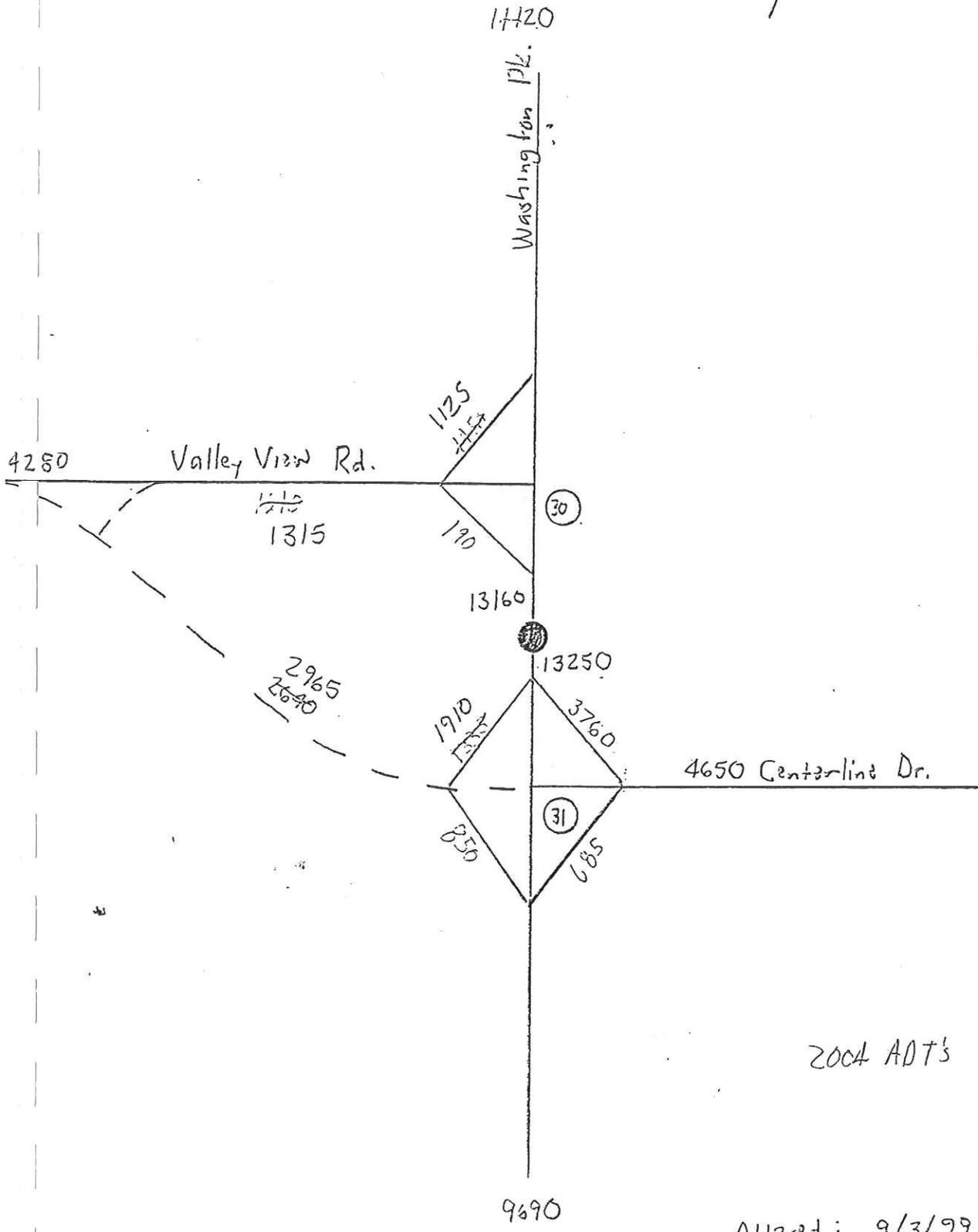
MILLERSON PK.





