

Appendix B: Transportation

B-8 Technical Report 1 – Traffic

**New York State Department of Transportation
New York State Thruway Authority
Metropolitan Transportation Authority/Metro-North Railroad**

Technical Report 1

Traffic



**Tappan Zee Bridge/I-287 Corridor Project
Draft Environmental Impact Statement**

April 2011



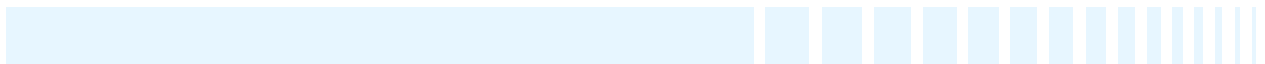
Thruway
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New York State
Department of Transportation



Metro-North
Railroad





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LIST OF ACRONYMS AND ABBREVIATIONS

AA	Alternatives Analysis
ADT	average daily traffic
ATR	automatic traffic recorder
BPM	Best Practice Model
BRT	bus rapid transit
CWE	Cross Westchester Expressway
EIS	Environmental Impact Statement
ETC	Expected Time of Completion
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GCS	Grand Central Station
GSP	Garden State Parkway
H	Headway
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
LOS	Levels of Service
MPO	Metropolitan Planning Organization
MTM	manual turning movement
NJTransit	New Jersey Transit
NYMTC	New York Metropolitan Transportation Council
NYSDOT	New York State Department of Transportation
ORT	open-road tolling
PIP	Palisades Interstate Parkway
R	Reaction Time
SMRP	Saw Mill River Parkway
TSM	transportation systems management
TZB	Tappan Zee Bridge

1 Introduction

The Project Sponsors – New York State Department of Transportation (NYSDOT), New York State Thruway Authority (NYSTA), and Metropolitan Transportation Authority/Metro-North Railroad (Metro-North) – in cooperation with the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) are preparing a Draft Environmental Impact Statement (DEIS) for the Tappan Zee Bridge/I-287 Corridor Project in Rockland and Westchester Counties, New York (NY). The DEIS incorporates by reference and summarizes a series of technical reports addressing the technical disciplines in detail. This technical report addresses the affected environment, impact of project alternatives, and mitigation measures relevant to the topic of traffic operations and safety.

The purpose of the DEIS is to evaluate multimodal highway and transit alternatives that will address the transportation and mobility needs of the 30-mile-long Tappan Zee Bridge/I-287 Corridor from Hillburn/Suffern to Port Chester, NY. Additionally, the structural and security needs of the Tappan Zee Bridge are evaluated, as are other existing highway improvement needs within the corridor. The DEIS examines existing socioeconomic and environmental conditions within the corridor, evaluates potential impacts of the transportation improvement alternatives (in addition to the No Build Alternative), and investigates mitigation necessary to alleviate these impacts. The DEIS presents a tiered analysis of environmental impacts: a Tier 1 transit analysis and a Tier 2 bridge and highway analysis.

The regional travel demand model adopted by the New York Metropolitan Transportation Council (NYMTC) is the Best Practice Model (BPM). However, BPM is a regional transportation model, not a simulation model and, therefore, is neither designed nor suitable for the analysis of roadway traffic operations. Rather, it provides overall regional travel projections. At that detailed level a simulation model such as Paramics is then needed to take those projected volumes and apply them to the street network to determine their implications for traffic congestion. Thus, Paramics (a microsimulation traffic analysis model) was selected to address this issue.

This technical report discusses the calibration of Paramics, modeling methodology, and performance measures used to evaluate the DEIS alternatives using Paramics. AM and PM peak hour volumes, speeds, and travel times were estimated for existing and future years. At a micro level, intersection Levels of Service (LOS) and delays were calculated. These data were used to study traffic impacts and also served as input to the air quality and noise analyses.

The Paramics model was developed originally from the BPM highway network and significantly enhanced based on engineering mapping. A data collection program was developed in 2005 which was used to calibrate the model. The model was also calibrated and validated against travel time and speed data collected. The analysis years that the model was used for were 2010 (Existing Conditions), 2017 and 2047 No Build and Build conditions.

1.1 Corridor Overview

The project corridor extends approximately 30 miles from the I-287/I-87 split in Suffern, east to I-287/I-95 in Port Chester (Figure 1-1). The Tappan Zee Bridge, a 3.1 mile long Hudson River crossing is approximately midway through this corridor. I-287 between Hillburn/Suffern and the I-87/Cross Westchester Expressway split is referred to as the New York State Thruway. I-287 east of the I-287/I-87 split in Westchester County is called the Cross Westchester Expressway (CWE). The CWE is owned by



the NYSDOT, but is maintained and patrolled by NYSTA from Exit 1 to Exit 10. It provides a critical link in the federal interstate highway system.

The corridor contains portions of these two interstate highways, each serving distinct functions. I-87, the main route through the Hudson Valley, connects New York City and Canada extending between I-278/Triboro Bridge and Champlain, New York. I-287 serves as a circumferential route serving the New York and New Jersey metropolitan area. It serves suburb-to-suburb trips in addition to long distance trips (i.e., from New Jersey and points west to New England) enabling vehicles to bypass New York City and its congestion. In addition, I-287 provides a vital connection between Westchester County and Rockland County as well as Northern New Jersey, Connecticut, and surrounding communities. There are approximately 40 major regional and local roadway crossings with I-287/I-87 within the corridor; most of them are connected by interchanges.

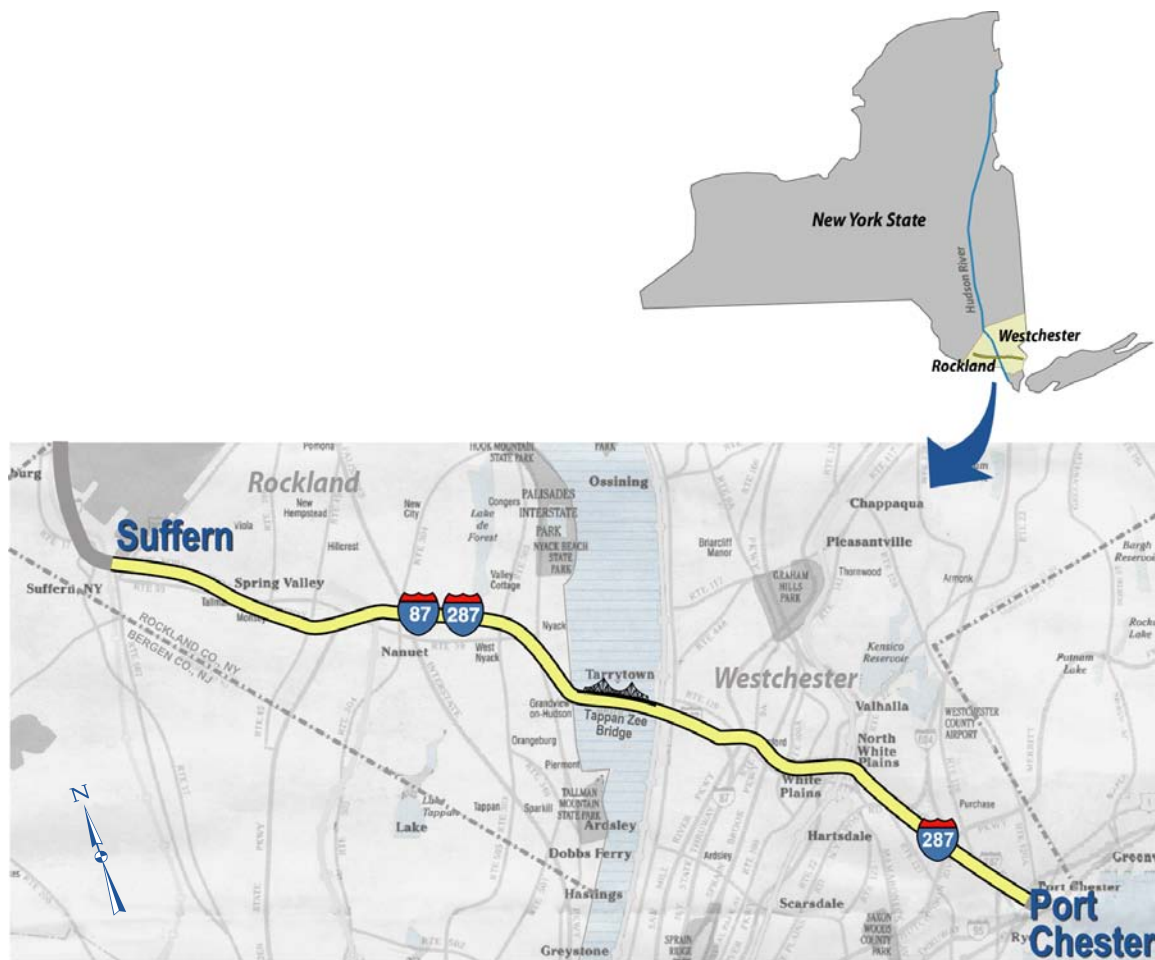


Figure 1-1 Tappan Zee Bridge – I-287 Corridor

The corridor includes significant portions of both Westchester and Rockland Counties, including the communities of Port Chester, Rye, Harrison, White Plains, Greenburgh, Elmsford, Tarrytown, Nyack, West Nyack, Nanuet, Spring Valley, and Suffern. The nature of the project corridor is one that spans the gamut of development and population density. To the west, the project corridor from Suffern to Nyack is



largely suburban and rural in character. Developments of commercial sites are limited and residential development less intense. The intensity of development increases from west to east as the corridor approaches and then crosses the Tappan Zee Bridge. East of the bridge, the corridor is more intense and urban in nature, especially in the White Plains area. Adjacent development and ramp spacing on the CWE is also, more urban in character.

The Tappan Zee Bridge opened to traffic in 1955 and carried an average of 18,000 vehicles daily during its first year of operation. Today, approximately 135,000 vehicles cross the bridge on an average weekday, with volumes as high as 170,000 vehicles on some peak days. During the past 20 years, growth in population and jobs, and changing commutation patterns have caused traffic volumes to grow significantly in the corridor: more than 50 percent in the I-287 Corridor and more than 70 percent on the Tappan Zee Bridge.

Five passenger rail facilities pass through the corridor. The commuter lines east of the Hudson River (the New Haven, Harlem, and Hudson) are the responsibility of Metro-North. These lines terminate at Grand Central Station (GCS). Amtrak also runs trains that provide intercity and commuter service from New York Penn Station north along the east side of the river to Albany on the Hudson Line and north on the west side of Westchester to Connecticut along the New Haven Line. The Port Jervis and Pascack Valley Lines, also commuter lines, are west of the river. New Jersey Transit (NJTransit) operates these lines, which terminate at Hoboken, New Jersey.

There are numerous east-west and north-south bus services provided throughout the corridor as well. Long distance bus service is available between upstate New York and New York City, and many local and regional bus services are provided by a combination of local government and commercial providers. In addition, passenger ferry service is provided between Haverstraw and Ossining, coordinated with Metro-North Hudson Line trains at the Ossining Station.

1.2 Roadway Network

The roadway network, defined as the system of intersections, local roads, arterials and limited access highways located within the study area that will be directly or indirectly impacted by the various build alternatives. Existing roadways, travel patterns and interchange locations within approximately 0.5 miles on either side of the Thruway/CWE (I-87/I-287) corridor extending from Hillburn/Suffern to Port Chester encompass the required highway network needed to examine the alternatives.

The highway, and most of the adjacent and intersecting roadways, has been coded as an integral part of NYMTC's Best Practices Model, in order to produce the future demand forecasts. However, for the purposes of the traffic impact analysis and micro simulation, a much more detailed coding, including all of the minor local roadways, street geometry, signal timing, etc. is needed by Paramics. For this reason, the BPM network will be supplemented by a sub-regional network model for the traffic analysis. This will be further explained in the section on Analysis Methodology later on in this chapter.

To facilitate the review and inventory of the corridor roadway network, current aerial photos were obtained. In addition, plans were collected regarding committed transportation improvements. Data, such as number of lanes, traffic control devices, medians, and other features were cataloged by examination of the aerial photos and plans and by field visits.

Several major regional and local east-west and north-south highways dominate the network in Rockland and Westchester Counties. Highways in Rockland County include I-287/I-87, Route 59, the Garden State

Parkway, Palisades Interstate Parkway, Route 303 and Route 9W. Highways in Westchester County include I-287/I-87, Saw Mill River Parkway, Sprain Brook Parkway, Route 119, I-684, Hutchinson River Parkway, Route 100 and I-95. Figure 4-2 in Chapter 4 of the EIS show the major regional and local highways in Rockland and Westchester Counties.

1.2.1 Mainline

I-287/I-87 from Interchange 15 in Suffern to Interchange 11 in Nyack is three lanes in each direction. It widens to four lanes in each direction from Interchange 11 to the Tappan Zee Bridge. On the bridge, there are a total of seven lanes. The bridge is operated with four lanes in the eastbound direction during the morning peak period and with four lanes in the westbound direction during the evening peak period, through the use of a moveable barrier system.

In Westchester County, the roadway cross section is more variable:

- Between the toll plaza and Interchange 8 – there are four lanes in each direction.
- At interchange 8, the Thruway (I-87) and the cross Westchester Expressway (I-287) split up and the numbering system begins again.
- After interchange 8, the next exit to the east on the CWE (now called exits and not interchanges) is Exit 1.
- Between Exits 1 and 3 – there are three lanes in each direction.
- Between Exits 3 and 6 – there are three lanes in each direction with an auxiliary lane between each entrance and exit in the eastbound direction only.
- Between Exit 6 and I95 (the CWE terminus) – there are three lanes in each direction.

The existing grades along the mainline vary from 0.5 to 3.0 percent in Rockland County (see Figure 1-2). From Interchange 15 to approximately halfway between Interchanges 14a and 14b, the grade generally rises in the easterly direction. From halfway between Interchanges 14a and 14b to Interchange 12, the grade generally decreases in the easterly direction.

In Westchester County, the existing grades along the mainline vary from 0.25 to 3.0 percent, except near Interchange 8 (CWE Split) where the grades along the expressway ramps exceed 5 percent. Generally, the grade decreases in an easterly direction, except at certain locations, which include Exit 6 and Exit 9, where the grade rises. A list of grades and length of grades is included in Tables 1-1 and 1-2.

1.2.2 Interchanges

There are 15 interchanges in the corridor in Westchester County and eight interchanges in Rockland County from Nyack to Suffern. There are approximately 100 major signalized intersections located within the half-mile radius of the corridor. Traffic signals are maintained by a number of jurisdictions in the study area. Contact was made with each agency and information collected regarding traffic signal operation and layout that would facilitate subsequent analysis of basic traffic operations.

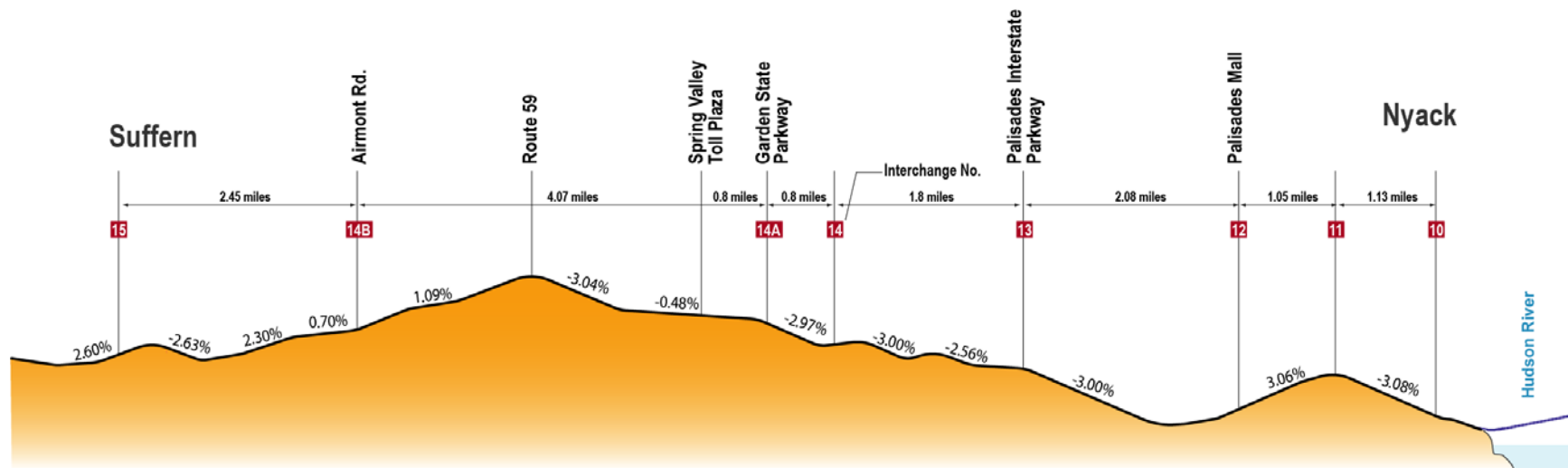


Figure 1-2 Rockland County Profile



Table 1-1

Existing Grades along I-287 in Rockland County

Length (ft)	Grade	Location (Interchange #)
1200	2.56%	15
2700	-2.56%	
2500	1.20%	
2400	2.29%	
3400	0.78%	14B
2600	2.88%	
2800	1.14%	
4000	2.60%	
4600	-3.00%	
7400	-0.50%	14A
3300	-3.00%	14
2400	0.90%	
2300	-3.00%	
1500	1.85%	
1900	-2.38%	13
2800	-0.50%	
7800	-3.00%	
1000	0.50%	
		12
1600	1.00%	
5200	3.00%	11
		10
8400	-3.00%	
Total length = 71800		
= 13.60 miles		

Table 1-2

Existing Grades Along I-287 in Westchester County

Length (ft)	Grade	Location (Exit #)
		Tappan Zee Bridge
2500	3.00%	
2000	-3.00%	
2500	0.75%	
4610	-1.00%	
2560	0.75%	
500	-5.50%	
900	-4.50%	CWE 1
1800	0.95%	
2400	-1.71%	2
2800	2.91%	3
2200	-2.80%	4
1600	0.40%	
1700	-0.80%	
1600	0.40%	5
2400	-0.50%	
1600	0.50%	
1800	3.00%	6
2300	-2.26%	
2400	-3.00%	7
1600	1.70%	
900	-3.00%	
6950	-0.25%	8
3000	-0.50%	
1800	2.00%	
2800	1.50%	9
1000	2.69%	
3900	-3.00%	
1000	-0.40%	
4000	-1.15%	
1600	3.00%	
1800	-1.40%	
Total Length = 70520		
= 13.36 miles		

1.2.2.1 Rockland County

- **Interchange 15: I-87/I-287, Ramps leading to I-287/Route 17** – This is a fully directional interchange that provides connection between I-87 and I-287/Route 17 in Suffern. I-287, which receives traffic from I-80 and I-78 in New Jersey, is connected to I-87 at Interchange 15.
- **Interchange 14B: I-87/I-287, Ramps leading to Airmont Road** – This is a diamond interchange located in Airmont providing access to and from Airmont Road in each direction. The following two signalized intersections are formed at the ramp termini:
 - **Airmont Road at Northbound Ramps** – Airmont Road northbound approach has two thru and one left-turn lane. Airmont Road southbound approach has two thru and one right-turn lane. The Thruway off-ramp has one left turn lane and one shared thru and right lane.
 - **Airmont Road at Southbound Ramps** – Airmont Road northbound has one thru and one shared thru and right lane. Airmont Road southbound has two thru and one left-turn lane. The Thruway off-ramp has one left turn lane and one shared thru and right lane.
- **Interchange 14A: I-87/I-287 Ramps leading to Garden State Parkway (GSP)** – This is a directional three-legged interchange located in Chestnut Ridge and provides direct access to and from the GSP in each direction.
- **Interchange 14: I-87/I-287 Ramps leading to Route 59** – This is a partial cloverleaf interchange with ramps in two quadrants located in Nanuet. The following two signalized intersections are formed with the northbound and southbound ramps:
 - **Route 59 at Southbound Ramps/Grandview Avenue** – This is a four-legged intersection controlled by a semi-actuated traffic signal. On the Route 59 westbound approach, there are three thru lanes and one left-turn lane. On the eastbound approach, there are two left-turn lanes. The Thruway off-ramp has one thru, one right-turn and two left-turn lanes. Grandview Avenue has two left and one shared thru and a right turn lane. The semi-actuated traffic signal has six phases and a cycle length of 130 seconds. The signal is coordinated with the signal at Route 59 and the northbound ramps.
 - **Route 59 at Northbound Ramps/Connector Road** – Route 59 has two thru lanes, a right-turn and a left-turn lane at the eastbound and westbound approaches. The Thruway ramp has a thru, left-turn and right-turn lane. The intersection is controlled by an actuated traffic signal with six phases and a cycle length of 130 seconds.
- **Interchange 13: I-87/I-287 Ramps leading to Palisades Interstate Parkway (PIP)** – This is a full cloverleaf interchange providing access to and from the PIP in all directions.
- **Interchange 12: I-87/I-287 Ramps leading to Route 303** – This is a partial cloverleaf interchange with ramps in two quadrants located in West Nyack. The following three signalized intersections are formed with the northbound ramps, the southbound ramps and Snake Hill Road:
 - **Snake Hill Road at Northbound Ramps** – Snake Hill Road, westbound approach, has two left-turn lanes and a thru lane. Snake Hill Road eastbound approach has a thru lane and a



- shared thru and right lane. The northbound off-ramp has a left-turn and a shared thru and right lane. The intersection is controlled by an actuated traffic signal with four phases and a cycle length of 65 seconds.
- **Route 303 at Southbound Ramps** – Route 303 northbound, has one thru lane and a left turn lane. The Thruway ramp has a left-turn, right-turn and a shared left and right lane. The intersection is controlled by a semi-actuated traffic signal with six phases and cycle length of 103 seconds.
 - **Route 303 at Snake Hill Road** – Route 303 northbound approach, has two left turn lanes and two thru lanes. The southbound approach has a left, right and two thru lanes. Snake Hill Road eastbound approach has a left, right and a shared thru and right lane. The intersection is controlled by an actuated traffic signal with six phases and cycle length of 100 seconds.
 - **Interchange 11: I-87/I-287 Ramps leading to Route 59 and Route 9W** – This is a three-legged Y type offset interchange with southbound and northbound ramps located in Nyack. The following two signalized intersection are formed at and near the ramp termini:
 - **Route 59 at Southbound Ramps and Waldron Avenue** – Route 59 westbound approach has one left, thru and one shared thru and right turn lane. Route 59 eastbound approach has a left, thru and right lane. The Thruway off-ramp southbound approach has a left and a shared thru and right turn lane. Waldron Avenue northbound approach has a shared thru and left turn and a shared thru and right turn lane. The intersection is controlled by a fully actuated traffic signal with six phases and a cycle length of 146 seconds.
 - **Route 9W at Route 59/Main Street** – Route 9W northbound and southbound approaches have a left-turn and a shared thru and right lane.
 - Route 59 eastbound and Main Street westbound approaches have one left-turn and a shared thru and right lane. The intersection is controlled by a fully actuated traffic control signal with eight phases and a cycle length of 146 seconds.
 - **Interchange 10: I-87/I-287 Ramps leading to Route 9W** – This is a trumpet type interchange located in West Nyack that provides access to and from the Thruway northbound and Route 9W. It also provides access to the Thruway southbound from Route 9W northbound.

1.2.2.2 Westchester County

- **Interchange 9: I-87/I-287 Ramps leading to Route 9 and Route 119** - This is a three-legged Y type offset interchange located in Tarrytown that provides access to and from Route 9 (South Broadway), I-87 southbound, Route 119 (White Plains Road), and I-87 northbound. The following three signalized intersections are formed with the Thruway ramp termini:
 - **Route 9 at I-87 Southbound Ramps/Hilton Motel Drive** - Route 9 northbound approach has a shared thru and left and a shared thru and right lane. Route 9 southbound approach has a left-turn, thru and a shared thru and right lane. I-87 southbound off-ramp westbound approach has a right-turn and a shared thru and left lane. Hilton Motel Drive eastbound approach has



one general purpose lane. The intersection is controlled by a semi-actuated traffic control signal with four phases and a cycle length of 155 seconds.

- **Route 9 at Route 119 and Ramp C Jug Handle** - Route 9 northbound approach has two thru and a right-turn lane. Route 9 southbound approach has two thru lanes. Route 119 westbound approach has two left and a right-turn lane. Route 9 southbound left making a Jug Handle eastbound approach has two lanes. This is a fully actuated traffic control signal with four phases and a cycle length of 120 seconds.
- **Route 119 at I-87 Northbound Ramps** - Route 119 eastbound has two thru, one left-turn and one right-turn lane. Route 119 westbound approach has one left-turn, one thru and one shared thru and right lane. I-87 northbound off-ramp, northbound approach has two left-turns and a shared thru and right lane. The intersection is controlled by an actuated traffic signal with six phases and a cycle length of 110 seconds.
- **Interchange 8: I-87/I-287 Ramps leading to I-287 (Cross Westchester Expressway)** - This is a fully directional interchange, recently reconstructed to current design standards, and provides direct connections between I-87 and I-287 (CWE) in the town of Greenberg.
- **Exit 1: I-287/CWE Ramps leading to Route 119 and Saw Mill River Parkway (SMRP)** - This is a three-legged Y type offset interchange providing access to and from I-287 eastbound, westbound and Route 119. Access to the SMRP northbound is also provided from I-287 eastbound off-ramp/frontage road. An additional ramp from SMRP southbound to I-287 westbound is also provided. The following two signalized intersections are located near the interchange:
 - **Route 119 at I-287/CWE Westbound Ramps** - Route 119 eastbound approach has two thru and a left-turn lane. Route 119 westbound approach has one thru and a shared thru and right lane. CWE westbound ramp has one left-turn and one right-turn lane. The intersection is channelized to provide a free right-turn lane operation to and from the CWE ramps. The intersection is controlled by an actuated traffic signal with three phases and a cycle length of 118 seconds. This signal is coordinated with Route 119 at Texture Road.
 - **Route 119 at Taxter Road** - This is a T intersection located in the vicinity of interchange 1. Route 119 eastbound approach has three thru lanes and a right-turn lane. Route 119 westbound approach has three thru lanes and a left-turn lane. Taxter Road northbound approach has a left-turn and a right-turn lane. The intersection is controlled by an actuated traffic signal with four phases and a cycle length of 120 seconds. This signal is coordinated with the intersection of Route 119 at CWE westbound ramps.
- **Exit 2: I-287/CWE Ramps leading to Route 9A (Saw Mill River Road)** - This is a diamond interchange located in the village of Elmsford providing access to and from Route 9A and CWE westbound and from Route 9A/frontage road to CWE eastbound. The following two intersections are formed at the ramp termini:
 - **Route 9A/Frontage Road at CWE Eastbound Ramp** - Route 9A northbound approach has a left-turn, a thru and a shared thru and right lane. Route 9A southbound approach has two left lanes and a thru lane. CWE ramps eastbound on-ramp/frontage road has two lanes. This is an actuated signal with four phases and a cycle length of 95 seconds. The signal is coordinated with Route 9A at CWE westbound ramps.



- **Route 9A at CWE Westbound Ramps** - Route 9A northbound approach has a shared thru and right lane and a shared thru and left lane. Route 9A southbound approach has a thru lane and a shared thru and right lane. CWE westbound off-ramp has two right-turns and a left-turn lane. This is an actuated signal with four phases and a cycle length of 95 seconds. The signal is coordinated with Route 9A at CWE westbound ramps.
- **Exit 3: I-287/CWE Ramps leading to Sprain Brook Parkway (Southbound)** - Interchange 3 connects the CWE to the southbound Sprain Brook Parkway.
- **Exit 4: I-287/CWE Ramps leading to Route 100 A (Knollwood Road)** - This is a diamond interchange that forms the following two signalized intersections at the ramp termini:

 - **Route 100A (Knollwood Road) at CWE Westbound Ramps** - Route 100A northbound approach has one thru and one left-turn lane. Route 100A southbound approach has one thru lane, one shared thru lane and a right lane. CWE westbound off-ramp approach has one left-turn and a shared thru and right lane. The intersection is controlled by an actuated traffic signal with four phases and a cycle length of 90 seconds. The signal is coordinated with Route 100A at CWE eastbound ramps.
 - **Route 100A (Knollwood Road) at CWE Eastbound Ramps** - Route 100A northbound approach has one thru and a shared right lane. Route 100A southbound approach has one left-turn and one thru lane. CWE eastbound off-ramp approach has one left-turn and one right-turn lane. The intersection is controlled by an actuated traffic signal with four phases and cycle length of 90 seconds. The signal is coordinated with Route 100A at CWE westbound ramps.
- **Exit 5: I-287/CWE Ramps leading to Route 100 (Hillside Avenue) and Route 119 (Tarrytown Road)** - This interchange provides access to and from CWE westbound to Route 100 (Hillside Avenue) and from CWE eastbound to Route 119 (Tarrytown Road). The following signalized intersection is located at the ramp termini:

 - **Route 100A at CWE Westbound Off-Ramp** - Route 100A northbound approach has two thru lanes. CWE westbound off-ramp has a left and a right turn lane. The intersection is controlled by an actuated traffic signal with two phases and cycle length of 77 seconds.
- **Exit 6: Ramps leading to Route 22 (North Broadway)** - This interchange is a combination of a diamond and a Y type located in the City of White Plains and provides access to and from the CWE westbound and Orchard Street and to and from the CWE eastbound and Route 22. The following two signalized intersections are located near the interchange.

 - **Route 22 at Orchard Street** - Route 22 northbound approach has one left-turn, one thru and one shared thru and right lane. Route 22 southbound approach has two thru lanes, one left-turn and one right-turn lane. Orchard Street westbound approach has one left-turn and one shared thru and right lane. The intersection is controlled by a semi-actuated traffic signal with four phases and a cycle length of 90 seconds.
 - **Route 22 (North Broadway) at CWE Eastbound Ramps** - Route 22 northbound approach has two thru lanes and a shared thru and right lane. CWE southbound approach has two thru lanes and a left-turn lane. CWE eastbound off-ramp eastbound approach has a left-turn and a shared thru and left lane. The intersection is controlled by a semi-actuated traffic signal with four phases and a cycle length of 100 seconds.



- **Exit 7: I-287/CWE Ramps leading to Central Westchester Parkway** - This interchange provides access from the CWE westbound to Central Westchester Parkway and from Central Westchester Parkway to the CWE eastbound.
- **Exit 8W: I-287/CWE Ramps leading to and from Westchester Mall/Bloomingdale Road** - This interchange provides access from the CWE eastbound to Westchester Mall/Bloomingdale Road and from Westchester Mall/Bloomingdale Road to the CWE westbound.
- **Exit 8E and 8: CWE/I-287 Ramps leading to and from Westchester Avenue** - This interchange provides access from the CWE eastbound and westbound to Westchester Avenue (frontage Road) eastbound and westbound, respectively.
- **Exit 9A: I-287/CWE Ramps leading to and from I-684 and Westchester Avenue** - This is a fully directional interchange providing direct access to and from I-684 to the CWE and Westchester Avenue.
- **Exit 9: I-287/CWE Frontage Road (West Avenue) and Hutchinson River Parkway** - This is a full cloverleaf interchange that provides access to and from Hutchinson River Parkway and CWE eastbound and westbound via frontage road (West Avenue). East of the interchange, it provides access from CWE westbound to West Ave westbound and from West Ave eastbound to CWE eastbound. West of interchange, it provides access from West Ave westbound to CWE westbound and from CWE eastbound to West Ave eastbound.
- **Exit 10: I-287/CWE Ramps leading to Bowman Avenue** - This interchange provides access from the CWE westbound to Westchester Avenue and Route 120 (Purchase Street) via Webb Avenue. CWE eastbound has off ramp providing access to West Ave eastbound. The CWE westbound off-ramp forms an un-signalized (two-way stop sign) intersection with Bowman Ave and Webb Ave.
 - **Bowman Ave at Webb Ave/CWE Westbound Off-Ramp** - The intersection is two-way stop sign controlled. CWE westbound off-ramp has two lanes. Bowman Ave has one thru lane in each direction with a free right lane to Webb Ave. Webb Ave has one lane in each direction with an additional left turn lane at the intersection.
- **Exit 11: I-287/CWE Ramps leading to Route 1 (Boston Post Road) and I-95 (New England Thruway)** - Exit 11 is the easternmost/last interchange of I-287 before its terminus. It provides access from I-287 EB to I-95 SB and Route 1 and from I-95 NB and Route 1 NB to I-287 WB. Immediately south of this interchange, the I-287 EB off-ramp merges with I-95 SB mainline and the I-95 NB off-ramp to I-287 WB originates at I-95 Interchange 21. Immediately east of the interchange, I-287 EB terminates at I-95 NB and I-287 WB originates from I-95 SB at I-95 Interchange 22. The whole area can be characterized as a complex and confusing interchange with several closely spaced motorist decision points and circuitous connections between I-287, I-95, Route 1 and Midland Avenue. I-287 and I-95 are two high speed controlled roadways. I-95 is a major north-south route between New York and New England. Route 1 (Boston Post Road) is a major arterial that runs north south and provides access to and from I-95 and I-287 to Rye City and Port Chester. Midland Ave is a local arterial providing access from the area to and from the interstates. The following three intersections are formed at the interchange ramp termini:
 - **Route 1 at I-287 EB Off-Ramp and I-95 SB On-Ramp** - Route 1 northbound approach has one thru and a shared thru and right lane. Route 1 southbound approach has one left-turn and one thru lane. CWE eastbound off-ramp, eastbound approach has one thru, a shared thru and



a left lane. The intersection is controlled by an actuated traffic signal with five phases and a cycle length of 105 seconds.

- **Midland Avenue at I-95SB/I-287 WB Ramps** - Midland Avenue forms a T intersection with I-287 westbound ramps. Midland Avenue southbound has a shared thru and left lane. Midland Avenue northbound has a shared thru and right lane. I-95 southbound/I-287 westbound off-ramp has one general purpose lane. This intersection is controlled by a semi-actuated traffic signal with six phases and has a cycle length of 115 seconds.
- **Midland Avenue at I-95 NB Ramps** - Midland Avenue forms a T intersection with I-95 northbound ramps. Midland Avenue northbound has one thru and a shared thru and right turn lane. Midland Avenue has a shared thru and left turn lane. I-95 northbound off ramp has a left turn and a free-right turn lane. The intersection is controlled by a stop sign.

1.2.3 Major Intersecting Roads

There are approximately 40 major highways crossing I-287 within the corridor. Some of these are limited access controlled highways; Most of them are arterials with signal control. Few of these highways are two-lane highways. In Rockland County, there are 17 major roads intersecting I-287/I-87. In Westchester County, there are approximately 23 major roads intersecting I-287. The following is a brief description of the major intersecting roadways within the corridor.

1.2.3.1 Rockland County

- **Route 17** - South of interchange 15, Route 17 is referred as I-287/Route 17 because I-287 and Route 17 overlap. Route 17 runs north south and is a divided six-lane highway near the interchange with I-87. It carries approximately 87,700 vehicles per day and almost 4,000 vehicles per hour in a southbound direction during the AM and more than 4,000 vehicles per hour in a northbound direction during the PM peak.
- **Airmont Road** - Airmont Road is a county road that carries approximately 22,200 vehicles per day with 930 and 1000 vehicles, at its intersection with Route 59, during the AM and PM peak hour, respectively. North of the Thruway, it changes to an east-west alignment, is named Highview Road, and becomes a two-lane road. South of the Thruway, it forms a signalized intersection with Route 59, becomes a two-lane roadway, and is called South Airmont Road.
- **Route 306** - Route 306 is a state route with a north-south alignment. Near the corridor, it has one lane in each direction and carries approximately 12,900 vehicles per day. To the north of the Thruway, it intersects with Route 59. Airmont Road provides access to the Thruway.
- **Route 45** - Route 45 is a state route that runs north south and carries one lane in each direction. It carries approximately 11,700 vehicles per day. To the north of the Thruway, it intersects with Route 59, which provides access to the Thruway.
- **Garden State Parkway (GSP) (982L)** - The GSP connection is a state parkway that provides access from I-87/I-287 in Chestnut Ridge to the GSP in New Jersey. The GSP runs north south terminating at the Thruway and carries two-lanes in each direction. It carries approximately



52,700 vehicles per day and has a peak hour volume of more than 3,000 vehicles southbound during the AM and northbound during the PM.

- **Route 59** - Route 59 is a state route that runs east west from Route 9W in Nyack to interchange 15 in Suffern. It parallels I87/I287 through Rockland County but meanders slightly north and south intersecting the highway at various points. Route 59 generally carries two-lanes in each direction but opens up to three and four lanes in some sections. Average daily traffic varies from as low as 7,700 vehicles in the western end to as much as 41,800 vehicles approaching the Palisades Mall, depending upon the count location. East of Route 303, it carries approximately 27,350 vehicles per day. The peak hour volumes also vary from 300 vehicles per hour in the west to almost 2,000 vehicles per hour near the mall.
- **Route 304** - Route 304 is a state route that runs north south from New Jersey State Line to US Route 9W in Clarkstown. It generally has two lanes in each direction and carries approximately 30,800 vehicles per day. In the southbound direction, there are morning and evening peak hours of approximately equal magnitude.
- **Palisades Interstate Parkway (PIP) (Route 987C)** - The PIP is a state parkway. It runs north south from its terminus at I-95 in Bergen County, New Jersey to the Palisades Interstate Park in Orange County. It is an access-controlled parkway with two lanes in each direction. During the AM peak hour, it carries 1,444 vehicles in the northbound direction and 3,513 vehicles in the southbound direction.
- **Middletown Road** - Middletown Road is a county road that crosses under the Thruway. To the south, it intersects with Route 59 and to the north it interchanges with the PIP. It generally has two lanes in each direction and carries approximately 18,100 vehicles per day.
- **Route 303** - Route 303 is a state route that runs north south in Rockland County. Near the interchange, it generally has two lanes in each direction and carries approximately 32,000 vehicles per day and 1,500 vehicles during the AM and PM peak hours.

1.2.3.2 Westchester County

- **Saw Mill River Parkway (Route 987D)** - Saw Mill River Parkway is a state parkway that runs north south from the interchange with I-684 in Bedford to the New York City line. It has two lanes in each direction and carries approximately 27,700 vehicles per day.
- **Route 9A (Saw Mill River Road)** - Route 9A runs north south. It has two lanes in each direction and carries approximately 20,800 vehicles per day and more than 1,700 vehicles during the AM and PM peak hours.
- **Sprain Brook Parkway (Route 987F)** - Sprain Brook Parkway is a state parkway that runs north-south. It runs between the interchange with Taconic State Parkway in the town of Mount Pleasant and Bronx River Parkway in Yonkers. It is a multilane road with three lanes in each direction near the interchange. It carries approximately 87,200 vehicles per day and more than 3,500 vehicles in each direction during the AM and PM peak hour.



- **Route 100A (Knollwood Road)** - Route 100A is a state route that runs north-south in Westchester County. It generally has one lane in each direction and carries approximately 13,500 vehicles per day. Near the interchange, it intersects with Route 119.
- **Route 100 (Hillside Avenue)** - Route 100 is a state route that runs north-south. Near the interchange, it has two lanes in each direction. North of the interchange, it changes to a two-lane roadway. It carries approximately 12,600 vehicles per day.
- **Bronx River Parkway** - The Bronx River Parkway runs north-south. It has two lanes in each direction and carries approximately 19,600 vehicles per day with 1,200 vehicles in the southbound direction during the AM peak hour and more than 900 vehicles in the northbound direction during the PM peak hour.
- **Route 22 (North Broadway)** - Route 22 is a state route that runs north-south. It has two lanes in each direction and carries approximately 27,500 vehicles per day.
- **Anderson Hill Road** - Anderson Hill Road is a County road that runs east-west between Westchester Avenue (interchange 8) in the City of White Plains and Route 120A (King Street) in the Town of Harrison. It has two lanes and carries approximately 11,650 vehicles per day.
- **Route 127** - Route 127 is a state route that runs north-south between interchange 8E, CWE and the intersection with Route 1 in Rye. It has two lanes in each direction and carries approximately 17,300 vehicles per day with more than 800 vehicles in each direction during both the AM and PM peak hours.
- **I-684** - I-684 is an interstate connector that runs north-south between I-84 in Putnam County and the interchange with I-287 in White Plains. It generally has two lanes in each direction and carries approximately 59,800 vehicles per day with 3,850 vehicles in the southbound direction during the AM and 3,400 vehicles in the northbound direction during the PM peak hour.
- **Hutchinson River Parkway (Route 907W)** - Hutchinson River Parkway is a state parkway that runs north-south between Connecticut and New York State. In Connecticut, it is called the Merritt Parkway and terminates at I-678 near the Whitestone Bridge in The Bronx. It generally has two lanes in each direction and carries approximately 93,500 vehicles per day with around 4,000 vehicles in each direction during the AM and PM peak hours.
- **Route 120 (Purchase Street)** - Route 120 is a state route that runs north-south in Westchester County. It crosses over the CWE and connects Westchester Ave (frontage road) eastbound and westbound. It has two lanes in each direction. To the north of the CWE, it also forms an interchange with Hutchinson River Parkway and carries approximately 23,900 vehicles per day with more than 1,000 vehicles in each direction during both the AM and PM peak hours.
- **Westchester Avenue** - Westchester Avenue runs east-west and serves as a collector-distributor roadway between interchanges 9 and 8. Several bridges including Anderson Hill Road Bridge, William Butcher Bridge, Brynt Bridge, Corporate Park Drive Bridge and Kenilworth Road Bridge connect Westchester Avenue eastbound and westbound. It has two lanes in each direction with additional lanes at the intersections. The eastbound direction carries almost 9,000 vehicles a day and more than 1,400 vehicles during the AM peak hour. Additionally, it carries more than 11,300 vehicles a day and almost 1,700 vehicles in a westbound direction during the PM peak hour.



- **Polly Park Road** - Polly Park Road is a county road that runs east-west between Route 127 (North Street) and Route 120 (Purchase Street). It has one lane in each direction and carries approximately 4,850 vehicles per day.
- **North & South Ridge Street** – South Ridge Street runs north-south between Purchase Street/Hillside Avenue and Route 120A (King Street) and crosses over the CWE. To the north of Westchester Avenue, it becomes North Ridge Street. It has one lane in each direction and carries approximately 6,500 vehicles per day in the southbound direction and varies from about 5,550 to 8,050 vehicles per day in the northbound direction depending on where along the street, the count is taken.
- **Route 120A** - Route 120A (King Street) runs north-south from the intersection of Westchester Avenue and Route 1 in Rye. It runs along the Connecticut State Line and into Fairfield County. It generally has two lanes in each direction and carries approximately 14,200 vehicles per day with more than 500 vehicles in each direction during the AM and PM peak hour.
- **Route 1 (Boston Post Road)** - US Route 1 (Boston Post Road) runs north-south. Near the interchange, it generally has two lanes in each direction and carries approximately 40,000 vehicles per day with almost 1,100 vehicles in the AM peak hour and more than 1,200 vehicles in the PM peak hour northbound and approximately 2,200 and 1,650 vehicles in a southbound direction during the AM and PM peak hours, respectively.

1.3 Content of Traffic Technical Report

Chapter 2 of this report presents a detailed review of the traffic data collection phase of the study and reviews the Paramics traffic microsimulation models established for the DEIS, including its relationship to the BPM regional demand model and the calibration of the Paramics models to enhance their applicability to the study corridor. Chapter 3 presents the results of the traffic studies and its assessment of the proposed build alternatives while Chapter 4 presents the range of mitigation measures recommended along the corridor. Detailed appendix materials relating to the data collection, calibration and impact analyses efforts are also included.

2 Analysis Methodology

The Tappan Zee Bridge/I-287 Corridor Project is a part of the transportation planning process in the New York metropolitan area. As such, with both the FHWA and FTA as federal co-lead agencies, it must be a part of the Continuing Comprehensive Coordinated [3C] process defined in federal planning regulations. Those regulations mandate that the Metropolitan Planning Organization (MPO) develop the planning process, including the adoption of urban travel demand forecasting models.

In order to analyze potential traffic impacts of the Tappan Zee Bridge/I-287 Corridor Project, two key steps in the process are conducted:

1. **Forecast Travel Demand** - The tool used to forecast urban travel demand in the region is the Best Practice Model (BPM) developed by the New York Metropolitan Transportation Council (NYMTC). BPM represents a state-of-the-art process for forecasting future urban travel based on assumptions regarding land use and transportation facilities and services. Moreover, because potential alternatives include both major highway and major transit improvements, a multi-modal model was required, and the BPM is the best and only available model in the New York region that can simultaneously assess improvements to both highway and transit. It has been adopted by NYMTC as the transportation planning model for the New York metropolitan area. The *Transit Technical Report* describes this model in detail.
2. **Conduct Level of Service Analysis** - BPM is a regional travel demand model, not a traffic simulation model and is, therefore, not designed nor suitable for the analysis of traffic operations. Rather, it is the right model to provide overall travel projections, and can do so to a detailed level. At that detailed level a simulation model such as Paramics is then needed to take those projected volumes and apply them to the street network to determine their implications for traffic congestion. Thus, Paramics (a microsimulation traffic analysis model) was selected to address this issue. This chapter describes the methodology adopted to calibrate the Tappan Zee Bridge/I-287 Corridor traffic model to count data using Paramics.

2.1 Traffic Microsimulation – Paramics Overview

Paramics is a microsimulation model. These models simulate the characteristics and interactions of individual vehicles. They essentially produce trajectories of vehicles as they move through the network. The processing logic includes algorithms and rules describing how vehicles move and interact, including acceleration, deceleration, lane changing, and passing maneuvers.

When a vehicle is generated in a network, the simulation model assigns driver-vehicle characteristics. Some common characteristics or attributes for each vehicle are: vehicle type (car, bus, truck), length, width, maximum acceleration and deceleration, maximum speed, maximum turn radius, driver aggressiveness, reaction time, desired speed, critical gaps (for lane changing, merging, crossing), destination (route), etc.

The physical environment—the transportation network under study—is typically represented as a network of links and nodes. Links are one-way roadways with fixed design characteristics and nodes that represent intersections or locations where the design characteristics of the links change.

Vehicles, in the absence of impedance from other vehicles, travel at their desired speed on the network links. However, their speed may be affected by the link-specified geometry (horizontal and vertical alignment), pavement conditions, and other factors. For example, the simulation model computes the actual vehicle speed as the minimum value from the desired speed and the speed computed for the specified vertical and horizontal alignment.

Vehicles proceed through the network until they exit the system at their destination. In O-D-based models, such as Paramics, the O-D matrix is input, and when a vehicle is generated at an origin, it is assigned its destination. The vehicle then exits the network at the specified destination. The O-D matrix is derived from NYBPM, the travel demand model adopted in the study.

Microscopic models simulate the interactions of individual vehicles as they travel in the analytical network using car-following, lane-changing, and queue discharge algorithms. Most of the existing simulation models employ fail-safe car-following algorithms. Such algorithms simulate car-following behavior by maintaining a minimum safe distance between vehicles subject to stochastically generated vehicle characteristics (e.g., maximum acceleration and deceleration rates).

Lane changing, which occurs in microsimulation models, is based on the gap-acceptance process. A vehicle may change lanes if the available gap in the target lane is greater than its critical gap.

2.1.1 Traffic Characteristics

As a micro-simulation model, Paramics requires information related to traffic characteristics such as driver behavior, path choices and temporal distribution of traffic. The following paragraphs provide an overview of these characteristics.

2.1.1.1 Driver Behavior

Paramics uses two main factors to estimate driver behavior. These are Headway (H), expressed in seconds with a default value of 1.0 second, and Reaction Time (R), also expressed in seconds with a default value of 1.0 second.

Values of 0.63 seconds for Headway and 0.43 seconds for Reaction Time were used for all networks, to account for the aggressive and fluid nature of drivers in this region. It should be noted that other studies utilizing Paramics have indicated the use of low headway values to accommodate congested conditions. The low headway factor allowed sufficient throughput capacity to be simulated, as was observed with actual traffic counts. The reaction time was lowered in conjunction with the headway in order to allow sufficient lane changing and gap acceptance to occur in the congested conditions.

2.1.1.2 Route Assignment Method

In order to simulate traffic flow within the study area, a “Stochastic-Dynamic Route Assignment” method was used. This method combines a probabilistic method of route assignment with a timed update of link costs factor based on prevailing traffic conditions.

The route choice of a particular O/D trip is determined on a per vehicle basis based on the calculated link costs of all the possible routes from the origin to the destination zone. In general, the route with the lowest cost will be used. However, in reality it is unlikely that all drivers will choose the same route for a

particular O/D trip, especially in a congested network where there is a limited choice of routes. The stochastic component of the route choice accounts for this random variability and allows vehicles to choose multiple routes between each O/D pair.

The calculation of the link costs is performed every three minutes and the route of each vehicle in the network is updated (feedback) based on the current traffic conditions in the network. This feedback allows the network routing to be “dynamic” with the routes between O/D pairs changing as traffic conditions change. This method allows realistic driving patterns to be simulated.

2.1.1.3 Temporal Distribution of Traffic

Paramics simulates individual vehicles and each vehicle is discharged to the network based on pre-determined discharge rates. Hourly traffic profiles from automatic traffic recorder (ATR) counts for Route 17 and Route 4 were used to estimate vehicle discharge rates for the traffic simulation model.

2.2 Paramics Calibration

The Paramics model was calibrated to 2005 conditions. This was done by adjusting the network, trip tables and vehicle characteristics to replicate realistic conditions to the extent possible.

As the Paramics model is more of an operational model and than a planning model a greater level of network detail was added to the Paramics model that was originally created from the BPM network structure. Without this added detail it would not be possible to replicate the existing traffic conditions.

- **Network Adjustments** – These adjustments included ensuring correct lane configuration, geometry, posted speed limits.
- **Trip Table Adjustments** – One input to the Paramics model was a trip table that came out of the BPM regional model. The BPM regional model spans 28 counties, including 11 from New Jersey and 2 from Connecticut. It was determined that the traffic impacts in the study corridor would be studied using two separate models, the Rockland and Westchester models. The split was made at the Tappan Zee Bridge, with about a mile of overlap on each side of the Hudson River. Figure 2-1 shows the overall Tappan Zee Bridge/I-287 Corridor study area.
- **Visual Adjustments** – Based on field observed bottlenecks and queuing issues, localized model adjustments were made to better replicate queuing conditions.

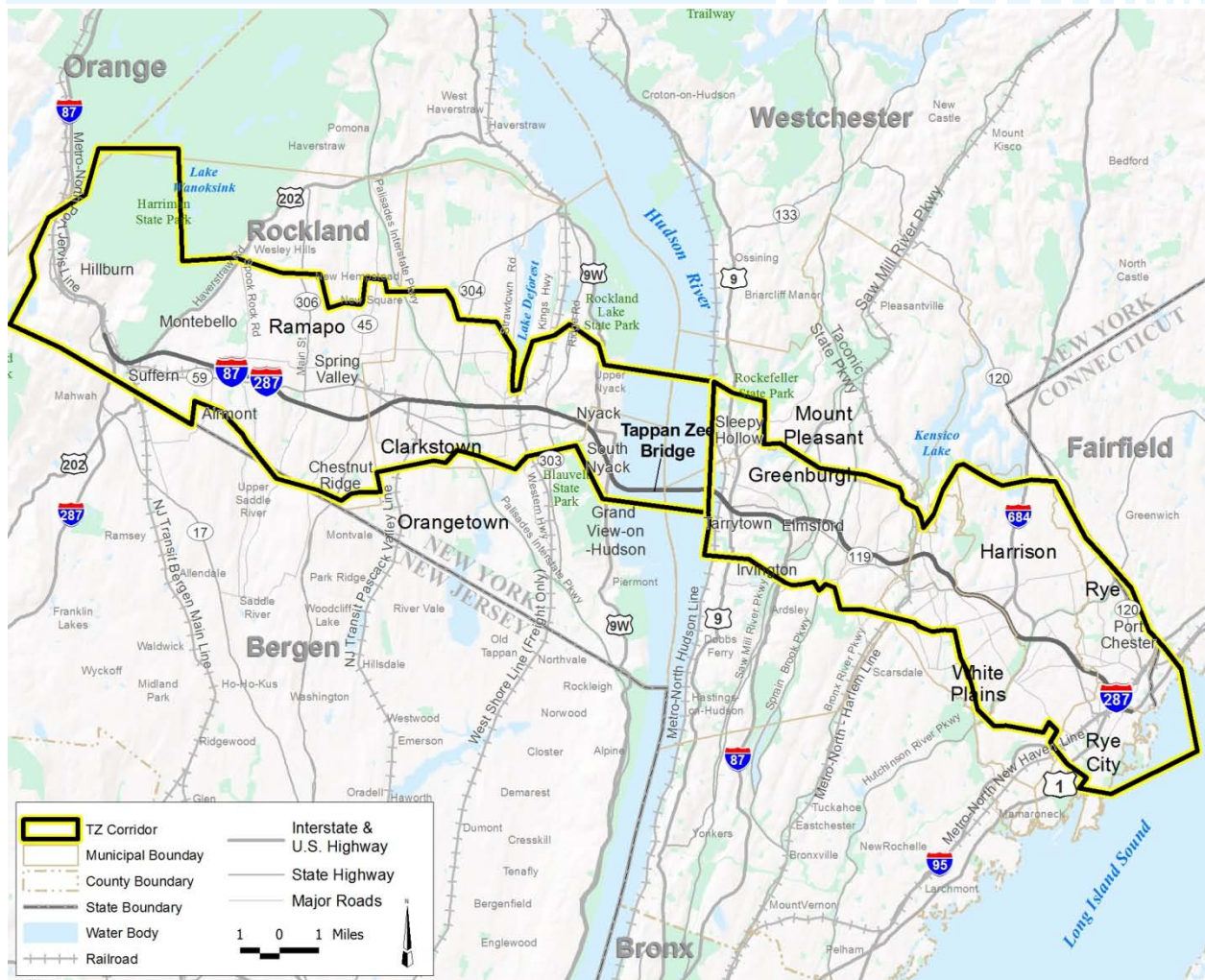


Figure 2-1 Tappan Zee Bridge/I-287 Corridor

The following terms will appear throughout this chapter:

- **Regional trip table** – The 4-hour BPM trip table (6AM to 10 AM) that covers all 28 counties (3,586 zones).
- **Subarea trip table** – a 4-hour trip table extracted from the regional trip table by BPM. It contains about 154 zones- 61 for Rockland and 93 for Westchester County.
- **Paramics trip table** – subarea trip table adjusted to run in Paramics for a specified interval (295 zones- 118 for Rockland and 177 for Westchester County).
- **Link** – roadway segment.
- **Zone** – An area generating and attracting trips.
- **Trip** (trip table context) – movement from one zone to another.

2.2.1 Data Collection

One of the hard and fast requirements for traffic analysis is that the data used, not be more than three years old. All of the data collected and used in the initial stages of this study came from 2002 or earlier. For this reason, it was necessary to collect all new traffic data including, ATR counts indicating average daily traffic (ADT) volumes as well as morning and evening peak hour counts, manual turning movement (MTM) counts, signal phasing/timing plans, classification counts, speeds and truck percentages. Both the Thruway Authority and the NYSDOT have permanent count stations set up along their facilities and this additional data from these locations was used to supplement the new counts, done in 2005.

The most common permanent count stations (the ones used by both the NYSTA and NYSDOT) are wire loops cut into the pavement and hooked to a recording device for continuous recording, 24 hours per day, 7 days per week and 52 weeks per year. These can be accessed at the site or remotely through a wireless connection and data can be downloaded whenever it is needed. A setup like this allows the engineer to look at volumes, speeds, classification and lane usage for whatever time periods he is interested in.

Written requests were made to relevant transportation and planning agencies along the corridor for plans for new traffic generators expected to be in place by 2017 (the estimated time of completion [ETC] of this project). In addition requests were made for all funded roadway construction plans. Table 2-1 presents a summary of the type of data collected from the agencies. A detailed summary and location map showing traffic count data and signal phasing/timing plans is included in Appendices. Roadway inventory, including data on lane configuration and the type of intersection control, were documented using aerial photographs, field visits and construction plans obtained from various agencies.

Table 2-1

Traffic Data Collection Types and Locations

Agency	Automated Traffic Recorder Counts Collected/Year	Manual Turning Movement Counts Collected/Year	Signal Phasing/Timing Collected	Roadway Construction Plans
NYSTA	2005	NA	NA	Collected
NYSDOT	2005	NA	Collected	Collected
Westchester Co	NA	NA	Collected	NA
Rockland Co	NA	NA	NA	NA
White Plains	NA	NA	Collected	NA
Clarkstown	NA	NA	Collected	NA
Nyack	NA	NA	Collected	NA

2.2.1.1 Automatic Traffic Recorders

There were 301 separate counts taken at 185 locations in Rockland and Westchester counties. The counters were placed for 1 week on the I-87/I-287 mainline and ramps and for three midweek days (Tuesday, Wednesday and Thursday) on the local roads and arterials. There were eight counters placed on the mainline; three in Rockland and five in Westchester. Additional permanent count stations will be used to supplement the mainline counts in Rockland and on the major highways in both counties. Table 2-2 shows the breakdown of the various ATR counts collected. Figures 2-2 and 2-3 show the locations of the ATR counts for Rockland and Westchester respectively while Figures 2-4 and 2-5 show the AM and PM peak volumes along the highway corridor in Rockland and Westchester Counties, respectively.

Table 2-2

Number of ATR Counts Location type and County

Location Type	Rockland County	Westchester County
Mainline	3	5
Ramp	36	51
Local / Arterial	44	46

Each location was monitored on a daily basis to insure that the tubes were not broken, the battery had not died and the machine was working properly. During the time the machines were out on the roadways, a calibration count was done for each one for one hour in the AM peak hour, one hour in the PM peak hour and one peak hour over the weekend. This calibration is necessary so that the percentage of vehicles with more than two axels can be factored into the counts. The tubes attached to the ATR's, count one vehicle for every two pulses caused by the tires riding over them. A truck with four axels would be counted as two vehicles. The calibration effort involves a person standing next to the machine and manually counting and classifying the traffic as it passes. In this way, the numbers of multi-axel vehicles are known. The total number counted by the machine is then divided by the total number counted by the person and a correction factor is calculated. As previously stated, this was done in the morning and afternoon, the appropriate factor was then applied to the time period and interpolated factors were used for the off peak hours in between. This will produce a machine count as close to a manual count as possible.

2.2.1.2 Manual Counts

Manual Turning movement counts were taken at 50 intersections within the study corridor; 22 in Westchester County and 28 in Rockland County and are shown in Figures 2-2 and 2-3 for Rockland and Westchester Counties, respectively. All manual turning movement counts were taken on one midweek day during the same week that the ATR's were collecting data. A complete set of all data sheets showing the volume for each movement can be found in Appendix A. All possible movements (including left turns, right turns and through movements were counted for the three hour (6:00 AM to 9:00 AM) peak morning period and three hour (4:00 PM to 7:00 PM) peak evening period. At least two people were assigned to each intersection to maximize the assurance of accuracy. Counting was done continuously for the three hour peak periods in the morning and afternoon and recorded in fifteen minute intervals. Information on the intersections and peak hour volume at each one is provided in Appendix A.

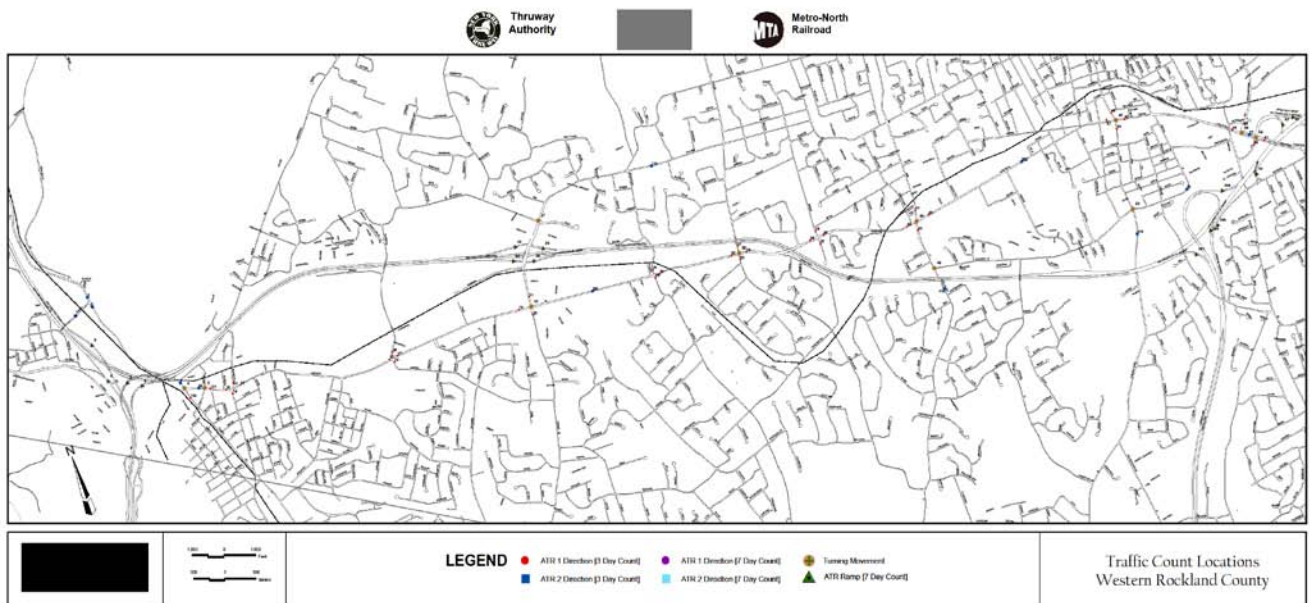
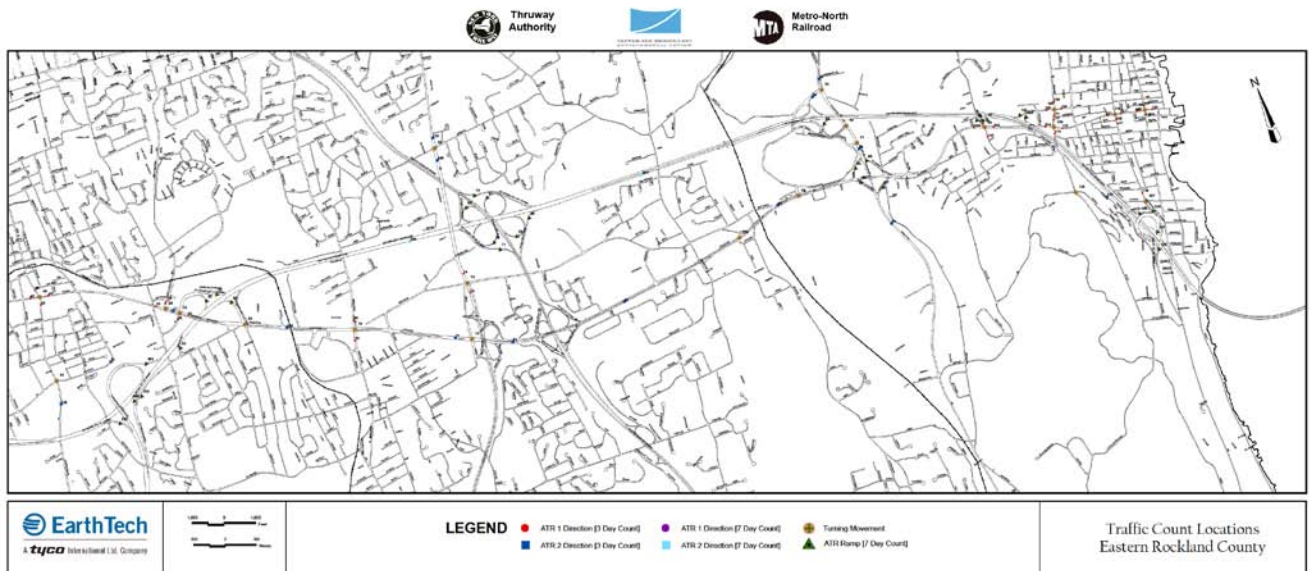


Figure 2-2: Traffic Count Locations – Rockland County

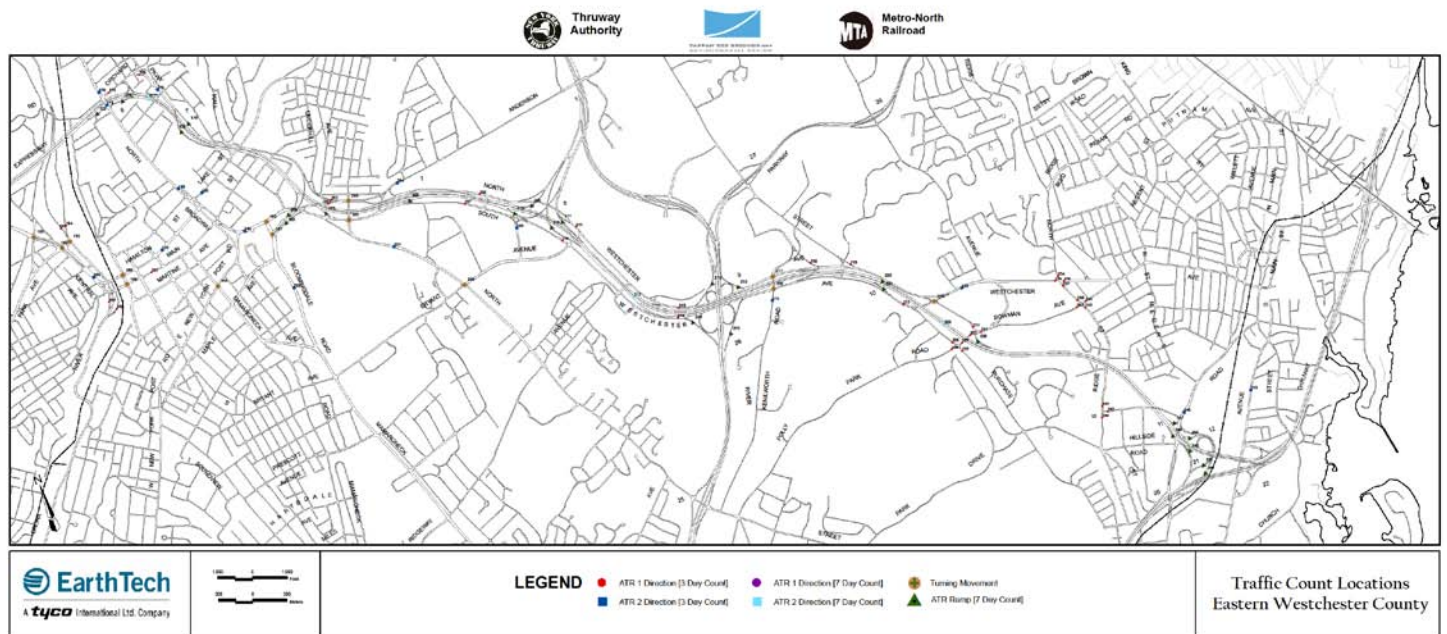
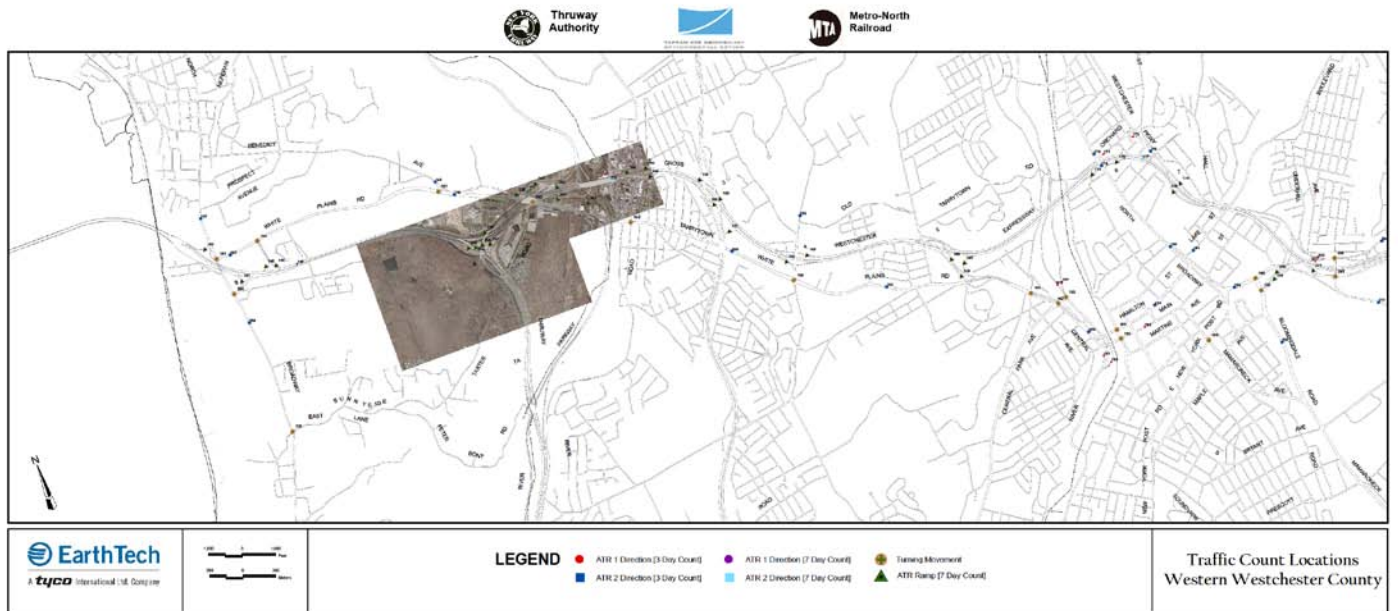
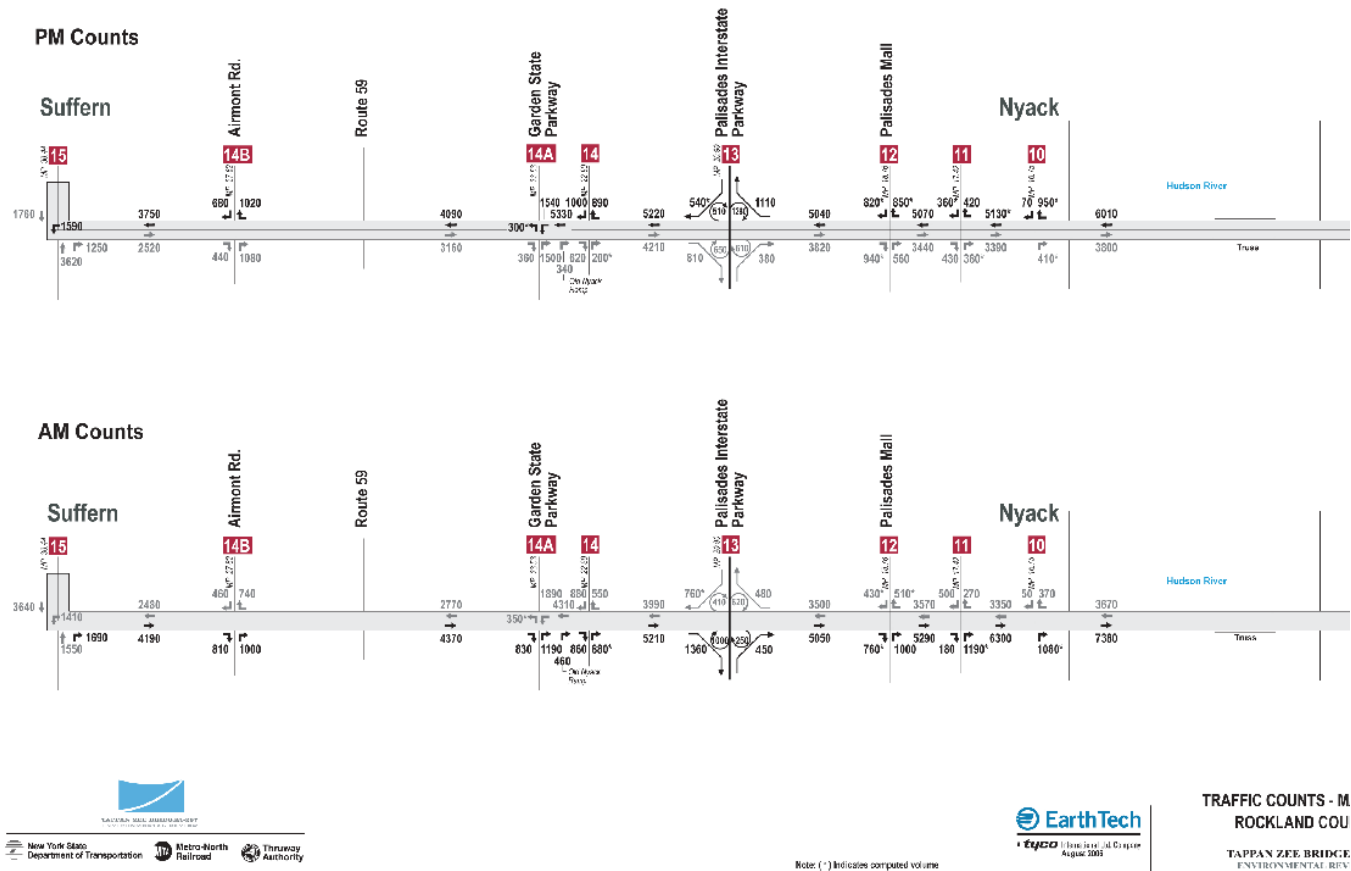


Figure 2-3 Traffic Count Locations – Westchester County



179
180
181
182
183
184



Thruway
Authority

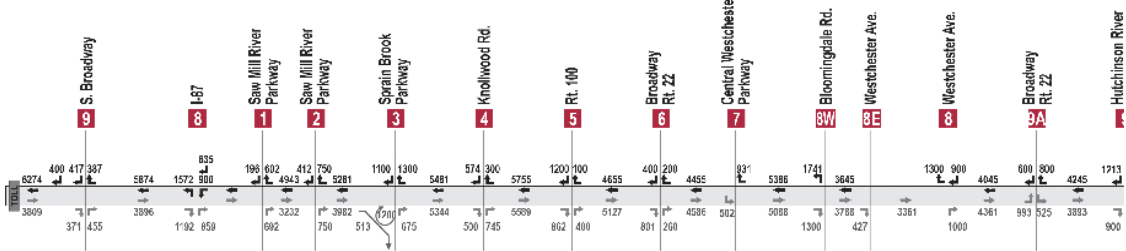


New York State
Department of Transportation



Metro-North
Railroad

PM Counts Westchester



AM Counts Westchester

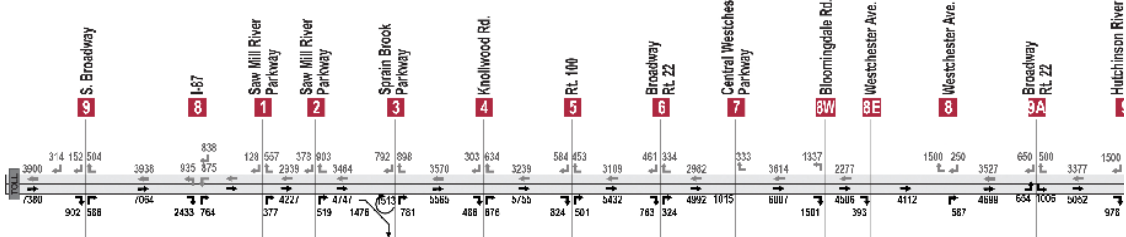


Figure 2-5 Mainline Traffic Volumes (2005) Westchester County

2.2.1.3 Traffic Signals

Traffic signal timing and phasing data was collected from the various agencies, for all signalized intersections within the study area. Signal timing consists of the cycle length and the splits. The cycle length is a complete sequence of signal indications: it is the total time it takes for any approach to go from start of green through the green sequence, the yellow clearance sequence and the red sequence including the all red part of the clearance. The splits are the specific amounts of time given to each of the sequences, for example, 25 seconds of green, 3 seconds of yellow, and 32 seconds of red (including 2 seconds of all red) for a total of a 60 second cycle length. The phasing is the order of display of the sequences determining which movements are permitted at which times. For example, Main Street left through and right turns, Main Street clearance, Side Street left, through and right turns and finally Side Street clearance. The final piece of signal timing information needed to be collected was the offsets. That is the successive difference in time along the main street between the start of the green phases. For example, intersection Y turns green 6 seconds after intersection X and intersection Z turns green 8 seconds after that.

