



# SOUTHEASTERN ORANGE COUNTY TRAFFIC AND LAND USE STUDY

## Executive Summary

Prepared for:  
Orange County Department of Planning

Prepared by:



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## **Southeastern Orange County Traffic and Land Use Study - 2005**

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### **A. INTRODUCTION**

Orange County has undergone a period of tremendous growth over the past thirty years as it has been transformed from a predominantly rural environment to a mixed suburban, rural and, in places, urban setting that has become a part of the greater New York metropolitan area. The Towns and Villages in the southeastern portion of the County are at the leading edge of the development cycle. These communities have become the logical place to settle for people and businesses moving away from the older, more densely developed areas of downstate New York. As more people move into this area, the demand for the roadways, schools, and infrastructure will also increase. One of the most visible impacts of this increased demand is traffic congestion. With segments of the main thoroughfares already operating at or above their design capacity, the growth projections and the subsequent effect on the transportation systems are major concerns for both the residents, businesses, and elected officials in these municipalities.

### **B. PROJECT EVOLUTION AND STAKEHOLDERS**

In 1998 a grass roots Traffic Task Force was formed focusing on traffic congestion in the Monroe-Woodbury area and the types of regional, inter-municipal, solutions that could be advanced to address these issues. The Task Force consisted primarily of elected officials and planning and zoning board members representing the Towns of Monroe and Woodbury, as well as from the Villages of Harriman, Kiryas Joel, and Monroe. Meeting on a monthly basis, the Traffic Task Force discussed potential transportation improvement measures and land use controls that could be initiated to help preserve the area's unique character and maintain the quality of life that makes this portion of Orange County such an attractive place to live and do business. Responsible development and smart growth became important issues.

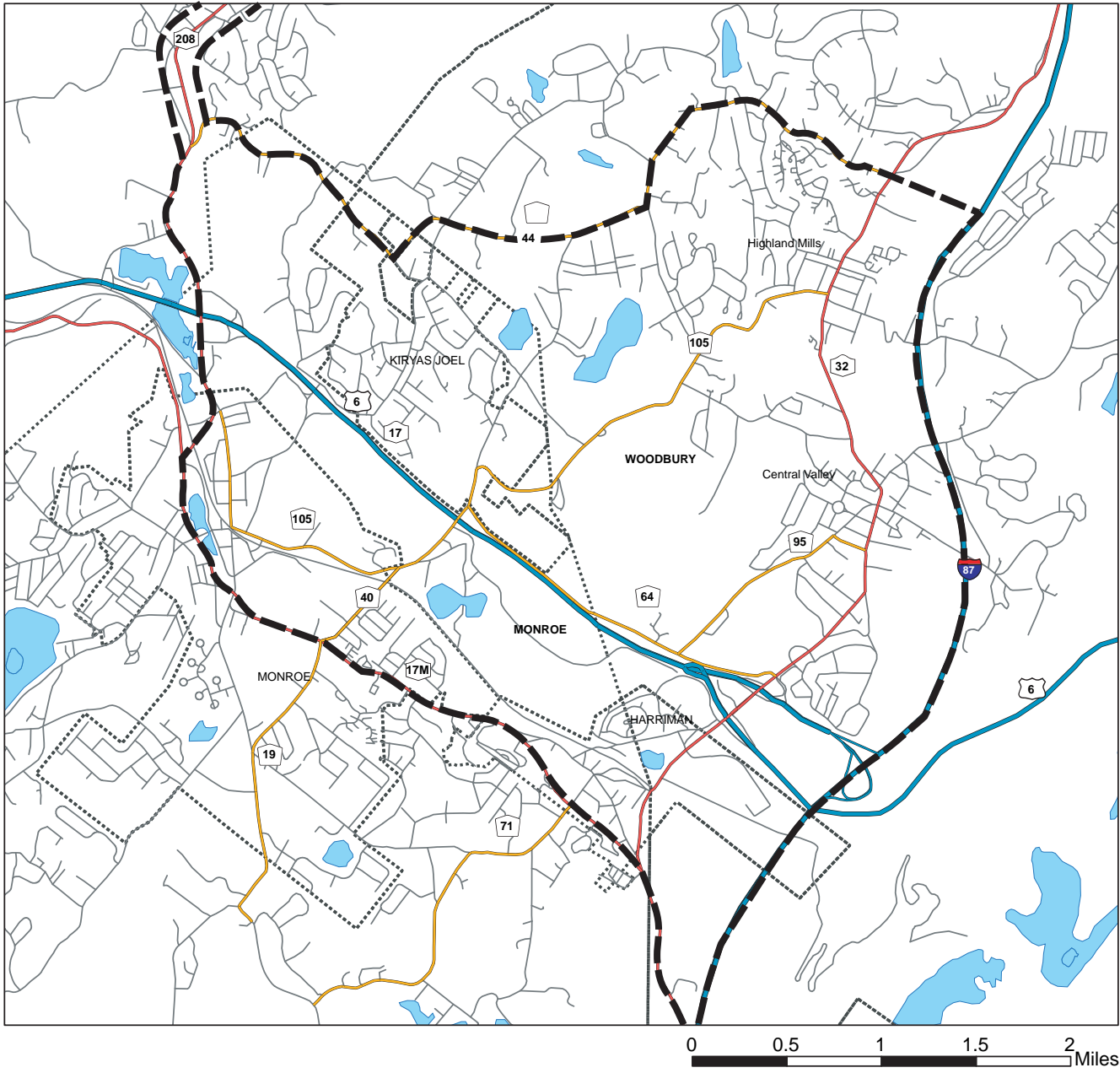
Building from the Task Force's work, Orange County and New York State Department of Transportation agreed to sponsor and fund unique, new research. The Southeastern Orange County Traffic and Land Use Study involves a detailed analysis of traffic conditions on the state-owned corridors in the area including Route 17, Route 17M, Route 208, Route 32, and the heavily traveled Route 17/6/32 interchange area (see Figure S-1). The study also evaluates potential solutions that include modifications to the New York State Thruway and County Route 105 as well as improvements to transit and pedestrian operations and the provision of multi-modal transportation centers.

A number of goals were established as part of this Federally funded study including:

- Determining the current operational characteristics and deficiencies of the transportation system;
- Forecasting future conditions of the transportation system;



1.7.05



### Legend

- STUDY AREA BOUNDARY
- MUNICIPAL BOUNDARIES
- LAKES
- ROADS**
- INTERSTATES/ US HIGHWAYS
- STATE HIGHWAYS
- COUNTY HIGHWAYS
- OTHER ROADS



## **Executive Summary**

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- Recommending improvements to enhance the efficiency and safety of the transportation system;
- Developing and recommending sustainable development guidelines that are compatible with and help preserve the capacity of future transportation improvements;
- Building a consensus for proposed transportation improvements and sustainable development through public forums.

## **C. STUDY FINDINGS**

### **LAND USE PATTERNS AND TRENDS**

The most intense development in Orange County in recent years has been concentrated in the southeastern portion of the county, particularly near the New York State Thruway and Route 17. In addition, there has been a significant increase in residential subdivision and commercial development in the Towns of Monroe, Woodbury, and Blooming Grove although Monroe and Woodbury have seen significantly more recent development than Blooming Grove. The Villages of Monroe and Harriman are older centers, and although mostly built-out under current zoning rules, have experienced the impacts of increased traffic as a result of growth in the adjacent municipalities. The rapid growth of the Village of Kiryas Joel over the past two decades into a new community has also added new population to the area.

