

## **A. INTRODUCTION**

Chapter 3 of this report identified the methodology and results of the land use development scenarios and the improvements considered in the transportation scenarios. This chapter summarizes the results of the traffic analysis that evaluates corridor specific conditions based on future growth.

## **B. METHODOLOGY**

Based upon the land use development projections, trip generation values, and trip distribution patterns, traffic was assigned to the roadway network depending on: a) the amount of development, and b) the likely path that vehicles generated by that development would take within the roadway network. T-MODEL2, a multi-dimensional traffic model, was used to model the entire Study Area network. Orange County Department of Planning maintains a fully developed model of the entire County, which was updated and refined to include all known proposed development and transportation improvement projects that are currently under consideration within the Study Area boundaries. This updated model became the basis for the No-Build or “Null” condition, since these projects will be progressed independent of the study findings. The development associated with the three land use scenarios and the infrastructure improvements included in the three transportation scenarios were used as inputs to model future conditions within the study area.

The results of T-MODEL2 are reported in the number of vehicles during the modeled peak hour (in this case the PM peak hour) on any one link (roadway segment between key intersections) within the network. The output volumes from the T-MODEL2 runs were then inserted into a second traffic modeling software, Synchro, to analyze traffic operations along the project corridors and calculate the Level of Service (LOS) at corridor intersections. Synchro is a comprehensive software package designed to model and optimize traffic signal timings. Utilizing the methods of the 2000 Highway Capacity Manual, the program calculates the capacity and delays at each individual intersection and evaluates the timing plans and operations in a system of coordinated traffic signals.

## **C. T-MODEL2 ANALYSIS RESULTS**

T-MODEL2 analyses were completed for both the 2020 analysis year and for full land use build-out to provide an overall picture of traffic conditions within the study area. As shown in Figure 3-5, the amount of development for the build-out condition proposed under each of the three land use scenarios is substantially lower than for the “Existing Zoning” condition. The majority of reduced development potential is in the amount of commercial space in the Reduced Density, Village Center, and Infrastructure Based Zoning scenarios, which is almost one-third of the amount allowed by the Existing Zoning scenario. The level of residential development within

the study area is fairly consistent with each of the development alternatives accounting for approximately 5,000 to 8,000 new single and multi-family units. Residential build-out under the Existing Zoning scenario would result in approximately 7,200 new single and multi-family units.

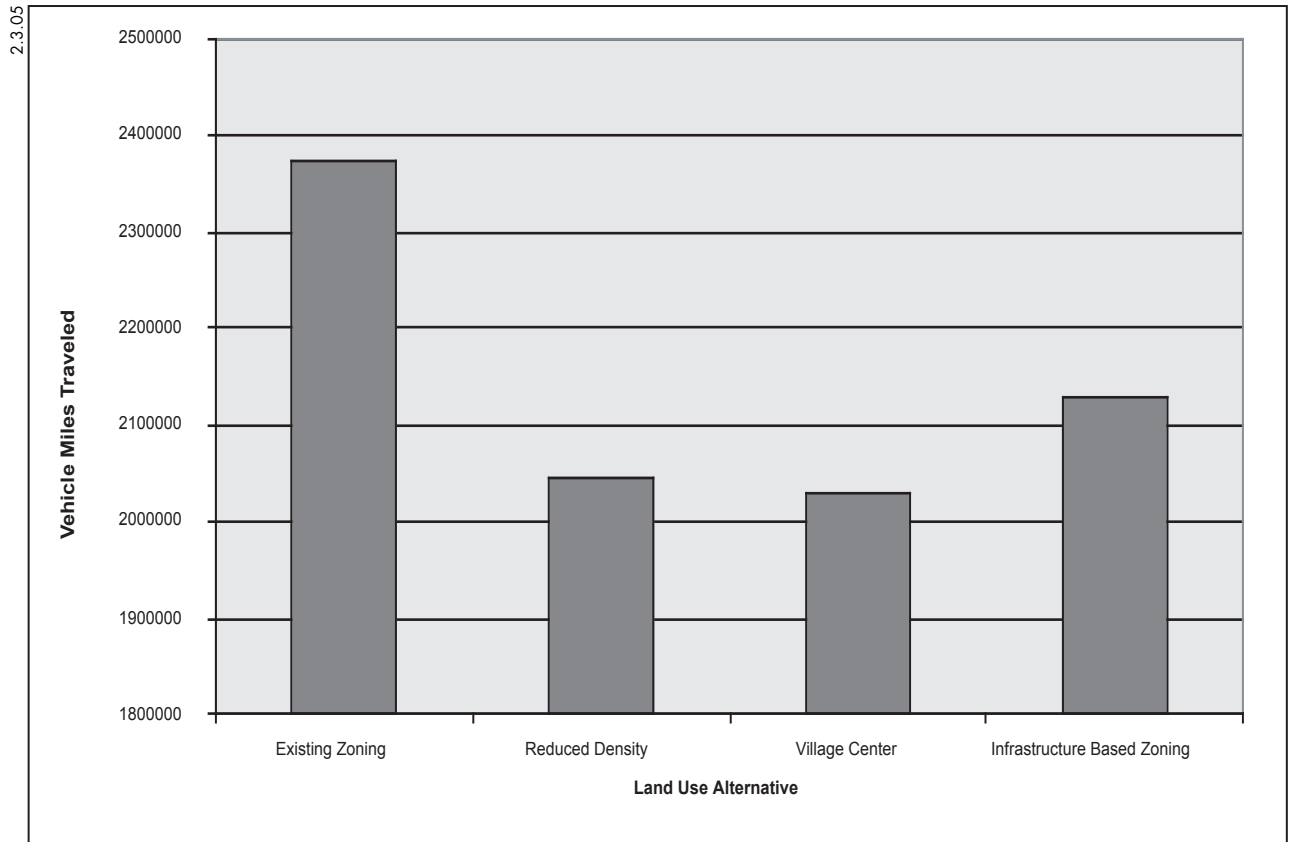
The amount of development in each Transportation Analysis Zone (TAZ) was input into the TMODEL2 program for each land use scenario and the study area network was modified to include the transportation improvements included in each of the transportation scenarios. The reduction in the amount of allowable development in the three land use alternatives has a direct impact on the number of Vehicle Miles Traveled under the full build-out condition. Vehicle Miles Traveled, or VMT, is a measure of the total distance of vehicle operation within a transportation system during a fixed amount of time and is a value used to compare the effectiveness of different transportation and land use solutions. Chart 4-1 presents VMT within the project study area during the PM peak hour period under the full build-out condition. Implementation of any of the land use scenarios other than the Existing Zoning scenario would result in an almost 20 percent reduction in VMT over the Existing Zoning scenario, with both the Reduced Density and Village Center scenarios producing the largest reduction in VMT, and the Infrastructure Based Zoning scenario having a slightly smaller reduction. Vehicle Hours of Delay (VHD) is a comparative measure of the congestion within the transportation system and is calculated by taking the difference between the expected and actual travel times through the network. The change in land use resulting from the three development patterns results in a marked decrease in VHD as compared to the development under The Existing Zoning Scenario. For the full build-out condition, VHD would decrease by over 70 percent from the levels expected under The No-Build transportation scenario. Chart 4-1 compares VHD between the No-Build Alternative, which is at over 700,000 hours of delay, to the VHD expected from the various combinations of transportation and land use scenarios. All of the transportation/land use combinations would result in less than 200,000 hours of delay, with the Village Center/Traffic Management System and Village Center/Roadway Focused Investment schemes having less than 150,000 hours of delay.