The timing information was collected for 419 signals, 140 in Rockland County and 279 in Westchester County. For most of the signals, the timing details were supplied by the agency or authority responsible for the operation of the signal. In some cases, it was necessary to go into the field and collect the information by hand. This signal data was inputted into the Paramics sub-regional model to produce the traffic analysis. This will be described in detail later in this chapter.

2.2.1.4 Classification Counts

Classification refers to the different types of vehicles that make up the traffic flow on the streets and highways. For the purposes of this study, five classifications were used: passenger vehicle (included cars, vans and SUVs), busses, motorcycles, medium trucks (trucks with no more than three axels and/or six tires) and heavy trucks (trucks with more than three axels and six tires).

Manual classification counts of the above noted classes of vehicles were collected at a total of 28 locations on one day within the same time period that the manual counts and the ATRs were collected. They were taken in all directions at 10 of the 27 intersections and in both directions at the three I-87/I-287 mainline locations (eastbound only at Loc# 287) in Rockland County (see Table 2-3). In addition, it will be possible to get classification information from the permanent count stations in Rockland County. In Westchester County, manual classification counts were taken in all directions at ten of the 22 intersections and in both directions at all five count locations along I-287 (westbound only at Loc# 148) (see Table 2-4). By knowing the percentage of large vehicles (trucks, buses and RVs), and being able, to better describe the traffic stream, it will allow us to be more confident in our calculations of the LOSs at the various intersections, and mainline sections. A complete set of all data sheets showing the five classifications for each location monitored can be found in Appendix A.

The counts were estimated at locations where counts were not available (synthetic counts). This was necessary to establish a balanced set of counts with which to calibrate the model. The data used for calibration was the average of Tuesday through Thursday peak hour count volumes for the AM and PM models. The peak hours were determined from the peak hour on the mainline (7-8 AM and 4-5 PM). These peak hour counts were then seasonally adjusted using factors derived from average Tuesday – Thursday volumes for the year 2005. A factor was calculated for each month and the average count volumes were revised using the appropriate factor.

Table 2-3

Classification Locations in Rockland County

Location	Direction	Time Period	Date
S. Broadway @ Route 119	NB, SB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
Rt. 119 @ Taxter Road	NB, SB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
<i>Rt 119 @ Depressed Roadway Section</i>	EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
<i>Rt. 119 @ Knollwood Road</i>	NB, SB, EB, WB		
Tarrytown Road @ Central Avenue	NB, SB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
White Plains Avenue @ Anderson Hill Road @ North Westchester Avenue	NB, SB, WB	6:30 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
White Plains Avenue @ South Westchester Ave	NB, SB, EB	6:30 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
Bryant Avenue @ North Street	NB, SB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
Webb Avenue @ Westchester Avenue	NB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
New York Post Rd. (Route 22) @ Mamaroneck Avenue	NB, SB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05

Table 2-4

Classification Locations in Westchester County

Location	Direction	Time Period	Date
S. Broadway @ Route 119	NB, SB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
Rt. 119 @ Taxter Road	NB, SB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
Rt 119 @ Depressed Roadway Section	EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
Rt. 119 @ Knollwood Road	NB, SB, EB, WB		
Tarrytown Road @ Central Avenue	NB, SB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
White Plains Avenue @ Anderson Hill Road @ North Westchester Avenue	NB, SB, WB	6:30 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
White Plains Avenue @ South Westchester Ave	NB, SB, EB	6:30 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
Bryant Avenue @ North Street	NB, SB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
Webb Avenue @ Westchester Avenue	NB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05
New York Post Rd. (Route 22) @ Mamaroneck Avenue	NB, SB, EB, WB	6:00 – 9:00 AM, 4:00 – 7:00 PM	11/17/05

2.2.1.5 Speeds and Travel Times

Speed and travel time data were collected along the corridor during over the years (2006, 2008, 2009 and 2010). It was observed that the variation of travel time and of speeds varied significantly, which is the case with the corridor. Therefore data was compiled over the many runs conducted and consolidated to form a travel time and speed dataset to compare to. The results of the validation effort are presented in the following segments.

2.2.2 Calibration Methodology

2.2.2.1 Travel Demand to Microsimulation Origin-Destination Conversion

Microsimulation results are highly sensitive to the amount by which the demand exceeds the capacity of the facility. It is therefore vital that realistic demand forecasts be used in the analysis. The Paramics O-D matrices are derived from a post-process performed on the BPM O-D matrices known as a sub-area extraction. Figure 2-6 shows the Rockland County network within the corridor (red links), extracted from the BPM.

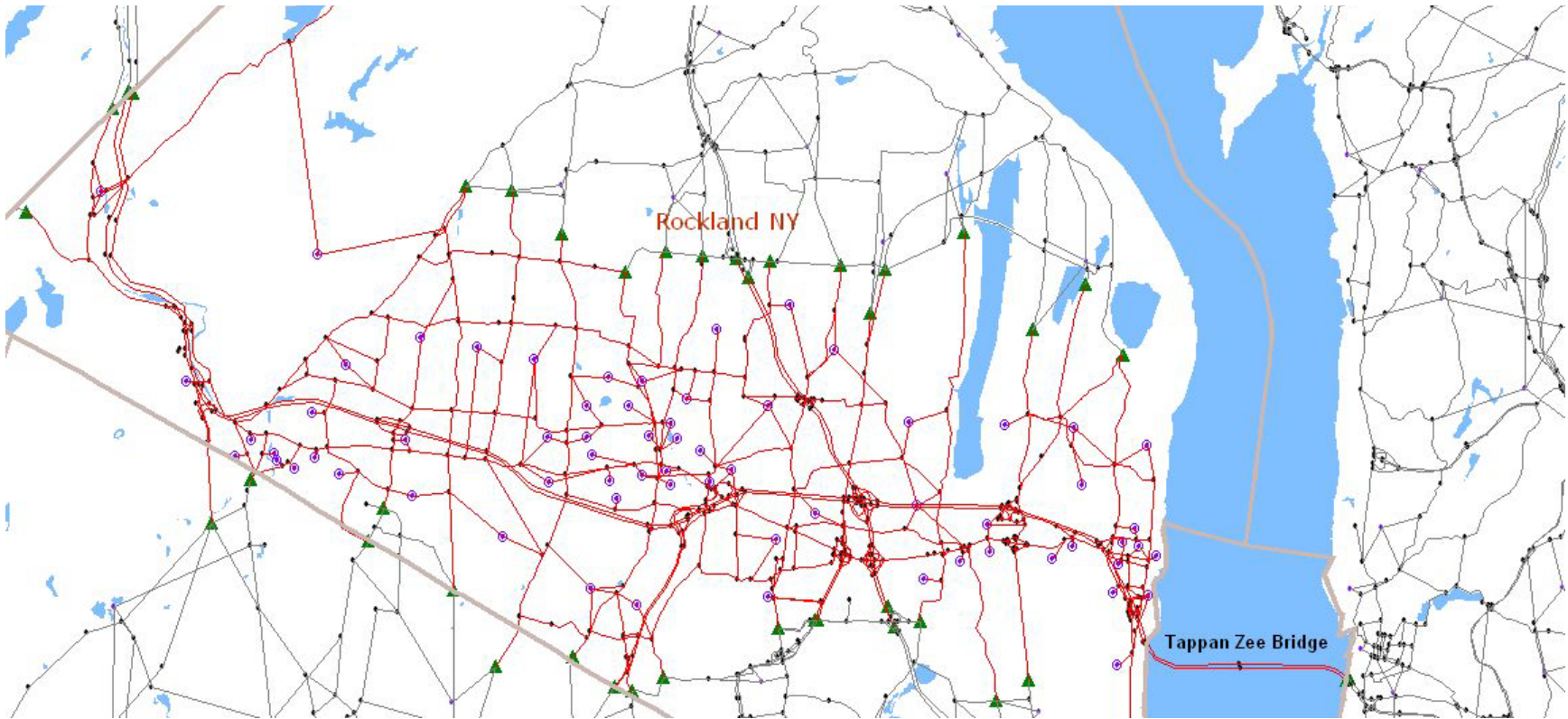
The Regional BPM trip table spans over a four hour peak period and contains 4,000 zones. The sub-area corridor extraction of the Rockland and Westchester networks also produces a subarea trip table that reduces the number of zones to the hundreds, which is more in-line with the number of Paramics zones. The subarea trip tables contain (1) external and internal zones, which refer to zones that serve as cordon points to areas outside the subarea, and (2) traffic generators and attractors within the corridor. Once the subarea is extracted, the following procedure was adopted to convert from 4-hour to hourly trip tables and also to a demand that is in line with traffic operations as opposed to travel demand. This latter step is required since travel demand models such as the BPM tends to allow traffic volumes greater than the capacity of a street, since they measure demand rather than capacity-constrained through-put. However, traffic operations models such as Paramics could fail quite quickly under these conditions, since they must address the network's traffic impedances -- traffic lights, left turn lanes, etc. In order to adjust the origin-destination tables to more realistic traffic demands, the following outlined steps, to manually reduce forecasted demands in the study area, was adopted.

Input:

- Paramics base year (one hour) trip table
- BPM base year (four hour) trip table (through Subarea extraction)
- BPM future year (four hour) trip tale (through Subarea assignment)
- BPM to Paramics zone equivalency table
- Lane capacity for links connecting external and internal simulation zones from BPM.

Process: Super zones were created along the corridor to be able to effectively apply BPM growth (across alternatives) to the Paramics trip tables. A super-zone is a zone structure that contains multiple BPM and Paramics zones.

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Figure 2-6 Paramics Model Areas within Rockland County (Red Links)

The growth of traffic to nodes belonging to the same super-zone is assumed to be similar in the future. For example, the Rockland traffic simulation corridor is split into 12 super-zones (Figure 2-7) Super-zone 3 contains all BPM/Paramics nodes connecting Westchester (Figure 2-8). Super- zone 9 contains BPM/Paramics nodes connecting Orange through PIP. Zone 2 contains BPM/Paramics nodes connecting Orange through I287.

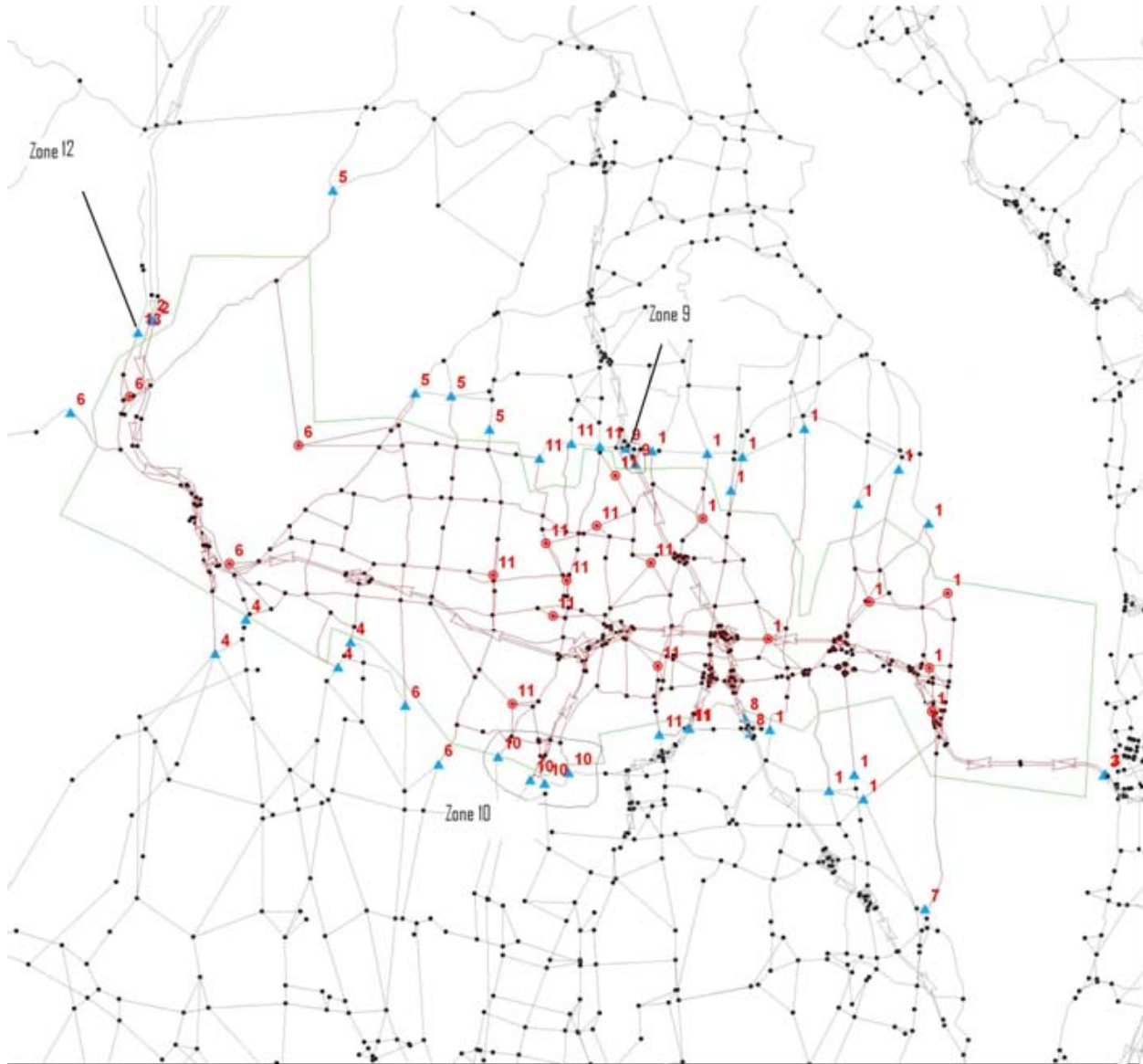


Figure 2-7 Paramics Super-Zones – Rockland County

Growth Calculation: the absolute growth between BPM nodes (AB_BPM = ‘Future year trips from Node B to Node A’ minus ‘Base year trips from Node B to Node A’)

The BPM absolute growth is added to the Paramics base year one hour trip table. For example, BPM zone A corresponds to Paramics nodes a, b, and c; BPM zone B corresponds to Paramics nodes d, and e. Let’s say AB_BPM=350. And base year Paramics trips from a, b, c to d and e are 30, 20, 0, 30, 0, 20 respectively. The allocation of these new trips was performed as indicated in Table 2-5:

Table 2-5

BPM-Paramics Allocation of Trips

BPM					Paramics					
From	To	Base	Future	New Trips	From	To	Base Trips	% weight	New Trips	Future Trips
A	B	400	750	350	a	d	30	30/100	105	135
					a	e	20	20/100	70	90
					b	d		0/100	0	0
					b	e	30	30/100	105	135
					c	d		0/100	0	0
					c	e	20	20/100	70	90
Total							100	100%	350	450

In this example, there are 20 base year trips from a to e in Paramics, which corresponds to 20 percent of trips from A to B based on the Paramics trip table. Therefore, 20 percent of future new trips will be assigned from a to e.

Up to this point, the future Paramics trips generated are 4-hour trips, which need to be converted to 1-hour trips. The conversion is done by multiplying the result from the above process by a conversion factor. The formula for conversion factor is as below:

Where C_{ij} is conversion factor for trips from super-zone i to super-zone j ; B_{ij} is the aggregated base year Paramics trips from super-zone i to super-zone j ; A_{ij} is aggregated base year BPM trips from super-zone i to super-zone j .

The 4-hour Paramics future trips were then multiplied by the conversion factor to obtain a 1-hour trip. This result was then further adjusted to reflect highway capacity constraints.

Initial Paramics runs of the network showed a number of locations where unable enter the network from the origin zone, indicating a capacity constraint on the entering links. A combination of capacity constraints and diversions where available were used to enable the broader network to absorb the higher future demand volumes. Therefore, external trips entering the corridor at such locations were constrained to the capacity of the link used to enter that section of the corridor. Where possible, further manual adjustments to traffic assignment were made based on engineering judgment and local knowledge of the traffic conditions in the area. For example, some of the New Jersey bound traffic heading south on I-87 (Thruway in Rockland County) were diverted onto Route 17.

2.2.2.2 Geometric Enhancements

To meet the requirements of such a complex model, it is important to represent the real world geometric conditions and attributes of the network. These can be separated in the Paramics framework as node attributes and link attributes.

Before the improvements to the node attributes were started it was important to enhance the node skeleton structure (the number of nodes and their geographical location) so that the proper street network including curves, ramps and complex lane configurations could be modeled. With the appropriate number of nodes and location of those nodes the link curves and attributes were modified to correctly represent the real world conditions. This was done by using data provided by aerial photography, network curb line geometric data, and field site visits.

The link attributes were modified in the following order:

1. Number of lanes.
2. Posted speeds.
3. Classification (Highway, Urban Major, Urban Minor).
4. Match up curvature to CADD file data.

A set of categories were set up in Paramics to help correctly identify and classify the streets based on the number of lanes, speed and classification of the streets. With the proper classification of the links, the routing of vehicles in the model is a better representation of the real world paths. Next each link's curb points were adjusted to best fit the curves and curbs from the aerial photography and an AutoCAD drawing. The importance of matching these points was prioritized with areas outside the half mile area from the main routes getting less attention to detail.

Following the completion of the geometric changes to the network links, the node attributes could be improved. These improvements included the correct coding of the signal timings, lane utilization (auxiliary lanes, ramps, turn bays, etc.), improved stop line locations including stacked left turns. It was important to make minor adjustments to intersection signal timings to insure that the correct capacity was being given for each intersection and that artificial choke points in the network were not created.

With the nodes and links properly coded, a check of the network calibration was performed to check that the enhancements had been correctly entered and that the zone to zone vehicle routes based on the Paramics costs made sense. To adjust certain routes some localized link cost factors were added to the network.

2.2.2.3 Calibration Targets

The objective of the model calibration is to insure a reasonable correlation between observed data and the modeled traffic conditions. In order to complete this task, a set of calibration targets needed to be set. The targets chosen were based on the FHWA "Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software", and from previous studies conducted by Wisconsin DOT. It should be noted that these are only guidelines. The major parameters that were validated against observed data included the following:

- Modeled volumes

- Travel Times/Speeds
- Bottlenecks/Queuing

The most rigorous validation criterion is the comparison of modeled and observed volumes. When the modeled values are compared against the observed targets at the same location, the difference between these numbers must be within an acceptable tolerance. Typically percent difference has been used to calculate the acceptable tolerance but since percent difference does not account for the relative importance of high vehicle counts (for example percent difference of 10 percent for a volume of 50 vehicles is 5 vehicles and for 5000 vehicles is 500), the tolerance level is determined by the GEH statistic. The GEH statistic is calculated using the following equation:

GEH Statistic:
$$\sqrt{\frac{M - C}{M + C}}$$

Where: M = Modeled Flow (vehicles / hour)

C = Observed Flow (vehicles / hour)

Using the WISDOT and FHWA adopted criteria, 85 percent of the individual critical links in the model must have a GEH of 5 or less. For this study's purpose the critical links were identified as the mainline and interchange ramp count locations. As shown in Rockland County and Westchester county calibration sections of the document the model was able to meet the criteria. Key arterial and local street counts were identified as secondary locations and although the validation of these locations was not required they are presented as part of the calibration. It should be noted that for many of the existing and previous large scale micro-simulation models within the five boroughs and other urban regions a target of 85 percent of GEH of 5 or less is rarely met and that criteria is often lowered.

Speeds and travel times were matched as closely as possible and the results of the comparison are presented in the sections below. Another validation measure that was compared with the travel demand model, which served as a reference was overall distribution of trips. Visual inspection of traffic speed-flow relationships and queuing along the corridor serve as an effective auditing tool.

2.2.3 Rockland County Calibration

The Rockland County subarea is shown in Figure 2-9.

On comparing the modeled results with the observed count data, it was determined that the Rockland mainline modeled volume GEH results were well within FHWA guidelines. A sizeable number of Route 59 locations were within a GEH of 5, as seen in the tables below. The projected vs. observed ratios on the crossroads leading up to Route 59 indicate that the difference between modeled and count volumes are substantially different in most locations. However, the magnitude of these volumes is small compared to the mainline and Route 59. Table 2-6 illustrates the level of calibration on the mainlines, as well Route 59. Comparisons of volumes are shown in the appendix.

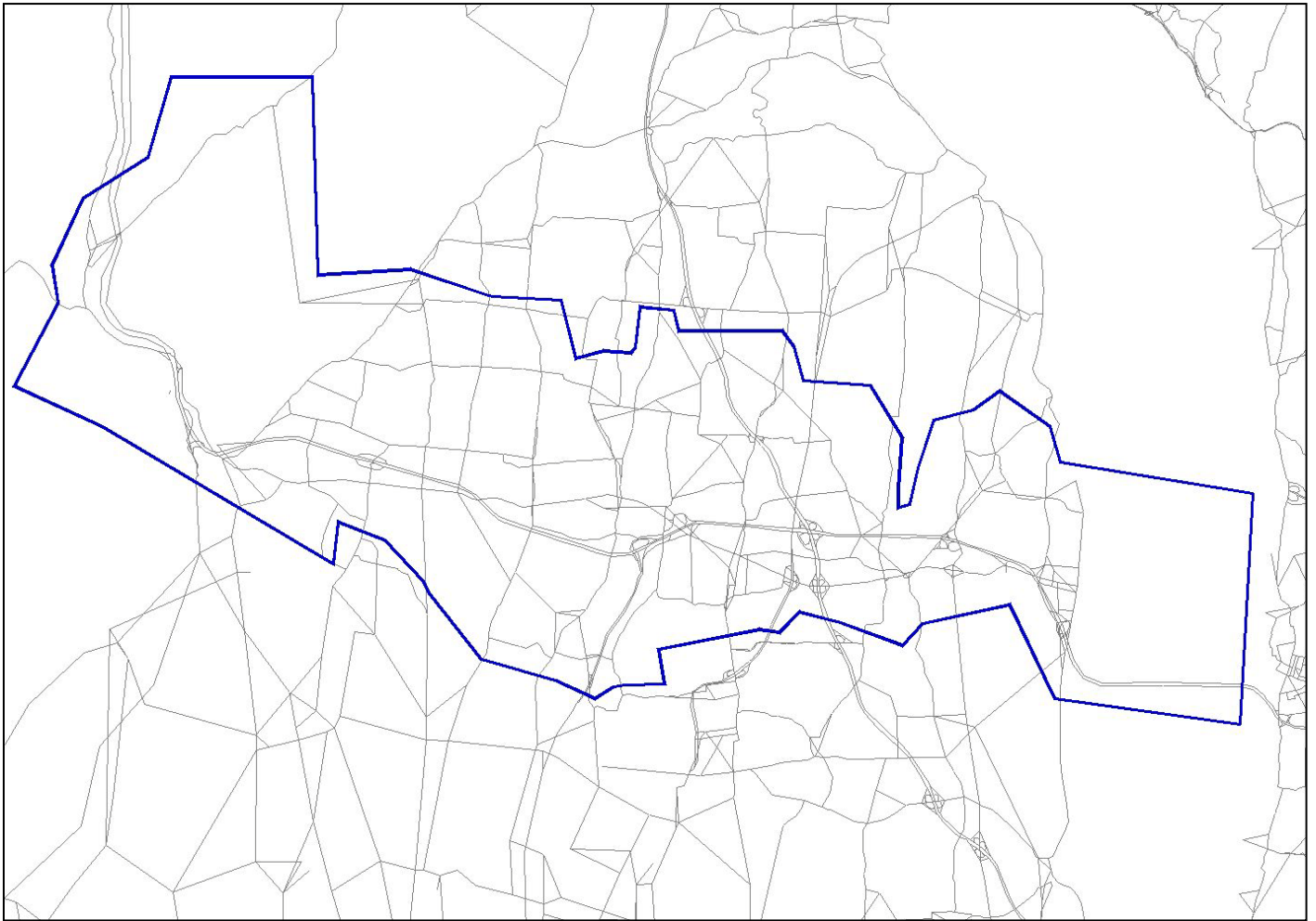


Figure 2-9 Rockland County Subarea Boundary and Network

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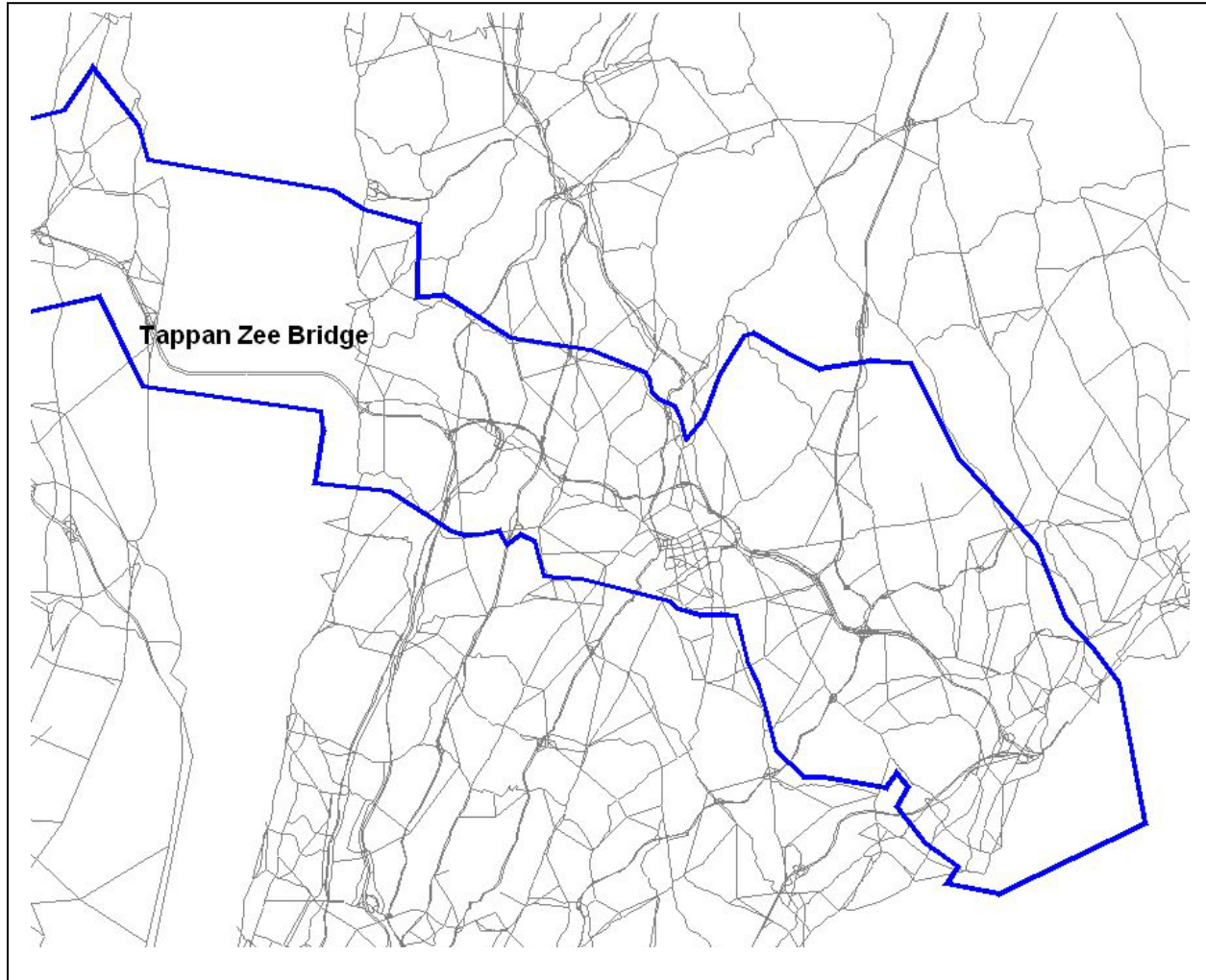
Table 2-6

GEH Aggregate Statistics – Rockland County

	GEH	No. of Locations	Percentage
Eastbound AM			
EB I 287	<5	26	96%
	5 < x < 10	1	4%
	x > 10	0	0%
EB Rt 59	<5	5	56%
	5 < x < 10	4	44%
	x > 10	0	0%
Intersections At Rt 59	<5	3	33%
	5 < x < 10	4	44%
	x > 10	2	22%
Westbound AM			
WB I 287	<5	22	85%
	5 < x < 10	3	12%
	x > 10	1	4%
Rt 59 WB	<5	5	71%
	5 < x < 10	2	29%
	x > 10	0	0%
Eastbound PM			
EB I 287	<5	23	85%
	5 < x < 10	4	15%
	x > 10	0	0%
EB Rt 59	<5	6	86%
	5 < x < 10	0	0%
	x > 10	1	14%
At Rt 59	<5	4	40%
	5 < x < 10	4	40%
	x > 10	2	20%
Westbound PM			
WB I 287	<5	24	92%
	5 < x < 10	2	8%
	x > 10	0	0%
Rt 59 WB	<5	4	57%
	5 < x < 10	3	43%
	x > 10	0	0%

2.2.4 Westchester County Calibration

405 The Westchester County subarea is shown in Figure 2-10.



406
407 **Figure 2-10 Westchester County Subarea Boundary and Network**
408

409 On comparing the modeled results with the observed count data, it was determined that the Westchester
410 mainline modeled volume GEH results were well within FHWA guidelines, as shown in the tables below.
411 Although not to the same degree the route 119 and local counts were also seen to show a satisfactory level
412 of comparison with the observed counts. Table 2-7 illustrates the level of calibration on the mainlines, as
413 well as along Route 119. Comparisons of volumes are shown in Appendix A.

Table 2-7

GEH Aggregate Statistics – Westchester County

Eastbound AM**I-287 Overall GEH Statistics**

GEH < 5	77.0
5 < GEH < 10	10.0
GEH > 10	1.0
GEH < 5 (Percent)	88%
5 < GEH < 10(Percent)	11%
GEH > 10(Percent)	1%

Route 119 Overall GEH Statistics

<5	27
5 < x < 10	6
x > 10	4
I - 287 EB:	
x < 5	73%
5 < x < 10	16%
x > 10	11%

Westbound AM**I - 287 Overall GEH Statistics**

GEH < 5	40.0
5 < GEH < 10	4.0
GEH > 10	1.0
GEH < 5 (Percent)	89%
5 < GEH < 10(Percent)	9%
GEH > 10(Percent)	2%

Table 2-7 (con't)

GEH Aggregate Statistics – Westchester County

Route 119 Overall GEH Statistics

<5	15
5 < x < 10	1
x > 10	1
I - 287 EB:	
x < 5	88%
5 < x < 10	6%
x > 10	6%

Eastbound PM

I-287 EB GEH Statistics

GEH < 5	39.0
5 < GEH < 10	2.0
GEH > 10	2.0
GEH < 5 (Percent)	91%
5 < GEH < 10(Percent)	5%
GEH > 10(Percent)	5%

Route 119 Overall GEH Statistics

<5	17
5 < x < 10	6
x > 10	0
I - 287 EB:	(Percentages)
x < 5	74%
5 < x < 10	26%
x > 10	0%

Table 2-7 (con't)

GEH Aggregate Statistics – Westchester County

Westbound PM

GEH < 5	40.0
5 < GEH < 10	0.0
GEH > 10	4.0
GEH < 5 (Percent)	91%
5 < GEH < 10(Percent)	0%
GEH > 10(Percent)	9%

Route 119 Overall GEH Statistics

<5	13
5 < x < 10	1
x > 10	2
I - 287 EB:	(Percentages)
x < 5	81%
5 < x < 10	6%
x > 10	13%

2.2.5 Speed and Travel Time Validation

2.2.5.1 Rockland County

In comparing the EB and WB travel times and speeds for the mainline Rockland models the results were deemed to be satisfactory. It should be noted that variations between the observed and model results were deemed acceptable do to the daily variation in the area. Further the 2010 no build models were further refined to represent the present day bottlenecks and queuing. Table 2-8 illustrate the level of calibration on the mainlines for the travel times and speeds in Rockland County. No observed data was available for the local street speeds and travel times hence the validation was done on a visual basis, from that process the speeds, queues and overall operations of Route 59 were deemed to be satisfactory.

Table 2-8
Travel Time and Speed Calibration – Rockland County

	Int of 87 & 287	Dist	Travel Time		Speed	
			Observed	Model	Observed	Model
Eastbound						
	N Airmont Road Viaduct	2.34	0:01:57	0:01:57	71.8	67.8
	GSP Overbridge	4.11	0:03:36	0:03:49	68.4	65
Int 12	N. Palisades Overpass Dr	4.49	0:07:01	0:04:52	38.4	57
	West Abutment	2.89	0:03:46	0:03:39	46	48.9
	Before Toll Plaza	2.9	0:04:39	0:03:47	37.4	48.2
	West Abutment	Dist	Travel Time		Speed	
			Observed	Model	Observed	Model
Westbound						
	Mountainview Ave overpass	1.76	0:01:54	0:01:53	55.6	56
Int 13	Palisades park overpass	3.01	0:02:55	0:03:14	61.9	56.1
	GSP Overbridge	2.58	0:04:36	0:02:49	33.7	56.9
	N Airmont Road Viaduct	4.1	0:03:39	0:03:36	67.4	66.6
	Int of 87 & 287	2.32	0:02:08	0:02:02	65.3	69

2.2.5.2 Westchester County

On comparing the speeds and travel time results for the AM and PM Westchester existing models the models results were seen to be a good representation of the observed data. Table 2-9 illustrates the level of calibration on the mainlines for the travel times and speeds. No observed data was available for the local street speeds and travel times hence the validation was done on a visual basis, from that process the speeds, queues and overall operations of Route 119 and Westchester Boulevard were deemed to be satisfactory.

Table 2-9
Travel Time and Speed Calibration – Westchester County

AM I-287 Eastbound											
Segment No.	From	To	Distance (Miles)	AM Peak Travel Time (Minutes)				AM Peak Speed (mph)			
				Observed			Model Estimated	Observed			Model Estimated
				2006	2009	2010		2006	2009	2010	
					(Dec 16)	(Jan 14)			(Dec 16)	(Jan 14)	
1	Exit 9 (to US-9)	Exit 8 (to NYS Thruway)	1.06	0:01:51	0:01:04	0:01:02	0:01:18	34.4	59.5	61.3	45
2	Exit 8 (to NYS Thruway)	Exit 3 (to SBP)	1.38	0:06:26	0:05:35	0:01:30	0:01:31	12.9	14.8	55.4	52.1
3	Exit 3 (to SBP)	Exit 5 (to NY-119)	0.64	0:01:47	0:02:12	0:01:16	0:00:51	21.4	17.3	30	35.2
4	Exit 5 (to NY-119)	Exit 6 (to NY-22)	1.85	0:02:31	0:03:34	0:02:48	0:02:22	44	31	39.6	48.3
5	Exit 6 (to NY-22)	Exit 8W	1.52	0:01:58	0:02:46	0:03:30	0:01:46	46.4	32.9	26	45.6
6	Exit 8W	Exit 9A (to I-684)	1.05	0:01:23	0:02:14	0:01:26	0:01:09	45.8	28.3	44.1	55.2
7	Exit 9A (to I-684)	Exit 9S/N (to HRP)	0.91	0:01:01	0:00:49		0:01:09	54	66.6		56.1
8	Exit 9S/N (to HRP)	Exit 10 (to NY-120)	1.3	0:01:14	0:01:10		0:01:20	63.7	67.4		57.6
9	Exit 10 (to NY-120)	Exit 11 (to US-1)	1.82	0:01:44	0:01:29		0:01:55	63.1	73.5		56.8
AM I-287 Westbound											
Segment No.	From	To	Distance (Miles)	AM Peak Travel Time (Minutes)				AM Peak Speed (mph)			
				Observed			Model Estimated	Observed			Model Estimated
				2006	2009	2010		2006	2009		
					(Dec 16)	(Jan 14)			(Dec 16)		
1	Exit 12 (to I-95S)	Exit 10 (to NY-120)	1.32	0:01:13	0:01:11		0:01:24	64.5	66.3		57.1
2	Exit 10 (to NY-120)	Exit 9N/S (to HRP)	0.93	0:00:52	0:00:50		0:00:59	64	67.1		56.7
3	Exit 9N/S (to HRP)	Exit 9A (to I-684)	1.42	0:01:20	0:01:16		0:01:32	63.8	67.1		56.2
4	Exit 9A (to I-684)	Exit 8 (to Westchester Ave)	0.98	0:01:07	0:00:57		0:01:05	52.6	61.5		55.1
5	Exit 8 (to Westchester Ave)	Exit 6 (to NY-22)	1.75	0:02:04	0:01:48		0:02:45	51	58.4		51.4
6	Exit 6 (to NY-22)	Exit 5 (to NY-100)	1.14	0:01:11	0:01:12		0:01:18	58.3	57.4		53
7	Exit 5 (to NY-100)	Exit 3 (to SBP)	1.43	0:01:27	0:01:19		0:01:37	59.2	65.3		54.4
8	Exit 3 (to SBP)	Exit 1 (to NY-119)	1	0:00:59	0:00:54		0:01:11	61.8	66.8		53
9	Exit 1 (to NY-119)	Exit 9 (to US-9)	1.68	0:01:36	0:01:35		0:01:50	62.6	63.7		56.1



Table 2-9 (con't)

Travel Time and Speed Calibration – Westchester County

AM I-287 Eastbound											
Segment No.	From	To	Distance (Miles)	AM Peak Travel Time (Minutes)				AM Peak Speed (mph)			
				Observed			Model	Observed			Model
				2006	2009	2010	Estimated	2006	2009	2010	Estimated
					(Dec 16)	(Jan 14)			(Dec 16)	(Jan 14)	
1	Exit 9 (to US-9)	Exit 8 (to NYS Thruway)	1.06	0:01:51	0:01:04	0:01:02	0:01:18	34.4	59.5	61.3	45
2	Exit 8 (to NYS Thruway)	Exit 3 (to SBP)	1.38	0:06:26	0:05:35	0:01:30	0:01:31	12.9	14.8	55.4	52.1
3	Exit 3 (to SBP)	Exit 5 (to NY-119)	0.64	0:01:47	0:02:12	0:01:16	0:00:51	21.4	17.3	30	35.2
4	Exit 5 (to NY-119)	Exit 6 (to NY-22)	1.85	0:02:31	0:03:34	0:02:48	0:02:22	44	31	39.6	48.3
5	Exit 6 (to NY-22)	Exit 8W	1.52	0:01:58	0:02:46	0:03:30	0:01:46	46.4	32.9	26	45.6
6	Exit 8W	Exit 9A (to I-684)	1.05	0:01:23	0:02:14	0:01:26	0:01:09	45.8	28.3	44.1	55.2
7	Exit 9A (to I-684)	Exit 9S/N (to HRP)	0.91	0:01:01	0:00:49		0:01:09	54	66.6		56.1
8	Exit 9S/N (to HRP)	Exit 10 (to NY-120)	1.3	0:01:14	0:01:10		0:01:20	63.7	67.4		57.6
9	Exit 10 (to NY-120)	Exit 11 (to US-1)	1.82	0:01:44	0:01:29		0:01:55	63.1	73.5		56.8
AM I-287 Westbound											
Segment No.	From	To	Distance (Miles)	AM Peak Travel Time (Minutes)				AM Peak Speed (mph)			
				Observed			Model	Observed			Model
				2006	2009	2010	Estimated	2006	2009		Estimated
					(Dec 16)	(Jan 14)			(Dec 16)		
1	Exit 12 (to I-95S)	Exit 10 (to NY-120)	1.32	0:01:13	0:01:11		0:01:24	64.5	66.3		57.1
2	Exit 10 (to NY-120)	Exit 9N/S (to HRP)	0.93	0:00:52	0:00:50		0:00:59	64	67.1		56.7
3	Exit 9N/S (to HRP)	Exit 9A (to I-684)	1.42	0:01:20	0:01:16		0:01:32	63.8	67.1		56.2
4	Exit 9A (to I-684)	Exit 8 (to Westchester Ave)	0.98	0:01:07	0:00:57		0:01:05	52.6	61.5		55.1
5	Exit 8 (to Westchester Ave)	Exit 6 (to NY-22)	1.75	0:02:04	0:01:48		0:02:45	51	58.4		51.4
6	Exit 6 (to NY-22)	Exit 5 (to NY-100)	1.14	0:01:11	0:01:12		0:01:18	58.3	57.4		53
7	Exit 5 (to NY-100)	Exit 3 (to SBP)	1.43	0:01:27	0:01:19		0:01:37	59.2	65.3		54.4
8	Exit 3 (to SBP)	Exit 1 (to NY-119)	1	0:00:59	0:00:54		0:01:11	61.8	66.8		53
9	Exit 1 (to NY-119)	Exit 9 (to US-9)	1.68	0:01:36	0:01:35		0:01:50	62.6	63.7		56.1

2.2.6 Calibration Conclusions

When validating models as large and congested as the Westchester and Rockland models it is important to remember that the guidelines are just that guidelines and not steadfast rules. Following these guidelines and professional judgments both the Rockland and Westchester AM and PM models were found to be validated for the key areas and capable of being a good tool to compare the No Build scenarios with the various analysis scenarios. As some minor differences were found and the first analysis year was set to 2010 some minor changes were made between the 2005 and 2010 models to insure the 2010 model better represented the correct bottlenecks. These changes included but were not limited the following:

- A better representation of EB and WB congestion on the mainline around interchange 11;
- A more accurate representation of traffic thru white plains;
- Improved toll plaza modeling of the EB toll plaza on the Tappan Zee Bridge; and
- A better correlation between the bridge volumes in the Rockland and Westchester models.

With these improvements the validation both on a quantitative and qualitative sense was seen to be complete and within applicable good-practice guidelines.



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3 Traffic Analyses Results

3.1 Introduction

The calibrated Paramics model was refined to include programmed improvements within the Tappan Zee Bridge/I-287 Corridor and planned DEIS improvements as applicable. Trip tables for each scenario were obtained from individual BPM runs. The trip tables were further adjusted to account for the possible rerouting of trips on parallel roadways, or peak spreading in the future when projected demands exceed hourly capacities. The adjusted trip tables were assigned to the respective Paramics networks and further network adjustments were made to the networks in order to prevent the network from breaking down. A breakdown constitutes unrealistic conditions such as complete gridlock caused by excessive backups, resulting in rerouting choices that would lead to breakdown of the network. In most cases, the simulation does not run through the entire period and will not produce a complete set of results.

3.1.1 Analysis Years and Periods

Traffic analyses were completed for the following periods and scenarios:

- 2010 – Existing Conditions
- 2017 – Estimated Time of Completion (ETC) Year of highway and bridge elements
- 2047 – ETC+30 – Design year for highway/bridge elements and year by which transit elements are expected to be online

All model runs were carried out for the AM (7 to 8) and PM (4 to 5) weekday peak hours.

3.2 Existing Highway Volume and Speed Conditions

The 2010 existing conditions models were seen as the best representation of current real world traffic conditions and included a few modifications between the 2005 and 2010 models. These modifications were listed in Chapter 2 of this report as part of the validation/calibration process.

3.2.1 Detailed Highway Volume and Speed Conditions

The first four graphs in this section show the sectional link volumes and link speeds in the peak period/directions for Rockland County. As shown in Figure 3-1, the AM period in the eastbound direction (the AM peak direction) shows a steady increase in volume in the last section as vehicles approach the bridge. The speed data show that in the eastbound AM peak hour signs of congestion primarily occur around Interchange 13 and Interchange 11. The PM peak hour

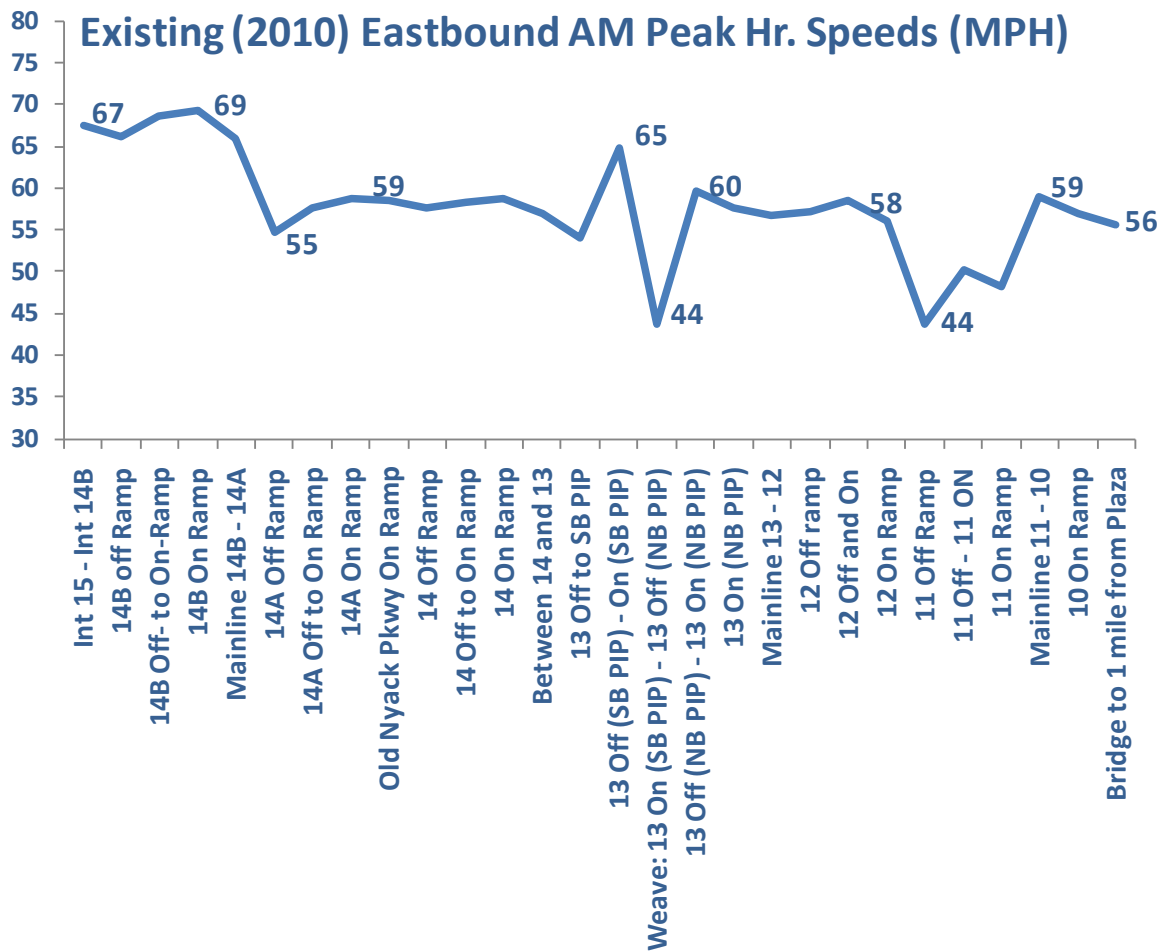
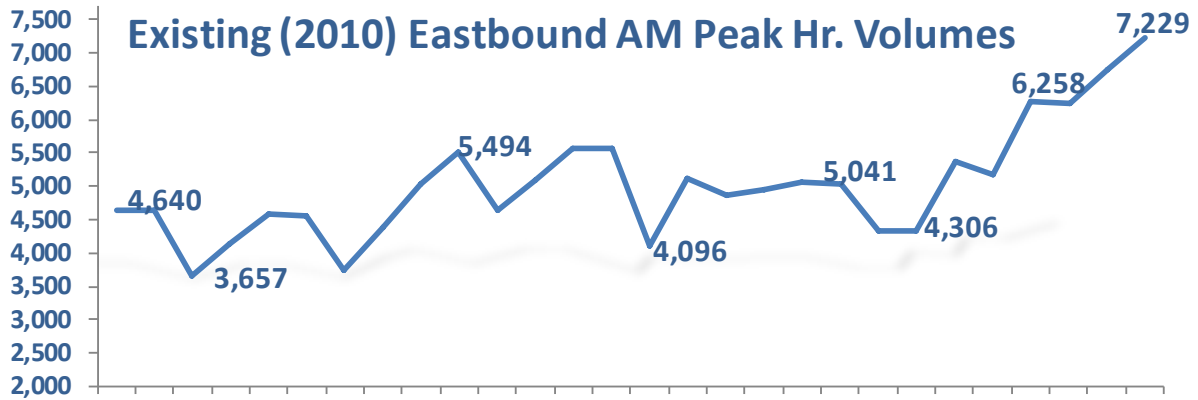


Figure 3-1 Existing (2010) Eastbound AM – Rockland County

westbound direction data (the PM peak direction) in Figure 3-2 show a significant drop in speeds around Interchange 11 and also show a substantial drop in speeds around Interchange 13 (weave-merge area).

The next four graphs show the equivalent link volumes and speeds in the peak directions for Westchester County (Figures 3-3 and 3-4 for Eastbound AM and Westbound PM, respectively). The highway in Westchester is a complex system of closely spaced on and off ramps, which causes the “saw tooth” pattern of volumes and (especially) speeds in that area. While there are no substantial operational problems, these speed and volume fluctuations show the somewhat unstable traffic flows in this segment. The detailed volume and speed data used to generate these charts are included in Appendix C.

3.2.2 Volumes and Speeds by Segment

To better understand and analyze existing and future traffic conditions along the highway, the eastbound and westbound directions were broken down into separate analyses sections to allow the analyst and the reader to focus on speeds and volumes in key segments and effectively smooth out the very detailed speed/volume data presented in the charts presented above and the equivalent tabular data in Appendix C. Figure 3-5 shows the selected segments defined for the highway in Rockland and Westchester while Tables 3-1 and 3-2 show the travel time and person miles of travel (length of segment x average volumes over segment x vehicle occupancy) for these segments for eastbound and westbound conditions in the AM and PM peak hours in Rockland and Westchester Counties, respectively.

The data in these tables also present a “mobility index” that measures how well as segment is moving people under peak traffic conditions, based on a ratio of person miles of travel to travel time (in minutes) over that segment. A given segment’s ratio is best observed in terms of how it changes over time (e.g., 2017 vs. 2047) or under different scenarios (e.g., No Build vs. build). An increase in the ratio means that the segment in question is moving greater amounts of persons with minimal increase (or possibly a decrease) in travel time. This is discussed further under the No Build and build analyses in this report.

3.2.3 Intersection Conditions

Detailed traffic studies were performed at approximately 60 locations across Rockland and Westchester Counties. The information regarding volumes and Levels of Service (LOS) under Existing (2010) conditions and detailed intersection analysis results for Existing Conditions are included in Appendix C of this report.

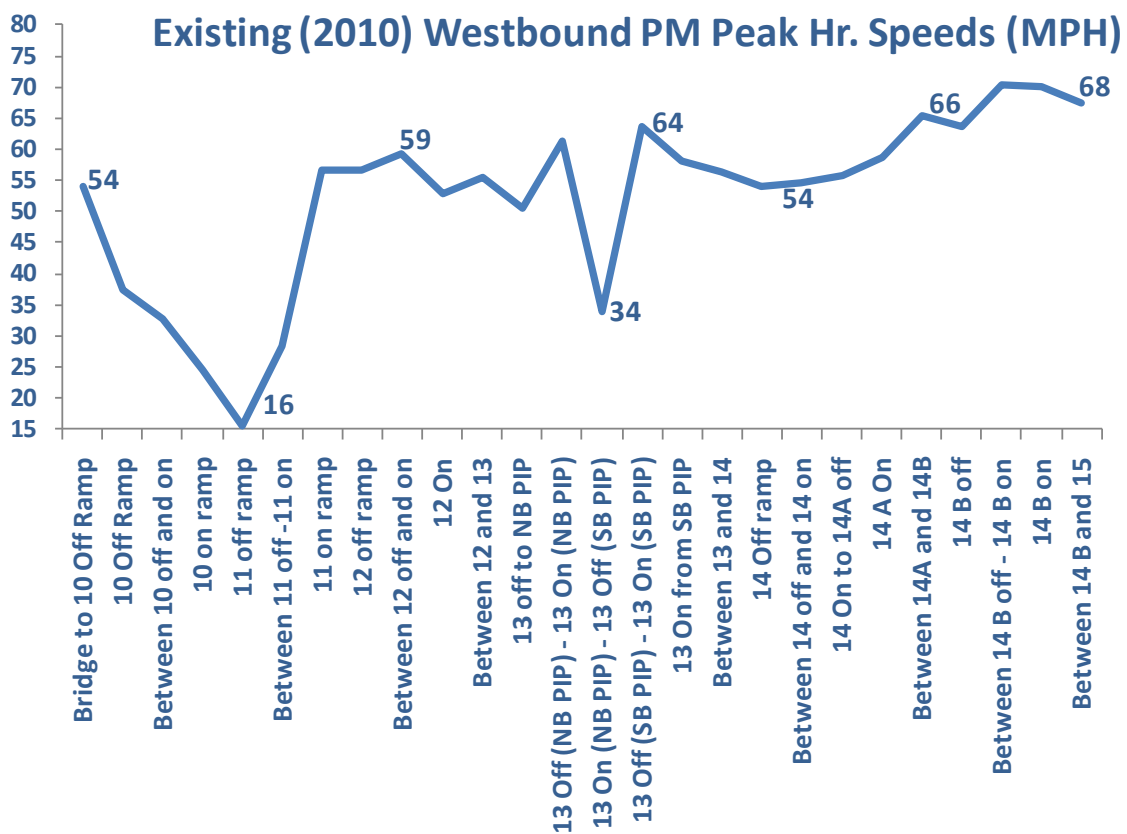
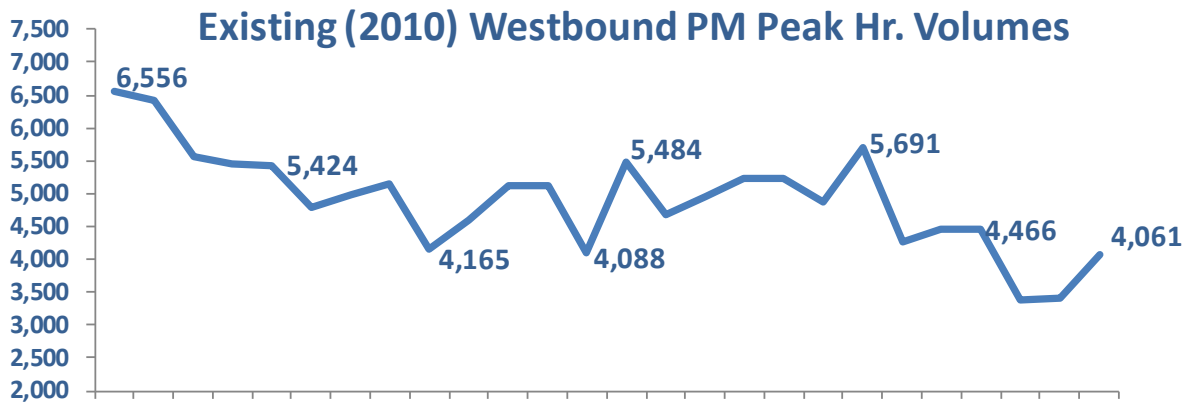


Figure 3-2 Existing (2010) Westbound PM – Rockland County

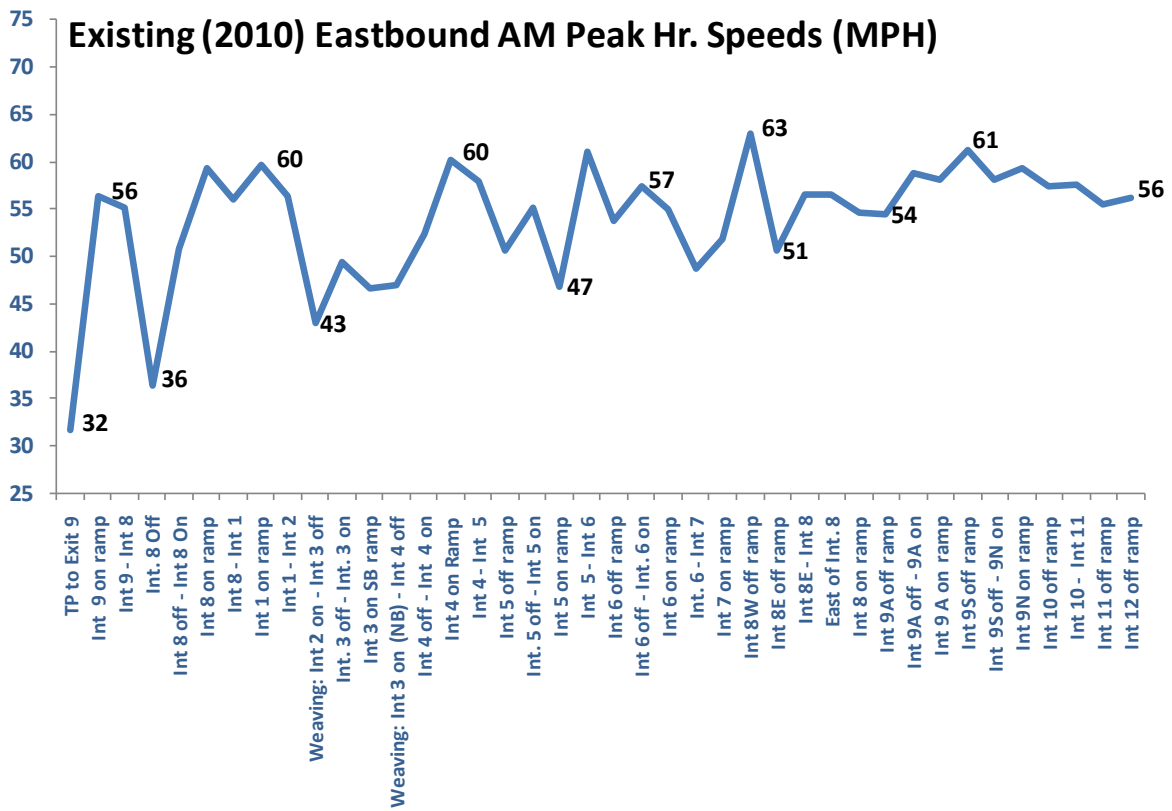
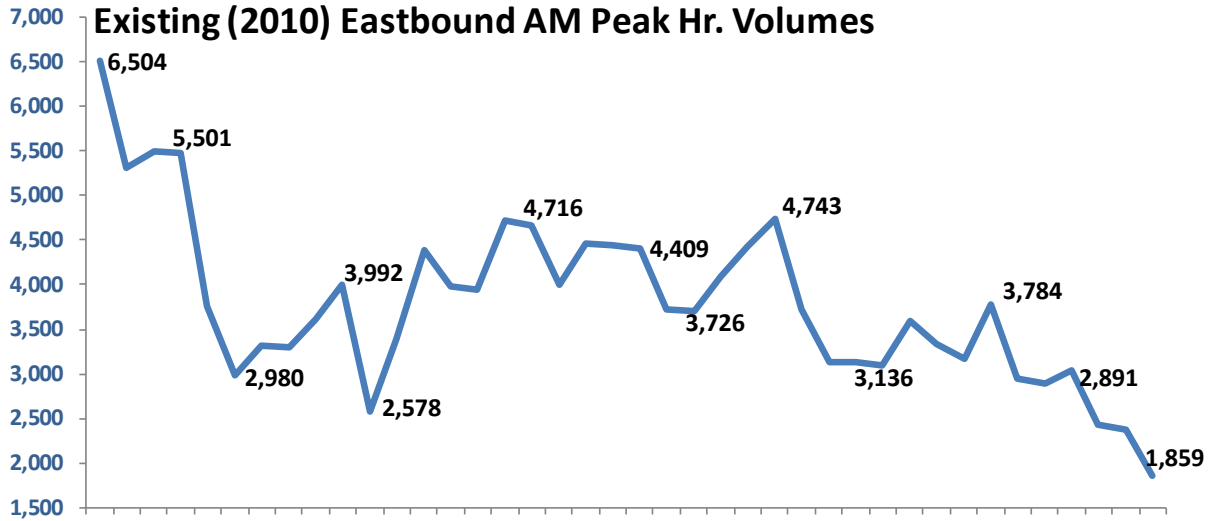


Figure 3-3 Existing (2010) Eastbound AM – Westchester County

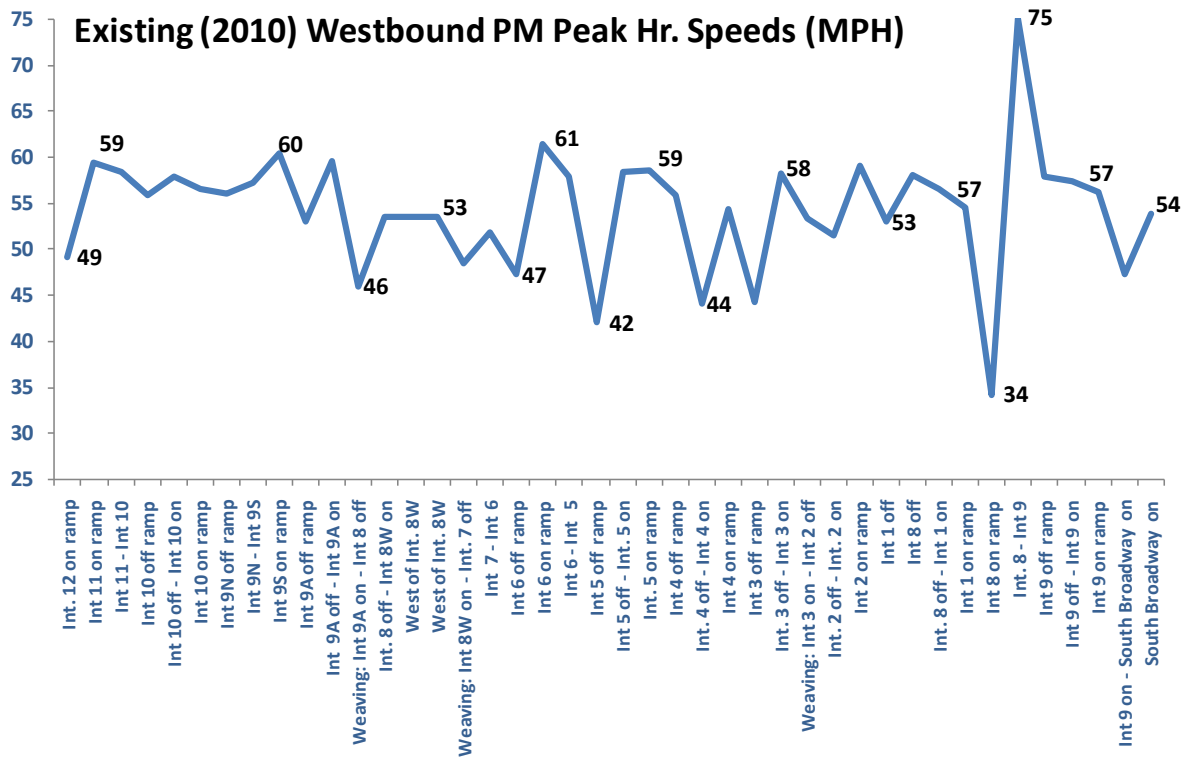
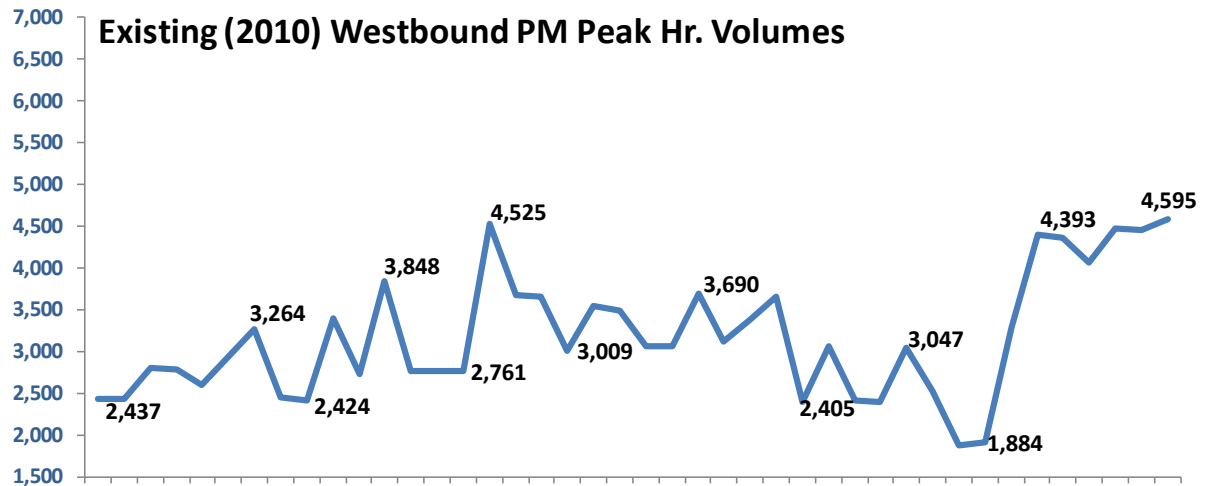


Figure 3-4 Existing (2010) Westbound PM – Westchester County

Traffic Analyses Results 3-7

Table 3-1

Person Miles of Travel, Travel Time (Minutes) and Mobility Indices for Eastbound and Westbound Highway Segments: Westchester County - AM and PM Peak Periods, Existing (2010)¹

Westchester Eastbound	Length	AM PEAK HOUR			PM PEAK HOUR		
		Travel Time	PMT	Mobility Index	Travel Time	PMT	Mobility Index
Toll Plaza to Exit 8	1.1	1.5	7,662	5.3	1.3	5,261	4.2
Exit 8 to 2 On Ramp	1.6	1.7	6,672	3.8	1.6	5,213	3.2
2 On Ramp to 4 On Ramp	1.2	1.5	5,415	3.7	1.4	6,239	4.4
4 On Ramp to 6 On Ramp	2.0	2.2	10,064	4.6	2.1	10,657	5.1
6 On Ramp to 8 On Ramp	1.8	2.0	8,333	4.2	2.0	8,405	4.3
8 On Ramp to 9N On Ramp	2.4	2.4	8,864	3.6	2.4	7,098	2.9
9N On Ramp to 12 Off Ramp	2.1	2.2	5,969	2.7	2.2	5,550	2.5
Toll Plaza to Int. 12 Off Ramp	12.2	13.4	52,981	3.9	13.0	48,423	3.7
Westchester Westbound	Length	AM PEAK HOUR			PM PEAK HOUR		
		Travel Time	PMT	Mobility Index	Travel Time	PMT	Mobility Index
12 On Ramp to 9N Off Ramp	2.2	2.3	4,893	2.1	2.3	7,425	3.2
9N Off Ramp to 8 Off Ramp	2.4	2.6	6,283	2.5	2.6	8,076	3.2
8 Off Ramp to 6 On Ramp	2.0	2.2	5,446	2.5	2.3	7,769	3.4
6 On Ramp to 4 Off Ramp	1.7	1.8	4,316	2.4	1.9	6,845	3.7
4 Off Ramp to 2 On Ramp	1.5	1.7	4,277	2.5	1.7	5,292	3.1
2 On Ramp to 8 On Ramp	0.9	1.1	1,894	1.8	1.1	2,552	2.4
8 On Ramp to Bridge	2.1	2.1	6,476	3.0	2.2	11,220	5.1
12 ON Ramp to Bridge	12.9	13.8	33,585	2.4	14.0	49,178	3.5
¹ Mobility Index is based on ratio of person-miles of travel and travel time for each segment. Source: NYSDOT							

Table 3-2

Person Miles of Travel, Travel Time (Minutes) and Mobility Indices for Eastbound and Westbound Highway Segments: Rockland County - AM and PM Peak Periods, Existing (2010)¹

Rockland Eastbound	Length	AM PEAK HOUR			PM PEAK HOUR		
		Travel Time	PMT	Mobility Index	Travel Time	PMT	Mobility Index
15 On Ramp to 14 B On Ramp	2.6	2.3	13,867	6.0	2.3	7,973	3.5
14B On to 14A Off Ramp	3.1	3.0	17,209	5.8	2.9	11,549	4.0
14A Off Ramp to 14 On Ramp	1.5	1.6	8,764	5.5	1.6	7,243	4.6
14 On Ramp to 13 On Ramp from NB PIP	1.9	2.2	12,873	5.8	2.2	10,193	4.7
13 On Ramp from NB PIP to 11 On Ramp	2.6	2.9	15,654	5.3	2.7	11,162	4.1
11 On Ramp to Middle of bridge	3.7	3.8	29,940	7.8	3.8	16,663	4.4
15 On Ramp to Middle of bridge	15.6	15.8	98,308	6.2	15.4	64,784	4.2
Rockland Westbound	Length	AM PEAK HOUR			PM PEAK HOUR		
		Travel Time	PMT	Mobility Index	Travel Time	PMT	Mobility Index
Middle of Bridge to 11 Off Ramp	4.4	4.6	20,674	4.5	6.7	32,938	4.9
11 Off Ramp to 13 Off Ramp to NB PIP	2.8	3.4	14,338	4.3	3.5	18,243	5.2
13 Off Ramp to NB PIP to 14 Off Ramp	1.9	1.9	9,202	4.9	1.9	10,292	5.5
14 Off Ramp to 14 A On Ramp	1.5	1.5	6,771	4.4	1.5	8,347	5.4
14 A On Ramp to 14 B off Ramp	3.5	3.2	13,364	4.2	3.2	18,801	5.8
14 B off Ramp to 15 Off Ramp	2.4	2.1	8,034	3.8	2.1	11,172	5.2
Middle of Bridge to 15 Off Ramp	16.5	16.6	72,383	4.4	19.0	99,793	5.3
[1] Mobility Index is based on ratio of person-miles of travel and travel time for each segment. Source: NYSDOT							

3.3 No Build Conditions

3.3.1 Programmed Improvements (Rockland and Westchester Counties)

In order to properly model the 2017 and 2047 No Build conditions, the simulation modes had to reflect any planned highway or roadway improvements from the TIP. From the data provided by the various agencies the following list of committed projects were included in the 2017 and 2047 models for Rockland and Westchester Counties.

3.3.1.1 Rockland County (assumed to be in place by 2017)

- Germonds Road Palisades Interstate Parkway Ramps - Intersection reconstruction
- Route 306@ Maple Avenue- Right turn lanes
- College Road @ High view Road Left turn lanes

3.3.1.2 Westchester County (assumed to be in place by 2017)

- Project 872966: NYSDOT - I-287/CWE Exit 8E/Westchester Avenue: Improve interchange per Westchester Avenue Study Recommendations. Coordination with pin 8729.30 design for implementation with CWE Stage 4. City of White Plains.

3.3.2 Analysis Assumptions

Throughout the modeling process a number of assumptions were made for the 2017 and 2047 No Build networks these assumptions are as follows:

- The EB bridge volumes would be controlled by the Rockland models and the WB bridge volumes would be controlled by the Westchester models. This allowed for the conditions in the key directions to dictate, based on capacity, the demand entering Rockland and Westchester from the bridge. This eliminated any issues that would be caused by the lack of capacity or peak hour constraining on the BPM demand results.
- Traffic signals were fine tuned to insure that signal timing was not the cause of unrealistic congestion.
- No new technologies for the toll plaza would be applied and that under the NB conditions the plaza would remain the same with a similar configuration and wait times.
- TIP projects were added to the models based on the latest available information and plans.
- Rockland EB entering demand west of interchange 15 was capped to represent the capacity constraints of I-87.

3.3.3 No Build Traffic Conditions

3.3.3.1 No Build Volumes and Speeds – 2017 and 2047

Rockland County

Rockland County Comparison of Mainline Volumes and Speeds

AM Eastbound

The AM Eastbound direction has also been referred to as the Peak AM direction in the Rockland model. Hence, it is not surprising that there are some significant impacts when analyzing the mainline volumes and speeds. The following bullets and following graphs (Figure 3-6) summarize the findings for the 2017 and 2047 AM eastbound trips:

- The 2017 results do not differ greatly from the 2010 results although a lower speed, signaling heavier congestion was found approaching interchange 11.
- By 2047 there will be a significant increase in demand from the western end of the model.
- The 2017 and 2047 volumes from approximately interchange 13 to interchange 11 are very similar and close to the 2010 volumes. This shows that this section of the mainline is currently at capacity during the AM peak hour.
- The continued increase in demand in 2047 causes a significant EB breakdown, with a negative impact on the speeds starting at interchange 11 and extending back as far as interchange 14A.
- The Interchange 13 bottlenecking can be associated with the weaving section of this interchange.
- East of the Interchange 11 bottleneck speeds rise as the mainline opens up to 4 lanes and allows for more traffic to get thru. The speeds increase more in 2047 than 2017 because of the greater congestion upstream from interchange 11 in 2047 therefore chocking the traffic and resulting in a lower volume on the downstream section immediately following Interchange 11.
- The existing design of the Bridge Toll Plaza constraints the EB volume thru the corridor.