The growth in population that the southeastern portion of the county has experienced in recent decades has resulted in a substantial boom in commercial development along the Route 17 corridor. Woodbury Common is a regional retail center that has served as an anchor for other new retail construction around Routes 32 and 17. Subsequently, undeveloped land in this area has been increasingly developed for retail and commercial uses as market demand has increased. Southeastern Orange County still has large tracts of open space, as well as numerous tracts of undeveloped, forested, and wetland properties. Demand for residential property has led to new construction in the remaining countryside.

### **CURRENT TRAFFIC PATTERNS**

The Southeastern Orange County study area is connected to other parts of Orange County and the rest of New York State via an established regional highway network that converges at its towns of Woodbury and Harriman. The New York State Thruway (I-87), as the primary north-south highway in the area, connects regionally to adjacent counties and points east of the Hudson River. Access to I-87 is provided via its Woodbury/Harriman toll interchange at Exit 16, which feeds west directly into the limited access Quickway (overlap of State Route 17 and US Route 6) and connects to State Route (SR) 17 and SR 32 via interchange ramps. Due to the rapid population and economic growth over recent years, travel to and from the area has increased, both in volume and in average distance. On a typical weekday, commuter travel generally peaks southbound in the morning and northbound in the evening. On the weekends, directional travel is more homogeneous, with significant peaking of traffic volumes along SR 17/32 near the Thruway interchange. This condition is attributed mainly to the continual growth of destination retail activities from Woodbury Common, the newly opened Woodbury Center and others in the area.

Traffic data were collected along three key corridors in fall 2002 to assess existing traffic conditions within the study area. A combination of automatic traffic recorder (ATR) and manual

counts were conducted to formulate existing peak hour traffic volumes along SR 17/32 between SR 17M and Ridge Road, SR 17M between SR 17 and SR 208, and SR 208 and County Route (CR) 105 between CR 44 and Bakertown Road. Based on the collected data, the weekday 7:30 to 8:30 AM and 5:00 to 6:00 PM, and the Saturday noon to 1 PM peak hours were selected for analysis. These hours represent the typical peak commuter and weekend travel periods within the study area. The *Synchro 5 Traffic Signal Coordination Software*, which was developed based on the *2000 Highway Capacity Manual (HCM)* methodologies, was used to evaluate individual analysis locations and provide simulations of peak hour traffic flows along each of the above corridors.

Of the three study area corridors, traffic volumes are the highest along SR 17/32, with peak bi-directional hourly volumes nearing 2,800 vehicles, and lowest along SR 17M. On a typical weekday, directional peaking generally occurs southbound in the morning and northbound in the evening. Along SR 17M, which has more of an east-west alignment, weekday traffic is heavier eastbound towards SR 17 in the morning and westbound towards SR 208 in the evening. Weekend traffic is more homogeneous in both north-south and east-west directions.

Operational characteristics reflecting the travel conditions at individual intersections along the Route 17/32 corridor were summarized based on analysis results from the Synchro simulation of existing peak hour traffic. These results indicate how existing peak hour volumes compare to roadway capacities, the amount of average vehicle delays at intersection controls, and the levels of service of specific lane groups, approaches or intersections. Level of Service (LOS) is categorized from A through F. LOS A and B signify good operating conditions with minimal delay. At LOS C, the number of vehicles stopping is higher, but congestion is still fairly light. LOS D describes a condition at which congestion levels are more noticeable and individual cycle failures (motorists having to wait for more than one green phase to clear the intersection) at signalized intersections can occur or available gaps for minor street movements at unsignalized intersections are diminished. Conditions at LOS E and F reflect poor service levels, where cycle breakdowns are frequent or extended waits are needed for one or more turning movements. Under ideal suburban settings, the boundary between LOS C and LOS D is generally considered the threshold of acceptable operations.

Existing Levels of Service within each of the study area corridors are summarized in Tables S-1.

**Table S-1**  
**2002 Existing Levels of Service – SR32 Signalized Intersections**

Cross Street	Dir	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		Move	Delay (sec)	LOS	Move	Delay (sec)	LOS	Move	Delay (sec)	LOS
CR 105	EB	LR	29.7	C	LR	29.4	C	LR	34.5	C
	NB	LT	4.2	A	LT	6.8	A	LT	8.7	A
	SB	TR	7.5	A	TR	4.8	A	TR	6.0	A
		<b>Int.</b>	<b>9.5</b>	<b>A</b>	<b>Int.</b>	<b>8.6</b>	<b>A</b>	<b>Int.</b>	<b>11.1</b>	<b>B</b>
Smith Clove Road	WB	LR	20.7	C	LR	35.6	D <sub>a</sub>	LR	21.0	C
	NB	TR	8.0	A	TR	48.2	D <sub>u</sub>	TR	12.1	B
	SB	LT	11.7	B	LT	53.7	D <sub>u</sub>	LT	9.1	A
		<b>Int.</b>	<b>12.7</b>	<b>B</b>	<b>Int.</b>	<b>48.1</b>	<b>D<sub>u</sub></b>	<b>Int.</b>	<b>12.5</b>	<b>B</b>
Woodbury Common North	WB	LTR	55.3	E	LTR	52.2	D <sub>u</sub>	LTR	55.5	E
	NB	LTR	2.0	A	LTR	2.9	A	LTR	24.4	C
	SB	LTR	4.2	A	LTR	6.7	A	LTR	15.2	B
		<b>Int.</b>	<b>4.3</b>	<b>A</b>	<b>Int.</b>	<b>10.4</b>	<b>B</b>	<b>Int.</b>	<b>23.2</b>	<b>C</b>
Woodbury Common South	EB	LR	49.6	D <sub>u</sub>	LR	50.8	D <sub>u</sub>	LR	52.8	D <sub>u</sub>
	WB	LR	47.8	D <sub>u</sub>	LR	45.8	D <sub>u</sub>	LR	45.1	D <sub>u</sub>
	NB	T	5.8	A	T	13.2	B	T	10.7	B
	SB	T	5.5	A	T	11.3	B	T	13.6	B
	<b>Int.</b>	<b>8.4</b>	<b>A</b>	<b>Int.</b>	<b>18.7</b>	<b>B</b>	<b>Int.</b>	<b>16.0</b>	<b>B</b>	
SR 17 WB Off Ramp / Nininger Road	EB	LR	82.1	F	LR	76.5	E	LR	129.1	F
	WB	LTR	73.9	E	LTR	116.6	F	LTR	57.5	E
	NB	LT	11.9	B	LT	6.7	A	LT	16.4	B
	SB	TR	13.8	B	TR	20.9	C	TR	16.7	B
	<b>Int.</b>	<b>32.0</b>	<b>C</b>	<b>Int.</b>	<b>44.1</b>	<b>D<sub>a</sub></b>	<b>Int.</b>	<b>33.2</b>	<b>C</b>	
SR 17 EB On/Off Ramps	EB	LTR	34.3	C	LTR	36.7	D <sub>a</sub>	LTR	72.4	E
	NB	TR	44.4	D <sub>a</sub>	TR	27.9	C	TR	14.1	B
	SB	LT	81.2	F	LT	62.7	E	LT	82.6	F
		<b>Int.</b>	<b>60.7</b>	<b>E</b>	<b>Int.</b>	<b>44.8</b>	<b>D<sub>a</sub></b>	<b>Int.</b>	<b>57.1</b>	<b>E</b>
Locey Lane / Woodbury Center	EB	LTR	50.4	D <sub>u</sub>	LTR	55.4	E	LTR	92.1	F
	WB	LTR	51.6	D <sub>u</sub>	LTR	49.9	D <sub>u</sub>	LTR	89.9	F
	NB	LTR	4.1	A	LTR	7.0	A	LTR	7.1	A
	SB	LTR	16.3	B	LTR	27.5	C	LTR	32.2	C
	<b>Int.</b>	<b>12.6</b>	<b>B</b>	<b>Int.</b>	<b>19.3</b>	<b>B</b>	<b>Int.</b>	<b>28.0</b>	<b>C</b>	
US Route 6 Off Ramp	WB	LR	75.0	E	LR	51.9	D <sub>u</sub>	LR	74.7	E
	NB	T	0.2	A	T	1.0	A	T	3.3	A
	SB	T	0.7	A	T	5.3	A	T	3.0	A
		<b>Int.</b>	<b>7.9</b>	<b>A</b>	<b>Int.</b>	<b>10.3</b>	<b>B</b>	<b>Int.</b>	<b>18.9</b>	<b>B</b>
Larkin Drive / US Route 6 On Ramp	EB	LTR	55.6	D <sub>u</sub>	LTR	61.5	E	LTR	70.7	E
	NB	LTR	25.2	C	LTR	29.3	C	LTR	21.6	C
	SB	LT	16.4	B	LT	12.1	B	LT	20.2	C
		<b>Int.</b>	<b>27.5</b>	<b>C</b>	<b>Int.</b>	<b>29.9</b>	<b>C</b>	<b>Int.</b>	<b>36.7</b>	<b>D<sub>a</sub></b>