#### **D. LEVEL OF SERVICE ANALYSIS**

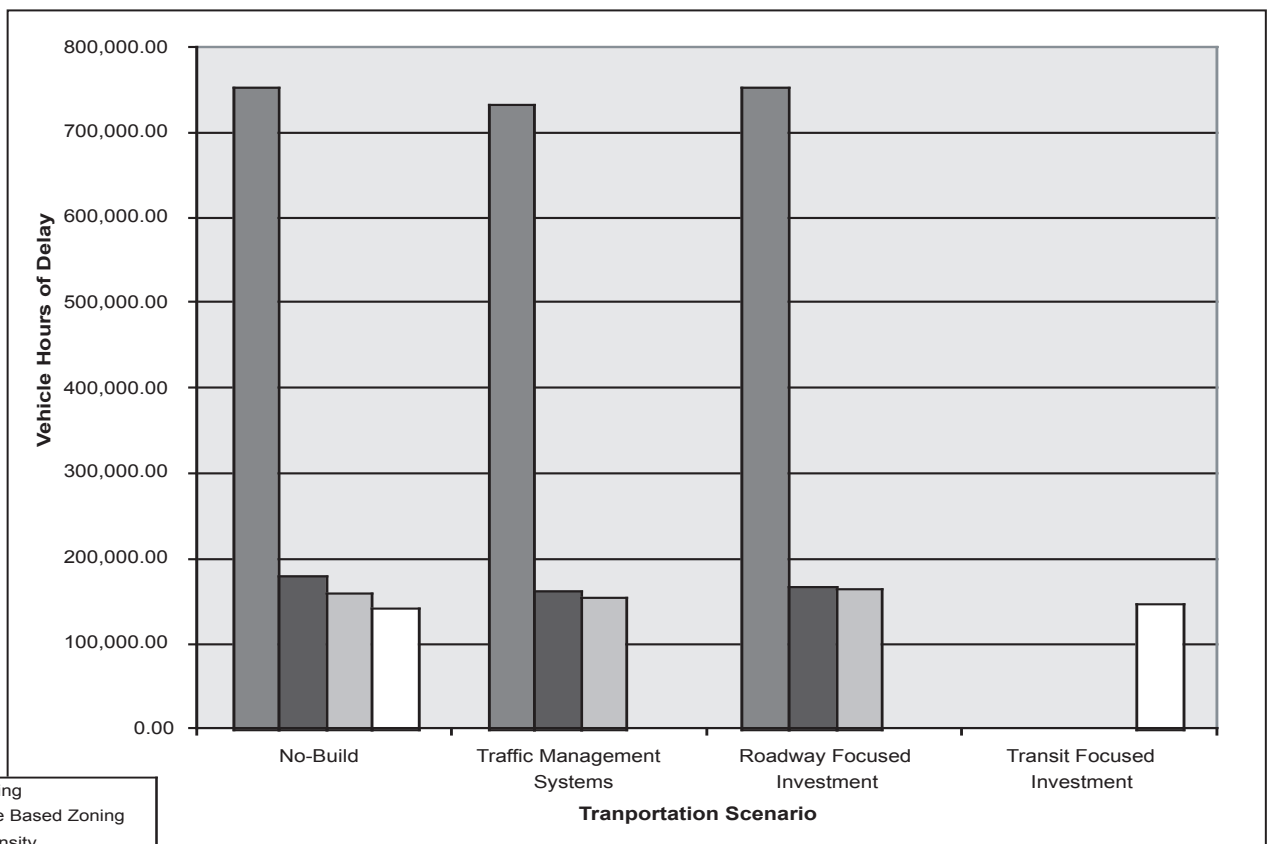
Based upon the T-MODEL2 results, it was determined that the 14 modeling runs identified in Chapter 3 could be narrowed down to five different conditions for purposes of Synchro analysis. Specifically, it was found that the Infrastructure Based Zoning scenario did not constrain development as much as had been anticipated and that the Reduced Density Zoning scenario was a more likely approximate of the lower range of potential land use development. It was also determined that the Transit Focused Investment scenario should only be analyzed with the Village Center land use scenario.

Thus, five different conditions were analyzed using Synchro to evaluate the range of potential operating conditions within the roadway network:

- Modeling Run No. 1)—Build-out under Existing Zoning with Current traffic improvements; and
- Modeling Run No. 2)—Land use build-out under Existing Zoning with Transportation Management Systems improvements; and
- Modeling Run No. 3)—Land use build-out under Reduced Density Zoning with Transportation Management Systems improvements; and



**BUILD-OUT CONDITIONS**



- Existing Zoning
- Infrastructure Based Zoning
- Reduced Density
- Village Center

**VEHICLE HOURS OF DELAY**

- Modeling Run No. 4)—Land use build-out under Reduced Density Zoning with Roadway Focused Investment improvements; and
- Modeling Run No. 5)—Land use build-out under Existing Zoning with Roadway Focused Investment improvements.

Modeling Run (MR) No. 1 analyzes the effect of select traffic improvements (improvements to signalization on Route 32, improvements to CR 105, conversion of Route 17 to I-86, the County bus initiative, and improvements to the parking and bus access at the Harriman Train Station) for traffic generated only by existing conditions and pending projects. This modeling run answers whether current planned improvements to the roadway network can handle existing and near-term development.

MR No. 2 analyzes what will happen if land use development continues at its current pace and current pattern and no significant roadway infrastructure changes are made beyond access management improvements and signal timing optimizations along key corridors.