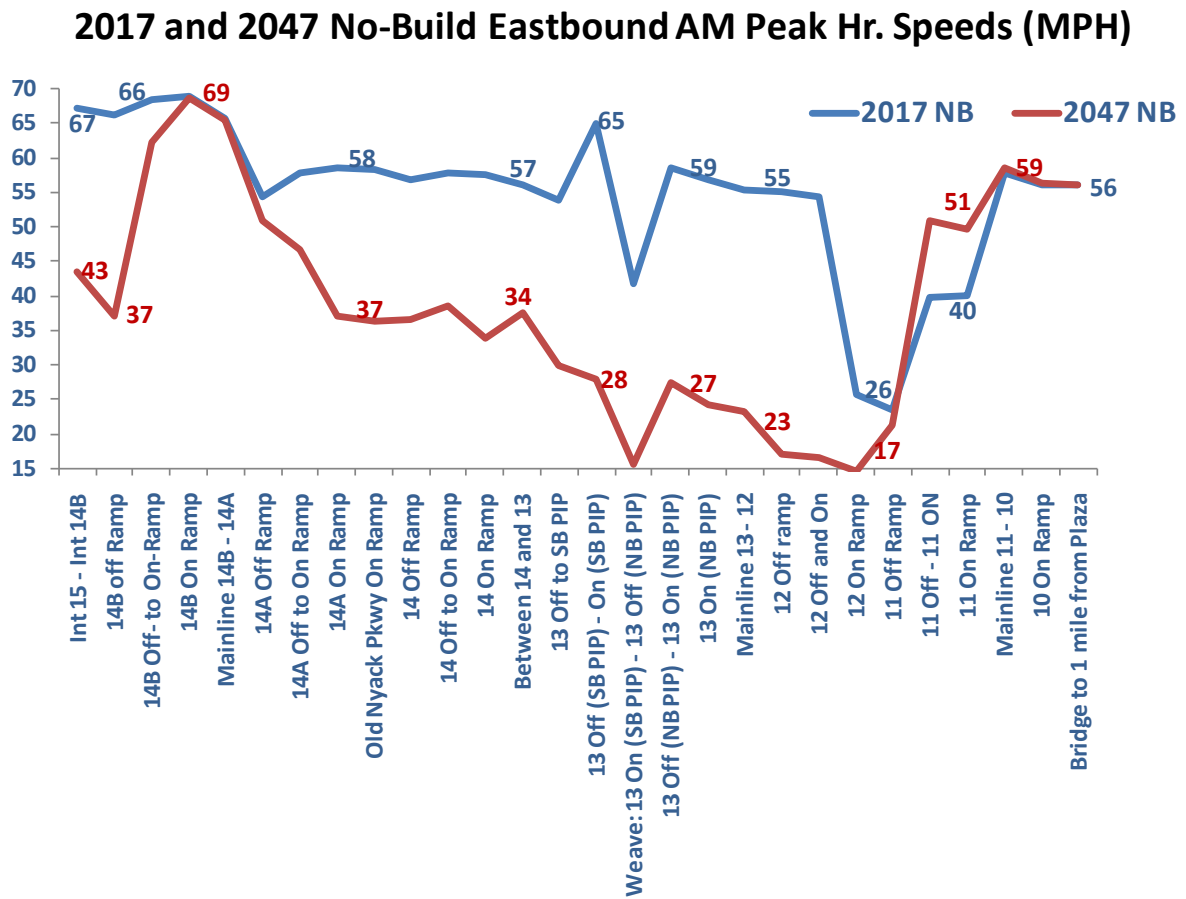
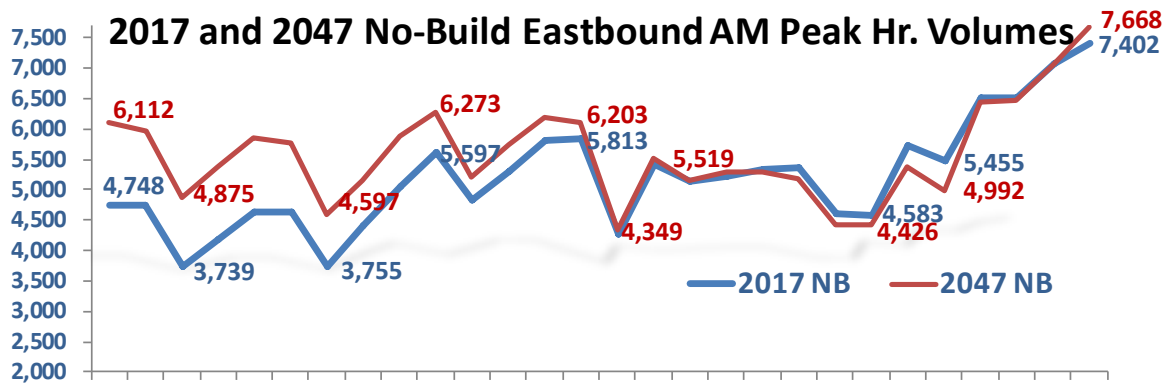


Figure 3-6 2017 and 2047 No Build Eastbound AM – Rockland County

AM Westbound

The AM Westbound direction is the off peak direction in the Rockland model. Hence, it is not surprising that there a significant amount of room for growth in volume. The following bullets and following graphs (Figure 3-7) summarize the findings for the 2017 and 2047 AM Westbound trips:

- The 2017 volumes are only marginally higher than the 2010 volumes.
- The 2047 volumes are significantly higher for the entire length of the corridor.
- The only significant speed difference between the 2017 and 2047 results is at the uphill approach to Interchange 11.
- The weaving section at Interchange 13 causes some turbulence and drops in speed.
- Speeds recover dramatically west of Interchange 13.

Eastbound PM

The PM Eastbound direction is the off peak direction in the Rockland model. Hence, it is not surprising that there a significant amount of room for growth in volume. The following bullets and following graphs (Figure 3-8) summarize the findings for the 2017 and 2047 AM eastbound trips:

- The 2017 volumes are only marginally higher than the 2010 volumes.
- The 2047 volumes are significantly higher for the entire length of the corridor.
- There are only minor differences in speed between the 2017 and 2047 models.
- The weaving section at Interchange 13 causes some turbulence and drops in speed.
- There is a small drop in speeds at the approach to interchange 11.
- The bridge does not act as a capacity constraint for vehicles leaving Rockland County.

Westbound PM

The PM Westbound direction has also been referred to as the Peak PM direction in the Rockland model. Hence, it is not surprising that there are some significant impacts when analyzing the mainline volumes and speeds. The following bullets and following graphs (Figure 3-9) summarize the findings for the 2017 and 2047 AM westbound trips:

- Due to capacity constraints the volumes from the bridge to Interchange 13 are similar for both the 2017 and 2047 conditions.
- The 2047 speeds drop considerably between the bridge and Interchange 13 with further drops around 14 A and 14 B when compared to the 2017 conditions.
- West of Interchange 13 has very little capacity or congestion issues in 2017 and only minor ones in 2047.
- The traffic metering effects in the eastern half of Rockland reduce the likelihood of any major impacts west of interchange 13.

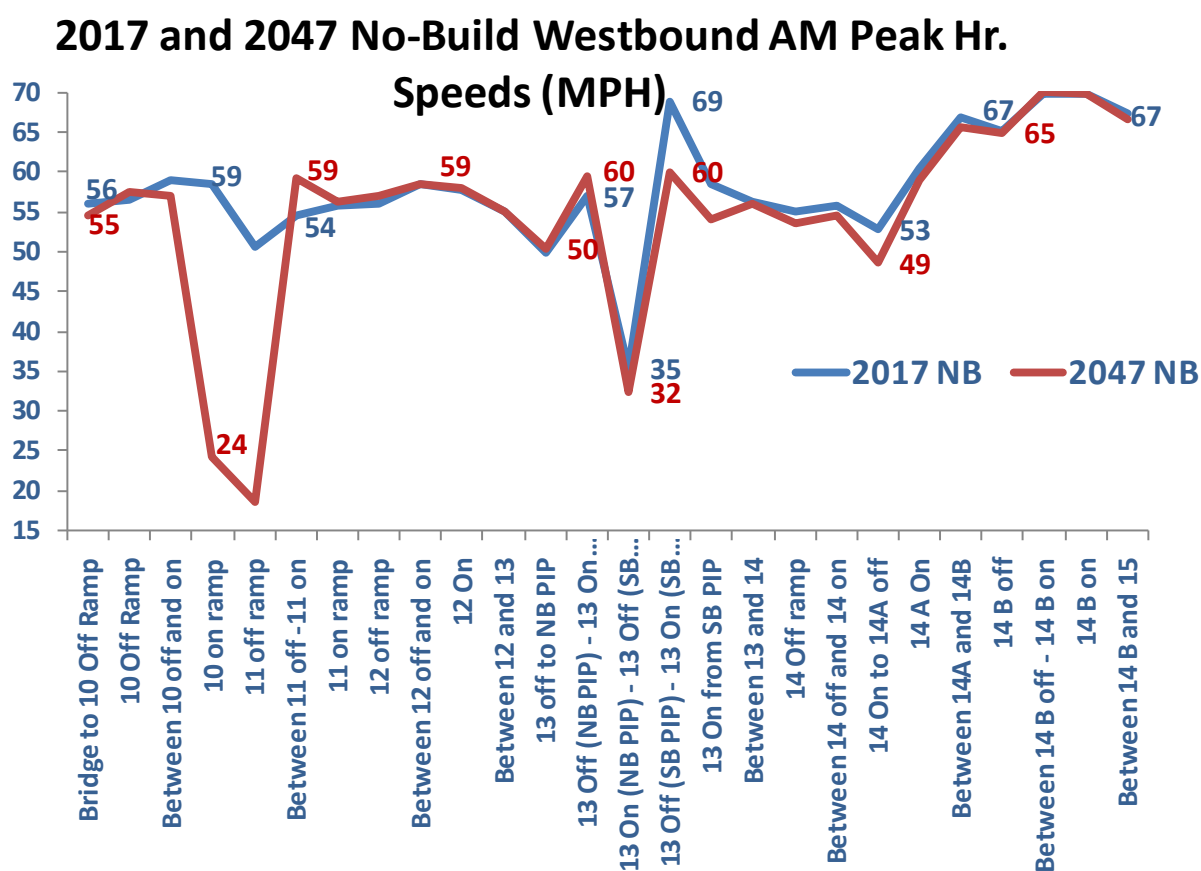
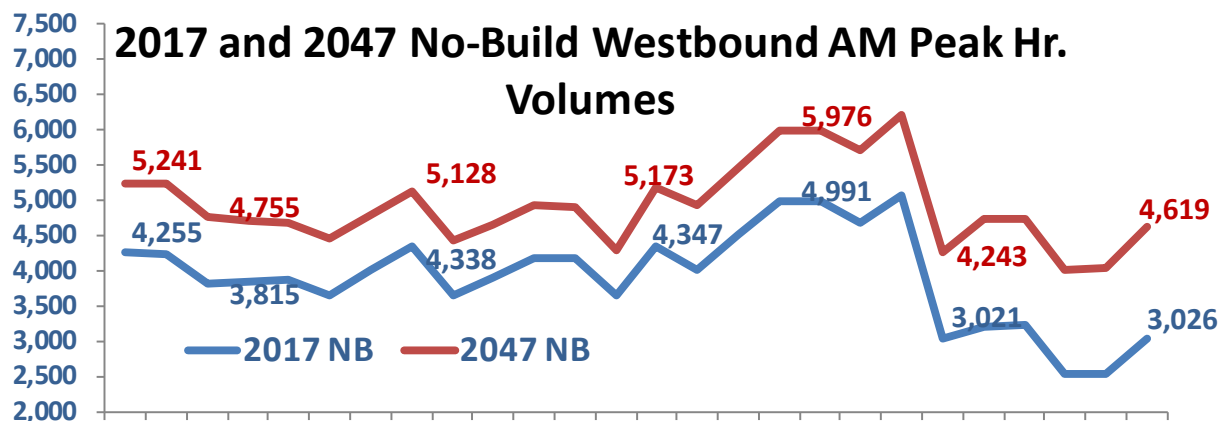
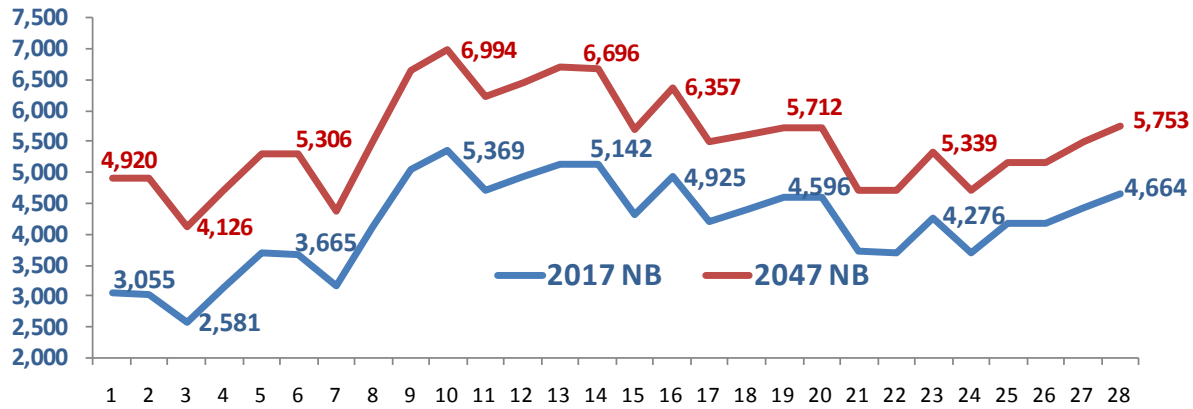


Figure 3-7 2017 and 2047 No Build Westbound AM – Rockland County

2017 and 2047 No-Build Eastbound PM Peak Hr. Volumes



2017 and 2047 No-Build Eastbound PM Peak Hr. Speeds (MPH)

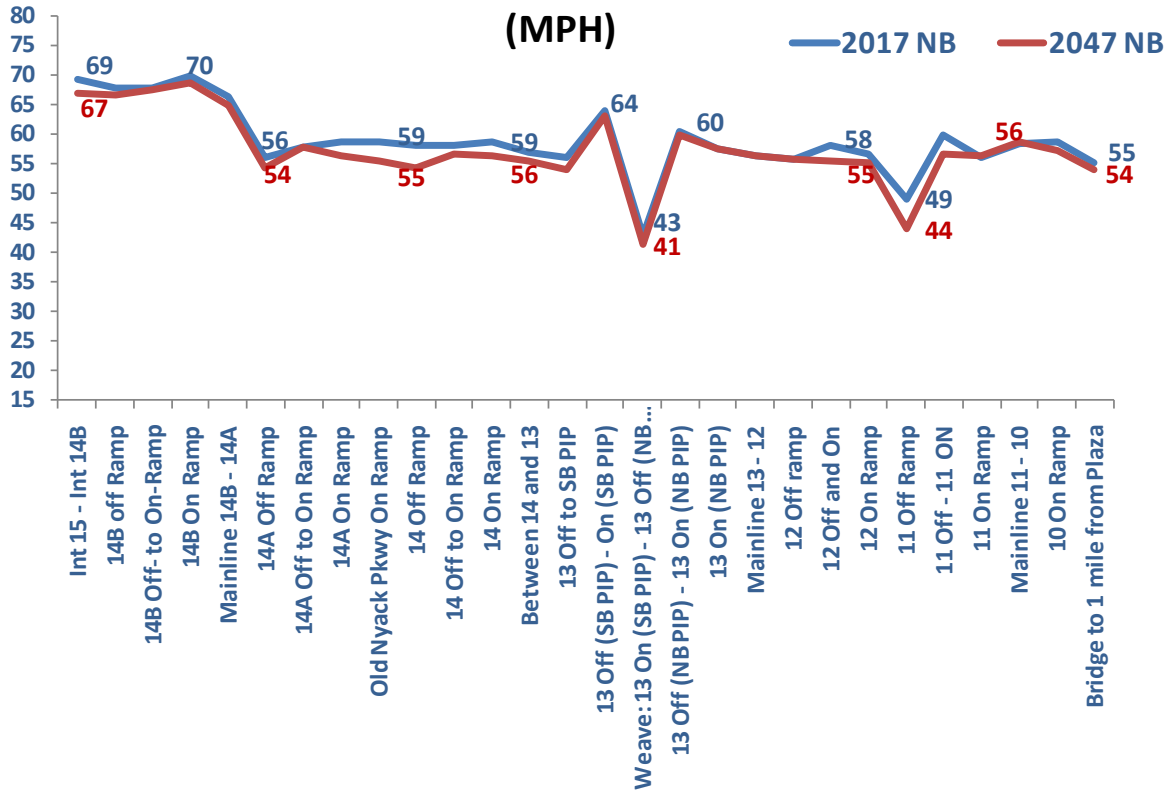
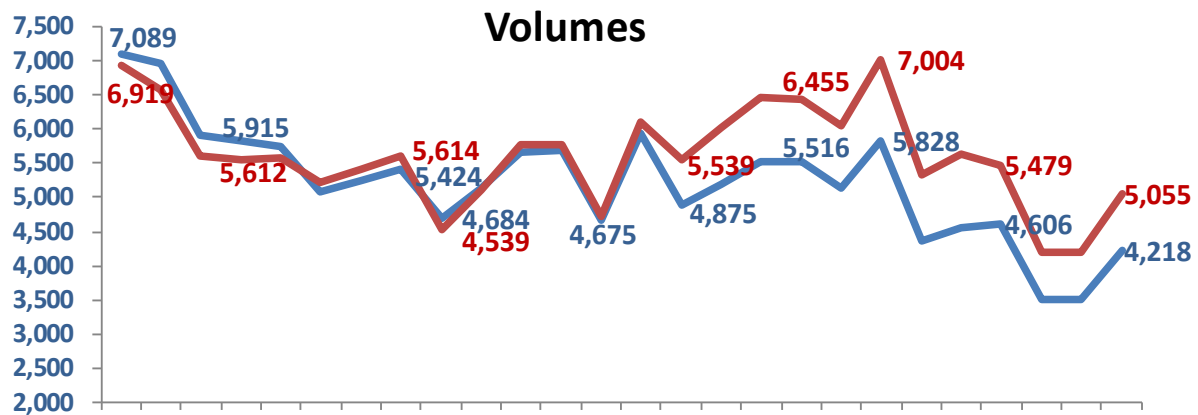


Figure 3-8 2017 and 2047 No Build Eastbound PM – Rockland County

2017 and 2047 No-Build Westbound PM Peak Hr.



2017 and 2047 No-Build Westbound PM Peak Hr.

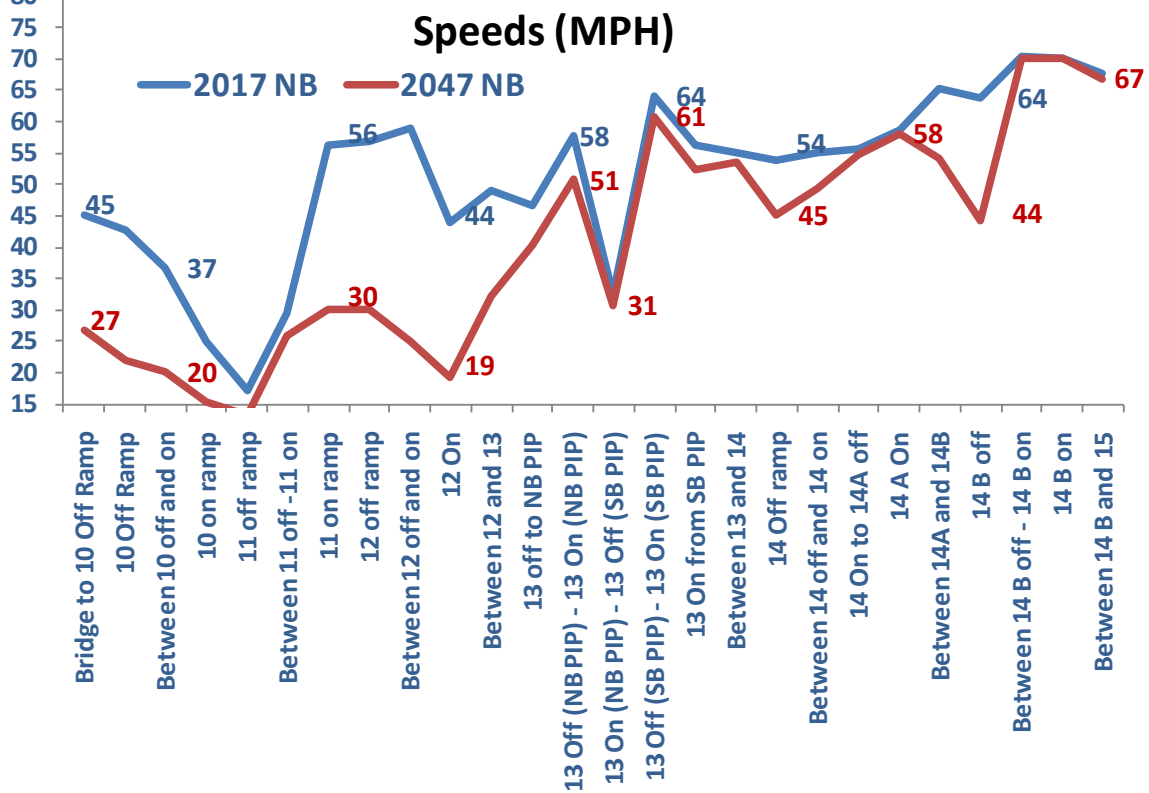


Figure 3-9 2017 and 2047 No Build Westbound PM – Rockland County

Rockland County PMT, Travel Time and Mobility Index

Table 3-3 presents the PMT, travel time and mobility index values in existing (2010) and 2017 and 2047 No Build conditions in the AM and PM peak hours in the eastbound and westbound directions for Rockland County. Data are shown for the same eastbound and westbound highway segments that were defined in Section 3.2 above. These results clearly show the worsening of congestion in the two peak periods/directions, most dramatically in 2047.

Rockland County Local Arterials and Signalized Intersections

The summary of the locations and the various locations where LOS conditions would worsen under 2017 and 2047 No Build conditions in Rockland County at signalized intersections can be found in Appendix C.

Table 3-3
Person Miles of Travel, Travel Time (Minutes) and Mobility Indices for Eastbound and Westbound Highway Segments: Rockland County – AM and PM Peak Periods, Existing (2010) and Alt. A (No Build) in 2017 and 2047¹

Rockland Eastbound - AM Peak	Length	Travel Time			PMT			Mobility Index		
		Existing (2010)	Altern. A		Existing (2010)	Altern. A		Existing (2010)	Altern. A	
			2017	2047		2017	2047		2017	2047
15 On Ramp to 14 B On Ramp	2.6	2.3	2.3	3.2	13,867	14,154	18,126	6.0	6.1	5.6
14B On to 14A Off Ramp	3.1	3.0	3.0	3.0	17,209	17,431	22,052	5.8	5.9	7.3
14A Off Ramp to 14 On Ramp	1.5	1.6	1.6	2.5	8,764	8,942	10,177	5.5	5.5	4.0
14 On Ramp to 13 On Ramp from NB PIP	1.9	2.2	2.2	4.5	12,873	13,528	14,039	5.8	6.0	3.1
13 On Ramp from NB PIP to 11 On Ramp	2.6	2.9	4.2	7.6	15,654	16,568	16,028	5.3	4.0	2.1
11 On Ramp to Middle of bridge	3.7	3.8	3.8	3.8	29,940	30,890	31,579	7.8	8.1	8.3
15 On Ramp to Middle of bridge	15.6	15.8	17.2	24.7	98,308	101,514	112,003	6.2	5.9	4.5

Rockland Eastbound - PM Peak	Length	Travel Time			PMT			Mobility Index		
		Existing (2010)	Altern. A		Existing (2010)	Altern. A		Existing (2010)	Altern. A	
			2017	2047		2017	2047		2017	2047
15 On Ramp to 14 B On Ramp	2.6	2.3	2.3	2.3	7,973	9,595	15,111	3.5	4.2	6.5
14B On to 14A Off Ramp	3.1	2.9	2.9	3.0	11,549	13,914	20,053	4.0	4.7	6.7
14A Off Ramp to 14 On Ramp	1.5	1.6	1.6	1.7	7,243	8,418	11,152	4.6	5.3	6.7
14 On Ramp to 13 On Ramp from NB PIP	1.9	2.2	2.2	2.2	10,193	11,902	15,421	4.7	5.4	6.9
13 On Ramp from NB PIP to 11 On Ramp	2.6	2.7	2.8	2.9	11,162	13,096	16,358	4.1	4.7	5.6
11 On Ramp to Middle of bridge	3.7	3.8	3.8	3.9	16,663	19,539	24,127	4.4	5.1	6.2
15 On Ramp to Middle of bridge	15.6	15.4	15.7	16.1	64,784	76,464	102,222	4.2	4.9	6.4

Rockland Westbound - AM Peak	Length	Travel Time			PMT			Mobility Index		
		Existing (2010)	Altern. A		Existing (2010)	Altern. A		Existing (2010)	Altern. A	
			2017	2047		2017	2047		2017	2047
Middle of Bridge to 11 Off Ramp	4.4	4.6	4.7	6.2	20,674	21,760	26,773	4.5	4.7	4.3
11 Off Ramp to 13 Off Ramp to NB PIP	2.8	3.4	3.4	3.3	14,338	15,084	17,936	4.3	4.5	5.4
13 Off Ramp to NB PIP to 14 Off Ramp	1.9	1.9	1.9	1.9	9,202	9,459	11,335	4.9	5.1	5.9
14 Off Ramp to 14 A On Ramp	1.5	1.5	1.5	1.6	6,771	6,922	8,937	4.4	4.5	5.6
14 A On Ramp to 14 B off Ramp	3.5	3.2	3.2	3.2	13,364	13,483	19,935	4.2	4.3	6.2
14 B off Ramp to 15 Off Ramp	2.4	2.1	2.1	2.2	8,034	8,333	12,876	3.8	3.9	6.0
Middle of Bridge to 15 Off Ramp	16.5	16.6	16.8	18.4	72,383	75,041	97,792	4.4	4.5	5.3

Rockland Westbound - PM Peak	Length	Travel Time			PMT			Mobility Index		
		Existing (2010)	Altern. A		Existing (2010)	Altern. A		Existing (2010)	Altern. A	
			2017	2047		2017	2047		2017	2047
Middle of Bridge to 11 Off Ramp	4.4	6.7	7.1	11.6	32,938	35,512	34,474	4.9	5.0	3.0
11 Off Ramp to 13 Off Ramp to NB PIP	2.8	3.5	3.8	6.7	18,243	19,878	20,170	5.2	5.2	3.0
13 Off Ramp to NB PIP to 14 Off Ramp	1.9	1.9	1.9	2.1	10,292	10,967	12,423	5.5	5.7	6.0
14 Off Ramp to 14 A On Ramp	1.5	1.5	1.5	1.6	8,347	8,612	10,370	5.4	5.6	6.5
14 A On Ramp to 14 B off Ramp	3.5	3.2	3.2	4.0	18,801	19,296	23,699	5.8	5.9	5.9
14 B off Ramp to 15 Off Ramp	2.4	2.1	2.1	2.1	11,172	11,589	13,886	5.2	5.4	6.5
Middle of Bridge to 15 Off Ramp	16.5	19.0	19.8	28.2	99,793	105,854	115,022	5.3	5.4	4.1

[1] Mobility Index is based on ratio of person-miles of travel and travel time for each segment

Source: NYSDOT

Westchester County

Westchester County Comparison of No Build Volumes and Speeds

Eastbound AM

The AM Eastbound direction has also been referred to as the Peak AM direction in the Westchester model. Although, seen as the peak direction, most of the mainline in Westchester is metered by the various entry points such as the Tappan Zee Bridge and the closely spaced interchanges. Due to the metering there are not any significant impacts from 2017 thru 2047 and only a marginal increase in volumes. The following bullets and following graphs (Figure 3-10) summarize the findings for the 2017 and 2047 AM eastbound trips:

- 2017 and 2047 models display similar speeds with only a small increase in volumes (usually about 200-300 more vehicles).
- The Eastbound directions is a very controlled corridor that although seems to have room for growth the entry points do not allow for the anticipated growth.
- Signs of a congestion issue at interchange I-87 8 are showing with a significant drop in speeds. This is an issue present in the 2010 conditions as well.

Westbound AM

The AM Westbound direction is the off peak direction in the Westchester model. Unlike the Rockland model however the Westchester growth is very controlled. The following bullets and following graphs (Figure 3-11) summarize the findings for the 2017 and 2047 AM Westbound trips:

- 2017 and 2047 models display similar speeds with only a small increase in volumes (usually about 200-300 more vehicles).
- As long as the AM volume to the mainline is controlled there is very little impact over the years.

Eastbound PM

The PM Eastbound direction is the off peak direction in the Westchester model. Unlike the AM period do see slightly more impacts with the PM Eastbound conditions coming close to the AM Eastbound conditions. The following bullets and following graphs (Figure 3-12) summarize the findings for the 2017 and 2047 AM eastbound trips:

- Since the major eastbound entry point (the Tappan Zee Bridge) is not congested there is room for growth in this direction.
- While 2017 volumes are similar to those of 2010 the 2047 volumes show significantly higher volumes.
- The higher 2047 volumes only have a minimal impact on travel speeds.

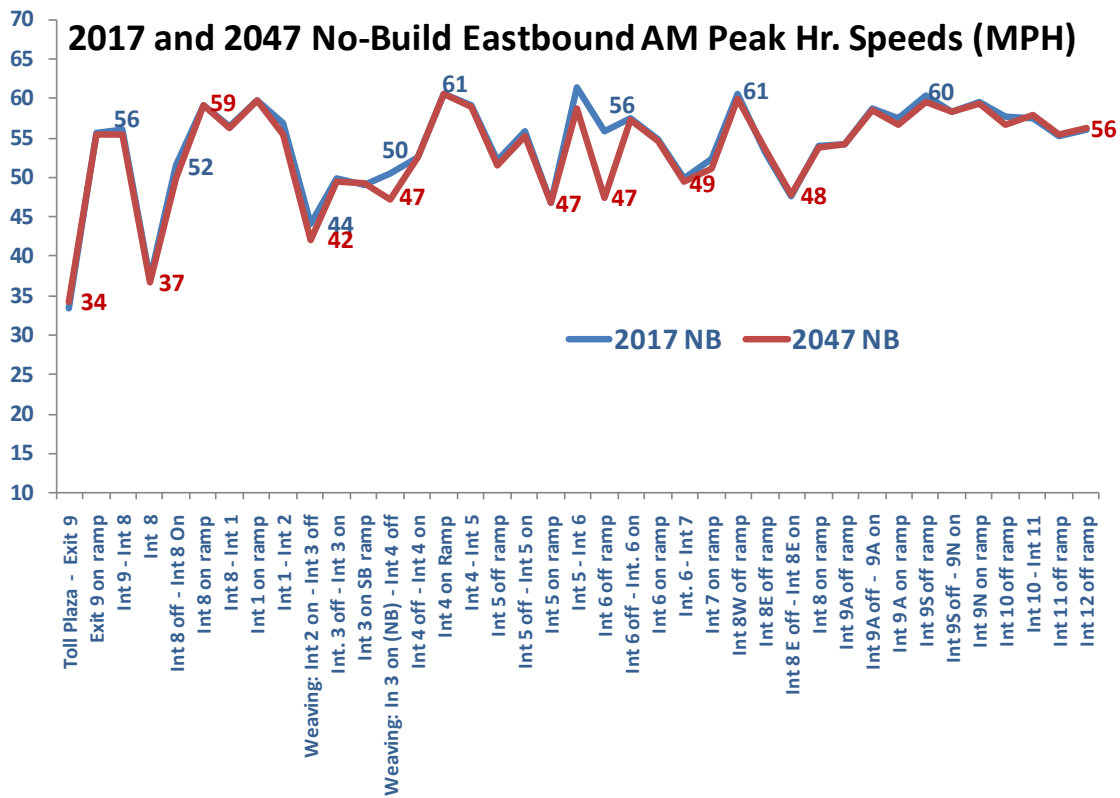
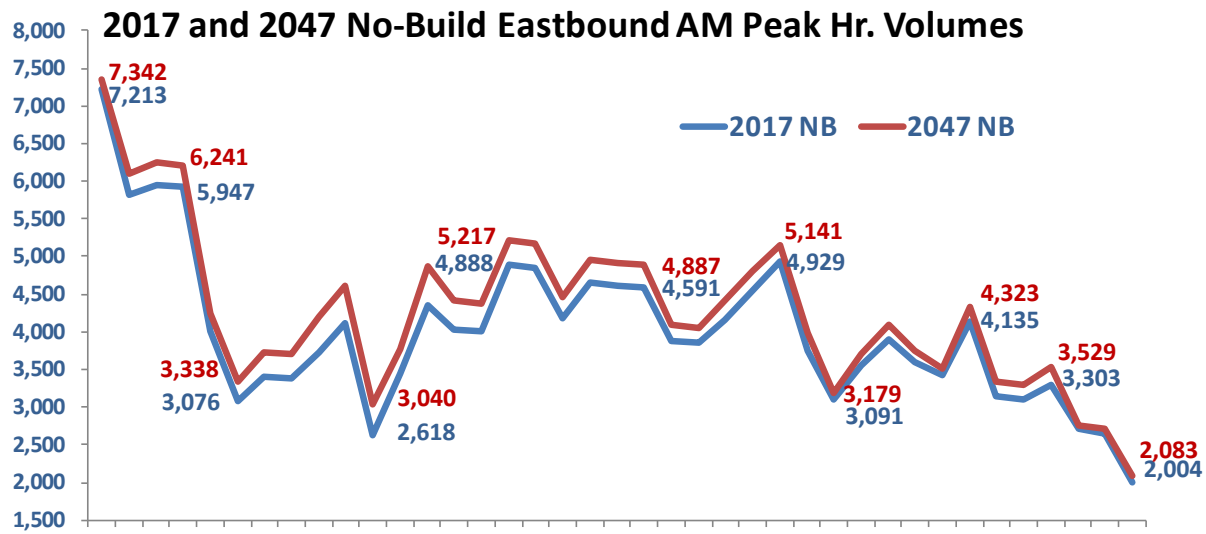


Figure 3-10 2017 and 2047 No Build Eastbound AM – Westchester County

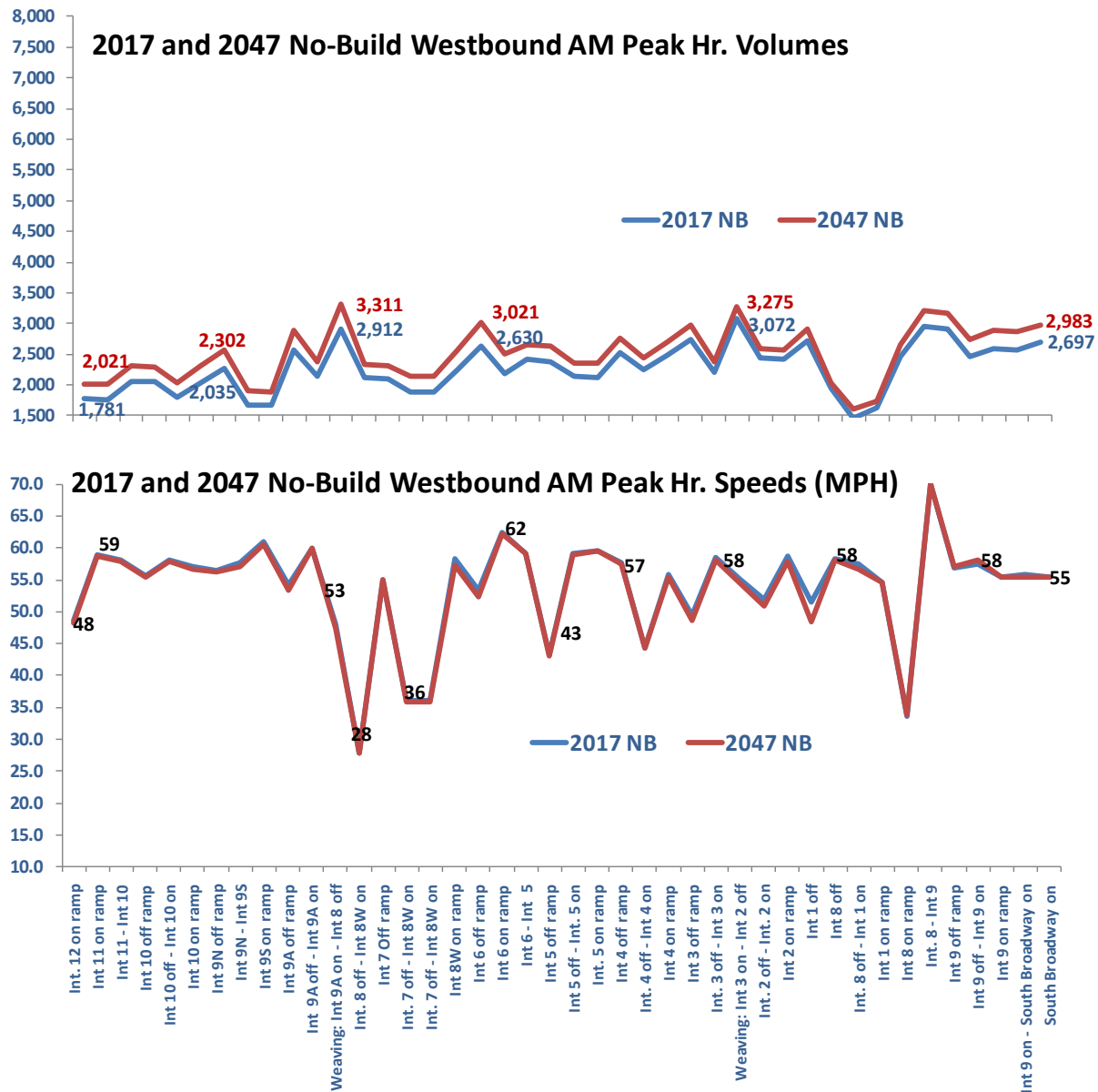


Figure 3-11 2017 and 2047 No Build Westbound AM – Westchester County

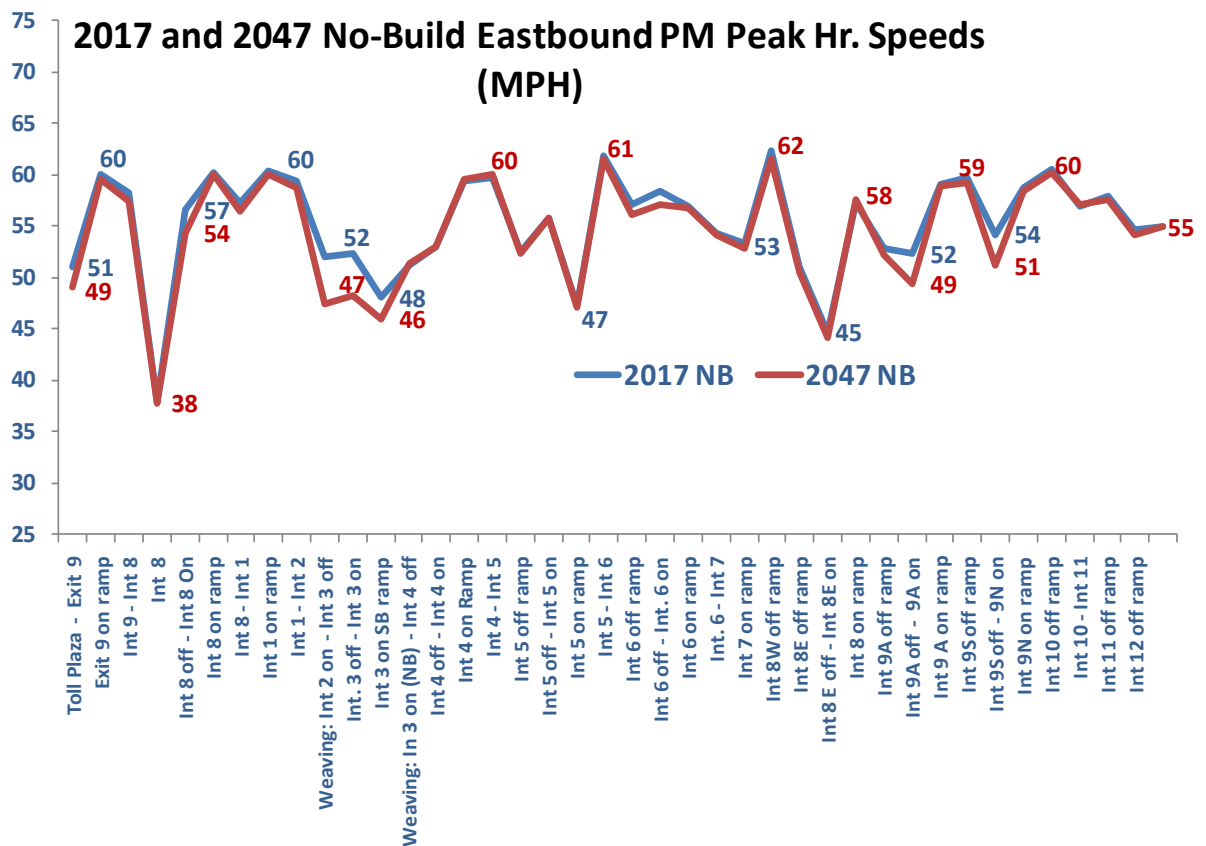
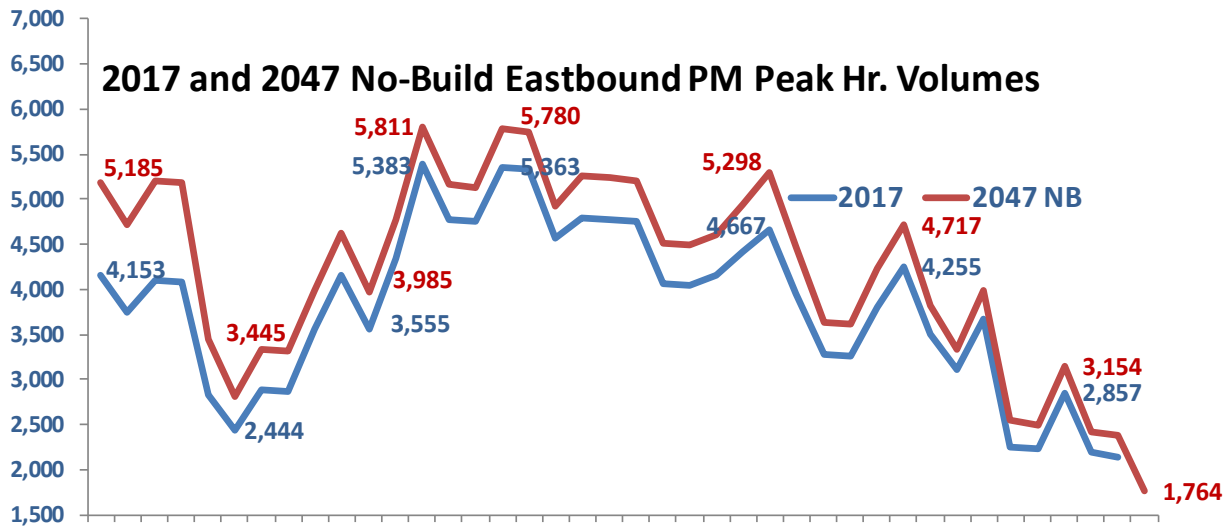


Figure 3-12 2017 and 2047 No Build Eastbound PM – Westchester County

Westbound PM

The PM Westbound direction has also been referred to as the Peak PM direction in the Westchester model. Although showing significantly more growth than the AM period there are still only very limited impacts. The following bullets and following graphs (Figure 3-13) summarize the findings for the 2017 and 2047 AM westbound trips:

- 2017 volumes are marginally higher than 2010 volumes across the corridor.
- The free capacity on the bridge allows for significant increase in volumes as you go from east to west.
- There is a capacity constraining issue around interchange 8E that limits the growth at this location. This issue is associated with the local street network.

Westchester County PMT, Travel Time and Mobility Index

Table 3-4 presents the PMT, travel time and mobility index values in existing (2010) and 2017 and 2047 No Build conditions in the AM and PM peak hours in the eastbound and westbound directions for Westchester County. Data are shown for the same eastbound and westbound highway segments that were defined in Section 3.2 above.

These results show a modest growth in through-put and relatively stable travel times across the county, reflecting the on-going highway improvements, although there are signs of an increase in instability of traffic flows, especially in the center of the county (in the White Plains area).

Westchester County Local Arterials and Signalized Intersections

The summary of the locations and the various impacts of the signalized intersections can be found in Appendix C.

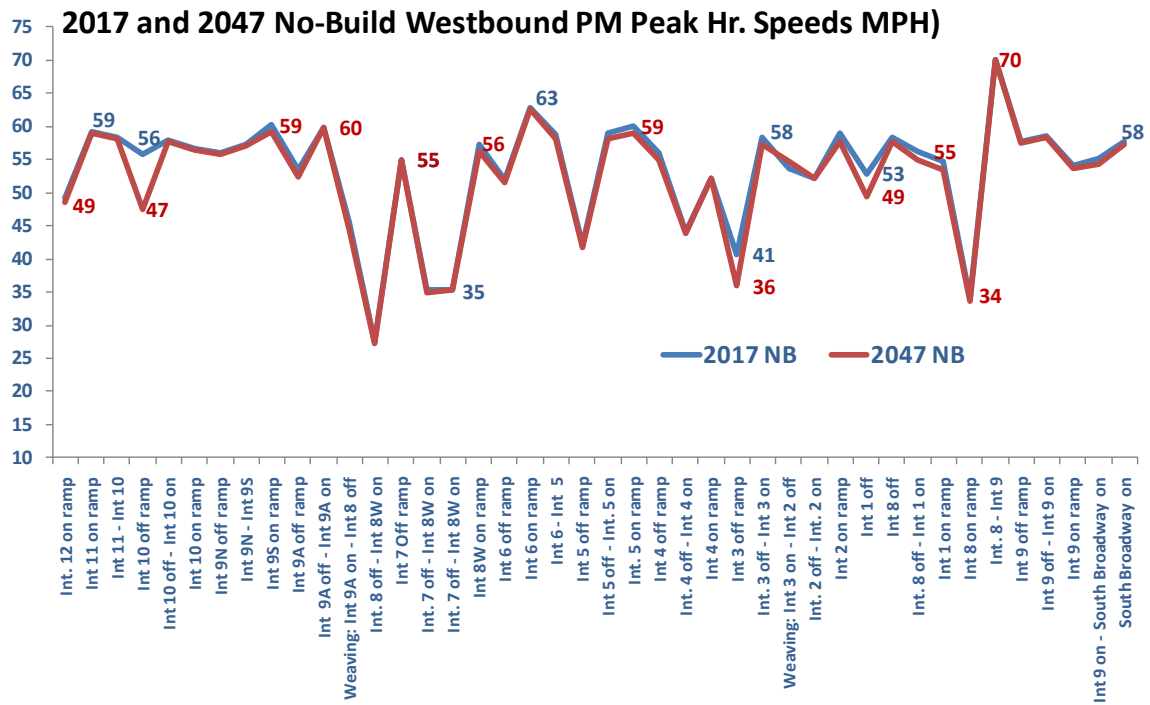
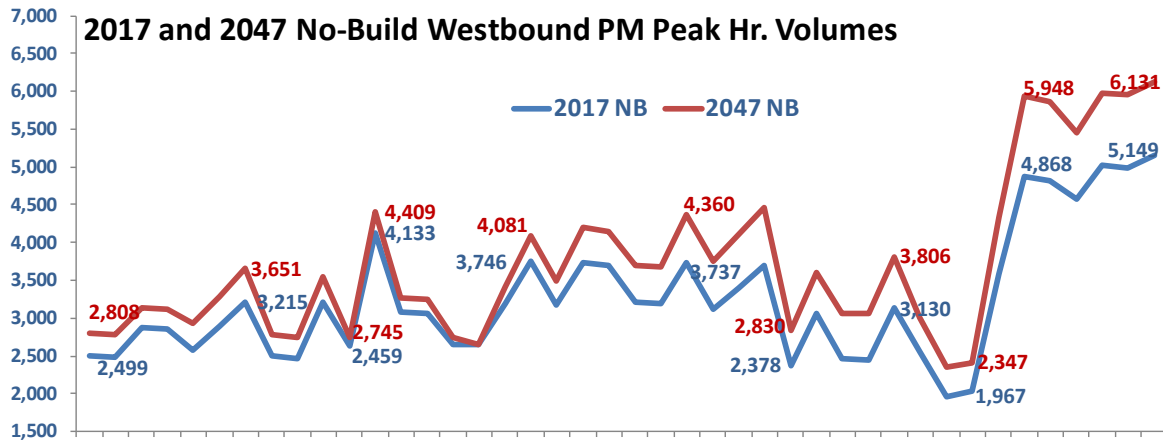


Figure 3-13 2017 and 2047 No Build Westbound PM – Westchester County

Table 3-4

Person Miles of Travel, Travel Time (Minutes) and Mobility Indices for Eastbound and Westbound Highway Segments: Westchester County - AM and PM Peak Periods, Existing (2010) and Alt. A (No Build) in 2017 and 2047¹

Westchester Eastbound - AM	Length	Travel Time			PMT			Mobility Index		
		Existing	Altern. A		Existing	Altern. A		Existing	Altern. A	
		(2010)	2017	2047	(2010)	2017	2047	(2010)	2017	2047
Toll Plaza to Exit 8	1.1	1.5	1.4	1.5	7,662	8,999	9,397	5.3	6.3	6.4
Exit 8 to 2 On Ramp	1.6	1.7	1.8	1.9	6,672	8,113	8,625	3.8	4.6	4.5
2 On Ramp to 4 On Ramp	1.2	1.5	1.5	1.9	5,415	7,786	7,919	3.7	5.3	4.1
4 On Ramp to 6 On Ramp	2.0	2.2	2.2	3.2	10,064	15,048	15,306	4.6	6.8	4.8
6 On Ramp to 8 On Ramp	1.8	2.0	2.0	2.2	8,333	12,657	13,235	4.2	6.4	6.1
8 On Ramp to 9N On Ramp	2.4	2.4	2.4	2.8	8,864	14,188	14,634	3.6	5.8	5.2
9N On Ramp to 12 Off Ramp	2.1	2.2	2.2	2.2	5,969	10,524	10,686	2.7	4.9	4.8
Toll Plaza to Int. 12 Off Ramp	12.2	13.4	13.5	15.7	52,981	77,316	79,803	3.9	5.7	5.1

Westchester Eastbound - PM	Length	Travel Time			PMT			Mobility Index		
		Existing	Altern. A		Existing	Altern. A		Existing	Altern. A	
		(2010)	2017	2047	(2010)	2017	2047	(2010)	2017	2047
Toll Plaza to Exit 8	1.1	1.3	1.3	1.3	5,261	6,149	7,875	4.2	4.8	6.1
Exit 8 to 2 On Ramp	1.6	1.6	1.7	1.7	5,213	6,396	7,770	3.2	3.8	4.6
2 On Ramp to 4 On Ramp	1.2	1.4	1.4	1.5	6,239	7,629	8,502	4.4	5.3	5.7
4 On Ramp to 6 On Ramp	2.0	2.1	2.1	2.2	10,657	13,589	15,459	5.1	6.4	7.1
6 On Ramp to 8 On Ramp	1.8	2.0	2.0	2.0	8,405	11,178	13,047	4.3	5.6	6.4
8 On Ramp to 9N On Ramp	2.4	2.4	2.4	4.1	7,098	10,241	10,968	2.9	4.2	2.7
9N On Ramp to 12 Off Ramp	2.1	2.2	2.2	2.3	5,550	6,652	6,862	2.5	3.0	3.0
Toll Plaza to Int. 12 Off Ramp	12.2	13.0	13.1	15.0	48,423	61,834	70,483	3.7	4.7	4.7

Westchester Westbound - AM	Length	Travel Time			PMT			Mobility Index		
		Existing	Altern. A		Existing	Altern. A		Existing	Altern. A	
		(2010)	2017	2047	(2010)	2017	2047	(2010)	2017	2047
12 On Ramp to 9N Off Ramp	2.2	2.3	2.4	2.4	4,893	8,610	9,535	2.1	3.7	4.0
9N Off Ramp to 8 Off Ramp	2.4	2.6	2.5	2.6	6,283	9,290	9,969	2.5	3.6	3.9
8 Off Ramp to 6 On Ramp	2.0	2.2	2.2	4.2	5,446	8,463	9,222	2.5	3.9	2.2
6 On Ramp to 4 Off Ramp	1.7	1.8	1.8	1.8	4,316	7,942	8,560	2.4	4.4	4.7
4 Off Ramp to 2 On Ramp	1.5	1.7	1.7	1.8	4,277	7,631	7,994	2.5	4.5	4.5
2 On Ramp to 8 On Ramp	0.9	1.1	1.1	1.1	1,894	3,306	3,436	1.8	3.0	3.1
8 On Ramp to Bridge	2.1	2.1	2.1	2.2	6,476	10,942	11,754	3.0	5.1	5.4
12 ON Ramp to Bridge	12.9	13.8	13.8	16.1	33,585	56,186	60,471	2.4	4.1	3.7

Westchester Westbound - PM	Length	Travel Time			PMT			Mobility Index		
		Existing	Altern. A		Existing	Altern. A		Existing	Altern. A	
		(2010)	2017	2047	(2010)	2017	2047	(2010)	2017	2047
12 On Ramp to 9N Off Ramp	2.2	2.3	2.4	2.4	7,425	8,873	10,039	3.2	3.7	4.2
9N Off Ramp to 8 Off Ramp	2.4	2.6	2.6	2.6	8,076	9,470	9,736	3.2	3.7	3.8
8 Off Ramp to 6 On Ramp	2.0	2.3	2.7	4.6	7,769	9,187	10,206	3.4	3.4	2.2
6 On Ramp to 4 Off Ramp	1.7	1.9	1.9	2.0	6,845	9,532	10,718	3.7	5.1	5.5
4 Off Ramp to 2 On Ramp	1.5	1.7	1.7	1.8	5,292	7,226	8,175	3.1	4.1	4.5
2 On Ramp to 8 On Ramp	0.9	1.1	1.1	1.1	2,552	3,452	3,954	2.4	3.1	3.5
8 On Ramp to Bridge	2.1	2.2	2.1	2.2	11,220	15,187	18,286	5.1	7.2	8.5
12 ON Ramp to Bridge	12.9	14.0	14.5	16.6	49,178	62,927	71,113	3.5	4.3	4.3

[1] Mobility Index is based on ratio of person-miles of travel and travel time for each segment

Source: NYSDOT

3.4 Assessment of Build Conditions

The build alternatives analyzed for the DEIS are listed below. The assessment of highway and bridge elements under the four build alternatives was carried out for both the 2017 and 2047 analysis years. The combination of the highway/bridge and transit elements is only analyzed for 2047. For ease of comparison and interpretation of traffic results, the transit alternatives will be grouped together based on whether HOV/HOT lanes exist in Rockland County as a part of the alternative, or not. Alternatives B and C (described below) will be grouped with the highway alternative without HOV/HOT lanes, and Alternatives D and E with the highway alternative with HOV/HOT lanes.

The impacts of the build alternatives are discussed further in the context of geographical impacts (Rockland and Westchester Counties).

3.4.1 Highway Build Alternatives

All project build alternatives include a new bridge and a “common set” of highway improvements (climbing lanes, C/D roads at Interchange 13, etc.) in Rockland County, which are described in detail in Chapter 2 (Description of Alternative) of the DEIS. However, for two of the alternatives (D and E), the development of High Occupancy Vehicle/High Occupancy/Toll (HOV/HOT) lanes in Rockland County and across the bridge is also assumed to occur as part of the highway and bridge improvements in both 2017 and 2047. The other two alternatives have only the common set of highway and bridge improvements.

The HOV/HOT lanes are separated from general purpose lanes for the exclusive use of buses, high occupancy vehicles (registered carpools with three or more passengers) (HOVs), and other automobiles willing to pay a toll for the lane’s use. The toll would be dynamic – varying over time based on the volume of traffic in the HOT lane and the volume of traffic/level of congestion in the general purpose lanes. It would also increase to keep the HOT lane from becoming congested. The dynamic aspect of HOV/HOT lanes was modeled in Paramics, using the criteria set to keep the volumes less than 1600 vehicles/hour/lane and average speeds above 45 mph.

HOV/HOT lanes are a means of providing premium service on the roadway for buses and HOVs and fully utilizing that capacity provided by allowing only as many other vehicles into the lane as can be accommodated. The objective of HOV/HOT lanes is to improve the level of service for transit and HOV operations yet allow usage by others willing to pay a toll. By allowing toll operations, HOV/HOT lanes generate revenue and their higher occupancy levels avoid the perception of being underutilized that can arise from typical HOV lanes. In this way, the tolls HOT lanes generate directly or indirectly subsidize transit and HOV operations. Ideally, HOT lanes carry as many or more commuters than general purpose lanes.

3.4.2 Transit Build Alternatives

- Alternative A: No Build
- Alternative B: Corridor Busway
- Alternative C: Busway/Bus Lanes
- Alternative D: HOV/Busway (BRT buses operating in the HOV/HOT lane in Rockland)

- Alternative E: HOV/Bus Lanes (BRT buses operating in the HOV/HOT lane in Rockland)

The transit alternatives as listed above are evaluated for the long-term planning year horizon 2047. In As noted above, for Rockland County there are two different alternatives -- the Busway and the HOV/HOT Lanes. Under the Busway scenario an exclusive bus-only facility would be built alongside the mainline and buses would enter and exit the facility at various stations depending on its route. Under the HOV/HOT Lanes scenario, buses would travel in the HOV/HOT lanes in the middle of the freeway and access stations and local roads using specially designed “Texas T” bus-only ramps. In Westchester County there are also two different BRT options -- Busway and Bus Lanes. Under the Busway alternative buses would operate primarily in a separate dedicated bus-only roadway, although buses would still operate in on-street bus lanes into, out off and within White Plains. Under the Bus Lanes alternative buses would operate primarily in the center of key local roads (e.g., Rt. 119) for the most part, resulting in a loss of roadway capacity in those areas, and would utilize on-street bus lanes within White Plains in a roughly similar manner as under the Busway option.

Throughout the modeling process the following assumptions were made for the 2017 and 2047 Build networks -- assumptions that were effectively made on top of those made under the No Build:

- Where needed the Transit Build Plans in Westchester would be refined to avoid grid-locking conditions, reflecting the type of signal timing adjustments that agencies would likely make to adjust to close to 40 years of traffic growth. These primarily occurred at key congested intersections in White Plains where buses were integrated with the local roadway lanes.
- A minimal green time would be given to the bus priority phases throughout Westchester County, usually equaling 10 seconds of green time, followed by 3 seconds of yellow and 2 seconds all red.
- The new toll plaza configuration would be the same throughout the different build alternatives.
- Highway volumes entering the eastbound highway from I-287 and I-87 at Interchange 15 in Suffern were capped to reflect the capacity constraints of I-87.

The following sections summarize the build alternatives results for 2017 and 2047 separately.

3.4.3 2017 Build Conditions

3.4.3.1 Rockland County 2017 Build Conditions

The Rockland County 2017 build analysis compared the two 2017 highway build scenarios (Alternatives B-C without the HOV/HOT lanes and Alternatives D and E with the HOV/HOT lanes) against No Build conditions. As described above, all project alternatives also include a substantial common set of highway improvements in Rockland County.

Model Modifications – Alternatives B and C

The following list the modifications were made to the Rockland County Paramics 2017 models that did not include the HOV/HOT lanes (Alternatives B and C) in order to insure that the models reasonably assessed future build conditions:

- EB 2017 NB demands from Orange County were applied to the Alternatives B and C scenarios, to avoid a lower entering demand in the build than in the No Build.

- The Alternatives B and C model was built off of the 2017 No Build model and included any signal modifications made for the No Build scenario.

Model Results – Alternatives B and C

The following graphs (Figures 3-14 through 17) compare the 2017 No Build volumes and speed within Rockland County with the 2017 volumes under build Alternatives B and C (referred to as “A1” in the figures) in the eastbound and westbound directions in the AM and PM peak periods. The detailed volume/speed data associated with these charts are provided in Appendix C.

From the graphs the following impacts from Alternative A1 can be seen:

- For both AM and PM in both directions, a large improvement in the speeds thru Interchange 13 can be seen. This is due to the elimination of the weaving section on the mainline.
- There is not a significant difference between the No Build and Alternatives B and C volumes in the corridor in 2017.
- The PM westbound approach to Interchange 11 shows a significant increase in speeds under Alternative B and C, reflecting the climbing lane and the elimination of the lane drop that creates huge delays under No Build conditions.
- Westbound volume increases are substantial in the off-peak westbound AM peak direction, reflecting primarily the improvements in the Interchange 11 area.

Rockland County PMT, Travel Time and Mobility Index

Table 3-5 presents the PMT, travel time and mobility index values in 2017 under No Build and Alternatives B-C conditions as well as for Alternatives D-E (to be discussed in the next section) in the AM and PM peak hours in the eastbound and westbound directions for Rockland County. Data are shown for the same eastbound and westbound highway segments that were defined in Section 3.2 above. These results show the across-the-board improvements in mobility under Alternatives B-C relative to No Build, but with the largest growth in the westbound direction.

Rockland County Local Arterials and Signalized Intersections

The summary of the locations and the various impacts of the signalized intersections can be found in Appendix C.

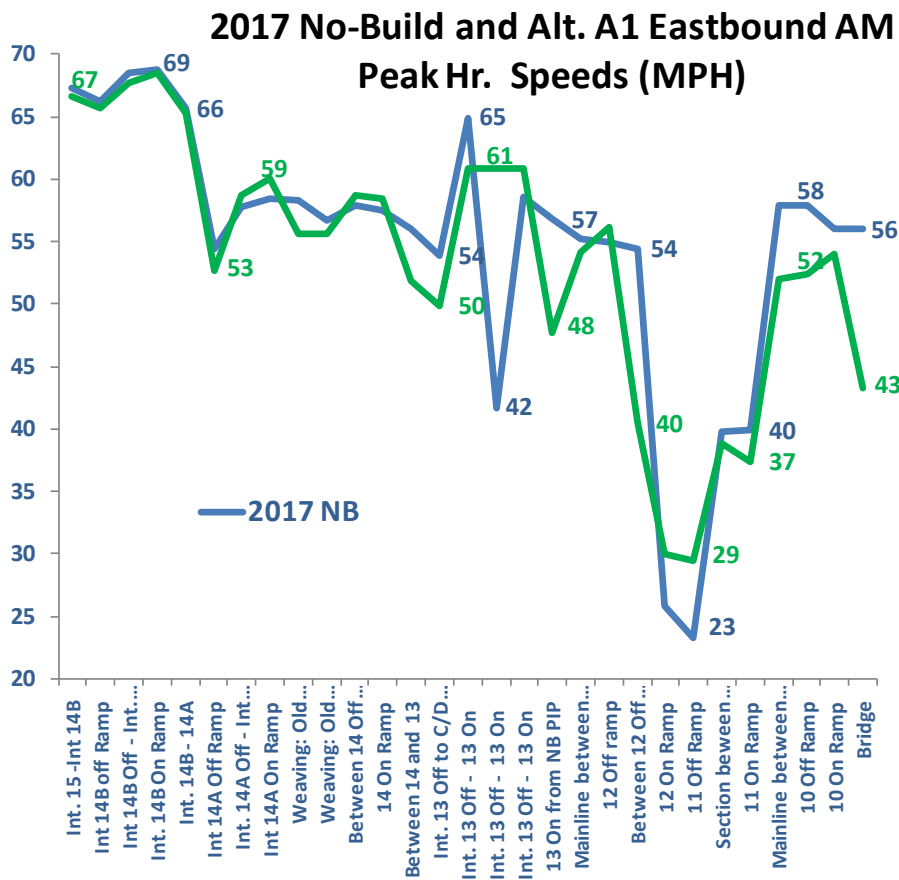
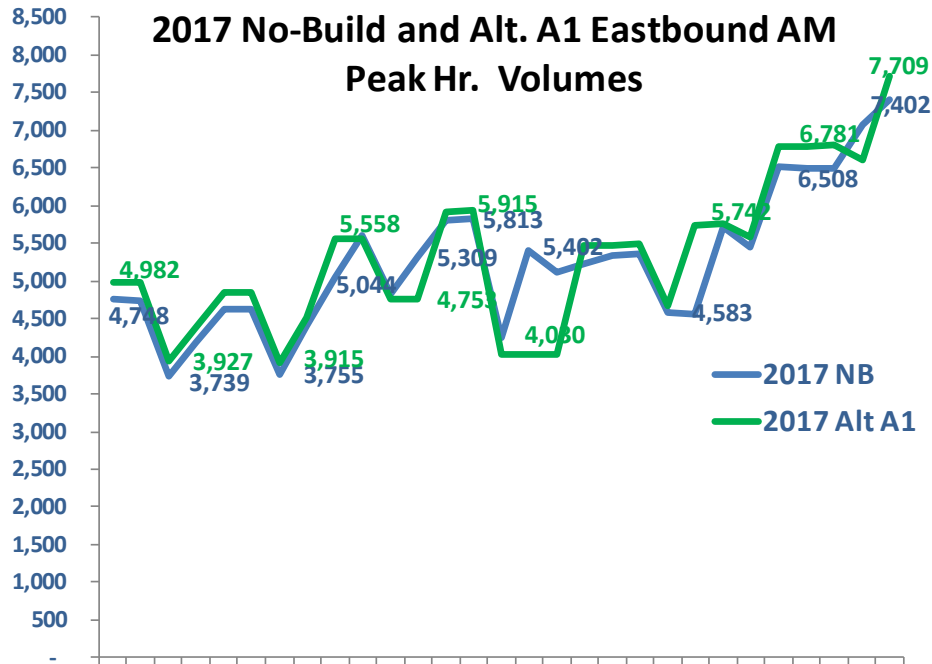
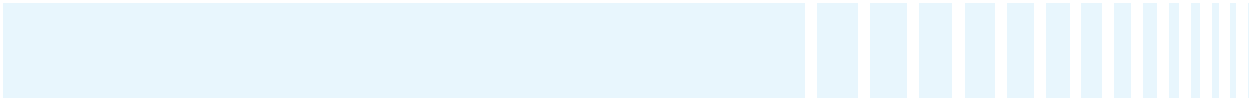
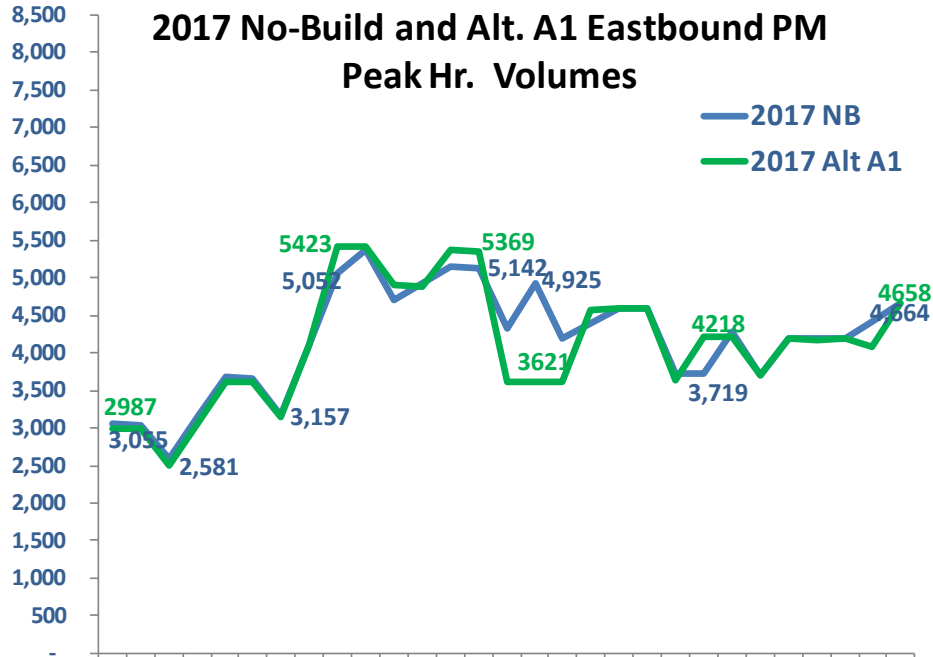


Figure 3-14 2017 No Build and Alternatives B & C Eastbound AM – Rockland County



**2017 No-Build and Alt. A1 Eastbound PM
Peak Hr. Volumes**



**2017 No-Build and Alt. A1 Eastbound PM
Peak Hr. Speeds (MPH)**

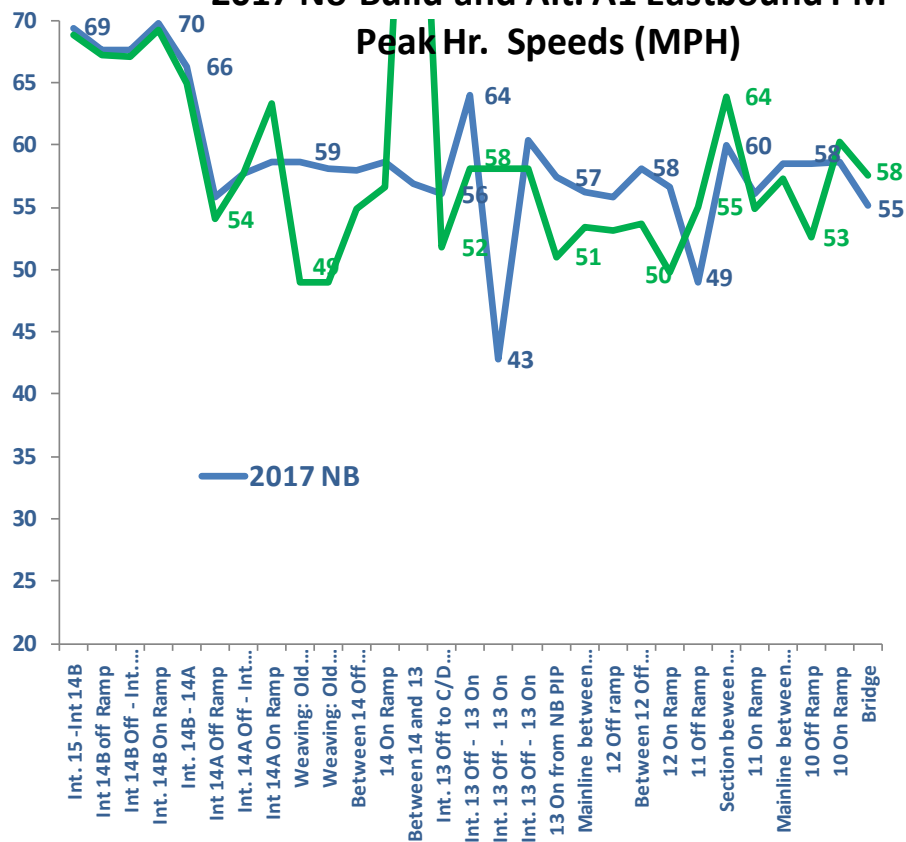


Figure 3-15 2017 No Build and Alternatives B & C Eastbound PM – Rockland County



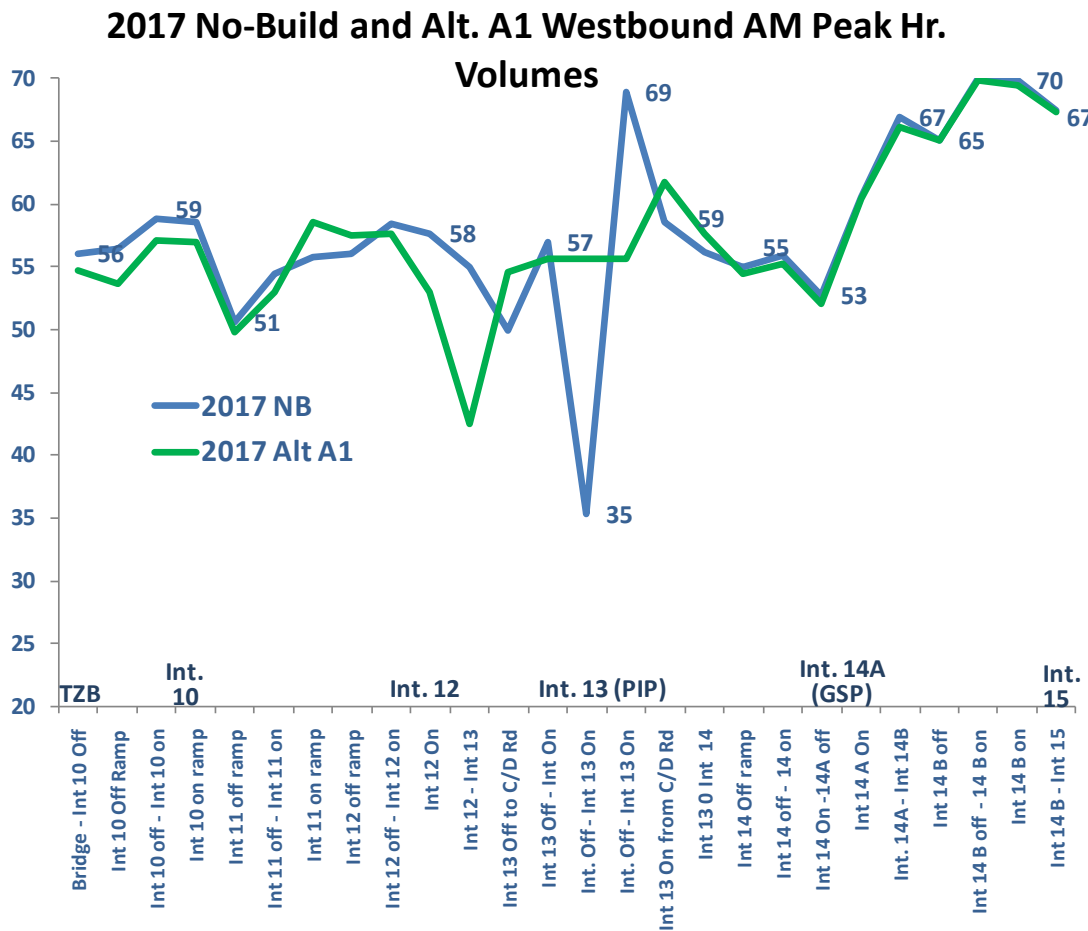
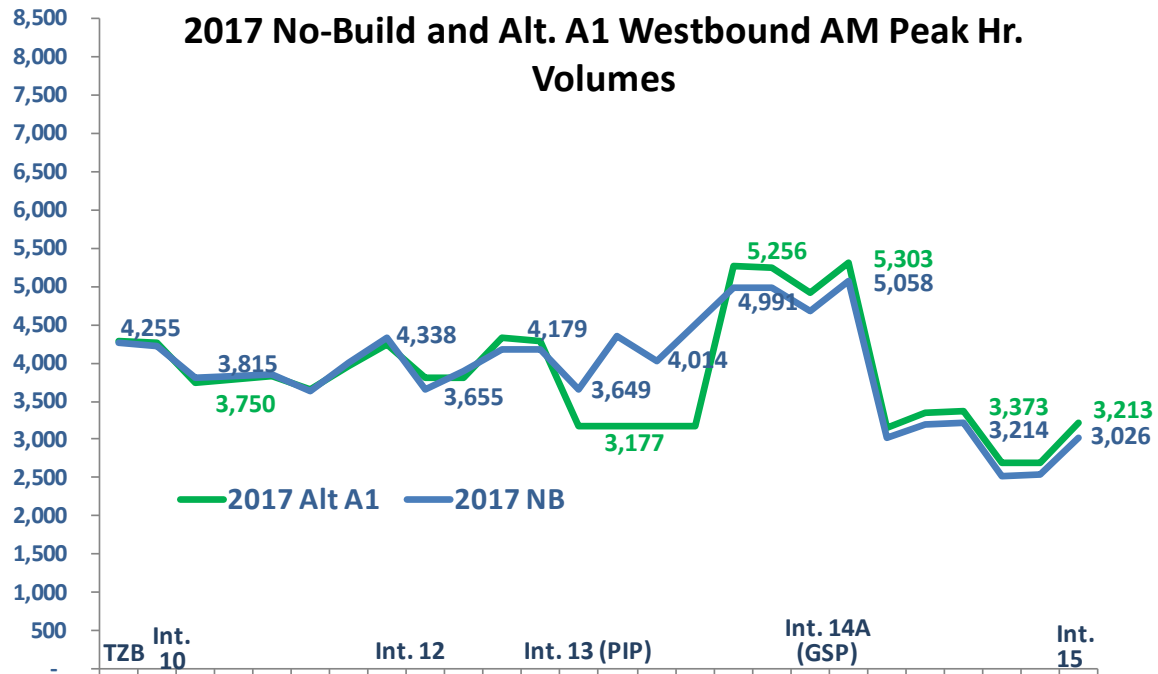


Figure 3-16 2017 No Build and Alternatives B & C Westbound AM – Rockland County

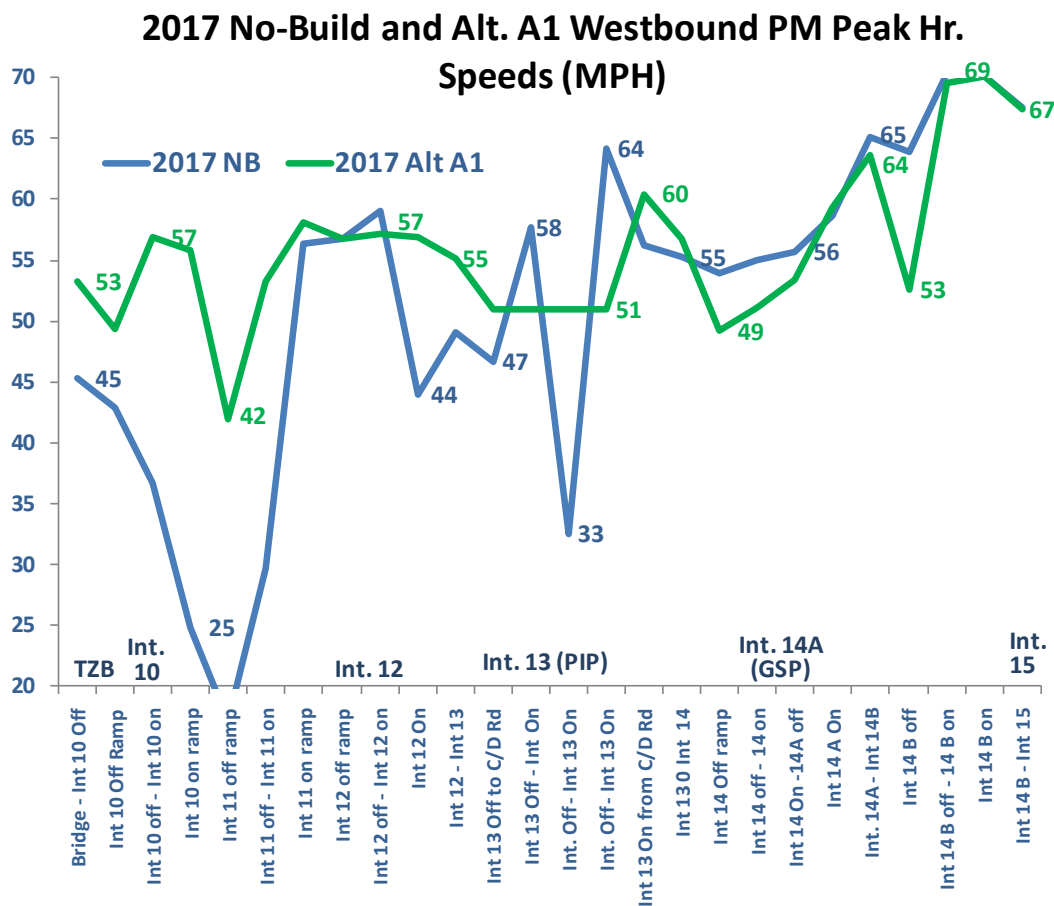
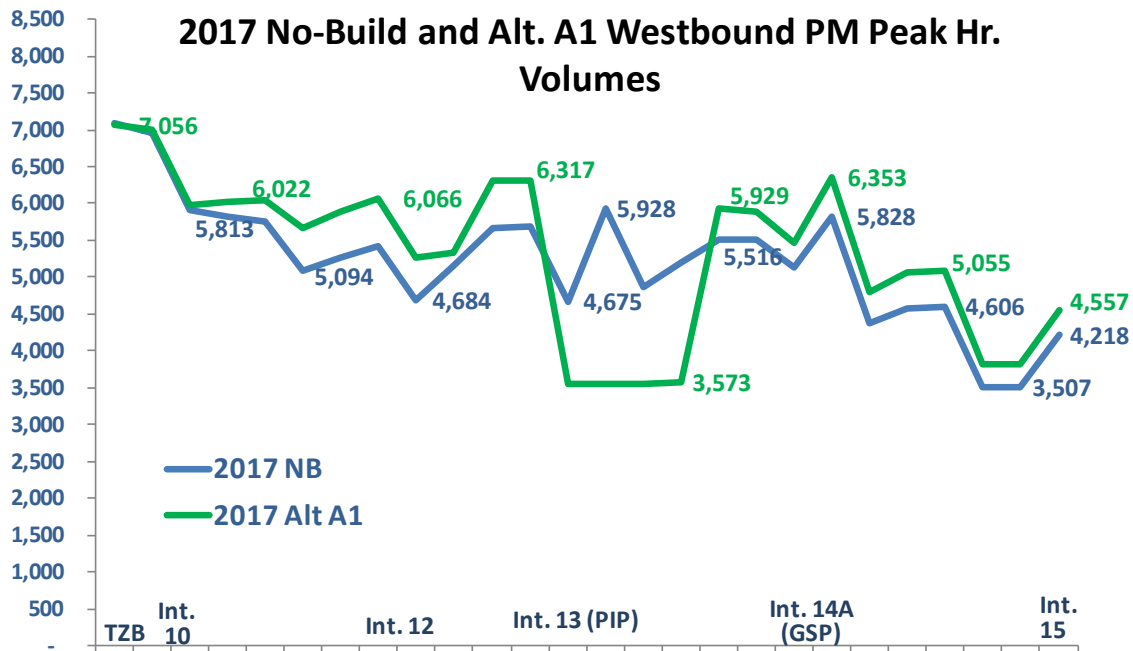


Figure 3-17 2017 No Build and Alternatives B & C Westbound PM – Rockland County

Table 3-5

Person Miles of Travel, Travel Time (Minutes) and Mobility Indices for Eastbound and Westbound Highway Segments: Rockland County - AM and PM Peak Periods, Alt. A (No Build) and Alt. B-C and D-E in 2017¹

Rockland Eastbound - AM Peak	Length	Travel Time			PMT			Mobility Index		
		Alt. A	Alt. B-C	Alt. D-E	Alt. A	Alt. B-C	Alt. D-E	Alt. A	Alt. B-C	Alt. D-E
		(2017)	No H/H	With H/H	(2017)	No H/H	With H/H	(2017)	No H/H	With H/H
15 On Ramp to 14 B On Ramp	2.6	2.3	2.3	2.4	14,154	14,857	15,040	6.1	6.3	6.3
14B On to 14A Off Ramp	3.1	3.0	3.0	3.1	17,431	18,289	19,809	5.9	6.1	6.4
14A Off Ramp to 14 On Ramp	1.5	1.6	1.6	1.7	8,942	8,771	9,468	5.6	5.5	5.7
14 On Ramp to 13 On Ramp from NB PIP	1.9	2.2	2.1	2.1	13,528	11,380	12,533	6.1	5.4	5.9
13 On Ramp from NB PIP to 11 On Ramp	2.6	2.9	3.6	3.1	16,568	17,175	18,792	5.6	4.7	6.1
11 On Ramp to Middle of bridge	3.7	3.8	4.4	4.6	30,890	33,108	36,700	8.1	7.5	8.0
15 On Ramp to Middle of bridge	15.6	15.8	17.1	17.0	101,514	103,580	112,342	6.4	6.1	6.6

Rockland Eastbound - PM Peak	Length	Travel Time			PMT			Mobility Index		
		Alt. A	Alt. B-C	Alt. D-E	Alt. A	Alt. B-C	Alt. D-E	Alt. A	Alt. B-C	Alt. D-E
		(2017)	No H/H	With H/H	(2017)	No H/H	With H/H	(2017)	No H/H	With H/H
15 On Ramp to 14 B On Ramp	2.6	2.3	2.3	2.4	9,595	9,371	9,888	4.2	4.1	4.2
14B On to 14A Off Ramp	3.1	2.9	3.0	3.0	13,914	13,645	14,378	4.7	4.5	4.8
14A Off Ramp to 14 On Ramp	1.5	1.6	2.0	1.6	8,418	10,186	7,901	5.3	5.2	4.9
14 On Ramp to 13 On Ramp from NB PIP	1.9	2.2	2.0	2.1	11,902	10,135	10,369	5.4	5.2	5.0
13 On Ramp from NB PIP to 11 On Ramp	2.6	2.8	2.8	2.9	13,096	13,240	13,258	4.7	4.7	4.6
11 On Ramp to Middle of bridge	3.7	3.8	3.9	3.9	19,539	20,149	20,758	5.1	5.1	5.3
15 On Ramp to Middle of bridge	15.6	15.7	16.0	15.8	76,464	76,727	76,553	4.9	4.8	4.8

Rockland Westbound - AM Peak	Length	Travel Time			PMT			Mobility Index		
		Alt. A	Alt. B-C	Alt. D-E	Alt. A	Alt. B-C	Alt. D-E	Alt. A	Alt. B-C	Alt. D-E
		(2017)	No H/H	With H/H	(2017)	No H/H	With H/H	(2017)	No H/H	With H/H
Middle of Bridge to 11 Off Ramp	4.4	4.7	4.8	4.7	21,760	21,801	25,741	4.7	4.5	5.5
11 Off Ramp to 13 Off Ramp to NB PIP	2.8	3.4	3.3	2.9	15,084	14,322	16,371	4.5	4.4	5.6
13 Off Ramp to NB PIP to 14 Off Ramp	1.9	1.9	2.0	2.0	9,459	9,238	10,467	5.1	4.7	5.3
14 Off Ramp to 14 A On Ramp	1.5	1.5	1.5	1.5	6,922	7,250	7,614	4.5	4.7	5.0
14 A On Ramp to 14 B off Ramp	3.5	3.2	3.2	3.3	13,483	14,167	15,487	4.3	4.4	4.7
14 B off Ramp to 15 Off Ramp	2.4	2.1	2.1	2.2	8,333	8,861	9,724	3.9	4.1	4.5
Middle of Bridge to 15 Off Ramp	16.5	16.8	16.9	16.6	75,041	75,639	85,403	4.5	4.5	5.2

Rockland Westbound - PM Peak	Length	Travel Time			PMT			Mobility Index		
		Alt. A	Alt. B-C	Alt. D-E	Alt. A	Alt. B-C	Alt. D-E	Alt. A	Alt. B-C	Alt. D-E
		(2017)	No H/H	With H/H	(2017)	No H/H	With H/H	(2017)	No H/H	With H/H
Middle of Bridge to 11 Off Ramp	4.4	7.1	5.0	4.8	35,512	35,660	44,197	5.0	7.1	9.1
11 Off Ramp to 13 Off Ramp to NB PIP	2.8	3.8	3.2	3.6	19,878	20,703	21,744	5.2	6.5	6.0
13 Off Ramp to NB PIP to 14 Off Ramp	1.9	1.9	2.1	2.1	10,967	10,397	11,932	5.7	5.0	5.6
14 Off Ramp to 14 A On Ramp	1.5	1.5	1.6	1.5	8,612	9,350	9,219	5.6	5.9	6.0
14 A On Ramp to 14 B off Ramp	3.5	3.2	3.4	3.4	19,296	21,354	21,289	5.9	6.3	6.2
14 B off Ramp to 15 Off Ramp	2.4	2.1	2.1	2.2	11,589	12,547	12,519	5.4	5.9	5.7
Middle of Bridge to 15 Off Ramp	16.5	19.8	17.4	17.7	105,854	110,011	120,900	5.4	6.3	6.8

[1] Mobility Index is based on ratio of person-miles of travel and travel time for each segment

Source: NYSDOT

Alternatives C and D

Model Modifications

The following list the modifications that were made to the Rockland County Paramics 2017 models developed to assess Alternatives D and E (common highway/bridge improvements + HOV/HOT lanes) in order to insure that the models reasonably assessed future build conditions:

- EB 2017 No Build demands from Orange County were applied to the Alternatives D and E scenario to avoid the conditions where entering demand in the build would be lower than under No Build conditions.
- The models were built off of the 2017 Alt. B-C build model and included any geometric improvements and signal modifications made for the B-C build scenario.
- A minimal charge was applied to the HOV/HOT lanes in the off-peak period/direction to try to encourage vehicles to use the HOT/HOT lanes.
- The vehicle classes were divided into 10 different values-of-time groups to allow for a greater sensitive to cost analysis of the HOV/HOT lanes. These groups and the percentage of drivers in each were derived from Census Journey-to-Work data for the corridor.
- The tolling costs were not varied for revenue purposes but only to obtain the desired usage of the HOV/HOT lanes.