**Note:** SR 32 is oriented NB/SB, while cross streets are oriented EB/WB.  
D<sub>a</sub> = marginally acceptable LOS (delay ≤ 45 seconds); D<sub>u</sub> = marginally unacceptable LOS (delay > 45 seconds)

**Table S-2  
2002 Existing Levels of Service – SR 32 Unsignalized Intersections**

Cross Street	Dir	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		Move	Delay (sec)	LOS	Move	Delay (sec)	LOS	Move	Delay (sec)	LOS
Ridge Road	EB	LR	16.0	C	LR	17.7	C	LR	15.6	C
	NB	LT	0.5	A	LT	1.2	A	LT	1.0	A
	SB	TR	--	--	TR	--	--	TR	--	--
		<b>Int.</b>	<b>2.1</b>	<b>A</b>	<b>Int.</b>	<b>1.8</b>	<b>A</b>	<b>Int.</b>	<b>1.7</b>	<b>A</b>
Dunderberg Road / Estrada Road	EB	LTR	26.7	D <sub>a</sub>	LTR	391.1	F	LTR	44.2	E
	WB	LTR	327.4	F	LTR	332.2	F	LTR	49.2	E
	NB	LTR	0.2	A	LTR	1.1	A	LTR	0.6	A
	SB	LTR	0.5	A	LTR	1.1	A	LTR	0.5	A
		<b>Int.</b>	<b>21.9</b>	<b>C</b>	<b>Int.</b>	<b>25.0</b>	<b>C</b>	<b>Int.</b>	<b>3.0</b>	<b>A</b>
<p><b>Note:</b> SR 32 is oriented NB/SB, while cross streets are oriented EB/WB.  D<sub>a</sub> = marginally acceptable LOS (delay ≤ 30 seconds); D<sub>u</sub> = marginally unacceptable LOS (delay &gt; 30 seconds)</p>										

**Table S-3**  
**2002 Existing Levels of Service – SR 17M Intersections**

Cross Street	Dir	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		Move	Delay (sec)	LOS	Move	Delay (sec)	LOS	Move	Delay (sec)	LOS
SR 17	EB	R	10.9	B	R	6.4	A	R	8.0	A
	NB	LT	3.8	A	LT	4.5	A	LT	3.7	A
	SB	TR	9.0	A	TR	8.9	A	TR	6.9	A
		<b>Int.</b>	<b>8.5</b>	<b>A</b>	<b>Int.</b>	<b>5.3</b>	<b>A</b>	<b>Int.</b>	<b>5.5</b>	<b>A</b>
Harriman Heights Road / Church Street	EB	LTR	6.9	A	LTR	5.8	A	LTR	6.1	A
	WB	LTR	5.6	A	LTR	7.3	A	LTR	5.7	A
	NB	LTR	15.5	B	LTR	19.8	B	LTR	13.4	B
	SB	LTR	14.4	B	LTR	16.5	B	LTR	13.3	B
		<b>Int.</b>	<b>10.2</b>	<b>B</b>	<b>Int.</b>	<b>10.8</b>	<b>B</b>	<b>Int.</b>	<b>8.7</b>	<b>A</b>
North Main Street (unsignalized)	EB	LT	4.1	A	LT	4.7	A	LT	3.7	A
	WB	TR	--	--	TR	--	--	TR	--	--
	SB	LR	10.8	B	LR	22.6	C	LR	16.9	C
		<b>Int.</b>	<b>4.0</b>	<b>A</b>	<b>Int.</b>	<b>7.3</b>	<b>A</b>	<b>Int.</b>	<b>5.5</b>	<b>A</b>
K-Mart / Vista Lane	EB	LTR	10.3	B	LTR	18.3	B	LTR	18.8	B
	WB	LTR	3.2	A	LTR	7.1	A	LTR	6.7	A
	NB	LTR	21.9	C	LTR	23.4	C	LTR	26.0	C
	SB	LTR	24.5	C	LTR	23.9	C	LTR	22.8	C
		<b>Int.</b>	<b>9.8</b>	<b>A</b>	<b>Int.</b>	<b>13.3</b>	<b>B</b>	<b>Int.</b>	<b>15.3</b>	<b>B</b>
Still Road / Freeland Street	EB	LTR	28.7	C	LTR	51.1	D <sub>u</sub>	LTR	40.3	D <sub>a</sub>
	WB	LTR	17.6	B	LTR	59.3	E	LTR	33.5	C
	NB	LTR	29.9	C	LTR	32.5	C	LTR	21.3	C
	SB	LTR	25.4	C	LTR	25.6	C	LTR	29.5	C
		<b>Int.</b>	<b>26.6</b>	<b>C</b>	<b>Int.</b>	<b>43.7</b>	<b>D<sub>a</sub></b>	<b>Int.</b>	<b>33.2</b>	<b>C</b>
Stage Road	EB	LTR	9.3	A	LTR	8.9	A	LTR	8.3	A
	WB	LTR	6.4	A	LTR	13.4	B	LTR	9.5	A
	NB	LTR	32.9	C	LTR	39.4	D <sub>a</sub>	LTR	30.5	C
	SB	LTR	26.0	C	LTR	26.3	C	LTR	29.7	C
		<b>Int.</b>	<b>12.9</b>	<b>B</b>	<b>Int.</b>	<b>17.0</b>	<b>B</b>	<b>Int.</b>	<b>13.0</b>	<b>B</b>
Lakes Street/Road	EB	LTR	23.8	C	LTR	33.4	C	LTR	24.7	C
	WB	LTR	17.6	B	LTR	60.4	E	LTR	28.3	C
	NB	LTR	28.0	C	LTR	44.0	D <sub>a</sub>	LTR	38.4	D <sub>a</sub>
	SB	LTR	17.8	B	LTR	29.6	C	LTR	30.5	C
		<b>Int.</b>	<b>23.5</b>	<b>C</b>	<b>Int.</b>	<b>44.6</b>	<b>D<sub>a</sub></b>	<b>Int.</b>	<b>29.7</b>	<b>C</b>
Shop Rite	EB	TR	10.3	B	TR	16.2	B	TR	20.5	C
	WB	LT	3.2	A	LT	7.8	A	LT	13.5	B
	NB	LR	30.8	C	LR	33.3	C	LR	69.2	E
		<b>Int.</b>	<b>7.9</b>	<b>A</b>	<b>Int.</b>	<b>13.8</b>	<b>B</b>	<b>Int.</b>	<b>25.2</b>	<b>C</b>
SR 208	EB	LT	19.6	B	LT	30.7	C	LT	74.5	E
	WB	T	12.4	B	T	17.6	B	T	15.4	B
	SB	LR	18.8	B	LR	33.7	C	LR	30.6	C
		<b>Int.</b>	<b>18.2</b>	<b>B</b>	<b>Int.</b>	<b>29.1</b>	<b>C</b>	<b>Int.</b>	<b>41.2</b>	<b>D<sub>a</sub></b>

