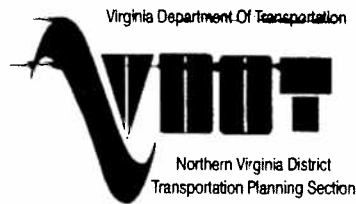


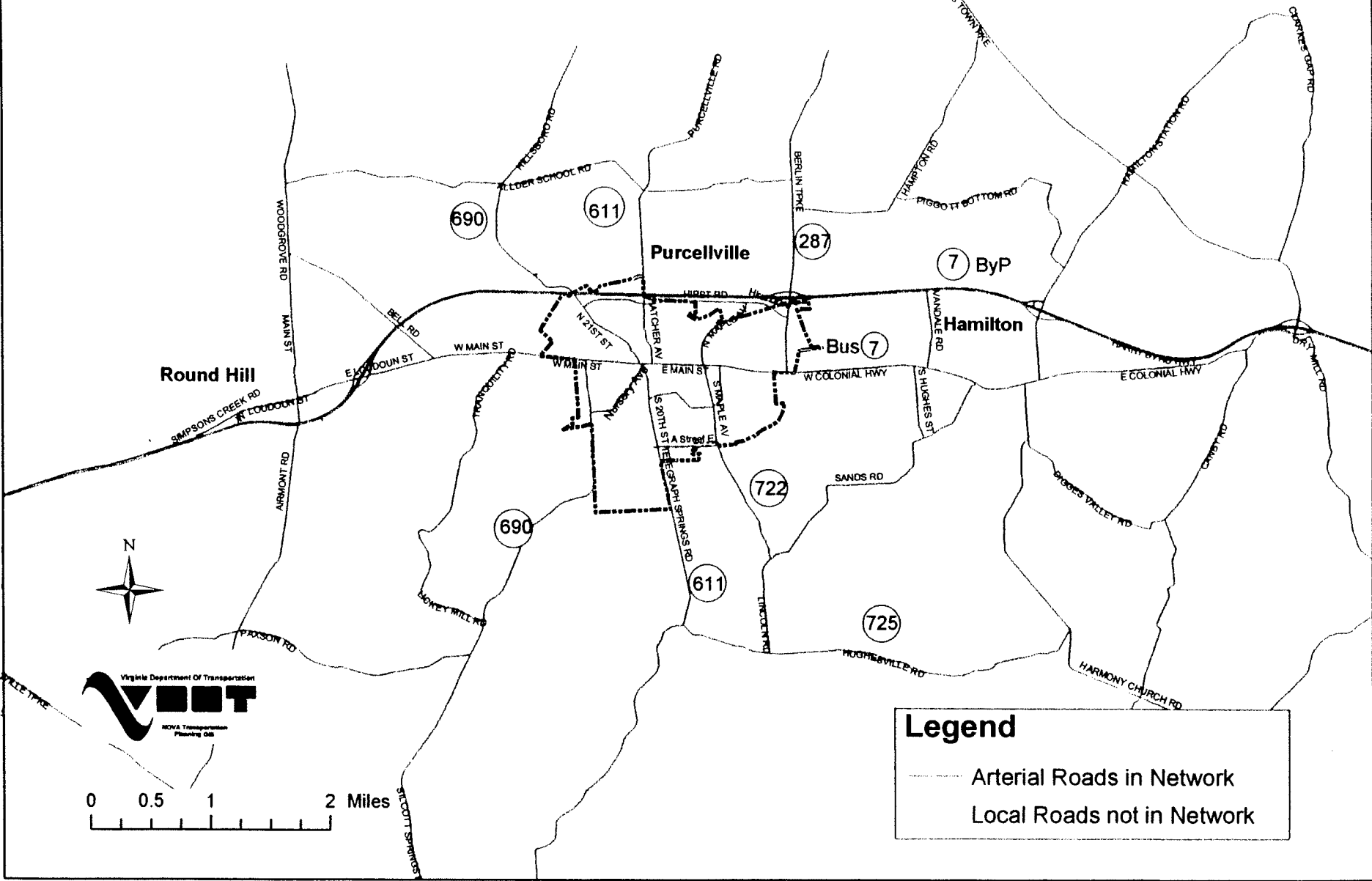
**Analysis of 2025 Traffic on
Alternative Highway Systems
For
Town of Purcellville**