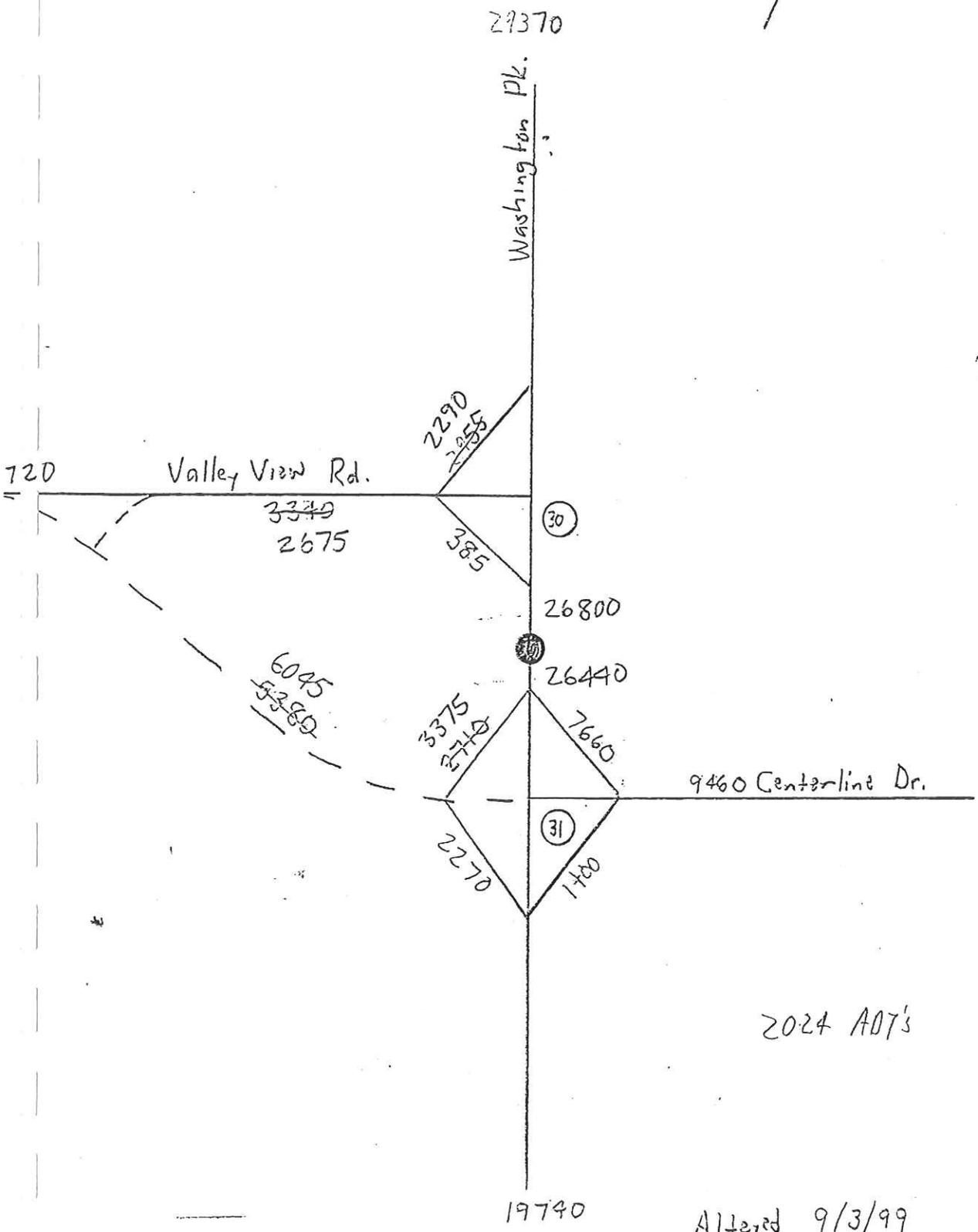
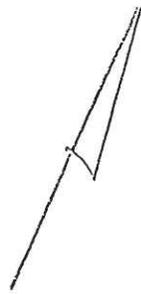
1999 ADT's