MR No. 3 shows the effect of modifying the land use pattern by reducing density, but not making any significant roadway infrastructure changes. This modeling run can be compared directly to MR No. 2 to see if a change in land use would make a significant difference.

MR No. 4 analyzes the effect of reducing overall land use density and making significant roadway infrastructure investments.

MR No. 5 can be used as a comparison with MR No. 4 to show what would happen if the same transportation improvements were made but land use allowed to proceed under existing zoning.

Each of the five modeling runs was performed for the full build-out and horizon year (2020) conditions. Table 4-1 compares the Level of Service on NYS Route 17M for the five modeling runs under the full build-out condition. With no improvements to the existing roadway, the intersections between NYS Route 208 and Still Road would operate at LOS F with both the NYS Route 17M and the local road approaches having significant amounts of delay. With NYS Route 17M operating at its capacity and unable to process the peak hour demand for this roadway, traffic on the major feeder roads, like Lake Street/Road, Stage Road, and Still Road would back up through multiple signal cycles. The access management, signal phasing modifications, and rear service road improvements proposed under the TMS transportation scenario would generally improve conditions along NYS Route 17M; however, there would still be some residual congestion on the Lakes Road, Stage Road, and Still Road approaches. Only the widening of NYS Route 17M to two lanes in each direction in the Roadway Focused Investment Scenario would provide service levels of D or better at the signalized intersections along NYS Route 17M. Table 4-2 compares LOS on NYS Route 17M for the 2020 analysis year.

Table 4-3 compares the Level of Service on NYS Route 32 for the five modeling runs under the full build out condition. With no improvements to the existing roadway the majority of the approaches to the intersections between Larkin Drive/US Route 6 and Woodbury Common would operate at LOS E/F. The signal timing and phasing modifications in the TMS transportation scenario do improve conditions at some intersections, with only the Nininger Road and NYS Route 17 Eastbound off-ramp intersections operating at LOS E/F during the peak hour periods. The interchange improvements at Route 17 Exit 131 and the construction of the new NYS Route 17 westbound C-D Road, which are part of the Roadway Focused Investment

Scenario, result in all of the intersections operating at LOS D or better during the peak hour period. Table 4-4 compares LOS on NYS Route 32 for the 2020 analysis year.

Table 4-5 compares the Level of Service on NYS Route 208 for the five modeling runs under the full build out condition. Table 4-6 compares LOS on NYS Route 208 for the 2020 analysis year.

## **E. SELECT LINK ANALYSIS**

A Select Link Analysis (SLA) was performed to evaluate how the larger transportation improvement projects included in the Roadway Focused Investment Scenario would affect travel patterns throughout the project study area. The SLA is a component of T-MODEL2, which isolates a particular link in the roadway network and identifies the origins and destinations of the traffic using the roadway feature. This tool is particularly useful in identifying the most cost-effective capital improvements to pursue, while making sure that any resulting shifts in travel patterns would not adversely impact adjacent roadway segments. The SLA also helps to identify additional improvements required to address intersections or sections of the roadway network where poor operating levels of service persist, even with capital improvements.

Six locations were selected for this analysis:

- SL1: Route 17 westbound off-ramp to Route 32
- SL2: Cornwall Interchange – northbound off-ramp
- SL3: CR 105 Interchange/Collector-Distributor Road off-ramp
- SL4: Bailey Farm Road/Route 17M Bypass
- SL5: Route 208 Bypass
- SL6: Larkin Drive Extension

One of the key findings from the SLA was the importance of the NYS Route 17 (Future I-86) corridor's ability to process traffic through the study area and its impact on the adjacent roadway network. The TMODEL2 runs showed that NYS Route 17 would reach its capacity prior to the 2020 analysis year and that traffic would use alternative routes to bypass the congested links of roadway. The New York State Thruway, NYS Route 32, County Route 105, and many of the smaller local roadways in the Towns of Monroe and Woodbury would be the recipients of this overflow traffic. To account for this factor each select link was evaluated with the current capacity on NYS Route 17 (two lanes in each direction) and with NYS Route 17 widened to 3 lanes in each direction. Figures 4-1 to 4-2 show traffic flow for each of the six select links analyzed with the existing two lanes in each direction on Route 17 and with Route 17 widened to three lanes in each direction.

### **SL1: ROUTE 17 WESTBOUND OFF-RAMP TO ROUTE 32**

A SLA was performed on the NYS Route 17 westbound off-ramp to help determine this traffic's impact on NYS Route 32 through the Hamlets of Central Valley and Highland Mills. With the Roadway Focused Investment improvements in place but with no widening of NYS Route 17, 849 vehicles in the PM peak hour would exit Route 17 westbound at the off-ramp to Route 32. Of those 849 vehicles, 52 percent (441 vehicles) travel south on Route 32 with the remaining 48 percent (398) traveling north towards the two downtown areas. Almost all of these 398 vehicles travel through Central Valley, where approximately 1/3 of the vehicles (131) turn right on Smith