**Prepared By
Virginia Department of Transportation
Northern Virginia District
Transportation Planning Section**

June 17, 2004



ARTERIAL NETWORK MODELED



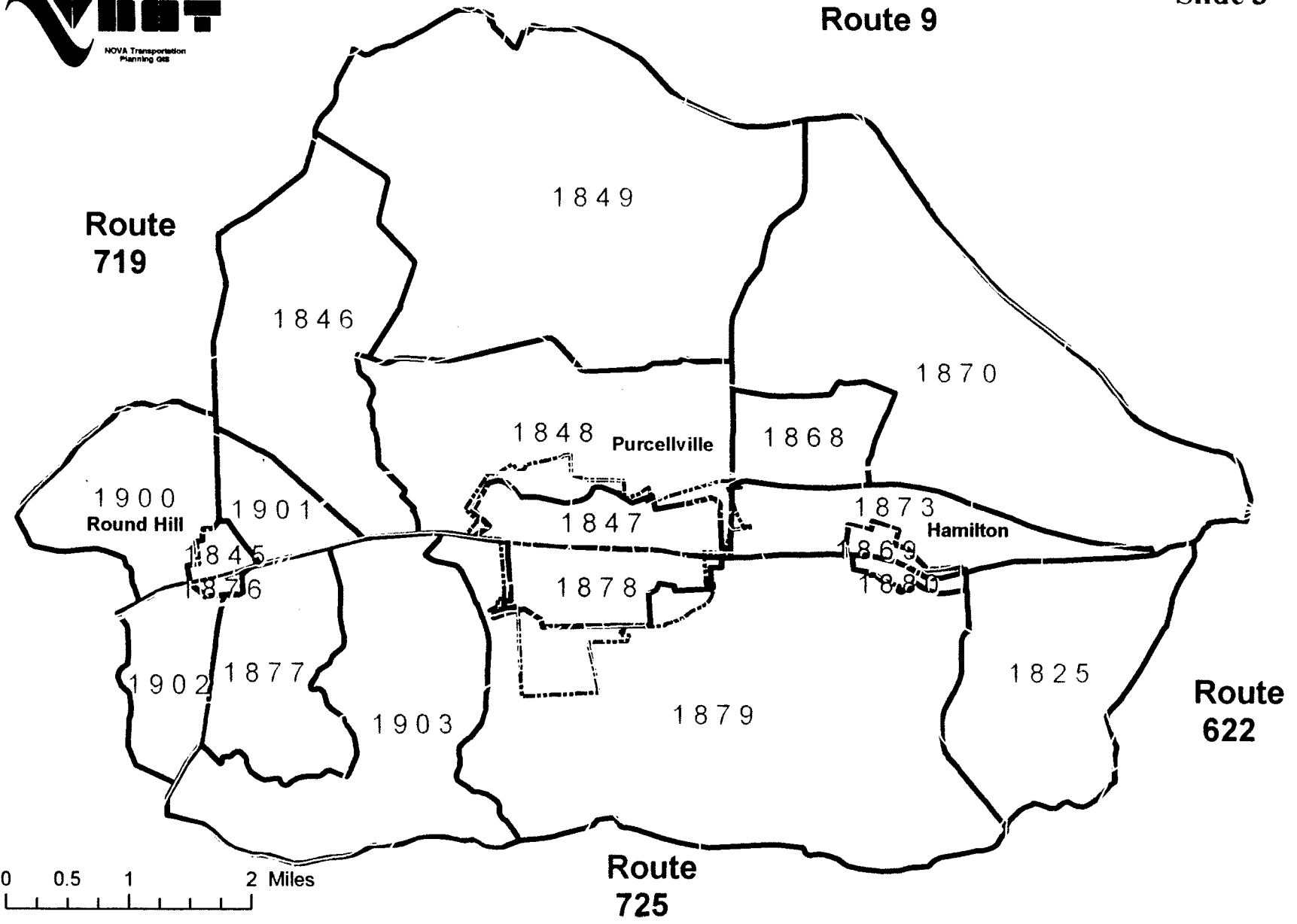
Legend

- Arterial Roads in Network
- - - Local Roads not in Network



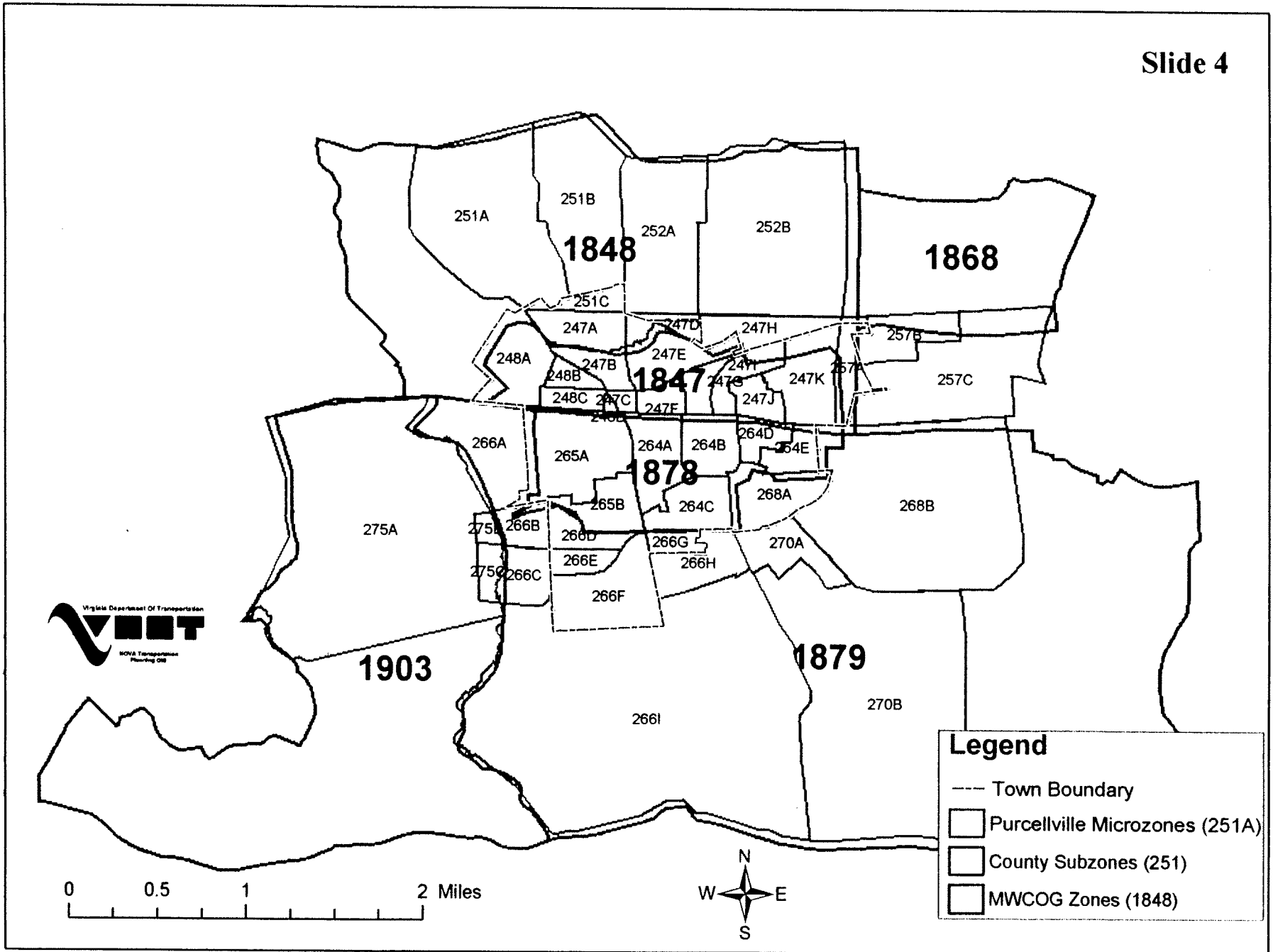
Study Area showing COG Zones