Altered: 9/3/99



2004 ADT's

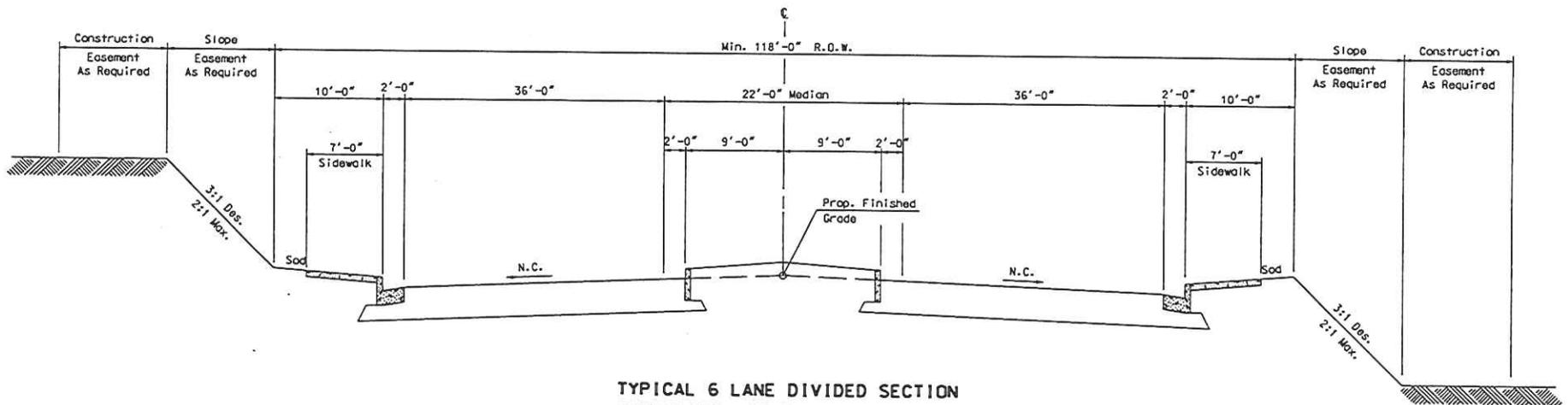
Altered: 9/3/99



2024 AOT's

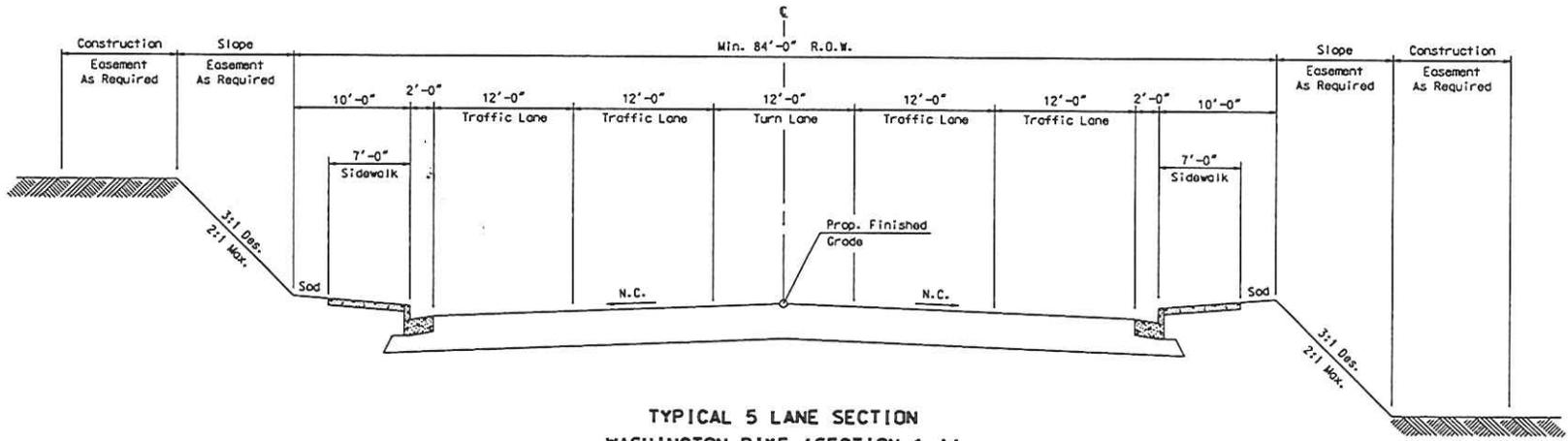
Altered 9/3/99

TYPICAL SECTION

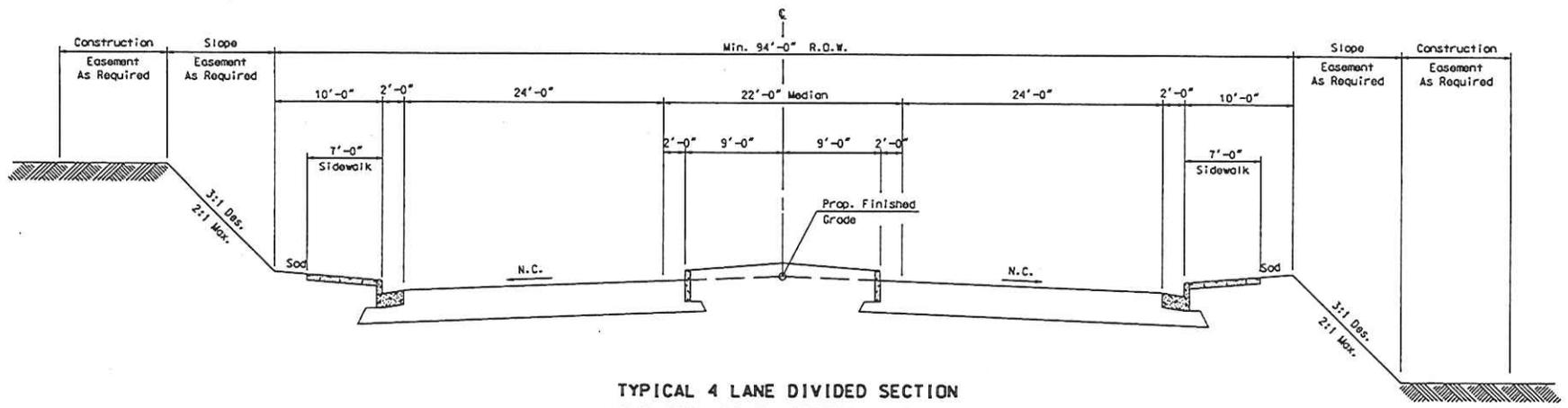