**Table 4-1**  
**Route 17M Corridor**  
**Full Build-out Weekday PM Peak Hour**

Intersection	Node No.	Control	Dir	Existing Conditions		Build-out w/ Existing Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Roadway Focused Investment	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Route 17M & Route 208	1	Signalized	WB	30.7	C	21.6	C	107.1	F	7.6	A
			NB	17.6	B	**	F	17.0	B	9.2	A
			SB	33.7	C	**	F	109.9	F	11.2	B
			<b>Int</b>	<b>29.1</b>	<b>C</b>	<b>**</b>	<b>F</b>	<b>93.8</b>	<b>F</b>	<b>9.5</b>	<b>A</b>
Route 17M & Shop Rite Parking Lot	2	Signalized	EB	16.2	B	217.5	F	15.3	B	7.7	A
			NB	7.8	A	63.8	E	14.4	B	10.7	B
			SB	33.3	C	225.4	F	24.5	C	20.1	C
			<b>Int</b>	<b>13.8</b>	<b>B</b>	<b>168.6</b>	<b>F</b>	<b>16.1</b>	<b>D</b>	<b>10.3</b>	<b>B</b>
Route 17M & Lake Street / Lake Road (CR 19)	6	Signalized	EB	33.4	C	41.6	D	36.6	D	24.6	C
			WB	60.4	E	56.7	E	69.5	E	40.3	D
			NB	44.0	D	170.0	F	44.8	D	59.6	E
			SB	29.6	C	**	F	70.2	E	36.4	D
<b>Int</b>	<b>9.2</b>	<b>D</b>	<b>**</b>	<b>F</b>	<b>56.8</b>	<b>E</b>	<b>39.9</b>	<b>D</b>			
Route 17M & Stage Road	9	Signalized	EB	8.9	A	76.6	E	173.3	F	46.9	D
			WB	13.4	B	164.6	F	**	F	51.1	D
			NB	39.4	D	290.3	F	**	F	46.2	D
			SB	26.3	C	**	F	19.2	B	71.6	E
<b>Int</b>	<b>17.0</b>	<b>B</b>	<b>11.1</b>	<b>F</b>	<b>**</b>	<b>F</b>	<b>59.0</b>	<b>D</b>			
Route 17M & Freeland Street (CR40) / Still Road (CR 19)	12	Signalized	EB	51.1	D	95.9	F	90.8	F	20.0	B
			WB	59.3	E	95.1	F	167.4	F	30.1	C
			NB	32.5	C	**	F	140.3	F	27.9	C
			SB	25.6	C	232.2	F	39.7	D	24.2	C
<b>Int</b>	<b>43.7</b>	<b>D</b>	<b>214.3</b>	<b>F</b>	<b>118.4</b>	<b>F</b>	<b>26.2</b>	<b>C</b>			
Route 17M & Kmart Entrance	17	Signalized	EB	18.3	B	30.5	C	6.5	A	6.2	A
			WB	7.1	A	71.7	E	22.3	C	7.6	A
			NB	23.4	C	33.1	C	54.6	D	23.5	C
			SB	23.9	C	37.8	D	34.3	C	20.2	C
<b>Int</b>	<b>13.3</b>	<b>B</b>	<b>50.4</b>	<b>D</b>	<b>18.8</b>	<b>B</b>	<b>8.5</b>	<b>A</b>			
Route 17M & North Main Street	18	Signalized	EB	4.7	A	8.6	A	11.8	B	8.6	A
			WB	0.0	A	0.0	A	0.0	A	0.0	A
			SB	22.6	C	269.8	F	125.6	F	**	F
			<b>Int</b>	<b>7.3</b>	<b>A</b>	<b>80.7</b>	<b>F</b>	<b>30.6</b>	<b>D</b>	<b>101.1</b>	<b>F</b>

Table 4-2  
Route 17M Corridor  
2020 Weekday PM Peak Hour

Intersection	Node No.	Control	Dir	No Build Conditions with Optimizations		Build-out w/ Existing Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Roadway Focused Investment		Build-out w/ Existing Zoning and Roadway Focused Investment	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Route 17M & Route 208	1	Signalized	WB	20.9	C	47.1	D	21.8	C	18.3	B	45.7	D
			NB	11.4	B	14.5	B	13.2	B	12.6	B	14.6	B
			SB	20.9	C	39.8	D	22.5	C	18.7	B	31.9	C
			<b>Int</b>	<b>19.1</b>	<b>B</b>	<b>39.2</b>	<b>D</b>	<b>20.7</b>	<b>C</b>	<b>17.5</b>	<b>B</b>	<b>34.1</b>	<b>C</b>
Route 17M & Shop Rite Parking Lot	2	Signalized	EB	142.2	F	69.1	E	122.6	F	241.5	F	347.5	F
			NB	9.8	A	9.6	A	9.8	A	17.8	B	25.6	C
			SB	10.6	B	10.7	B	10.1	B	20.6	C	27.6	C
			<b>Int</b>	<b>25.0</b>	<b>C</b>	<b>14.2</b>	<b>B</b>	<b>19.6</b>	<b>B</b>	<b>41.4</b>	<b>D</b>	<b>57.1</b>	<b>E</b>
Route 17M & Lake Street / Lake Road (CR 19)	6	Signalized	EB	35.8	D	54.3	D	37.6	D	107.9	F	80.5	F
			WB	44.7	D	51.4	D	53.9	D	71.6	E	94.4	F
			NB	30.5	C	51.5	D	48.8	D	77.2	E	86.9	F
			SB	34.1	C	62.9	E	57.4	E	72.7	E	66.1	E
			<b>Int</b>	<b>36.9</b>	<b>D</b>	<b>54.5</b>	<b>D</b>	<b>49.2</b>	<b>D</b>	<b>82.9</b>	<b>F</b>	<b>84.0</b>	<b>F</b>
Route 17M & Stage Road	9	Signalized	EB	4.4	A	8.2	A	2.6	A	5.9	A	8.0	A
			WB	8.9	A	6.1	A	15.9	B	16.6	B	34.4	C
			NB	27.3	C	28.1	C	41.3	D	36.4	D	32.5	C
			SB	54.4	D	34.3	C	88.9	F	65.8	E	46.9	D
			<b>Int</b>	<b>18.0</b>	<b>B</b>	<b>14.6</b>	<b>B</b>	<b>24.3</b>	<b>C</b>	<b>21.3</b>	<b>C</b>	<b>26.7</b>	<b>C</b>
Route 17M & Freeland Street (CR40) / Still Road (CR 19)	12	Signalized	EB	21.7	C	34.2	C	37.6	D	18.3	B	47.2	D
			WB	79.7	E	132.5	F	142.4	F	35.4	D	100.0	F
			NB	51.1	D	50.8	D	50.4	D	52.6	D	62.3	E
			SB	39.8	D	51.2	D	34.2	C	49.9	D	69.4	E
			<b>Int</b>	<b>50.2</b>	<b>D</b>	<b>71.0</b>	<b>E</b>	<b>74.9</b>	<b>E</b>	<b>37.6</b>	<b>D</b>	<b>71.6</b>	<b>E</b>
Route 17M & Kmart Entrance	17	Signalized	EB	8.7	A	7.5	A	8.0	A	8.1	A	9.1	A
			WB	14.5	B	14.8	B	20.2	C	16.2	B	21.1	C
			NB	41.1	D	161.3	F	59.0	E	55.4	E	61.0	E
			SB	37.4	D	58.9	E	36.9	D	40.8	D	36.9	D
			<b>Int</b>	<b>14.3</b>	<b>B</b>	<b>23.1</b>	<b>C</b>	<b>18.9</b>	<b>B</b>	<b>16.5</b>	<b>B</b>	<b>19.6</b>	<b>B</b>
Route 17M & North Main Street	18	Signalized	EB	15.5	B	17.4	B	17.8	B	22.5	C	27.0	C
			WB	5.2	A	6.9	A	7.4	A	5.0	A	41.2	D
			SB	193.7	F	70.5	E	66.6	E	290.8	F	215.6	F
			<b>Int</b>	<b>53.6</b>	<b>D</b>	<b>24.2</b>	<b>C</b>	<b>24.6</b>	<b>C</b>	<b>82.9</b>	<b>F</b>	<b>78.4</b>	<b>E</b>
Route 17M & Church Street	21	Signalized	EB	7.3	A	7.3	A	6.9	A	5.9	A	6.5	A
			WB	19.0	B	20.7	C	18.6	B	14.4	B	21.4	C
			NB	15.7	B	18.6	B	16.9	B	18.2	B	23.3	C
			SB	25.5	C	30.1	C	28.9	C	22.4	C	33.3	C
			<b>Int</b>	<b>18.4</b>	<b>B</b>	<b>20.6</b>	<b>C</b>	<b>19.4</b>	<b>B</b>	<b>15.3</b>	<b>B</b>	<b>21.5</b>	<b>C</b>
Route 17M & Route 17	25	Signalized	EB	7.5	A	9.0	A	6.6	A	6.4	A	8.5	A
			NB	16.3	B	16.9	B	12.0	B	12.2	B	18.9	B
			SB	40.9	D	41.3	D	29.9	C	20.0	C	54.3	D
			<b>Int</b>	<b>23.5</b>	<b>C</b>	<b>24.2</b>	<b>C</b>	<b>18.0</b>	<b>B</b>	<b>14.3</b>	<b>B</b>	<b>29.0</b>	<b>C</b>