Slide 3

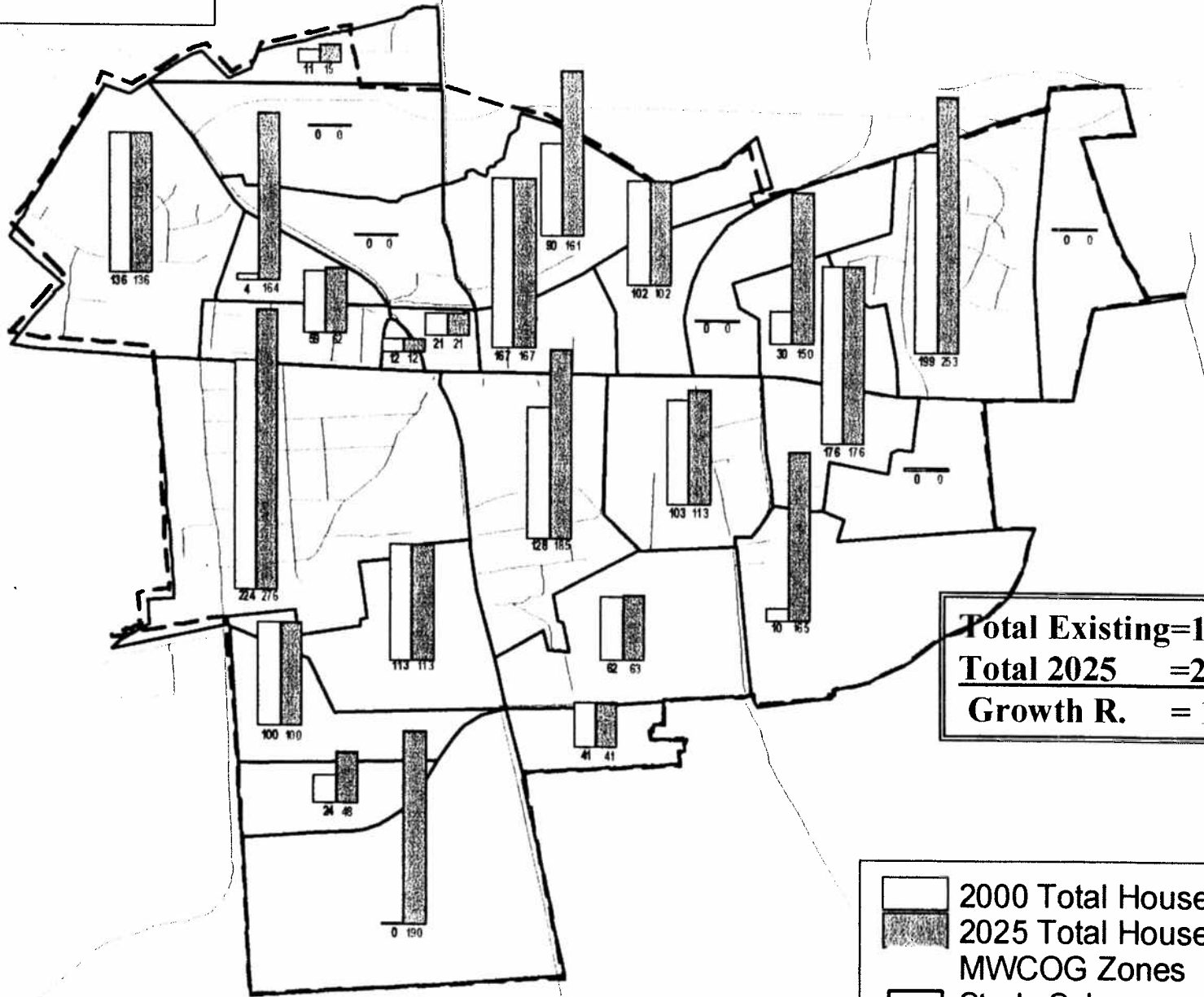


Subzones and Microzones within Study Area COG Zones

Slide 4



**Households by Subzones
In Town of Purcellville**



Total Existing=1,812
Total 2025 =2,713
Growth R. = 1.50

- 2000 Total Households
- 2025 Total Households
- MWCOG Zones
- Study Subzones
- Town Boundary