TYPICAL 6 LANE DIVIDED SECTION
 WASHINGTON PIKE - SECTION 2-B
 FROM NORTH OF MALL ENTRANCE THRU RELOC. LOVES CREEK RD.

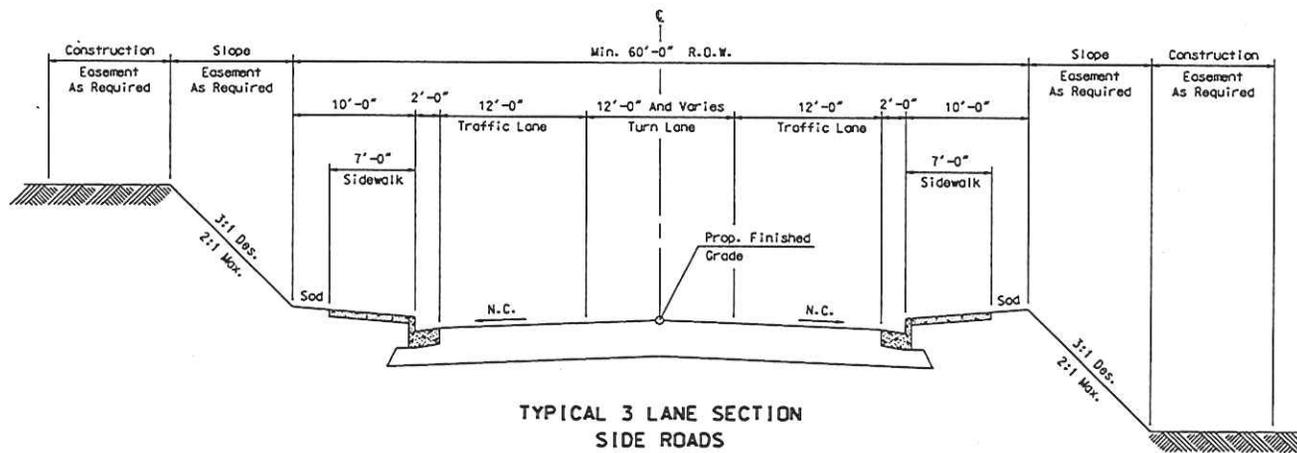
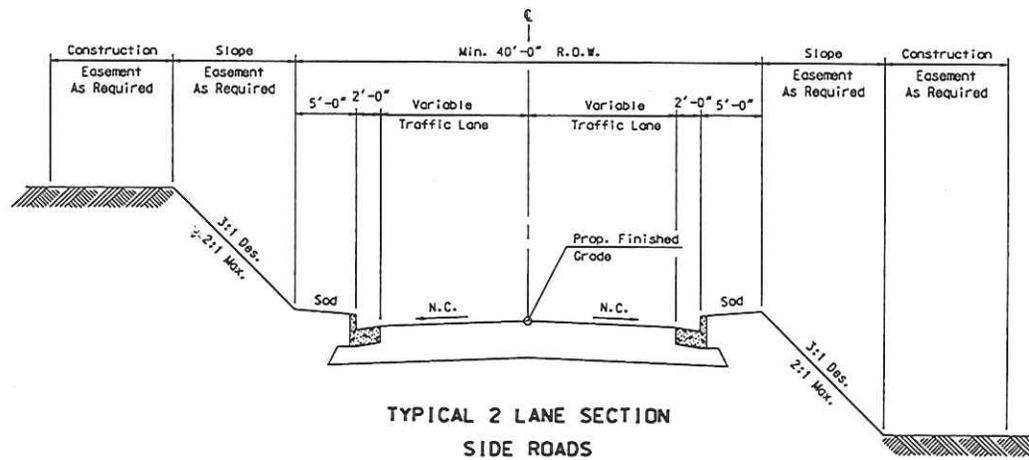