**Note:** SR 17M is oriented EB/WB, while cross streets are oriented NB/SB.

**Table S-4**  
**2002 Existing Levels of Service – SR 208/CR105 Intersections**

Cross Street	Dir	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		Move	Delay (sec)	LOS	Move	Delay (sec)	LOS	Move	Delay (sec)	LOS
CR 44 (unsignalized)	WB	LR	35.1	E	LR	54.7	F	LR	42.7	E
	NB	TR	--	--	TR	--	--	TR	--	--
	SB	LT	0.9	A	LT	1.0	A	LT	1.0	A
		<b>Int.</b>	<b>2.3</b>	<b>A</b>	<b>Int.</b>	<b>3.8</b>	<b>A</b>	<b>Int.</b>	<b>1.7</b>	<b>A</b>
SR 17 WB Ramps	EB	LTR	42.8	D <sub>a</sub>	LTR	27.5	C	LTR	43.0	D <sub>a</sub>
	WB	LT	53.2	D <sub>u</sub>	LT	96.2	F	LT	65.1	E
	NB	LT	0.6	A	LT	7.1	A	LT	0.7	A
	SB	LTR	28.0	C	LTR	8.2	A	LTR	6.6	A
		<b>Int.</b>	<b>25.7</b>	<b>C</b>	<b>Int.</b>	<b>29.3</b>	<b>C</b>	<b>Int.</b>	<b>13.1</b>	<b>B</b>
SR 17 EB Ramps	WB	L	52.7	D <sub>u</sub>	L	50.3	D <sub>u</sub>	L	51.5	D <sub>u</sub>
	NB	T	36.1	D <sub>a</sub>	T	82.2	F	T	79.8	E
	SB	LT	39.4	D <sub>a</sub>	LT	12.5	B	LT	30.8	C
		<b>Int.</b>	<b>38.9</b>	<b>D<sub>a</sub></b>	<b>Int.</b>	<b>50.1</b>	<b>D<sub>u</sub></b>	<b>Int.</b>	<b>53.5</b>	<b>D<sub>u</sub></b>
Schunnefunk Street / SR 208 Extension	EB	LTR	25.6	C	LTR	30.4	C	LTR	23.6	C
	WB	LTR	29.3	C	LTR	42.0	D <sub>a</sub>	LTR	27.4	C
	NB	LTR	26.1	C	LTR	31.7	C	LTR	26.9	C
	SB	LT	23.3	C	LT	30.4	C	LT	22.9	C
		<b>Int.</b>	<b>25.5</b>	<b>C</b>	<b>Int.</b>	<b>31.7</b>	<b>C</b>	<b>Int.</b>	<b>24.4</b>	<b>C</b>
Freeland Street (unsignalized)	WB	R	--	--	R	--	--	R	--	--
	NB	L	33.7	D <sub>u</sub>	L	171.7	F	L	504.8	F
	SB	LT	--	--	LT	--	--	LT	--	--
		<b>Int.</b>	<b>8.3</b>	<b>A</b>	<b>Int.</b>	<b>23.8</b>	<b>C</b>	<b>Int.</b>	<b>100.3</b>	<b>F</b>
Larkin Drive	WB	LR	11.3	B	LR	13.1	B	LR	16.9	B
	NB	TR	9.1	A	TR	9.9	A	TR	12.2	B
	SB	LT	7.2	A	LT	12.6	B	LT	22.3	C
		<b>Int.</b>	<b>8.7</b>	<b>A</b>	<b>Int.</b>	<b>11.6</b>	<b>B</b>	<b>Int.</b>	<b>17.2</b>	<b>B</b>
Dunderberg Road (unsignalized)	WB	LR	31.5	D <sub>u</sub>	LR	129.0	F	LR	94.6	F
	NB	TR	--	--	TR	--	--	TR	--	--
	SB	LT	2.8	A	LT	3.6	A	LT	0.7	A
		<b>Int.</b>	<b>8.6</b>	<b>A</b>	<b>Int.</b>	<b>22.0</b>	<b>C</b>	<b>Int.</b>	<b>28.8</b>	<b>D<sub>a</sub></b>
CR 105 Extension / Bakertown Road (unsignalized)	NEB	LT	1.8	A	LT	3.3	A	LT	1.5	A
	SWB	TR	--	--	TR	--	--	TR	--	--
	SB	LR	10.1	B	LR	48.1	E	LR	11.6	B
		<b>Int.</b>	<b>2.9</b>	<b>A</b>	<b>Int.</b>	<b>15.9</b>	<b>C</b>	<b>Int.</b>	<b>3.4</b>	<b>A</b>

**Note:** SR 208 and CR 105 are oriented NB/SB, while cross streets are oriented EB/WB.

## D. TRAFFIC AND LAND USE FORECASTING

Projections of traffic conditions on the study area corridors for the horizon year 2020 and for full build-out (maximum development permitted by current zoning) were developed by the Orange County Department of Planning utilizing a four-step travel demand model for several future scenarios and a No-Build Scenario, which assumes that no significant changes to land use regulations or the current transportation system are made beyond those currently committed to by the transportation providers and local municipalities. Potential visions for future development, building off comments and recommendations from the public visioning sessions, were developed. These scenarios were then assembled into a matrix for comparative purposes using the County's four-step travel demand model (see Figure S-2).

### LAND USE SCENARIOS

- **Existing Zoning** – Development of existing vacant or underdeveloped parcels according to existing zoning codes.
- **Village Center Scenario** – Changing land use patterns to increase densities and expand the limits of the villages and hamlets in the study area while reducing the amount of developable land in the outlying areas.
- **Reduced Density Scenario** – Limit commercial development to the established business zones with no expansions allowed beyond the existing commercial boundaries. Reduce residential development by increasing required lot sizes.
- **Infrastructure-Based Zoning Scenario** – Concentrate both commercial and residential development in the areas that contain sufficient sewer infrastructure. Development outside of these areas would be required to install, and/or make financial provisions for, the utilities and services necessary to support the additional expansion.