map date: 3/17/04

Figure 5

**Households by MVMCOG TAZ
for the Study Area - Round 6.3**

Total 2000 = 2,757
Total 2025 = 5,625
Growth R. = 2.04

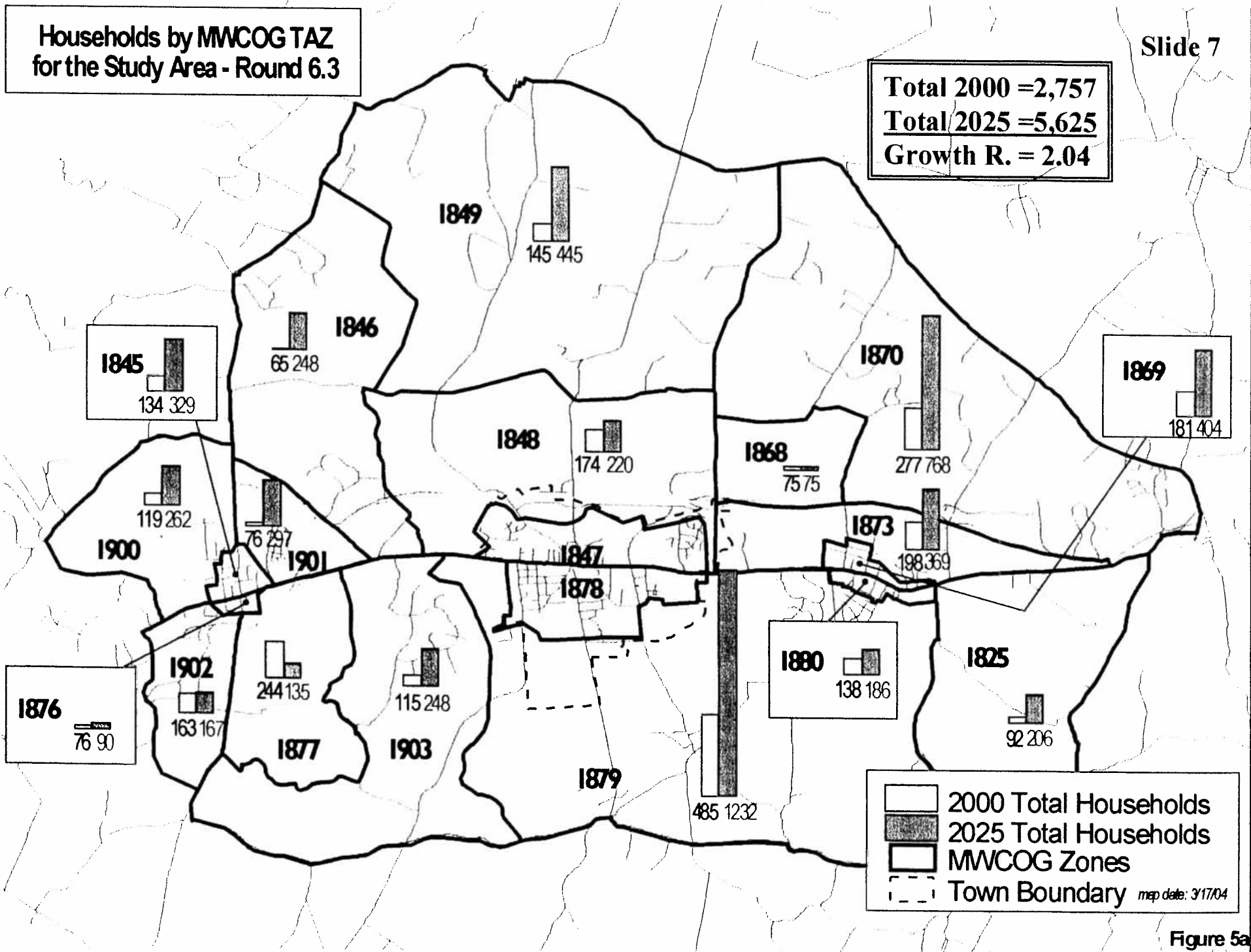


Figure 5a

**Employment by MVCOG TAZ
for the Study Area - Round 6.3**

Total 2000 = 1,615
Total 2025 = 7,157
Growth R. = 4.43

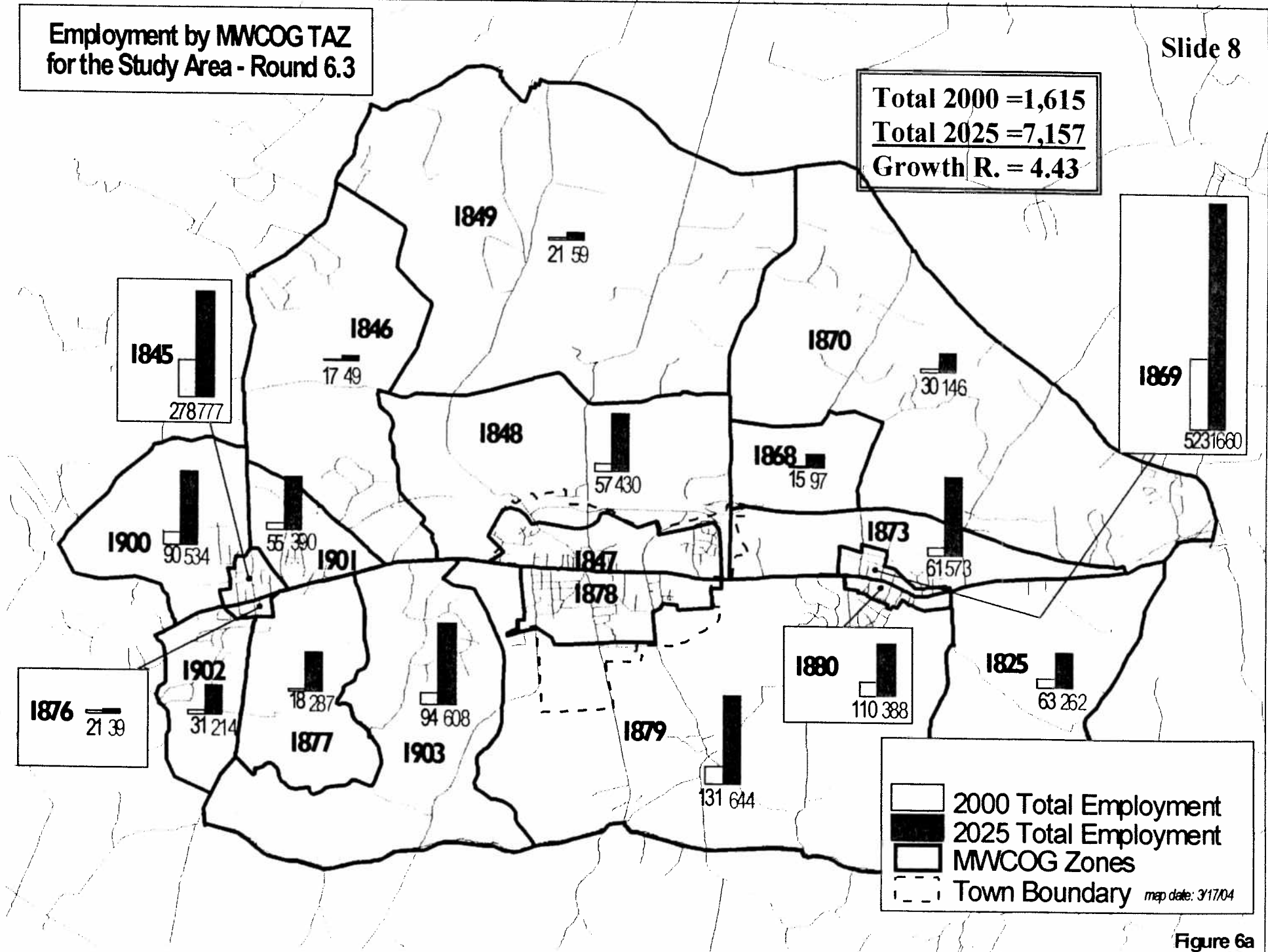
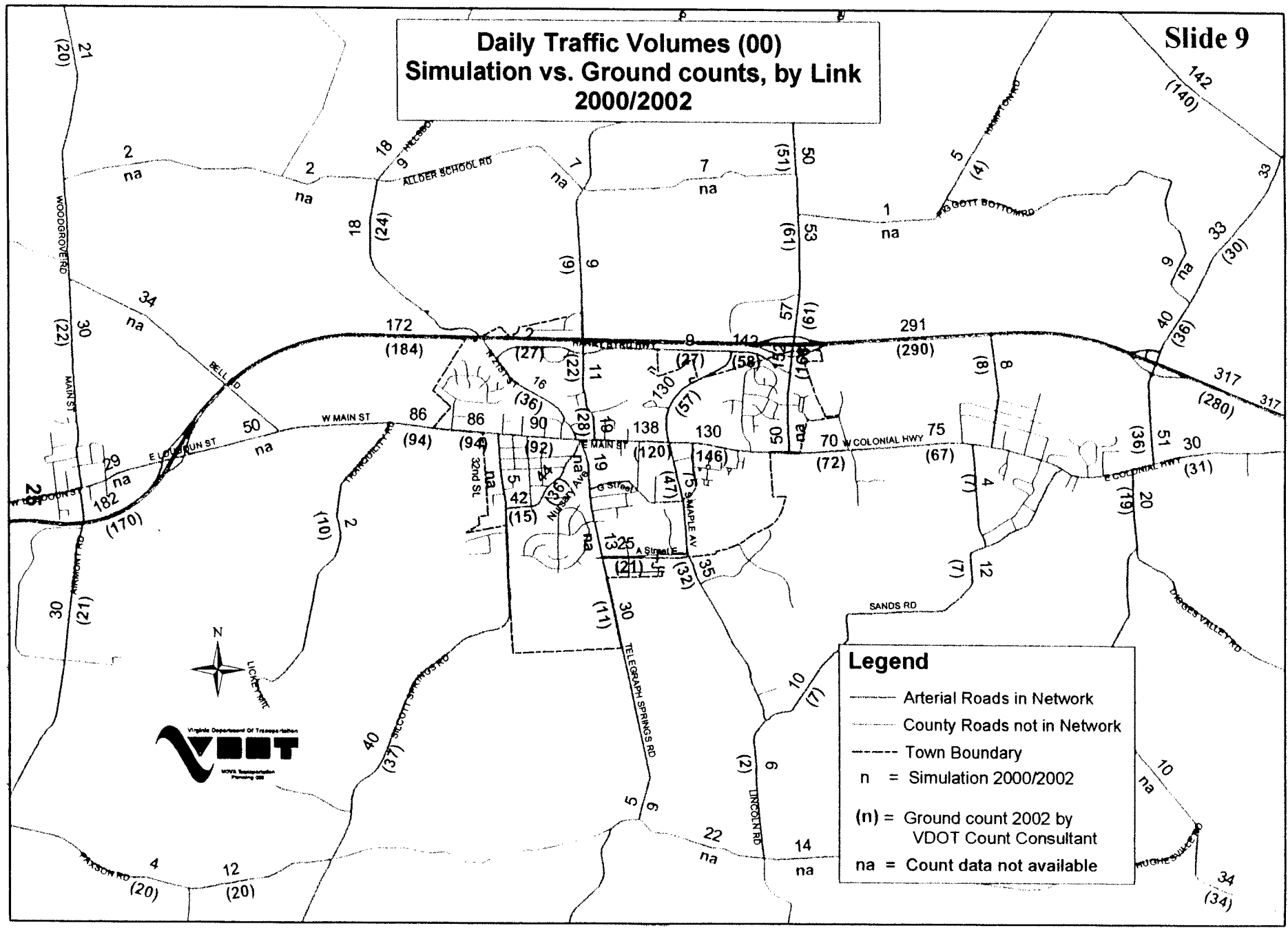