TYPICAL 5 LANE SECTION
 WASHINGTON PIKE (SECTION 1-A)
 MILLERTOWN PIKE (SECTION 2-A)



TYPICAL 4 LANE DIVIDED SECTION
 WASHINGTON PIKE (SECTION 1-B, 1-C)
 MURPHY ROAD EXTENSION (SECTION 2-C)



DESIGN CRITERIA

**TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE**

ROUTE Washington Pike 1-A ALTERNATE _____ SECTION 5-lane

REGION 1 COUNTY Knox PROJECT NO _____

LOCATION: Knoxville FROM: Millertown Pike, Sta. 100+00

TO: Interstate 640, Sta. 128+00.00

2004 ADT 14,420

2024 ADT 29,370

PERCENT TRUCKS 4

2024 DHV 3,527

FUNCTIONAL CLASSIFICATION Urban Minor Arterial

MINIMUM DESIGN SPEED 45 mph

ACCESS CONTROL N/A

MAXIMUM CURVE 8 degree (0.40 S.E.)

MAXIMUM GRADE 7.5 percent

MINIMUM STOPPING SIGHT DISTANCE 400 ft.

SURFACE WIDTH 2 @ 24 ft.

NUMBER OF LANES 4

USABLE SHOULDER WIDTH 6"-30" C&G

MEDIAN WIDTH 12 ft.-Center turn lane

MINIMUM RIGHT OF WAY 84 ft.*

SIGNALIZATION Centerline Dr. **

REMARKS ** Proposed new traffic signal.

* Easements will be necessary outside the right-of-way limits.

**TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE**

ROUTE Washington Pike 1-B ALTERNATE _____ SECTION 4-lane

REGION 1 COUNTY Knox PROJECT NO _____

LOCATION: Knoxville FROM: Interstate 640, Sta. 128+00.00

TO: Greenway Drive, Sta. 147+17.00

2004 ADT 17,500

2024 ADT 34,800

PERCENT TRUCKS 4

2024 DHV 4,176

FUNCTIONAL CLASSIFICATION Urban Minor Arterial

MINIMUM DESIGN SPEED 45 mph

ACCESS CONTROL N/A

MAXIMUM CURVE 8 degree (0.40 S.E.)

MAXIMUM GRADE 7.5 percent

MINIMUM STOPPING SIGHT DISTANCE 400 ft.

SURFACE WIDTH 2 @ 24 ft.

NUMBER OF LANES* 4

USABLE SHOULDER WIDTH 6"-30" C&G

MEDIAN WIDTH 22 ft.

MINIMUM RIGHT OF WAY 94 ft.*

SIGNALIZATION Greenway Dr.**

REMARKS ** Existing traffic signal that will require modification.
* Easements will be necessary outside the right-of-way limits.

**TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE**

ROUTE Washington Pike 1-C ALTERNATE _____ SECTION 4-lane

REGION 1 COUNTY Knox PROJECT NO _____

LOCATION: Knoxville FROM: Greenway Drive, Sta. 100+00.00

TO: Murphy Road, Sta. 192+08.31

2004 ADT 12,170

2024 ADT 23,940

PERCENT TRUCKS 4

2024 DHV 2,875

FUNCTIONAL CLASSIFICATION Urban Minor Arterial

MINIMUM DESIGN SPEED 45 mph

ACCESS CONTROL N/A

MAXIMUM CURVE 8 degree (0.40 S.E.)

MAXIMUM GRADE 7.5 percent

MINIMUM STOPPING SIGHT DISTANCE 400 ft.

SURFACE WIDTH 2 @ 24'

NUMBER OF LANES 4

USABLE SHOULDER WIDTH 6"-30" C&G

MEDIAN WIDTH 22 ft.

MINIMUM RIGHT OF WAY 94 ft.*

SIGNALIZATION Mill Road, Babelay Road, and Murphy Road**

REMARKS ** Proposed new traffic signals.
Mill and Babelay Roads would be realigned at Washington Pk to create a 90 degree intersection.
* Easements will be necessary outside the right-of-way limits.

**TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE**

ROUTE Washington / Millertown Pk 2-A ALTERNATE _____ SECTION 5-lane

REGION 1 COUNTY Knox PROJECT NO _____

LOCATION: Knoxville FROM: Shelborne Road, Sta. 96+84.84

TO: Interstate 640, Sta. 144+40.00

2004 ADT 10,200

2024 ADT 20,790

PERCENT TRUCKS 4

2024 DHV 2,495

FUNCTIONAL CLASSIFICATION Urban Minor Arterial

MINIMUM DESIGN SPEED 45 mph

ACCESS CONTROL N/A

MAXIMUM CURVE 8 degree (0.40 S.E.)

MAXIMUM GRADE 7.5 percent

MINIMUM STOPPING SIGHT DISTANCE 400 ft.

SURFACE WIDTH 2 @ 24'

NUMBER OF LANES 4

USABLE SHOULDER WIDTH 6"-30" C&G

MEDIAN WIDTH 12 ft.-Center turn lane

MINIMUM RIGHT OF WAY 84 ft.*

SIGNALIZATION Washington Pk.**

REMARKS ** Proposed new traffic signal
* Easements will be necessary outside the right-of-way limits

**TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE**

ROUTE Millertown Pike 2-B ALTERNATE _____ SECTION 6-lane

REGION 1 COUNTY Knox PROJECT NO _____

LOCATION: Knoxville FROM: Interstate 640, Sta. 144+40.00

TO: Loves Creek Road, Sta. 163+14.30

2004 ADT 28,640

2024 ADT 57,630

PERCENT TRUCKS 4

2024 DHV 6,652

FUNCTIONAL CLASSIFICATION Urban Minor Arterial

MINIMUM DESIGN SPEED 45 mph

ACCESS CONTROL N/A

MAXIMUM CURVE 8 degree (0.40 S.E.)

MAXIMUM GRADE 7.5 percent

MINIMUM STOPPING SIGHT DISTANCE 400 ft.

SURFACE WIDTH 2 @ 36'

NUMBER OF LANES 6

USABLE SHOULDER WIDTH 6"-30" C&G

MEDIAN WIDTH 22 ft.

MINIMUM RIGHT OF WAY 118 ft.*

SIGNALIZATION Mall Entrance, Loves Creek Rd.**

REMARKS ** Both traffic signals noted are existing ones that will need to be re-designed.
* Easements will be necessary outside the right-of-way limits

**TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE**

ROUTE Murphy Road Extension 2-C ALTERNATE SECTION 4-lane

REGION 1 COUNTY Knox PROJECT NO _____

LOCATION: Knoxville FROM: Loves Creek Road, Sta. 163+14.30

TO: Washington Pike @ Murphy Road, Sta. 241+00.00 (Southern Railway ROW)

2004 ADT 11,590

2024 ADT 22,805

PERCENT TRUCKS 4

2024 DHV 3,459

FUNCTIONAL CLASSIFICATION Urban Minor Arterial

MINIMUM DESIGN SPEED 45 mph

ACCESS CONTROL N/A

MAXIMUM CURVE 8 degree (0.40 S.E.)

MAXIMUM GRADE 7.5 percent

MINIMUM STOPPING SIGHT DISTANCE 400 ft.

SURFACE WIDTH 2 @ 24'

NUMBER OF LANES 4

USABLE SHOULDER WIDTH 6"-30" C&G

MEDIAN WIDTH 22 ft.

MINIMUM RIGHT OF WAY 94 ft.*

SIGNALIZATION Mill Road and Babelay Dr**

REMARKS ** Proposed traffic signals that do not exist.

* Easements will be necessary outside the right-of-way limits

COST ESTIMATE

COST DATA SHEET

PROJECT: Washington Pike and Millertown Pike - Washington Pike - 1-A
Knoxville, Knox County, Tennessee

LENGTH: 0.91 miles CROSS SECTION: 64' / 84'

RIGHT-OF-WAY

Land, Improvements, and Damages (1.44 ha)	(3.55 ac)	\$	408,690.00
Incidentals (38 Tracts)			
Relocation Payments (0 Residences)		\$	-
(0 Businesses)			
(0 Non-Profits)			
Total Right-of -Way Cost		\$	409,000.00

Utility Relocation

Reimbursable	\$	-
Non-Reimbursable	\$	722,000.00
Total Adjustment Cost	\$	722,000.00

Construction

Clearing and Grubbing	\$	7,292.42
Earthwork	\$	519,182.59
Pavement Removal	\$	27,808.44
Drainage (Includes Erosion Control)	\$	397,072.50
Structures	\$	33,000.00
Railroad Crossing	\$	-
Paving	\$	659,196.52
Retaining Walls	\$	-
Maintenance of Traffic	\$	132,755.00
Topsoil	\$	5,347.78
Seeding	\$	2,656.78
Sodding	\$	8,811.00
Signing	\$	8,190.75
Signalization	\$	60,000.00
Fence	\$	-
Guardrail	\$	-
Rip Rap or Slope Protection	\$	3,000.00
Other Construction Items (8.5 %)	\$	164,500.00
Mobilization		
10% Eng. & Cont.		
Total Construction Cost	\$	2,029,000.00