**Table 4-3**  
**Route 17 and Route 32 Corridor**  
**Full Build-out Weekday PM Peak Hour**

Intersection	Node No.	Control	Dir	Existing Conditions		Build-out w/ Existing Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Roadway Focussed Investment	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Route 17 & Larkin Drive / Route 6 On-ramp	12	Signalized	EB	44.1	D	174.4	F	93.6	F	54.7	D
			NB	**	F	91.9	F	50.2	D	43.4	D
			SB	227.7	F	31.3	C	25.0	C	27.3	C
			<b>Int</b>	<b>296.5</b>	<b>F</b>	<b>79.8</b>	<b>E</b>	<b>47.8</b>	<b>D</b>	<b>39.4</b>	<b>D</b>
Route 17 & Route 6 Off-ramp	11	Signalized	WB	49.6	D	91.0	F	57.6	F	54.7	D
			NB	48.2	D	9.3	A	5.5	D	4.1	D
			SB	60.2	F	11.3	B	7.6	C	7.6	C
			<b>Int</b>	<b>53.8</b>	<b>D</b>	<b>16.5</b>	<b>B</b>	<b>10.1</b>	<b>D</b>	<b>8.1</b>	<b>D</b>
Route 17 & Melody Lane / Woodbury Center	10	Signalized	EB	**	F	**	F	51.8	D	77.3	E
			WB	63.9	E	**	F	78.0	D	67.2	E
			NB	133.4	F	41.7	D	35.6	D	56.7	E
			SB	246.6	F	137.8	F	14.3	B	30.3	C
<b>Int</b>	<b>188.4</b>	<b>F</b>	<b>117.7</b>	<b>F</b>	<b>31.6</b>	<b>C</b>	<b>51.5</b>	<b>D</b>			
Route 32 & Route 17 EB On/Off-ramps	9	Signalized	EB	49.5	D	158.8	F	76.0	E	Intersection Eliminated by Construction of loop ramp at Lacey Lane	
			NB	**	F	121.5	F	61.4	E		
			SB	168.5	F	**	F	43.7	D		
			<b>Int</b>	<b>206.0</b>	<b>F</b>	<b>159.3</b>	<b>F</b>	<b>57.8</b>	<b>E</b>		
Route 32 & Route 17 WB Off-ramp / Nininger Road	7	Signalized	EB	165.5	F	**	F	127.3	F	82.6	F
			WB	**	F	**	F	**	F	67.4	E
			NB	41.5	D	174.3	F	50.8	D	15.9	B
			SB	18.7	B	44.3	D	24.4	C	26.3	C
<b>Int</b>	<b>191.1</b>	<b>F</b>	<b>184.8</b>	<b>F</b>	<b>171.4</b>	<b>F</b>	<b>43.7</b>	<b>D</b>			
Route 32 & Woodbury Common South	6	Signalized	EB	43.4	D	53.8	D	47.1	C	47.1	D
			WB	45.7	D	50.1	D	44.8	C	45.1	D
			NB	120.5	F	72.9	E	22.6	C	9.7	A
			SB	22.3	C	10.0	A	9.4	A	10.2	B
<b>Int</b>	<b>78.4</b>	<b>E</b>	<b>50.9</b>	<b>D</b>	<b>23.6</b>	<b>C</b>	<b>16.8</b>	<b>B</b>			
Route 32 & Woodbury Common North	5	Signalized	WB	46.0	D	98.7	F	67.4	E	52.7	D
			NB	94.6	F	14.0	B	7.2	A	5.0	A
			SB	16.6	B	14.5	B	14.7	B	11.4	B
			<b>Int</b>	<b>66.2</b>	<b>E</b>	<b>14.3</b>	<b>B</b>	<b>15.3</b>	<b>B</b>	<b>11.8</b>	<b>B</b>
Route 32 & Edgewood Drive / Estrada Road	4	Unsignalized	EB	48.0	E	**	F	185.4	F	54.3	D
			WB	**	F	191.2	F	37.9	D	49.2	D
			NB	0.3	A	**	F	**	F	131.4	F
			SB	0.6	A	15.3	B	10.0	B	7.7	A
<b>Int</b>	<b>73.0</b>	<b>F</b>	<b>297.4</b>	<b>F</b>	<b>163.3</b>	<b>F</b>	<b>83.0</b>	<b>F</b>			
Route 32 & Smith Clove Road (CR 9)	3	Signalized	WB	21.8	C	222.2	F	58.8	E	63.1	E
			NB	8.0	A	2.6	A	3.8	A	7.5	A
			SB	12.5	B	**	F	8.2	A	12.4	B
			<b>Int</b>	<b>13.4</b>	<b>B</b>	<b>239.7</b>	<b>F</b>	<b>10.6</b>	<b>B</b>	<b>16.6</b>	<b>B</b>
Route 32 & CR 105	2	Signalized	EB	25.5	C	119.4	F	29.1	C	25.9	C
			NB	4.1	A	33.8	C	10.5	B	7.9	A
			SB	7.9	A	7.9	A	9.4	A	7.9	A
			<b>Int</b>	<b>9.2</b>	<b>A</b>	<b>48.6</b>	<b>D</b>	<b>12.8</b>	<b>B</b>	<b>10.2</b>	<b>B</b>
Route 32 & Seven Springs / Ridge Road (CR 44)	1	Unsignalized	EB	16.2	C	**	F	159.4	F	53.0	D