Model Results

The following graphs (Figures 3-18 through 3-21) show the comparison of the 2017 No Build volumes and speed relative to those under 2017 Alternatives D-E conditions (Highway Improvements + HOV/HOT lanes). The detailed volume/speed data associated with these charts are provided in Appendix C.

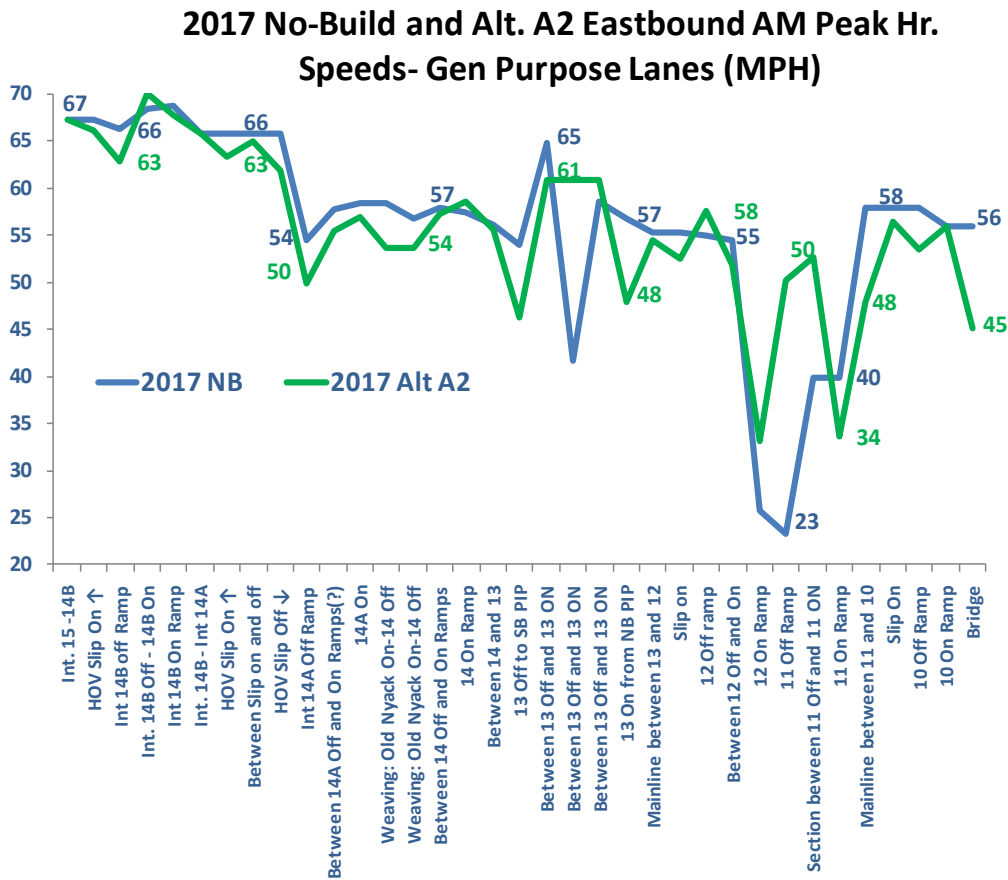
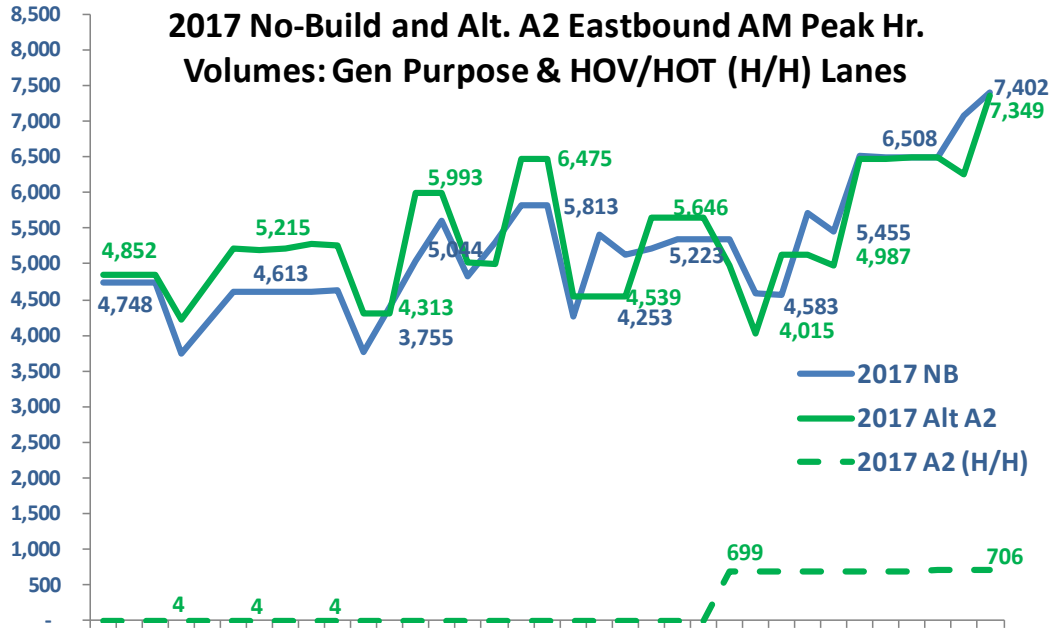


Figure 3-18 2017 No Build and Alternatives D & E Eastbound AM – Rockland County

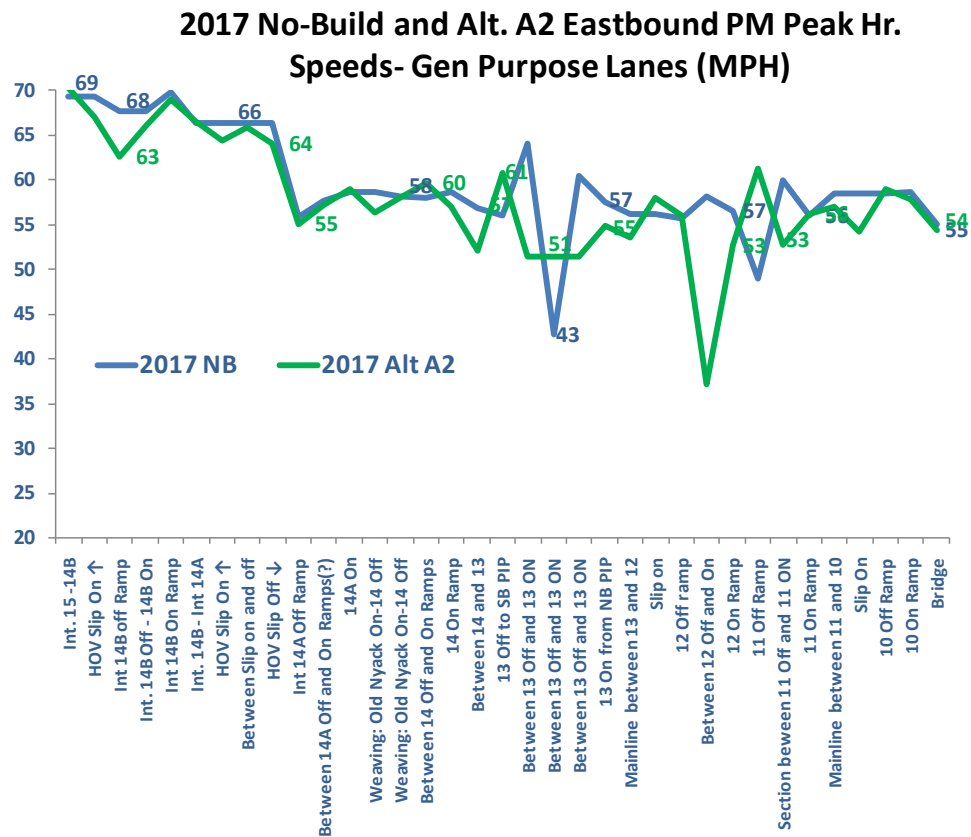
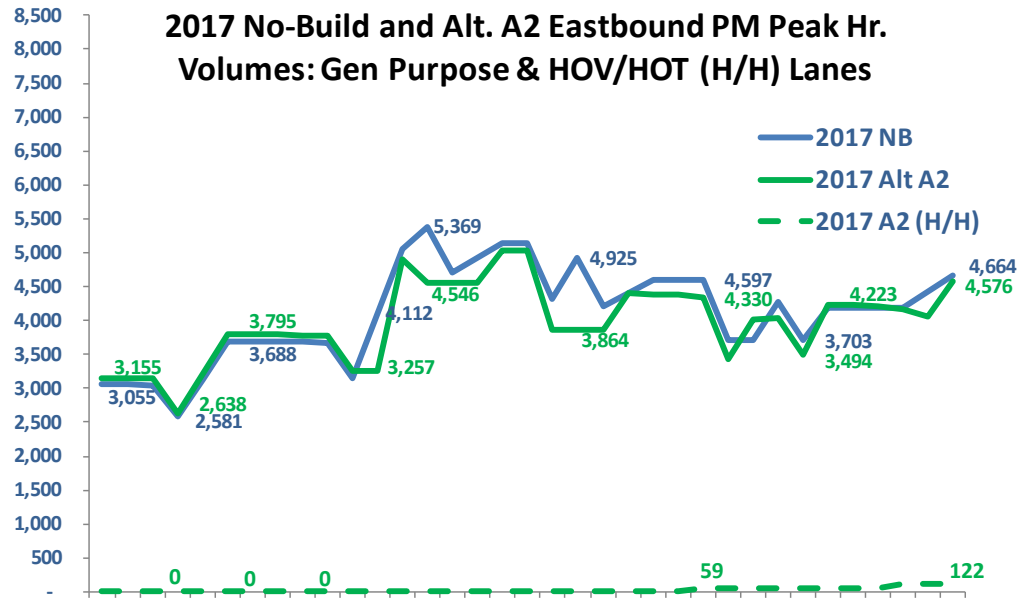


Figure 3-19 2017 No Build and Alternatives D & E Eastbound PM – Rockland County

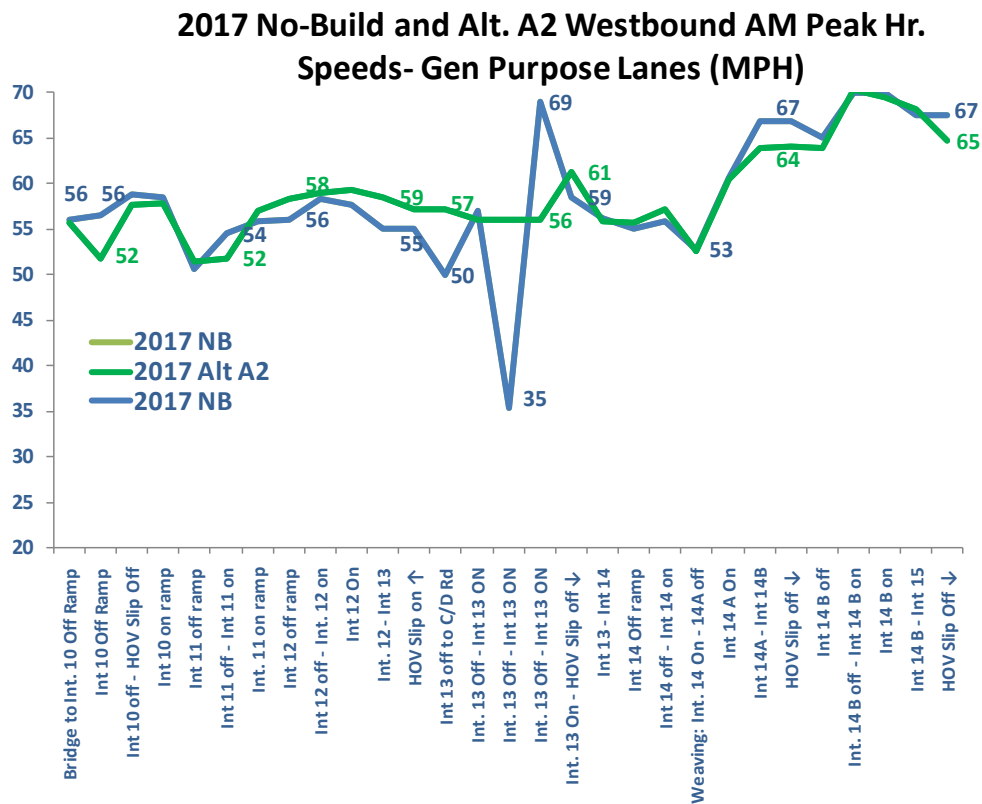
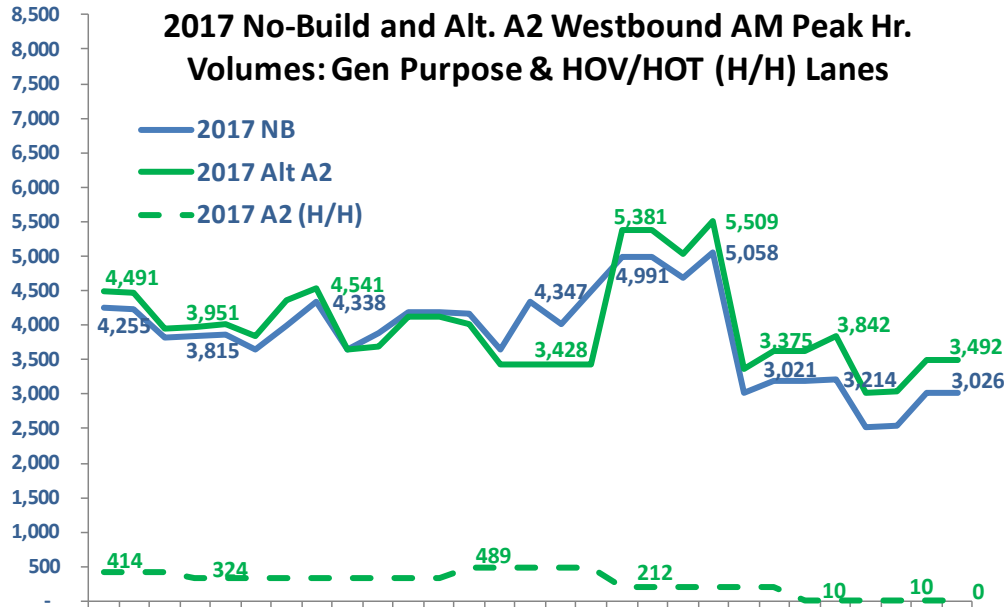


Figure 3-20 2017 No Build and Alternatives D & E Westbound AM – Rockland County

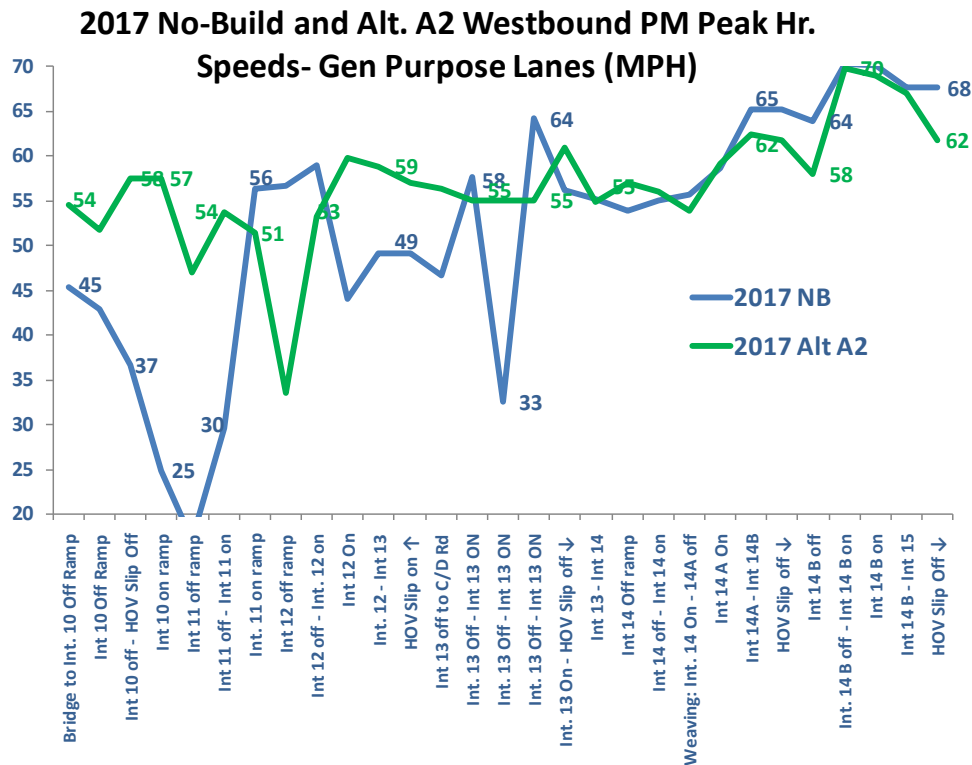
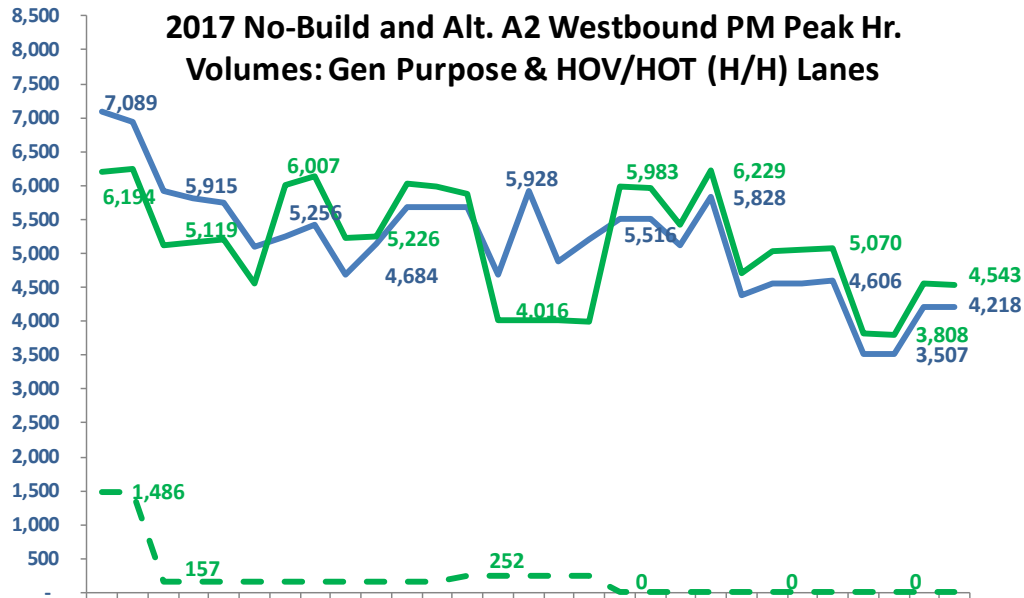


Figure 3-21 2017 No Build and Alternatives D & E Westbound PM – Rockland County

From the graphs the following impacts from Alternatives D and E can be seen:

- For both AM and PM in both directions, a large improvement in the speeds through Interchange 13 can be seen due to the C/D road's elimination of the weaving section on the mainline.
- The western portions of the HOV/HOT lanes in both directions will not have much demand in 2017.
- The addition of the eastbound HOV/HOT lane improves the speeds through Interchange 11 when compared to the No Build and the Alternatives B and C. This also results in a higher throughput of volume crossing the bridge.
- The introduction of the HOV/HOT lanes allows for significantly higher growth in 2017 in the peak directions in both the AM and PM periods.
- In the PM peak hour the introduction of the westbound HOV/HOT lane allows for a significant improvement from the bridge to Interchange 11, which also reflects the elimination of the lane drop and inclusion of the climbing lane, both of which also occur under Alternatives B and C.
- In the PM peak hour the increased westbound volumes west of Interchange 11 causes a minor slow down at Interchange 12 as the highway in that segment can now handle more volumes due to the elimination of the bottleneck at Interchange 11.

Rockland County PMT, Travel Time and Mobility Index

Table 3-5 presented in the previous section provides the PMT, travel time and mobility index values in 2017 under No Build and Alternatives D -E in the AM and PM peak hours in the eastbound and westbound directions for Rockland County. Data are shown for the same eastbound and westbound highway segments that were defined in Section 3.2 above. These results show that the mobility improvements under Alternatives D-E are generally greater than under Alternatives B-C, primarily reflecting the ability to increase PMT through higher volumes and an increase in average auto occupancy due to the HOV vehicles in the HOV/HOT lanes.

Rockland County Local Arterials and Signalized Intersections

The summary of the locations and the various impacts of the signalized intersections can be found in Appendix C.

3.4.3.2 Westchester County 2017 Build Conditions

The Westchester County 2017 build analysis compares future conditions under the two sets of highway/bridge alternatives (Alt. B-C and D-E) with those under the No Build scenario. As noted earlier, the proposed project includes no highway improvements for Westchester County beyond the toll plaza and the eastbound flyover ramp connecting the HOV/HOT lane to Interchange 9 under Alternatives D-E. Since the mainline geometry is the same under the No Build and build alternatives in Westchester, volume and speed conditions for the two alternative groups can be evaluated on the same graphs.

Model Modifications

The following list the modifications that were made to the Westchester County Paramics A1 and A2 2017 models in order to insure that the models insure that the models reasonably assessed future build conditions:

- Under the build alternatives further signal timing improvements were made particularly in White Plains where gridlock conditions were a common issue.

The following four graphs (Figures 3-22 through 3-25) show the comparison of the 2017 No Build volumes and speed relative to those under 2017 Alternatives B-C (no HOV/HOT lane in Rockland – show as Alt. A1 in the charts) and D-E (with HOV/HOT lane in Rockland – shown as Alt. A2 in the charts). The detailed volume/speed data associated with these charts are provided in Appendix C.

From the above graphs the following impacts from Alternatives B-C and D-E can be seen:

- The westbound HOV/HOT lane on the bridge under Alternatives D-E allows for a significantly higher volume west of Interchange 8.
- Except for some very minor differences and the westbound volume difference west of Interchange 8 noted above, in both time periods the No Build and two sets of build alternative would have very similar volumes and speeds – an expected conclusion given the lack of any changes to the highway under the build alternatives and the near-term planning timeframe.

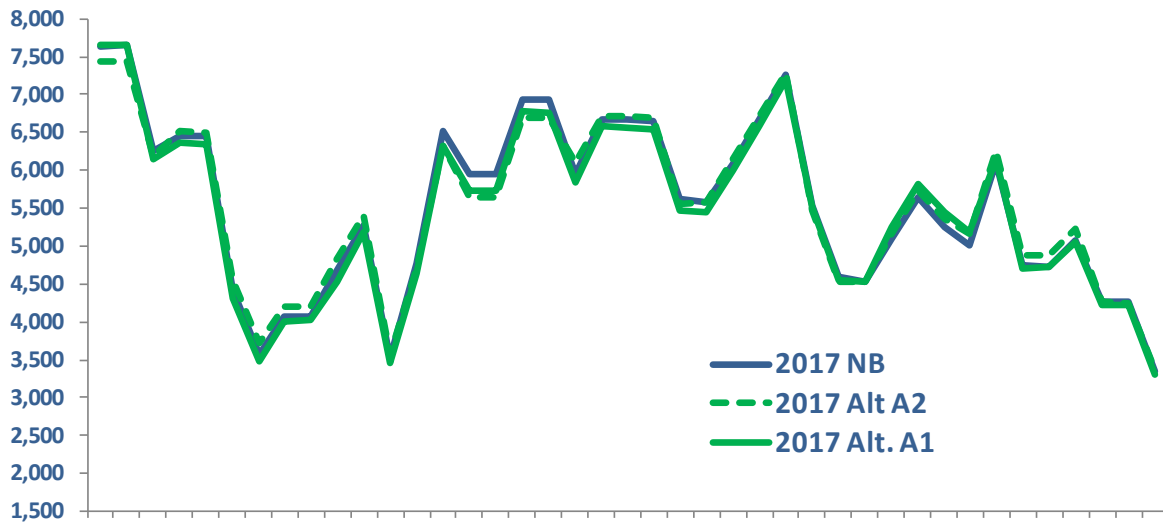
Westchester County PMT, Travel Time and Mobility Index – 2017 Build

Table 3-6 provides the PMT, travel time and mobility index values in 2017 under No Build and Alternatives B-C and D-E in the AM and PM peak hours in the eastbound and westbound directions for Westchester County. Data are shown for the same eastbound and westbound highway segments that were defined in Section 3.2 above. These results show that there would be very little change in mobility conditions from No Build to the two sets of build alternatives in 2017, reflecting the lack of any improvements in the highway in Westchester County and the limited planning horizon year involved.

Westchester County Local Arterials and Signalized Intersections – 2017 Build

The summary of the locations and the various impacts of the signalized intersections can be found in Appendix C.

2017 No-Build, Alt. A1 & A2 Eastbound AM Peak Hr. Volumes



2017 No-Build, Alt. A1 & A2 Eastbound AM Peak Hr. Speeds (MPH)

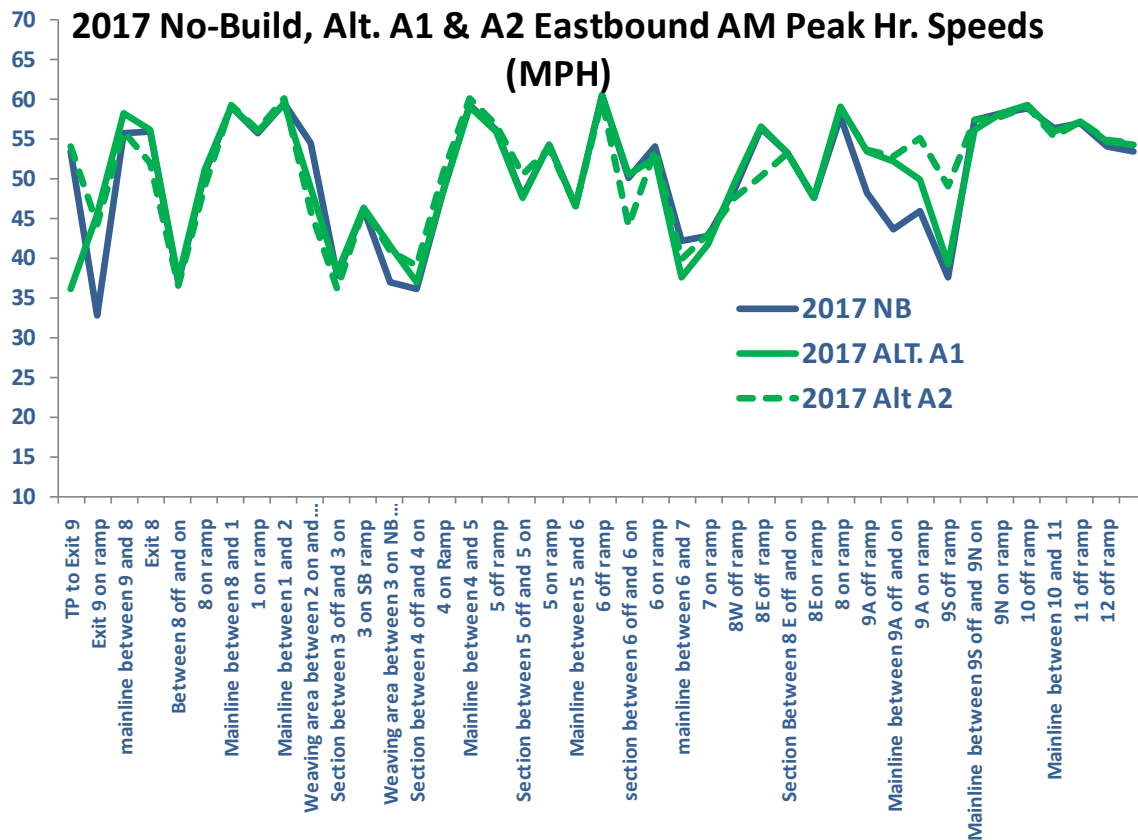


Figure 3-22 2017 No Build, Alternatives B, C, D & E Eastbound AM – Westchester County

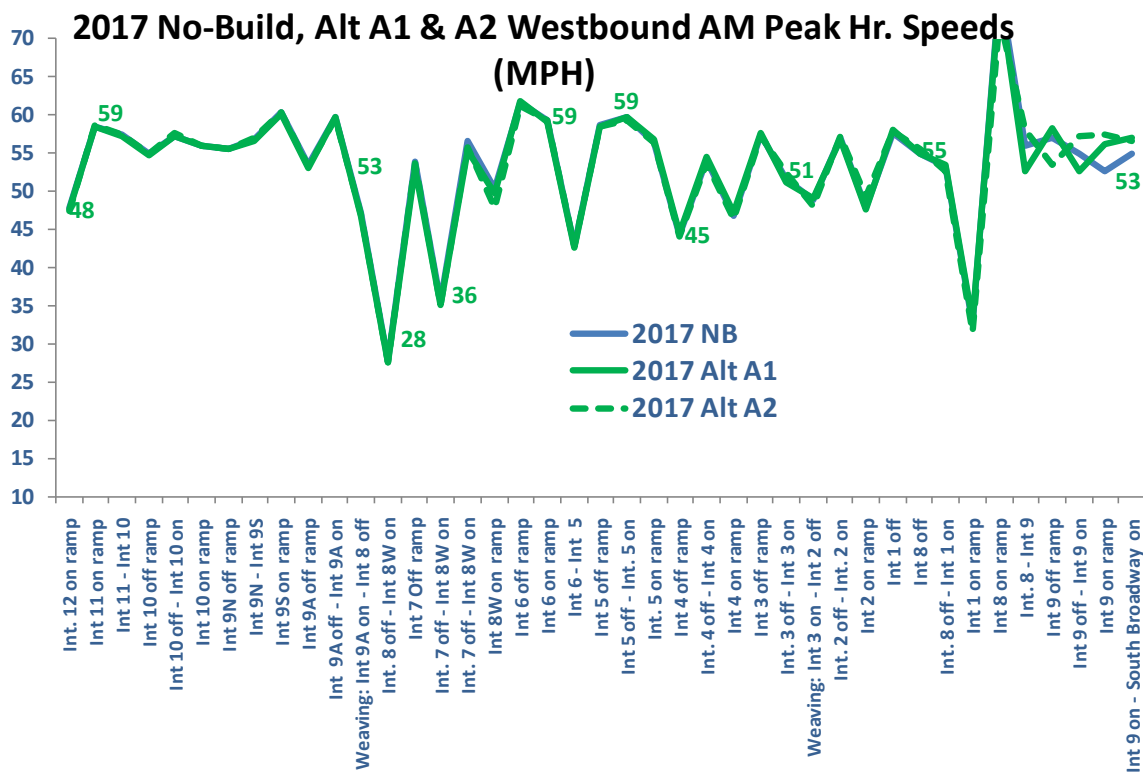
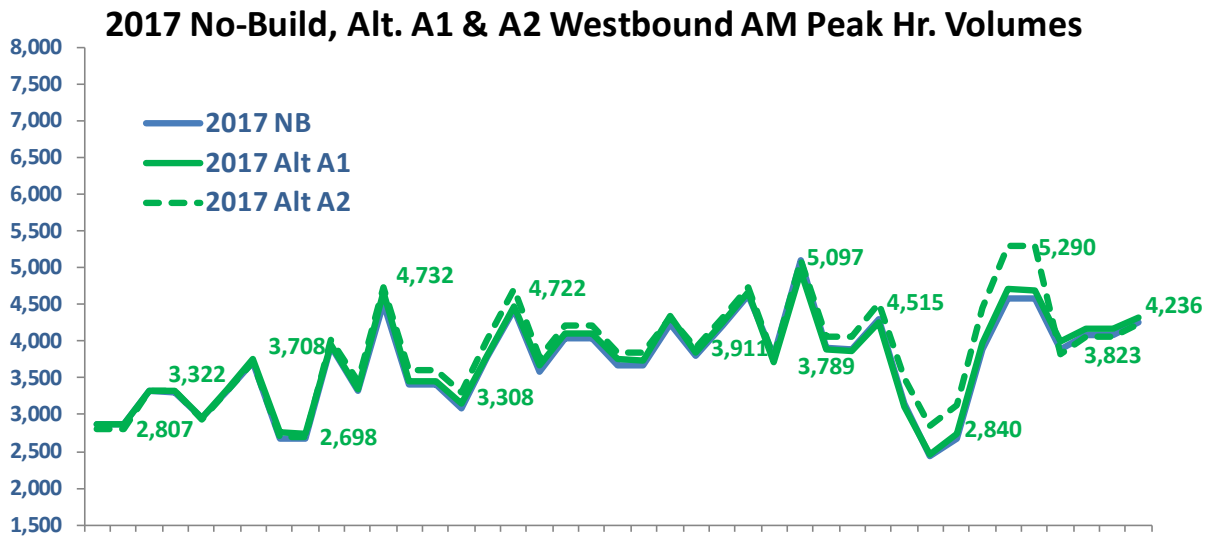


Figure 3-23 2017 No Build, Alternatives B, C, D & E Westbound AM – Westchester County

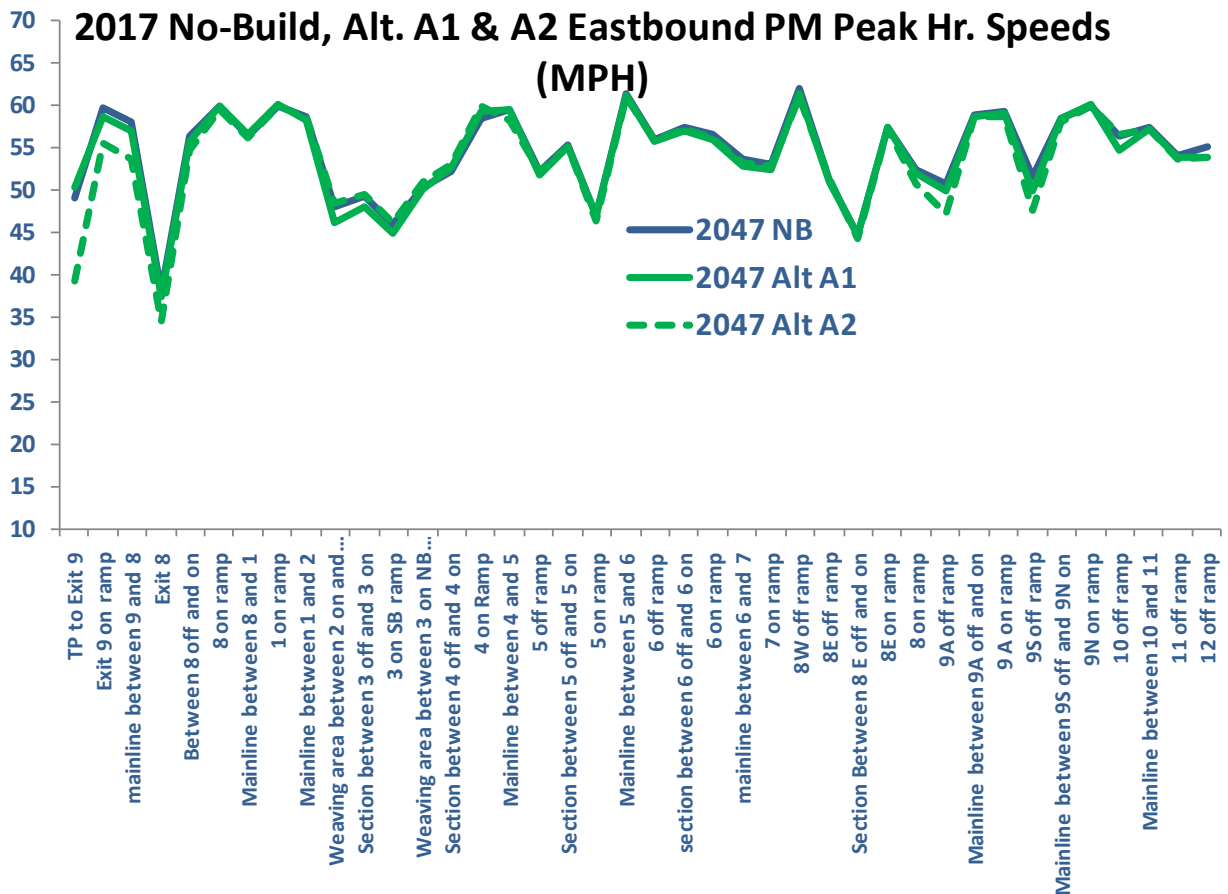
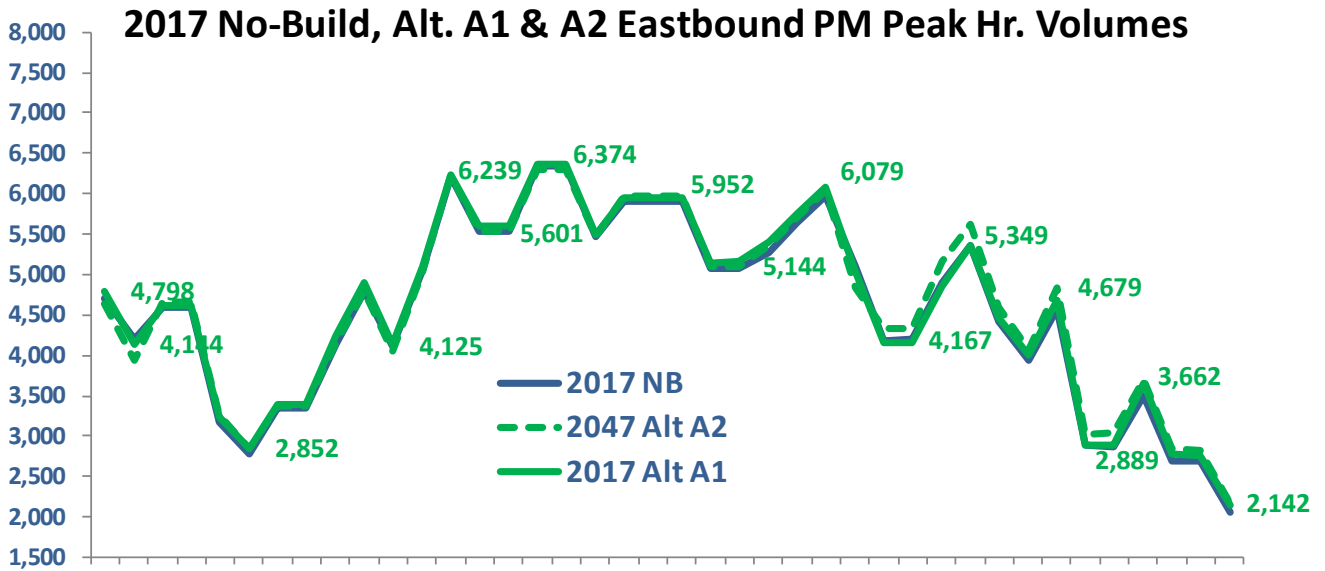


Figure 3-24 2017 No Build, Alternatives B, C, D & E Eastbound PM – Westchester County

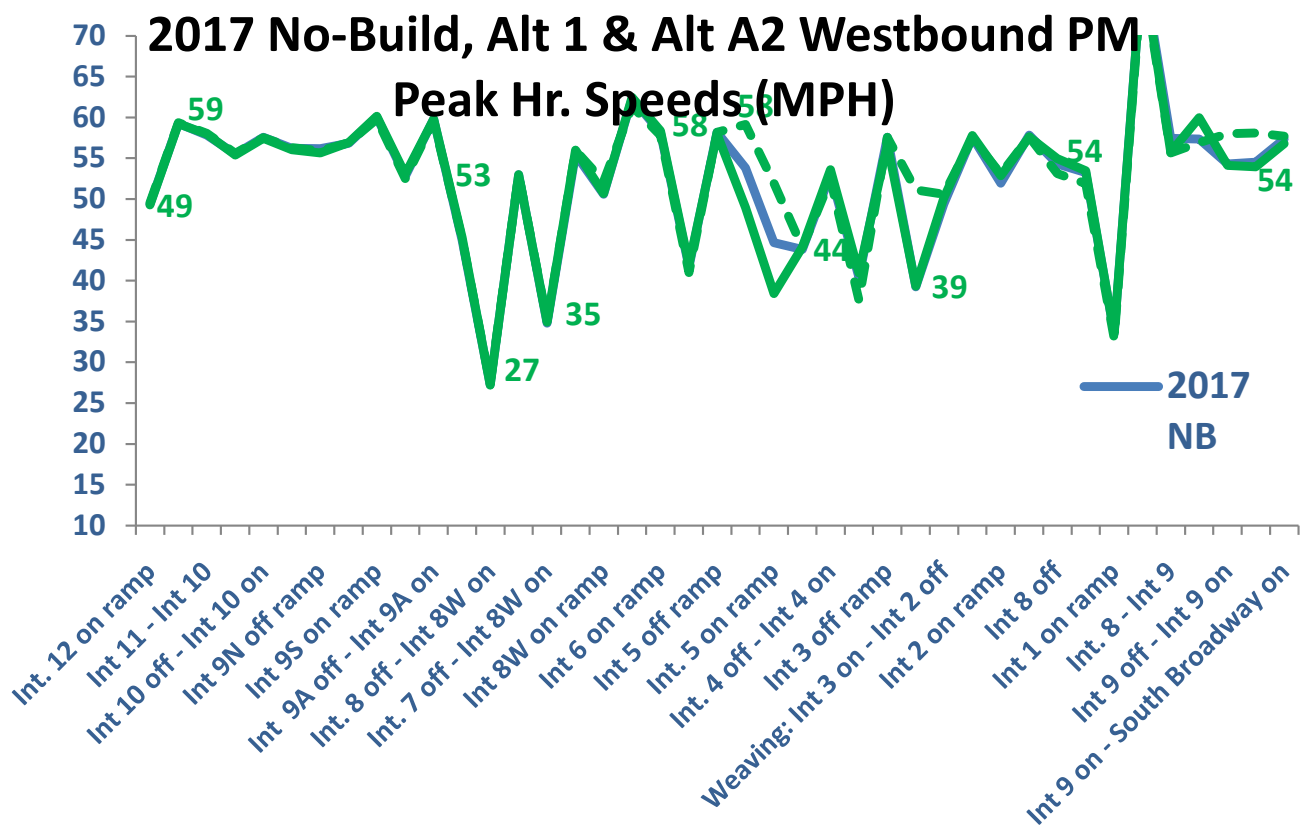
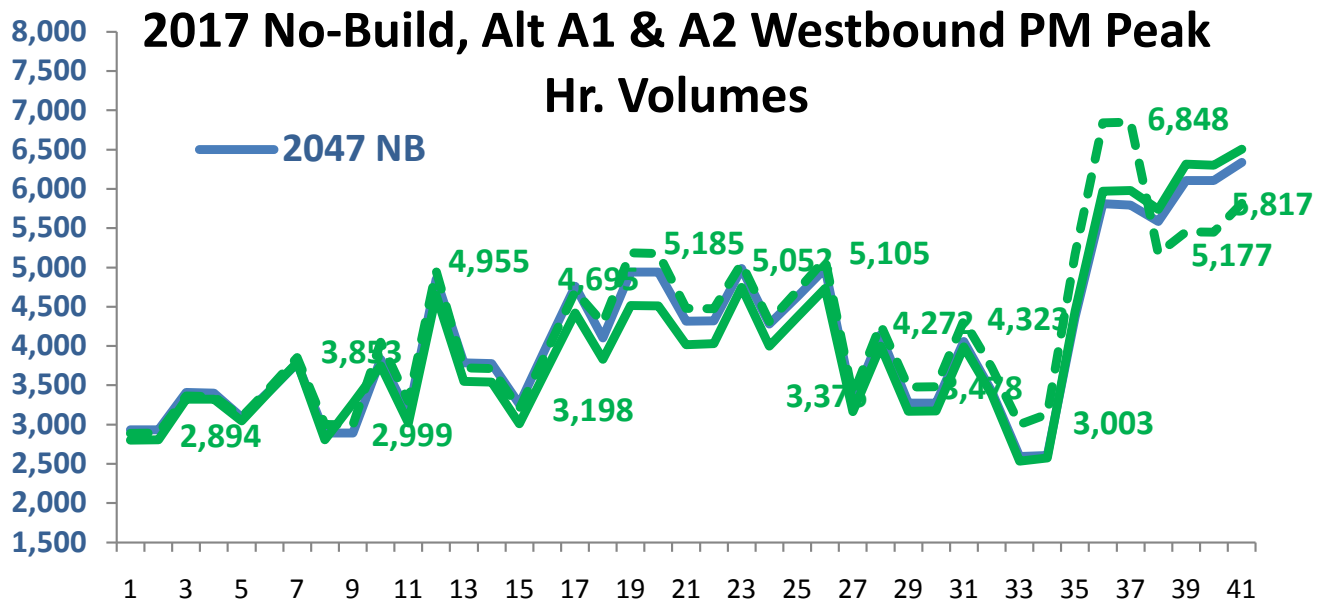


Figure 3-25 2017 No Build, Alternatives B, C, D & E Westbound PM – Westchester County

Table 3-6

Person Miles of Travel, Travel Time (Minutes) and Mobility Indices for Eastbound and Westbound Highway Segments: Westchester County - AM and PM Peak Periods, Alt. A (No Build) and Alt. B-C and D-E in 2017¹

Westchester Eastbound - AM	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2017)	Alt. B-C	Alt. D-E	Alt. A (2017)	Alt. B-C	Alt. D-E	Alt. A (2017)	Alt. B-C	Alt. D-E
		No H/H	With H/H	With H/H	No H/H	With H/H	With H/H	No H/H	With H/H	With H/H
Toll Plaza to Exit 8	1.1	1.4	1.3	1.4	8,999	8,894	8,974	6.3	6.8	6.5
Exit 8 to 2 On Ramp	1.6	1.8	1.8	1.8	8,113	7,921	8,379	4.6	4.4	4.6
2 On Ramp to 4 On Ramp	1.2	1.5	1.7	1.6	7,786	7,568	7,618	5.3	4.6	4.6
4 On Ramp to 6 On Ramp	2.0	2.2	2.4	2.4	15,048	14,731	14,942	6.8	6.2	6.3
6 On Ramp to 8 On Ramp	1.8	2.0	2.1	2.1	12,657	12,636	12,706	6.4	6.1	6.0
8 On Ramp to 9N On Ramp	2.4	2.4	2.7	2.5	14,188	14,394	14,577	5.8	5.3	5.7
9N On Ramp to 12 Off Ramp	2.1	2.2	2.2	2.2	10,524	10,417	10,531	4.9	4.7	4.8
Toll Plaza to Int. 12 Off Ramp	12.2	13.5	14.1	14.1	77,316	76,560	77,727	5.7	5.4	5.5

Westchester Eastbound - PM	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2017)	Alt. B-C	Alt. D-E	Alt. A (2017)	Alt. B-C	Alt. D-E	Alt. A (2017)	Alt. B-C	Alt. D-E
		No H/H	With H/H	With H/H	No H/H	With H/H	With H/H	No H/H	With H/H	With H/H
Toll Plaza to Exit 8	1.1	1.3	1.3	1.4	6,149	6,161	6,104	4.8	4.8	4.3
Exit 8 to 2 On Ramp	1.6	1.7	1.7	1.7	6,396	6,520	6,502	3.8	3.9	3.9
2 On Ramp to 4 On Ramp	1.2	1.4	1.5	1.4	7,629	7,700	7,613	5.3	5.3	5.3
4 On Ramp to 6 On Ramp	2.0	2.1	2.1	2.1	13,589	13,702	13,631	6.4	6.4	6.4
6 On Ramp to 8 On Ramp	1.8	2.0	2.0	2.0	11,178	11,245	11,380	5.6	5.6	5.7
8 On Ramp to 9N On Ramp	2.4	2.4	2.5	2.5	10,241	10,328	10,708	4.2	4.2	4.3
9N On Ramp to 12 Off Ramp	2.1	2.2	2.2	2.2	6,652	6,878	7,009	3.0	3.1	3.2
Toll Plaza to Int. 12 Off Ramp	12.2	13.1	13.2	13.3	61,834	62,533	62,948	4.7	4.7	4.7

Westchester Westbound - AM	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2017)	Alt. B-C	Alt. D-E	Alt. A (2017)	Alt. B-C	Alt. D-E	Alt. A (2017)	Alt. B-C	Alt. D-E
		No H/H	With H/H	With H/H	No H/H	With H/H	With H/H	No H/H	With H/H	With H/H
12 On Ramp to 9N Off Ramp	2.2	2.4	2.4	2.4	4,893	8,636	8,567	2.1	3.6	3.6
9N Off Ramp to 8 Off Ramp	2.4	2.5	2.6	2.6	6,283	9,464	9,535	2.5	3.7	3.7
8 Off Ramp to 6 On Ramp	2.0	2.2	3.1	3.1	5,446	8,581	8,991	2.5	2.7	2.9
6 On Ramp to 4 Off Ramp	1.7	1.8	1.8	1.8	4,316	8,083	8,255	2.4	4.4	4.5
4 Off Ramp to 2 On Ramp	1.5	1.7	1.7	1.7	4,277	7,593	7,799	2.5	4.4	4.5
2 On Ramp to 8 On Ramp	0.9	1.1	1.1	1.1	1,894	3,339	3,758	1.7	3.0	3.3
8 On Ramp to Bridge	2.1	2.1	2.2	2.1	6,476	11,183	11,653	3.0	5.1	5.5
12 ON Ramp to Bridge	12.9	13.8	14.9	14.9	33,585	56,880	58,559	2.4	3.8	3.9

Westchester Westbound - PM	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2017)	Alt. B-C	Alt. D-E	Alt. A (2017)	Alt. B-C	Alt. D-E	Alt. A (2017)	Alt. B-C	Alt. D-E
		No H/H	With H/H	With H/H	No H/H	With H/H	With H/H	No H/H	With H/H	With H/H
12 On Ramp to 9N Off Ramp	2.2	2.4	2.4	2.4	8,873	8,706	8,842	3.7	3.7	3.7
9N Off Ramp to 8 Off Ramp	2.4	2.6	2.6	2.6	9,470	9,274	9,861	3.7	3.6	3.8
8 Off Ramp to 6 On Ramp	2.0	2.7	3.2	3.1	9,187	8,546	9,117	3.4	2.7	2.9
6 On Ramp to 4 Off Ramp	1.7	1.9	2.1	1.9	9,532	8,822	9,901	5.1	4.2	5.2
4 Off Ramp to 2 On Ramp	1.5	1.7	1.8	1.8	7,226	6,901	7,447	4.1	3.8	4.2
2 On Ramp to 8 On Ramp	0.9	1.1	1.1	1.1	3,452	3,425	3,966	3.1	3.1	3.5
8 On Ramp to Bridge	2.1	2.1	2.1	2.1	15,187	15,632	15,483	7.2	7.3	7.3
12 ON Ramp to Bridge	12.9	14.5	15.2	14.9	62,927	61,306	64,617	4.3	4.0	4.3

[1] Mobility Index is based on ratio of person-miles of travel and travel time for each segment

Source: NYSDOT

3.4.4 2047 Build Conditions

3.4.4.1 Rockland County 2047 Build Conditions

Rockland County Comparison of Build Volumes and Speeds

The Rockland County 2047 build analysis comprises of comparing the two 2047 highway build alternatives and four 2047 transit build alternative with the No Build scenario. The highway improvements from 2017 are carried over to all of the 2047 builds as described above. Do to the complicated geometry changes and the need to represent the HOV/HOT lane impacts this analysis is going to be broken into two comparison groups, group one compares A1, B and C with the NB and group two compares A2, D and E with the NB.

Model Modifications

The following list the modifications that were made to the Rockland County Paramics 2047 build models in order to insure that the models reasonably assessed future build conditions:

- 2047 no build traffic signal timings were used as the starting point for Alternative B-C for 2047.
- Alternative B-C 2047 was used as the starting point for all the 2047 Build transit alternatives models.
- Various route costs were modified to insure that through-trip travelers did not use the C/D roadways as a short-cut through Interchange 13.
- Various route costs were modified to insure that drivers did not aggressively use the PIP-to-Route 59 as an alternative east-west route to and from Orange County.
- Route 59 signal times around Interchange 14 in Nanuet were adjusted to avoid gridlock.
- Palisades Mall local network was enhanced under the transit alternatives to better handle the station traffic – the types of changes that would typically be included as part of the project.
- Under the transit alternatives, basic assumptions about station locations were made and demand to those stations was added manually based on information provided by the BPM.
- Signals in Nanuet, Nyack, and around the Palisades mall were fine-tuned to better handle the new travel patterns and higher demands – once again the types of changes that would typically be included as part of the project.

The following graphs (Figures 3-26 through 3-29) compare 2047 No Build volumes and speed with those under Alt. B-C with just highway/bridge improvements (shown as Alt. A1 in the charts) and under Alt B-C with highway/bridge and transit improvements, with BRT buses operating in a dedicated Busway across Rockland County and the bridge. The detailed volume/speed data associated with these charts are provided in Appendix C.

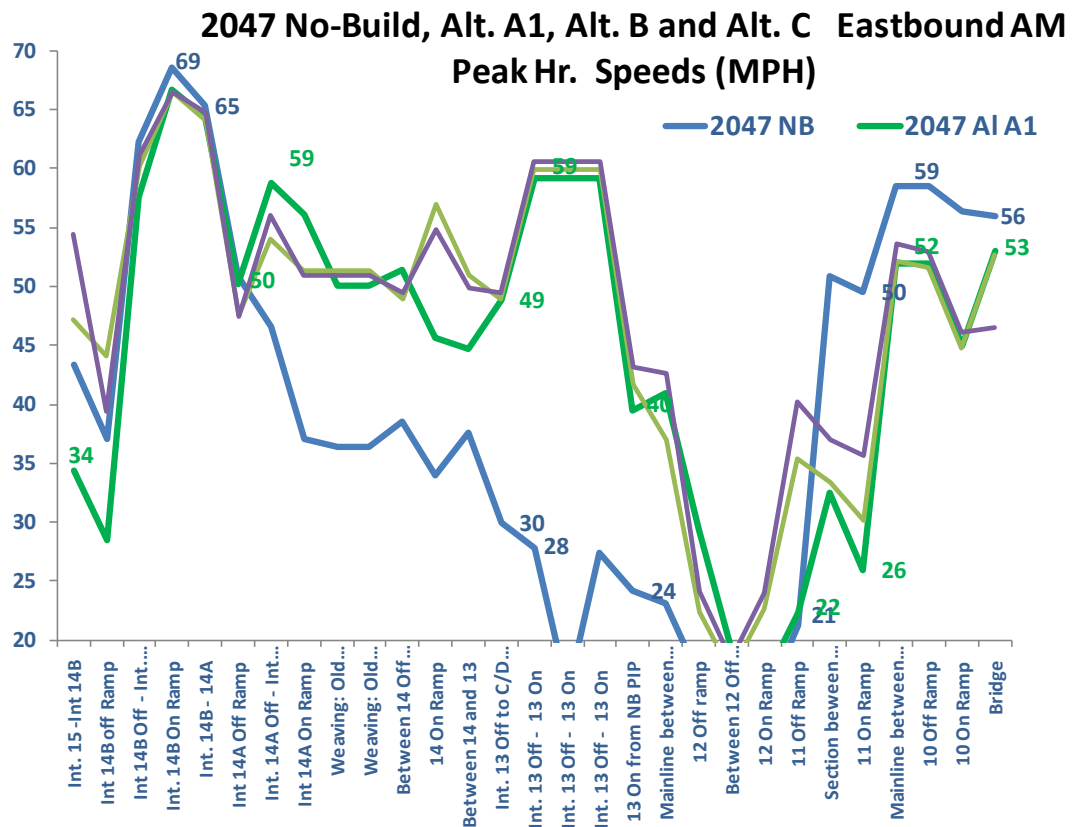
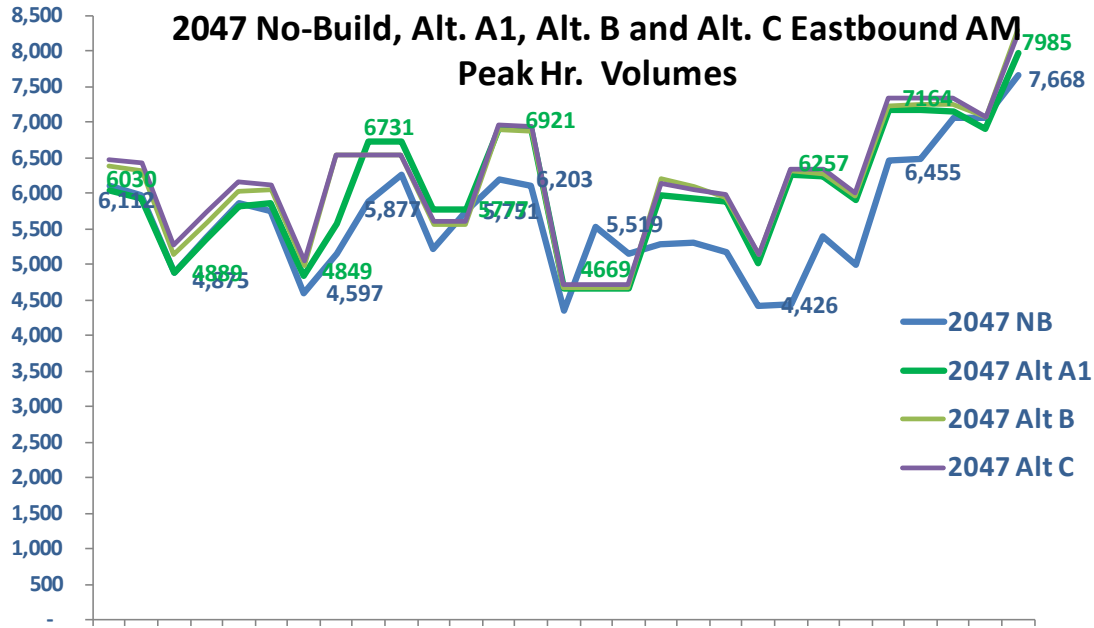


Figure 3-26 2047 No Build, Alts. B and C Without Transit (Alt. A1) and Alts. B and C With Transit Eastbound AM – Rockland County

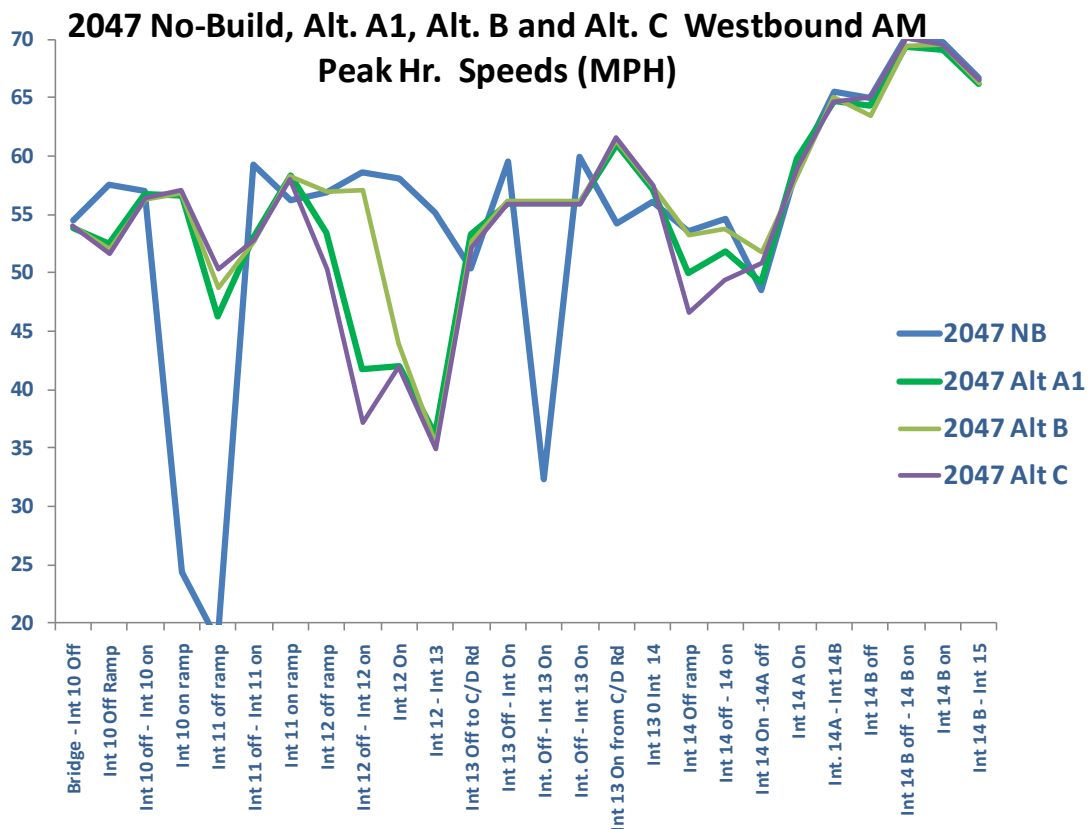
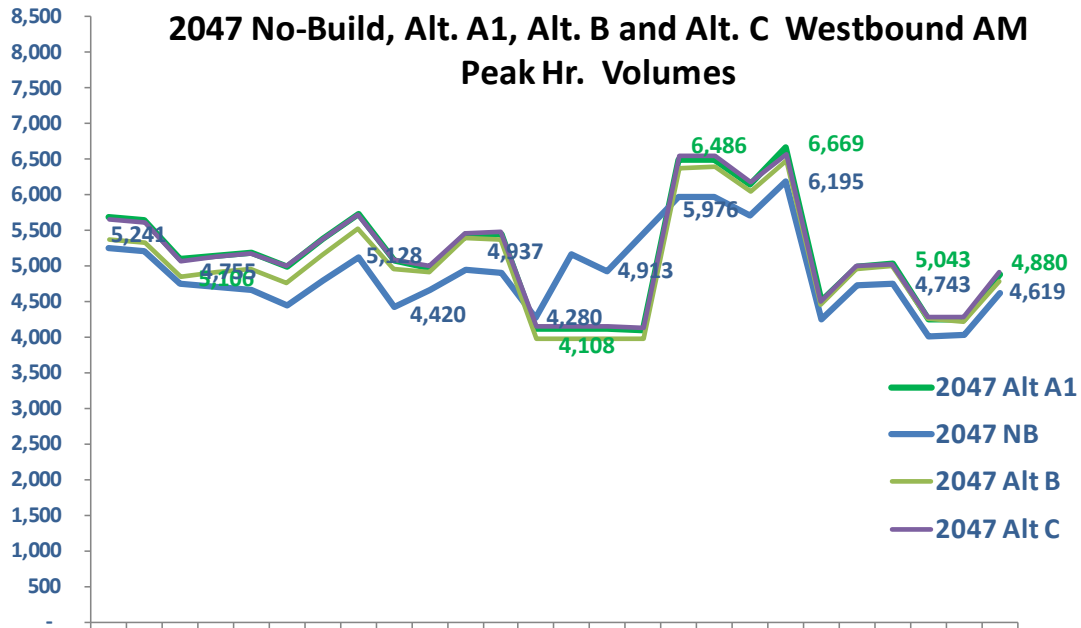


Figure 3-27 2047 No Build, Alts. B and C Without Transit (Alt. A1) and Alts. B and C With Transit Westbound AM – Rockland County

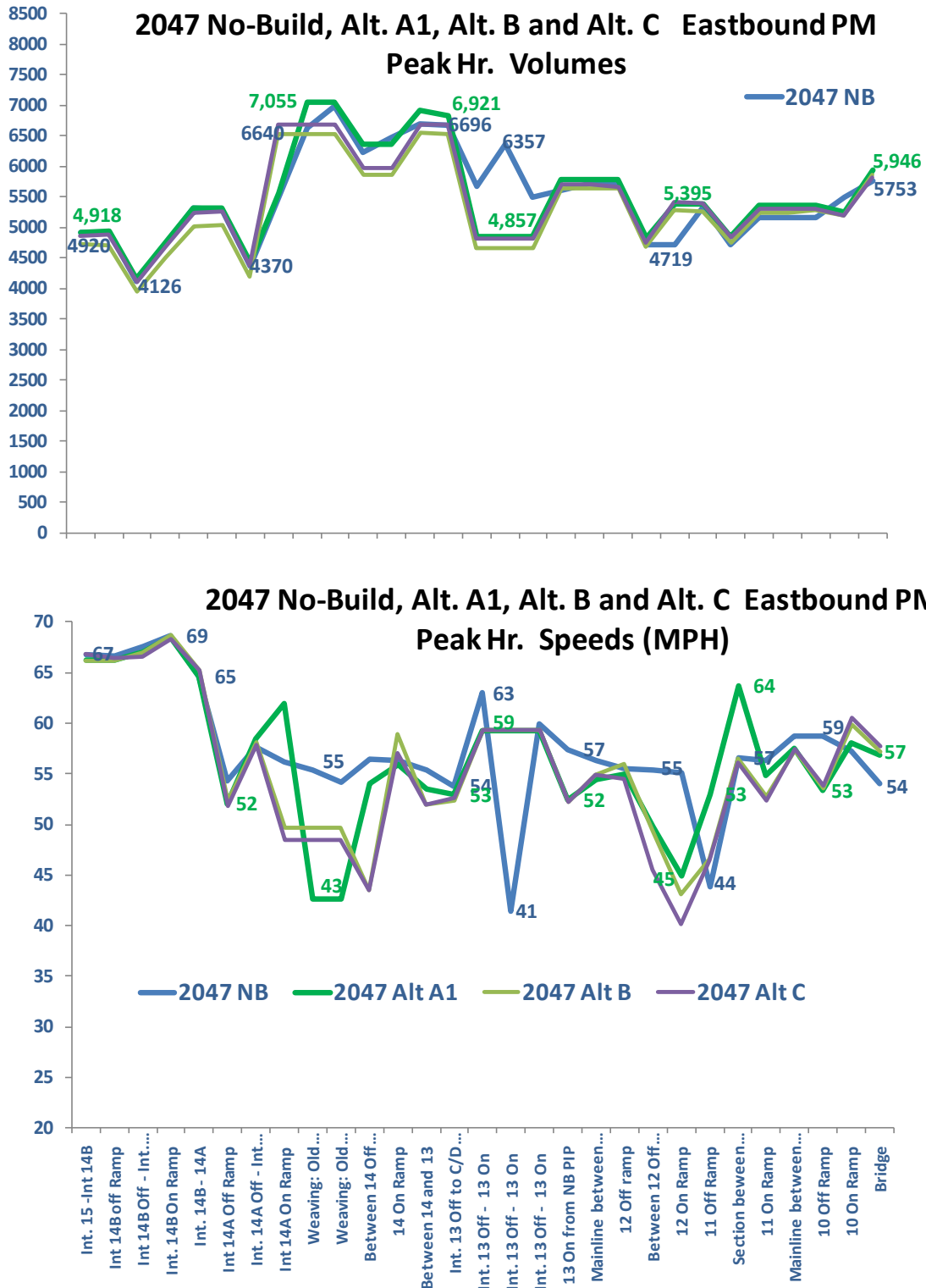


Figure 3-28 2047 No Build, Alts. B and C Without Transit (Alt. A1) and Alts. B and C With Transit Eastbound PM – Rockland County

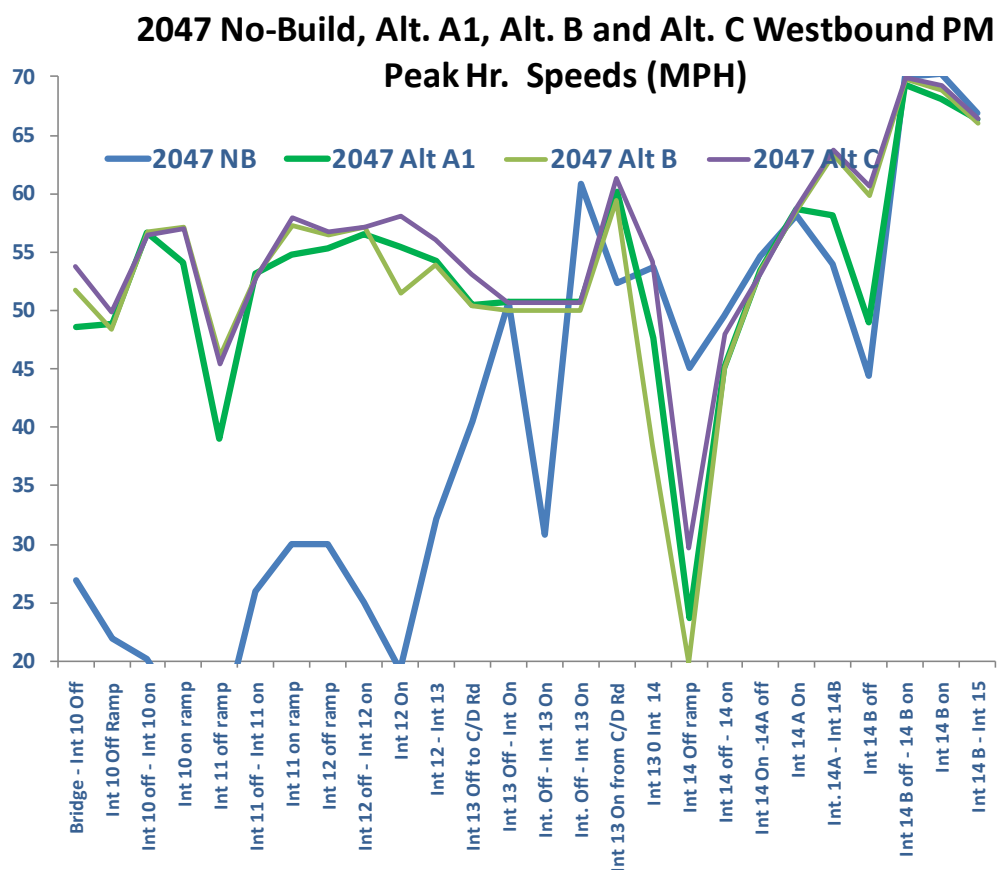
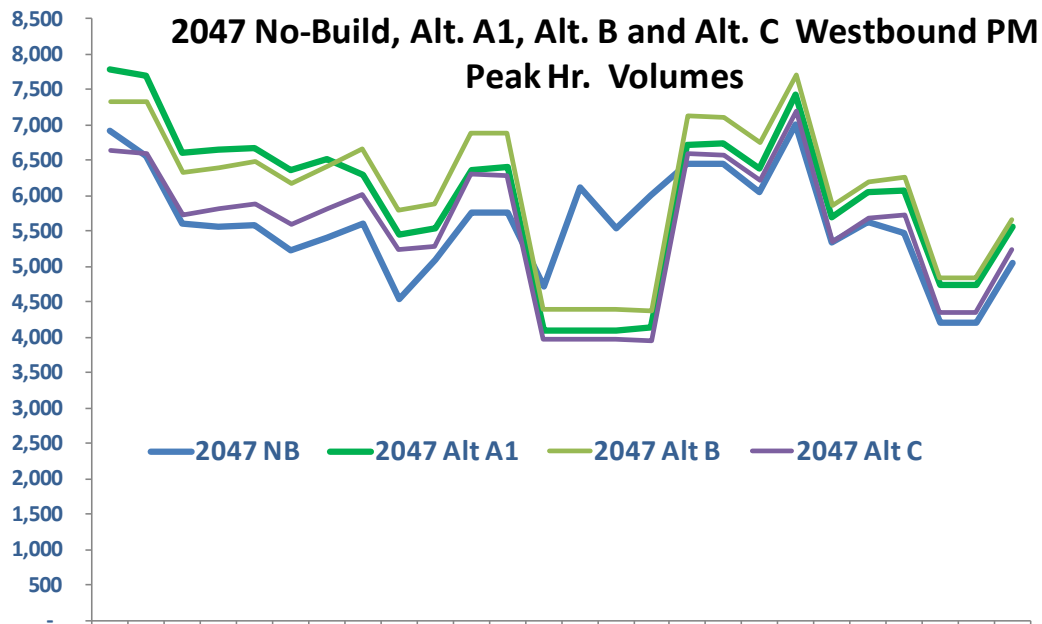


Figure 3-29 2047 No Build, Alts. B and C Without Transit (Alt. A1) and Alts. B and C With Transit Westbound PM – Rockland County

From the above graphs the following observations for 2047 with Alternatives A1, B and C can be made:

- For the AM period Alternatives B-C/No Transit and B-C with Transit all show very similar volume and speed patterns.
- The significant congestion shown in the AM eastbound No Build between Interchange 14 and Interchange 11 is greatly reduced under the build alternatives, with greater volumes and higher speeds in all three.
- The increased volumes at Interchange 11 will result in a substantial drop in speeds across all alternatives and somewhat lower speeds east of that point towards the bridge for the build alternatives.
- The AM westbound congestion located around Interchange 10-11 in the No Build is alleviated in the build alternatives. The increased traffic flow through this area would result in a reduction in speeds around Interchange 12.
- There is a substantial benefit seen in the speeds across all periods, directions and builds at Interchange 13 (C/D roadways).
- For the AM westbound, and the PM eastbound and westbound trips the increased volumes and weaving causes a drop in speeds around interchanges 14A and 14. This drop would be most pronounced in the PM westbound direction where the operations of Route 59 in Nanuet also contribute to the mainline congestion.
- Improved PM signal timings due to station location around interchange 14B would result in an improved mainline operation.
- The capacity constraints associated with the transit improvements in Westchester under Alternative C would result in a lower Bridge volume which accounts for the drop in WB volumes for Alternative C from the bridge to about Interchange 12.