Preliminary Engineering (10%) \$ 202,900.00

TOTAL SECTION COST **\$ 3,362,900**

COST DATA SHEET

PROJECT: Washington Pike and Millertown Pike - Washington Pike - 1-B
Knoxville, Knox County, Tennessee

LENGTH: 0.36 miles CROSS SECTION: 2 @ 24' / 74' / 94'

RIGHT-OF-WAY

Land, Improvements, and Damages (0 ha) (0 ac)	\$	-
Incidentals (0 Tracts)		
Relocation Payments (0 Residences)	\$	-
(0 Businesses)		
(0 Non-Profits)		
Total Right-of -Way Cost	\$	-

Utility Relocation

Reimbursable	\$	-
Non-Reimbursable	\$	288,000.00
Total Adjustment Cost	\$	288,000.00

Construction

Clearing and Grubbing	\$	2,904.54
Earthwork	\$	205,257.64
Pavement Removal	\$	11,076.00
Drainage (Includes Erosion Control)	\$	158,152.50
Structures	\$	67,500.00
Railroad Crossing	\$	-
Paving	\$	224,819.97
Retaining Walls	\$	-
Maintenance of Traffic	\$	62,475.00
Topsoil	\$	2,130.00
Seeding	\$	1,058.18
Sodding	\$	6,390.00
Signing	\$	8,190.75
Signalization	\$	60,000.00
Fence	\$	-
Guardrail	\$	-
Rip Rap or Slope Protection	\$	-
Other Construction Items (8.5 %)	\$	68,846.14
Mobilization		
10% Eng. & Cont.	\$	87,880.07
Total Construction Cost	\$	967,000.00

Preliminary Engineering (10%) \$ 96,700.00

TOTAL SECTION COST **\$ 1,351,700**

COST DATA SHEET

PROJECT: Washington Pike and Millertown Pike - Washington Pike - 1-C
Knoxville, Knox County, Tennessee

LENGTH: 2.01 miles CROSS SECTION: 2 @ 24' / 74' / 94'

RIGHT-OF-WAY

Land, Improvements, and Damages (3.01 ha)	(7.44 ac)	\$	700,000.00
Incidentals (56 Tracts)			
Relocation Payments (0 Residences)		\$	577,842.00
(1 Businesses)			
(0 Non-Profits)			
Total Right-of -Way Cost		\$	1,278,000.00

Utility Relocation

Reimbursable	\$	-
Non-Reimbursable	\$	1,595,000.00
Total Adjustment Cost	\$	1,595,000.00

Construction

Clearing and Grubbing	\$	16,102.18
Earthwork	\$	1,307,764.35
Pavement Removal	\$	61,402.99
Drainage (Includes Erosion Control)	\$	876,763.80
Structures	\$	-
Railroad Crossing	\$	-
Paving	\$	1,785,222.15
Retaining Walls	\$	-
Maintenance of Traffic	\$	305,940.00
Topsoil	\$	11,808.26
Seeding	\$	5,866.34
Sodding	\$	18,926.78
Signing	\$	8,190.75
Signalization	\$	180,000.00
Fence	\$	-
Guardrail	\$	-
Rip Rap or Slope Protection	\$	-
Other Construction Items (8.5 %)	\$	389,128.95
Mobilization		
10% Eng. & Cont.	\$	496,711.65
Total Construction Cost	\$	5,464,000.00
<u>Preliminary Engineering (10%)</u>	<u>\$</u>	<u>546,400.00</u>

TOTAL SECTION COST **\$ 8,883,400**

COST DATA SHEET

PROJECT: Washington Pike and Millertown Pike - Millertown Pike - 2-A
Knoxville, Knox County, Tennessee

LENGTH: 1.04 miles CROSS SECTION: 64' / 84'

RIGHT-OF-WAY

Land, Improvements, and Damages (1.40 ha)	(3.45 ac)	\$	303,908.00
Incidentals (40 Tracts)			
Relocation Payments (0 Residences)		\$	-
	(0 Businesses)		
	(0 Non-Profits)		
Total Right-of -Way Cost		\$	304,000.00

Utility Relocation

Reimbursable	\$	-
Non-Reimbursable	\$	820,500.00
Total Adjustment Cost	\$	820,500.00