Figure 6a

Daily Traffic Volumes (00)
Simulation vs. Ground counts, by Link
2000/2002

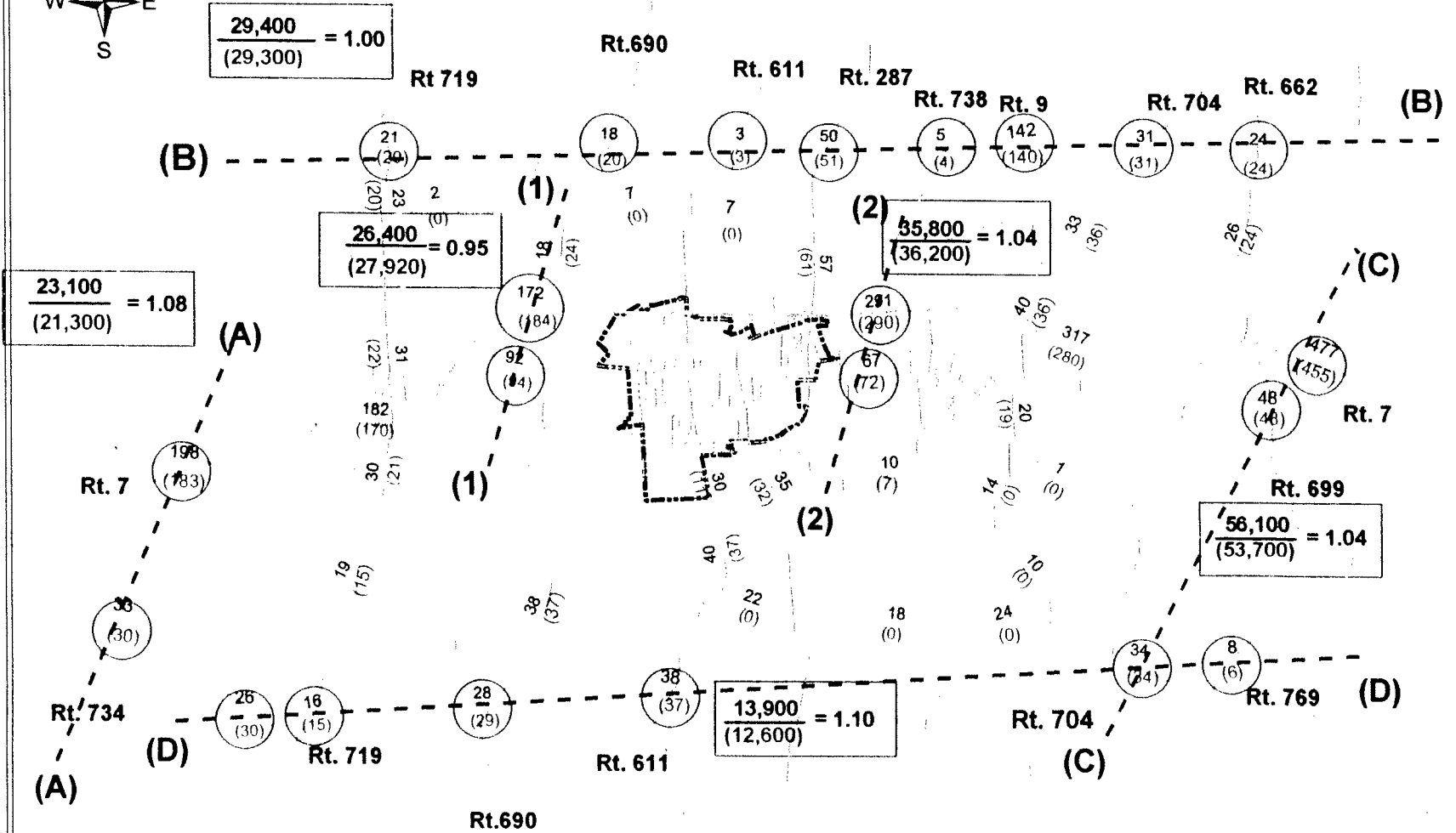


**ADT (Average Daily Traffic) Vs Simulated Volumes
for the Town of Purcellville
(Counts Taken in May, June 2002)**

		Ground Counts(2002)	Simulated Volumes	Sim/G.C x.xx
Berlin Tpk (Rte 287)	N. of Hirst Rd(S. of Ramps to ()fr Rt 7 BP)	18,200	16,900	0.93
Hatcher Ave (Rte 611)	N. of East Nichols Lane	976	800	0.82
Hillsboro Rd. (Rte 690)	N.of Hirst Rd	3,182	3,200	1.01
Main St. West (Rte 7 Bus)	W. of Route 782 (Tranquillity Rd)	10,118	9,100	0.90
Silcott Spring Road (Rte 690)	S. of Glendale Street	4,028	4,200	1.04
Telegraph Springs Road	S. of Town C.L.	1,180	1,200	1.02
Maple Ave S.Lincoln Rd (Rte 72)	N. of Piggot House Place	2,289	3,700	1.62
Main St. East (Rte 7 Bus)	Immed. E. of Route 287 (Berlin Tpk)	7,287	6,400	0.88
Main St	Between Maple Ave and Rte 287	14,616	13,400	0.92
Hirst Drive	Immed. E. of Route 690-Hillsboro Rd.	2,906	2,400	0.83
Hirst Drive	Immed W. of Route 287 (Berlin Tpk)	6,234	6,900	1.11
Hatcher Ave	S.of Hirst drive	2,373	2,400	1.01
Hatcher Ave	N. of Route 7 - Main Street	2,992	2,500	0.84
N. Maple Ave	S.of Hirst drive	5,012	5,100	1.02
N. Maple Ave	N. of Route 7 - Main Street	6,221	5,100	0.82
A Street	E. of 20th Street S.	1,472	2,400	1.63
A Street	W.of Maple Ave. S	2,289	2,600	1.14
Nursery Ave. S.	E of 32nd Street S.	1,652	1,200	0.73
Nursery Ave. S.	S. of Route 7 - Main Street	3,848	4,700	1.22
S. Maple Ave	S. of Route 7 - Main Street	5,173	7,900	1.53
23rd. Street North	N. of Route 7 - Main Street	2,204	2,400	1.09
21st Street North (Rt 690)	N. of Route 7 - Main Street	3,868	3,500	0.90
32nd St.	South of Nursery Ave	4,030	4,800	1.19
Total		112,150	112,800	1.01

The Total Ground Counts match Total Simulated Volumes within 1%

Average Daily Traffic (ADT) Link Data (in hundreds)



The Model is Simulating all Screenlines within 10% of the Ground Counts

**Vehicle Trips Modeled by NOVA-VDOT
(Ins and Outs in P and A Format)**

	Year 2000		Year 2025	
	<u>Trips In</u>	<u>Trips Out</u>	<u>Trips In</u>	<u>Trips Out</u>
Town of Purcellvil	10,835	10,323	35,971	30,924
Study Area	12,089	23,805	65,100	59,000
Rest of Loudoun C	611,752	576,867	1,608,408	1,589,073
TOTALS	634,676	610,995	1,709,479	1,678,997

Study Area includes Towns of Hamilton and Round Hill. See Figure 3

P and A format: The Home End is Production End (outs), the Non-Home End is the Attraction End (Ins)

**With Ins and Outs about Equal Means the In-Commuting
is Equal to the Out-Commuting for 2000 and 2025**

Proposed Town Improvement Alternatives For Testing

- 1. North Collector Linking Rte 690 to Rte 287**
- 2. Interchange at Rte 690 /Rte 7 By-Pass**
- 3. West Collector from Tranquility Rd to Hirst Rd Plus an Extension of 9th Street to Maple Ave**
- 4. South Collector Linking 32nd St. to 20th St. (South Collector 1)**
- 5. South Collector Linking 32nd St. to 20th St. Across the Existing East A St. and from Maple Ave. to Main St. at Rte. 287 (South Collectors 1 & 2)**
- 6. Composite Improvements for the above 5 Alternatives.**
- 7. Interchange at Rte. 690 /Rte 7 By-Pass with West Collector Connecting Rte. 690 North of Rte. 7 By-Pass**
- 8. Interchange at Rte. 690 /Rte 7 By-Pass and South Collector 1 and 2**