Rockland County PMT, Travel Time and Mobility Index – Alt. B-C (2047)

Table 3-7 provides the PMT, travel time and mobility index values in 2047 under No Build and Alternatives B-C (common highway/bridge improvements only) in the AM and PM peak hours in the eastbound and westbound directions for Rockland County. Data for Alternatives D-E (common highway/bridge improvements + HOV/HOT lanes) are also presented for discussion in the next section. Data are shown for the same eastbound and westbound highway segments that were defined in Section 3.2 above. The results for Alternatives B-C show mobility gains in all peak hours and directions relative to NO Build conditions, especially in the westbound directions, reflecting the effect of the common highway/bridge improvements, especially the westbound climbing lane and the C/D roads at Interchange 13.

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Table 3-7

Person Miles of Travel, Travel Time (Minutes) and Mobility Indices for Eastbound and Westbound Highway Segments: Rockland County - AM and PM Peak Periods, Alt. A (No Build) and Alt. B-C and D-E in 2047¹

Rockland Eastbound - AM Peak	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H	Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H	Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H
15 On Ramp to 14 B On Ramp	2.6	3.2	3.9	2.8	18,126	17,987	20,481	5.6	4.6	7.4
14B On to 14A Off Ramp	3.1	3.0	3.1	4.5	22,052	21,990	26,358	7.3	7.2	5.8
14A Off Ramp to 14 On Ramp	1.5	2.5	1.8	2.1	10,177	10,727	12,143	4.0	6.0	5.9
14 On Ramp to 13 On Ramp from NB PIP	1.9	4.5	2.3	2.2	14,039	13,104	15,722	3.1	5.7	7.1
13 On Ramp from NB PIP to 11 On Ramp	2.6	7.6	5.7	5.4	16,028	18,487	23,200	2.1	3.3	4.3
11 On Ramp to Middle of bridge	3.7	3.8	4.4	7.6	31,579	34,487	42,396	8.3	7.8	5.6
15 On Ramp to Middle of bridge	15.6	24.7	21.1	24.5	112,003	116,784	140,301	4.5	5.5	5.7

Rockland Eastbound - PM Peak	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H	Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H	Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H
15 On Ramp to 14 B On Ramp	2.6	2.3	2.4	2.4	15,111	15,150	15,150	6.5	6.4	6.4
14B On to 14A Off Ramp	3.1	3.0	3.0	3.0	20,053	20,101	20,101	6.7	6.6	6.6
14A Off Ramp to 14 On Ramp	1.5	1.7	1.7	1.7	11,152	13,493	13,493	6.7	8.0	8.0
14 On Ramp to 13 On Ramp from NB PIP	1.9	2.2	2.1	2.1	15,421	13,221	13,221	6.9	6.4	6.4
13 On Ramp from NB PIP to 11 On Ramp	2.6	2.9	2.9	2.9	16,358	16,906	16,906	5.6	5.9	5.9
11 On Ramp to Middle of bridge	3.7	3.9	4.0	4.0	24,127	25,773	25,773	6.2	6.5	6.5
15 On Ramp to Middle of bridge	15.6	16.1	16.0	16.0	102,222	104,645	104,645	6.4	6.5	6.5

Rockland Westbound - AM Peak	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H	Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H	Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H
Middle of Bridge to 11 Off Ramp	4.4	6.2	4.9	4.7	26,773	29,083	34,136	4.3	5.9	7.2
11 Off Ramp to 13 Off Ramp to NB PIP	2.8	3.3	3.0	3.0	17,936	18,847	21,703	5.4	6.3	7.3
13 Off Ramp to NB PIP to 14 Off Ramp	1.9	1.9	2.0	2.0	11,335	11,636	13,912	5.9	5.8	6.9
14 Off Ramp to 14 A On Ramp	1.5	1.6	1.6	1.6	8,937	9,576	10,203	5.6	6.0	6.4
14 A On Ramp to 14 B off Ramp	3.5	3.2	3.3	3.4	19,935	21,100	23,395	6.2	6.5	6.9
14 B off Ramp to 15 Off Ramp	2.4	2.2	2.2	2.3	12,876	13,606	15,292	6.0	6.3	6.6
Middle of Bridge to 15 Off Ramp	16.5	18.4	16.9	17.0	97,792	103,848	118,641	5.3	6.1	7.0

Rockland Westbound - PM Peak	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H	Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H	Alt. A (2047)	Alt. B-C No H/H	Alt. D-E With H/H
Middle of Bridge to 11 Off Ramp	4.4	11.6	5.4	4.7	34,474	39,395	44,970	3.0	7.3	9.6
11 Off Ramp to 13 Off Ramp to NB PIP	2.8	6.7	3.3	3.0	20,170	21,614	24,348	3.0	6.6	8.1
13 Off Ramp to NB PIP to 14 Off Ramp	1.9	2.1	2.4	2.4	12,423	11,887	16,719	6.0	4.9	6.9
14 Off Ramp to 14 A On Ramp	1.5	1.6	1.7	1.7	10,370	11,016	11,441	6.5	6.7	6.9
14 A On Ramp to 14 B off Ramp	3.5	4.0	3.7	3.6	23,699	25,542	26,728	5.9	6.9	7.4
14 B off Ramp to 15 Off Ramp	2.4	2.1	2.2	2.3	13,886	15,395	16,251	6.5	7.1	6.9
Middle of Bridge to 15 Off Ramp	16.5	28.2	18.6	17.7	115,022	124,849	140,457	4.1	6.7	7.9

[1] Mobility Index is based on ratio of person-miles of travel and travel time for each segment

Source: NYSDOT

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Rockland County Local Arterials and Signalized Intersections – Alt. B-C (2047)

The summary of the locations and the various impacts of the signalized intersections can be found in Appendix C.

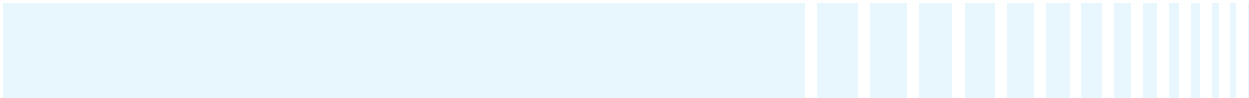
The following graphs (Figures 3-30 through 3-33) compare 2047 No Build volumes and speed with those under Alt. D-E with just highway/bridge improvements, including the HOV/HOT lanes under these alternatives (shown as Alt. A2 in the charts) and under Alt D-E with highway/bridge and transit improvements with BRT buses operating in the HOV/HOT lanes across Rockland County and the bridge. The detailed volume/speed data associated with these charts are provided in Appendix C.

From the above graphs the following observations for 2047 with Alternatives D-E without transit (shown as Alt. A2 in the charts) and Alt. D-E with transit:

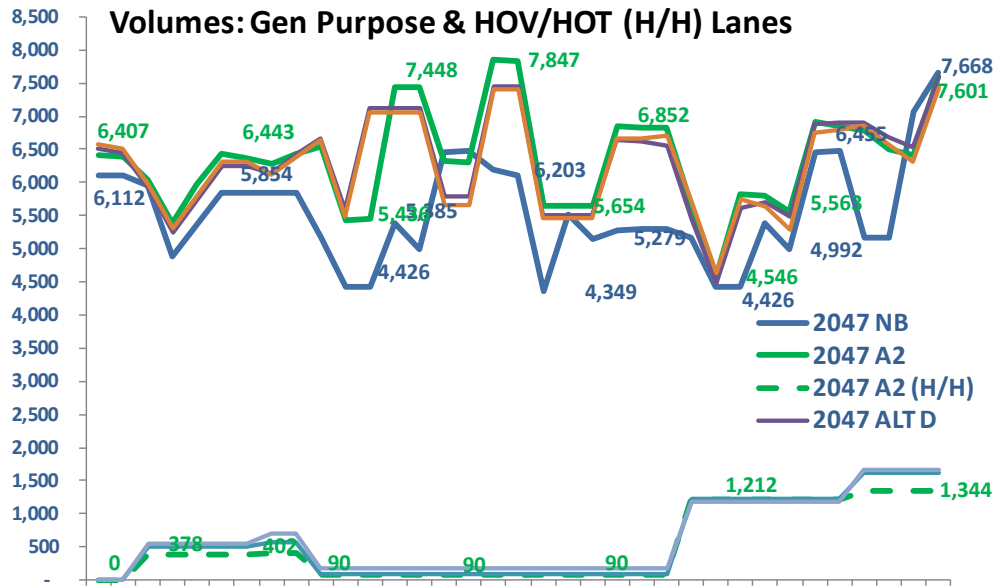
- The throughput in Rockland County is similar across the build alternatives and significantly higher than the No Build for the most part, given the additional capacity.
- All build alternatives show a significant improvement in the area of Interchange 13 (C/D roadways).
- The drop in eastbound AM speeds immediately east of Interchange 13 is due to the substantial increase in volumes through that section.
- The substantial drop in eastbound AM speeds from Interchange 12 to the bridge reflects problems at Interchange 8 in Westchester County, which does not have the capacity for the 1,500+ eastbound vehicles primarily coming from the eastbound HOV/HOT lane.
- Due to the additional demand and the impacts of the local streets in Nanuet, the build scenarios in the PM see a drop in speeds around interchanges 14A and 14. This is most evident in the Alternative E in the westbound direction.
- The build scenarios experience a drop in speeds near Interchange 12 in the eastbound direction, reflecting trips to and from the Palisades Mall, madding traffic very sensitive to any shifts in travel patterns.

Rockland County PMT, Travel Time and Mobility Index – Alt. D-E (2047)

Table 3-7 provided above shows the PMT, travel time and mobility index values in 2047 under No Build and Alternatives D -E (common highway/bridge improvements + HOV/HOT lanes) in Rockland County. Data are shown for the same eastbound and westbound highway segments that were defined in Section 3.2 above. The results for Alternatives D-E show cross-corridor mobility gains in all peak hours and directions relative to No Build conditions, especially in the westbound directions. The higher values for Alt. D-E relative to Alt. B-C reflects the additional PMT made possible by the vehicles with higher average occupancy levels in the HOV/HOT lanes. The substantial increase in eastbound travel times in the AM peak in the segment east of Interchange 11 and across the bridge (due to HOV/HOT related problems in Westchester) offsets most of the mobility gains realized in the rest of the eastbound corridor.



**2047 No-Build and Alt. A2 Eastbound AM Peak Hr.
Volumes: Gen Purpose & HOV/HOT (H/H) Lanes**



**2047 No-Build and Alt. A2 Eastbound AM Peak Hr.
Speeds- Gen Purpose Lanes (MPH)**

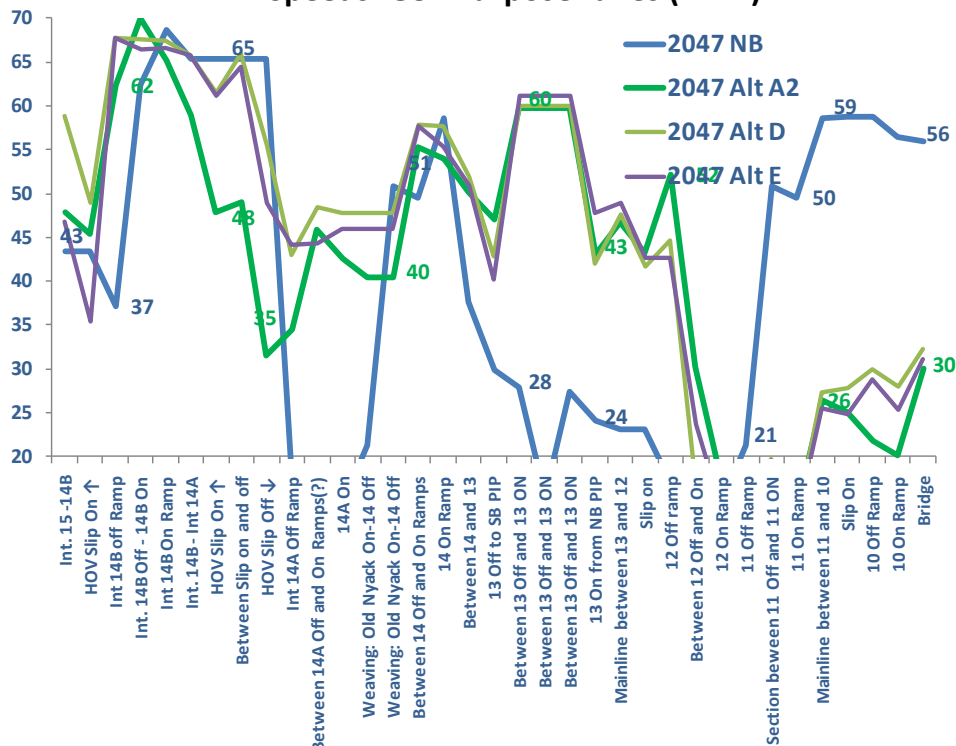


Figure 3-30 2047 No Build, Alts. D and E Without Transit (Alt. A2) and Alts. D and E With Transit (BRT in HOV/HOT Lane) Eastbound AM – Rockland County



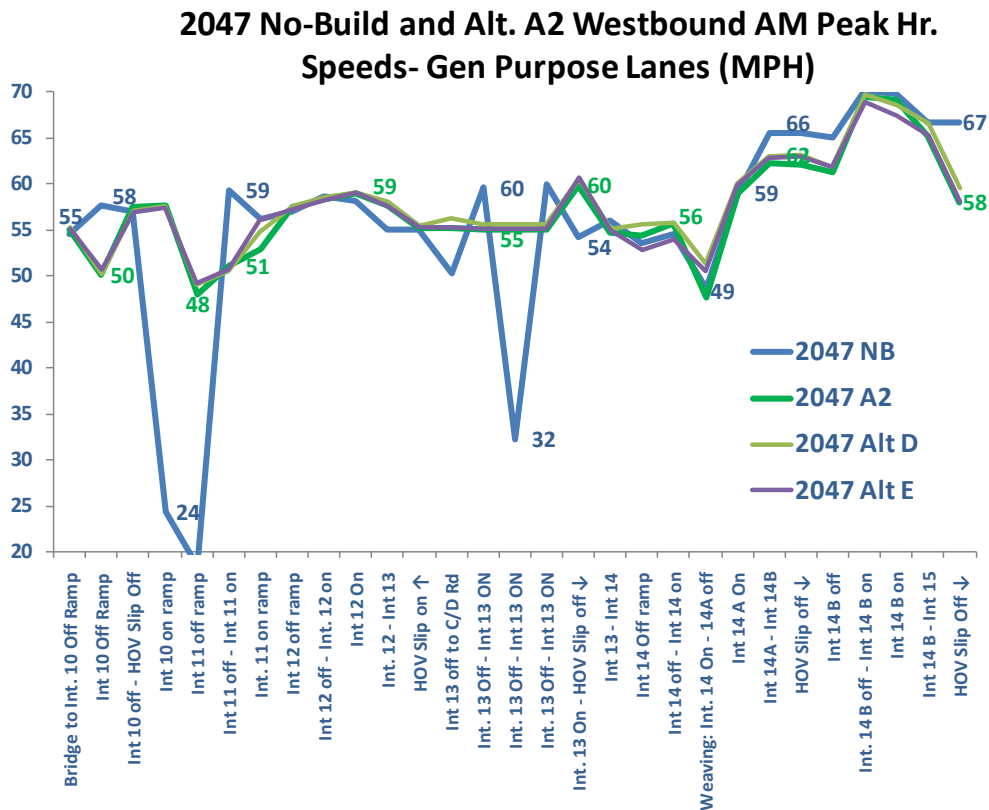
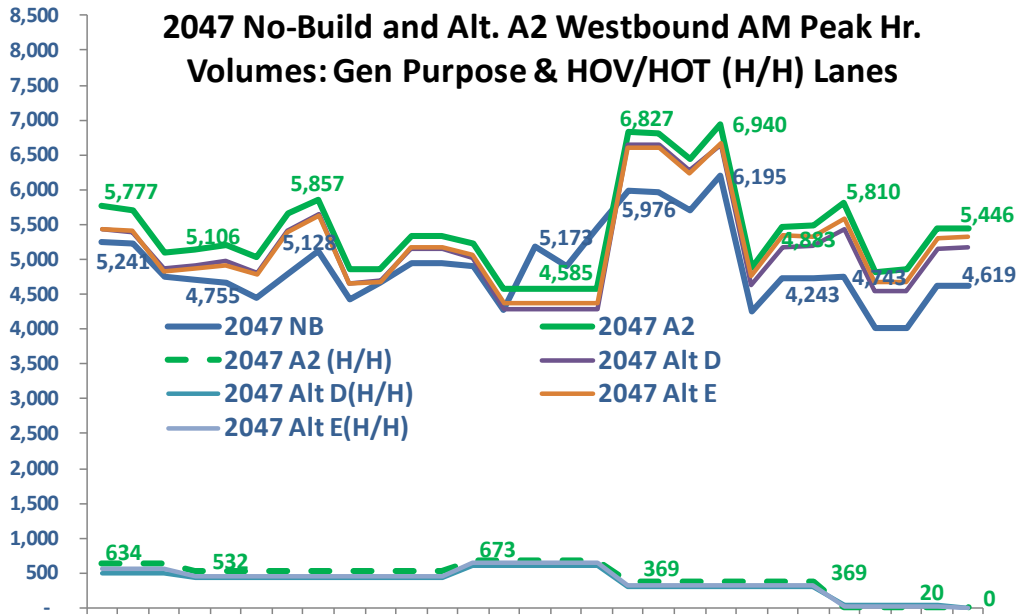


Figure 3-31 2047 No Build, Alts. D and E Without Transit (Alt. A2) and Alts. D and E With Transit (BRT in HOV/HOT Lane) Westbound AM – Rockland County

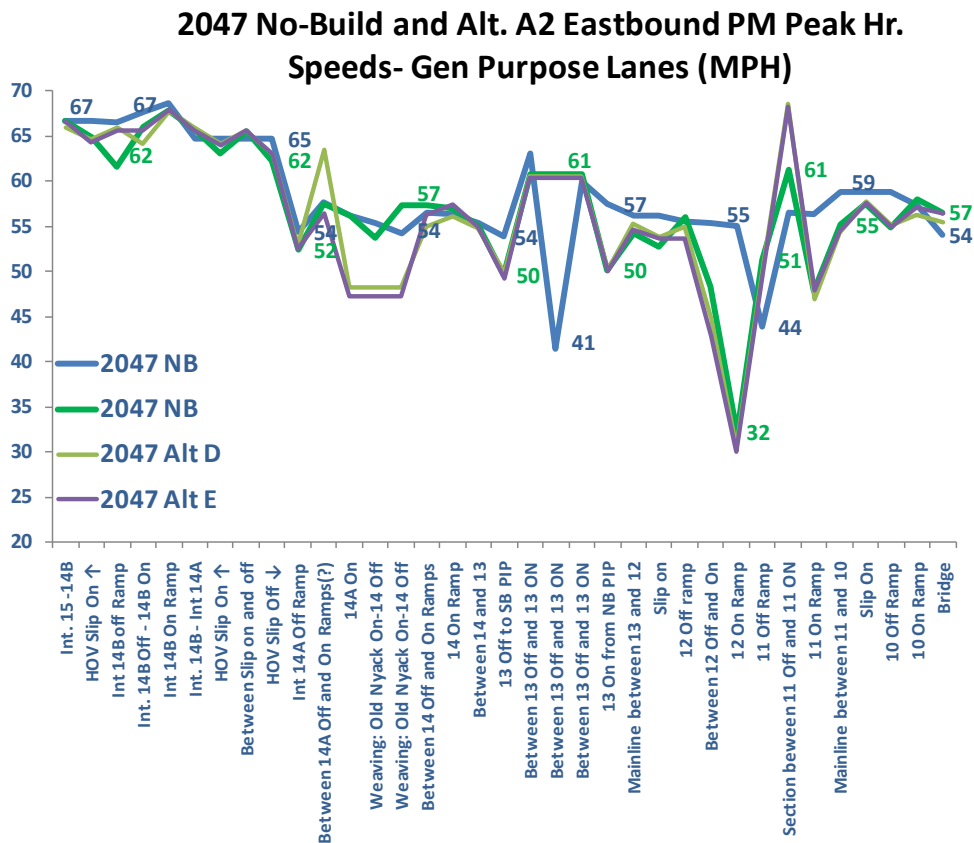
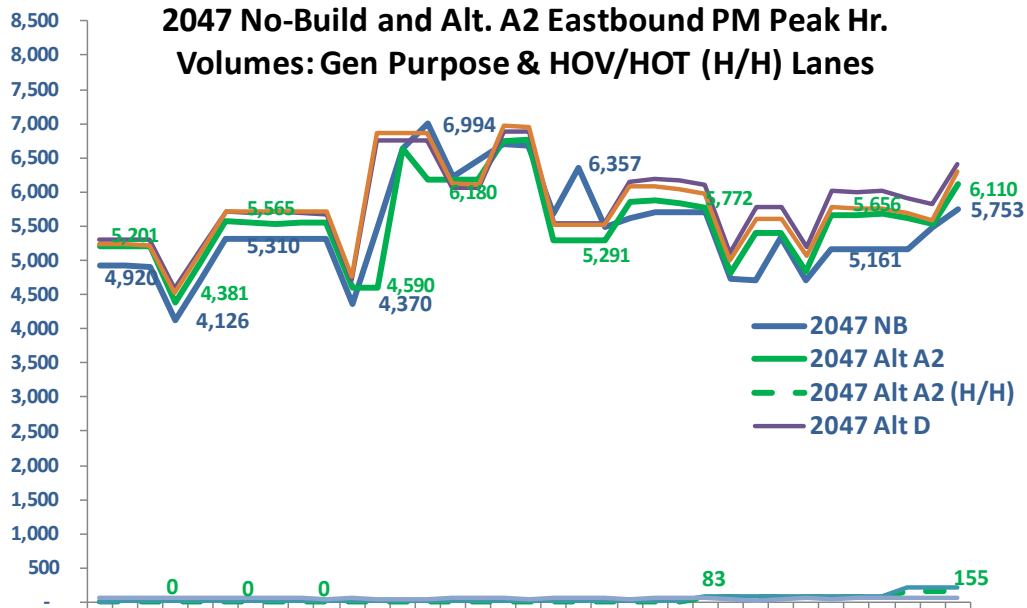


Figure 3-32 2047 No Build, Alts. D and E Without Transit (Alt. A2) and Alts. D and E With Transit (BRT in HOV/HOT Lane) Eastbound PM – Rockland County

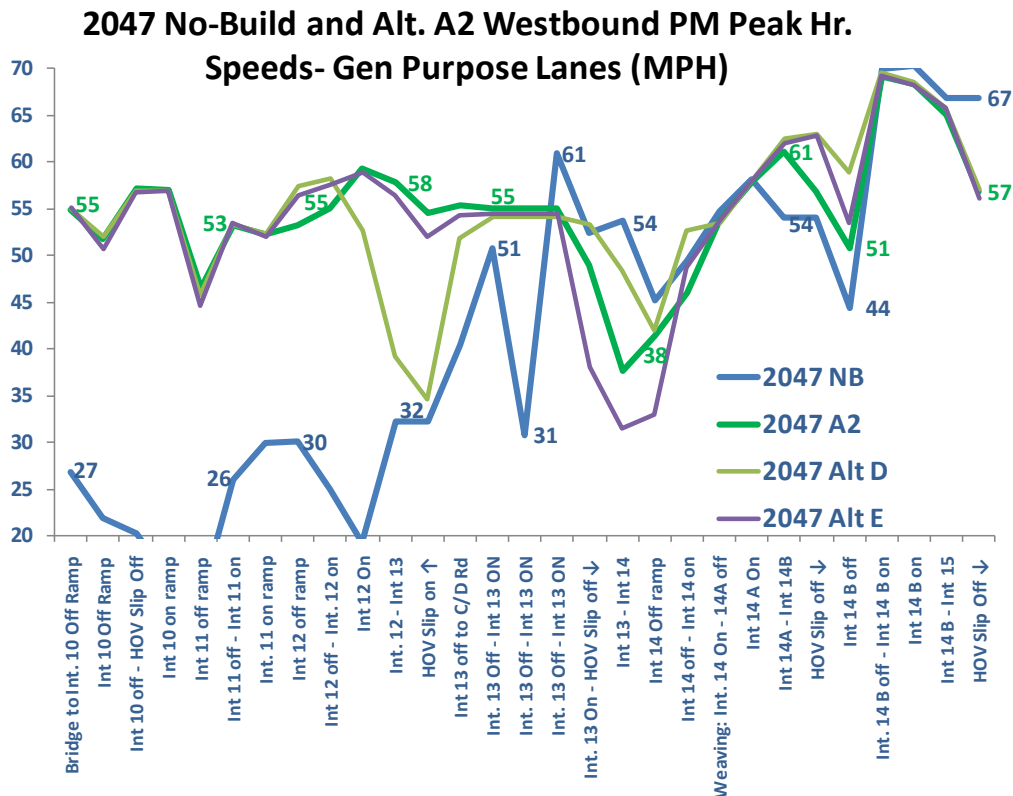
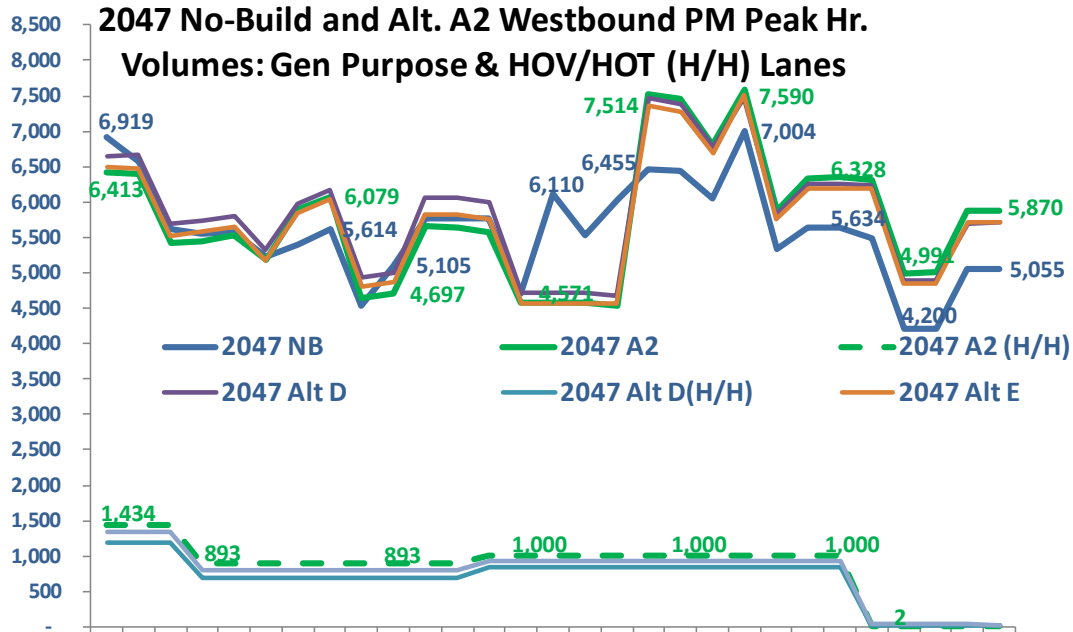


Figure 3-33 2047 No Build, Alts. D and E Without Transit (Alt. A2) and Alts. D and E With Transit (BRT in HOV/HOT Lane) Westbound PM – Rockland County

Rockland County Local Arterials and Signalized Intersections – Alt. D-E (2047)

The summary of the locations and the various impacts of the signalized intersections can be found in Appendix C.

3.4.4.2 Westchester County 2047 Build Conditions

Westchester County Comparison of Build Volumes and Speeds

In Westchester, highway and transit alternatives were compared against the No Build separately. Unlike in Rockland County where the alternatives with HOV/HOT lanes could be expected to operate in a similar manner (as would the alternatives without HOV/HOT lanes), it is not necessarily the case in Westchester because traffic operations in Westchester would depend on a combination of factors including the demand across the Tappan Zee Bridge, the capacity of roadways in Westchester, and so on.

Model Modifications

The following list the modifications that were made to the Westchester County Paramics 2047 build models in order to insure that the models reasonably assessed future build conditions:

- The PM demands were reduced for White Plains-originating trips to reduce the amounts of unreleased traffic to a more realistic amount. The logic for these reductions is based on the fact that the White Plains PM model zones mainly represent parking lots and garages that are already close to or at capacity, providing little room for those lots to increase their traffic-generating capacity beyond those levels.
- The Alternative D-E demands from White Plains to Westchester-based destinations were set to the same values as the Alternative B-C scenario to more realistically reflect the actual effect of Rockland HOV/HOT lanes on conditions in the central Westchester area.
- Traffic signal timing improvements to 2010 timing settings were applied throughout the model along 119 and in White Plains (No Build and build) to better reflect the actual timings that would exist after almost four decades of growth.
- The transit alternatives were given a new priority/protected phase of about 10sec at any intersection where the restricted bus lane would meet with general traffic – changes that would normally occur as part of such projects.
- A number of changes were made to the transit design through White Plains from North Central Avenue to the Eastern side of White Plains.
- An additional driveway was added for all 2047 models around the American Heart Association Parking Facility on Westchester Avenue. Although not needed in 2017 the local traffic growth in this area resulted in the need for a more real world representation of the driveways – changes that would clearly be made with or without the proposed project.

The following graphs (Figures 3-34 through 3-37) compare 2047 No Build volumes and speeds with those under Alt. B-C (shown as Alt. A1 in the charts) and Alternatives D-E (shown as Alt. A2 in the charts). The detailed volume/speed data associated with these charts are provided in Appendix C.

From the above graphs the following observations for 2047 with Alternatives B-C and D-E can be made:

- Except for the AM westbound direction there are no significant differences east of Interchange 8 between No Build and the two sets of build alternatives.
- Due to the increase eastbound demand coming across the bridge (from the HOV/HOT lane) in the AM peak under Alternatives D-E, the speeds from the bridge to Interchange 8 drop substantial and are also lower and more unstable up to Exit 7 in the White Plains areas.
- Due to the inability of large amounts of additional traffic to get to and from the highway in the central core of Westchester, there are no substantial changes in volumes for most of the mainline east of Interchange 8.

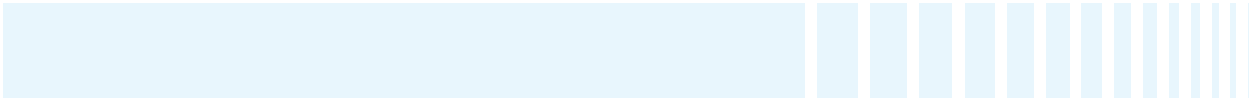
No information is provided here regarding highway operations under the 2047 build transit alternatives in Westchester County, as there were very few differences in highway operations under those alternatives relative to those shown above for Alternatives B-C and D-E without transit in 2047. Detailed speed and volume information for the 2047 transit alternatives are provided in Appendix C.

Westchester County PMT, Travel Time and Mobility Index – Alt. B-C and D-E (2047)

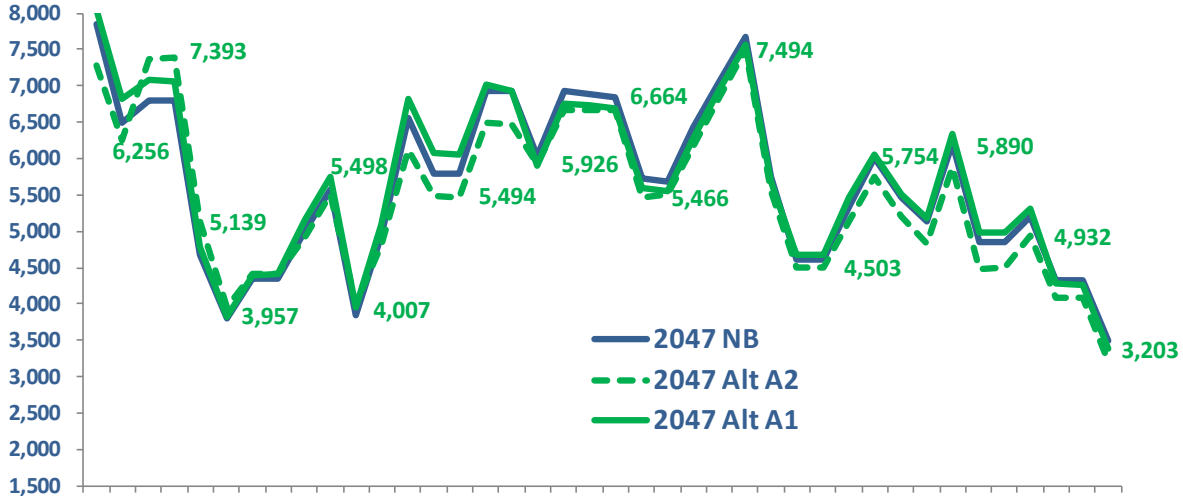
Table 3-8 shows the PMT, travel time and mobility index values in 2047 under No Build and Alternatives B-C and D-E in Westchester County. Data are shown for the same eastbound and westbound highway segments that were defined in Section 3.2 above. The results show (1) a general lack of meaningful differences in travel times and overall mobility among the No Build and two sets of build alternatives, which is expected due to the lack of any highway improvements in Westchester County, and (2) the substantial loss in mobility and through-put in the eastbound section from the bridge to Exit 6 in White Plains under Alternatives D-E due to the impact of HOV/HOT lane-related increases in eastbound demand coming from the bridge.

Westchester County Local Arterials and Signalized Intersections – Alt. D-E and D-E (2047)

The summary of the locations and the various impacts of the signalized intersections can be found in Appendix C. These discussions include a review of those changes in intersection-level traffic conditions in the White Plains area due to the introduction of on-street bus lanes under all four transit build alternatives.



2047 No-Build, Alt. A1 & A2 Eastbound AM Peak Hr. Volumes



2047 No-Build, Alt. A1 & A2 Eastbound AM Peak Hr. Speeds (MPH)

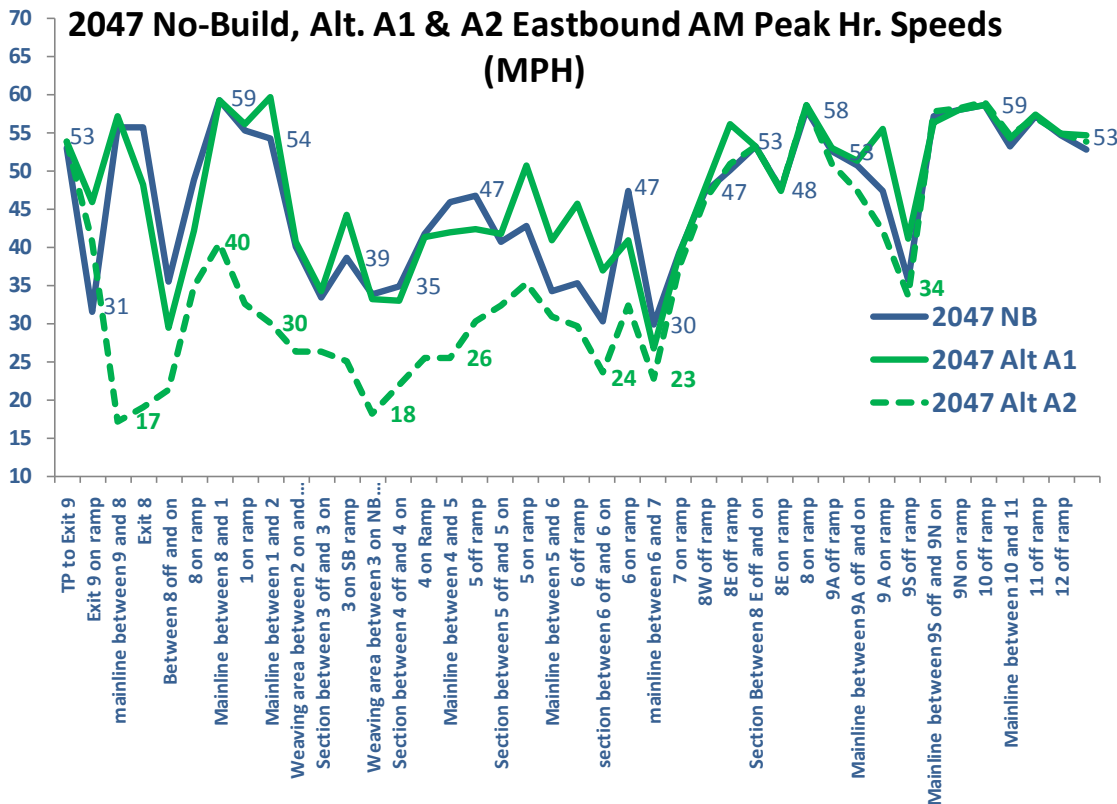
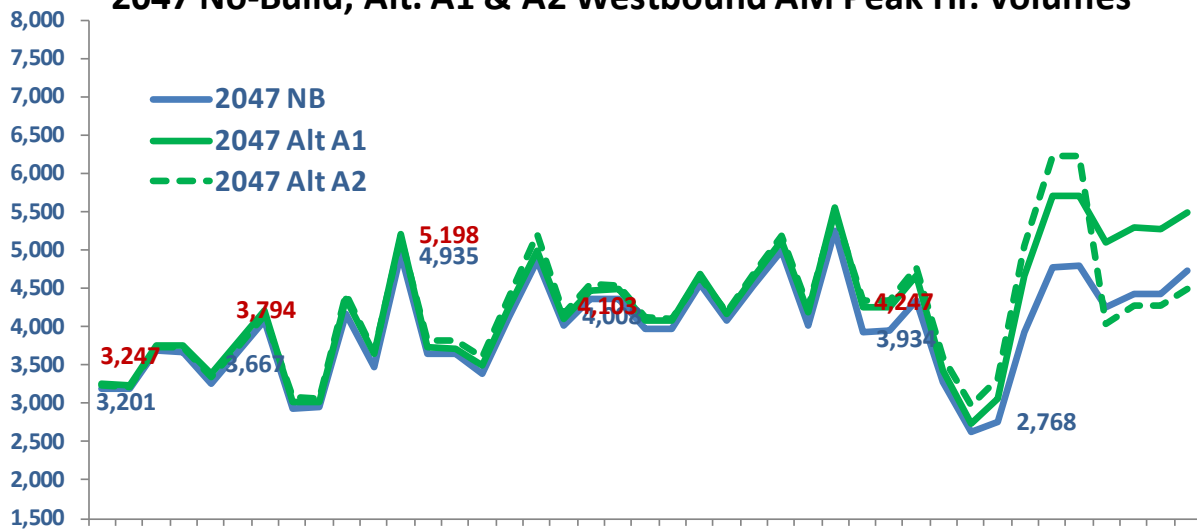


Figure 3-34 2047 No Build, Alts. B and C Without Transit (Alt. A1) and Alts. D and E Without Transit (Alt. A2) Eastbound AM – Westchester County

2047 No-Build, Alt. A1 & A2 Westbound AM Peak Hr. Volumes



2017 and 2047 No-Build Westbound AM Peak Hr. Speeds (MPH)

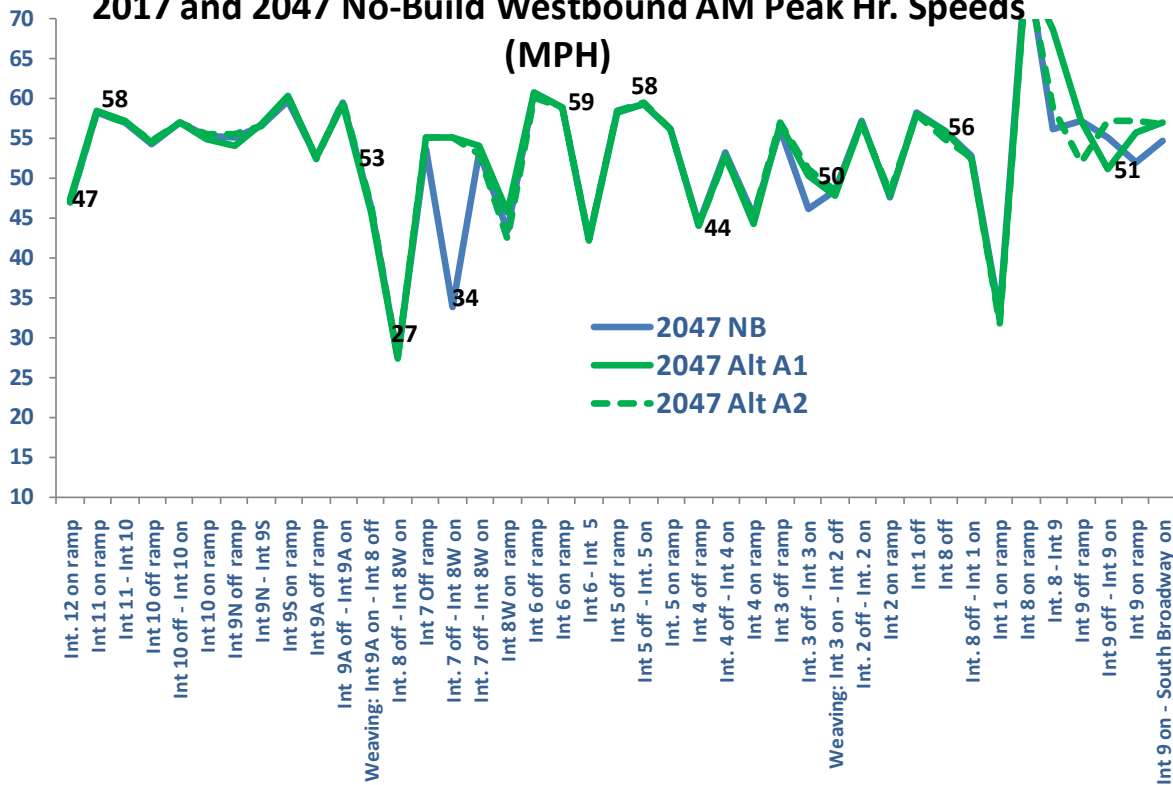


Figure 3-35 2047 No Build, Alts. B and C Without Transit (Alt. A1) and Alts. D and E Without Transit (Alt. A2) Westbound AM – Westchester County

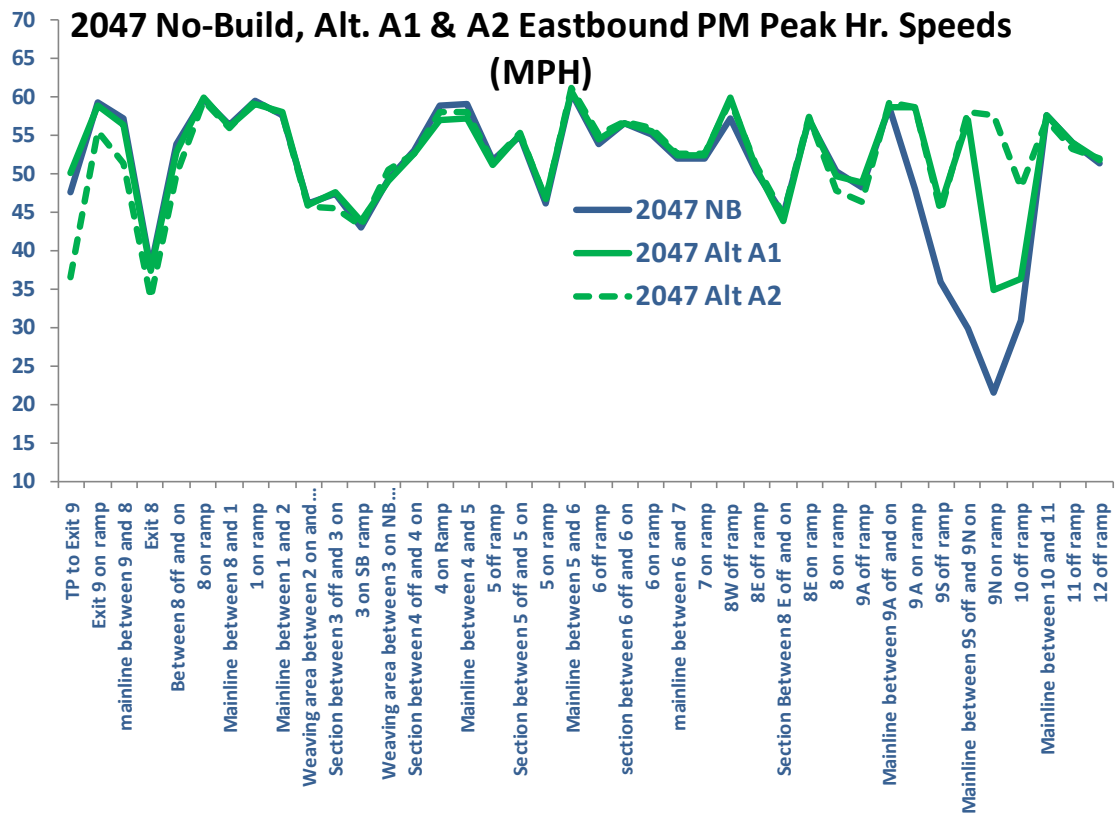
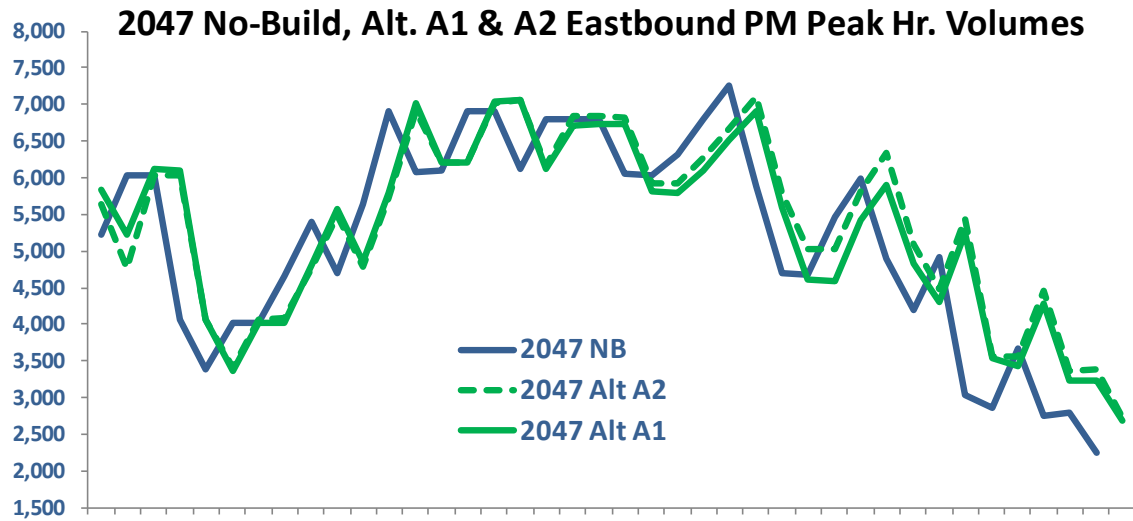


Figure 3-36 2047 No Build, Alts. B and C Without Transit (Alt. A1) and Alts. D and E Without Transit (Alt. A2) Eastbound PM – Westchester County

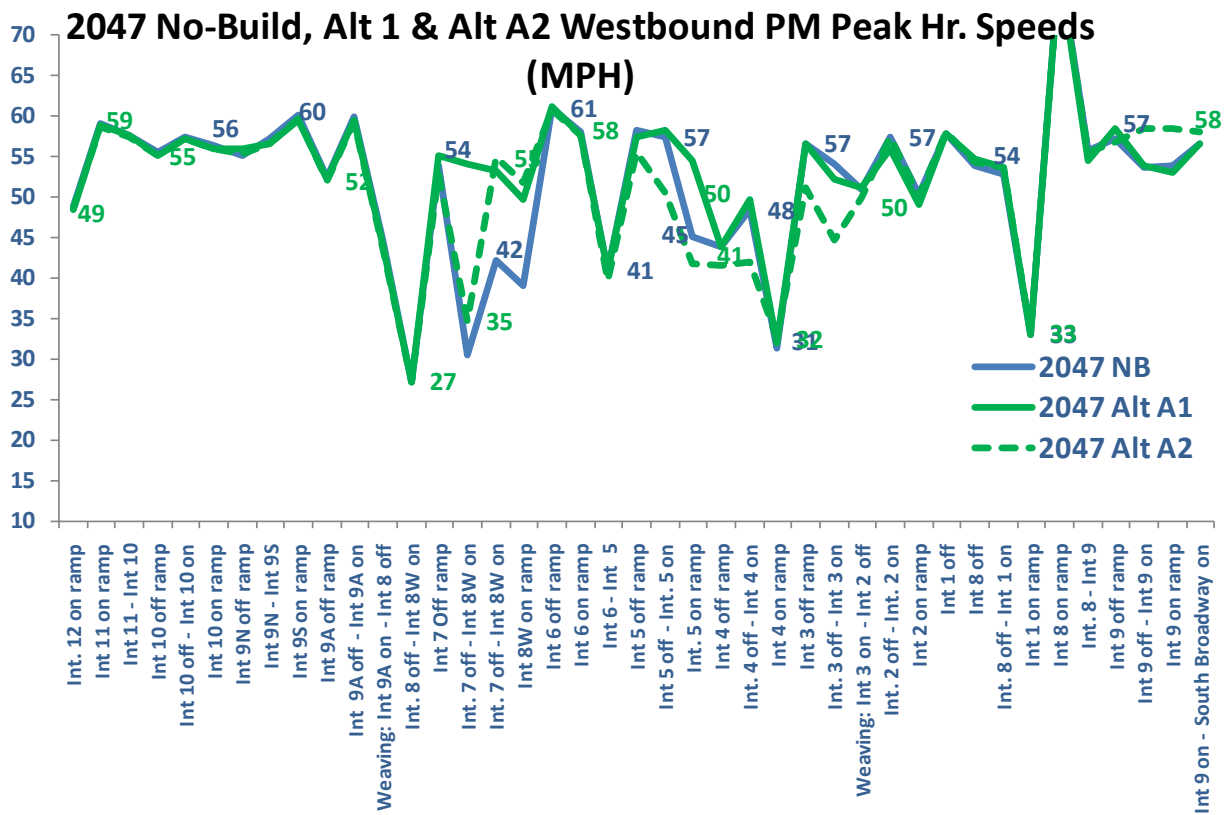
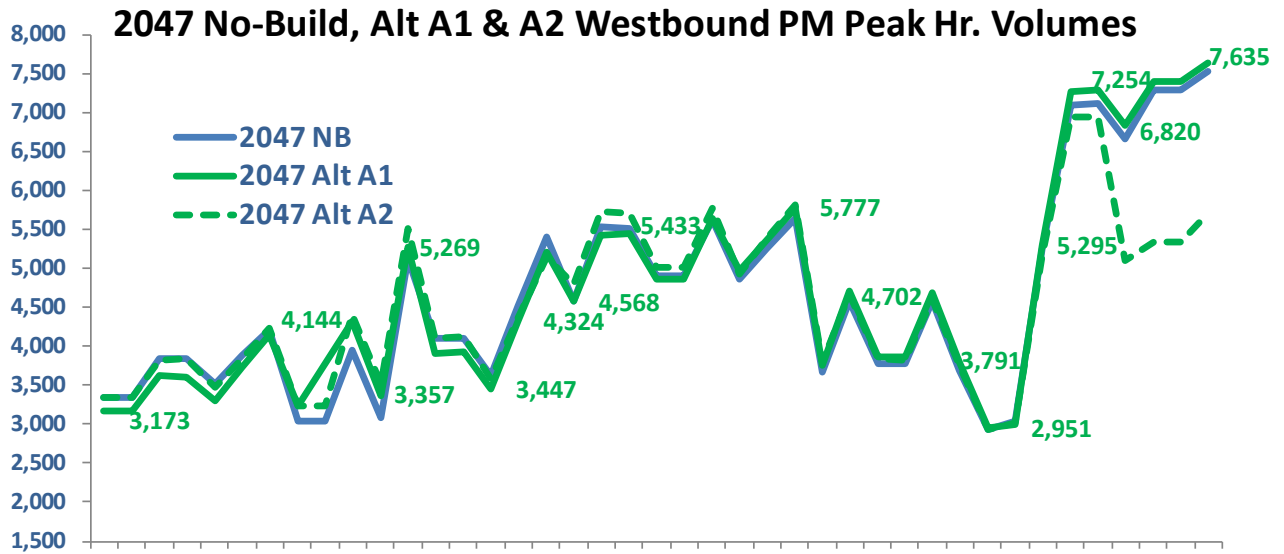


Figure 3-37 2047 No Build, Alts. B and C Without Transit (Alt. A1) and Alts. D and E Without Transit (Alt. A2) Westbound PM – Westchester County

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Table 3-8

Person Miles of Travel, Travel Time (Minutes) and Mobility Indices for Eastbound and Westbound Highway Segments: Westchester County - AM and PM Peak Periods, Alt. A (No Build) and Alt. B-C and D-E in 2047¹

Westchester Eastbound - AM	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2047)	Alt. B-C	Alt. D-E	Alt. A (2047)	Alt. B-C	Alt. D-E	Alt. A (2047)	Alt. B-C	Alt. D-E
		No H/H	No H/H	With H/H	No H/H	No H/H	With H/H	No H/H	No H/H	With H/H
Toll Plaza to Exit 8	1.1	1.5	1.5	3.3	9,397	9,776	9,642	6.4	6.7	2.9
Exit 8 to 2 On Ramp	1.6	1.9	2.0	2.9	8,625	8,810	9,015	4.5	4.4	3.1
2 On Ramp to 4 On Ramp	1.2	1.9	1.9	3.1	7,919	8,224	7,640	4.1	4.2	2.4
4 On Ramp to 6 On Ramp	2.0	3.2	3.0	4.1	15,306	15,090	14,682	4.8	5.0	3.6
6 On Ramp to 8 On Ramp	1.8	2.2	2.1	2.2	13,235	13,190	12,836	6.1	6.3	5.9
8 On Ramp to 9N On Ramp	2.4	2.8	2.6	2.9	14,634	14,900	13,712	5.2	5.6	4.7
9N On Ramp to 12 Off Ramp	2.1	2.2	2.2	2.2	10,686	10,572	10,060	4.8	4.8	4.6
Toll Plaza to Int. 12 Off Ramp	12.2	15.7	15.4	20.8	79,803	80,562	77,587	5.1	5.2	3.7

Westchester Eastbound - PM	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2047)	Alt. B-C	Alt. D-E	Alt. A (2047)	Alt. B-C	Alt. D-E	Alt. A (2047)	Alt. B-C	Alt. D-E
		No H/H	No H/H	With H/H	No H/H	No H/H	With H/H	No H/H	No H/H	With H/H
Toll Plaza to Exit 8	1.1	1.3	1.3	1.5	7,875	7,952	7,688	6.1	6.2	5.2
Exit 8 to 2 On Ramp	1.6	1.7	1.7	1.7	7,770	7,821	7,844	4.6	4.6	4.5
2 On Ramp to 4 On Ramp	1.2	1.5	1.5	1.5	8,502	8,698	8,621	5.7	5.8	5.8
4 On Ramp to 6 On Ramp	2.0	2.2	2.2	2.2	15,459	15,352	15,526	7.1	7.1	7.1
6 On Ramp to 8 On Ramp	1.8	2.0	2.0	2.0	13,047	12,613	13,244	6.4	6.2	6.5
8 On Ramp to 9N On Ramp	2.4	4.1	2.8	2.9	10,968	11,773	12,197	2.7	4.3	4.2
9N On Ramp to 12 Off Ramp	2.1	2.3	2.2	2.3	6,862	8,033	8,368	3.0	3.6	3.6
Toll Plaza to Int. 12 Off Ramp	12.2	15.0	13.7	14.1	70,483	72,242	73,488	4.7	5.3	5.2

Westchester Westbound - AM	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2047)	Alt. B-C	Alt. D-E	Alt. A (2047)	Alt. B-C	Alt. D-E	Alt. A (2017)	Alt. B-C	Alt. D-E
		No H/H	No H/H	With H/H	No H/H	No H/H	With H/H	No H/H	No H/H	With H/H
12 On Ramp to 9N Off Ramp	2.2	2.4	2.4	2.4	9,535	9,783	9,682	4.0	4.1	4.0
9N Off Ramp to 8 Off Ramp	2.4	2.6	2.6	2.6	9,969	10,394	10,491	3.9	4.0	4.1
8 Off Ramp to 6 On Ramp	2.0	4.2	2.7	2.8	9,222	9,467	9,737	2.2	3.5	3.5
6 On Ramp to 4 Off Ramp	1.7	1.8	1.8	1.8	8,560	8,796	8,868	4.7	4.8	4.8
4 Off Ramp to 2 On Ramp	1.5	1.8	1.8	1.8	7,994	8,363	8,444	4.5	4.8	4.8
2 On Ramp to 8 On Ramp	0.9	1.1	1.1	1.1	3,436	3,751	4,017	3.1	3.4	3.6
8 On Ramp to Bridge	2.1	2.2	2.1	2.1	11,754	13,907	12,986	5.4	6.8	6.1
12 ON Ramp to Bridge	12.9	16.1	14.5	14.6	60,471	64,460	64,225	3.7	4.5	4.4

Westchester Westbound - PM	Length	Travel Time			PMT			Mobility Index		
		Alt. A (2047)	Alt. B-C	Alt. D-E	Alt. A (2047)	Alt. B-C	Alt. D-E	Alt. A (2017)	Alt. B-C	Alt. D-E
		No H/H	No H/H	With H/H	No H/H	No H/H	With H/H	No H/H	No H/H	With H/H
12 On Ramp to 9N Off Ramp	2.2	2.4	2.4	2.4	10,039	9,520	9,973	4.2	4.0	4.2
9N Off Ramp to 8 Off Ramp	2.4	2.6	2.6	2.6	9,736	10,565	10,682	3.8	4.1	4.1
8 Off Ramp to 6 On Ramp	2.0	4.6	2.7	3.2	10,206	9,801	10,132	2.2	3.6	3.2
6 On Ramp to 4 Off Ramp	1.7	2.0	1.9	2.1	10,718	10,600	11,040	5.5	5.6	5.3
4 Off Ramp to 2 On Ramp	1.5	1.8	1.8	2.0	8,175	8,368	8,360	4.5	4.6	4.2
2 On Ramp to 8 On Ramp	0.9	1.1	1.1	1.1	3,954	3,991	3,944	3.5	3.6	3.6
8 On Ramp to Bridge	2.1	2.2	2.2	2.1	18,286	18,630	15,418	8.5	8.6	7.3
12 ON Ramp to Bridge	12.9	16.6	14.7	15.4	71,113	71,474	69,549	4.3	4.9	4.5

[1] Mobility Index is based on ratio of person-miles of travel and travel time for each segment

Source: NYSDOT

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4 Mitigation Measures

4.1 Highway and Bridge Mitigation

The Highway and Bridge Elements would improve overall highway mobility and operations in both 2017 and 2047, allowing the corridor to move more people and goods with typically minimal increases in (and often decreases in) travel time. The use of a mobility index in the traffic analysis rather than just travel speeds or tradition Level of Service (LOS) ratings provided a clearer measure of how much the proposed project would improve the highway's ability to efficiently handle future demand increases.

No locations were identified along the highway that would require mitigation, which is expected given that the proposed project itself is a mitigation package for many of the operational and safety issues in Rockland County. Further, many problems would have already been addressed by the on-going highway improvements in Westchester County, where no changes to the highway are proposed.

The only location where the project would potentially impact highway operations would be under Alternative D (HOV/Busway) and Alternative E (HOV/Bus Lanes) in 2047. Under these alternatives in the morning AM peak hour, eastbound volumes from Rockland County heading over the bridge (including those in the HOV/HOT lane) would increase by 1,300 to 1,400 vehicles over No Build levels. After roughly 300 to 400 vehicles get off at Interchange 9 (via the flyover ramp), the remaining 1,000 to 1,100 vehicles in the HOT/HOT lane would merge into the highway's general purpose lanes between Interchange 9 and Interchange 8. These added volumes would put pressure on the recently redesigned Interchange 8, resulting in speed reductions on the eastbound highway that would affect traffic flows on the bridge and affect the highway's operation in eastern Rockland County. The overall highway network would be handling more volumes, but with an increase in travel time to the average driver. These impacts would occur in 2047 but would not occur in 2017.

In terms of the possible need for mitigation of these impacts, the following factors need to be considered:

- These impacts are projected over an almost 40 year planning horizon, with all of the uncertainties and approximations involved in that type of process.
- As the various build alternatives continue to be reviewed, all operating parameters of the impacted highway segment in Westchester – e.g., weaving distances, merge/diverge operations, etc. – would need to be further reviewed to assess potential refinements to the proposed concept to ensure that the maximum mobility benefits of the HOV/HOT lane would be achieved while maintaining overall traffic flow.
- The identified impact of the HOV/HOT lane on highway operations is directly correlated to the traffic volumes in that lane, the use of which is controlled by pricing. The pricing paradigm assumed for the EIS was that the lane's utilization in Rockland County and across the bridge would be maximized as long as speed in the lane was maintained to at least 45 mph. Different pricing strategies for this lane that would reduce these volumes and the associated traffic impacts should also be further reviewed.

Some delays associated with toll plaza operation were projected for future years – delays that would be less than under the present bridge but still an issue. However, it is very likely that some form of open-road

tolling (ORT) system for the toll plaza would be in place well before 2047, which would eliminate these toll plaza issues. In the interim, further enhancements in design, as well as additional marketing or pricing strategies to increase E-ZPass usage could help maintain traffic operations at the toll plaza.

4.2 Intersection Mitigation

Traffic conditions with the project in 2017 generally would not warrant any mitigation at study area intersections, other than the assumed fine-tuning of operations normally carried out by traffic agencies. In 2047 at the identified locations, the way in which overall travel demand levels would be manifested at the intersection levels are difficult to project. Many of the potential impacts would involve often modest shifts or increases in volumes at already heavily congested intersections. The exact nature of those adjustments would be worked out by traffic agencies as part of normal traffic management programs.

Most of the potential traffic impacts of the Highway and Bridge Elements at signalized intersections in Rockland and Westchester Counties could be mitigated through low-cost, transportation systems management (TSM) type improvements. These would include signal timing and phasing refinements to better match demand patterns at those locations, pavement restriping to optimize lane arrangements based on traffic demands; and other measures to improve capacity such as corridor signal coordination and parking restrictions at intersection approaches. These are the types of actions that traffic agencies routinely carry out as part of short- and long-range operational and safety programs – actions that would occur numerous times during the long-term planning year horizon of 2047.

4.3 Transit Mitigation Strategies

A number of potential traffic impacts associated with the Transit Elements were identified near proposed BRT and BRT/CRT stations in Rockland County and along roadways with proposed on-street bus lanes in or near downtown White Plains. During the future Tier 2 Transit environmental documentation, the transit stations would be further designed, taking into consideration access/egress plans and adjustments to nearby signal designs to minimize such impacts. Where a station would alter highway or roadway design, such as the elimination of the Old Nyack Turnpike eastbound on-ramp near Interchange 14, more extensive geometric changes at affected intersections would be needed.

In terms of the impacts that would be associated with BRT operations, comprehensive street management studies would be needed to balance the competing demands for street and sidewalk space, especially in a complex, tightly designed downtown White Plains. These types of issues would be addressed during the future Tier 2 Transit environmental documentation.