### TRANSPORTATION SCENARIOS

- **No Action- Current Improvements Only** – The existing transportation network supplemented with improvement projects currently under consideration or in construction.
- **Transportation Management Strategies** – Maximize the effectiveness of the existing transportation network without major changes or construction. Key elements include small improvements to the transit system (i.e. better interconnections to and from existing bus and rail), signal optimization, bikeways and other bicycle-use incentives, pedestrian safety and circulation improvements.
- **Roadway Focused Investment** – Invest in roadway improvements designed to alleviate congestion using a range of roadway capacity enhancements and new roadway links, such as roadway improvements to circumvent key congestion points and adding travel lanes on major corridors.
- **Transit Focused Investments** – Increase the efficiency and frequency of the transit systems along with improvements that would facilitate multi-modal transit connections. A system of regional park-and-ride facilities would be coordinated with new regional and intra-county transit services.



12.2.04

<b>TRANSPORTATION</b>	<b>1</b> Existing Zoning Build-Out	<b>2</b> Village Center	<b>3</b> Reduced Density	<b>4</b> Infrastructure Based Zoning
<b>1</b> No Action Current Improvements Only				
<b>2</b> Transportation Management Strategies				
<b>3</b> Roadway Focused Investment				
<b>4</b> Transit Focused Investment				

Based upon the land use development projections, trip generation values and trip distribution values were 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 modeling tool customized by Orange County Department of Planning for the Study Area, was used to model the entire Study Area network. 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. These volumes were then inserted into a second traffic modeling software, Synchro, to analyze the Level of Service (LOS) at each intersection.

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. From those results, a more detailed Synchro analysis was performed for 2020 and the full land use build-out within each corridor for certain conditions. Based upon the T-MODEL2 results, it was determined that the 14 modeling runs could be narrowed down to five different conditions for purposes of Synchro analysis. Specifically, it was found that the Infrastructure Based Zoning did not constrain land use development as much as had been anticipated and that the Reduced Density Zoning scenario was a more likely approximate of lower range of 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
- 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.

Following the capacity analysis, an even more detailed analysis was performed for select links within the network to understand how travel patterns might be affected by certain improvements. This “Select Link Analysis” (SLA) is used within T-MODEL2 to isolate a particular link in the roadway network and identify where traffic using that link originates and to where it is distributed. This tool is particularly useful in identifying potential answers for 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

## **Executive Summary**

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- SL5: Route 208 Bypass
- SL6: Larkin Drive Extension

Each location was analyzed with current capacity on Route 17 and assuming Route 17 is widened to 3 lanes in each direction.

## **E. RECOMMENDATIONS**

From these analyses, a number of conclusions could be reached regarding the interaction of land use planning and transportation infrastructure planning. Several sets of recommendations were developed including generic recommendations that can be applied throughout the study area and community specific recommendations.

### **GENERIC RECOMMENDATIONS**

#### *TRANSPORTATION IMPROVEMENTS*

- Enhance the utilization and safety of bike and pedestrian facilities.
- Encourage use of trip management and access management techniques to reduce numbers of trips made within the study area and direct access away from heavily traveled corridors.
- Coordinate street connections between new development and the existing road network to provide multiple access options.
- Install traffic calming devices on major and minor roads to reduce speeds of vehicles.
- Consider roadway design and streetscape/aesthetic improvements at strategic locations to enhance the pedestrian/bicycle environment and to encourage reinvestment in existing centers.
- Consider the spacing and timing of existing signalized traffic signals to see if vehicular flow can be optimized and whether new signals are warranted.

#### *LAND USE IMPROVEMENTS*

The analysis clearly indicates that the existing zoning and pattern of growth within the study area is not sustainable and that the towns and villages need to make some change to better guide new development. The Village Center concept described in this report, which emphasizes mixed-use and higher densities, is considered a preferred approach; but any other zoning modifications that reduce overall levels of development and direct new growth toward existing built areas would be an improvement over the existing zoning.

- At a minimum, amend current zoning to eliminate standard zoning and subdivision practices that mandate uniform development on large lots.
- Encourage mixed-use development throughout the study area to reduce vehicle trips.
- Encourage conservation subdivision design to increase preservation of open spaces.
- Encourage village in-fill development of mixed-uses at strategic locations.

## COMMUNITY SPECIFIC LAND USE RECOMMENDATIONS

This section identifies specific land use recommendations for each of the towns and villages in the study area.

### *TOWN OF WOODBURY*

- Continue updating the Town Comprehensive Plan and land development regulations (e.g., zoning, subdivision, wetland protection). Include the Village Center concept in the Comprehensive Plan to focus development in the Highland Mills and Central Valley areas.
- Use the Official Map language of New York State Town Law §270 to identify the transportation improvements and open spaces recommended by this study or the comprehensive plan for Woodbury. Once established on the Official Map of a municipality, transportation improvements (or planned open spaces) must be recognized when evaluating new land use changes or can be implemented in phases by private property owners making improvements on their land.
- Incorporate access management language into the zoning code and plan review standards to properly manage driveway spacing, shared parking, rear access between adjoining properties, and interconnections between commercial properties for pedestrians.
- Establish a Transportation Improvement District (TID)<sup>1</sup> to finance transportation improvements within the area roughly defined as the land Lands Town of Monroe line on the west and Interstate 87 on the east extending from the Metro-North Harriman Train Station to the south to and including the Woodbury Common outlet center to the north.
- Redevelop area bounded roughly by Smith Clove Road, Estrada Road, the railroad tracks, and Route 32 with a mix of residential, retail, and office space. Integrate public parking with private parking to create a defined hamlet center of higher density (roughly 8 dwelling units per acre).
- Provide enhanced pedestrian amenities such as sidewalks, crosswalks with pedestrian signals, and landscaping to create a defined hamlet center.
- Develop the area north of the Harriman Train Station with a mix of residential and office uses. Establish vehicular and pedestrian connections into the Village of Harriman where appropriate.
- Identify select locations along Route 32 in Highland Mills for increased residential density (up to 8 dwelling units per acre) and mixed-use infill development. Such development must be compatible with the adjoining single-family residential areas and the environmental constraints (predominantly wetlands).
- Reduce permitted intensity of residential development on land located along the north side of Dunderberg Road/Nininger Road and minimize the number of permitted curb-cuts onto

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<sup>1</sup> A TID requires enactment of enabling legislation by the NYS Legislature and preparation of a Map, Plan, and Report identifying the boundaries of the TID, proposed transportation improvements and mechanisms for funding improvements, and relevant data identifying the need for such improvements.

## **Executive Summary**

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the new collector-distributor road. Coordinate low-density residential development with ridgeline protection provisions (see below).

- Adopt Conservation Subdivision regulations Town-wide to base development on the suitability of lands to handle septic systems and development on steep slopes and ridgelines.
- Adopt Ridgeline Protection regulations to minimize residential development on the upper portions of significant ridgelines. Prohibit excessive clearing or grading activities within the regulated Ridgeline to protect near-field and far-field views of the ridges.
- Consider possible road connections between subdivisions to reduce the number of vehicles utilizing collector roads.
- Retain the existing hotel and gas station on Route 32 where the new loop ramp is proposed between southbound Route 32 and eastbound Route 17/6.
- Enter into an Intermunicipal Agreement with the Town of Monroe and Village of Harriman for creation of a Transportation Improvement District (see above).