**Note:**

\*\* - Indicates a delay value that exceeds what can be displayed by Synchro

**Table 4-4  
Route 17 and Route 32 Corridor  
2020 Weekday PM Peak Hour**

Intersection	Node No.	Control	Dir	No Build Conditions with Optimizations		Build-out w/ Existing Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Transportation Management Systems	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Route 17 & Larkin Drive / Route 6 On-ramp	12	Signalized	EB	110.7	F	88.9	F	93.2	F
			NB	40.1	D	33.0	C	40.2	D
			SB	70.9	E	45.2	D	43.1	D
			<b>Int</b>	<b>65.6</b>	<b>E</b>	<b>46.5</b>	<b>D</b>	<b>49.9</b>	<b>D</b>
Route 17 & Route 6 Off-ramp	11	Signalized	WB	76.1	E	70.0	E	74.0	E
			NB	5.7	A	5.6	A	4.5	A
			SB	3.3	A	3.2	A	2.8	A
			<b>Int</b>	<b>12.0</b>	<b>B</b>	<b>11.7</b>	<b>B</b>	<b>11.9</b>	<b>B</b>
Route 17 & Melody Lane / Woodbury Center	10	Signalized	EB	102.4	F	84.2	F	106.5	F
			WB	380.7	F	408.4	F	308.5	F
			NB	30.6	C	33.1	C	38.2	D
			SB	23.5	C	19.7	B	14.1	D
<b>Int</b>	<b>78.3</b>	<b>E</b>	<b>80.8</b>	<b>F</b>	<b>69.4</b>	<b>E</b>			
Route 32 & Route 17 EB On/Off-ramps	9	Signalized	EB	290.3	F	283.5	F	347.8	F
			NB	69.9	E	67.2	E	74.3	E
			SB	35.7	D	32.1	C	18.5	B
			<b>Int</b>	<b>97.5</b>	<b>F</b>	<b>94.0</b>	<b>F</b>	<b>104.2</b>	<b>F</b>
Route 32 & Route 17 WB Off-ramp / Nininger Road	7	Signalized	EB	280.3	F	399.6	F	264.9	F
			WB	78.1	E	105.5	F	57.9	E
			NB	38.2	D	32.7	C	41.2	D
			SB	26.1	C	24.6	C	29.5	C
<b>Int</b>	<b>68.1</b>	<b>E</b>	<b>87.1</b>	<b>F</b>	<b>61.5</b>	<b>E</b>			
Route 32 & Woodbury Common South	6	Signalized	EB	55.7	E	55.7	E	63.4	E
			WB	49.3	D	48.3	D	52.9	D
			NB	6.8	A	7.3	A	6.0	A
			SB	9.8	A	9.9	A	10.2	B
<b>Int</b>	<b>16.0</b>	<b>B</b>	<b>15.8</b>	<b>B</b>	<b>17.1</b>	<b>B</b>			
Route 32 & Woodbury Common North	5	Signalized	WB	61.3	E	65.7	E	60.1	E
			NB	5.0	A	5.3	A	3.5	A
			SB	10.0	B	11.1	B	8.5	A
			<b>Int</b>	<b>13.2</b>	<b>B</b>	<b>14.0</b>	<b>B</b>	<b>12.3</b>	<b>B</b>
Route 32 & Edgewood Drive / Estrada Road	4	Unsignalized	EB	70.6	E	107.6	F	80.4	F
			WB	107.3	F	84.3	F	47.6	D
			NB	210.7	F	338.2	F	202.5	F
			SB	7.6	A	14.4	B	14.8	B
<b>Int</b>	<b>13.2</b>	<b>B</b>	<b>14.0</b>	<b>B</b>	<b>12.3</b>	<b>B</b>			
Route 32 & Smith Clove Road (CR 9)	3	Signalized	WB	55.9	E	74.7	E	49.6	D
			NB	3.8	A	3.6	A	2.9	A
			SB	10.9	B	15.4	B	7.2	A
			<b>Int</b>	<b>12.2</b>	<b>B</b>	<b>14.2</b>	<b>B</b>	<b>8.7</b>	<b>A</b>
Route 32 & CR 105	2	Signalized	EB	31.6	C	47.9	D	46.9	D
			NB	6.4	A	6.0	A	9.5	A
			SB	5.7	A	4.8	A	6.7	A
			<b>Int</b>	<b>9.9</b>	<b>A</b>	<b>11.2</b>	<b>B</b>	<b>12.8</b>	<b>B</b>
Route 32 & Seven Springs / Ridge Road (CR 44)	1	Unsignalized	EB	153.3	F	172.2	F	54.3	F

**Note:**  
\*\*\* - Indicates a delay value that exceeds what can be displayed by Synchro

**Table 4-5**  
**Route 208**  
**Full Build-out Weekday PM Peak Hour**

Intersection	Node No.	Control	Dir	Existing Conditons		Build-out w/ Existing Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Roadway Focused Investment	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Route 208 & North Main Street (CR 105)	4	Signalized	EB	30.4	C	**	F	**	F	146.6	F
			WB	42.0	D	40.0	D	40.0	D	21.2	C
			NB	31.7	C	41.3	D	41.3	D	18.9	B
			SB	40.9	C	40.9	D	40.9	D	17.8	B
			<b>Int</b>	<b>31.7</b>	<b>C</b>	<b>**</b>	<b>F</b>	<b>**</b>	<b>F</b>	<b>120.0</b>	<b>F</b>
Route 208 & Route 17 EB Ramps	3	Signalized	WB	50.3	D	51.0	D	34.9	C	47.8	D
			NB	82.2	F	13.0	D	14.8	B	21.9	C
			SB	12.5	B	**	F	**	F	116.4	F
			<b>Int</b>	<b>50.1</b>	<b>D</b>	<b>**</b>	<b>F</b>	<b>**</b>	<b>F</b>	<b>68.1</b>	<b>E</b>
Route 208 & Route 17 WB Ramps	2	Signalized	EB	27.5	C	36.9	D	31.3	C	23.6	C
			WB	96.2	F	**	F	182.6	F	18.4	B
			NB	7.1	A	64.2	E	21.3	C	8.4	A
			SB	**	A	**	F	42.8	D	10.3	B
			<b>Int</b>	<b>**</b>	<b>C</b>	<b>**</b>	<b>F</b>	<b>44.7</b>	<b>D</b>	<b>11.7</b>	<b>B</b>
Route 208 & Mountain Road (CR 44)	1	Unsignalized	WB	54.7	F	**	F	**	F	**	F