5 References





6 List of Preparers

This technical report was prepared under the direction of the New York State Department of Transportation, New York State Thruway Authority, and Metro-North Railroad by:

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Metro-North
Railroad



New York State
Department of Transportation



Thruway
Authority



Appendix A

Existing Observed Data

Table A-1: Seasonally Adjusted ATR Volumes – Rockland County
Table A-2: Seasonally Adjusted ATR Volumes – Westchester County
Table A-3: Turning Movements at Intersections – Rockland County
Table A-4: Turning Movements at Intersections – Westchester
County





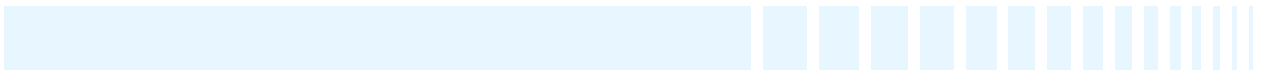
**Thruway
Authority**



**New York State
Department of Transportation**



**Metro-North
Railroad**







A Existing Observed Data

Table A-1
Seasonally Adjusted ATR Volumes – Rockland County *

Location #	Description	AM	PM
00NB	FOURTH STREET NORTHBOUND SOUTH OF ROUTE 59	77	67
00SB	FOURTH STREET SOUTHBOUND SOUTH OF ROUTE 59	70	124
01EB	ROUTE 59 EASTBOUND WEST OF FOURTH STREET	665	348
01WB	ROUTE 59 WESTBOUND WEST OF FOURTH STRET	289	648
02EB	ROUTE 59 EASTBOUND EAST OF FOURTH STREET	712	371
02WB	ROUTE 59 WESTBOUND EAST OF FOURTH STREET	312	726
03NB	I-287 NORTHBOUND TO I-87 NORTHBOUND	1,551	3,620
04SB	I-87 SOUTHBOUND TO I-287/RT 17 SOUTHBOUND	3,636	1,757
05WB	I-87 WESTBOUND TO I-287/RT 17 SOUTHBOUND	1,413	1,588
06NB	I-287/Rt17 NORTHBBOUND TO I-87 SOUTHBOUND	1,690	1,254
07NB	RT 59 SOUTH OF ROUTE 202	262	572
07SB	RT 59 RT SOUTH OF ROUTE 202	488	378
100EB	RT 59 EASTBOUND WEST OF MOUNTAINVIEW AVENUE	1,454	973
101SB	MOUNTAINVIEW AVENUE SOUTHBOUND NORTH OF ROUTE 59	257	141
102WB	RT 59 WESTBOUND EAST OF MOUNTAINVIEW AVENUE	606	834
103NB	MOUNTAINVIEW AVENUE NORTHBOUND SOUTH OF ROUTE 59	285	235
104NB	I-287 NORTHBOUND OFF RAMP AT EXIT 11	270	423
105NB	ON RAMP FROM EXIT #11 TO I-287 NORTHBOUND	511	499
108SB	RT 9W SOUTHBOUND NORTH OF HIGH STREET	476	496
109EB	HIGH AVENUE EASTBOUND WEST OF ROUTE 9W	218	381
10EB	RT 59 WEST OF CHESTNUT STREET	298	260
10WB	RT 59 WEST OF CHESTNUT STREET	117	248
110WB	HIGH AVENUE WESTBOUND EAST OF ROUTE 9W	153	261
111NB	ROUTE 9W NORTHBOUND SOUTH OF HIGH AVENUE	534	531
112SB	ROUTE 9W SOUTHBOUND NORTH OF ROUTE 59	504	408
113WB	MAIN STREET WESTBOUND EAST OF ROUTE 9W	227	413
114EB	ROUTE 59 EASTBOUND WEST OF ROUTE 9W	603	851
115NB	ROUTE 9W NORTHBOUND SOUTH OF ROUTE 59	365	475
117WB	MAIN STREET WESTBOUND EAST OF FRANKLIN AVENUE	158	327
118NB	FRANKLIN AVENUE NORTHBOUND SOUTH OF MAIN STREET	88	219
119EB	MAIN STREET EASTBOUND WEST OF FRANKLIN AVENUE	300	465
11EB	RT 59 EB W/O Washington Ave	422	423
121SB	BROADWAY SOUTHBOUND NORTH OF MAIN STREET	204	240
122EB	MAIN STREET EASTBOUND WEST OF BROADWAY	149	261
121SB	BROADWAY SOUTHBOUND NORTH OF MAIN STREET	81	134
124NB	BROADWAY NORTHBOUND SOUTH OF MAIN STREET	114	215
126NB	ROUTE 9W NORTHBOUND NORTH OF FRANKLIN AVENUE	137	245
126SB	ROUTE 9W SOUTHBOUND NORTH OF FRANKLIN AVENUE	376	282
127NB	I-287 NORTHBOUND ON RAMP AT INTERCHANGE #10	71	71
128WB	I-287 NORTHBOUND OFF RAMP AT INT #10 TO FRANKLIN AVENUE AND ROUTE 9W	144	385
129NB	ROUTE 9W NORTHBOUND ON BRIDGE OVER I-287	844	664



Table A-1 (con't)
Seasonally Adjusted ATR Volumes – Rockland County *

Location #	Description	AM	PM
12SB	WASHINGTON AVENUE SOUTHBOUND NORTH OF RT 59	216	229
130NB	I-287 NORTHBOUND OFF RAMP AT INTERCHANGE #10	368	711
131WB	ROUTE 59 WESTBOUND EAST OF CHESTNUT STREET	217	354
132NB	ROUTE 202 NORTHBOUND SOUTH OF LAFAYETTE STREET	282	454
133EB	HIGHVIEW AVENUE EASTBOUND EAST OF SPOOK ROCK ROAD	304	377
133WB	HIGHVIEW AVENUE WESTBOUND EAST OF SPOOK ROCK ROAD	273	412
134NB	SADDLE RIVER ROAD NORTHBOUND SOUTH OF OLD NYACK TURNPIKE	198	287
134SB	SADDLE RIVER ROAD SOUTHBOUND SOUTH OF OLD NYACK TURNPIKE	224	263
135NB	ROUTE 45 NORTHBOUND SOUTH OF OLD NYACK TURNPIKE	313	514
135SB	ROUTE 45 SOUTHBOUND SOUTH OF OLD NYACK TURNPIKE	503	367
136EB	ROUTE 59 EASTBOUND WEST O FDYKES PARK ROAD	1,169	1,374
136WB	ROUTE 59 WESTBOUND WEST OF DYKES PARK DRIVE	577	1,438
138SB	FRANKLIN AVENUE SOUTHBOUND NORTH OF CLINTON AVENUE	108	96
139NB	ROUTE 304 NORTHBOUND NORTH OF BARDONIA ROAD	527	1,190
139SB	ROUTE 304 SOUTHBOUND NORTH OF BARDOINA ROAD	1,093	1,211
13WB	RT 59 WESTBOUND EAST OF WASHINGTON AVENUE	397	724
140NB	ROUTE 304 NORTHBOUND SOUTH OF BARDONIA ROAD	593	1,421
140SB	ROUTE 304 SOUTHBOUND SOUTH OF BARDONIA ROAD	1,298	1,295
14NB	WASHINGTON AVENUE NORTHBOUND SOUTH OF ROUTE 59	296	445
15EB	RT 59 EASTBOUND WEST OF HEMION ROAD	641	735
16NB	HEMION ROAD NORTHBOUND SOUTH OF ROUTE 59	319	366
17WB	RT 59 WESTBOUND EAST OF HEMION ROAD	680	822
18SB	HEMION ROAD SOUTHBOUND NORTH OF ROUTE 59	362	468
19EB	RT 59 EASTBOUND WEST OF AIRMONT ROAD	560	683
20NB	AIRMONT ROAD NORTHBOUND EAST OF ROUTE 59	470	479
21SB	AIRMONT ROAD SOUTHBOUND WEST OF ROUTE 59	812	900
23SB	OFF RAMP FROM I-287 SOUTHBOUND TO AIRMONT ROAD	813	443
24NB	ON RAMP FROM AIRMONT ROAD TO I-287 NORTHBOUND	455	684
25NB	I-287 NORTHBOUND OFF RAMP TO AIRMONT ROAD	744	1,024
26EB	ON RAMP FROM AIRMONT ROAD TO SOUTHBOUND I-287	996	1,083
281WB	ROUTE 59 EASTBOUND EAST OF AIRMIONT ROAD	636	791
281WB	ROUTE 59 WESTBOUND EAST OF AIRMONT ROAD	596	907
282EB	ROUTE 59 EASTBOUND WEST OF YATTO ALNE	474	626
282WB	ROUTE 59 WESTBOUND WEST OF YATTO LANE	541	609
283SB	I-287 SOUTHBOUND RAMP TO GSP SOUTHBOUND	829	363
284SB	GSP NORTHBOUND OFF RAMP TO I-287 SOUTHBOUND	1,193	1,503
285NB	GSP NORTHBOUND OFF RAMP TO PASCACK ROAD	218	364
286NB	I-287 NORTHBOUND RAMP TO GSP SOUTHBOUND	1,889	1,539
287NB	I-287 NORTHBOUND BETWEEN Exit 14A AND 14B	2,678	4,674
287SB	I-287 SOUTHBOUND BETWEEN Exit 14A AND 14B	4,204	4,091
288NB	I-287 NOTHBOUND BETWEEN Exit 13 AND 14	4,253	5,706
288SB	I-287 Southbound BETWEEN Exit 13 AND 14	4,518	4,218
289NB	I-287 NORTHBOUND BETWEEN EXIT 12 AND 13	3,842	5,750



Table A-1 (con't)
Seasonally Adjusted ATR Volumes – Rockland County *

Location #	Description	AM	PM
289SB	I-287 SOUTHBOUND BETWEEN EXIT 12 AND 13	4,949	3,949
28SB	SPOOK ROCK ROAD SOUTHBOUND NORTH OF ROUTE 59	223	343
29NB	CHERRY ROAD NORTHBOUND SOUTH OF ROUTE 59	222	178
30WB	RT 59 WESTBOUND EAST OF SPOOK ROCK ROAD	452	709
31SB	COLLEGE ROAD SOUTHBOUND NORTH OF ROUTE 59	225	317
32EB	RT 59 EASTBOUND WEST OF COLLEGE ROAD	462	602
33NB	NEW COUNTY ROAD NORTHBOUND SOUTH OF ROUTE 59	164	175
34WB	RT 59 WESTBOUND EAST OF COLLEGE ROAD	402	632
36EB	RT 59 EASTBOUND WEST OF REMSEN AVENUE	559	753
37NB	REMSSEN AVENUE NORTHBOUND SOUTH OF ROUTE 59	12	8
38SB	REMSSEN AVENUE SOUTHBOUND NORTH OF ROUTE 59	145	171
39WB	RT 59 WESTBOUND EAST OF REMSEN AVENUE	476	713
40EB	RT 59 EASTBOUND WEST OF SADDLE RIVER ROAD	507	616
41SB	RT 306 SOUTHBOUND NORTH OF ROUTE 59	335	403
42NB	SADDLE RIVER ROAD NORTHBOUND SOUTH OF ROUTE 59	318	513
43WB	RT 59 WESTBOUND EAST OF SADDLE RIVER ROAD	422	586
47EB	RT 59 EASTBOUND WEST OF ROUTE 45	390	550
48SB	ROUTE 45 SOUTHBOUND NORTH OF ROUTE 59	308	388
49WB	RT 59 WESTBOUND EAST OF ROUTE 45	447	527
50NB	ROUTE 45 NORTHBOUND SOUTH OF ROUTE 59	203	299
52EB	OLD NYACK ROAD EAST OF SCOTLAND HILL ROAD	264	358
52WB	OLD NYACK ROAD EAST OF SCOTLAND HILL ROAD	249	369
53SB	ON RAMP FROM OLD NYACK TURNPIKE TO I-287 SOUTHBOUND	463	337
57EB	RT 59 EASTBOUND WEST OF FORMAN ROAD	930	1,128
57WB	RT 59 WESTBOUND WEST OF FORMAN ROAD	678	1,375
58SB	NEW CLARKSTOWN ROAD SOUTHBOUND NORTH OF ROUTE 59	514	627
59EB	RT 59 EB W/O New Clarkstown Rd	580	783
60NB	FORMAN ROAD NORTHBOUND SOUTH OF ROUTE 59	287	284
61WB	RT 59 WESTBOUND EAST OF FORMAN ROAD	672	1,496
62WB	ENTRANCE RAMP TO I-287 NORTHBOUND FROM ROUTE 59	879	996
63SB	I-287 SOUTHBOUND OFF RAMP EXIT #14 TO ROUTE 59	554	891
64NB	I-287 NORTHBOUND OFF RAMP EXIT #14 TO ROUTE 59	864	619
66SB	I-287 NORTHBOUND OFF RAMP TO PIP SOUTHBOUND	414	513
67NB	PIP NORTHBOUND OFF RAMP TO I-287 NORTHBOUND	617	1,255
68NB	PIP NORTHBOUND RAMP TO I-287 SOUTHBOUND	252	380
69SB	I-287 SOUTHBOUND RAMP TO PIP NORTHBOUND	247	605
70SB	PIP SOUTHBOUND RAMP TO I-287 SOUTHBOUND	997	650
71SB	I-287 SOUTHBOUND RAMP TO PIP SOUTHBOUND	1,364	814
72NB	I-287 NORTHBOUND RAMP TO PIP NORTHBOUND	476	1,095
74SB	RT 304 SOUTHBOUND NORTH OF WEST NYACK ROAD	1,118	1,165
75NB	RT 304 NORTHBOUND SOUTH OF WEST NYACK ROAD	788	1,350
77EB	RT 59 WESTBOUND WEST OF SMITH STREET	951	1,286
77WB	RT 59 WESTBOUND WEST OF SMITH STREET	397	1,339
79NB	MIDDLETOWN ROAD NORTHBOUND SOUTH OF ROUTE 59	226	684



Table A-1 (con't)

Seasonally Adjusted ATR Volumes – Rockland County *

Location #	Description	AM	PM
80SB	MIDDLETOWN ROAD NORTH OF ROUTE 59	960	765
81EB	RT 59 EASTBOUND WEST OF ROSE ROAD	2,088	2,192
81WB	RT 59 WESTBOUND WEST OF ROSE ROAD	1,176	2,042
82EB	RT 59 EASTBOUND EAST OF LARCH COURT	1,777	1,323
82WB	RT 59 WESTBOUND EAST OF LARCH COURT	628	1,595
83EB	RT 59 EASTBOUND EAST WEST NYACK ROAD	1,880	1,498
83WB	RT 59 WESTBOUND EAST WEST NYACK ROAD	596	1,622
85EB	RAMP FROM ROUTE 59 EASTBOUND TO ROUTE 303 SOUTHBOUND	237	153
85SB	B-On Ramp From RT303 SB to RT59 EB	78	100
86SB	RAMP FROM ROUTE 303 SOUTHBOUND TO ROUTE 59 WESTBOUND	103	103
86WB	RAMP FROM ROUTE 59 WESTBOUND TO ROUTE 303 SOUTHBOUND	145	276
87EB	RAMP FROM ROUTE 59 EASTBOUND TO ROUTE 303 NORTHBOUND	278	280
87NB	RAMP FROM ROUTE 303 NORTHBOUND TO ROUTE 59 EASTBOUND	82	157
88NB	ROUTE 303 NORTHBOUND TO ROUTE 59 WESTBOUND	86	221
88WB	ROUTE 59 WESTBOUND TO ROUTE 303 NORTHBOUND	117	127
89NB	RT 303 SOUTHBOUND SOUTH OF ROUTE 59 ACCESS RAMPS	556	1,169
89SB	RT 303 SOUTHBOUND SOUTH OF ROUTE 59 ACCESS RAMPS	985	787
90NB	RT 303 NORTHBOUND SOUTH OF MALL ENTRANCE/EXIT DRIVEWAY	934	1,260
90SB	RT 303 NORTHBOUND SOUTH OF MALL ENTRANCE/EXIT DRIVEWAY	736	927
94NB	RT 303 NORTHBOUND NORTH OF PALISADES CENTER DRIVE	713	1,426
94SB	RT 303 SOUTHBOUND NORTH OF PALISADES CENTER DRIVE	1,462	1,050
95EB	PALISADES CENTER DRIVE WEST OF ROUTE 303	694	707
95WB	PALISADES CENTER DRIVE WEST OF ROUTE 303	745	726
96EB	ON RAMP TO I-287 FROM EASTBOUND FROM PALISADES CENTER DRIVE	995	562
97EB	I-287 SOUTHBOUND ON RAMP FROM MOUNTAINVIEW AVENUE	1,237	343
98EB	I-287 SOUTHBOUND OFF RAMP AT EXIT 11	180	437



Table A-2
Seasonally Adjusted ATR Volumes – Westchester County *

Location#	Description	AM	PM
142WB	ON RAMP FROM S. BROADWAY TO TAPPAN ZEE BRIDGE	281	387
143NB	RT9/S. BROADWAY SOUTH OF PROSPECT AVE	962	986
143SB	RT9/S. BROADWAY SOUTH OF PROSPECT AVE	906	1,069
145WB	ON RAMP FROM WHITE PLAINS RD/RT 119 TO I-287 WB	142	429
146WB	OFF RAMP FROM I-287 WESTBOUND TO ROUTE 119	495	333
147EB	OFF RAMP FROM I-287 EAST TO S BROADWAY/RT9	947	389
148WB	I-87 EAST OF EXIT TO ROUTE 119 (EXIT#9)	3,227	4,300
149NB	BENEDICT AVENUE NORTH OF RT 119	12	18
149SB	BENEDICT AVENUE NORTH OF RT 119	442	479
150EB	WHITE PLAINS RD/RT119 EAST OF BENEDICT AVE	680	932
150WB	WHITE PLAINS RD/RT.119 EAST OF BENEDICT AVE	730	964
154WB	RAMP FROM N CENTRAL AVE RT9A TO I-287 WEST	383	391
155WB	OFF RAMP FROM I-287 WEST TO N CENTRAL AVE/RT 9A	878	822
156EB	ON RAMP FROM N CENTRAL AVE RT9A TO I-287 EAST	593	771
157EB	I287 BETWEEN EXITS 2 AND #1	4,307	3,384
157WB	I287 BETWEEN EXITS 2 AND #1	2,617	3,971
158WB	RAMP FROM SPRAIN BROOK PKWY NORTH TO I-287 WEST	935	997
159EB	RAMP FROM SPRAIN BROOK PKWY SOUTH TO I-287 EAST	1,507	1,203
161EB	SPRAIN BROOK PARKWAY RAMP NB TO I-287 EB	765	677
163EB	OFF RAMP FROM I-287 EAST TO RT 100A	494	431
165NB	RT100A/KNOLLWOOD RD NORTH OF OLD TARRYTOWN RD	386	422
165SB	RT100A/KNOLLWOOD RD NORTH OF OLD TARRYTOWN RD	442	469
166EB	TARRYTOWN RD/RT.119 EAST OF MANHATTAN AVE	415	723
166WB	TARRYTOWN RD/RT.119 EAST OF MANHATTAN AVE	295	869
167EB	ON RAMP FROM RT100\TARRYTOWN RD WEST TO I-287 EAST	488	473
168EB	OFF RAMP FROM I-287 EAST TO RT 100/TARRYTOWN RD EAST	796	815
169WB	ON RAMP FROM RT100\TARRYTOWN RD WEST TO I-287 WEST	566	935
170NB	N BROADWAY /RT 22 NORTH ORCHARD STREET	696	918
170SB	N BROADWAY /RT 22 NORTH ORCHARD STREET	588	929
171EB	ORCHARD STREET EAST OF BROADWAY RT/22	388	584
171WB	ORCHARD STREET EAST OF BROADWAY RT/22	404	637
172EB	OFF RAMP FROM I-287 EAST TO BROADWAY/RT22	726	761
173EB	ON RAMP FROM N BROADWAY TO I-287 EASTBOUND	321	273
174NB	N BROADWAY/RT22 NORTH OF EB RAMPS	786	1,243
174SB	N BROADWAY/RT22 NORTH OF EB RAMPS	567	731
175SB	EASTBOUND RAMP FROM ORCHARD STREET TO SOUTHBOUND S WESTCHESTER AV	114	69
176NB	WESTCHESTER PARKWAY SOUTH OF CLINTON STREET	340	951
176SB	WESTCHESTER PARKWAY SOUTH OF CLINTON STREET	950	509
177EB	EB I-287 BET EXIT 6 & 7	5,172	4,696
177WB	I-287 BETWEEN EXIT #6 AND EXIT #7	2,979	4,472
178EB	Westchester Parkway SB to I-287 EB	1,141	525
179WB	OFF RAMP FROM I-287 TO WESTCHESTER PARKWAY	349	973



Table A-2 (con't)

Seasonally Adjusted ATR Volumes – Westchester County *

Location#	Description	AM	PM
180NB	N. BROADWAY/RT22 SOUTH OF ROCKLEDGE AVE	565	1,109
181EB	LAKE ST EB JUST EAST OF N BROADWAY	276	511
181WB	LAKE ST EB JUST EAST OF N BROADWAY	559	404
184NB	BRONX RIVER PKWY NORTHBOUND NORTH OF CENTRAL PARK AVENUE	389	768
185SB	BRONX RIVER PKWY SOUTHBOUND NORTH OF CENTRAL PARK AVENUE	782	805
186EB	TARRYTOWN RD/RT.119 EAST OF CHATTERTON AVE	1,387	1,380
186WB	TARRYTOWN RD/RT.119 EAST OF CHATTERTON AVE	693	2,087
187SB	BRONX RIVER PKWY SOUTHBOUND ON RAMP FROM ROUTE 100	231	458
188NB	BRONX RIVER PARKWAY NORTHBOUND OFF RAMP TO MAIN STREET	492	394
191EB	HAMILTON AVENUE EAST OF GROVE STREET	167	469
191WB	HAMILTON AVENUE EAST OF GROVE STREET	746	1,174
192EB	MAIN STREET EAST OF LEXINGTON AVE	1,196	1,390
195EB	WESTCHESTER AVE EAST OF BROADWAY (RT 22)	666	1,176
195WB	WESTCHESTER AVE EAST OF BROADWAY (RT 22)	882	1,239
198EB	OFF RAMP FROM I-287 EAST TO BLOOMINGDALE RD	843	916
199EB	ON RAMP FROM BLOOMINGDALE RD TO I-287 EB/WB	711	1,417
202WB	RAMP FROM N WESTCHESTER AVE TO UNDERHILL AVE	211	689
203WB	N WESTCHESTER AVE WESTBOUND RAMP TO BLOOMINGDALE ROAD INTERSECTION	929	1,461
204EB	ANDERSON HILL ROAD EAST OF N. WESTCHESTER AV	354	439
204WB	ANDERSON HILL ROAD EAST OF N. WESTCHESTER AV	163	471
205EB	ON RAMP FROM S. WESTCHESTER AVE TO I-287 EAST	622	1,144
207EB	S WESTCHESTER AVE WEST OF W.L. BUTCHER BR	373	361
209NB	CONNECTOR RD FROM BRYANT AVE AND S WESTCHESTER	27	25
209SB	CONNECTOR RD FROM BRYANT AVE AND S WESTCHESTER	42	55
210EB	S. WESTCHESTER AVE EASTBOUND WEST OF BRYANT AVE	765	465
211WB	N. WESTCHESTER AVE WESTBOUND WEST OF BRYANT AVENUE	457	1,065
212WB	I-287 BETWEEN EXIT 8 AND EXIT 9	3,074	4,049
213WB	N WESTCHESTER AVE EAST OF W RED OAK LANE	1,945	1,960
214EB	SOUTH WESTCHESTER AVE EASTBOUND JUST WEST OF HUTCHINSON RIVER PKWY SB ON RAMP	960	1,231
215NB	ON RAMP FROM N WESTCHESTER AVE WESTBOUND TO HUTCH. RIVER PKWY NORTHBOUND	116	140
218WB	N. WESTCHESTER AVENUE WESTBOUND TO PURCHASE STREET NORTHBOUND	147	12
219WB	RT120/PURCHASE ST NORTH OF N WESTCHESTER AV	122	172
220WB	ON RAMP FROM WESTBOUND N WESTCHESTER AVE TO I-287 WEST	579	651
221EB	OFF RAMP FROM I-287 EASTBOUND TO S WESTCHESTER AVE	525	631
222EB	WESTCHESTER AVENUE EASTBOUND EAST OF ROCKLEDGE ROAD	820	1,122
223EB	WESTCHESTER AVE/RT120A WEST OF LINCOLN AVENUE	429	719
223WB	WESTCHESTER AVE/RT120A WEST OF LINCOLN AVENUE	665	528
225EB	I-287 BETWEEN EXIT 10 AND EXIT 11	3,494	2,713
225WB	I-287 BETWEEN EXIT 10 AND EXIT 11	2,325	3,269
226EB	PURCHASE STREET EASTBOUND WEST OF POLLY PARK ROAD	226	336
227SB	POLLY PARK ROAD SOUTHBOUND NORTH OF PURCHASE STREET	125	279
228NB	POLLY PARK ROAD NORTHBOUND SOUTH OF PURCHASE STREET	81	170
229WB	PURCHASE STEET WESTBOUND EAST OF POLLY PARK ROAD	211	160



Table A-2 (con’t)
Seasonally Adjusted ATR Volumes – Westchester County *

Location#	Description	AM	PM
230WB	OFF RAMP FROM I-287 WB TO BOWMAN AVENUE	287	193
231SB	BOWMAN AVENUE SOUTHBOUND NORTH OF WEBB AVENUE	186	389
232EB	PURCHASE STREET EASTBOUND WEST OF BOWMAN AVENUE	234	332
233NB	BOWMAN AVENUE NORTHBOUND JUST SOUTH OF PURCHASE STREET	91	215
234SB	NORTH RIDGE SOUTHBOUND NORTH OF WESTCHESTER AVENUE	343	382
235EB	WESTCHESTER AVENUE EASTBOUND JUST WEST OF NORTH RIDGE ROAD	494	799
236WB	WESTCHESTER AVENUE WESTBOUND EAST OF NORTH RIDGE STREET	435	395
237NB	NORTH RIDGE STREET NORTHBOUND JUST SOUTH OF WESTCHESTER AVENUE	191	528
238SB	NORTH RIDGE STREEET SOUTHBOUND JUST NORTH OF BOWMAN AVENUE	342	506
240NB	NORTH RIDGE STREET NORTHBOUND JUST SOUTH OF BOWMAN AVENUE	324	656
241WB	BOWMAN AVENUE WESTBOUND JUST EAST OF NORTH RIDGE STREET	221	262
242EB	BOWMAN AVENUE EASTBOUND JUST WEST OF NORTH RIDGE STREET	279	526
243WB	HIGH STREET WESTBOUND JUST EAST OF SOUTH RIDGE STREET	87	225
244NB	SOUTH RIDGE STREET NORTHBOUND JUST SOUTH OF HIGH STREET	122	400
245SB	SOUTH RIDGE STREET SOUTHBOUND JUST NORTH OF HIGH STREET	339	519
246NB	ROUTE 1 NORTH OF HIGH STREET	750	1,067
246SB	OFF RAMP FR WESTCHESTER AVE TO HUTCHINSON RIVER	598	695
247WB	RAMP FROM RT 1 SOUTHBOUND TO I-287 WESTBOUND	355	476
248EB	RAMP FROM I-287 EASTBOUND TO RT 1 SOUTHBOUND	824	701
249SB	RAMP FROM I-287 EASTBOUND TO I-95 SOUTHBOUND	1,172	1,167
250WB	ON RAMP FROM I-95 NB TO I-287 WESTBOUND AFTER SPLIT TO RT 1	1,084	1,257
251WB	RAMP FROM I-95 NORTHBOUND TO I-287 WESTBOUND	1,312	1,619
253NB	MIDLAND AVENUE NORTH OF LEONARD STREET	428	541
253SB	MIDLAND AVENUE NORTH OF LEONARD STREET	354	626
254WB	I-87 Northbound to I-287 Westbound	973	1,517
255SB	RAMP FROM I-87 EASTBOUND TO I-87 SOUTHBOUND	2,297	1,253
256SB	RAMP FROM I-287 WESTBOUND TO I-87 SOUTHBOUND	964	877
257EB	RAMP FROM I-87 NORTHBOUND TO I-287 EASTBOUND	763	827
258SB	ON RAMP FROM SAW MILL RIVER PKWY SOUTHBOUND TO I-287 WESTBOUND	640	537
259WB	WB RAMP FROM I-287 TO RTE 119 EB/WB	809	704
260WB	ON RAMP FROM RT 119 TO I-287 WESTBOUND	118	186
261EB	ON RAMP FROM RT 119 TO I-287 EASTBOUND	516	661
262WB	OFF RAMP FROM I-287 WESTBOUND TO RT 119	599	632
263EB	I-287 EASTBOUND OFF RAMP TO RT 119	345	246
266SB	RT. 9 SOUTHBOUND SOUTH OF LAKEVIEW DRIVE	679	496
267EB	WHITE PLAINS RD JUST EAST OF BROADWAY	383	326
267WB	WHITE PLAINS RD JUST EAST OF BROADWAY	657	585
268EB	TARRYTOWN RD/RT119 EAST OF SPRAIN BROOK PKWY	370	891
268WB	TARRYTOWN RD/RT119 EAST OF SPRAIN BROOK PKWY	368	889
269NB	BLOOMINGDALE RD SOUTH OF MAPLE AVE	470	959
269SB	BLOOMINGDALE RD SOUTH OF MAPLE AVE	507	890
271EB	OFF RAMP FROM I-287 EASTBOUND TO EXIT8E	529	471
272EB	NORTH STREET WEST OF MEADOWBROOK RD	559	528



Table A-2 (con't)

Seasonally Adjusted ATR Volumes – Westchester County *

Location#	Description	AM	PM
272WB	NORTH STREET WEST OF MEADOWBROOK RD	88	403
273SB	RAMP FROM HUTCH. RIVER PKWY SOUTH TO N WESTCHESTER AV	771	940
274SB	EASTBOUND S. WESTCHESTER AV RAMP TO HUTCHINSON RIVER PKWY SOUTHBOUND	694	515
275NB	OFF RAMP FROM HUTCH RIVER PKW NORTHBOUND TO S WESTCHESTER AVE EASTBOUND	754	528
276NB	KENILWORTH RD SOUTH OF S WESTCHESTER AV	38	64
276SB	KENILWORTH RD SOUTH OF S WESTCHESTER AV	42	55
277NB	RAMP FROM I-287 WESTBOUND TO I-684 NORTHBOUND	531	778
278EB	SOUTHBOUND RAMP FROM I-684 TO I-287 EASTBOUND	1,029	552
279NB	RAMP FROM I-287 EASTBOUND TO EITHER EASTBOUND S WESTCHESTER AVE OR NORTHBOUND I-684	542	911
280WB	RAMP FROM I-684 SOUTHBOUND TO I-287 WESTBOUND	697	575

Table A-3
Turning Movements at Intersections – Rockland County *

Location Number	Period	Description			
Int. # 8		Orange Avenue/Lafayette Avenue			
		EB	WB	NB	SB
	AM Peak	0	162	241	469
	PM Peak	0	216	465	389
Int. # 9		Lafayette & Chestnut			
		EB	WB	NB	SB
	AM Peak	325	110	84	258
	PM Peak	254	292	127	237
Int. #22		Route 59/Airmont Road			
		EB	WB	NB	SB
	AM Peak	621	513	474	851
	PM Peak	808	846	532	1028
Int. #27		Airmont Road/Rella Blvd/Montebello Road			
		EB	WB	NB	SB
	AM Peak	380	2	652	482
	PM Peak	306	163	908	712
Int. # 35		Route 59/College Road/New County Road			
		EB	WB	NB	SB
	AM Peak	500	419	170	254
	PM Peak	672	650	186	286
nt. # 44		Route 59/Route 306			
		EB	WB	NB	SB
	AM Peak	569	438	338	368
	PM Peak	617	730	515	514
Int. # 45		Route 306/Old Nyack Tpke			
		EB	WB	NB	SB
	AM Peak	0	255	184	326
	PM Peak	0	339	302	428
Int. # 51		Route 45/Old Nyack Tpke			
		EB	WB	NB	SB
	AM Peak	387	316	280	342
	PM Peak	403	397	463	223
Int. # 46		Route 59/Route 45			
		EB	WB	NB	SB
	AM Peak	366	406	177	377
	PM Peak	492	564	288	384
Int. # 56		Route 59/New Clarks town Rd			
		EB	WB	NB	SB
	AM Peak	461	630	0	685
	PM Peak	778	1454	0	725
nt. # 55		Route 59/Int. 14/Park-n Ride Lot			
		EB	WB	NB	SB
	AM Peak	942	610	304	545
	PM Peak	1231	1544	254	721
Int. # 54		Route 59NYS Thruway Exit #14/Grandview Avenue			
		EB	WB	NB	SB
	AM Peak	1,121	587	149	802
	PM Peak	1,390	1,673	341	582
Int. # 78		Route 59/Middleton Rd			
		EB	WB	NB	SB
	AM Peak	922	516	140	1293
	PM Peak	1258	1018	671	929
Int. # 65		Route 306/Bardonia Rd			
		EB	WB	NB	SB
	AM Peak	295	202	560	884
	PM Peak	230	385	1489	1087
Int. # 73		Route 306/West Nyack Rd			
		EB	WB	NB	SB
	AM Peak	150	266	712	986
	PM Peak	348	612	1205	1167

Table A-3

Turning Movements at Intersections – Rockland County *

Location Number	Period	Description			
nt.# 76		Route 59/Smith St			
		EB	WB	NB	SB
	AM Peak	1242	685	546	598
	PM Peak	1264	1914	617	399
Int. # 290		Route 59 EB/Doscher Avenue			
		EB	WB	NB	SB
	AM Peak	1,999	0	100	0
	PM Peak	1,463	0	123	0
Int. # 84		Route 59/Stop & Shop/Mall			
		EB	WB	NB	SB
	AM Peak	1617	574	49	68
	PM Peak	977	1478	287	401
Int. # 93		Route 303/Snake Hill Rd			
		EB	WB	NB	SB
	AM Peak	707	7	594	1365
	PM Peak	750	2	1231	1107
Int. #92		Route 303/Int. #12 Off Ramp			
		EB	WB	NB	SB
	AM Peak	301	2	641	1314
	PM Peak	517	2	898	785
nt. # 91		Route 303/Mall Exit			
		EB	WB	NB	SB
	AM Peak	16	4	717	846
	PM Peak	177	7	1261	795
Int. # 92		Route 59/Int. 11/Mountainview			
		EB	WB	NB	SB
	AM Peak	1193	596	294	268
	PM Peak	889	939	242	173
Int. # 107		Route 9W/High			
		EB	WB	NB	SB
	AM Peak	195	137	438	510
	PM Peak	326	238	505	460
Int. # 106		Route 59/Route 9W			
		EB	WB	NB	SB
	AM Peak	580	227	406	442
	PM Peak	879	431	523	385
Int. # 116		Main St/Franklin St			
		EB	WB	NB	SB
	AM Peak	288	147	121	0
	PM Peak	409	295	247	0
nt. # 120		Main St/Broadway			
		EB	WB	NB	SB
	AM Peak	155	74	111	220
	PM Peak	283	122	235	301
Int. # 125		Terrace Drive/South Blvd/South Highland Avenue			
		EB	WB	NB	SB
	AM Peak	16	58	134	108
	PM Peak	12	92	190	123
Int. # 137		Franklin/Clinton			
		EB	WB	NB	SB
	AM Peak	18	77	362	100
	PM Peak	14	83	334	87



Table A-4
Turning Movements at Intersections – Westchester County *

Location Number	Period	Description			
Int. # 141		South Broadway/White Plain Road (Route 119)			
		EB	WB	NB	SB
	AM	103	571	915	605
	PM	212	588	942	672
Int. # 144		South Broadway/NYS Thruway EB Ramp			
		EB	WB	NB	SB
	AM	445	349	572	3
	PM	617	573	374	18
Int. # 264		S. Broadway (Rt 9)/NYS Thruway Exit #9 WB Ramp			
		EB	WB	NB	SB
	AM	4	989	646	919
	PM	1	450	1165	1260
Int.# 265		Route 119/Taxter Road			
		EB	WB	NB	SB
	AM	1135	530	187	910
	PM	1413	752	316	767
Int. # 151		Route 119/Benedict Avenue			
		EB	WB	NB	SB
	AM	404	949	16	463
	PM	485	987	108	476
nt.# 189		Hamilton/Ferris			
		EB	WB	NB	SB
	AM	0	1076	971	0
	PM	0	2468	1615	2
Int. # 190		Bank Street/Main			
		EB	WB	NB	SB
	AM	2575	0	634	0
	PM	2352	0	1638	0
Int. # 196		Bloomingdale Road/Westchester Avenue			
		EB	WB	NB	SB
	AM	603	1383	308	76
	PM	1080	1570	559	180
Int. # 200		White Plains Avenue/Anderson Hill Road/N. Westchester Ave			
		EB	WB	NB	SB
	AM	235	1267	354	316
	PM	506	1609	654	141
Int. # 201		White Plains Avenue/S. Westchester Avenue			
		EB	WB	NB	SB
	AM	1788	0	406	531
	PM	2324	0	682	419
Int. # 208		Bryant Avenue/North Street (Rt 127)			
		EB	WB	NB	SB
	AM	528	276	644	562
	PM	481	444	390	689
Int. # 217		N. Westchester Avenue/Kenilworth Road			
		EB	WB	NB	SB
	AM	0	1059	129	63
	PM	0	1033	166	244
Int. # 216		S. Westchester Avenue/Kenilworth Road			
		EB	WB	NB	SB
	AM	1379	0	48	129
	PM	1557	0	47	223
Int. # 224		Webb Avenue/Westchester Avenue			
		EB	WB	NB	SB
	AM	857	674	318	0
	PM	1142	646	406	0
Int. # 152		South Broadway/East Sunnyside Lane			
		EB	WB	NB	SB
	AM	14	338	645	800
	PM	48	282	958	632

Table A-4 (con't)

Turning Movements at Intersections – Westchester County *

Location Number	Period	Description			
Int. # 194		East New York Post Road/Mamaroneck Avenue			
		EB	WB	NB	SB
	AM	253	277	394	330
	PM	407	453	582	613
Int..# 197		Bloomingdale Road/I-287 On-Off Ramps			
		EB	WB	NB	SB
	AM	0	1013	1118	505
	PM	250	1147	2244	873
Int. # 193		Central Park Avenue/Bronx River Pky/Parking Lot			
		EB	WB	NB	SB
	AM	205	3	563	904
	PM	523	21	635	739

Appendix B

2005 Calibration





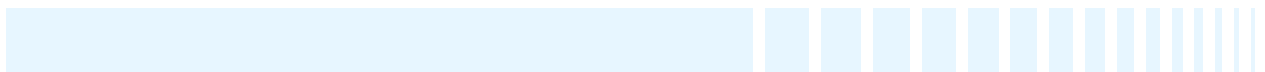
Thruway
Authority



New York State
Department of Transportation



Metro-North
Railroad



B 2005 Calibration

B.1 Traffic Volumes – Rockland County

B.1.1 Eastbound AM

Table B-1
Comparison between Eastbound AM Peak Hour Count Volumes
and Modeled Volumes – Rockland County

Location	AM Count	Volumes	GEH	% Difference
15A-15 EB	6140	6063	1.0	-1.3%
15EB ON	1690	1516	4.3	-10.3%
15EB OFF	3640	3191	7.7	-12.3%
15-14B EB	4190	4388	3.0	4.7%
14B EB OFF	810	884	2.5	9.1%
14B EB ON	1000	941	1.9	-5.9%
14B-14A EB	4370	4436	1.0	1.5%
14A EB OFF	830	777	1.9	-6.4%
14A EB ON	1190	1207	0.5	1.4%
OLD NYACK EB ON	460	482	1.0	4.8%
14 EB OFF	860	797	2.2	-7.3%
14 EB ON	880	974	3.1	10.7%
14-13 EB	5410	5493	1.1	1.5%
13 EB OFF_PIP SB	1360	1322	1.0	-2.8%
13 EB ON FROM PIP SB	1000	1099	3.1	9.9%
13 EB OFF TO PIP NB	250	218	2.1	-12.8%
13 EB ON FROM PIP NB	250	208	2.8	-16.8%
13-12 EB	5050	5241	2.7	3.8%
12 EB OFF	760	711	1.8	-6.4%
12 EB ON	1000	1026	0.8	2.6%
12-11EB	5290	5536	3.3	4.7%
11 EB OFF	180	155	1.9	-13.9%
11 EB ON	1190	1181	0.3	-0.8%
11-10EB	6300	6492	2.4	3.0%
10 EB ON	1080	991	2.8	-8.2%
TZB EB	7380	7483	1.2	1.4%
Before Toll Plaza	7380	7259	1.4	-1.6%
After Toll Plaza		7270		

Arterials

Location	AM Count	Volumes	GEH	% Difference
RT 59 EB W OF CHESTNUT	300	201	6.3	-33.0%
RT 59 EB EAST OF AIRMONT	640	725	3.3	13.3%
RT 59 EB BW RT 306 AND RT 45	470	698	9.4	48.5%
RT 59 EB WEST OF 14	930	1200	8.3	29.0%
RT 59 EB E OF 14	1170	1257	2.5	7.4%
RT 59 EB EAST OF 13	1780	1724	1.3	-3.1%
RT 59 EB W OF 11	1220	1224	0.1	0.3%
RT 59 EB at Airmont	640	802	6.0	25.3%
RT 59 EB at Int. 11	1220	1233	0.4	1.1%

Intersections AT ROUTE 59

Location	AM Count	Volumes	GEH	% Difference
Airmont Rd NB	470	414	2.7	-11.9%
Airmont Rd SB	810	1029	7.2	27.0%
College Rd NB	160	271	7.6	69.4%
College Rd SB	220	123	7.4	-44.1%
RT 306 NB	310	282	1.6	-9.0%
RT 306 SB	340	435	4.8	27.9%
RT 45 NB	200	376	10.4	88.0%
RT45 SB	300	517	10.7	72.3%
Main St NB	360	252	6.2	-30.0%
Main St SB	500	671	7.1	34.2%

B.1.2 Westbound AM

Table B-2

Comparison between Westbound AM Peak Hour Count Volumes
and Modeled Volumes – Rockland County

Location	AM Count	Volumes	GEH	% Difference
TZ WB	3970	3869	1.6	-2.5%
10 WB OFF	370	292	4.3	-21.1%
10 WB ON	50	37	2.0	-26.0%
10-11 WB	3650	3603	0.8	-1.3%
11 WB OFF	270	244	1.6	-9.6%
11 WB ON	500	660	6.6	32.0%
11-12 WB	3870	3969	1.6	2.6%
12 WB OFF	500	612	4.7	22.4%
12 WB ON	430	487	2.7	13.3%
12-13 WB	3800	3850	0.8	1.3%
13 WB OFF TO PIP NB	480	510	1.3	6.3%
13 WB ON FROM PIP NB	620	647	1.1	4.4%
13 WB OFF TO PIP SB	410	329	4.2	-19.8%
13 WB ON FROM PIP SB	760	738	0.8	-2.9%
13-14 WB	4290	4371	1.2	1.9%
14 WB OFF	550	577	1.1	4.9%
14 WB ON	880	601	10.3	-31.7%
14A WB OFF	1890	1752	3.2	-7.3%
14A WB ON	350	367	0.9	4.9%
14A-14B WB	3060	2988	1.3	-2.4%
14B WB OFF	740	586	6.0	-20.8%
14B WB ON	460	457	0.1	-0.7%
14B 15 WB	2780	2827	0.9	1.7%
15 WB OFF	1410	1645	6.0	16.7%
15 WB ON	1550	1684	3.3	8.6%
15-16 WB	2620	2860	4.6	9.2%

Arterials

Location	AM Count	Volumes	GEH	% Difference
RT 59 WB W OF CHESTNUT(10)	120	77	4.3	-35.8%
RT 59 WB EAST OF AIRMONT	600	569	1.3	-5.2%
RT 59 WB BW RT 306 AND RT 45	540	590	2.1	9.3%
RT 59 WB WEST OF 14	680	739	2.2	8.7%
RT 59 WB EAST OF 14	580	710	5.1	22.4%
RT 59 WB EAST OF 13	630	603	1.1	-4.3%
WB on Route 59 at Int. 11	610	761	5.8	24.8%

B.1.3 Eastbound PM

Table B-3
Comparison between Eastbound PM Peak Hour Count Volumes
and Modeled Volumes – Rockland County

Location	PM Count	Volumes	GEH	% Difference
15A-15 EB	3030	2786	4.5	-8.1%
15EB ON	1250	1482	6.3	18.6%
15EB OFF	1760	1778	0.4	1.0%
14B-15 eb	2516	2445	1.4	-2.8%
14B EB OFF	443	434	0.4	-2.0%
14B EB ON	1083	1044	1.2	-3.6%
14A-14B eb	3156	3054	1.8	-3.2%
14A EB OFF	363	386	1.2	6.3%
14A EB ON	1503	1453	1.3	-3.3%
OLD NYACK EB ON	337	342	0.3	1.5%
14 EB OFF	619	590	1.2	-4.7%
14 EB ON	198	363	9.9	83.3%
13-14 eb	4212	4216	0.1	0.1%
13 EB OFF_PIP SB	814	801	0.5	-1.6%
13 EB ON FROM PIP SB	650	597	2.1	-8.2%
13 EB OFF TO PIP NB	605	417	8.3	-31.1%
13 EB ON FROM PIP NB	380	427	2.3	12.4%
12-13 eb	3823	4034	3.4	5.5%
12 EB OFF	942	912	1.0	-3.2%
12 EB ON	562	555	0.3	-1.2%
11-12 eb	3443	3693	4.2	7.3%
11 EB OFF	432	600	7.4	38.9%
11 EB ON	383	415	1.6	8.4%
10-11 eb	3389	3513	2.1	3.7%
10 EB ON	409	449	1.9	9.8%
TZ eb	3798	3955	2.5	4.1%

Location	PM Count	Volumes	GEH	% Difference	Speed
RT 59 EB W OF CHESTNUT	260	261	0.1	0.4%	14.9
RT 59 EB EAST OF AIRMONT	791	678	4.2	-14.3%	38.3
RT 59 EB BW RT 306 AND RT 45	626	950	11.5	51.8%	37.3
RT 59 EB WEST OF 14	1128	1030	3.0	-8.7%	7.8
RT 59 EB E OF 14	1374	1237	3.8	-10.0%	42.5
RT 59 EB EAST OF 13	1323	1319	0.1	-0.3%	35.4
RT 59 EB W OF 11	973	908	2.1	-6.7%	20.0

Location	PM Count	Volumes	GEH	% Difference	Speed
Airmont Rd NB	479	652	7.3	36.1%	4.1
Airmont Rd SB	900	989	2.9	9.9%	8.5
College Rd NB	175	397	13.1	126.9%	6.5
College Rd SB	317	281	2.1	-11.4%	5.0
Rt. 306 NB	513	344	8.2	-32.9%	8.4
Rt. 306 SB	403	365	1.9	-9.4%	12.0
Rt. 45 NB	299	266	2.0	-11.0%	2.0
Rt. 45 SB	388	665	12.1	71.4%	3.3
Highland Ave (9W) NB	475	364	5.4	-23.4%	4.8
Highland Ave (9W) SB	408	597	8.4	46.3%	6.5

B.1.4 Westbound PM

Table B-4

Comparison between Westbound PM Peak Hour Count Volumes
and Modeled Volumes – Rockland County

Location	PM Count	Volumes	GEH	% Difference
TZ wb	6259	6512	3.2	4.0%
10 WB OFF	950	863	2.9	-9.2%
10 WB ON	71	56	1.9	-21.1%
10-11 wb	5380	5464	1.1	1.6%
11 WB OFF	423	570	6.6	34.8%
11 WB ON	359	347	0.6	-3.3%
11-12 wb	5316	5189	1.8	-2.4%
12 WB OFF	851	930	2.6	9.3%
12 WB ON	822	910	3.0	10.7%
12-13 wb	5287	5148	1.9	-2.6%
13 WB OFF TO PIP NB	1095	1042	1.6	-4.8%
13 WB ON FROM PIP NB	1255	1254	0.0	-0.1%
13 WB OFF TO PIP SB	713	714	0.0	0.1%
13 WB ON FROM PIP SB	537	560	1.0	4.3%
13-14wb	5471	5176	4.0	-5.4%
14 WB OFF	891	749	5.0	-15.9%
14 WB ON	996	1144	4.5	14.9%
14A WB OFF	1539	1743	5.0	13.3%
14A WB ON	300	389	4.8	29.7%
14A-14B wb	4337	4211	1.9	-2.9%
14B WB OFF	1024	1079	1.7	5.4%
14B WB ON	684	729	1.7	6.6%
14B- 15 wb	3997	3827	2.7	-4.3%
15 WB OFF	1590	1628	0.9	2.4%
15 WB ON	3620	3673	0.9	1.5%
15-15 A WB	5780	5826	0.6	0.8%

Location	PM Count	Volumes	GEH	% Difference
RT 59 WB W OF CHESTNUT(10)	248	170	5.4	-31.5%
RT 59 WB EAST OF AIRMONT	907	824	2.8	-9.2%
RT 59 WB BW RT 306 AND RT 45	609	623	0.6	2.3%
RT 59 WB WEST OF 14	1375	1227	4.1	-10.8%
RT 59 WB EAST OF 14	1438	1728	7.3	20.2%
RT 59 WB EAST OF 13	1595	1845	6.0	15.7%
RT 59 WB E OF 11	834	815	0.7	-2.3%

B.2 Traffic Volumes – Westchester County

B.2.1 Eastbound AM

Table B-5
Comparison between Eastbound AM Peak Hour Count Volumes
and Modeled Volumes – Westchester County

Location	Direction	Observed	Seed 534	GEH	Percentage Error
10 - 9 EB	EB	7243	7285	0.5	1%
9 EB Off	EB	1131	1152	0.6	2%
9 EB ON	EB	373	402	1.5	8%
9 - 8 EB	EB	6485	6552	0.8	1%
8 EB OFF # 1	EB	2197	2211	0.3	1%
8 EB ON	EB	884	933	1.6	6%
8 - 1 EB	EB	3669	3974	4.9	8%
1 EB ON	EB	562	576	0.6	2%
1 - 2 EB	EB	4231	4546	4.8	7%
2 EB ON	EB	637	539	4	-15%
2 -3 EB	EB	4868	5086	3.1	4%
3 EB Off	EB	1597	1626	0.7	2%
3 EB ON # 1	EB	1591	1639	1.2	3%
3 EB ON # 2	EB	1166	1035	3.9	-11%
3 - 4 EB	EB	6028	6104	1	1%
4 EB OFF	EB	486	641	6.5	32%
4 EB On	EB	712	968	8.8	36%
4-5 EB	EB	6690	6436	3.1	-4%
5 EB OFF	EB	846	812	1.2	-4%
5 EB ON	EB	648	705	2.2	9%
5 - 6 EB	EB	6492	6325	2.1	-3%
6 EB OFF	EB	841	1042	6.6	24%
6 EB ON	EB	439	622	7.9	42%
6-7 EB	EB	6090	5850	3.1	-4%
7 EB ON	EB	1015	1001	0.4	-1%
7 -8W EB	EB	6737	6882	1.8	2%
8W EB OFF	EB	1190	1233	1.2	4%
8W - 8E EB	EB	5547	5646	1.3	2%
8E EB OFF	EB	792	745	1.7	-6%
8E - 8 EB	EB	4755	4898	2.1	3%
8 EB ON	EB	742	800	2.1	8%
8 - 9A EB	EB	5497	5687	2.5	3%
9A EB OFF	EB	545	536	0.4	-2%
9A EB ON	EB	1175	937	7.3	-20%
9A - 9S EB	EB	6127	6134	0.1	0%
9S EB OFF	EB	1419	1414	0.1	0%
9S EB ON	EB	687	564	4.9	-18%
9S - 10 EB	EB	5009	5260	3.5	5%
10 EB OFF	EB	708	893	6.5	26%
10 - 11 EB	EB	4338	4356	0.3	0%
11 EB OFF	EB	968	891	2.5	-8%
11 - 12 EB	EB	3370	3454	1.4	2%
12 EB OFF	EB	1247	1197	1.4	-4%

Location	AM	Seed 534	GEH	Percentage Error
S. Broadway	187	189	0.1	1%
EAST OF BROADWAY	572	723	5.9	26%
Ramps from I-287	937	393	21.1	-58%
Benedict Ave	753	826	2.6	10%
EAST OF BENEDICT AVE	957	951	0.2	-1%
Taxter Rd	1,817	1924	2.5	6%
Stone Avenue	462	571	4.8	24%
Knollwood Rd	745	735	0.4	-1%
9 EAST OF MANHATTAN AVE	2,019	2101	1.8	4%
Aqueduct Rd	1,873	1616	6.2	-14%
Chatterton Avenue	2,327	2076	5.3	-11%
EAST OF CHATTERTON AVE	1,927	2721	16.5	41%
Bronx Street	4,400	2932	24.2	-33%
Bank St	4,066	3927	2.2	-3%
Martin Luther King Blvd	1,694	1868	4.1	10%
Court Street	1,654	1755	2.4	6%
EJ Conroy Drive	1,027	1238	6.3	21%
N. Broadway	1,050	1070	0.6	2%
HAMILTON AVENUE EAST OF GROVE STREET	264	423	8.6	60%

B.2.2 Westbound AM

Table B-6
Comparison between Westbound AM Peak Hour Count Volumes
and Modeled Volumes – Westchester County

Location	Observed	Seed 534	GEH	Percentage Error
9-10 WB	3900	3915	0.2	0%
ON RAMP FROM S. BROADWAY TO TAPPAN ZEE BRIDGE	319	285	2.0	-11%
9 WB ON	182	185	0.2	2%
9 WB OFF	687	684	0.1	0%
8 - 9 WB	3938	4157	3.4	6%
8 WB ON # 2	1270	1318	1.3	4%
8 WB ON # 1	746	784	1.4	5%
8 WB OFF	664	930	9.4	40%
1 - 8 WB	2979	2991	0.2	0%
1 WB OFF	889	1004	3.7	13%
2 - 1 WB	3868	3992	2.0	3%
2 WB ON	399	430	1.5	8%
2 WB OFF	1046	1014	1.0	-3%
3 - 2 WB	4515	4576	0.9	1%
3 WB ON	1135	1223	2.6	8%
3 WB OFF	898	951	1.7	6%
4 - 3 WB	4278	4344	1.0	2%
4 WB On	896	876	0.7	-2%
4 WB Off	421	422	0.0	0%
5 - 4 WB	3803	3929	2.0	3%
5 WB ON	728	570	6.2	-22%
5 WB Off	430	390	2.0	-9%
6 - 5 WB	3505	3765	4.3	7%
6 WB ON	164	183	1.4	12%
6 WB OFF	554	684	5.2	23%
7 - 6 WB	3895	4112	3.4	6%
7 WB OFF	532	571	1.7	7%
8W - 7 WB	4427	4674	3.7	6%
8W WB ON	1337	1455	3.2	9%
8E - 8W WB	3090	3221	2.3	4%
8 - 8E WB	3090	3227	2.4	4%
8 WB Off	1717	1728	0.3	1%
8 WB ON	204	762	25.4	274%
9A - 8 WB	4076	4210	2.1	3%
9A WB ON	811	782	1.0	-4%
9A WB OFF	723	764	1.5	6%
9S - 9A WB	3988	4202	3.3	5%
9S WB On	1687	1501	4.7	-11%
9S WB Off	800	759	1.5	-5%
10 - 9S WB	3409	3454	0.8	1%
10 WB ON	751	754	0.1	0%
10 WB OFF	440	320	6.2	-27%
11 - 10 WB	3098	3036	1.1	-2%
11 WB ON	462	417	2.1	-10%
12 WB On	1683	1575	2.7	-6%

Location	AM	Seed 534	GEH	Percentage Error
EJ Conroy Drive	1,158	1045	3.4	-10%
Cottage Place	1,037	868	5.5	-16%
EAST OF GROVE STREET	906	880	0.9	-3%
Hamilton Ave (Grove St & Hamilton Ave)	821	847	0.9	3%
MLK Boulevard (Barker/Water at MLK Boulevard)	1,348	1253	2.6	-7%
Hamilton St (Bank St & Hamilton St)	1,234	1201	0.9	-3%
Chatterton Avenue	1,154	1060	2.8	-8%
Central Park Ave	769	723	1.7	-6%
Aqueduct Rd	1,175	1047	3.8	-11%
MANHATTAN AVE	400	444	2.1	11%
EAST OF SPRAIN BROOK PKWY	459	385	3.6	-16%
Stone Avenue	459	443	0.8	-3%
Taxter Rd	820	766	1.9	-7%
EAST OF BENEDICT AVE	1,162	1242	2.3	7%
Benedict Ave	1,517	1007	14.4	-34%
Ramps from I-287	527	528	0	0%
S. Broadway	940	865	2.5	-8%

B.2.3 Eastbound PM

Table B- 7
Comparison between Eastbound PM Peak Hour Count Volumes
and Modeled Volumes – Westchester County

Location	Observed	Seed 12535	GEH	Percentage Error
10 - 9 EB	4197	4194	0	0%
9 EB Off	398	465	3.2	17%
9 EB ON	455	461	0.3	1%
9 - 8 EB	4254	4211	0.7	-1%
8 EB OFF # 1	1366	1342	0.7	-2%
8 EB ON	812	838	0.9	3%
8 - 1 EB	2717	2704	0.2	0%
1 EB ON	832	797	1.2	-4%
1 - 2 EB	3549	3505	0.7	-1%
2 EB ON	816	763	1.9	-6%
2 - 3 EB	4365	4268	1.5	-2%
3 EB Off	513	514	0	0%
3 EB ON # 1	1317	1275	1.2	-3%
3 EB ON # 2	666	709	1.6	6%
3 - 4 EB	5663	5739	1	1%
4 EB OFF	373	697	14	87%
4 EB On	745	753	0.3	1%
4-5 EB	5759	5819	0.8	1%
5 EB OFF	887	789	3.4	-11%
5 EB ON	492	473	0.9	-4%
5 - 6 EB	5364	5489	1.7	2%
6 EB OFF	849	824	0.9	-3%
6 EB ON	290	222	4.3	-23%
6-7 EB	4805	4840	0.5	1%
7 EB ON	561	548	0.6	-2%
7 -8W EB	5366	5371	0.1	0%
8W EB OFF	964	1023	1.9	6%
8W - 8E EB	4402	4349	0.8	-1%
8E EB OFF	445	472	1.3	6%
8E - 8 EB	3957	3897	1	-2%
8 EB ON	1256	125	43	-90%
8 - 9A EB	4312	4029	4.4	-7%
9A EB OFF	974	780	6.6	-20%
9A EB ON	629	620	0.4	-1%
9A - 9S EB	3967	3853	1.8	-3%
9S EB OFF	1249	1414	4.5	13%
9S EB ON	767	944	6.1	23%
9S - 10 EB	3535	3398	2.3	-4%
10 EB OFF	707	698	0.3	-1%
10 - 11 EB	2828	2710	2.2	-4%
11 EB OFF	708	642	2.5	-9%
11 - 12 EB	2012	2044	0.7	2%
12 EB OFF	1289	1144	4.2	-11%

Location	Observed Link Counts	Seed 12535	GEH	Percentage Error
S. Broadway	169	173	0.3	2%
EAST OF BROADWAY	542	648	4.3	20%
Ramps from I-287	640	650	0.4	2%
Benedict Ave	602	650	1.9	8%
EAST OF BENEDICT AVE	1181	1137	1.3	-4%
Taxter Rd	1065	1069	0.1	0%
Stone Avenue	975	849	4.2	-13%
EAST OF SPRAIN BROOK PKWY	372	384	0.6	3%
Knollwood Rd	768	685	3.1	-11%
EAST OF MANHATTAN AVE	1925	1786	3.2	-7%
Aqueduct Rd	1569	1337	6.1	-15%
Chatterton Avenue	1670	1433	6.0	-14%
Bronx Street	2554	2095	9.5	-18%
Bank St	2357	2812	9.0	19%
Martin Luther King Blvd	1490	1521	0.8	2%
Court Street	1694	1745	1.2	3%
EJ Conroy Drive	1300	1480	4.8	14%
HAMILTON AVENUE EAST OF GROVE STREET	616	531	3.5	-14%
Bloomingtondale Ave (Bloomingtondale Ave & Westchester Ave)	582	466	5.1	-20%
S. WESTCHESTER AVE EASTBOUND WEST OF BRYANT AVE	485	691	8.5	42%
PURCHASE STREET EASTBOUND WEST OF POLLY PARK ROAD	461	370	4.5	-20%
POLLY PARK ROAD NORTHBOUND SOUTH OF PURCHASE STREET	165	131	2.8	-21%



B.2.4 Westbound PM

Table B-8
Comparison between Westbound PM Peak Hour Count Volumes
and Modeled Volumes – Westchester County

Location	Observed	Seed 12535	GEH	Percentage Error
9 - 10 WB	6260	5948	4.0	-5%
ON RAMP FROM S. BROADWAY TO TAPPAN ZEE BRIDGE	436	404	1.6	-7%
9 WB ON	535	509	1.1	-5%
9 WB OFF	333	281	3.0	-16%
8 - 9 WB	4327	5320	14.3	23%
8 WB ON # 2	1506	2552	23.2	69%
8 WB ON # 1	498	549	2.2	10%
8 WB OFF	1113	994	3.7	-11%
1 - 8 WB	3438	3242	3.4	-6%
1 WB OFF	641	694	2.1	8%
2 - 1 WB	4079	3941	2.2	-3%
2 WB ON	412	664	10.9	61%
2 WB OFF	742	837	3.4	13%
3 - 2 WB	4409	4121	4.4	-7%
3 WB ON	920	855	2.2	-7%
3 WB OFF	1329	1349	0.5	2%
4 - 3 WB	4818	4613	3.0	-4%
4 WB On	574	619	1.8	8%
4 WB Off	300	688	17.5	129%
5 - 4 WB	4592	4702	1.6	2%
5 WB ON	622	609	0.5	-2%
5 WB Off	577	661	3.4	15%
6 - 5 WB	4547	4757	3.1	5%
6 WB ON	551	566	0.6	3%
6 WB OFF	614	722	4.2	18%
7 - 6 WB	4610	4605	0.1	0%
7 WB OFF	1072	1001	2.2	-7%
8W - 7 WB	5349	5616	3.6	5%
8W WB ON	1740	2144	9.2	23%
8E - 8W WB	3609	3468	2.4	-4%
8 - 8E WB	3609	3465	2.4	-4%
8 WB Off	1300	1141	4.6	-12%
8 WB ON	912	902	0.3	-1%
9A - 8 WB	3997	3693	4.9	-8%
9A WB ON	534	494	1.8	-7%
9A WB OFF	789	801	0.4	2%
9S - 9A WB	4252	4013	3.7	-6%
9S WB On	1213	1128	2.5	-7%
9S WB Off	900	931	1.0	3%
10 - 9S WB	3939	3796	2.3	-4%
10 WB ON	775	751	0.9	-3%
10 WB OFF	203	227	1.6	12%
11 - 10 WB	3367	3287	1.4	-2%
11 WB ON	485	492	0.3	1%
12 WB On	1176	1103	2.2	-6%



Location - ID	observed link counts	Seed 12535	GEH	Percentage Error
Hamilton Avenue (Hamilton Avenue at EJ Conroy Drive)	1161	1034	3.8	-11%
Hamilton Avenue (Hamilton Avenue and Cottage Place)	1350	1297	1.5	-4%
Hamilton Ave (Grove St & Hamilton Ave)	1493	1443	1.3	-3%
MLK Boulevard (Barker/Water at MLK Boulevard)	2590	2084	10.5	-20%
Hamilton St (Bank St & Hamilton St)	2765	2408	7.0	-13%
Chatterton Avenue	2985	2959	0.5	-1%
Central Park Ave	1824	1826	0.0	0%
Aqueduct Rd	1350	1473	3.3	9%
MANHATTAN AVE	932	1077	4.6	16%
EAST OF SPRAIN BROOK PKWY	973	860	3.7	-12%
Stone Avenue	721	622	3.8	-14%
Taxter Rd	924	1064	4.4	15%
EAST OF BENEDICT AVE	1036	671	12.5	-35%
Benedict Ave	1098	967	4.1	-12%
Ramps from I-287	704	624	3.1	-11%
S. Broadway	684	660	0.9	-4%

B.2 Traffic Speed – Rockland County

Table B-9
Comparison of Observed and Modeled, AM Travel Time and Speed- Rockland County

Eastbound

EB	Int. of 87 & 287	Dist	Travel Time		Speed	
			Observed	Model	Observed	Model
	N Airmont Road Viaduct	2.34	0:01:57	0:01:57	71.8	67.8
	GSP Over bridge	4.11	0:03:36	0:03:49	68.4	65.0
In 12	N. Palisades Overpass Dr	4.49	0:07:01	0:04:52	38.4	57.0
	West Abutment	2.89	0:03:46	0:03:39	46	48.9
	Before Toll Plaza	2.9	0:04:39	0:03:47	37.4	48.2

Westbound

WB	West Abutment	Dist	Travel Time		Speed	
			Observed	Model	Observed	Model
	Mountainview Ave overpass	1.76	0:01:54	0:01:53	55.6	56.0
Int. 13	Palisades park overpass	3.01	0:02:55	0:03:14	61.9	56.1
	GSP Over bridge	2.58	0:04:36	0:02:49	33.7	56.9
	N Airmont Road Viaduct	4.10	0:03:39	0:03:36	67.4	66.6
	Int. of 87 & 287	2.32	0:02:08	0:02:02	65.3	69.0

Table B-10

Observed Travel Time and Speeds Eastbound & Westbound
- Rockland County

1) East Bound I287

All Travel Times Calculated from gore of intersection of EB I 87 & I 287

Segment No.	Checkpoints	2008				
		Distance (Miles)	AM Travel Time Study	AM Travel Time Study Speed	PM Travel Time Study	PM Travel Time Study Speed
1	Interchange 15 & Hemion Road	1.49	0:01:10	76.6	0:01:18	68.8
2	Hemion Road & N- Airmont Road	2.34	0:01:57	64.7	0:02:04	66.1
3	N- Airmont Road and WB Weight Bridge	5.67	0:04:52	68.6	0:05:08	65.3
4	WB Weight Bridge & Interchange 14A	6.44	0:05:33	67.6	0:05:48	69.3
5	Interchange 14A & Interchange 14	7.17	0:06:15	62.6	0:06:20	82.1
6	Interchange 14 & interchange 13	9.03	0:08:37	47.2	0:08:04	64.4
7	Interchange 13 & Interchange 12	10.93	0:12:34	28.9	0:09:48	65.8
8	Interchange 12 & Interchange 11	12.04	0:14:30	34.3	0:10:55	59.4
9	Interchange 11 & Interchange 10	13.52	0:15:42	74.0	0:12:24	59.9
10	Interchange 10 & West Abutment of TZB	13.82	0:16:20	28.9	0:12:45	52.3

2) West Bound I287

All Travel Times Calculated from West Abutment of TZB

Segment No.	Checkpoints	2008				
		Distance (Miles)	AM Travel time Study	AM Travel Time Study Speed	PM Travel time Study	PM Travel Time Study Speed
1	West Abutment of TZB & Interchange 11	1.76	0:01:54	55.6	0:04:58	21.3
2	Interchange 11 & 12	2.86	0:02:55	64.9	NA	NA
3	Interchange 12 & 13	4.77	0:04:49	60.3	0:10:39	NA
4	Interchange 13 & 14	6.64	0:06:47	57.1	0:12:26	62.9
5	Interchange 14 & 14 A	7.35	0:07:31	58.1	0:13:11	56.8
6	Interchange 14 A & Weight bridge	8.12	0:08:15	63.0	0:13:55	63.0
7	Weight Bridge & Interchange 14 B	11.45	0:11:10	68.5	0:16:59	65.2
8	Interchange 14 B & Hemion road Overpass	12.3	0:11:51	74.6	0:17:50	60.0
9	Hemion Road Overpass & Interchange 15	13.77	0:13:18	60.8	0:19:03	72.5

B.3 Traffic Speed – Westchester County

Table B-11
Comparison of Observed and Modeled, AM & PM
Travel Time and Speed- Westchester County

AM I-287 Eastbound Speed
Validation

Segment No.	From	To	Distance (Miles)	AM Peak Speed (mph)			
				Observed			Model Estimated
				2006	2009 (Dec 16)	2010 (Jan 14)	
1	Exit 9 (to US-9)	Exit 8 (to NYS Thruway)	1.06	34.4	59.5	61.3	45.0
2	Exit 8 (to NYS Thruway)	Exit 3 (to SBP)	1.38	12.9	14.8	55.4	52.1
3	Exit 3 (to SBP)	Exit 5 (to NY-119)	0.64	21.4	17.3	30.0	35.2
4	Exit 5 (to NY-119)	Exit 6 (to NY-22)	1.85	44.0	31.0	39.6	48.3
5	Exit 6 (to NY-22)	Exit 8W	1.52	46.4	32.9	26.0	45.6
6	Exit 8W	Exit 9A (to I-684)	1.05	45.8	28.3	44.1	55.2
7	Exit 9A (to I-684)	Exit 9S/N (to HRP)	0.91	54.0	66.6		56.1
8	Exit 9S/N (to HRP)	Exit 10 (to NY-120)	1.30	63.7	67.4		57.6
9	Exit 10 (to NY-120)	Exit 11 (to US-1)	1.82	63.1	73.5		56.8

AM I-287 Westbound
Speed Validation

Segment No.	From	To	Distance (Miles)	AM Peak Speed (mph)			
				Observed			Model Estimated
				2006	2009 (Dec 16)		
1	Exit 12 (to I-95S)	Exit 10 (to NY-120)	1.32	64.5	66.3		57.1
2	Exit 10 (to NY-120)	Exit 9N/S (to HRP)	0.93	64.0	67.1		56.7
3	Exit 9N/S (to HRP)	Exit 9A (to I-684)	1.42	63.8	67.1		56.2
4	Exit 9A (to I-684)	Exit 8 (to Westchester Ave)	0.98	52.6	61.5		55.1
5	Exit 8 (to Westchester Ave)	Exit 6 (to NY-22)	1.75	51.0	58.4		51.4
6	Exit 6 (to NY-22)	Exit 5 (to NY-100)	1.14	58.3	57.4		53.0
7	Exit 5 (to NY-100)	Exit 3 (to SBP)	1.43	59.2	65.3		54.4
8	Exit 3 (to SBP)	Exit 1 (to NY-119)	1.00	61.8	66.8		53.0
9	Exit 1 (to NY-119)	Exit 9 (to US-9)	1.68	62.6	63.7		56.1

PM I-287 Westbound Speed
Validation

Segment No.	From	To	Distance (Miles)	PM Peak Speed (mph)		
				Observed		Model Estimated
				2006	2009 (Dec 16)	
1	Exit 9 (to US-9)	Exit 8 (to NYS Thruway)	1.06	63.6	68.4	54.0
2	Exit 8 (to NYS Thruway)	Exit 3 (to SBP)	1.38	62.9	59.6	58.2
3	Exit 3 (to SBP)	Exit 5 (to NY-119)	0.64	61.4	62.4	49.2
4	Exit 5 (to NY-119)	Exit 6 (to NY-22)	1.85	62.0	58.3	55.2
5	Exit 6 (to NY-22)	Exit 8W	1.52	58.5	50.5	56.7
6	Exit 8W	Exit 9A (to I-684)	1.05	61.4	55.4	53.6
7	Exit 9A (to I-684)	Exit 9S/N (to HRP)	0.91	61.3	60.2	56.3
8	Exit 9S/N (to HRP)	Exit 10 (to NY-120)	1.30	65.6	61.2	59.4
9	Exit 10 (to NY-120)	Exit 11 (to US-1)	1.82	67.6	61.6	56.9



PM I-287 Westbound Speed
Validation

Segment No.	From	To	Distance (Miles)	PM Peak Speed (mph)		
				Observed		Model Estimated
				2006	2009 (Dec 16)	
1	Exit 12 (to I-95S)	Exit 10 (to NY-120)	1.32	61.7	76.1	57.7
2	Exit 10 (to NY-120)	Exit 9N/S (to HRP)	0.93	63.2	66.0	56.6
3	Exit 9N/S (to HRP)	Exit 9A (to I-684)	1.42	61.3	61.3	56.5
4	Exit 9A (to I-684)	Exit 8 (to Westchester Ave)	2.93	55.9	39.8	55.5
5	Exit 8 (to Westchester Ave)	Exit 6 (to NY-22)	1.75	51.3	31.5	50.6
6	Exit 6 (to NY-22)	Exit 5 (to NY-100)	1.14	58.3	34.7	52.7
7	Exit 5 (to NY-100)	Exit 3 (to SBP)	1.43	54.6	49.9	51.9
8	Exit 3 (to SBP)	Exit 1 (to NY-119)	1.00	59.1	58.3	55.3
9	Exit 1 (to NY-119)	Exit 9 (to US-9)	1.68	60.9	63.0	56.2



Appendix C





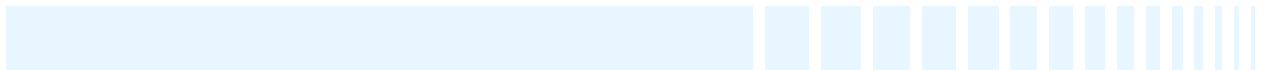
Thruway
Authority



New York State
Department of Transportation



Metro-North
Railroad



APPENDIX C

HIGHWAY & INTERSECTION ANALYSIS TABLES

2010, 2017 and 2047 No Build Mainline Results

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1. I 287 Mainline - comparison of No Build volumes and Speeds - AM and PM peak hours – eastbound and westbound
2. I 287 mainline 2047 No Build volumes including ramp volumes - AM and PM peak hours – eastbound and westbound
3. Segment travel times, average speeds and VMT (Select Markets) - AM and PM peak hours – eastbound and westbound

Rockland County

AM Peak Hour

Table C1 – Rockland County – I 287 Mainline - Comparison of No Build Volumes and Speeds – Eastbound AM

		2010			2017			2047		
	Section Lenth (feet)	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Int 15 - Int 14B	5491	55.5	67	4640	55.7	67	4748	86.2	43	6112
14B off Ramp	2906	30.0	66	4638	29.9	66	4738	53.4	37	5964
14B Off- to On-Ramp	975	9.7	69	3657	9.7	68	3739	10.7	62	4875
14B On Ramp	4493	44.2	69	4117	44.5	69	4183	44.6	69	5366
Mainline 14B - 14A	13870	143.4	66	4560	144.0	66	4613	144.7	65	5854
14A Off Ramp	2748	34.3	55	4538	34.4	54	4625	36.8	51	5760
14A Off to On Ramp	697	8.2	58	3723	8.2	58	3755	10.2	47	4597
14A On Ramp	3061	35.5	59	4365	35.7	58	4403	56.3	37	5158
Old Nyack Pkwy On Ramp	1118	13.0	59	5027	13.1	58	5044	20.9	36	5877
14 Off Ramp	683	8.1	58	5494	8.2	57	5597	12.8	36	6273
14 Off to On Ramp	641	7.5	58	4633	7.6	58	4818	11.3	39	5211
14 On Ramp	2015	23.4	59	5092	23.9	57	5309	40.5	34	5751
Between 14 and 13	3336	39.9	57	5553	40.6	56	5813	60.4	38	6203
13 Off to SB PIP	1953	24.6	54	5566	24.7	54	5825	44.4	30	6114
13 Off (SB PIP) - On (SB PIP)	1096	11.5	65	4096	11.5	65	4253	26.8	28	4349
Weave: 13 On (SB PIP) - 13 Off (NB PIP)	656	10.2	44	5100	10.7	42	5402	28.7	16	5519
13 Off (NB PIP) - 13 On (NB PIP)	753	8.6	60	4847	8.8	59	5121	18.8	27	5152
13 On (NB PIP)	3197	37.8	58	4931	38.4	57	5223	90.1	24	5279
Mainline 13 - 12	2342	28.2	57	5041	28.9	55	5337	68.9	23	5302
12 Off ramp	3545	42.3	57	5034	44.0	55	5354	142.3	17	5170
12 Off and On	728	8.5	58	4306	9.1	54	4583	29.8	17	4426
12 On Ramp	2127	25.9	56	4314	56.2	26	4563	98.9	15	4432
11 Off Ramp	2588	40.4	44	5366	75.6	23	5707	83.1	21	5385
11 Off - 11 ON	725	9.8	50	5169	12.4	40	5455	9.7	51	4992
11 On Ramp	1485	21.0	48	6258	25.4	40	6508	20.4	50	6455
Mainline 11 - 10	4708	54.5	59	6222	55.5	58	6502	54.8	59	6479
10 On Ramp	2508	30.0	57	6742	30.3	56	7070	30.3	56	7066
Bridge to 1 mile from Plaza	11832	144.8	56	7229	144.1	56	7402	144.1	56	7668

Table C2 – Rockland County – I 287 Mainline and Ramp Volumes– Eastbound AM

Location	2010 Volume	2017 Volume	2047 Volume
15A-15 EB	6803	6948	7644
15EB ON	1371	1332	1570
15EB OFF	3530	3508	2923
15-14B EB	4647	4743	6033
14B EB OFF	977	998	1085
14B EB ON	902	885	973
14B-14A EB	4548	4613	5844
14A EB OFF	821	887	1035
14A EB ON	1303	1291	1498
OLD NYACK EB ON	458	557	434
14 EB OFF	857	784	1055
14 EB ON	913	978	1112
14-13 EB	5556	5813	6205
13 EB OFF_PIP SB	1483	1552	1679
13 EB ON FROM PIP SB	1017	1150	1209
13 EB OFF TO PIP NB	250	285	375
13 EB ON FROM PIP NB	233	243	243
13-12 EB	5041	5337	5264
12 EB OFF	718	763	758
12 EB ON	1043	1177	1014
12-11EB	5365	5708	5394
11 EB OFF	192	266	380
11 EB ON	1102	1047	1449
11-10EB	6221	6497	6485
10 EB ON	1017	1129	1173
TZB EB	7231	7556	7644

Table C3 – Rockland County – I 287 Mainline - Comparison of No Build Volumes and Speeds – Westbound AM