### *TOWN OF MONROE*

- Continue updating the Town Comprehensive Plan and land development regulations (e.g., zoning, subdivision, wetland protection). Include the Village Center concept in the Comprehensive Plan to focus development toward the Village of Monroe.
- Use the Official Map language of New York State Town Law §270 to identify the transportation improvements and open spaces recommended by this study or the Comprehensive Plan for Monroe. Once established on the Official Map of a municipality, transportation improvements (or planned open spaces) must be recognized when evaluating new land use changes or can be implemented in phases by private property owners making improvements on their land.
- Incorporate access management language into the zoning code and plan review standards to properly manage driveway spacing, shared parking, rear access between adjoining properties, and interconnections between commercial properties for pedestrians.
- Establish a Transportation Improvement District (TID) to finance transportation improvements within the area roughly defined as between Forest Avenue on the west and the Town of Woodbury line on the east, NYS Route 17 on the north, and the Village of Monroe line on the south.
- Reduce residential density on lands outside the Village of Monroe. Adopt Conservation Subdivision regulations and Transfer of Development Rights to minimize future traffic congestion in areas outside of the Village and encourage pedestrian trips between the Town and the Village.
- Rezone lands along the proposed Larkin Drive extension from Light Industrial (LI) to office park (also consider senior housing senior housing). Develop strong design guidelines to ensure adequate site design and buffering between Route 17 and new uses. Minimize curb-cuts onto the Larkin Drive extension to two points of connection to new uses. Provide interior connections between different uses to limit vehicular use of Larkin Drive extension. Consider landscaped median along length of Larkin Drive extension to enhance visual appeal of new development.

- Enter into an Intermunicipal Agreement with the Town of Woodbury and Village of Harriman for creation of a Transportation Improvement District (see above).

*TOWN OF BLOOMING GROVE*

- Continue updating the Town Comprehensive Plan and land development regulations (e.g., zoning, subdivision, wetland protection). Include the Village Center concept in the Comprehensive Plan to focus development at strategic locations along Route 208 and near the Village of Washingtonville.
- Use the Official Map language of New York State Town Law §270 to identify the transportation improvements and open spaces recommended by this study or the Comprehensive Plan. Once established on the Official Map of a municipality, transportation improvements (or planned open spaces) must be recognized when evaluating new land use changes or can be implemented in phases by private property owners making improvements on their land.
- Incorporate access management language into the zoning code and plan review standards to properly manage driveway spacing, shared parking, rear access between adjoining properties, and interconnections between commercial properties for pedestrians.
- Consider medium-density housing (4 to 8 dwelling units per acre) and small-scale commercial retail/office on the east side of Route 208 near Clove Road.
- Enhance the existing commercial uses at Worley Heights to form more of a hamlet focus.
- Focus new commercial uses along Route 17M and lower portions of Route 208. Reduce the extent of the ORI zoning district in the Oxford Depot area.
- Consider Conservation Subdivision and/or Transfer of Development Rights program to direct new residential development toward areas of existing development (and wastewater infrastructure) and allow for more vehicular and pedestrian connections between subdivisions and hamlet areas.

*VILLAGE OF HARRIMAN*

- Update the Village Comprehensive Plan and land development regulations (e.g., zoning, subdivision, wetland protection). Include the Village Center concept in the Comprehensive Plan to focus development within the existing village pattern.
- Use the Official Map language of New York State Village Law §7-724 to identify the transportation improvements and open spaces recommended by this study or the Comprehensive Plan for Harriman. Once established on the Official Map of a municipality, transportation improvements and open spaces must be recognized when evaluating new land use changes or can be implemented in phases by private property owners making improvements on their land.
- Incorporate access management language into the zoning code and plan review standards to properly manage driveway spacing, shared parking, rear access between adjoining properties, and interconnections between commercial properties for pedestrians.
- Integrate vehicular and pedestrian connections with potential future mixed-use development north of Harriman Train Station (see recommendations for Town of Woodbury, above) into existing roadway network.

## **Executive Summary**

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- Establish a Transportation Improvement District (TID) to finance transportation improvements within the area roughly defined as those lands east of Route 17 as described above in the Town of Woodbury.
- Enter into an Intermunicipal Agreement with the Town of Woodbury and Town of Monroe for creation of a Transportation Improvement District (see above).

### *VILLAGE OF MONROE*

- Continue updating the Village Comprehensive Plan and land development regulations (e.g., zoning, subdivision, wetland protection). Include the Village Center concept in the Comprehensive Plan to focus development within the existing village center
- Use the Official Map language of New York State Village Law §7-724 to identify the transportation improvements and open spaces recommended by this study or the Comprehensive Plan. Once established on the Official Map of a municipality, transportation improvements (or planned open spaces) must be recognized when evaluating new land use changes or can be implemented in phases by private property owners making improvements on their land.
- Incorporate access management language into the zoning code and plan review standards to properly manage driveway spacing, shared parking, rear access between adjoining properties, and interconnections between commercial properties for pedestrians.
- Conduct a design charrette for the redevelopment of the large block bordered by Lake Street, Stage Road, and Mill Pond Parkway. Consider higher density residential and mix of office and retail uses. Include provisions for public space (joint Village/Town office space or library), shared parking, and open space.
- Conduct a Route 17M Corridor Management Plan and design charrette to further evaluate the potential effects of widening.
- Consider creating a more pedestrian-scale/pedestrian-friendly retail node along Route 17M east of Stage Road.

### *VILLAGE OF KIRYAS JOEL*

- Continue updating the Village Comprehensive Plan and land development regulations (e.g., zoning, subdivision, wetland protection). Include the Village Center concept in the Comprehensive Plan to focus development within the existing village center.
- Use the Official Map language of New York State Village Law §7-724 to identify the transportation improvements and open spaces recommended by this study or the Comprehensive Plan. Once established on the Official Map of a municipality, transportation improvements (or planned open spaces) must be recognized when evaluating new land use changes or can be implemented in phases by private property owners making improvements on their land.
- Incorporate access management language into the zoning code and plan review standards to properly manage driveway spacing, shared parking, rear access between adjoining properties, and interconnections between commercial properties for pedestrians.
- Enhance facilities for pedestrians within the Village.
- Create a park-and-ride at the intersection of Bakertown Road and CR 105.



## TRANSPORTATION RECOMMENDATIONS

Based on the results of the T-Model2, Synchro, and Select Link Analysis, a number of transportation improvements would benefit traffic flow and mobility within the Study Area. Some of these projects are easily implemented while others require greater capital investment, community acceptance, and detailed study. Improvements are organized below according to their “feasibility.” “Feasibility” is determined by a combination of an analysis of available financing versus potential traffic benefits, environmental constraints, land use compatibility, and community consensus.

### *EARLY ACTION ITEMS*

By virtue of the initial analysis and findings of this study, Orange County was able to advance certain “Early Action Items” to relieve congestion and address safety issues at the following locations:

- Synchronization of traffic signals on Route 32 near Woodbury Common and Route 6/17.
- Widening of NYS Thruway off-ramp from Harriman toll plaza to Route 32.
- New Traffic signal at the intersection of CR 105 and Dunderberg Road

In addition, the study identified other actions that can be implemented very quickly by Orange County:

- Establishment of consistent speed limits on Route 32
- Reduced speed limit (from 55 MPH to 45 MPH) on Route 17 Harriman near the old Railroad Bridge.
- Realignment of dangerous curve at the corner of Bakerstown Road and CR 105
- New turning lanes on SR 32 at CR 105.
- Advancement and refinement of SR 32 streetscape, parking and traffic improvements through central Valley by NYSDOT

### *HIGH FEASIBILITY PROJECTS*

- Route 32 Loop Ramp to Route 17
- Additional capacity on Route 17
- Larkin Drive Extension (Route 208 to CR 105)
- Access Management, Driveway Consolidation, and Rear Service Roads on Route 17M
- Traffic Calming on Residential Streets
- Reduce speed limits along Route 17 south of Route 6.
- Safety improvements along Route 208 including realignment of Clove Road intersection
- Park and Rides with Improved Bus Scheduling
- Expanded Transit Service
- Facilitate expansion of existing privately-operated jitney service between the Harriman train station and Woodbury Common to include more connections to weekend trains.
- Replace Stop sign at southbound CR 105 and Spring Street with Yield sign.
- Implementation of a Transportation Improvement District in the Towns of Woodbury and Monroe and the Village of Harriman.
- Re-route intermunicipal bus-line down Route 17M (off of Freeland and Larkin) into the Village.