Construction

Clearing and Grubbing	\$	8,288.12
Earthwork	\$	591,626.69
Pavement Removal	\$	31,605.37
Drainage (Includes Erosion Control)	\$	451,288.20
Structures	\$	148,500.00
Railroad Crossing	\$	-
Paving	\$	914,820.51
Retaining Walls	\$	26,400.00
Maintenance of Traffic	\$	189,315.00
Topsoil	\$	12,155.91
Seeding	\$	3,019.53
Sodding	\$	9,911.38
Signing	\$	8,190.75
Signalization	\$	60,000.00
Fence	\$	-
Guardrail	\$	-
Rip Rap or Slope Protection	\$	-
Other Construction Items (8.5 %)	\$	208,685.32
Mobilization		
10% Eng. & Cont.	\$	266,380.68
Total Construction Cost	\$	2,930,500.00

Preliminary Engineering (10%) \$ 293,050.00

TOTAL SECTION COST **\$ 4,348,050**

COST DATA SHEET

PROJECT: Washington Pike and Millertown Pike - Millertown Pike - 2-B
Knoxville, Knox County, Tennessee

LENGTH: 0.96 miles CROSS SECTION: 2 @ 36' / 98' / 118'

RIGHT-OF-WAY

Land, Improvements, and Damages (1.07 ha)	(2.64. ac)	\$	341,284.00
Incidentals (6 Tracts)			
Relocation Payments (0 Residences)		\$	300,000.00
(1 Businesses)			
(0 Non-Profits)			
Total Right-of -Way Cost		\$	641,500.00

Utility Relocation

Reimbursable	\$	-
Non-Reimbursable	\$	762,000.00
Total Adjustment Cost	\$	762,000.00

Construction

Clearing and Grubbing	\$	7,695.91
Earthwork	\$	547,355.36
Pavement Removal	\$	29,347.07
Drainage (Includes Erosion Control)	\$	419,042.25
Structures	\$	-
Railroad Crossing	\$	-
Paving	\$	969,303.38
Retaining Walls	\$	-
Maintenance of Traffic	\$	174,930.00
Topsoil	\$	11,287.33
Seeding	\$	2,803.77
Sodding	\$	8,465.50
Signing	\$	8,190.75
Signalization	\$	90,000.00
Fence	\$	-
Guardrail	\$	-
Rip Rap or Slope Protection	\$	-
Other Construction Items (8.5 %)	\$	192,815.81
Mobilization		
10% Eng. & Cont.	\$	246,123.71
Total Construction Cost	\$	2,707,500.00
<u>Preliminary Engineering (10%)</u>	\$	270,750.00

TOTAL SECTION COST **\$ 4,381,750**

COST DATA SHEET

PROJECT: Washington Pike and Millertown Pike - Millertown Pike - 2-C
Knoxville, Knox County, Tennessee

LENGTH: 1.79 miles CROSS SECTION: 2 @ 24' / 74' / 94'

RIGHT-OF-WAY

Land, Improvements, and Damages (6.79 ha)	(16.78 ac)		\$ 1,235,428.00
Incidentals (43 Tracts)			
Relocation Payments (0 Residences)			\$ 1,100,000.00
	(1 Businesses)		
	(0 Non-Profits)		
Total Right-of -Way Cost			\$ 2,335,500.00

Utility Relocation

Reimbursable		\$ -
Non-Reimbursable		\$ 1,412,500.00
Total Adjustment Cost		\$ 1,412,500.00

Construction

Clearing and Grubbing		\$ 14,266.21
Earthwork		\$ 1,014,217.19
Pavement Removal		\$ 54,401.82
Drainage (Includes Erosion Control)		\$ 776,795.25
Structures		\$ 287,375.00
Railroad Crossing		\$ -
Paving		\$ 1,647,838.64
Retaining Walls		\$ 220,000.00
Maintenance of Traffic		\$ 253,450.00
Topsoil		\$ 20,923.17
Seeding		\$ 5,197.47
Sodding		\$ 17,781.73
Signing		\$ 8,190.75
Signalization		\$ 180,000.00
Fence		\$ -
Guardrail		\$ -
Rip Rap or Slope Protection		\$ -
Other Construction Items (8.5 %)		\$ 382,537.16
Mobilization		
10% Eng. & Cont.		\$ 488,297.44
Total Construction Cost		\$ 5,371,500.00
<u>Preliminary Engineering (10%)</u>		\$ 537,150.00

TOTAL SECTION COST **\$ 9,656,650**