		2010			2017			2047		
	Section Lenth (feet)	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Bridge to 10 Off Ramp	16340	193.2	58	4052	198.7	56	4255	204.3	55	5241
10 Off Ramp	1377	16.5	57	4012	16.6	56	4229	16.3	58	5218
Between 10 off and on	955	11.1	59	3601	11.1	59	3815	11.4	57	4755
10 on ramp	2592	30.2	58	3619	30.2	59	3837	72.7	24	4712
11 off ramp	1764	23.6	51	3634	23.8	51	3856	65.0	19	4668
Between 11 off -11 on	691	11.4	45	3423	9.4	54	3636	8.6	59	4438
11 on ramp	2213	26.2	58	3779	27.1	56	3993	26.8	56	4789
12 off ramp	3733	44.8	57	4121	45.4	56	4338	44.7	57	5128
Between 12 off and on	686	7.9	59	3454	8.0	58	3655	8.0	59	4420
12 On	3776	43.9	59	3695	44.6	58	3889	44.3	58	4656
Between 12 and 13	2347	28.4	56	3986	29.1	55	4179	29.0	55	4937
13 off to NB PIP	2836	38.5	50	3986	38.7	50	4172	38.4	50	4906
13 Off (NB PIP) - 13 On (NB PIP)	1592	18.9	57	3501	19.1	57	3649	18.2	60	4280
13 On (NB PIP) - 13 Off (SB PIP)	471	9.0	36	4226	9.1	35	4347	9.9	32	5173
13 Off (SB PIP) - 13 On (SB PIP)	349	3.5	69	3928	3.5	69	4014	4.0	60	4913
13 On from SB PIP	2405	28.1	58	4390	28.0	59	4498	30.3	54	5449
Between 13 and 14	3346	40.2	57	4864	40.6	56	4991	40.7	56	5976
14 Off ramp	973	12.0	55	4853	12.1	55	4982	12.4	54	5972
Between 14 off and 14 on	2182	26.4	56	4553	26.6	56	4676	27.2	55	5710
14 On to 14A off	1743	22.0	54	4857	22.5	53	5058	24.5	49	6195
14 A On	3787	42.9	60	3009	42.7	61	3021	43.7	59	4243
Between 14A and 14B	16159	164.4	67	3166	164.7	67	3191	168.0	66	4720
14 B off	2414	25.2	65	3168	25.3	65	3214	25.3	65	4743
Between 14 B off - 14 B on	1353	13.1	70	2453	13.2	70	2531	13.2	70	4018
14 B on	3205	31.2	70	2456	31.3	70	2536	31.3	70	4022
Between 14 B and 15	8298	82.6	68	2912	83.9	67	3026	84.8	67	4619

Table C4 – Rockland County – I 287 Mainline and Ramp Volumes– Westbound AM

Location	2010 Volume	2017 Volume	2047 Volume
TZ WB	4031	4227	5219
10 WB OFF	401	404	471
10 WB ON	28	34	35
10-11 WB	3633	3851	4709
11 WB OFF	213	225	225
11 WB ON	716	718	738
11-12 WB	4122	4334	5131
12 WB OFF	663	682	705
12 WB ON	539	519	546
12-13 WB	3977	4179	4941
13 WB OFF TO PIP NB	471	494	616
13 WB ON FROM PIP NB	724	710	878
13 WB OFF TO PIP SB	297	328	259
13 WB ON FROM PIP SB	946	1009	1091
13-14 WB	4867	4987	5973
14 WB OFF	590	575	558
14 WB ON	627	664	764
14A WB OFF	2055	2252	2461
14A WB ON	410	409	1044
14A-14B WB	3190	3215	4750
14B WB OFF	711	677	722
14B WB ON	457	491	582
14B 15 WB	2909	3029	4625
15 WB OFF	1743	1778	2179
15 WB ON	1947	2028	2685
15-15 A WB	3105	3272	5128

Table C5 Rockland County- AM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets

Start	End	Direction	Length	2010			2017			2047		
				Travel Time	Average Spe	VMt	Travel Time	Average Spe	VMt	Travel Time	Average Spe	VMt
Int 15 EB On Gore Point	Middle of Bridge	EB	15.6	15.8	59	81923	17.2	54	84595	24.7	38	93335
Int 15 EB On Gore Point	14 A GSP Off Ramp Gore Point	EB	5.8	5.3	66	25897	5.3	65	26321	6.3	55	33482
14 A GSP ON Gore Point	Middle of Bridge	EB	9.8	10.6	56	56026	11.9	50	58274	18.4	32	59853
12 On EB Gore Point	Middle of bridge	EB	4.9	5.4	54	31787	6.7	44	32956	7.4	40	33241
Middle of Bridge	15 Off Gore Point	WB	16.6	16.6	60	60319	16.8	59	62534	18.4	54	81493
Middle of Bridge	13 Off Ramp NB PIP Gore Point	WB	7.4	7.9	56	29177	8.0	56	30703	9.5	47	37258
12 On WB Gore Point	14 A GSP Off Ramp Gore Point	WB	4.2	4.5	55	17707	4.6	55	18363	4.6	54	22008
14 A GSP ON Gore Point	15 Off Gore Point	WB	6.7	6.0	67	19990	6.0	67	20346	6.1	66	30386

PM Peak Hour

Table C6 – Rockland County – I 287 Mainline - Comparison of No Build Volumes and Speeds – Eastbound PM

	2010			2017			2047		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Mainline section 15 - 14B	53.8	69.6	2553	54.0	69	3055	56.1	67	4920
14B off Ramp	29.2	67.7	2552	29.3	68	3041	29.8	67	4910
Between 14B Off and On Ramp (?)	9.8	67.7	2100	9.8	68	2581	9.8	68	4126
14B On Ramp	43.7	70.1	2583	43.9	70	3137	44.6	69	4715
Mainline between 14B and 14A	140.4	67.4	3059	142.6	66	3688	146.3	65	5310
14A Off Ramp	33.1	56.6	3052	33.5	56	3665	34.5	54	5306
Between 14A Off and On Ramps(?)	8.3	57.6	2692	8.2	58	3157	8.2	58	4370
14A On Ramp	35.2	59.3	3519	35.6	59	4112	37.1	56	5491
Old Nyack Parkway On ramp	12.9	59.1	4371	13.0	59	5052	13.8	55	6640
14 Off Ramp	7.9	59.3	4712	8.0	58	5369	8.6	54	6994
Between 14 Off and On Ramps	7.5	58.5	4050	7.5	58	4702	7.7	56	6220
14 On Ramp	23.2	59.3	4228	23.4	59	4923	24.4	56	6463
Between 14 and 13	39.3	57.9	4410	40.0	57	5142	41.1	55	6696
13 Off to SB PIP	23.3	57.2	4399	23.7	56	5136	24.7	54	6670
Between 13 Off to SB Pip and 13 On from SB PIP	11.5	65.2	3544	11.7	64	4326	11.9	63	5683
Weaving Section 13 On from SB PIP and 13 OFF to NB PIP	10.1	44.3	4181	10.5	43	4925	10.8	41	6357
Section between 13 OFF to NB PIP and 13 ON NB PIP	8.4	61.1	3624	8.5	60	4200	8.6	60	5497
13 On from NB PIP	37.1	58.7	3815	38.0	57	4396	38.0	57	5616
Mainline between 13 and 12	27.7	57.6	4002	28.4	56	4596	28.4	56	5712
12 Off ramp	42.1	57.4	4004	43.3	56	4597	43.5	56	5712
Between 12 Off and On	8.4	59.1	3032	8.5	58	3719	8.9	55	4719
12 On Ramp	25.1	57.9	3033	25.6	57	3714	26.3	55	4713
11 Off Ramp	34.3	51.4	3647	36.0	49	4276	40.3	44	5339
Section between 11 Off and 11 ON	8.0	61.5	3082	8.2	60	3703	8.7	57	4714
11 On Ramp	17.9	56.4	3516	18.0	56	4186	18.0	56	5161
Mainline between 11 and 10	54.6	58.7	3530	54.9	58	4186	54.6	59	5163
10 On Ramp	28.5	59.9	3774	29.2	59	4417	29.9	57	5494
Bridge	143.5	56.2	3992	146.4	55	4664	149.5	54	5753

Table C7 – Rockland County – I 287 Mainline and Ramp Volumes – Eastbound PM

Location	2010 Volume	2017 Volume	2047 Volume
15A-15 EB	3031	3439	5595
15EB ON	1555	1615	1992
15EB OFF	2027	1989	2669
15-14B EB	2551	3064	4926
14B EB OFF	452	453	794
14B EB ON	971	1096	1171
14B-14A EB	3060	3693	5328
14A EB OFF	366	504	941
14A EB ON	1703	1902	2275
OLD NYACK EB ON	336	324	356
14 EB OFF	660	668	769
14 EB ON	365	417	450
14-13 EB	4404	5147	6693
13 EB OFF_PIP SB	856	806	987
13 EB ON FROM PIP SB	629	599	667
13 EB OFF TO PIP NB	552	716	864
13 EB ON FROM PIP NB	388	405	238
13-12 EB	4002	4593	5713
12 EB OFF	980	880	968
12 EB ON	617	585	656
12-11 EB	3650	4275	5337
11 EB OFF	572	579	627
11 EB ON	439	474	463
11-10 EB	3533	4200	5148
10 EB ON	462	529	553
TZB EB	3994	4684	5774

Table C8 - Comparison of No Build Volumes and Speeds – Westbound PM

	2010			2017			2047		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Bridge to 10 Off Ramp	206.5	53.9	6556	246.1	45	7089	415.0	27	6919
10 Off Ramp	25.2	37.3	6419	21.9	43	6945	42.9	22	6559
Between 10 off and on	20.0	32.6	5551	17.8	37	5915	32.3	20	5612
10 on ramp	72.0	24.6	5439	71.1	25	5813	115.7	15	5556
11 off ramp	76.9	15.6	5424	70.2	17	5749	89.9	13	5580
between 11 off and 11 on	16.7	28.3	4801	17.3	30	5094	19.7	26	5233
11 on ramp	26.7	56.5	4974	26.8	56	5256	50.3	30	5399
12 off ramp	44.9	56.7	5148	44.9	57	5424	84.7	30	5614
Between 12 off and on	7.9	59.3	4165	7.9	59	4684	18.7	25	4539
12 On	48.7	52.8	4597	58.5	44	5144	133.8	19	5105
Mainline between 12 and 13	28.8	55.6	5120	32.6	49	5672	49.8	32	5758
13 off to NB PIP	38.3	50.5	5113	41.4	47	5684	47.8	40	5759
Between 13 Off to NB Pip and 13 On from NB PIP	17.7	61.3	4088	18.8	58	4675	21.4	51	4717
Weaving Section 13 On from NB PIP and 13 OFF to SB PIP	9.5	34.0	5484	9.9	33	5928	10.4	31	6110
Section between 13 OFF to SB PIP and 13 ON SB PIP	3.7	63.5	4678	3.7	64	4875	3.9	61	5539
13 On from SB PIP	28.2	58.1	4966	29.2	56	5196	31.3	52	6018
Mainline between 13 and 14	40.5	56.3	5239	41.3	55	5516	42.5	54	6455
14 Off ramp	12.3	53.9	5232	12.3	54	5515	14.7	45	6444
Between 14 off and 14 on	27.2	54.7	4884	27.1	55	5124	30.1	50	6055
Weaving Section 14 On to 14A off	21.3	55.9	5691	21.3	56	5828	21.7	55	7004
14 A On	43.9	58.8	4266	44.0	59	4373	44.4	58	5338
Mainline between 14A and 14B	168.1	65.5	4452	169.1	65	4566	203.9	54	5634
14 B off	25.8	63.8	4466	25.8	64	4606	37.1	44	5479
Between 14 B off and 14 B on	13.1	70.2	3375	13.1	70	3515	13.2	70	4200
14 B on	31.3	69.9	3399	31.2	70	3507	31.1	70	4202
Mainline between 14 B and 15	83.8	67.5	4061	83.7	68	4218	84.6	67	5055

Table C9 – Rockland County – I 287 Mainline and Ramp Volumes– Westbound PM

Location	2010 Volume	2017 Volume	2047 Volume
TZ WB	6468	6994	6634
10 WB OFF	819	958	865
10 WB ON	65	50	58
10-11 WB	5457	5805	5589
11 WB OFF	591	619	343
11 WB ON	357	345	439
11-12 WB	5147	5423	5602
12 WB OFF	980	732	1094
12 WB ON	971	1011	1210
12-13 WB	5120	5667	5757
13 WB OFF TO PIP NB	1002	1015	1055
13 WB ON FROM PIP NB	1395	1252	1401
13 WB OFF TO PIP SB	801	1053	573
13 WB ON FROM PIP SB	542	656	923
13-14 WB	5238	5515	6452
14 WB OFF	672	753	748
14 WB ON	1146	1078	1328
14A WB OFF	1697	1728	2089
14A WB ON	539	519	859
14A-14B WB	4510	4617	5745
14B WB OFF	1099	1113	1249
14B WB ON	659	727	839
14B 15 WB	4062	4226	5060
15 WB OFF	1671	1676	1760
15 WB ON	4019	4011	3610
15-15A WB	6429	6500	6817

Table C10 PM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets

PM					2010			2017			2047		
Trip ID	Start	End	Direction	Length	Travel Time	Average Spe	VMT	Travel Time	Average Spe	VMT	Travel Time	Average Spe	VMT
1	Int 15 EB On Gore Point	Middle of Bridge	EB	15.6	15.4	61	53986	15.7	60	63720	16.1	58	85185
2	Int 15 EB On Gore Point	14 A GSP Off Ramp Gore Point	EB	5.8	5.2	67	16268	5.2	66	19591	5.4	65	29303
3	14 A GSP ON Gore Point	Middle of Bridge	EB	9.8	10.2	57	37718	10.4	56	44129	10.7	55	55882
4	12 On EB Gore Point	Middle of bridge	EB	4.9	5.2	57	18307	5.3	56	21560	5.5	54	26719
5	Middle of Bridge	15 Off Gore Point	WB	16.6	19.0	52	83161	19.8	50	88212	28.2	35	95851
6	Middle of Bridge	13 Off Ramp NB PIP Gore Point	WB	7.4	10.2	44	42651	10.9	41	46159	18.3	24	45537
7	12 On WB Gore Point	14 A GSP Off Ramp Gore Point	WB	4.2	4.6	54	20781	4.9	51	22432	6.8	37	24469
8	14 A GSP ON Gore Point	15 Off Gore Point	WB	6.7	6.1	66	28037	6.1	65	28874	6.9	58	35148

Westchester County

AM Peak Hour

Table C11 – Westchester County – I 287 Mainline - Comparison of No Build Volumes and Speeds – Eastbound AM

Section	2010			2017			2047		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
TP to Exit 9	23.1	31.8	6504	21.9	33	7213	21.4	34	7342
Int 9 on ramp	17.5	56.3	5311	17.7	56	5814	17.8	55	6109
Int 9 - Int 8	35.1	55.1	5501	34.6	56	5947	34.9	55	6241
Int. 8 Off	11.8	36.4	5480	11.6	37	5930	11.7	37	6209
Int 8 off - Int 8 On	41.8	50.7	3765	41.1	52	4010	42.4	50	4241
Int 8 on ramp	19.9	59.4	2980	20.0	59	3076	20.1	59	3338
Int 8 - Int 1	4.7	56.1	3323	4.6	56	3402	4.7	56	3722
Int 1 on ramp	17.4	59.6	3304	17.4	60	3392	17.4	60	3712
Int 1 - Int 2	20.7	56.3	3613	20.5	57	3732	21.0	55	4206
Weaving: Int 2 on - Int 3 off	15.2	42.9	3992	14.8	44	4105	15.4	42	4606
Int. 3 off - Int. 3 on	15.6	49.4	2578	15.4	50	2618	15.6	49	3040
Int 3 on SB ramp	15.4	46.6	3386	14.7	49	3450	14.6	49	3773
Weaving: Int 3 on (NB) - Int 4 off	17.1	47.0	4383	15.9	50	4362	17.0	47	4878
Int 4 off - Int 4 on	10.9	52.4	3978	10.9	53	4036	10.9	53	4407
Int 4 on Ramp	14.5	60.1	3951	14.4	61	4013	14.4	61	4382
Int 4 - Int 5	11.2	58.0	4716	11.0	59	4888	11.0	59	5217
Int 5 off ramp	25.5	50.7	4667	24.7	52	4858	25.1	51	5171
Int. 5 off - Int 5 on	14.8	55.1	3994	14.6	56	4188	14.8	55	4471
Int 5 on ramp	11.8	46.9	4469	11.8	47	4644	11.8	47	4951
Int 5 - Int 6	15.0	61.0	4449	14.9	61	4621	15.6	59	4913
Int 6 off ramp	18.4	53.8	4409	17.7	56	4591	20.8	47	4887
Int 6 off - Int. 6 on	17.4	57.4	3726	17.4	57	3875	17.4	57	4088
Int 6 on ramp	15.9	54.9	3700	15.9	55	3846	16.0	55	4043
Int. 6 - Int 7	12.1	48.7	4094	11.8	50	4153	11.9	49	4423
Int 7 on ramp	20.8	51.8	4427	20.6	52	4549	21.1	51	4795
Int 8W off ramp	22.4	62.9	4743	23.2	61	4929	23.4	60	5141
Int 8E off ramp	10.3	50.7	3719	9.8	53	3740	9.8	53	3977
Int 8E - Int 8	29.8	56.5	3136	4.6	48	3091	4.6	48	3179
Int 8 on ramp	23.2	54.6	3094	23.5	54	3551	23.5	54	3705
Int 9A off ramp	10.5	54.4	3584	10.6	54	3903	10.6	54	4103
Int 9A off - 9A on	31.5	58.7	3327	31.5	59	3606	31.6	59	3743
Int 9 A on ramp	22.5	58.1	3160	22.8	57	3427	23.1	57	3509
Int 9S off ramp	6.0	61.1	3784	6.1	60	4135	6.2	60	4323
Int 9S off - 9N on	52.1	58.1	2938	51.9	58	3142	51.9	58	3334
Int 9N on ramp	23.1	59.3	2891	23.0	60	3091	23.1	59	3291
Int 10 off ramp	5.0	57.4	3042	5.0	58	3303	5.1	57	3529
Int 10 - Int 11	101.1	57.6	2427	101.3	58	2707	100.6	58	2762
Int 11 off ramp	12.8	55.5	2367	12.8	55	2639	12.8	55	2713
Int 12 off ramp	11.6	56.2	1859	11.6	56	2004	11.6	56	2083

Table C12 – Westchester County – I 287 Mainline and Ramp Volumes– Eastbound AM

Location	2010 NB	2017 NB	2047 NB
10 - 9 EB	6997	7642	7822
9 EB Off	1242	1380	1352
9 EB ON	365	182	324
9 - 8 EB	6131	6443	6792
8 EB OFF # 1	2173	2351	2418
8 EB ON	1037	1007	1112
8 - 1 EB	3987	4071	4355
1 EB ON	540	616	734
1 - 2 EB	3996	4067	4346
2 EB ON	627	611	599
2 -3 EB	5179	5270	5579
3 EB Off	1728	1749	1723
3 EB ON # 1	1745	1858	1641
3 EB ON # 2	995	1149	1091
3 - 4 EB	6179	6512	6550
4 EB OFF	598	559	735
4 EB On	1072	987	1137
4-5 EB	6542	6931	6923
5 EB OFF	865	964	828
5 EB ON	727	714	946
5 - 6 EB	6404	6671	6930
6 EB OFF	1075	1027	1113
6 EB ON	564	504	748
6-7 EB	5787	6082	6423
7 EB ON	1136	1182	1245
7 -8W EB	6930	7256	7666
8W EB OFF	1581	1709	1909
8W - 8E EB	5334	5530	5744
8E EB OFF	748	922	1139
8E - 8 EB	4576	4495	4623
8 EB ON #1	846	707	722
8 EB ON #2		569	1909
8 - 9A EB	5403	5650	6015
9A EB OFF	556	567	774
9A EB ON	1082	1095	1072
9A - 9S EB	5921	6097	6205
9S EB OFF	1259	1357	1351
9S EB ON	358	361	356
9S - 10 EB	4996	5075	5209
10 EB OFF	983	794	916

Table C13 – Westchester County – I 287 Mainline - Comparison of No Build Volumes and Speeds – Westbound AM

Section	2010 NB			2017 NB			2047 NB		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Int. 12 on ramp	4.0	49.2	1640	4.0	48.7	1781	4	47	3201
Int 11 on ramp	18.0	59.0	1632	18.0	58.9	1766	18	58	3198
Int 11 - Int 10	39.1	58.5	1885	39.3	58.1	2063	40	57	3684
Int 10 off ramp	13.5	56.0	1875	13.6	55.7	2050	14	54	3674
Int 10 off - Int 10 on	31.8	57.9	1688	31.8	58.0	1808	32	57	3266
Int 10 on ramp	24.4	57.1	1887	24.5	57.0	2035	25	55	3667
Int 9N off ramp	9.7	56.9	2096	9.8	56.5	2264	10	55	4082
Int 9N - Int 9S	56.2	57.1	1721	55.6	57.6	1677	57	57	2933
Int 9S on ramp	12.2	60.5	1710	12.2	60.9	1661	12	60	2946
Int 9A off ramp	21.8	53.7	2674	21.6	54.1	2571	22	53	4165
Int 9A off - Int 9A on	44.6	59.6	2329	44.4	60.0	2145	45	60	3466
Weaving: Int 9A on - Int 8 off	18.4	46.7	3196	17.9	47.9	2912	19	46	4935
Int. 8 off - Int 8W on	69.3	54.6	2023	63.3	27.9	2112	64	27	3650
West of Int. 8W	69.3	54.6	2023	64.9	53.0	2104	68	54	3650
West of Int. 8W	69.3	54.6	2023	65.8	36.2	1891	70	34	3381
Weaving: Int 8W on - Int. 7 off	13.8	52.9	2911	65.8	36.2	1891	21	34	3381
Int 7 - Int 6	20.5	55.4	2511	19.5	58.2	2240	21	53	4121
Int 6 off ramp	12.5	52.0	2492	12.2	53.4	2630	15	43	4862
Int 6 on ramp	16.0	62.1	2098	15.9	62.4	2183	16	61	4008
Int 6 - Int 5	34.2	58.4	2227	33.8	59.2	2417	34	59	4360
Int 5 off ramp	26.3	42.7	2200	26.0	43.3	2382	27	42	4352
Int 5 off - Int. 5 on	6.1	58.6	1970	6.1	59.1	2130	6	58	3970
Int. 5 on ramp	25.1	59.4	1959	25.0	59.5	2120	25	59	3966
Int 4 off ramp	18.1	57.3	2310	18.0	57.8	2515	19	56	4565
Int. 4 off - Int 4 on	11.2	44.3	2050	11.2	44.3	2253	11	44	4070
Int 4 on ramp	27.9	56.1	2305	28.0	55.9	2485	29	53	4530
Int 3 off ramp	4.1	49.6	2566	4.1	49.4	2729	4	45	4985
Int. 3 off - Int 3 on	15.9	58.4	2080	15.8	58.5	2204	17	56	4007
Weaving: Int 3 on - Int 2 off	14.7	52.8	2937	14.1	54.9	3072	17	46	5252
Int. 2 off - Int. 2 on	6.5	51.0	2276	6.4	51.9	2437	7	49	3934
Int 2 on ramp	20.8	58.2	2254	20.6	58.7	2417	21	57	3946
Int 1 off	7.5	49.6	2532	7.2	51.5	2710	8	48	4343
Int 8 off	8.3	58.5	1723	8.4	58.4	1943	8	58	3280
Int. 8 off - Int 1 on	17.1	57.8	1399	17.1	57.5	1458	18	56	2624
Int 1 on ramp	14.5	55.5	1530	14.8	54.5	1626	15	53	2768
Int 8 on ramp	16.9	34.2	2233	17.1	33.6	2458	17	33	3938
Int. 8 - Int 9	17.0	75.0	2684	17.0	70.0	2950	17	77	4779
Int 9 off ramp	32.5	57.1	2651	32.7	56.8	2916	33	56	4785
Int 9 off - Int 9 on	9.4	58.3	2277	9.5	57.5	2458	10	57	4247
Int 9 on ramp	11.5	55.5	2432	11.5	55.4	2587	12	55	4428
Int 9 on - South Broadway on	15.6	56.8	2416	15.8	55.9	2570	17	52	4423
South Broadway on	41.8	55.8	2581	42.1	55.4	2697	43	55	4719

Table C14 – Westchester County – I 287 Mainline and Ramp Volumes– Westbound AM

Location	2010 NB	2017 NB	2047 NB
9 - 10 WB	4280	4435	5016
ON RAMP FROM S. BROADWAY TO TAPPAN ZEE BRIDGE	380	389	610
9 WB ON	235	188	175
9 WB OFF	545	700	552
8 - 9 WB	4216	4587	4785
8 WB ON # 2	1218	1457	1623
8 WB ON # 1	790	964	716
8 WB OFF	770	951	875
1 - 8 WB	3029	3146	3280
1 WB OFF	1146	1138	1070
2 - 1 WB	4168	4290	4343
2 WB ON	373	394	399
2 WB OFF	1089	1182	1312
3 - 2 WB	4872	5096	5252
3 WB ON	1289	1310	1320
3 WB OFF	879	828	963
4 - 3 WB	4459	4622	4983
4 WB On	793	831	905
4 WB Off	489	427	499
5 - 4 WB	4168	4243	4566
5 WB ON	608	558	597
5 WB Off	435	380	383
6 - 5 WB	4029	4056	4364
6 WB ON	238	332	252
6 WB OFF	611	820	851
7 - 6 WB	4290	4430	4862
7 WB OFF	605	1317	1492
8W - 7 WB	4888	3107	3382
8W WB ON	1453	320	260
8E - 8W WB	3430	3423	3652
8 - 8E WB	3435	3429	3650
8 WB Off	1801	1109	1276
8 WB ON	689	590	714
9A - 8 WB	4560	3943	4226
9A WB ON	824	800	999
9A WB OFF	759	782	964
9S - 9A WB	4486	3926	4166
9S WB On	1600	1271	1230
9S WB Off	635	1044	1135
10 - 9S WB	3555	3708	4084

Table C15 Westchester County- AM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets

				No Build 2010			No Build 2017			No Build 2047		
Start	End	Direction	Length	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT
Toll Plaza	12 Off Ramp Gore Point	EB	12.2	13.4	54	44151	12.9	55	45505	13.0	54	48167
Toll Plaza	8 Off Ramp to 87 SB Gore Point	EB	1.1	1.5	47	6385	1.4	48	6960	1.4	48	7258
Int 9 On Ramp Gore Point	8E Off Ramp Gore Point	EB	7.2	8.0	54	29377	7.5	54	29297	7.7	53	31354
8E On EB Gore Point	12 Off Ramp Gore Point	EB	4.8	5.0	58	13450	5.0	57	14740	5.0	57	15317
I-95 On Ramp	Middle of Bridge	WB	12.9	13.8	56	27988	15.6	49	28862	15.7	49	31991
I-95 ON Ramp	8E Off Ramp Gore Point	WB	4.6	4.9	57	9313	4.9	57	9367	4.9	57	10539
8E/7 On Ramp	Middle of Bridge	WB	8.2	8.9	55	18675	10.7	46	19495	10.8	46	21452
5 On Ramp	Middle of Bridge	WB	5.2	5.6	56	12016	5.6	56	12911	5.6	56	14079

PM Peak Hour

Table C16 – Westchester County – I 287 Mainline - Comparison of No Build Volumes and Speeds – Eastbound PM

Section	2010 NB			2017 NB			2047 NB		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
TP to Exit 9	14.8	49.7	3997	14.4	51.0	4153	15	48	5792
Exit 9 on ramp	16.3	60.4	3551	16.4	60.0	3747	17	59	5226
mainline between 9 and 8	33.2	58.3	3963	33.2	58.2	4098	34	57	6023
Exit 8	11.3	37.9	3948	11.3	38.0	4091	11	38	6025
Between 8 off and on	37.6	56.4	2658	37.5	56.5	2829	39	54	4068
8 on ramp	19.7	60.2	2238	19.7	60.3	2444	20	60	3397
Mainline between 8 and 1	4.6	57.0	2664	4.6	57.3	2886	5	56	4025
1 on ramp	17.2	60.3	2651	17.2	60.4	2876	17	59	4025
Mainline between 1 and 2	19.7	59.1	3352	19.6	59.3	3555	20	58	4665
Weaving area between 2 on and 3 off	13.1	49.9	3978	12.5	52.0	4155	14	46	5403
Section between 3 off and 3 on	15.1	50.9	3438	14.7	52.4	3556	16	47	4701
3 on SB ramp	15.3	47.1	4151	15.0	48.0	4354	17	43	5642
Weaving area between 3 on NB ramp and 4 off	15.6	51.2	5080	15.7	51.1	5383	16	49	6899
Section between 4 off and 4 on	10.7	53.2	4469	10.8	53.0	4769	11	53	6079
4 on Ramp	14.5	60.0	4445	14.7	59.5	4751	15	59	6096
Mainline between 4 and 5	10.8	60.3	5085	10.9	59.8	5363	11	59	6907
5 off ramp	24.6	52.5	5045	24.6	52.5	5334	25	52	6897
Section between 5 off and 5 on	14.5	56.2	4201	14.6	55.7	4564	15	55	6112
5 on ramp	11.8	47.0	4636	11.7	47.3	4801	12	46	6797
Mainline between 5 and 6	14.8	61.9	4613	14.8	61.9	4778	15	61	6791
6 off ramp	17.4	56.9	4593	17.3	57.2	4750	18	54	6791
section between 6 off and 6 on	17.2	58.0	3972	17.1	58.3	4073	18	57	6059
6 on ramp	15.4	56.8	3943	15.3	56.9	4048	16	55	6040
mainline between 6 and 7	10.8	54.3	4039	10.8	54.3	4159	11	52	6321
7 on ramp	20.1	53.6	4298	20.2	53.3	4413	21	52	6792
8W off ramp	21.7	64.7	4552	22.6	62.3	4667	25	57	7261
8E off ramp	10.7	48.9	3759	10.3	51.0	3943	10	50	5889
Mainline between 8E and 8	30.9	54.6	3347	5.0	44.7	3285	5	45	4691
East of Int. 8	30.9	54.6	3347	25.6	57.2	3258	26	57	4680
8 on ramp	24.1	52.5	3313	24.0	52.9	3803	25	50	5463
9A off ramp	10.9	52.4	3450	11.0	52.3	4255	12	48	6000
Mainline between 9A off and on	31.6	58.5	2949	31.4	59.0	3499	32	59	4893
9 A on ramp	23.1	56.6	2671	21.9	59.8	3107	27	48	4192
9S off ramp	6.5	56.2	3263	6.8	54.2	3666	10	36	4909
Mainline between 9S off and 9N on	51.2	59.1	2090	51.5	58.8	2259	101	30	3037
9N on ramp	22.4	61.0	2070	22.6	60.5	2235	64	22	2864
10 off ramp	4.8	59.5	2860	5.1	56.9	2857	9	31	3668
Mainline between 10 and 11	101.0	57.7	2259	100.6	57.9	2195	101	58	2760
11 off ramp	12.9	54.7	2212	12.9	54.6	2144	13	54	2787
12 off ramp	11.8	55.0	1680	11.8	55.0	1579	13	51	2261

Table C17 – Westchester County – I 287 Mainline and Ramp Volumes– Eastbound PM

	2010 NB	2017 NB	2047 NB
10 - 9 EB	4501	4721	5808
9 EB Off	477	490	557
9 EB ON	513	394	786
9 - 8 EB	4534	4591	6023
8 EB OFF # 1	1307	1240	1853
8 EB ON	974	1126	1259
8 - 1 EB	3077	3350	4025
1 EB ON	787	773	639
1 - 2 EB	3089	3351	4026
2 EB ON	706	674	735
2 -3 EB	4577	4793	5403
3 EB Off	640	693	697
3 EB ON # 1	1350	1422	1428
3 EB ON # 2	734	696	775
3 - 4 EB	6027	6222	6899
4 EB OFF	747	674	813
4 EB On	776	819	826
4-5 EB	6059	6336	6891
5 EB OFF	827	871	793
5 EB ON	641	422	675
5 - 6 EB	5886	5902	6797
6 EB OFF	820	835	742
6 EB ON	291	219	285
6-7 EB	5287	5280	6321
7 EB ON	640	696	946
7 -8W EB	5913	5969	7263
8W EB OFF	1226	865	1309
8W - 8E EB	4693	5101	5889
8E EB OFF	474	921	1197
8E - 8 EB	4220	4196	4675
8 EB ON #1	173	700	762
8 EB ON #2	NA	473	528
8 - 9A EB	4379	5365	6000
9A EB OFF	910	1415	1649
9A EB ON	659	643	747
9A - 9S EB	4125	4570	4909
9S EB OFF	1531	1691	1783
9S EB ON	1009	632	846
9S - 10 EB	3570	3502	3668
10 EB OFF	685	817	941

Table C18 – Westchester County – I 287 Mainline - Comparison of No Build Volumes and Speeds – Westbound PM

Section	2010 NB			2017 NB			2047 NB		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
12 on ramp	4.0	49.2	2437	4.0	49.2	2499	4	49	3342
11 on ramp	17.8	59.5	2431	17.9	59.3	2484	18	59	3340
Mainline between 11 and 10	39.2	58.3	2808	39.2	58.3	2874	40	58	3851
10 off ramp	13.5	56.0	2792	13.6	55.8	2858	14	55	3848
Mainline between 10 off and 10 on	31.8	57.8	2600	31.8	58.0	2582	32	57	3512
10 on ramp	24.7	56.5	2934	24.6	56.6	2896	25	56	3875
9N off ramp	9.9	56.1	3264	9.9	56.1	3215	10	55	4217
Mainline between 9N and 9S	56.0	57.2	2459	56.0	57.3	2496	56	57	3038
9S on ramp	12.3	60.3	2424	12.3	60.2	2459	12	60	3044
9A off ramp	22.0	53.1	3394	21.9	53.4	3213	22	52	3948
Mainline between 9A off and 9A on	44.7	59.5	2737	44.5	59.8	2632	44	60	3081
Weaving section between 9A on and 8 off	18.7	46.0	3848	18.9	45.5	4133	19	45	5129
Mainline section between 8 off and 8W on	70.7	53.5	2761	64.0	27.5	3074	65	27	4106
Int 7 Off ramp	70.7	53.5	2761	66.3	5.6	3055	74	54	4101
Int. 7 off - Int 8W on	70.7	53.5	2761	67.3	35.4	2657	78	31	3634
Int. 7 off - Int 8W on	15.1	48.4	4525	67.3	35.4	2657		31	3634
Mainline between 7 and 6	21.9	51.9	3684	19.8	57.2	3185	27	42	4517
6 off ramp	13.8	47.3	3658	12.6	52.0	3746	17	39	5410
6 on ramp	16.2	61.4	3009	15.8	62.9	3175	16	61	4582
Mainline between 6 and 5	34.5	57.9	3552	34.0	58.8	3729	34	58	5527
5 off ramp	26.8	42.0	3499	26.7	42.1	3694	27	41	5516
section between 5 off and on	6.1	58.3	3072	6.9	52.3	3217	6	58	4910
5 on ramp	25.4	58.6	3066	40.3	37.0	3195	26	57	4901
4 off ramp	18.6	55.9	3690	32.3	32.2	3737	23	45	5626
Section between 4 off and on	11.3	44.1	3111	11.3	44.2	3113	11	44	4849
4 on ramp	28.7	54.4	3379	30.0	52.2	3398	32	48	5245
3 off ramp	4.6	44.2	3651	5.0	40.7	3691	6	31	5646
Section between 3 off and 3 on	15.9	58.2	2405	15.9	58.4	2378	16	57	3666
Weaving between 3 on and 2 off	14.6	53.4	3062	14.5	53.7	3067	14	54	4577
section between 2 off and 2 on	6.5	51.5	2408	6.4	52.3	2458	7	51	3780
2 on ramp	20.4	59.0	2398	20.4	59.1	2445	21	57	3774
1 off	7.0	53.0	3047	7.0	52.9	3130	7	50	4585
8 off	8.4	58.1	2526	8.4	58.2	2564	8	58	3686
section between 8 off and 1 on	17.4	56.6	1884	17.5	56.2	1967	18	54	2931
1 on ramp	14.8	54.5	1911	14.8	54.6	2031	15	53	3032
8 on ramp	16.9	34.1	3280	16.9	34.0	3590	17	33	5240
Mainline between 8 and 9	16.6	75.0	4393	16.6	70.0	4868	17	79	7090
9 off ramp	32.1	57.9	4359	32.1	57.8	4823	33	56	7104
section between 9 off and on	9.6	57.4	4075	9.4	58.5	4579	10	57	6663
9 on ramp	11.4	56.2	4483	11.8	54.1	5020	12	54	7282
Mainline between 9 on and S Broadway on	18.7	47.3	4459	16.0	55.1	4995	16	54	7283
S Broadway on	43.3	53.8	4595	40.4	57.7	5149	41	57	7533

Table C19 – Westchester County – I 287 Mainline and Ramp Volumes - Westbound PM

	2010 NB	2017 NB	2047 NB
9 - 10 WB	5809	6568	7811
ON RAMP FROM S. BROADWAY TO TAPPAN ZEE BRIDGE	405	465	540
9 WB ON	426	510	623
9 WB OFF	316	196	428
8 - 9 WB	5296	5793	7104
8 WB ON # 2	2668	2919	3706
8 WB ON # 1	578	591	712
8 WB OFF	1064	1101	1020
1 - 8 WB	3125	3426	3686
1 WB OFF	722	632	901
2 - 1 WB	3842	4058	4585
2 WB ON	656	796	825
2 WB OFF	886	856	793
3 - 2 WB	4075	4144	4577
3 WB ON	767	869	918
3 WB OFF	1514	1705	2005
4 - 3 WB	4819	4980	5654
4 WB On	776	684	832
4 WB Off	678	725	786
5 - 4 WB	4727	4983	5630
5 WB ON	639	662	725
5 WB Off	637	627	605
6 - 5 WB	4772	4941	5549
6 WB ON	530	556	603
6 WB OFF	801	664	817
7 - 6 WB	4776	4757	5399
7 WB ON	927	1486	1756
8W - 7 WB	5692	3257	3631
8W WB OFF	2234	511	471
8E - 8W WB	3453	3781	4108
8 - 8E WB	3455	3782	4107
8 WB Off	1196	1073	1013
8 WB ON	920	1328	1580
9A - 8 WB	3751	3530	3541
9A WB ON	489	534	623
9A WB OFF	861	821	1012
9S - 9A WB	4116	3829	3948
9S WB On	1207	920	906
9S WB Off	895	890	1192

Table C20 Westchester County- PM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets

				No Build 2010			No Build 2017			No Build 2047		
Start	End	Direction	Length	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt
Toll Plaza	12 Off Ramp Gore Point	EB	12.2	13.0	56	40352	13.0	56	42466	13.1	56	47855
Toll Plaza	8 Off Ramp to 87 SB Gore Point	EB	1.1	1.3	54	4385	1.3	54	4559	1.3	53	5754
Int 9 On Ramp Gore Point	8E Off Ramp Gore Point	EB	7.2	7.7	56	27833	7.3	56	27738	7.4	55	31445
8E On EB Gore Point	12 Off Ramp Gore Point	EB	4.8	5.0	57	11705	5.4	58	13882	5.5	57	15354
I-95 On Ramp	Middle of Bridge	WB	12.9	16.4	47	40981	17.4	44	42109	15.9	48	48092
I-95 ON Ramp	8E Off Ramp Gore Point	WB	4.6	4.9	57	12917	4.9	57	12932	5.0	56	14215
8E/7 On Ramp	Middle of Bridge	WB	8.2	11.5	43	28064	12.5	40	29177	11.0	45	33876
5 On Ramp	Middle of Bridge	WB	5.2	5.7	55	18219	6.1	51	19496	5.7	55	23360

2017 & 2047 Highway Builds

Rockland

Table C21 Rockland County- I 287 Mainline – Highway Build Volumes and Speeds – Eastbound AM

Section	ALT A1 2017		ALT A1 2047		
	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Int. 15 -Int 14B	67	4,982	109	34	6030
Int 14B off Ramp	66	4,982	70	28	5924
Int 14B Off - Int. 14B On	68	3,927	12	58	4889
Int. 14B On Ramp	69	4,387	46	67	5353
Int. 14B - 14A	65	4,843	147	64	5814
Int 14A Off Ramp	53	4,837	37	50	5866
Int. 14A Off - Int 14 A On	59	3,915	8	59	4849
Int 14A On Ramp	60	4,523	41	56	5578
Weaving: Old Nyack On- 14 Off	56	5,558	20	50	6731
Weaving: Old Nyack On- 14 Off	56	5,558	20	50	6731
Between 14 Off and On Ramps	59	4,753	8	51	5762
14 On Ramp	58	4,753	29	46	5777
Between 14 and 13	52	5,915	24	45	6921
Int. 13 Off to C/D Road	50	5,935	28	49	6921
Int. 13 Off - 13 On	61	4,030	59	59	4669
Int. 13 Off - 13 On	61	4,030	59	59	4669
Int. 13 Off - 13 On	61	4,030	59	59	4669
13 On from NB PIP	48	5,473	25	40	5963
Mainline between 13 and 12	54	5,471	66	41	5934
12 Off ramp	56	5,490	64	29	5881
Between 12 Off and On	40	4,664	64	19	5028
12 On Ramp	30	5,742	22	17	6257
11 Off Ramp	29	5,752	70	22	6250
Section between 11 Off and 11 ON	39	5,588	18	32	5897
11 On Ramp	37	6,781	36	26	7164
Mainline between 11 and 10	52	6,784	44	52	7170
10 Off Ramp	52	6,800	22	52	7160
10 On Ramp	54	6,594	37	45	6908
Bridge	43	7,709	161	53	7985

Table C22 Rockland County- I 287 Highway Build Mainline and Ramp Volumes – Eastbound AM

Location	2017 BuildVolume	2017 Speed	2047 BuildVolume	2047 Speed
15 A-15 EB	6955	34.7	7537	26.9
15EB ON	1433	42.0	1608	42.3
15EB OFF	3431	65.8	2790	68.7
15-14B EB	4974	67.4	5967	35.3
14B EB OFF	1046	28.9	1023	7.2
14B EB ON	925	35.5	916	36.2
14B-14A EB	4841	66.2	5855	65.6
14A EB OFF	922	39.0	1024	38.9
14A EB ON	1232	38.0	1461	36.9
OLD NYACK EB ON	421	38.1	428	37.5
14 EB OFF	801	40.4	974	39.4
14 EB ON	1159	36.0	1168	33.9
14-13 EB	5915	51.9	6921	44.7
13 EB OFF_PIP SB	1564	35.0	1743	33.7
13 EB ON FROM PIP SB	1173	32.9	1239	32.4
Int 13 EB CD lanes	1523	60.1	1674	57.0
13 EB OFF TO PIP NB	336	36.1	441	35.8
13 EB ON FROM PIP NB	247	40.4	251	40.1
13-12 EB	5475	54.3	5930	39.6
12 EB OFF	811	52.0	833	49.5
12 EB ON	1087	24.8	1240	9.3
12-11 EB	5753	31.9	6250	27.0
11 EB OFF	160	7.9	330	7.5
11 EB ON	1188	30.3	1276	25.9
11-10 EB	6787	58.6	7170	37.0
10 EB ON	1180	32.9	1208	32.9
10 EB OFF	198	41.9	171	48.7
TZB EB	7697	48.3	7909	32.1
Before Toll Plaza	7763	56.1	8019	58.4
After Toll Plaza	7709	44.0	7993	41.6

Table C23 Rockland County- I 287 Mainline – Highway Build Volumes and Speeds – Westbound AM

Section	ALT A1 2017		ALT A1 2047		
	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Bridge - Int 10 Off	55	4,280	207	54	5,683
Int 10 Off Ramp	54	4,258	18	53	5,645
Int 10 off - Int 10 on	57	3,750	11	57	5,106
Int 10 on ramp	57	3,781	31	57	5,139
Int 11 off ramp	50	3,824	26	46	5,180
Int 11 off - Int 11 on	53	3,643	10	53	4,983
Int 11 on ramp	59	3,948	26	58	5,378
Int 12 off ramp	57	4,245	48	53	5,725
Int 12 off - Int 12 on	58	3,805	11	42	5,082
Int 12 On	53	3,814	112	23	4,973
Int 12 - Int 13	43	4,320	31	36	5,444
Int 13 Off to C/D Rd	55	4,287	35	53	5,437
Int 13 Off - Int On	56	3,177	10	56	4,108
Int. Off - Int 13 On	56	3,177	20	56	4,108
Int. Off - Int 13 On	56	3,177	10	56	4,108
Int 13 On from C/D Rd	62	3,172	27	61	4,089
Int 13 On Int 14	58	5,256	40	57	6,486
Int 14 Off ramp	54	5,249	13	50	6,482
Int 14 off - 14 on	55	4,920	29	52	6,153
Int 14 On -14A off	52	5,303	24	49	6,669
Int 14 A On	60	3,149	43	60	4,513
Int. 14A - Int 14B	66	3,354	170	65	4,992
Int 14 B off	65	3,373	26	64	5,043
Int 14 B off - 14 B on	70	2,703	13	69	4,249
Int 14 B on	69	2,705	32	69	4,251
Int 14 B - Int 15	67	3,213	86	66	4,880

Table C24 Rockland County- I 287 Highway Build Mainline and Ramp Volumes – Westbound AM

Location	2017 Volume	2017 Speed	2047 Volume	2047 Speed
TZ WB	4263	53.7	5649	53.1
10 WB OFF	505	29.8	535	29.8
10 WB ON	62	39.6	68	39.1
10-11 WB	3818	54.6	5171	53.4
11 WB OFF	187	31.7	194	32.0
11 WB ON	611	42.4	782	41.5
11-12 WB	4245	57.7	5753	55.8
12 WB OFF	429	48.9	594	44.6
12 WB ON	561	31.8	581	31.9
12-13 WB	4328	42.6	5452	35.3
13 WB OFF TO PIP NB	487	39.5	585	38.3
13 WB ON FROM PIP NB	814	36.7	923	35.2
13 WN CD Lanes	1451	55.3	1680	54.9
13 WB OFF TO PIP SB	410	31.0	413	31.6
13 WB ON FROM PIP SB	1051	38.1	1149	38.7
13-14 WB	5256	57.6	6484	57.1
14 WB OFF	643	36.2	665	35.4
14 WB ON	701	37.0	848	36.3
14A WB OFF	2395	40.9	2714	37.8
14A WB ON	496	39.2	1091	36.8
14A-14B WB	3387	68.8	5028	67.2
14B WB OFF	656	48.1	788	48.6
14B WB ON	507	36.8	647	36.9
14B 15 WB	3222	68.1	4880	67.0
15 WB OFF	1861	61.5	2225	59.1
15 WB ON	2011	68.4	2524	68.3
15-15 A WB	3346	64.1	5183	55.7

Table C25 Rockland County- Highway Build Volumes and Speeds – Eastbound PM

Section	ALT A1 2017		ALT A1 2047		
	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Mainline section 15 - 14B	69	2987	56	66	4,918
14B off Ramp	67	2990	30	66	4,933
Between 14B Off and On Ramp (?)	67	2491	10	67	4,169
14B On Ramp	69	3053	45	69	4,731
Mainline between 14B and 14A	65	3611	146	65	5,322
14A Off Ramp	54	3621	36	52	5,323
Between 14A Off and On Ramps(?)	58	3148	8	58	4,428
14A On Ramp	63	4105	37	62	5,571
Old Nyack Parkway Weaving section	49	5423	12	43	7,055
Old Nyack Parkway Weaving section	49	5423	12	43	7,055
Between 14 Off and On Ramps	55	4893	8	54	6,371
14 On Ramp	57	4879	24	56	6,368
Between 14 and 13	58	5369	20	53	6,921
13 Off to SB PIP	52	5344	26	53	6,821
Between 13 Off and 13 ON	58	3621	15	59	4,857
Between 13 Off and 13 ON	58	3621	30	59	4,857
Between 13 Off and 13 ON	58	3621	14	59	4,857
13 On from NB PIP	51	4571	19	52	5,791
Mainline between 13 and 12	53	4599	49	54	5,793
12 Off ramp	53	4588	35	55	5,795
Between 12 Off and On	54	3636	25	50	4,836
12 On Ramp	50	4218	8	45	5,395
11 Off Ramp	55	4215	30	53	5,384
Section between 11 Off and 11 ON	64	3703	9	64	4,847
11 On Ramp	55	4182	17	55	5,365
Mainline between 11 and 10	57	4179	40	57	5,363
10 Off Ramp	53	4183	21	53	5,362
10 On Ramp	60	4083	29	58	5,256
Bridge	58	4658	149	57	5,946

Table C26 Rockland County- I 287 Highway Build Mainline and Ramp Volumes – Eastbound PM

Location	2017 BuildVolume	2017 Speed	2047 BuildVolume	2047 Speed
15A-15 EB	3521	68.8	5611	64.0
15EB ON	1597	42.1	2040	42.2
15EB OFF	2119	69.9	2729	69.1
15-14B EB	2987	68.2	4897	67.0
14B EB OFF	496	40.5	745	38.4
14B EB ON	1113	35.9	1150	36.1
14B-14A EB	3624	66.3	5283	65.0
14A EB OFF	480	40.4	894	39.6
14A EB ON	1911	35.9	2274	35.0
OLD NYACK EB ON	347	31.6	307	31.1
14 EB OFF	515	43.3	692	41.2
14 EB ON	427	38.9	517	38.6
14-13 EB	5297	57.5	6769	56.2
13 EB OFF_PIP SB	908	36.6	914	36.5
13 EB ON FROM PIP SB	552	36.3	657	35.2
Int 13 EB CD lanes	1335	54.4	1685	52.4
13 EB OFF TO PIP NB	765	34.5	1007	33.2
13 EB ON FROM PIP NB	369	40.8	259	40.9
13-12 EB	4568	55.1	5752	52.0
12 EB OFF	896	46.8	945	46.7
12 EB ON	599	21.1	645	21.2
12-11 EB	4229	57.2	5318	56.2
11 EB OFF	520	7.7	564	7.8
11 EB ON	501	38.1	514	37.0
11-10 EB	4207	56.9	5200	57.0
10 EB ON	574	33.1	701	32.7
10 EB OFF	108	57.7	109	57.5
TZB EB	4661	58.5	5919	58.2
Before Toll Plaza	4638	58.9	5924	59.0
After Toll Plaza	4612	45.9	5919	45.4

Table C27 Rockland County- Highway Build Volumes and Speeds – Westbound PM

Section	ALT A1 2017		ALT A1 2047		
	Sectional Travel Time (Sectional Speed	Sectional Travel	Sectional Speed	Section Volume
Bridge to 10 Off Ramp	53	7,056	229	49	7,797
10 Off Ramp	49	7,001	19	49	7,687
Between 10 off and on	57	5,976	11	57	6,616
10 on ramp	56	6,022	33	54	6,658
11 off ramp	42	6,037	31	39	6,680
between 11 off and 11 on	53	5,675	10	53	6,359
11 on ramp	58	5,883	28	55	6,512
12 off ramp	57	6,066	46	55	6,295
Between 12 off and on	57	5,270	8	56	5,446
12 On	57	5,328	46	55	5,530
Mainline between 12 and 13	55	6,317	20	54	6,362
13 off to NB PIP	51	6,307	37	50	6,414
Between 13 Off and 13 ON	51	3,563	10	51	4,084
Between 13 Off and 13 ON	51	3,563	24	51	4,084
Between 13 Off and 13 ON	51	3,563	10	51	4,084
13 On from SB PIP	60	3,573	27	60	4,137
Mainline between 13 and 14	57	5,929	48	48	6,729
14 Off ramp	49	5,895	28	24	6,748
Between 14 off and 14 on	51	5,462	33	45	6,394
Weaving Section 14 On to 14A off	53	6,353	22	53	7,431
14 A On	59	4,794	44	59	5,696
Mainline between 14A and 14B	64	5,055	190	58	6,047
14 B off	53	5,081	34	49	6,077
Between 14 B off and 14 B on	69	3,817	13	69	4,731
14 B on	70	3,816	32	68	4,745
Mainline between 14 B and 15	67	4,557	85	66	5,559

Table C28 Rockland County- I 287 Highway Build Mainline and Ramp Volumes – Westbound PM

Location	2017 Volume	2017 Speed	2047 Volume	2047 Speed
TZ WB	7031	45.2	7327	33.2
10 WB OFF	1026	26.8	1003	26.6
10 WB ON	82	39.5	88	39.5
10-11 WB	6053	53.1	6093	25.6
11 WB OFF	360	31.4	285	30.8
11 WB ON	424	42.9	513	43.2
11-12 WB	6027	29.1	6091	17.9
12 WB OFF	1050	23.4	1270	26.3
12 WB ON	1104	30.9	1118	30.5
12-13 WB	5814	31.1	5963	30.9
13 WB OFF TO PIP NB	1075	37.3	869	37.7
13 WB ON FROM PIP NB	1468	34.1	1386	35.2
13 WB CD Lanes	2811	51.2	2518	51.5
13 WB OFF TO PIP SB	1048	29.9	753	30.6
13 WB ON FROM PIP SB	620	39.5	898	37.5
13-14 WB	5789	57.3	6586	56.4
14 WB OFF	776	35.6	714	32.9
14 WB ON	1316	34.8	1416	34.9
14A WB OFF	1907	48.5	2129	46.1
14A WB ON	668	38.7	877	37.0
14A-14B WB	5050	63.9	5945	61.7
14B WB OFF	1257	43.5	1327	26.3
14B WB ON	751	38.8	869	37.5
14B 15 WB	4486	67.5	5239	67.0
15 WB OFF	1693	61.7	1863	60.6
15 WB ON	3773	54.4	3368	67.2
15-15A WB	6484	29.3	6732	28.1

Table C29 Rockland County- I 287 Mainline – Highway Build + HOV Volumes and Speeds – Eastbound AM

Section	2017 ALT A2			2047 ALT A2			
	Sectional Speed	Volume Combined	Volume	Sectional Travel Time (seconds)	Sectional Speed	Volume Combined	Volume
Mainline section 15 - 14B	67	4,852	4,852	29	48	6407	6,407
Slip On	66	4,857	4,857	52	45	6387	6,387
14B off Ramp	63	4,847	4,843	32	62	6414	6,036
Between 14B Off and On Ramp (?)	70	4,230	4,226	9	70	5773	5,395
14B On Ramp	68	4,729	4,725	47	65	6359	5,981
Mainline between 14B and 14A	66	5,219	5,215	36	59	6821	6,443
Slip on	63	5,208	5,204	17	48	6753	6,375
Between Slip on and off	65	5,213	5,209	69	49	6679	6,277
Slip off	62	5,278	5,274	98	32	6837	6,435
14A Off Ramp	50	5,265	5,265	55	35	6629	6,539
Between 14A Off and On Ramps(?)	56	4,313	4,313	11	46	5526	5,436
14A On	57	4,317	4,317	33	43	5536	5,446
Old Nyack Parkway Weaving section	54	5,993	5,993	24	40	7538	7,448
Old Nyack Parkway Weaving section	54	5,993	5,993	24	40	7538	7,448
Between 14 Off and On Ramps	57	5,011	5,011	7	55	6408	6,318
14 On Ramp	59	4,998	4,998	24	54	6387	6,297
Between 14 and 13	56	6,475	6,475	22	50	7937	7,847
13 Off to SB PIP	46	6,462	6,462	29	47	7924	7,834
Between 13 Off and 13 ON	61	4,539	4,539	10	60	5744	5,654
Between 13 Off and 13 ON	61	4,539	4,539	39	60	5744	5,654
Between 13 Off and 13 ON	61	4,539	4,539	10	60	5744	5,654
13 On from NB PIP	48	5,646	5,646	23	43	6942	6,852
Mainline between 13 and 12	54	5,656	5,656	35	47	6927	6,837
Slip on	52	5,659	5,659	29	43	6912	6,822
12 Off ramp	58	5,667	4,968	33	52	6875	5,663
Between 12 Off and On	52	4,714	4,015	40	30	5758	4,546
12 On Ramp	33	5,830	5,131	25	17	7035	5,823
11 Off Ramp	50	5,833	5,134	79	19	7020	5,808
Section between 11 Off and 11 ON	53	5,686	4,987	37	18	6775	5,563
11 On Ramp	34	7,179	6,480	68	14	8118	6,906
Mainline between 11 and 10	48	7,171	6,472	63	26	8056	6,844
Slip On	56	7,189	6,490	36	25	7998	6,786
10 Off Ramp	53	7,194	6,488	35	22	7848	6,504
10 On Ramp	56	6,951	6,245	83	20	7747	6,403
Bridge	45	8,055	7,349	282	30	8945	7,601

Table C30 Rockland County- I 287 Highway Build + HOV Mainline and Ramp Volumes – Eastbound AM

Location	2017 BuildVolume	2017 Speed	2047 BuildVolume	2047 Speed
15 A-15 EB	6496	18.5	7502	25.9
15EB ON	1481	41.4	1764	41.1
15EB OFF	3107	67.5	2851	68.4
15-14B EB	4826	72.3	6016	64.4
14B EB OFF	602	59.9	647	60.1
14B EB ON	990	35.3	1107	34.0
14B-14A EB	5223	64.4	6286	37.5
14A EB OFF	942	39.0	1098	38.6
14A EB ON	1658	41.7	1919	35.6
OLD NYACK EB ON	471	19.0	502	19.0
14 EB OFF	1470	35.4	1665	25.9
14 EB ON	1512	27.7	1556	26.7
14-13 EB	6461	55.0	7847	50.1
13 EB OFF_PIP SB	1570	35.5	1674	34.4
13 EB ON FROM PIP SB	993	33.7	1096	33.6
Int 13 EB CD lanes	1319	58.1	1546	57.3
13 EB OFF TO PIP NB	324	36.7	450	36.5
13 EB ON FROM PIP NB	96	41.6	186	40.7
13-12 EB	5615	53.4	6823	44.9
12 EB OFF	963	42.2	1045	42.2
12 EB ON	1148	20.5	1277	19.2
12-11 EB	5647	47.7	5802	16.5
11 EB OFF	156	5.4	226	4.5
11 EB ON	1492	27.7	1371	12.7
11-10 EB	6929	45.6	6786	26.3
10 EB ON	1136	33.1	1122	33.0
10 EB OFF	227	40.4	183	39.3
TZB EB	7460	32.0	7627	31.7
Before Toll Plaza	7386	58.6	7604	57.2
After Toll Plaza	7383	44.3	7620	43.0

Table C31 Rockland County- I 287 Mainline – Highway Build + HOV Volumes and Speeds – Westbound AM

Section	2017 Alt A2			2047 ALT A2			
	Sectional Speed	Volume Combined	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Volume Combined	Volume
Bridge to 10 Off Ramp	56	4815	4,491	203	55	6309	5,777
10 Off Ramp	52	4794	4,470	19	50	6240	5,708
Between 10 off and on Slip Off	58	4275	3,951	11	58	5638	5,106
10 on ramp	58	4305	3,981	31	58	5675	5,143
11 off ramp	51	4344	4,020	25	48	5734	5,202
between 11 off and 11 on	52	4171	3,847	10	51	5568	5,036
11 on ramp	57	4677	4,353	22	53	6185	5,653
12 off ramp	58	5030	4,541	44	58	6530	5,857
Between 12 off and on	59	5030	3,649	8	58	6530	4,858
12 On	59	4138	3,683	44	59	5531	4,869
Mainline between 12 and 13	59	4172	4,121	9	58	5542	5,337
Slip on	57	4610	4,114	13	55	6010	5,326
13 off to NB PIP	57	4224	4,012	31	55	5597	5,228
Between 13 Off and 13 ON	56	3640	3,428	40	55	4954	4,585
Between 13 Off and 13 ON	56	3640	3,428	40	55	4954	4,585
Between 13 Off and 13 ON	56	3640	3,428	40	55	4954	4,585
13 On from SB PIP & HOV Slip off	61	3632	3,420	26	60	4939	4,570
Mainline between 13 and 14	56	5593	5,381	43	55	7196	6,827
14 Off ramp	56	5395	5,385	12	54	6830	6,810
Between 14 off and 14 on	57	5048	5,038	27	56	6461	6,441
Weaving Section 14 On to 14A off	53	5519	5,509	25	48	6960	6,940
14 A On	60	3385	3,375	44	59	4903	4,883
Mainline between 14A and 14B	64	3635	3,625	145	62	5483	5,463
Slip off	64	3633	3,623	31	62	5504	5,484
14 B off	64	3842	3,842	27	61	5810	5,810
Between 14 B off and 14 B on	70	3022	3,022	13	70	4826	4,826
14 B on	70	3033	3,033	32	69	4861	4,861
Mainline between 14 B and 15	68	3492	3,492	29	65	5441	5,441
Slip Off	65	3492	3,492	64	58	5446	5,446

Table C32 Rockland County- I 287 Highway Build + HOV Mainline and Ramp Volumes – Westbound AM

Location	2017 Volume	2017 Speed	2047 Volume	2047 Speed
TZ WB	4409	53.1	5734	53.2
10 WB OFF	526	32.8	597	32.6
10 WB ON	93	33.5	85	33.1
10-11 WB	3959	56.5	5186	55.5
11 WB OFF	163	30.9	175	31.5
11 WB ON	650	41.1	707	40.3
11-12 WB	4510	58.5	5862	58.0
12 WB OFF	876	41.8	982	40.4
12 WB ON	484	32.1	510	32.0
12-13 WB	4085	58.0	5337	57.6
13 WB OFF TO PIP NB	440	39.1	497	38.6
13 WB ON FROM PIP NB	720	37.4	827	37.2
13 WN CD Lanes	821	56.7	934	56.7
13 WB OFF TO PIP SB	105	32.7	100	32.4
13 WB ON FROM PIP SB	980	38.3	1104	38.2
13-14 WB	5348	57.0	6826	56.6
14 WB OFF	651	35.5	735	36.5
14 WB ON	799	37.4	859	37.2
14A WB OFF	2372	44.2	2616	40.9
14A WB ON	490	39.1	1157	36.1
14A-14B WB	3603	66.4	5450	65.4
14B WB OFF	816	47.5	980	47.6
14B WB ON	461	38.1	596	37.3
14B 15 WB	3449	67.7	5432	64.0
15 WB OFF	2031	60.9	2519	58.5
15 WB ON	2051	68.4	2548	68.0
15-15 A WB	3441	63.5	5365	53.4

Table C33 Rockland County- I 287 Mainline – Highway Build + HOV Volumes and Speeds – Eastbound PM

Section	2047 ALT A2				2047 ALT A2			
	Sectional Travel Time (seconds)	Sectional Speed	Volume Combined	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Volume Combined	Volume
Mainline section 15 -14B	19	70	3155	3,155	20	67	5201	5,201
Slip ON	36	67	3151	3,151	37	65	5203	5,203
14B off Ramp	32	63	3146	3,146	32	62	5209	5,209
Between 14B Off and On Ramp (?)	10	66	2638	2,638	10	66	4381	4,381
14B On Ramp	44	69	3220	3,220	45	68	4968	4,968
Mainline between 14B and 14A	32	67	3795	3,795	32	66	5565	5,565
Slip On	13	64	3802	3,802	13	63	5563	5,563
Mainline Slip on to Slip off	52	66	3796	3,796	52	66	5537	5,537
Slip off	49	64	3777	3,777	50	62	5546	5,546
14A Off Ramp	34	55	3841	3,782	36	52	5630	5,547
Between 14A Off and On Ramps(?)	9	57	3314	3,255	9	57	4675	4,592
14A On Ramp	27	59	3316	3,257	28	56	4673	4,590
Weaving: Old Nyack On-14 Off	31	56	4963	4,904	33	54	6713	6,630
Between 14 Off and On Ramps	6	58	4605	4,546	7	57	6263	6,180
Between 14 Off and On Ramps	6	60	4605	4,546	7	57	6263	6,180
14 On Ramp	22	57	4609	4,550	23	57	6268	6,185
Between 14 and 13	19	52	5089	5,030	20	55	6817	6,734
13 Off to SB PIP	27	61	5081	5,022	28	50	6839	6,756
Between 13 Off and 13 ON	18	51	3923	3,864	58	61	5374	5,291
Between 13 Off and 13 ON	30	51	3923	3,864	58	61	5374	5,291
Between 13 Off and 13 ON	10	51	3923	3,864	58	61	5374	5,291
13 On from NB PIP	20	55	4466	4,407	20	50	5948	5,865
Mainline between 13 and 12	30	54	4453	4,394	30	54	5950	5,867
Slip on	23	58	4432	4,373	24	53	5920	5,837
12 Off ramp	30	56	4452	4,330	31	56	5927	5,772
Between 12 Off and On	22	37	3560	3,438	25	48	4962	4,807
12 On Ramp	12	53	4139	4,017	13	32	5560	5,405
11 Off Ramp	28	61	4155	4,033	29	51	5557	5,402
Section between 11 Off and 11 ON	11	53	3616	3,494	11	61	5003	4,848
11 On Ramp	18	56	4345	4,223	20	48	5811	5,656
Mainline between 11 and 10	30	57	4342	4,220	30	55	5822	5,667
Slip On	16	54	4334	4,212	16	58	5841	5,686
10 Off Ramp	14	59	4280	4,158	14	55	5626	5,626
10 On Ramp	28	58	4171	4,049	29	58	5520	5,520
Bridge	147	54	4698	4,576	150	57	6110	6,110

Table C34 Rockland County- I 287 Highway Build + HOV Mainline and Ramp Volumes – Eastbound PM

Location	2017 BuildVolume	2017 Speed	2047 BuildVolume	2047 Speed
15A-15 EB	3615	68.4	5703	62.5
15EB ON	1751	42.3	2118	41.4
15EB OFF	2186	69.8	2598	69.0
15-14B EB	3152	74.4	5203	71.1
14B EB OFF	520	60.8	822	55.8
14B EB ON	1170	35.5	1178	35.6
14B-14A EB	3764	64.8	5534	64.7
14A EB OFF	525	40.1	961	39.2
14A EB ON	1648	38.5	2033	36.3
OLD NYACK EB ON	359	29.2	369	29.7
14 EB OFF	719	38.0	833	39.0
14 EB ON	483	36.6	586	36.4
14-13 EB	5030	56.1	6734	55.0
13 EB OFF_PIP SB	893	37.3	939	37.6
13 EB ON FROM PIP SB	473	36.8	520	36.6
Int 13 EB CD lanes	720	58.2	1051	56.7
13 EB OFF TO PIP NB	244	36.2	532	36.1
13 EB ON FROM PIP NB	97	41.2	65	43.4
13-12 EB	4391	54.2	5863	54.4
12 EB OFF	870	41.7	954	39.5
12 EB ON	587	22.2	609	21.6
12-11 EB	4035	52.1	5401	51.2
11 EB OFF	515	4.4	545	4.1
11 EB ON	734	39.2	815	38.1
11-10 EB	4209	58.2	5683	58.8
10 EB ON	531	34.0	604	34.3
10 EB OFF	98	40.6	109	43.6
TZB EB	4544	58.9	6116	58.1
Before Toll Plaza	4575	58.2	6077	58.0
After Toll Plaza	4575	46.1	6076	45.5

Table C35 Rockland County- I 287 Mainline – Highway Build + HOV Volumes and Speeds – Westbound PM

	Sectional Travel Time (seconds)	Sectional Speed	Volume Combined	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Volume Combined	Volume
Bridge to 10 Off Ramp	210	54	7680	6,194	203	55	7847	6,413
10 Off Ramp	19	52	7726	6,240	18	52	7827	6,393
Between 10 off and on Slip Off	11	58	6605	5,119	11	57	6857	5,423
10 on ramp	32	57	6645	5,159	31	57	6888	5,454
11 off ramp	30	47	6697	5,211	26	47	6959	5,525
between 11 off and 11 on	11	54	6041	4,555	10	53	6621	5,187
11 on ramp (Slip off also)	39	51	7493	6,007	23	52	7323	5,889
12 off ramp	44	34	6293	6,136	48	53	6972	6,079
Between 12 off and on	8	53	6293	5,226	9	55	6972	4,643
12 On	51	60	5383	5,241	43	59	5536	4,697
Mainline between 12 and 13	13	59	5398	6,020	9	58	5590	5,655
Slip on	20	57	6177	5,982	13	55	6548	5,641
13 off to NB PIP	34	56	6137	5,885	31	55	6565	5,565
Between 13 Off and 13 ON	45	55	4268	4,016	40	55	5571	4,571
Between 13 Off and 13 ON	45	55	4268	4,016	40	55	5571	4,571
Between 13 Off and 13 ON	45	55	4268	4,016	40	55	5571	4,571
13 On from SB PIP & HOV Slip off	27	61	4241	3,989	32	49	5544	4,544
Mainline between 13 and 14	44	55	6235	5,983	63	38	8514	7,514
14 Off ramp	12	57	5967	5,967	16	41	7462	7,460
Between 14 off and 14 on	27	56	5432	5,432	32	46	6799	6,797
Weaving Section 14 On to 14A off	22	54	6229	6,229	22	54	7592	7,590
14 A On	44	59	4716	4,716	45	58	5880	5,878
Mainline between 14A and 14B	145	62	5037	5,037	148	61	6330	6,328
Slip off	31	62	5044	5,044	34	57	6345	6,343
14 B off	29	58	5070	5,070	33	51	6305	6,305
Between 14 B off and 14 B on	13	70	3815	3,815	13	69	4991	4,991
14 B on	31	69	3808	3,808	32	68	5002	5,002
Mainline between 14 B and 15	29	67	4551	4,551	30	65	5875	5,875
Slip Off	60	62	4543	4,543	66	57	5870	5,870

Table C36 Rockland County- I 287 Highway Build + HOV Mainline and Ramp Volumes – Westbound PM

Location	2017 Volume	2017 Speed	2047 Volume	2047 Speed
TZ WB	6245	47.3	6388	53.4
10 WB OFF	1109	29.9	943	31.2
10 WB ON	163	33.2	107	33.2
10-11 WB	5232	49.0	5508	54.6
11 WB OFF	636	30.3	347	31.1
11 WB ON	377	40.5	429	43.2
11-12 WB	6143	58.5	6084	57.5
12 WB OFF	896	40.9	1428	21.2
12 WB ON	911	31.7	1044	31.2
12-13 WB	6020	40.4	5655	57.8
13 WB OFF TO PIP NB	852	38.2	779	38.2
13 WB ON FROM PIP NB	1169	35.2	1103	35.8
13 WB CD Lanes	2118	53.0	1273	54.6
13 WB OFF TO PIP SB	955	30.6	167	32.6
13 WB ON FROM PIP SB	604	39.1	896	38.5
13-14 WB	5984	56.1	7507	47.6
14 WB OFF	1096	33.0	1242	30.9
14 WB ON	1351	36.5	1428	35.0
14A WB OFF	1852	50.9	2162	48.9
14A WB ON	650	39.3	908	37.8
14A-14B WB	5035	65.0	6329	63.4
14B WB OFF	1271	45.1	1312	46.7
14B WB ON	743	37.2	875	36.7
14B 15 WB	4546	67.1	5874	64.3
15 WB OFF	1718	63.5	1960	62.0
15 WB ON	3910	55.9	3125	17.9
15-15A WB	6686	30.9	6919	22.1

Table C37 Rockland County- AM &PM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets Highway Build & Highway HOV

AM				ALT A1 2017			ALT A1 2047			ALT A2 2017					ALT A2 2047				
Start	End	Direction	Length	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT	Travel Time	Average Speed	GP VMT	HOV VMT	VMT	Travel Time	Average Speed	GP VMT	HOV VMT	VMT
Int 15 EB On Gore Point	Middle of Bridge	EB	15.6	17.6	53	86317	21.1	44	97320	17	55	87113	3903	91016	25.7	36	101631	9172	110803
Int 15 EB On Gore Point	14 A GSP Off Ramp Gore Point	EB	5.8	5.4	65	27622	7.0	49	33315	5	63	29013	17	29030	7.4	47	36227	1684	37910
14 A GSP ON Gore Point	Middle of Bridge	EB	9.8	12.1	48	58178	14.0	41	63365	12	51	57475	3886	61361	18.2	32	64617	7475	72092
12 On EB Gore Point	Middle of bridge	EB	4.9	6.6	43	33343	6.8	41	34912	8	36	31536	3321	34857	11.8	24	33029	6122	39151
Middle of Bridge	15 Off Gore Point	WB	16.6	16.9	59	63033	18.5	54	86540	17	60	66115	3033	69148	17.2	58	90861	4804	95665
Middle of Bridge	13 Off Ramp NB PIP Gore Point	WB	7.4	8.1	54	30103	9.4	46	39942	8	54	32830	2755	35585	7.8	55	39731	4081	43812
12 On WB Gore Point	14 A GSP Off Ramp Gore Point	WB	4.2	4.6	54	17748	5.8	43	22475	4	57	17990	904	18893	4.1	56	21020	1457	22478
14 A GSP ON Gore Point	15 Off Gore Point	WB	6.7	6.1	66	21448	6.2	65	32157	6	65	23378	38	23416	6.4	62	35638	75	35714
PM				ALT A1 2017			ALT A1 2047			ALT A2 2017					ALT A2 2047				
Start	End	Direction	Length	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT	Travel Time	Average Speed	GP VMT	HOV VMT	VMT	Travel Time	Average Speed	GP VMT	HOV VMT	VMT
Int 15 EB On Gore Point	Middle of Bridge	EB	15.6	16.0	60	63939	16.0	60	87205	16	59	61204	1951	63156	16.2	58	87505	786	88291
Int 15 EB On Gore Point	14 A GSP Off Ramp Gore Point	EB	5.8	5.3	65	19181	5.4	64	29376	5	65	20086	116	20201	5.5	63	30791	43	30835
14 A GSP ON Gore Point	Middle of Bridge	EB	9.8	10.5	57	44343	10.5	57	57244	10	57	40651	1823	42474	10.6	55	56048	730	56778
12 On EB Gore Point	Middle of bridge	EB	4.9	5.0	57	20740	5.0	56	26548	7	41	19498	1506	21005	5.2	55	27427	261	27688
Middle of Bridge	15 Off Gore Point	WB	16.6	17.4	57	91676	18.6	53	104041	18	55	87361	8034	95394	18.0	55	98996	10831	109827
Middle of Bridge	13 Off Ramp NB PIP Gore Point	WB	7.4	8.2	54	46969	8.6	51	50841	9	47	44750	7759	52509	7.9	55	42572	9116	51688
12 On WB Gore Point	14 A GSP Off Ramp Gore Point	WB	4.2	4.6	54	22023	5.1	49	24219	5	51	22159	601	22760	4.7	49	21866	2956	24822
14 A GSP ON Gore Point	15 Off Gore Point	WB	6.7	6.3	64	31688	6.6	60	38198	6	63	31555	0	31555	6.7	60	40020	8	40028

Westchester

Table C38 Westchester County- I 287 Mainline – Highway Build & Highway Build HOV Volumes and Speeds – Eastbound AM – 2017

	ALT A1 2017		ALT A2 2017	
	Sectional Speed	Section Volume	Sectional Speed	Section Volume
Bridge to TP	36	7,645	54	7,447
TP to Exit 9	46	7,654	44	7,446
Exit 9 on ramp	58	6,147	56	6,185
mainline between 9 and 8	56	6,357	52	6,507
Exit 8	37	6,350	37	6,504
Between 8 off and on	51	4,316	49	4,550
8 on ramp	59	3,487	59	3,722
Mainline between 8 and 1	56	4,010	56	4,195
1 on ramp	60	4,018	60	4,200
Mainline between 1 and 2	49	4,521	46	4,832
Weaving area between 2 on and 3 off	38	5,176	36	5,406
Section between 3 off and 3 on	46	3,453	46	3,560
3 on SB ramp	42	4,643	41	4,705
Weaving area between 3 on NB ramp and 4 off	37	6,326	39	6,316
Section between 4 off and 4 on	49	5,732	51	5,652
4 on Ramp	59	5,731	60	5,648
Mainline between 4 and 5	56	6,775	57	6,686
5 off ramp	48	6,764	50	6,687
Section between 5 off and 5 on	54	5,836	54	6,108
5 on ramp	47	6,573	47	6,714
Mainline between 5 and 6	61	6,565	60	6,704
6 off ramp	51	6,532	44	6,702
section between 6 off and 6 on	53	5,466	54	5,548
6 on ramp	38	5,440	40	5,571
mainline between 6 and 7	42	5,984	43	6,136
7 on ramp	49	6,589	48	6,705
8W off ramp	57	7,190	50	7,285
8E off ramp	53	5,516	53	5,478
Section Between 8 E off and on	48	4,543	48	4,523
8E on ramp	59	4,537	59	4,527
8 on ramp	53	5,245	54	5,165
9A off ramp	52	5,829	53	5,725
Mainline between 9A off and on	50	5,447	55	5,361
9 A on ramp	39	5,191	49	5,155
9S off ramp	56	6,154	57	6,245
Mainline between 9S off and 9N on	58	4,702	58	4,887
9N on ramp	59	4,721	59	4,883
10 off ramp	56	5,047	55	5,221
Mainline between 10 and 11	57	4,228	57	4,272
11 off ramp	55	4,232	55	4,251
12 off ramp	54	3,315	55	3,360