**Table 4-6**  
**Route 208**  
**2020 Weekday PM Peak Hour**

Intersection	Node No.	Control	Dir	No Build Conditions with Optimizations		Build-out w/ Existing Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Transportation Management Systems		Build-out w/ Reduced Density Zoning and Roadway Focused Investment		Build-out w/ Existing Zoning and Roadway Focused Investment	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Route 208 & North Main Street (CR 105)	4	Signalized	EB	2792.6	F	3744.1	F	3575.4	F	2895.3	F	3196.2	F
			WB	38.4	D	32.0	C	31.1	C	25.0	C	32.0	C
			NB	28.4	C	44.6	D	23.1	C	22.4	C	29.5	C
			SB	234.1	F	320.3	F	62.8	E	17.8	B	18.8	B
			<b>Int</b>	<b>1152.8</b>	<b>F</b>	<b>1755.4</b>	<b>F</b>	<b>1822.5</b>	<b>F</b>	<b>1813.3</b>	<b>F</b>	<b>1766.6</b>	<b>F</b>
Route 208 & Route 17 EB Ramps	3	Signalized	WB	157.3	F	188.6	F	160.7	F	151.6	F	137.3	F
			NB	6.7	A	11.6	B	8.1	A	6.4	A	7.4	A
			SB	276.1	F	672.9	F	439.0	F	241.8	F	374.8	F
			<b>Int</b>	<b>157.0</b>	<b>F</b>	<b>336.7</b>	<b>F</b>	<b>222.5</b>	<b>F</b>	<b>129.8</b>	<b>F</b>	<b>184.6</b>	<b>F</b>
Route 208 & Route 17 WB Ramps	2	Signalized	EB	32.4	C	35.8	D	25.0	C	73.7	E	112.5	F
			WB	124.4	F	140.9	F	91.1	F	21.8	C	39.2	D
			NB	12.3	B	13.3	B	12.4	B	5.4	A	6.7	A
			SB	92.9	F	116.8	F	50.0	D	15.0	B	30.3	C
			<b>Int</b>	<b>68.8</b>	<b>E</b>	<b>80.4</b>	<b>F</b>	<b>41.7</b>	<b>D</b>	<b>22.0</b>	<b>C</b>	<b>35.7</b>	<b>D</b>
Route 208 & Mountain Road (CR 44)	1	Unsignalized	WB					567.7	F	439.0	F		

Clove Road. The remaining 2/3 (226) of the traffic flow continue north into Highland Mills (See Figure 4-1).

If NYS Route 17 were to be widened, significantly fewer vehicles (760) would exit Route 17 at the Route 32 off-ramp, a reduction of 10.5 percent resulting in approximately 75 fewer cars on Route 32 through Central Valley during the PM peak hour period (see Figure 4-2).

**SL2: CORNWALL INTERCHANGE**

This SLA was conducted to determine how much traffic would be diverted from NYS Route 32 if a new interchange were constructed at the northern end of the study area. While almost 900 vehicles are projected to use the new northbound exit ramp of the Cornwall Interchange during the PM peak hour period, more than half of these vehicles (500) are diverted trips attempting to avoid congested conditions on NYS Route 17 (See Figure 4-3). If NYS Route 17 were to be widened, use of the new Interchange would be substantially lower and it is expected that the Cornwall Interchange would divert approximately 200 vehicles from NYS Route 32 and Smith Clove Road during the peak hour periods (See Figure 4-4).

**SL3: CR 105 INTERCHANGE/ NYS ROUTE 17 WESTBOUND COLLECTOR DISTRIBUTOR ROADWAY**

The construction of a new interchange to CR 105 from a parallel westbound collector-distributor road to NYS Route 17 would result in significant reductions in demand at the intersection of NYS Route 32 and Nininger Road. Without increasing the capacity of NYS Route 17, the new C-D road is expected to carry almost 1,500 vehicles per hour (vph) during the peak periods, with almost 1/3 of this traffic using the C-D road to bypass congestion on NYS Route 17 (See Figure 4-5). Peak hour volumes on the C-D road and through the interchange would decrease to a more manageable level, approximately 970 vph, if NYS Route 17 were widened to three lanes in each direction (See Figure 4-6). In addition, almost 600 vehicles would be diverted from the NYS Route 32 corridor during the peak hour period alleviating congestion at the intersections immediately surrounding the off-ramp connection.

**SL4: BAILEY FARM ROAD/ROUTE 17M BYPASS**

The Bailey Farm Road/Route 17M Bypass would connect NYS Route 17M to Bailey Farm Road, which is at the back end of the Harriman Business Park commercial development. This new road is expected to carry approximately 400 vph in each direction during the peak hour periods. Almost half of this traffic would be diverted trips from Larkin Drive with the remaining vehicles being diverted from North Main Street, River Road, and the local roadways in the Village of Harriman (see Figure 4-7). Traffic demand for this road is only marginally affected by capacity constraints on NYS Route 17 (see Figure 4-8).

**SL5: ROUTE 208 BYPASS**

The Route 208 bypass would connect NYS Route 94 in Blooming Grove to NYS Route 17 near the Museum Village Interchange in Monroe. The new road would parallel and be located to the west of the existing NYS Route 208 alignment. This limited-access two-way road would divert approximately 300 to 400 vehicles from NYS Route 208 with origins and destinations in Washingtonville, Blooming Grove, Monroe, and Chester (see Figure 4-9). Traffic demand for this road is only marginally affected by capacity constraints on NYS Route 17 (see Figure 4-10).

This bypass road would, however, address significant safety issues along the length of Route 208 from NYS Route 17 to Washingtonville.