Improvements for Testing

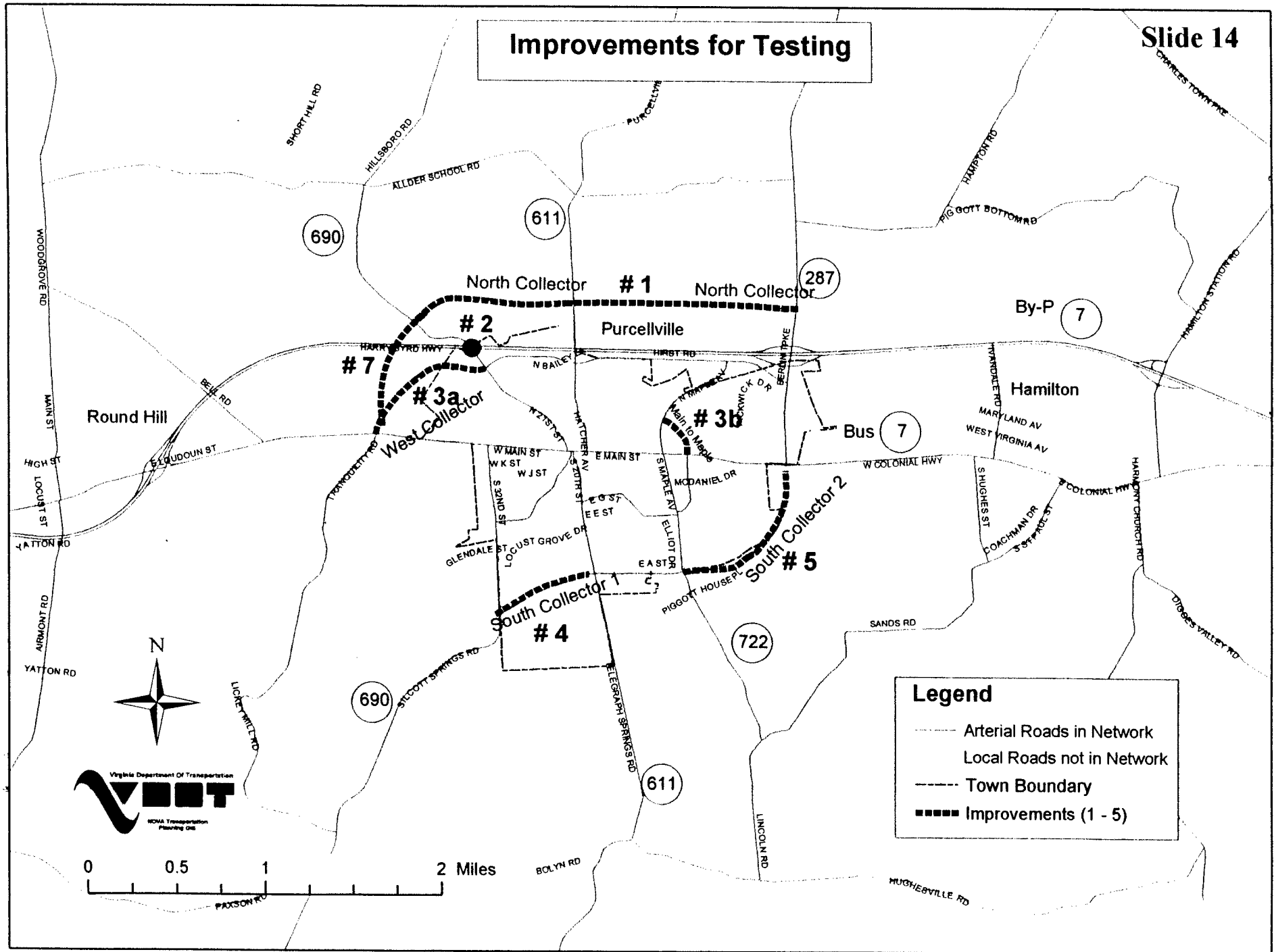
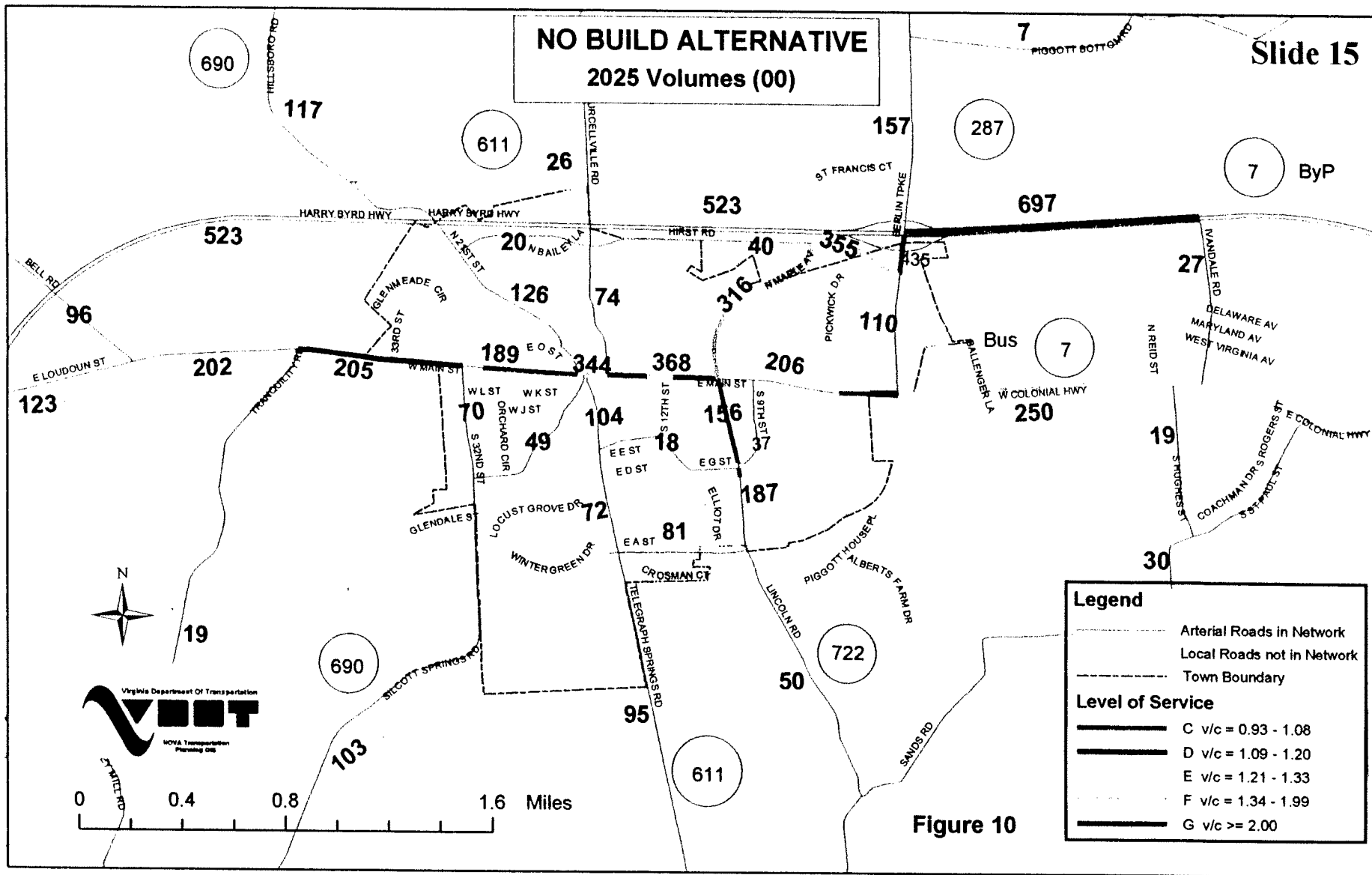


Figure 2



- Main Street west of 21st St. (Rte 690) operates at LOS C/D, between 21st St. and Hatcher Ave. operates at LOS F, between Hatcher Ave. and Maple Ave. operates at LOS E/F, and just west of Route 287 operates at LOS C/D.
- North Maple Ave. from Main St. to Hirst Road operates at LOS F.
- Route 287 north of Hirst Road operates at LOS G.