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### *MID-LEVEL FEASIBILITY PROJECTS*

- Collector-Distributor road between I-87 and CR 105 along Dunderberg/Nininger Road north of Route 17
- CR 105 Interchange
- Widening of Route 17M
- Route 208 Bypass Roadway
- EZ Pass Ramp from Woodbury Common to I-87 southbound
- Remove railroad overpass on Route 17 south of Nepara

### *LOW FEASIBILITY PROJECTS*

- Bailey Farm Road/Route 17M bypass connector in vicinity of North Main Street
- Additional Travel Lanes on CR 105, Route 208, Route 32
- New Thruway Interchange between Exit 16 and Exit 17
- Additional Transit Hubs. Metro-North Railroad would consider providing additional weekend service to a privately financed station at Woodbury Common.

Two large projects listed as low feasibility were found to provide some improvements to traffic flow but would require additional detailed studies: Creation of a new intermodal transportation facility at Woodbury Common, and a new Thruway interchange between Exits 16 and 17.

The creation of a new intermodal transportation facility at Woodbury Common serving primarily regional bus service could alleviate some pressure on the Route 32 network during weekend hours. Coach USA/ShortLine currently makes a stop at Woodbury Common for its New York to Binghamton service. This route can also be used by riders within Orange County. Charter buses from New York City currently bring tourists and day-shoppers to Woodbury Common. Enhanced service, especially to shoppers, may make bus access to Woodbury Common more attractive thereby reducing the number of vehicles using the roadway network, especially on weekends. Linking Woodbury Common with Harriman Common and Woodbury Centre, while possible, may not attract large ridership as the markets serving each of these large shopping centers is essentially different (specialty shopping versus convenience/discount shopping).

With respect to commuter bus or rail service, provision of an enhanced regional bus facility or a new Metro-North Railroad station at Woodbury Common would remove a portion of the southbound AM peak hour traffic from Route 32 between Nininger Road and Route 17M now bound for the Harriman station. Similarly, a portion of the northbound PM peak hour traffic on Route 32 between Nininger Road and Route 17M may be reduced as well. Weekend train service aimed at shoppers has the potential to also reduce automobile traffic along Route 32 at this critical location. , Additional detailed analysis would be necessary to determine the full benefit derived from an enhanced regional bus facility or a new Metro North Railroad station on traffic operations along Route 32 and the region.

A new Thruway interchange between Exits 16 and 17 was studied to determine if significant volumes would be diverted off of Route 32, but the model revealed that relatively few vehicles took advantage of this route to points north of Woodbury. A more specific study of an additional interchange would have to be completed to determine the exact extent of any benefit. \*

**A. PURPOSE AND NEED**

Orange County has undergone a tremendous period of growth over the past thirty years as it has been transformed from a predominantly rural environment to a suburban setting that has become a part of the greater New York metropolitan area. Since 1970 the population in Orange County has increased by over 50 percent. In the 1990s, Orange County's population has grown from just over 307,600 people in 1990 to over 341,400 people, as reported in the 2000 Census. This 11 percent increase in population is the fourth largest in the entire state, with Putnam being the only county, outside the five boroughs of New York City that exceeded Orange County's ten year growth rate. This trend of increased growth is expected to continue, with projections from the Orange County Department of Planning estimating that by the year 2025 the County's population is expected to grow by an additional 36 percent to over 464,000 people.

The Towns and Villages in the southeastern portion of the County are at the leading edge of the development cycle as these communities have become the logical place to settle for people and businesses moving away from the older, more densely developed areas of downstate New York. The populations in the Towns of Blooming Grove, Monroe, and Woodbury have increased by more than 21 percent over the past ten years, which is almost double the County's rate of growth. Projections by the County's Planning Department indicate that the populations in the Towns and Villages making up the southeast portion of Orange County are all anticipated to undergo substantial growth over the next twenty-five years, with many of these municipalities faced with a doubling of its population by 2025. As more people move into this area the demand for the roadways, schools, and infrastructure will also increase. One of the most visible impacts of this increased demand is traffic congestion. With segments of the main thoroughfares already operating at or above their design capacity, the growth projections and the subsequent effect on the transportation systems are major concerns for both the residents and elected officials in these municipalities.

**B. PROJECT EVOLUTION AND STAKEHOLDERS**

In 1998 a grass roots Traffic Task Force was formed focusing on traffic congestion in the Monroe-Woodbury area and the types of regional, inter-municipal, solutions that could be advanced to address these issues. The Task Force consists of elected officials and planning and zoning board members representing the Towns of Monroe and Woodbury, as well as from the Villages of Harriman, Kiryas Joel, and Monroe. Meeting on a monthly basis, the Traffic Task Force discussed potential transportation improvement measures and land use controls that could be initiated to help preserve the area's unique character and maintain the quality of life that makes this portion of Orange County such an attractive place to live and do business. By 2000, the Task Force had gained the attention of the County Executive's Office and the major agencies and providers of transportation services in the region, including the New York State Department

**Southeastern Orange County Traffic and Land Use Study**

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of Transportation (NYSDOT), the New York State Thruway Authority (NYSTA), MTA Metro-North Railroad (MNR), and the Monroe-Woodbury School District. These agencies became members of the Task Force. In addition, the scope of the group’s effort was expanded to include the growing concern over the demand for water, sewer, and the limited capacity of the area’s existing infrastructure and how development in the surrounding Towns would affect these services. Recognizing the magnitude of the challenges facing the Traffic Task Force, Orange County and NYSDOT issued a Request for Proposals for consulting firms in March of 2001 to conduct a comprehensive study of the transportation system within the Towns of Monroe and Woodbury.

Responsible development and smart growth became an important issue in the November 2001 elections. These same issues formed a portion of newly elected County Executive Edward Diana’s platform and by the middle of 2002 a consultant for the Monroe-Woodbury Transportation Study was selected and introduced to the Traffic Task Force. The project study area was expanded to include the Town of Blooming Grove so that a truly regional approach to both land use and transportation solutions could be studied and representatives from the Town of Blooming Grove were added to the Task Force. To more accurately reflect the size and scope of the project it was renamed the Southeastern Orange County Traffic and Land Use Study. As a “home-rule” State, the participation by each of the municipalities in the study area made the Traffic Task Force the likely organization to act as the project’s Steering Committee, since the Towns and Villages will ultimately be responsible for initiating and implementing any future land use recommendations. For a complete list of the Project Advisory Group, see Table 1-1.