**SL6: LARKIN DRIVE EXTENSION**

The Larkin Drive extension would connect NYS Route 208 with CR 105 and would act as the northern continuation of the existing Larkin Drive alignment. This new two-way Town road would provide an alternative means of access to the commercial centers surrounding the NYS Route 32 corridor without having to travel through the Villages of Monroe and Harriman. Without capacity improvements to NYS Route 17, a two-way volume of 1,400 vph is expected during the peak hour periods, with most of this traffic diverting from CR 105, Forest Road, and Spring Street in Monroe (see Figure 4-11). The two way volume on the Larkin Drive extension would drop to approximately 1,200 vph during the peak hour periods if a third lane in each direction is added to NYS Route 17 (see Figure 4-12).\*

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: Route 32 Off-Ramp

NEWBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY



RFI\_SL1.LLX  
SEOC\_RFI\_NDE  
L: 19280/6985  
UR: 24659/12098  
07-08-2004

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: Route 32 Off-Ramp: NYS Rte 17 Widened  
NEWBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY

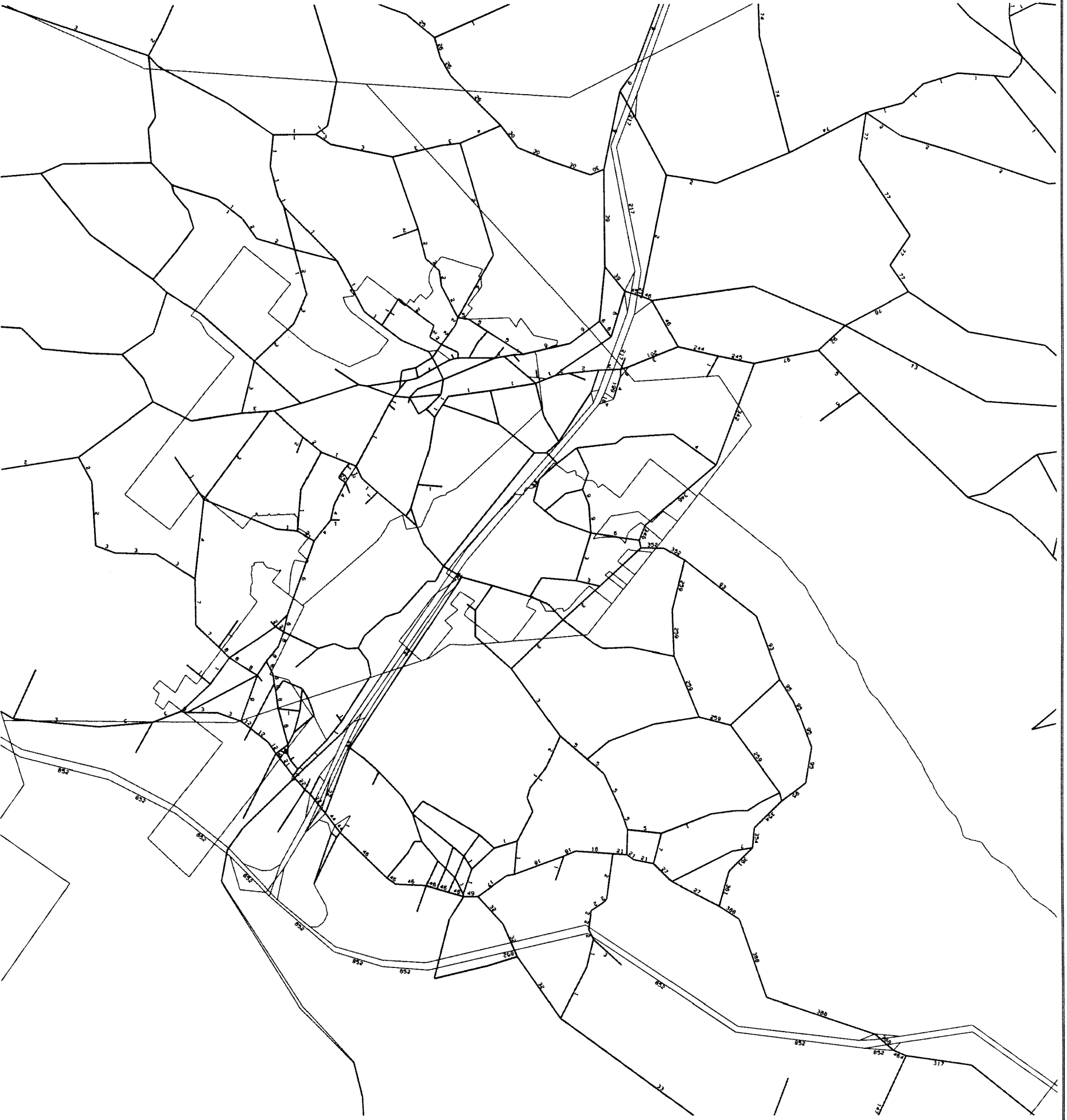


17\_SL1.LLX  
SEOC\_PFI\_NDE  
LL: 19280/6985  
UR: 24659/12098  
07-08-2004

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: Cornwall Interchange

NEWBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY



RFI\_SL2.LTX  
SEOC\_RFI.NDE  
LL: 19280/6985  
UR: 24659/12098  
07-08-2004

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: Cornwall Interchange: Route 17 Widened

NEWBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY



17 SL2 LLX  
SEOC\_RFI.NDE  
L: 19280/6985  
UR: 24659/12098  
07-08-2004

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: CR 105 Interchange Off-Ramp

NEWBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY



RFI\_SL3\_LLX  
SEOC\_RFI\_NDE  
LL: 19280/6985  
UR: 24659/12098  
07-08-2004

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: CR 105 Interchange Off-Ramp: Route 17 Widened

NEWBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY



17\_SL3\_LLX  
SEOC\_JRF1.NDE  
LL: 19280/6985  
UR: 24659/12098  
07-08-2004

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: Harriman Bypass Road

NEMBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY



RFI SL4.LLX  
SEOC\_RFI.NDE  
LL: 19280/6985  
UR: 24659/12098  
07-08-2004

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: Harriman Bypass Road: Route 17 Widened

NEWBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY



17 SL4 LLX  
SEOC\_RPT1.NDE  
LL: 19280/6985  
UR: 24659/12098  
07-08-2004

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: Route 208 Bypass Road

NEWBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY



RFI\_SL5\_LLX  
SEOC\_RFI\_INDE  
LL: 19280/6985  
UR: 24659/12098  
07-08-2004

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: Route 208 Bypass Road: Route 17 Widened

NEWBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY



17 SL5 LLX  
SEOC JPT I NDE  
LL: 19260/6985  
UR: 24659/12098  
07-08-2004

MODEL 2

SEOC Traffic & Land Use Study  
Select Link: Larkin Drive Extension Connector

NEWBURGH-ORANGE COUNTY TRANS COUNCIL, Goshen, NY



RFI\_SL6.LLX  
SEOC\_AFI.NOE  
LR: 19280/6985  
UR: 24659/12098  
07-08-2004

MODEL™  
2

SEOC Traffic & Land Use Study  
Select Link: Larkin Extension Connector: Route 17 Widened

NEWBURGH-ORANGE COUNTY TRANS COUNCIL, GOSHEN, NY



17 SL6 LLX  
SEOC\_PFI\_NDE  
LU: 19286/6995  
UR: 24559/12098  
07-08-2004