ALTERNATIVE #2
2025 Volume (00)
(Interchange Only)
After Diversion from Rte 9

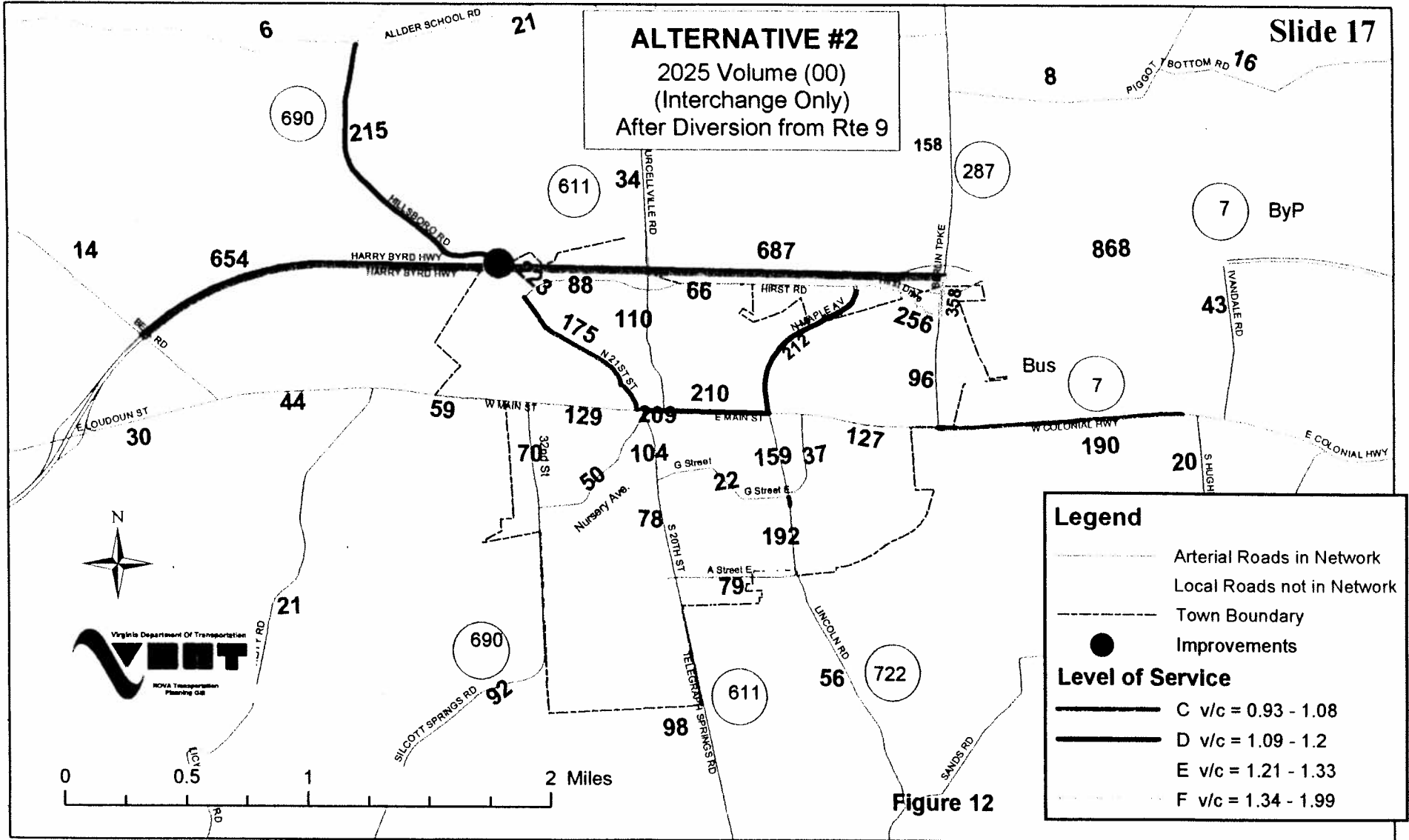
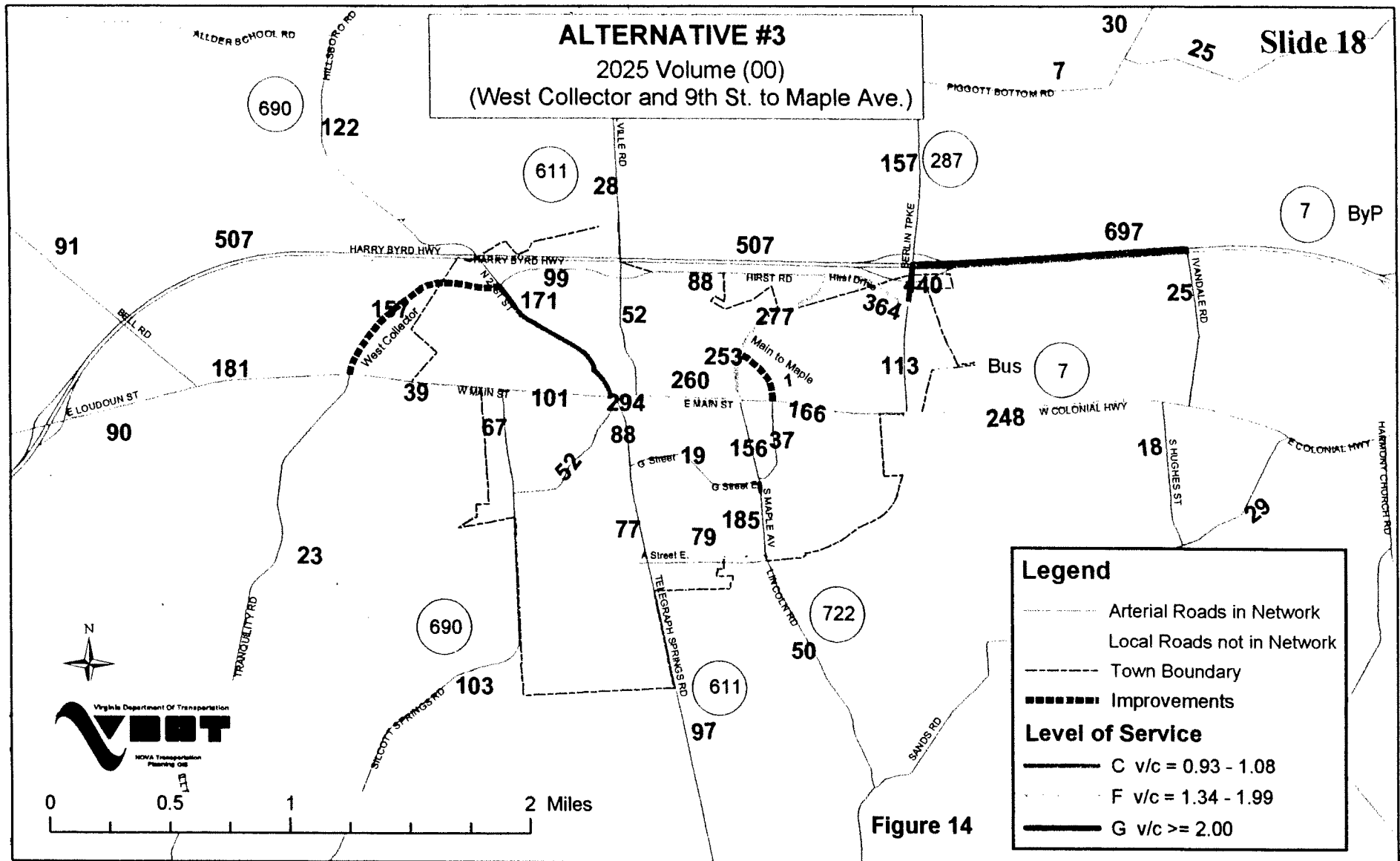
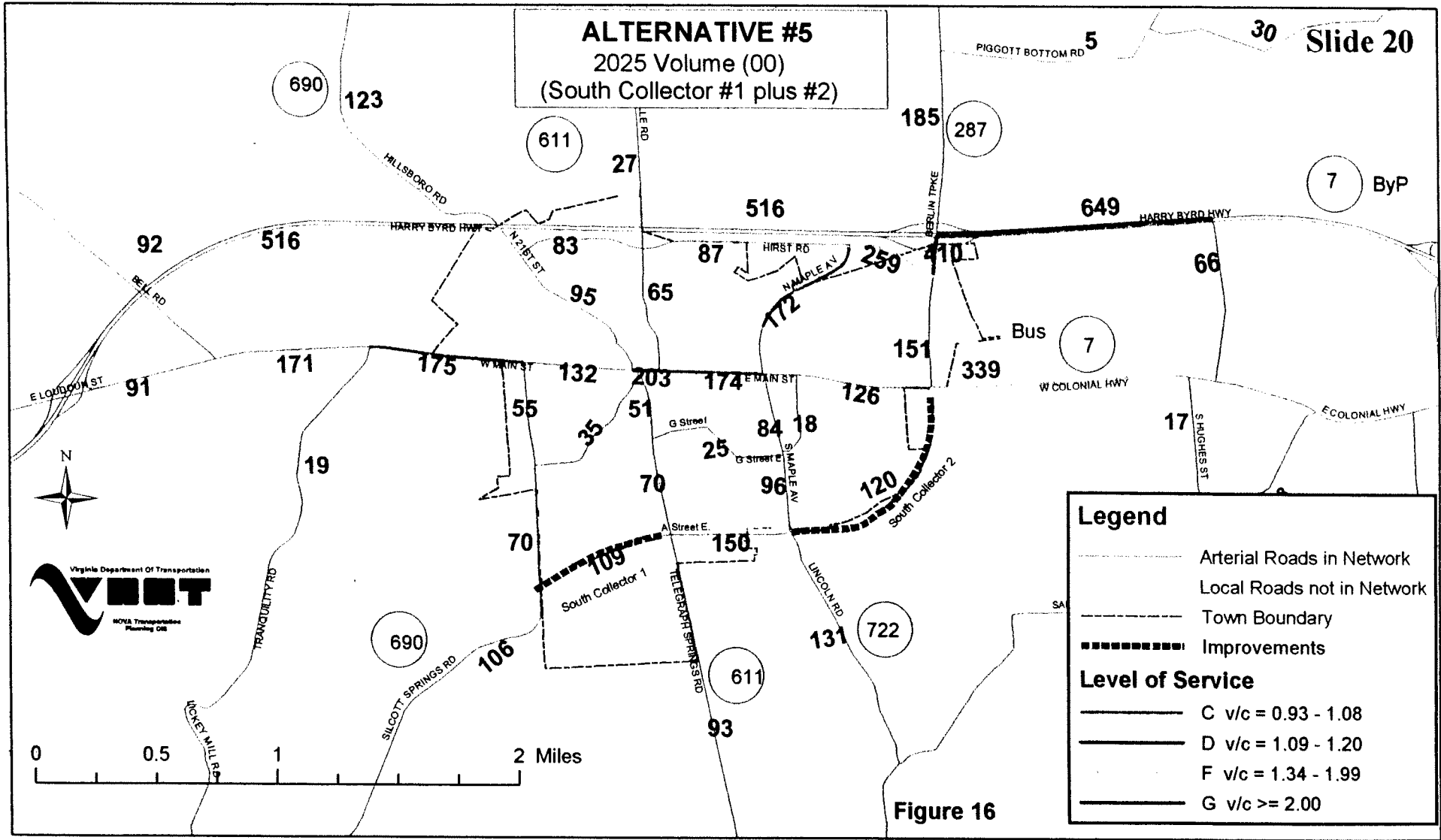