**Table 1-1  
Project Advisory Group**

<b>Name</b>	<b>Affiliation</b>	<b>Title</b>
Michael Amo	County Legislature	County Legislator, 1st District
Roxanne Donnery	County Legislature	County Legislator, 14th District
Frank A. Fornario, Jr.	County Legislature	County Legislator, 5th District
Spencer M. McLaughlin	County Legislature	County Legislator, 7th District
Charles J. Bohan	Town of Blooming Grove	Supervisor
Sandy Leonard	Town of Monroe	Supervisor
Sheila Conroy	Town of Woodbury	Supervisor
G. Bruce Chichester	Village of Harriman	Councilman
Gedalye Szegedin	Village of Kiryas Joel	Village Clerk
Joseph Mancuso	Village of Monroe	Mayor
Captain Martin Hansen	New York State Police	Zone Commander
Richard A. Peters	NYS Dept. of Transportation	Regional Planning Manager
Ramesh Mehta	NYS Thruway Authority	Division Director
Wai Cheung, PE	NYS Thruway Authority	Traffic Systems Engineer
Edmund A. Fares	Orange County DPW	Commissioner
David Church	Orange County Department of Planning	Commissioner
Clifford Berchtold	Monroe-Woodbury School District	Director of Transportation
Robyn Hollander	MTA Metro-North Railroad	Capital & Long Range Planning
Jean Shanahan	Newburgh-Orange County Transportation Council	Staff Director
Patricia Gilchrest	Orange County Citizens Foundation	Executive Director
Tom Falzer	The Chelsea Group	

The Southeastern Orange County Traffic and Land Use Study involves a detailed analysis of traffic conditions on the state-owned corridors in the area including Route 17, Route 17M, Route 208, Route 32, and the heavily traveled Route 17/6/32 interchange area. The study also evaluates potential solutions that include modifications to the New York State Thruway and County Route 105 as well as improvements to transit and pedestrian operations and the provision of multi-modal transportation centers.

### **C. GOALS AND OBJECTIVES**

A number of goals were established as part of this Federally funded study including:

- Determining the current operational characteristics and deficiencies of the transportation system;
- Forecasting future conditions of the transportation system;
- Recommending improvements to enhance the efficiency, capacity, and safety of the transportation system;
- Developing and recommending sustainable development guidelines that are compatible with and help preserve the capacity of future transportation improvements; and
- Building a consensus for proposed transportation improvements and sustainable development through public forums.

### **D. STUDY AND CONSENSUS BUILDING PROCESS**

Throughout the study process the consultant team met monthly with the Traffic Task Force and solicited input from the public through three visioning sessions, the project web site, and a public opinion survey that was distributed to over 1,000 residents of the study area. The insight gained from the public's comments was combined with traditional data collection efforts regarding traffic volumes, safety, highway characteristics, physical features of the corridor, bicycle and pedestrian facilities, transit systems and other relevant features to develop a comprehensive analysis of existing and future travel conditions and to identify deficiencies and problems with the transportation infrastructure. The analysis of the existing transportation systems and recommendations to improve future operations were reviewed by a Study Technical Group consisting of Orange County, NYSDOT, NYSTA, and Metro-North. Each of the Towns and Villages in the study area were also consulted, with their input being an instrumental component in the development of transportation and land use solutions that could be administered within their jurisdictions. Upon concurrence by the Study Technical Group and the involved municipalities, the analyses and resulting improvement options were presented to the Traffic Task Force. Acting in its role as the project's Steering Committee, the Traffic Task Force was used to build public consensus for potential improvement alternatives.

## **E. TRAFFIC AND LAND USE FORECASTING**

### **EARLY ACTION INITIATIVES**

As part of the project, short term transportation management strategies (0-3 years) were developed to address the impact of trips being generated by existing and approved development, as well as the growth of through traffic in the study area. These short-term solutions were generally lower cost improvements focusing on existing safety and operational problems along the project corridors. The majority of these early action projects maximize the effectiveness of the existing roadway infrastructure by optimizing signal timings and coordinating the phasing of adjacent traffic lights to allow for a smooth progression of flow. Additional turning lanes at high volume intersections along with the establishment of consistent speed limits, safe passing zones, and landscape design features are also being proposed to alleviate congestions bottlenecks while respecting the land uses and character of the adjacent areas.

### **LONG-TERM MODELING**

Projections of traffic conditions on the study area corridors for the horizon year 2020 and for full build-out (maximum development permitted by zoning) were developed by the Orange County Department of Planning utilizing a four-step travel demand model for several future scenarios and a No-Build Scenario, which assumes that no significant changes to land use regulations or the current transportation system are made beyond those currently committed to by the transportation providers and local municipalities. Potential visions for future development, building off of comments and recommendations from the public visioning sessions, were developed. These scenarios were then assembled into a matrix for comparative purposes using the County's four-step travel demand model (see Figure 1-1). The Land Use and Transportation Scenarios are described briefly below and in more detail in Chapter 3.

#### *LAND USE SCENARIOS*

- ***Existing Zoning*** – Development of existing vacant or underdeveloped parcels according to existing zoning codes.
- ***Village Center Scenario*** – Changing land use patterns to increase densities and expand the limits of the villages and hamlets in the study area while reducing the amount of developable land in the outlying areas.
- ***Reduced Density Scenario*** – Limit commercial development to the established business zones with no expansions allowed beyond the existing commercial boundaries. Reduce residential development by increasing required lot sizes.
- ***Infrastructure-Based Zoning Scenario*** – Concentrate both commercial and residential development in the areas that contain sufficient sewer infrastructure. Development outside of these areas would be required to install, and/or make financial provisions for, the utilities and services necessary to support the additional expansion.

12.2.04

<b>TRANSPORTATION</b>	<b>LAND USE</b>	<b>1</b> Existing Zoning Build-Out	<b>2</b> Village Center	<b>3</b> Reduced Density	<b>4</b> Infrastructure Based Zoning
<b>1</b> No Action Current Improvements Only					
<b>2</b> Transportation Management Strategies					
<b>3</b> Roadway Focused Investment					
<b>4</b> Transit Focused Investment					



*TRANSPORTATION SCENARIOS*

- ***No Action- Current Improvements Only*** – The existing transportation network supplemented with improvement projects currently under consideration or in construction.
- ***Transportation Management Strategies*** – Maximize the effectiveness of the existing transportation network without major changes or construction. Key elements include small improvements to the transit system (i.e. better interconnections to and from existing bus and rail), signal optimization, bikeways and other bicycle-use incentives, pedestrian safety and circulation improvements.
- ***Roadway Focused Investment*** – Invest in roadway improvements designed to alleviate congestion using a range of roadway capacity enhancements and new roadway links, such as roadway improvements to circumvent key congestion points and adding travel lanes on major corridors.
- ***Transit Focused Investments*** – Increase the efficiency and frequency of the transit systems along with improvements that would facilitate multi-modal transit connections. A system of regional park-and-ride facilities would be coordinated with new regional and intra-county transit services.

**F. FORMAT OF REPORT**

This report and the accompanying appendices present the analyses and studies conducted to evaluate the effectiveness of both the short-term and long-term solutions at reducing congestion in the southeastern Orange County study area. These analyses were undertaken to narrow down and reconfigure the land use and transportation scenarios and reach consensus among the Community Advisory Group and the Technical Steering Committee on the potential strategies that would merit further study and ultimately be implemented by the project stakeholders.

This report summarizes the following major tasks associated with this comprehensive study:

- Existing transportation and land use conditions.
- Transportation and land use conditions in the future without major changes to zoning and the transportation infrastructure.
- Transportation and land use conditions in the future with different scenarios of zoning and transportation improvements.
- Recommendations for the study area and individual communities with respect to transportation improvements and zoning and land use changes. \*