Figure 12

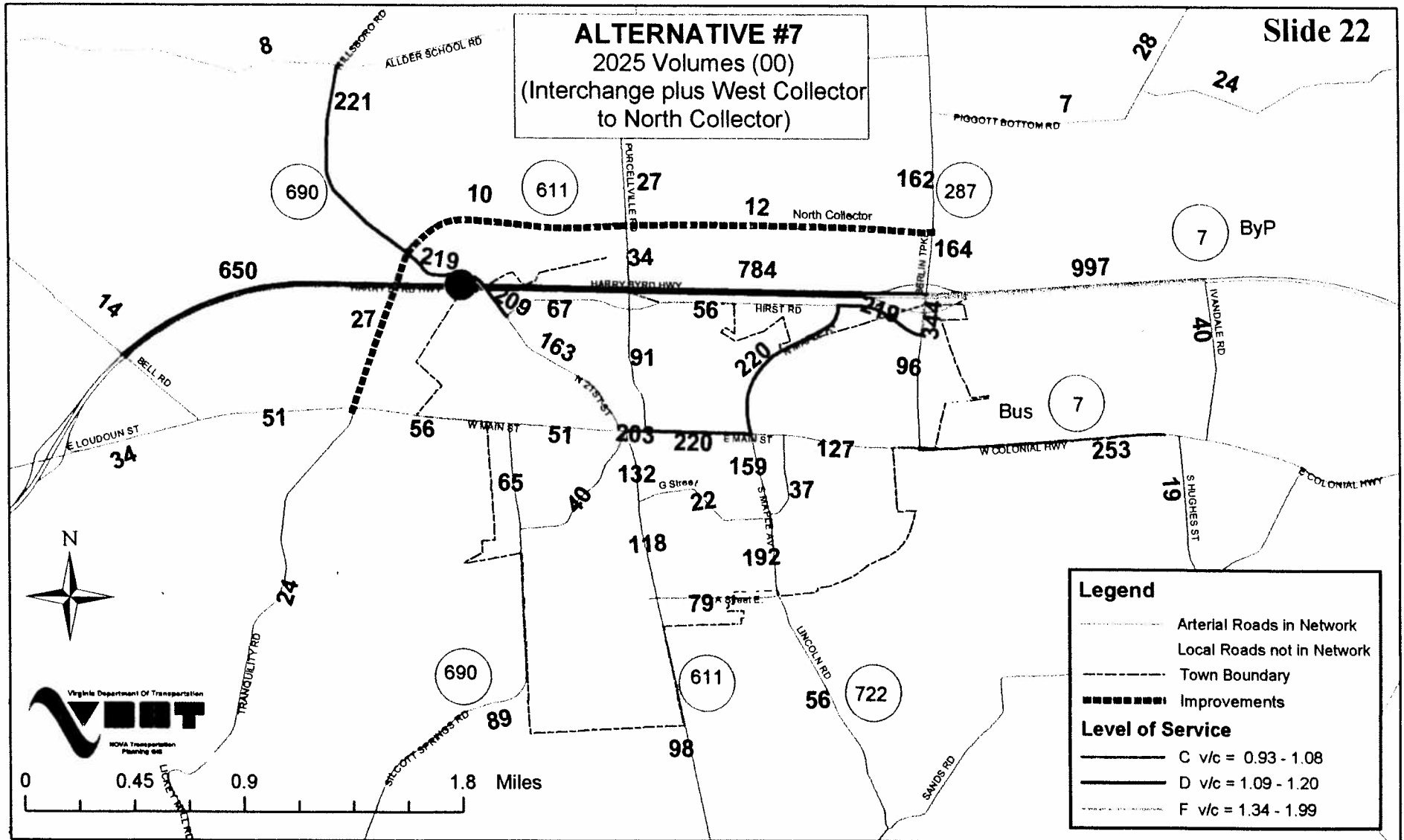
- Traffic increases on Rte 7 By-Pass east and west of the interchange (by 25% - 30%) and east of Route 287 (by 25%)
- Traffic decreases on Main St. and LOS improves all along Main Street.
- Traffic decreases on N. Maple Ave. and LOS improves from LOS F to LOS D.
- Traffic increases on Rte 690 (N. 21st St.), Hatcher Ave., and Hirst Rd., accessing the interchange



- The West Collector carries 15,700 Average Daily Traffic and reduces traffic on Main Street from 32nd Street to Route 287.
- The 9th Street extension does not divert much traffic from Maple Ave.
- Traffic increases on 21st Street and Hirst Road.



- Decreased volumes along Main St. from Tranquility Rd. to Rte. 287 with improved LOS.
- Decreased volumes along N. Maple Ave. with improved LOS from F to C.
- Increased volumes on Route 287, LOS remains the same.
- Increased volumes on S. Maple Ave., with LOS an acceptable "C".
- Increase volumes on Lincoln Rd (Rte 722) south of A Street.



- Increases traffic on Rte 7 By-Pass west of new interchange by 25%. LOS from B to C.
- Decreases traffic on Main St. from Tranquility Rd. to Rte 287. Significant LOS improvement.
- West collector does not carry much traffic because of the increased traffic accessing the Route 7 By-Pass via the new interchange.
- Increased traffic on 21st St. (Rte 690), Hatcher Ave., and Hirst Rd. accessing the interchange.

VMT Reductions
for each alternative are summarized for the Town as follows:

	<u>Town VMT</u>	<u>Change</u>	<u>% Change</u>
2002	41,000		
2025 No Build	118,000		
<hr/>			
1- 2025 VMT w/ North Collector	117,000	-1,000	0.85
2- 2025 VMT w/ Interchange	95,000	-23,000	19.50
3- 2025 VMT w/ West Collector + 9 th Street Extension	110,000	-8,000	6.78
4- 2025 VMT w/ South Collector 1	116,000	-2,000	1.70
5- 2025 VMT w/ South Collectors 1+2	115,000	-3,000	2.54
6- 2025 VMT w/ All Improvements (composite)	90,000	-28,000	23.72
7- 2025 VMT w/Interchange and West Collector	91,000	-27,000	22.88
8- 2025 VMT w/ Interchange and South Coll #1+#2	101,000	-17,000	14.41

Level of Service (LOS)

Facility	LOS w/o Imp	LOS Improvements With Alternatives							
		#1	#2	#3	#4	#5	#6	#7	#8
Main St. From Tranquility Rd to 21 ST St	D	D	B	B	D	C	B	B	B
Main St from Rte 690 to Rte 611	F	F	D	F	D	D	D	D	B
Main St. from Rt 611 to Maple Ave.	F/G	F	D	F	D	C	C	D	B
N. Maple Ave from Main St. To Hirst Rd	F	F/G	D	F	F	C	B	D	B
Rte 287 from Hirst Rd to Rte 7 By-Pass	G	G	F	G	G	G	F	F	F
W. Colonial Hwy west of Rte 287	F	F	C	F	E	F	F	C	F
Hirst Rd from N. Maple Ave to Rte 287	F	G	F	F	F	F	C	D	B
Rte 690 from Hirst Rd to Rte 7 By-Pass	B	B	E	B	B	B	F	D	F
Rte 690 from Main St to Hirst Rd	B	B	C	C	B	B	C	B	C

<u>LOS</u>	<u>V/C</u>	<u>LOS</u>	<u>V/C</u>
B	0.00-0.92	E	1.21-133
C	0.93-1.08	F	1.34-134
D	1.09-120	G	>2.00

LOS: Level of Service
V/C: Volume/Capacity