Table C39 Westchester County- I 287 Mainline – Highway Build & Highway Build HOV Volumes and Speeds – Eastbound AM – 2047

	ALT A1 2047			ALT A2 2047		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Bridge to TP	130	54	8,038	130	54	7,256
TP to Exit 9	16	46	8,047	18	41	7,284
Exit 9 on ramp	17	57	6,825	57	17	6,256
mainline between 9 and 8	40	48	7,073	102	19	7,371
Exit 8	15	29	7,067	20	21	7,393
Between 8 off and on	50	42	4,785	61	35	5,139
8 on ramp	20	59	3,835	29	40	3,957
Mainline between 8 and 1	5	56	4,403	8	33	4,413
1 on ramp	17	60	4,406	34	30	4,414
Mainline between 1 and 2	29	41	5,168	44	26	4,922
Weaving area between 2 on and 3 off	19	34	5,757	25	26	5,498
Section between 3 off and 3 on	17	44	3,964	31	25	4,007
3 on SB ramp	22	33	5,088	40	18	4,806
Weaving area between 3 on NB ramp and 4 off	24	33	6,828	36	22	6,111
Section between 4 off and 4 on	14	41	6,073	22	25	5,494
4 on Ramp	21	42	6,053	34	26	5,468
Mainline between 4 and 5	15	42	7,018	21	30	6,493
5 off ramp	31	42	6,940	40	32	6,474
Section between 5 off and 5 on	16	51	5,908	23	35	5,926
5 on ramp	13	41	6,754	18	31	6,670
Mainline between 5 and 6	20	46	6,728	31	30	6,664
6 off ramp	27	37	6,698	42	24	6,672
section between 6 off and 6 on	24	41	5,594	31	32	5,466
6 on ramp	33	27	5,547	38	23	5,502
mainline between 6 and 7	15	39	6,274	16	37	6,160
7 on ramp	23	48	6,926	23	46	6,828
8W off ramp	25	56	7,567	28	51	7,494
8E off ramp	10	53	5,689	10	53	5,548
Section Between 8 E off and on	5	47	4,681	5	48	4,503
8E on ramp	25	59	4,679	25	59	4,503
8 on ramp	24	53	5,454	25	51	5,129
9A off ramp	11	51	6,057	12	47	5,754
Mainline between 9A off and on	33	55	5,507	44	42	5,202
9 A on ramp	32	41	5,177	39	34	4,834
9S off ramp	7	56	6,339	6	58	5,890
Mainline between 9S off and 9N on	52	58	4,986	52	58	4,479
9N on ramp	23	59	4,989	23	59	4,496
10 off ramp	5	54	5,313	5	55	4,932
Mainline between 10 and 11	102	57	4,282	102	57	4,081
11 off ramp	13	55	4,268	13	55	4,090
12 off ramp	12	55	3,398	12	54	3,203

Table C40 Westchester County- I 287 Highway Build & Highway Build + HOV Mainline and Ramp Volumes – Eastbound AM

	Alt A1 2017		Alt A2 2017		Alt A1 2047		Alt A2 2047	
	Volume	Speed	Volume	Speed	Volume	Speed	Volume	Speed
10 - 9 EB	7656	54	7453	53	8048	55	7292	51.0168
9 EB Off	1503	19	1259	29	1221	24	1031	30.5665
9 EB ON	185	24	212	38	256	23	91	37.4183
9 - 8 EB	6357	56	6507	52	7073	48	7371	19.0735
8 EB OFF # 1	2421	44	2281	44	2648	44	3017	43.5559
8 EB ON	1058	41	958	42	1136	41	996	36.8676
8 - 1 EB	4010	56	4195	56	4403	56	4413	32.5421
1 EB ON	563	24	651	24	781	24	616	23.9615
1 - 2 EB	4021	60	4203	61	4408	60	4412	29.525
2 EB ON	676	34	607	33	610	32	610	22.2424
2 - 3 EB	5176	38	5406	36	5757	34	5498	26.3511
3 EB Off	1718	38	1839	36	1773	37	1493	38.2718
3 EB ON # 1	1772	23	1752	22	1744	19	1210	10.199
3 EB ON # 2	1090	21	1055	21	1206	18	1027	11.7583
3 - 4 EB	6326	37	6316	39	6828	33	6111	22.0073
4 EB OFF	594	10	642	8	748	8	577	9.15503
4 EB On	1028	27	1045	27	999	26	1054	19.885
4-5 EB	6758	48	6690	51	6923	43	6476	33.1878
5 EB OFF	916	38	578	38	970	38	542	37.5155
5 EB ON	739	27	594	27	848	27	769	26.6746
5 - 6 EB	6573	47	6714	47	6754	41	6670	30.9258
6 EB OFF	1060	33	1155	35	1101	30	1209	21.7636
6 EB ON	556	27	560	28	739	27	655	12.774
6-7 EB	5984	42	6136	43	6274	39	6160	37.3892
7 EB ON	1185	29	1130	28	1269	30	1335	29.1156
7 -8W EB	7182	47	7284	43	7562	47	7490	42.2425
8W EB OFF	1646	54	1797	52	1853	53	1927	44.9401
8W - 8E EB	5516	53	5478	53	5689	53	5548	53.3126
8E EB OFF	967	35	954	35	1012	34	1047	34.9205
8E - 8 EB	4530	60	4526	59	4675	59	4491	58.6884
8 EB ON #1	726	32	647	32	784	32	710	31.8852
8 EB ON #2	588	46	555	47	606	47	653	46.0886
8 - 9A EB	5829	52	5725	53	6057	51	5754	47.4344
9A EB OFF	573	37	550	37	794	37	727	36.7163
9A EB ON	975	36	1098	36	1159	36	1073	35.8715
9A - 9S EB	6154	56	6245	57	6339	56	5890	57.7528
9S EB OFF	1459	17	1363	17	1363	17	1403	17.0331
9S EB ON	325	42	330	42	326	42	430	41.835
9S - 10 EB	5047	56	5221	55	5313	54	4932	54.6958
10 EB OFF	798	63	948	62	1026	61	855	56.3615
10 - 11 EB	4230	58	4264	58	4290	58	4079	57.7861
11 EB OFF	909	8	881	8	861	8	877	8.07763
11 - 12 EB	3315	54	3360	55	3398	55	3203	53.8505

Table C41 Westchester County- I 287 Mainline – Highway Build & Highway Build HOV Volumes and Speeds – Westbound AM – 2017

	ALT A1 2017		ALT A2 2017	
	Sectional Speed	Section Volume	Sectional Speed	Section Volume
Int 12 on ramp	48	2,868	47	2,810
Int 11 on ramp	58	2,863	59	2,807
Int 11 - Int 10	57	3,333	57	3,322
Int 10 off ramp	55	3,328	55	3,322
Int 10 off - Int 10 on	57	2,946	58	2,926
Int 10 on ramp	56	3,350	56	3,319
Int 9N off ramp	56	3,755	56	3,708
Int 9N - Int 9S	57	2,756	57	2,698
Int 9S on ramp	60	2,745	60	2,693
Int 9A off ramp	53	3,951	53	4,009
Int 9A off - Int 9A on	60	3,343	60	3,463
Int 9A on - Int 8 off	47	4,675	47	4,732
Int 8 off - Int 8W on	28	3,459	28	3,610
Int 7 Off ramp	53	3,459	54	3,605
Int 7 off - Int 8W on	35	3,141	35	3,308
Int 8W on ramp	55	3,805	56	4,014
Int 6 off ramp	50	4,475	48	4,722
Int 6 on ramp	62	3,672	61	3,789
Int 6 - Int 5	59	4,104	59	4,217
5 off ramp	43	4,107	43	4,217
section between 5 off and on	59	3,750	59	3,845
5 on ramp	60	3,746	59	3,840
4 off ramp	57	4,338	56	4,328
Section between 4 off and on	45	3,843	44	3,911
4 on ramp	55	4,257	54	4,322
3 off ramp	47	4,658	46	4,735
Section between 3 off and 3 on	58	3,724	57	3,789
Weaving between 3 on and 2 off	51	4,959	53	5,097
section between 2 off and 2 on	49	3,882	48	4,068
2 on ramp	57	3,870	57	4,067
1 off	48	4,261	49	4,515
8 off	58	3,098	58	3,493
section between 8 off and 1 on	55	2,462	55	2,840
1 on ramp	54	2,734	53	3,123
8 on ramp	33	3,969	31	4,459
Mainline between 8 and 9	76	4,719	73	5,290
9 off ramp	53	4,698	58	5,288
section between 9 off and on	58	3,997	53	3,823
9 on ramp	53	4,167	57	4,062
Mainline between 9 on and S Broadway on	56	4,164	57	4,060
S Broadway on	57	4,316	57	4,236

Table C42 Westchester County- I 287 Mainline – Highway Build & Highway Build HOV Volumes and Speeds – Westbound AM – 2047

	ALT A1 2047			ALT A2 2047		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Int 12 on ramp	4	47	3247	4	47	3230
Int 11 on ramp	18	58	3243	18	58	3216
Int 11 - Int 10	40	57	3756	40	57	3726
Int 10 off ramp	14	54	3749	14	55	3733
Int 10 off - Int 10 on	32	57	3382	32	57	3347
Int 10 on ramp	25	55	3794	25	56	3736
Int 9N off ramp	10	54	4212	10	55	4134
Int 9N - Int 9S	57	57	3019	57	57	3072
Int 9S on ramp	12	60	3019	12	60	3066
Int 9A off ramp	22	53	4363	22	52	4433
Int 9A off - Int 9A on	45	59	3648	45	60	3662
Int 9A on - Int 8 off	19	46	5198	19	46	5161
Int 8 off - Int 8W on	64	27	3723	64	28	3817
Int 7 Off ramp	7	55	3717	7	55	3820
Int 7 off - Int 8W on	41	55	3486	41	55	3594
Int 8W on ramp	21	54	4253	21	53	4390
Int 6 off ramp	14	46	4995	15	42	5195
Int 6 on ramp	16	61	4103	17	60	4169
Int 6 - Int 5	34	59	4478	34	59	4557
5 off ramp	27	42	4483	27	42	4528
section between 5 off and on	6	58	4076	6	58	4114
5 on ramp	25	59	4069	25	59	4101
4 off ramp	19	56	4694	19	56	4643
Section between 4 off and on	11	44	4163	11	44	4192
4 on ramp	30	53	4641	30	53	4695
3 off ramp	5	44	5126	4	45	5185
Section between 3 off and 3 on	16	57	4177	16	57	4242
Weaving between 3 on and 2 off	15	50	5546	15	51	5479
section between 2 off and 2 on	7	48	4247	7	48	4329
2 on ramp	21	57	4249	21	57	4330
1 off	8	48	4665	8	48	4768
8 off	8	58	3419	8	58	3613
section between 8 off and 1 on	18	56	2729	18	55	2970
1 on ramp	15	52	3056	15	53	3319
8 on ramp	18	32	4671	18	32	5045
Mainline between 8 and 9	17	76	5702	17	76	6223
9 off ramp	27	69	5699	32	59	6219
section between 9 off and on	10	57	5090	11	52	4043
9 on ramp	12	51	5287	11	57	4276
Mainline between 9 on and S Broadway on	16	56	5279	15	57	4272
S Broadway on	41	57	5480	41	57	4491

Table C43 Westchester County- I 287 Highway Build & Highway Build + HOV Mainline and Ramp Volumes – Westbound AM

Location	Alt A1 2017		Alt A2 2017		Alt A1 2047		Alt A2 2047	
	Volume	Speed	Volume	Speed	Volume	Speed	Volume	Speed
9 - 10 WB	4480	57	4413	58	5686	57	4709	58
ON RAMP FROM S. BROADWAY TO TAPPAN ZEE BRIDGE	337	30	366	25	427	30	455	25
9 WB ON	172	40	236	28	199	40	237	28
9 WB OFF	680	30	885	45	581	37	627	12
8 - 9 WB	4698	54	5288	62	5699	53	6219	64
8 WB ON # 2	1499	65	1681	65	2121	65	2323	65
8 WB ON # 1	980	39	1006	39	1130	39	1123	39
8 WB OFF	854	40	858	40	926	40	853	39
1 - 8 WB	3098	58	3493	58	3419	58	3613	58
1 WB OFF	1171	34	1015	34	1229	34	1153	33
2 - 1 WB	4261	48	4515	49	4665	48	4768	48
2 WB ON	391	29	452	30	423	30	437	30
2 WB OFF	1077	21	1030	16	1291	21	1150	16
3 - 2 WB	4959	51	5097	53	5546	50	5479	51
3 WB ON	1255	29	1328	29	1370	29	1227	29
3 WB OFF	905	48	943	48	937	47	924	48
4 - 3 WB	4663	54	4733	53	5126	52	5193	52
4 WB On	822	27	826	27	979	26	987	26
4 WB Off	498	33	436	32	543	32	449	31
5 - 4 WB	4335	69	4324	68	4687	68	4643	69
5 WB ON	593	35	490	35	622	35	560	34
5 WB Off	353	40	372	40	392	41	406	40
6 - 5 WB	4105	58	4217	58	4486	58	4556	58
6 WB ON	297	36	292	36	271	35	210	35
6 WB OFF	787	8	917	9	890	8	1016	9
7 - 6 WB	4479	53	4725	54	5013	52	5206	50
7 WB ON	1365	32	1436	32	1536	28	1649	30
8W - 7 WB	3132	55	3299	55	3485	54	3578	55
8W WB OFF	316	35	295	35	235	35	226	35
8E - 8W WB	3457	58	3615	58	3726	58	3816	58
8 - 8E WB	3461	51	3611	51	3727	51	3824	51
8 WB Off	1198	44	1117	43	1450	42	1325	43
8 WB ON	677	34	592	35	731	34	787	34
9A - 8 WB	3999	60	4157	60	4473	60	4376	60
9A WB ON	868	41	939	41	1096	41	959	41
9A WB OFF	830	40	770	39	994	40	1007	40
9S - 9A WB	3954	56	4010	56	4365	56	4437	56
9S WB On	1217	30	1319	30	1343	29	1383	29
9S WB Off	998	37	1001	37	1178	37	1054	37
10 - 9S WB	3762	55	3716	55	4214	53	4131	54
10 WB ON	829	37	789	37	838	37	801	37
10 WB OFF	375	15	402	15	360	14	381	13
11 - 10 WB	3338	58	3323	58	3759	58	3727	57
11 WB ON	480	28	525	27	506	27	512	26
12 WB On	1803	27	1652	27	1986	27	1963	27

Table C44 Westchester County- I 287 Mainline – Highway Build & Highway Build HOV Volumes and Speeds – Eastbound PM – 2017

	ALT A1 2017		ALT A2 2017	
	Sectional Speed	Section Volume	Sectional Speed	Section Volume
TP to Exit 9	50	4,798	39	4,641
Exit 9 on ramp	59	4,144	56	3,947
mainline between 9 and 8	57	4,606	54	4,666
Exit 8	37	4,609	34	4,664
Between 8 off and on	56	3,230	55	3,262
8 on ramp	60	2,852	59	2,847
Mainline between 8 and 1	57	3,384	56	3,363
1 on ramp	60	3,382	60	3,370
Mainline between 1 and 2	58	4,241	59	4,159
Weaving area between 2 on and 3 off	46	4,890	49	4,795
Section between 3 off and 3 on	48	4,125	49	4,049
3 on SB ramp	45	5,099	46	5,023
Weaving area between 3 on NB ramp and 4 off	50	6,239	51	6,243
Section between 4 off and 4 on	53	5,601	53	5,544
4 on Ramp	59	5,595	60	5,530
Mainline between 4 and 5	60	6,374	58	6,309
5 off ramp	52	6,369	52	6,297
Section between 5 off and 5 on	55	5,484	55	5,472
5 on ramp	47	5,956	46	5,976
Mainline between 5 and 6	61	5,952	61	5,972
6 off ramp	56	5,956	56	5,967
section between 6 off and 6 on	57	5,144	57	5,100
6 on ramp	56	5,170	56	5,097
mainline between 6 and 7	53	5,411	53	5,364
7 on ramp	52	5,753	53	5,701
8W off ramp	61	6,079	61	6,027
8E off ramp	51	5,036	51	4,842
Section Between 8 E off and on	45	4,167	44	4,331
8E on ramp	57	4,155	57	4,325
8 on ramp	52	4,866	51	5,163
9A off ramp	50	5,349	47	5,616
Mainline between 9A off and on	59	4,460	59	4,593
9 A on ramp	59	3,995	59	4,073
9S off ramp	50	4,679	48	4,841
Mainline between 9S off and 9N on	58	2,889	58	3,017
9N on ramp	60	2,896	60	3,038
10 off ramp	55	3,662	57	3,701
Mainline between 10 and 11	57	2,784	57	2,840
11 off ramp	54	2,765	54	2,834
12 off ramp	54	2,142	54	2,160

Table C45 Westchester County- I 287 Mainline – Highway Build & Highway Build HOV Volumes and Speeds – Eastbound PM – 2047

	ALT A1 2047			ALT A2 2047		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
TP to Exit 9	15	50	5,832	21	35	5,619
Exit 9 on ramp	17	59	5,218	18	56	4,826
mainline between 9 and 8	34	56	6,116	38	51	6,020
Exit 8	12	37	6,099	13	33	5,982
Between 8 off and on	40	53	4,075	43	49	3,918
8 on ramp	20	60	3,374	20	60	3,165
Mainline between 8 and 1	5	56	4,022	5	56	3,739
1 on ramp	18	59	4,022	19	56	3,749
Mainline between 1 and 2	20	58	4,810	28	42	4,408
Weaving area between 2 on and 3 off	14	46	5,574	19	34	5,018
Section between 3 off and 3 on	16	48	4,842	24	32	4,297
3 on SB ramp	16	44	5,795	27	27	5,033
Weaving area between 3 on NB ramp and 4 off	16	49	7,020	25	33	6,014
Section between 4 off and 4 on	11	53	6,205	18	31	5,193
4 on Ramp	15	57	6,198	27	32	5,074
Mainline between 4 and 5	11	57	7,035	18	37	5,824
5 off ramp	25	51	7,051	42	31	5,673
Section between 5 off and 5 on	15	55	6,130	27	30	4,836
5 on ramp	12	47	6,720	24	23	5,399
Mainline between 5 and 6	15	61	6,725	34	27	5,260
6 off ramp	18	54	6,726	40	24	5,100
section between 6 off and 6 on	18	57	5,817	40	25	4,380
6 on ramp	16	55	5,802	42	21	4,278
mainline between 6 and 7	11	52	6,104	30	19	4,483
7 on ramp	21	52	6,508	59	18	4,693
8W off ramp	24	60	6,905	73	19	4,835
8E off ramp	10	51	5,590	22	24	3,578
Section Between 8 E off and on	5	44	4,606	9	25	2,790
8E on ramp	26	57	4,594	75	19	2,822
8 on ramp	26	50	5,410	71	18	3,173
9A off ramp	12	49	5,893	17	33	3,528
Mainline between 9A off and on	32	59	4,841	34	54	2,425
9 A on ramp	22	59	4,313	61	21	1,904
9S off ramp	8	46	5,239	26	14	2,203
Mainline between 9S off and 9N on	53	57	3,535	215	14	1,186
9N on ramp	39	35	3,437	144	10	1,220
10 off ramp	8	36	4,290	11	25	2,327
Mainline between 10 and 11	101	58	3,230	101	58	1,876
11 off ramp	13	54	3,240	13	56	1,915
12 off ramp	13	52	2,682	12	55	1,617

Table C46 Westchester County- I 287 Highway Build & Highway Build + HOV Mainline and Ramp Volumes – Eastbound PM

	Alt A1 2017		Alt A2 2017		Alt A1 2047		Alt A2 2047	
	Volume	Speed	Volume	Speed	Volume	Speed	Volume	Speed
10 - 9 EB	4799	56	4629	58	5817	56	5621	56
9 EB Off	637	24	699	21	625	25	793	16
9 EB ON	447	23	554	26	917	22	862	26
9 - 8 EB	4606	57	4666	54	6116	56	6020	51
8 EB OFF # 1	1231	44	1316	44	1921	44	2009	43
8 EB ON	1069	41	1036	41	1299	40	1130	40
8 - 1 EB	3384	57	3363	56	4022	56	3739	56
1 EB ON	866	22	800	23	799	23	704	23
1 - 2 EB	3380	61	3370	61	4021	59	3753	54
2 EB ON	662	34	654	35	759	35	654	29
2 - 3 EB	4890	46	4795	49	5574	46	5018	34
3 EB Off	749	40	740	41	714	40	643	41
3 EB ON # 1	1461	23	1453	23	1401	23	1174	21
3 EB ON # 2	656	21	732	21	736	21	730	14
3 - 4 EB	6239	50	6243	51	7020	49	6014	33
4 EB OFF	637	11	700	10	809	11	733	9
4 EB On	778	28	778	29	833	27	862	18
4-5 EB	6368	53	6297	54	7055	52	5642	29
5 EB OFF	891	37	836	37	906	37	690	37
5 EB ON	468	27	516	27	606	27	627	16
5 - 6 EB	5956	47	5976	46	6720	47	5399	23
6 EB OFF	813	37	868	37	905	37	716	14
6 EB ON	250	31	253	30	309	31	284	30
6-7 EB	5411	53	5364	53	6104	52	4483	19
7 EB ON	688	37	664	36	803	36	664	15
7 -8W EB	6080	54	6024	53	6905	51	4818	17
8W EB OFF	1033	49	1200	30	1312	47	1212	11
8W - 8E EB	5036	51	4842	51	5590	51	3578	24
8E EB OFF	871	35	504	36	983	35	791	13
8E - 8 EB	4149	59	4323	59	4589	58	2830	15
8 EB ON #1	717	25	831	25	793	24	318	25
8 EB ON #2	473	40	443	41	475	40	324	10
8 - 9A EB	5349	50	5616	47	5893	49	3528	33
9A EB OFF	1315	37	1551	37	1580	37	1704	21
9A EB ON	685	37	764	36	926	37	275	37
9A - 9S EB	4679	50	4841	48	5239	46	2203	14
9S EB OFF	1801	12	1835	11	1727	12	1087	9
9S EB ON	770	40	662	40	885	39	1095	19
9S - 10 EB	3662	55	3701	57	4290	36	2327	25
10 EB OFF	873	43	848	45	1083	26	483	14
10 - 11 EB	2787	58	2841	58	3231	59	1862	59
11 EB OFF	621	8	663	8	565	9	301	9
11 - 12 EB	2142	54	2160	54	2682	52	1617	55

Table C47 Westchester County- I 287 Mainline – Highway Build & Highway Build HOV Volumes and Speeds – Westbound PM – 2017

	ALT A1 2017		ALT A2 2017	
	Sectional Speed	Section Volume	Sectional Speed	Section Volume
12 on ramp	49	2,801	50	2,886
11 on ramp	59	2,807	59	2,894
Mainline between 11 and 10	58	3,323	58	3,363
10 off ramp	55	3,323	56	3,355
Mainline between 10 off and 10 on	57	3,047	58	3,096
10 on ramp	56	3,423	56	3,465
9N off ramp	56	3,789	56	3,853
Mainline between 9N and 9S	57	2,807	57	2,999
9S on ramp	60	3,274	60	2,998
9A off ramp	53	3,748	53	4,048
Mainline between 9A off and 9A on	60	3,018	60	3,294
Weaving section between 9A on and 8 off	45	4,647	45	4,955
Mainline section between 8 off and 8W on	27	3,550	27	3,722
7 Off ramp	53	3,539	53	3,713
Mainline between 7 off and 8W on	35	3,011	35	3,198
8W on ramp	56	3,711	56	3,940
6 off ramp	51	4,419	52	4,695
6 on ramp	62	3,831	61	4,292
Mainline between 6 and 5	58	4,516	58	5,185
5 off ramp	42	4,511	41	5,179
section between 5 off and on	58	4,015	58	4,477
5 on ramp	49	4,029	59	4,475
4 off ramp	38	4,746	52	5,052
Section between 4 off and on	44	4,000	44	4,311
4 on ramp	54	4,368	52	4,705
3 off ramp	41	4,731	38	5,105
Section between 3 off and 3 on	57	3,164	58	3,376
Weaving between 3 on and 2 off	39	4,000	51	4,272
section between 2 off and 2 on	50	3,169	51	3,478
2 on ramp	58	3,173	57	3,480
1 off	53	3,991	53	4,323
8 off	58	3,392	58	3,732
section between 8 off and 1 on	55	2,534	53	3,003
1 on ramp	53	2,574	52	3,134
8 on ramp	34	4,442	33	5,170
Mainline between 8 and 9	79	5,969	78	6,842
9 off ramp	56	5,980	56	6,848
section between 9 off and on	60	5,740	57	5,177
9 on ramp	54	6,314	58	5,455
Mainline between 9 on and S Broadway on	54	6,299	58	5,448
S Broadway on	57	6,504	58	5,817

Table C48 Westchester County- I 287 Mainline – Highway Build & Highway Build HOV Volumes and Speeds – Westbound PM – 2047

	ALT A1 2047			ALT A2 2047		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
12 on ramp	4	48	3173	4	49	3226
11 on ramp	18	59	3171	18	59	3214
Mainline between 11 and 10	40	58	3614	57	40	3929
10 off ramp	14	55	3609	25	30	3924
Mainline between 10 off and 10 on	32	57	3305	32	58	3561
10 on ramp	25	56	3731	25	57	3938
9N off ramp	10	56	4144	10	55	4326
Mainline between 9N and 9S	57	56	3241	56	58	3316
9S on ramp	12	60	3777	12	60	3313
9A off ramp	22	52	4323	22	52	4375
Mainline between 9A off and 9A on	45	60	3357	45	60	3418
Weaving section between 9A on and 8 off	20	44	5269	20	44	5256
Mainline section between 8 off and 8W on	65	27	3912	76	23	3856
7 Off ramp	7	55	3927	13	28	3871
Mainline between 7 off and 8W on	42	54	3447	128	32	3397
8W on ramp	21	53	4324	47	24	3910
6 off ramp	13	50	5212	24	27	4431
6 on ramp	16	61	4568	36	28	4154
Mainline between 6 and 5	35	58	5429	67	30	5015
5 off ramp	28	41	5433	46	24	5020
section between 5 off and on	6	57	4853	12	30	4691
5 on ramp	26	58	4856	60	25	4675
4 off ramp	19	54	5649	42	25	5268
Section between 4 off and on	11	44	4962	15	34	4438
4 on ramp	31	50	5361	50	31	4878
3 off ramp	6	32	5777	8	27	5298
Section between 3 off and 3 on	16	57	3760	28	33	3468
Weaving between 3 on and 2 off	15	52	4702	28	27	4239
section between 2 off and 2 on	7	51	3864	7	48	3539
2 on ramp	22	56	3860	25	49	3527
1 off	8	49	4690	8	50	4346
8 off	8	58	3791	8	58	3515
section between 8 off and 1 on	18	55	2951	19	53	2800
1 on ramp	15	54	2995	16	52	2893
8 on ramp	17	33	5295	17	33	5077
Mainline between 8 and 9	17	78	7254	17	78	6920
9 off ramp	34	54	7275	33	55	6909
section between 9 off and on	9	58	6820	10	56	5087
9 on ramp	12	54	7398	11	58	5309
Mainline between 9 on and S Broadway on	17	53	7398	15	58	5293
S Broadway on	41	57	7635	40	58	5685

Table C49 Westchester County- I 287 Highway Build & Highway Build + HOV Mainline and Ramp Volumes – Westbound PM

Location	Alt A1 2017		Alt A2 2017		Alt A1 2047		Alt A2 2047	
	Volume	Speed	Volume	Speed	Volume	Speed	Volume	Speed
9 - 10 WB	6707	57	6173	59	7874	56	6068	59
ON RAMP FROM S. BROADWAY TO TAPPAN ZEE BRIDGE	412	29	713	27	501	29	767	24
9 WB ON	552	44	277	49	594	44	209	49
9 WB OFF	227	40	177	40	460	39	193	40
8 - 9 WB	5980	56	6848	58	7275	56	6909	58
8 WB ON # 2	3100	64	3343	64	3921	63	3733	64
8 WB ON # 1	637	40	737	40	644	40	672	40
8 WB OFF	1137	37	978	38	1106	38	945	39
1 - 8 WB	3392	58	3732	58	3791	58	3515	58
1 WB OFF	598	34	593	34	904	34	841	34
2 - 1 WB	3991	53	4323	53	4690	49	4346	50
2 WB ON	822	32	841	31	837	32	817	32
2 WB OFF	836	8	804	8	831	8	700	8
3 - 2 WB	4000	39	4272	51	4702	52	4239	27
3 WB ON	834	35	901	35	939	35	773	22
3 WB OFF	1548	47	1721	47	2026	46	1821	46
4 - 3 WB	4729	52	5106	51	5774	47	5293	31
4 WB On	707	28	808	27	818	28	806	27
4 WB Off	736	8	773	11	684	19	802	6
5 - 4 WB	4742	48	5040	66	5644	66	5291	32
5 WB ON	697	33	555	33	770	33	666	31
5 WB Off	493	40	689	39	592	40	349	16
6 - 5 WB	4528	58	5205	57	5422	57	5028	29
6 WB ON	694	35	625	32	850	34	547	32
6 WB OFF	610	13	404	7	638	13	285	7
7 - 6 WB	4414	54	4678	54	5211	51	4416	27
7 WB ON	1405	35	1498	34	1779	30	1022	14
8W - 7 WB	3007	53	3201	53	3444	52	3394	24
8W WB OFF	520	35	509	36	487	35	471	36
8E - 8W WB	3553	54	3725	56	3909	56	3857	57
8 - 8E WB	3552	50	3722	51	3910	50	3850	51
8 WB Off	1108	46	1220	44	1356	43	1410	37
8 WB ON	1265	32	1238	32	1465	32	1358	32
9A - 8 WB	3373	61	3714	60	3800	60	3885	60
9A WB ON	475	41	566	41	607	41	620	41
9A WB OFF	849	39	898	40	1101	39	1111	39
9S - 9A WB	3748	56	4046	56	4320	55	4376	56
9S WB On	928	32	1038	32	1087	31	1048	31
9S WB Off	982	37	851	37	892	37	1028	30
10 - 9S WB	3782	55	3841	56	4147	55	4319	55
10 WB ON	723	37	746	37	831	37	762	37
10 WB OFF	275	11	250	11	303	10	359	4
11 - 10 WB	3322	58	3364	58	3613	58	3934	42
11 WB ON	515	28	473	29	444	30	700	26
12 WB On	1272	26	1216	26	1462	26	1420	26

Table C50 Westchester County- AM &PM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets Highway Build & Highway HOV

				Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
Start	End	Direction	Length	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt
Toll Plaza	12 Off Ramp Gore Point	EB	12.2	14.1	52	63800	15.4	48	67135	14	52	64773	20.8	35	64656
Toll Plaza	8 Off Ramp to 87 SB Gore Point	EB	1.1	1.3	52	7412	1.5	46	8147	1	49	7478	3.3	21	8035
Int 9 On Ramp Gore Point	8E Off Ramp Gore Point	EB	7.2	8.0	50	37596	9.4	43	40159	8	49	38396	14.4	28	39449
8E On EB Gore Point	12 Off Ramp Gore Point	EB	4.8	5.7	54	24366	5.6	55	25050	6	56	24583	6.0	52	23447
I-95 On Ramp	Middle of Bridge	WB	12.9	14.9	52	47400	14.5	53	53717	15	52	48799	14.6	53	53521
I-95 ON Ramp	8E Off Ramp Gore Point	WB	4.6	4.9	56	15084	5.0	56	16814	5	57	15085	5.0	56	16810
8E/7 On Ramp	Middle of Bridge	WB	8.2	10.0	49	32316	9.5	52	36903	10	50	33714	9.6	51	36710
5 On Ramp	Middle of Bridge	WB	5.2	5.7	55	21231	5.7	56	24721	6	55	22179	5.7	55	24242
				Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
Start	End	Direction	Length	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt
Toll Plaza	12 Off Ramp Gore Point	EB	12.2	13.2	55	52111	13.7	53	60202	13	55	52457	26.4	28	43820
Toll Plaza	8 Off Ramp to 87 SB Gore Point	EB	1.1	1.3	53	5134	1.3	53	6627	1	48	5087	1.5	46	6411
Int 9 On Ramp Gore Point	8E Off Ramp Gore Point	EB	7.2	7.4	55	33137	7.5	54	38453	7	54	32904	12.9	31	32160
8E On EB Gore Point	12 Off Ramp Gore Point	EB	4.8	5.5	57	17741	5.9	53	20278	6	56	18341	13.0	24	10344
I-95 On Ramp	Middle of Bridge	WB	12.9	15.2	51	51088	14.7	53	59562	15	52	53847	20.5	38	55578
I-95 ON Ramp	8E Off Ramp Gore Point	WB	4.6	4.9	56	14983	5.0	56	16737	5	56	15586	5.4	51	17288
8E/7 On Ramp	Middle of Bridge	WB	8.2	10.3	48	36105	9.7	51	42825	10	49	38262	15.1	33	38290
5 On Ramp	Middle of Bridge	WB	5.2	6.0	52	24668	5.8	54	29463	6	55	25722	7.6	41	25755

2047 Build

Rockland County

Table C51 – Rockland County – I 287 Mainline - Comparison of Build (Alternatives A1, B and C) Volumes and Speeds– Eastbound AM

Build	ALT A1 2047			ALT B			ALT C		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Int. 15 -Int 14B	109	34	6030	79	47	6385	69	54	6472
Int 14B off Ramp	70	28	5924	45	44	6324	50	39	6429
Int 14B Off - Int. 14B On	12	58	4889	11	60	5148	11	61	5272
Int. 14B On Ramp	46	67	5353	46	66	5594	46	67	5741
Int. 14B - 14A	147	64	5814	148	64	6029	146	65	6167
Int 14A Off Ramp	37	50	5866	39	48	6051	39	47	6119
Int. 14A Off - Int 14 A On	8	59	4849	26	54	4987	26	56	5051
Int 14A On Ramp	41	56	5578	46	51	6536	46	51	6548
Weaving: Old Nyack On-14 Off	20	50	6731	46	51	6536	46	51	6548
Weaving: Old Nyack On-14 Off	21	50	6731	46	51	6536	46	51	6548
Between 14 Off and On Ramps	8	51	5762	9	49	5563	9	49	5614
14 On Ramp	29	46	5777	23	57	5558	24	55	5613
Between 14 and 13	24	45	6921	21	51	6885	22	50	6955
Int. 13 Off to C/D Road	28	49	6921	28	49	6871	28	49	6948
Int. 13 Off - 13 On	59	59	4669	59	60	4679	58	61	4719
Int. 13 Off - 13 On	59	59	4669	59	60	4679	58	61	4719
Int. 13 Off - 13 On	59	59	4669	59	60	4679	58	61	4719
13 On from NB PIP	25	40	5963	24	42	6204	23	43	6135
Mainline between 13 and 12	66	41	5934	73	37	6084	63	43	6051
12 Off ramp	64	29	5881	85	22	5949	79	24	5990
Between 12 Off and On	64	19	5028	71	17	5145	67	18	5149
12 On Ramp	22	17	6257	16	23	6327	15	24	6341
11 Off Ramp	70	22	6250	44	35	6283	39	40	6333
Section between 11 Off and 11 ON	18	32	5897	18	33	5958	16	37	6008
11 On Ramp	36	26	7164	31	30	7232	26	36	7344
Mainline between 11 and 10	44	52	7170	44	52	7241	42	54	7343
10 Off Ramp	22	52	7160	22	52	7244	21	53	7344
10 On Ramp	37	45	6908	37	45	7066	36	46	7073
Bridge	161	53	7985	161	53	8293	182	46	8234

Table C52 – Rockland County – I 287 Mainline and Ramp Volumes - Eastbound AM

Location	2047 A1	2047 B	2047 C
15 A-15 EB	7537	7836	7796
15EB ON	1608	1600	1589
15EB OFF	2790	2830	2871
15-14B EB	5967	6353	6470
14B EB OFF	1023	1142	1121
14B EB ON	916	892	920
14B-14A EB	5855	6019	6125
14A EB OFF	1024	1036	1086
14A EB ON	1461	1521	1503
OLD NYACK EB ON	428	NA	NA
14 EB OFF	974	971	923
14 EB ON	1168	1350	1363
14-13 EB	6921	6885	6955
13 EB OFF_PIP SB	1743	1733	1715
13 EB ON FROM PIP SB	1239	1277	1245
Int 13 EB CD lanes	1674	1716	1708
13 EB OFF TO PIP NB	441	421	448
13 EB ON FROM PIP NB	251	249	244
13-12 EB	5930	6071	6018
12 EB OFF	833	797	817
12 EB ON	1240	1203	1220
12-11 EB	6250	6282	6336
11 EB OFF	330	309	311
11 EB ON	1276	1273	1345
11-10 EB	7170	7247	7349
10 EB ON	1208	1281	1233
10 EB OFF	171	188	235
TZB EB	7909	8296	8251

Table C53 – Rockland County – I 287 Mainline - Comparison of Build (Alternatives A1, B and C) Volumes and Speeds – Westbound AM

Section	ALT A1 2047			ALT B			ALT C		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Bridge - Int 10 Off	207	54	5,683	206	54	5367	206	54	5645
Int 10 Off Ramp	18	53	5,645	18	52	5327	18	52	5600
Int 10 off - Int 10 on	11	57	5,106	12	56	4844	12	56	5065
Int 10 on ramp	31	57	5,139	31	57	4904	31	57	5131
Int 11 off ramp	26	46	5,180	25	49	4959	24	50	5174
Int 11 off - Int 11 on	10	53	4,983	10	53	4760	10	53	5000
Int 11 on ramp	26	58	5,378	26	58	5159	26	58	5381
Int 12 off ramp	48	53	5,725	45	57	5517	51	50	5722
Int 12 off - Int 12 on	11	42	5,082	8	57	4963	13	37	5080
Int 12 On	112	23	4,973	93	28	4920	124	21	4990
Int 12 - Int 13	31	36	5,444	31	35	5387	32	35	5467
Int 13 Off to C/D Rd	35	53	5,437	35	53	5379	36	52	5472
Int 13 Off - Int On	40	56	4,108	39	56	3986	40	56	4143
Int. Off - Int 13 On	40	56	4,108	39	56	3986	40	56	4143
Int. Off - Int 13 On	40	56	4,108	39	56	3986	40	56	4143
Int 13 On from C/D Rd	27	61	4,089	27	61	3984	27	62	4131
Int 130 Int 14	40	57	6,486	40	57	6374	40	58	6542
Int 14 Off ramp	13	50	6,482	12	53	6395	14	47	6547
Int 14 off - 14 on	29	52	6,153	28	54	6046	30	49	6179
Int 14 On - 14A off	24	49	6,669	23	52	6490	23	51	6564
Int 14 A On	43	60	4,513	44	58	4457	44	59	4497
Int. 14A - Int 14B	170	65	4,992	169	65	4966	170	65	5007
Int 14 B off	26	64	5,043	26	63	5005	25	65	5031
Int 14 B off - 14 B on	13	69	4,249	13	69	4256	13	70	4279
Int 14 B on	32	69	4,251	31	70	4226	31	70	4291
Int 14 B - Int 15	86	66	4,880	85	66	4787	85	66	4913

Table C54 – Rockland County – I 287 Mainline and Ramp Volumes - Westbound AM

Location	2047 A1	2047 B	2047 C
TZ WB	5649	5336	5601
10 WB OFF	535	490	539
10 WB ON	68	109	120
10-11 WB	5171	4962	5186
11 WB OFF	194	191	167
11 WB ON	782	772	782
11-12 WB	5753	5516	5744
12 WB OFF	594	561	577
12 WB ON	581	578	567
12-13 WB	5452	5390	5469
13 WB OFF TO PIP NB	585	577	587
13 WB ON FROM PIP NB	923	892	875
13 WN CD Lanes	1680	1709	1606
13 WB OFF TO PIP SB	413	447	385
13 WB ON FROM PIP SB	1149	1147	1187
13-14 WB	6484	6379	6547
14 WB OFF	665	681	709
14 WB ON	848	785	743
14A WB OFF	2714	2583	2602
14A WB ON	1091	1144	1082
14A-14B WB	5028	5018	5056
14B WB OFF	788	741	741
14B WB ON	647	587	621
14B 15 WB	4880	4780	4919
15 WB OFF	2225	2153	2239
15 WB ON	2524	2597	2526
15-15 A WB	5183	5213	5186

Table C55 -Rockland County- AM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets (Alternatives A1, B and C)

AM				ALT A1			ALT B			ALT C		
Start	End	Direction	Length	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT
Int 15 EB On Gore Point	Middle of Bridge	EB	15.6	21.1	44	97320	20.1	47	100049	19.7	47	100891
Int 15 EB On Gore Point	14 A GSP Off Ramp Gore Point	EB	5.8	7.0	49	33315	6.1	56	34818	6.0	57	35511
14 A GSP ON Gore Point	Middle of Bridge	EB	9.8	14.0	41	63365	13.5	42	63247	13.3	43	63371
12 On EB Gore Point	Middle of bridge	EB	4.9	6.8	41	34912	6.2	46	35830	6.3	45	35851
Middle of Bridge	15 Off Gore Point	WB	16.6	18.5	54	86540	18.0	55	84262	18.7	53	86612
Middle of Bridge	13 Off Ramp NB PIP Gore Point	WB	7.4	9.4	46	39942	9.0	49	38273	9.7	45	39838
12 On WB Gore Point	14 A GSP Off Ramp Gore Point	WB	4.2	5.8	43	22475	5.5	46	22075	6.1	41	22575
14 A GSP ON Gore Point	15 Off Gore Point	WB	6.7	6.2	65	32157	6.2	65	31862	6.1	65	32270

Table C56 – Rockland County – I 287 Mainline - Comparison of Build (Alternatives A1, B and C) Volumes and Speeds – Eastbound PM

Section	ALT A1			ALT B			ALT C		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Mainline section 15 - 14B	56	66	4,918	57	66	4720	56	67	4869
14B off Ramp	30	66	4,933	30	66	4712	30	66	4888
Between 14B Off and On Ramp (?)	10	67	4,169	10	67	3957	10	67	4111
14B On Ramp	45	69	4,731	45	69	4506	45	68	4676
Mainline between 14B and 14A	146	65	5,322	145	65	5025	145	65	5249
14A Off Ramp	36	52	5,323	36	52	5039	36	52	5256
Between 14A Off and On Ramps(?)	8	58	4,428	25	58	4195	24	58	4376
14A On Ramp	37	62	5,571	48	50	6537	49	48	6688
Old Nyack Parkway Weaving section	24	43	7,055	48	50	6537	49	48	6688
Old Nyack Parkway Weaving section	24	43	7,055	48	50	6537	49	48	6688
Between 14 Off and On Ramps	8	54	6,371	10	43	5873	10	43	5982
14 On Ramp	24	56	6,368	23	59	5860	23	57	5974
Between 14 and 13	20	53	6,921	10	52	6542	10	52	6690
13 Off to SB PIP	26	53	6,821	26	52	6535	26	53	6692
Between 13 Off and 13 ON	59	59	4,857	59	59	4658	59	59	4821
Between 13 Off and 13 ON	59	59	4,857	59	59	4658	59	59	4821
Between 13 Off and 13 ON	59	59	4,857	59	59	4658	59	59	4821
13 On from NB PIP	19	52	5,791	19	52	5642	19	52	5706
Mainline between 13 and 12	49	54	5,793	49	55	5641	49	55	5696
12 Off ramp	35	55	5,795	34	56	5639	35	54	5671
Between 12 Off and On	25	50	4,836	25	49	4686	27	46	4755
12 On Ramp	8	45	5,395	8	43	5295	9	40	5410
11 Off Ramp	30	53	5,384	34	47	5271	34	46	5402
Section between 11 Off and 11 ON	9	64	4,847	10	57	4746	10	56	4846
11 On Ramp	17	55	5,365	18	53	5242	18	52	5304
Mainline between 11 and 10	40	57	5,363	40	57	5233	40	57	5303
10 Off Ramp	21	53	5,362	21	54	5275	21	54	5309
10 On Ramp	29	58	5,256	28	60	5185	28	60	5206
Bridge	149	57	5,946	148	57	5867	147	58	5809

Table C57– Rockland County – I 287 Mainline and Ramp Volumes - Eastbound PM

Location	2047 A1	2047 B	2047 C
15 A-15 EB	5611	5626	5590
15EB ON	2040	1830	2017
15EB OFF	2729	2739	2701
15-14B EB	4897	4721	4868
14B EB OFF	745	746	781
14B EB ON	1150	1107	1089
14B-14A EB	5283	5023	5238
14A EB OFF	894	839	865
14A EB ON	2274	2345	2309
OLD NYACK EB ON	307	NA	NA
14 EB OFF	692	677	725
14 EB ON	517	667	703
14-13 EB	6769	6541	6696
13 EB OFF_PIP SB	914	832	909
13 EB ON FROM PIP SB	657	668	665
Int 13 EB CD lanes	1685	1684	1620
13 EB OFF TO PIP NB	1007	999	938
13 EB ON FROM PIP NB	259	299	230
13-12 EB	5752	5638	5691
12 EB OFF	945	954	919
12 EB ON	645	621	654
12-11 EB	5318	5265	5402
11 EB OFF	564	501	529
11 EB ON	514	497	470
11-10 EB	5200	5243	5304
10 EB ON	701	681	611
10 EB OFF	109	97	90
TZB EB	5919	5858	5807

Table C58 – Rockland County – I 287 Mainline - Comparison of Build (Alternatives A1, B and C) Volumes and Speeds – Westbound PM

Section	ALT A1			ALT B			ALT C		
	Sectional Travel	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
Bridge to 10 Off Ramp	229	49	7,797	215	52	7,341	207	54	6639
10 Off Ramp	19	49	7,687	19	48	7,336	19	50	6603
Between 10 off and on	11	57	6,616	11	57	6,320	12	57	5729
10 on ramp	33	54	6,658	31	57	6,406	31	57	5813
11 off ramp	31	39	6,680	26	46	6,488	26	45	5881
between 11 off and 11 on	10	53	6,359	10	53	6,179	10	53	5596
11 on ramp	28	55	6,512	26	57	6,423	26	58	5808
12 off ramp	46	55	6,295	45	56	6,653	45	57	6020
Between 12 off and on	8	56	5,446	8	57	5,788	8	57	5232
12 On	46	55	5,530	50	51	5,879	44	58	5292
Mainline between 12 and 13	20	54	6,362	21	54	6,878	20	56	6316
13 off to NB PIP	37	50	6,414	37	50	6,878	35	53	6292
Between 13 Off and 13 ON	44	51	4,084	44	50	4,391	44	51	3964
Between 13 Off and 13 ON	44	51	4,084	44	50	4,391	44	51	3964
Between 13 Off and 13 ON	44	51	4,084	44	50	4,391	44	51	3964
13 On from SB PIP	27	60	4,137	28	59	4,375	27	61	3959
Mainline between 13 and 14	48	48	6,729	59	38	7,132	42	54	6605
14 Off ramp	28	24	6,748	33	20	7,110	22	30	6584
Between 14 off and 14 on	33	45	6,394	33	45	6,752	31	48	6210
Weaving Section 14 On to 14A off	22	53	7,431	22	53	7,709	22	53	7205
14 A On	44	59	5,696	44	59	5,864	44	59	5362
Mainline between 14A and 14B	190	58	6,047	174	63	6,192	173	64	5674
14 B off	34	49	6,077	27	60	6,254	27	61	5737
Between 14 B off and 14 B on	13	69	4,731	13	70	4,831	13	70	4357
14 B on	32	68	4,745	32	69	4,840	32	69	4359
Mainline between 14 B and 15	85	66	5,559	86	66	5,658	85	66	5240

Table C59 – Rockland County – I 287 Mainline and Ramp Volumes - Westbound PM

Location	2047 A1	2047 B	2047 C
TZ WB	7327	7330	6618
10 WB OFF	1003	1023	867
10 WB ON	88	171	151
10-11 WB	6093	6489	5890
11 WB OFF	285	312	272
11 WB ON	513	498	465
11-12 WB	6091	6656	6018
12 WB OFF	1270	850	791
12 WB ON	1118	1099	1130
12-13 WB	5963	6877	6323
13 WB OFF TO PIP NB	869	1040	941
13 WB ON FROM PIP NB	1386	1500	1444
13 WN CD Lanes	2518	2943	2810
13 WB OFF TO PIP SB	753	1092	1049
13 WB ON FROM PIP SB	898	913	918
13-14 WB	6586	7118	6601
14 WB OFF	714	740	684
14 WB ON	1416	1323	1343
14A WB OFF	2129	2242	2218
14A WB ON	877	810	769
14A-14B WB	5945	6267	5739
14B WB OFF	1327	1433	1387
14B WB ON	869	839	890
14B 15 WB	5239	5655	5241
15 WB OFF	1863	1958	1799
15 WB ON	3368	3191	3415
15-15 A WB	6732	6910	6795

Table C60-Rockland County- PM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets (Alternatives A1, B and C)

Start	End	Direction	Length	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT
Int 15 EB On Gore Point	Middle of Bridge	EB	15.6	16.0	60	87205	15.9	63	89003	16.0	62	90903
Int 15 EB On Gore Point	14 A GSP Off Ramp Gore Point	EB	5.8	5.4	64	29376	5.4	65	27890	5.4	65	29015
14 A GSP ON Gore Point	Middle of Bridge	EB	9.8	10.5	57	57244	10.2	62	59445	10.2	61	60148
12 On EB Gore Point	Middle of bridge	EB	4.9	5.0	56	26548	5.1	55	26113	5.1	56	26140
Middle of Bridge	15 Off Gore Point	WB	16.6	18.6	53	104041	18.3	55	104923	17.4	57	95678
Middle of Bridge	13 Off Ramp NB PIP Gore Point	WB	7.4	8.6	51	50841	8.3	53	49980	8.1	54	45260
12 On WB Gore Point	14 A GSP Off Ramp Gore Point	WB	4.2	5.1	49	24219	5.5	46	25726	4.8	52	23558
14 A GSP ON Gore Point	15 Off Gore Point	WB	6.7	6.6	60	38198	6.3	64	39082	6.2	64	35830

Rockland County - Alternatives A2, D and E (H/H Lanes)

Table C61 – Rockland County – I 287 Mainline - Comparison of Build (Alternatives A2, D and E) Volumes and Speeds – Eastbound AM

Section	2047 ALT A2					2047 ALT D					2047 ALT E			
	Sectional Travel Time (seconds)	Sectional Speed	VMT	Volume Combined	Volume	Sectional Travel Time (seconds)	Sectional Speed	VMT	Volume Combined	Volume	Sectional Travel Time (seconds)	Sectional Speed	VMT	Volume Combined
Mainline section 15 -14B	29	48	2430	6407	6,407	23	59	2466	6503	6503	29	47	2491	6569
Slip On	52	45	4217	6387	6,387	49	49	4255	6445	6445	67	35	4301	6514
14B off Ramp	32	62	3525	6414	6,036	29	68	3529	6421	5918	29	68	3584	6521
Between 14B Off and On Ramp (?)	9	70	1101	5773	5,395	10	68	1097	5752	5249	10	66	1118	5864
14B On Ramp	47	65	5395	6359	5,981	45	67	5297	6244	5741	46	67	5403	6368
Mainline between 14B and 14A	36	59	4041	6821	6,443	32	66	3994	6741	6238	32	66	4064	6860
Slip on	17	48	1549	6753	6,375	13	61	1547	6746	6243	13	61	1572	6856
Between Slip on and off	69	49	6305	6679	6,277	52	66	6338	6713	6146	53	64	6452	6834
Slip off	98	32	5882	6837	6,435	56	56	6007	6982	6415	63	49	6100	7090
14A Off Ramp	55	35	3466	6629	6,539	44	43	3535	6761	6665	43	44	3565	6819
Between 14A Off and On Ramps(?)	11	46	801	5526	5,436	29	48	2210	5690	5594	32	44	2202	5668
14A On	33	43	2154	5536	5,446	52	48	4971	7213	7117	54	46	4988	7237
Old Nyack Parkway Weaving section	48	40	4098	7538	7,448	52	48	0	7211	7115	54	46	0	7237
Old Nyack Parkway Weaving section	48	40	0	7538	7,448	52	48	0	7211	7115	54	46	0	7237
Between 14 Off and On Ramps	7	55	664	6408	6,318	6	58	611	5895	5799	6	58	606	5850
14 On Ramp	24	54	2309	6387	6,297	23	58	2128	5886	5790	24	55	2115	5849
Between 14 and 13	22	50	2406	7937	7,847	21	52	2289	7552	7456	21	51	2303	7600
13 Off to SB PIP	29	47	3030	7924	7,834	32	43	2884	7543	7447	34	40	2902	7589
Between 13 Off and 13 ON	59	60	5607	5744	5,654	59	60	5466	5599	5503	57	61	5522	5657
Between 13 Off and 13 ON	59	60	0	5744	5,654	59	60	0	5599	5503	57	61	0	5657
Between 13 Off and 13 ON	59	60	0	5744	5,654	59	60	0	5599	5503	57	61	0	5657
13 On from NB PIP	23	43	1943	6942	6,852	24	42	1887	6743	6647	21	48	1915	6845
Mainline between 13 and 12	35	47	3140	6927	6,837	34	48	3043	6713	6617	33	49	3101	6841
Slip on	29	43	2399	6912	6,822	30	42	2307	6647	6551	29	43	2390	6887
12 Off ramp	33	52	3273	6875	5,663	38	45	3176	6672	5441	40	43	3272	6875
Between 12 Off and On	40	30	1917	5758	4,546	73	16	1901	5710	4479	51	24	1935	5812
12 On Ramp	25	17	844	7035	5,823	38	11	821	6850	5619	30	14	831	6933
11 Off Ramp	79	19	2851	7020	5,808	93	16	2818	6941	5710	84	17	2769	6820
Section between 11 Off and 11 ON	37	18	1297	6775	5,563	35	20	1287	6721	5490	35	20	1238	6469
11 On Ramp	68	14	2121	8118	6,906	72	13	2122	8122	6891	72	13	2070	7925
Mainline between 11 and 10	63	26	3700	8056	6,844	60	27	3739	8141	6910	65	26	3666	7981
Slip On	36	25	1988	7998	6,786	32	28	2025	8145	6914	36	25	2001	8052
10 Off Ramp	35	22	1679	7848	6,504	26	30	1777	8307	6696	27	29	1764	8245
10 On Ramp	83	20	3571	7747	6,403	59	28	3757	8149	6538	65	25	3683	7989
Bridge	282	30	21101	8945	7,601	263	32	21735	9213	7602	273	31	21459	9096

Table C62 – Rockland County – I 287 Mainline and Ramp Volumes – Eastbound AM

Location	2047 A2	2047 D	2047 E
15 A-15 EB	7502	7529	7435
15EB ON	1764	1802	1901
15EB OFF	2851	2817	2747
15-14B EB	6016	5923	5955
14B EB OFF	647	663	653
14B EB ON	1107	985	990
14B-14A EB	6286	6142	6122
14A EB OFF	1098	1056	1064
14A EB ON	1919	1544	1576
OLD NYACK EB ON	502	51	49
14 EB OFF	1665	1319	1369
14 EB ON	1556	1745	1747
14-13 EB	7847	7456	7413
13 EB OFF_PIP SB	1674	1621	1536
13 EB ON FROM PIP SB	1096	1058	1097
Int 13 EB CD lanes	1546	1359	1454
13 EB OFF TO PIP NB	450	296	370
13 EB ON FROM PIP NB	186	111	122
13-12 EB	6823	6549	6689
12 EB OFF	1045	954	989
12 EB ON	1277	1093	1213
12-11 EB	5802	5725	5621
11 EB OFF	226	311	286
11 EB ON	1371	1342	1383
11-10 EB	6786	6915	6861
10 EB ON	1122	1217	1220
10 EB OFF	183	139	200
TZB EB	7627	7505	7386
Before Toll Plaza	7604	7148	7075
After Toll Plaza	7620	7067	7081

Table C63 – Rockland County – I 287 Mainline - Comparison of Build (Alternatives A2, D and E) Volumes and Speeds – Westbound AM

Section	2047 ALT A2				2047 ALT D				2047 ALT E			
	Sectional Travel Time (seconds)	Sectional Speed	Volume Combined	Volume	Sectional Travel Time (seconds)	Sectional Speed	Volume Combined	Volume	Sectional Travel Time (seconds)	Sectional Speed	Volume Combined	Volume
Bridge to 10 Off Ramp	203	55	6309	5,777	202	55	5849	5427	202	55	5891	5439
10 Off Ramp	19	50	6240	5,708	19	50	5822	5400	19	51	5859	5407
Between 10 off and on Slip Off	11	58	5638	5,106	11	57	5298	4876	11	57	5286	4834
10 on ramp	31	58	5675	5,143	31	57	5338	4916	31	57	5320	4868
11 off ramp	25	48	5734	5,202	25	49	5389	4967	24	49	5374	4922
between 11 off and 11 on	10	51	5568	5,036	10	51	5236	4814	10	51	5237	4785
11 on ramp	22	53	6185	5,653	21	55	5841	5419	21	56	5832	5380
12 off ramp	44	58	6530	5,857	44	58	6257	5643	44	57	6260	5618
Between 12 off and on	8	58	6530	4,858	8	58	6257	4651	8	58	6260	4646
12 On	44	59	5531	4,869	44	59	5265	4690	44	59	5288	4676
Mainline between 12 and 13	9	58	5542	5,337	9	58	5304	5149	9	58	5318	5176
Slip on	13	55	6010	5,326	13	55	5763	5148	13	55	5818	5179
13 off to NB PIP	31	55	5597	5,228	31	56	5327	5027	31	55	5377	5057
Between 13 Off and 13 ON	10	55	4954	4,585	10	56	4595	4295	10	55	4695	4375
Between 13 Off and 13 ON	20	55	4954	4,585	20	56	4595	4295	20	55	4695	4375
Between 13 Off and 13 ON	10	55	4954	4,585	10	56	4595	4295	10	55	4695	4375
13 On from SB PIP & HOV Slip off	26	60	4939	4,570	26	61	4590	4290	26	61	4683	4363
Mainline between 13 and 14	43	55	7196	6,827	43	55	6952	6652	43	55	6923	6603
14 Off ramp	12	54	6830	6,810	12	56	6684	6650	13	53	6637	6611
Between 14 off and 14 on	27	56	6461	6,441	27	56	6306	6272	28	54	6256	6230
Weaving Section 14 On to 14A off	25	48	6960	6,940	23	51	6671	6637	24	50	6694	6668
14 A On	44	59	4903	4,883	43	60	4665	4631	43	60	4798	4772
Mainline between 14A and 14B	145	62	5483	5,463	144	63	5210	5176	144	63	5376	5350
Slip off	31	62	5504	5,484	31	63	5228	5194	31	63	5344	5318
14 B off	27	61	5810	5,810	27	62	5443	5443	27	62	5582	5582
Between 14 B off and 14 B on	13	70	4826	4,826	13	70	4540	4540	13	69	4683	4683
14 B on	32	69	4861	4,861	32	69	4548	4548	32	67	4677	4677
Mainline between 14 B and 15	29	65	5441	5,441	29	67	5146	5146	29	65	5299	5299
Slip Off	64	58	5446	5,446	63	59	5178	5178	64	58	5319	5319

Table C64– Rockland County – I 287 Mainline and Ramp Volumes – Westbound AM

Location	2047 A2	2047 D	2047 E
TZ WB	5734	5410	5422
10 WB OFF	597	518	561
10 WB ON	85	120	99
10-11 WB	5186	4977	4917
11 WB OFF	175	150	131
11 WB ON	707	813	790
11-12 WB	5862	5665	5621
12 WB OFF	982	967	968
12 WB ON	510	463	536
12-13 WB	5337	5149	5176
13 WB OFF TO PIP NB	497	601	568
13 WB ON FROM PIP NB	827	877	836
13 WN CD Lanes	934	950	902
13 WB OFF TO PIP SB	100	72	63
13 WB ON FROM PIP SB	1104	1191	1106
13-14 WB	6826	6650	6603
14 WB OFF	735	740	743
14 WB ON	859	741	824
14A WB OFF	2616	2560	2501
14A WB ON	1157	1113	1197
14A-14B WB	5450	5171	5357
14B WB OFF	980	884	892
14B WB ON	596	593	657
14B 15 WB	5432	5146	5289
15 WB OFF	2519	2378	2359
15 WB ON	2548	2509	2536
15-15 A WB	5365	5299	5471

Table C65 – Rockland County – I 287 Mainline - Comparison of Build (Alternatives A2, D and E) Volumes and Speeds – Westbound PM

Section	2047 ALT A2				2047 ALT D				2047 ALT E			
	Sectional Travel Time (seconds)	Sectional Speed	GP+H/H	GP	Sectional Travel Time (seconds)	Sectional Speed	GP+H/H	GP	Sectional Travel Time (seconds)	Sectional Speed	GP+H/H	GP
Bridge to 10 Off Ramp	203	55	7847	6413	203	55	7839	6655	202	55	7833	6498
10 Off Ramp	18	52	7827	6393	18	52	7848	6664	19	51	7805	6470
Between 10 off and on Slip Off	11	57	6857	5423	11	57	6877	5693	11	57	6853	5518
10 on ramp	31	57	6888	5454	31	57	6925	5741	31	57	6912	5577
11 off ramp	26	47	6959	5525	26	46	6984	5800	27	45	6993	5658
between 11 off and 11 on	10	53	6621	5187	10	53	6499	5315	10	53	6499	5164
11 on ramp (Slip off also)	23	52	7323	5889	22	52	7168	5984	23	52	7179	5844
12 off ramp	48	53	6972	6079	44	57	6864	6180	45	56	6833	6039
Between 12 off and on	9	55	6972	4643	8	58	6864	4943	8	58	6833	4815
12 On	43	59	5536	4697	49	53	5627	4993	44	59	5609	4859
Mainline between 12 and 13	9	58	5590	5655	13	39	5677	6064	9	56	5653	5815
Slip on	13	55	6548	5641	21	35	6748	6059	14	52	6609	5825
13 off to NB PIP	31	55	6565	5565	33	52	6826	5992	32	54	6678	5753
Between 13 Off and 13 ON	40	55	5571	4571	41	54	5543	4709	41	54	5502	4577
Between 13 Off and 13 ON		55	5571	4571		54	5543	4709		54	5502	4577
Between 13 Off and 13 ON		55	5571	4571		54	5543	4709		54	5502	4577
13 On from SB PIP & HOV Slip off	32	49	5544	4544	29	53	5512	4678	41	38	5490	4565
Mainline between 13 and 14	63	38	8514	7514	49	48	8292	7458	75	32	8285	7360
14 Off ramp	16	41	7462	7460	16	42	7411	7380	26	26	7313	7280
Between 14 off and 14 on	32	46	6799	6797	28	53	6797	6766	31	49	6731	6698
Weaving Section 14 On to 14A off	22	54	7592	7590	22	53	7498	7467	22	54	7544	7511
14 A On	45	58	5880	5878	44	58	5858	5827	44	58	5793	5760
Mainline between 14A and 14B	148	61	6330	6328	145	62	6280	6249	146	62	6217	6184
Slip off	34	57	6345	6343	31	63	6287	6256	31	63	6221	6188
14 B off	33	51	6305	6305	28	59	6245	6226	31	54	6205	6186
Between 14 B off and 14 B on	13	69	4991	4991	13	70	4919	4900	13	69	4876	4857
14 B on	32	68	5002	5002	32	69	4901	4882	32	68	4872	4853
Mainline between 14 B and 15	30	65	5875	5875	29	66	5708	5689	29	66	5729	5710
Slip Off	66	57	5870	5870	65	57	5709	5709	66	56	5717	5717

Table C66– Rockland County – I 287 Mainline and Ramp Volumes – Westbound PM

Location	2047 A2	2047 D	2047 E
TZ WB	6388	6670	6676
10 WB OFF	943	959	948
10 WB ON	107	115	151
10-11 WB	5508	5798	5888
11 WB OFF	347	486	291
11 WB ON	429	416	407
11-12 WB	6084	6182	6718
12 WB OFF	1428	1229	1497
12 WB ON	1044	1111	924
12-13 WB	5655	6064	6084
13 WB OFF TO PIP NB	779	931	795
13 WB ON FROM PIP NB	1103	1162	1145
13 WN CD Lanes	1273	1458	1319
13 WB OFF TO PIP SB	167	295	168
13 WB ON FROM PIP SB	896	869	903
13-14 WB	7507	7444	7277
14 WB OFF	1242	1190	1104
14 WB ON	1428	1311	1418
14A WB OFF	2162	2087	2196
14A WB ON	908	857	861
14A-14B WB	6329	6238	6123
14B WB OFF	1312	1311	1307
14B WB ON	875	834	866
14B 15 WB	5874	5686	5657
15 WB OFF	1960	1956	1980
15 WB ON	3125	3189	3296
15-15 A WB	6919	6863	6948

Table C67– Rockland County – I 287 Mainline and Ramp Volumes – Eastbound PM

Location	2047 A2	2047 D	2047 E
15 A-15 EB	5703	5768	5702
15EB ON	2118	2125	2247
15EB OFF	2598	2622	2667
15-14B EB	5203	5288	5265
14B EB OFF	822	738	723
14B EB ON	1178	1156	1221
14B-14A EB	5534	5717	5753
14A EB OFF	961	941	945
14A EB ON	2033	2043	1885
OLD NYACK EB ON	369	NA	NA
14 EB OFF	833	691	707
14 EB ON	586	912	937
14-13 EB	6734	6883	6825
13 EB OFF_PIP SB	939	884	963
13 EB ON FROM PIP SB	520	550	499
Int 13 EB CD lanes	1051	1015	914
13 EB OFF TO PIP NB	532	466	409
13 EB ON FROM PIP NB	65	81	61
13-12 EB	5863	6193	6043
12 EB OFF	954	997	953
12 EB ON	609	666	588
12-11 EB	5401	5775	5572
11 EB OFF	545	574	513
11 EB ON	815	815	741
11-10 EB	5683	6005	5784
10 EB ON	604	627	642
10 EB OFF	109	92	102
TZB EB	6116	6411	6263
Before Toll Plaza	6077	6363	6300
After Toll Plaza	6076	6355	6273

Table C68 - Rockland County- AM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets (Alternatives A2, D and E)

				ALT A2			ALT D			ALT E		
Start	End	Direction	Length	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt
Int 15 EB On Gore Point	Middle of Bridge	EB	15.6	25.7	36	110803	24.2	39	111020	24.6	38	111385
Int 15 EB On Gore Point	14 A GSP Off Ramp Gore Point	EB	5.8	7.4	47	37910	5.9	59	38065	6.4	54	38650
14 A GSP ON Gore Point	Middle of Bridge	EB	9.8	18.2	32	72092	17.8	32	70745	17.7	32	70533
12 On EB Gore Point	Middle of bridge	EB	4.9	11.8	24	39151	11.3	25	40081	11.5	25	39482
Middle of Bridge	15 Off Gore Point	WB	16.6	17.2	58	95665	17.0	58	90404	17.1	58	91624
Middle of Bridge	13 Off Ramp NB PIP Gore Point	WB	7.4	7.8	55	43812	7.8	56	41145	7.8	56	41320
12 On WB Gore Point	14 A GSP Off Ramp Gore Point	WB	4.2	4.1	56	22478	4.1	57	21451	4.1	56	21558
14 A GSP ON Gore Point	15 Off Gore Point	WB	6.7	6.4	62	35714	6.4	63	33839	6.4	62	34823

Table C69 - Rockland County- PM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets (Alternatives A2, D and E)

				ALT A2			ALT D			ALT E		
Start	End	Direction	Length	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt
Int 15 EB On Gore Point	Middle of Bridge	EB	15.6	16.2	58	88291	16.3	57	91903	15.9	59	90868
Int 15 EB On Gore Point	14 A GSP Off Ramp Gore Point	EB	5.8	5.5	63	30835	5.4	64	31746	5.4	64	31643
14 A GSP ON Gore Point	Middle of Bridge	EB	9.8	10.6	55	56778	10.3	56	57332	10.3	56	56375
12 On EB Gore Point	Middle of bridge	EB	4.9	5.2	55	27688	5.3	54	29289	5.2	54	28467
Middle of Bridge	15 Off Gore Point	WB	16.6	18.0	55	109827	17.7	56	109167	18.4	54	108655
Middle of Bridge	13 Off Ramp NB PIP Gore Point	WB	7.4	7.9	55	51688	8.2	53	51782	7.9	55	51608
12 On WB Gore Point	14 A GSP Off Ramp Gore Point	WB	4.2	4.7	49	24822	4.7	50	24878	5.2	44	24679
14 A GSP ON Gore Point	15 Off Gore Point	WB	6.7	6.7	60	40028	6.5	62	39491	6.6	61	39224

Westchester County

Alternatives B, C, D, E

Table C70 – Westchester County – I 287 Mainline - Comparison of Build (Alternatives B, C, D, E) Volumes and Speeds – Eastbound AM

	2047 ALT B			2047 ALT C			2047 ALT D			2047 ALTE		
	Sectional Travel Time	Sectional Speed	Section Volume	Sectional Travel Time	Sectional Speed	Section Volume	Sectional Travel Time	Sectional Speed	Section Volume	Sectional Travel Time	Sectional Speed	Section Volume
TP to Exit 9	16	46	8178	19	41	8115	23	34	8889	29	27	8856
Exit 9 on ramp	18	55	6804	9	16	6683	35	28	5678	21	47	5764
mainline between 9 and 8	38	52	7262	59	33	7279	109	18	6807	68	28	7728
Exit 8	12	36	7261	18	23	7268	19	22	6753	12	37	7735
Between 8 off and on	54	39	4772	62	34	4718	61	35	4467	50	43	5286
8 on ramp	20	60	3734	20	59	3602	20	60	3475	20	59	4180
Mainline between 8 and 1	5	56	4318	5	49	4159	5	56	3970	5	56	4703
1 on ramp	20	51	4317	23	45	4087	28	38	3983	19	55	4703
Mainline between 1 and 2	26	45	4930	32	37	4594	38	30	4443	24	49	5258
Weaving area between 2 on and 3 off	21	37	5534	23	33	5278	27	28	4907	19	40	5808
Section between 3 off and 3 on	22	31	3961	24	27	3787	27	25	3514	17	39	4241
3 on SB ramp	28	26	4971	30	24	4675	35	21	4273	22	33	5229
Weaving area between 3 on NB ramp and 4 off	25	33	6435	26	30	6020	33	24	5433	23	35	6574
Section between 4 off and 4 on	16	36	5695	11	53	5198	22	26	4706	15	38	5551
4 on Ramp	22	39	5706	15	58	5189	32	27	4721	22	40	5414
Mainline between 4 and 5	15	42	6436	11	58	6468	20	33	5399	15	44	6632
5 off ramp	35	36	6294	25	52	6459	46	28	5421	31	41	6489
Section between 5 off and 5 on	23	35	5463	15	56	5552	29	28	4812	19	42	5339
5 on ramp	18	30	6470	12	47	6242	21	26	5837	16	36	5942
Mainline between 5 and 6	27	34	6469	16	58	6239	32	29	5858	22	42	5779
6 off ramp	36	27	6376	21	48	6237	39	25	5773	26	38	5608
section between 6 off and 6 on	29	35	5256	20	49	5155	31	33	4650	17	57	4574
6 on ramp	28	31	5222	23	39	5161	36	24	4611	17	52	4610
mainline between 6 and 7	13	45	5818	14	42	5913	19	31	5256	12	48	5259
7 on ramp	20	53	6723	22	49	6781	30	35	6151	20	53	6135
8W off ramp	25	57	7632	32	45	7637	42	33	6993	25	56	7046
8E off ramp	10	52	5908	12	44	6002	11	45	5205	10	52	5425
Section Between 8 E off and on	5	47	4800	5	46	5154	5	47	4251	5	47	4647
8E on ramp	25	58	4797	26	56	5165	25	59	4257	26	57	4677
8 on ramp	25	51	5467	27	47	5825	24	53	5016	26	49	5281
9A off ramp	12	48	5940	13	44	6283	11	52	5524	13	45	5744
Mainline between 9A off and on	45	41	5422	44	42	5536	32	58	4963	40	46	5045
9 A on ramp	38	35	5191	39	33	5164	27	48	4698	34	38	4750
9S off ramp	9	42	6351	7	56	6169	8	45	5942	7	55	5759
Mainline between 9S off and 9N on	53	58	4885	52	58	4706	53	58	4687	52	58	4463
9N on ramp	23	58	4917	23	59	4714	23	59	4675	23	59	4492
10 off ramp	5	54	5388	5	53	5257	5	55	5056	5	55	4992
Mainline between 10 and 11	102	57	4285	101	58	4291	102	57	4065	101	58	4066
11 off ramp	13	54	4264	13	54	4275	13	55	4081	13	55	4089
12 off ramp	12	54	3312	12	54	3381	12	53	3225	12	53	3241

Table C71– Westchester County – I 287 Mainline and Ramp Volumes – Eastbound AM

Location	2047 B	2047 C	2047 D	2047 E
10 - 9 EB	8178	8155	7489	7272
9 EB Off	1371	1423	1448	1352
9 EB ON	546	526	274	629
9 - 8 EB	7262	7279	6807	7879
8 EB OFF # 1	2669	2836	2571	2696
8 EB ON	1171	1188	964	1061
8 - 1 EB	4318	4159	3970	4722
1 EB ON	617	644	596	697
1 - 2 EB	4318	4043	3991	4694
2 EB ON	619	716	599	556
2 - 3 EB	5534	5278	4907	5807
3 EB Off	1581	1453	1292	1523
3 EB ON # 1	1515	1378	1278	1456
3 EB ON # 2	948	943	855	868
3 - 4 EB	6435	6020	5433	6277
4 EB OFF	757	782	707	892
4 EB On	742	1288	664	1040
4-5 EB	6270	6457	5430	6024
5 EB OFF	822	896	643	782
5 EB ON	998	693	1015	773
5 - 6 EB	6470	6242	5837	5803
6 EB OFF	1122	1080	1048	997
6 EB ON	597	745	632	820
6-7 EB	5818	5913	5256	5279
7 EB ON	1817	1678	1833	1554
7 - 8W EB	7633	7636	6984	6656
8W EB OFF	1715	1628	1770	1522
8W - 8E EB	5908	6002	5205	5107
8E EB OFF	1116	851	948	640
8E - 8 EB	4795	5164	4266	4496
8 EB ON #1	642	660	726	710
8 EB ON #2	467	438	510	452
8 - 9A EB	5940	6283	5524	5559
9A EB OFF	787	1124	853	1091
9A EB ON	1162	1006	1235	1106
9A - 9S EB	6351	6169	5942	5586
9S EB OFF	1459	1474	1264	1271
9S EB ON	474	539	371	440
9S - 10 EB	5388	5257	5056	4810
10 EB OFF	1102	963	997	963

Table C72 – Westchester County – I 287 Mainline - Comparison of Build (Alternatives B, C, D, E) Volumes and Speeds – Westbound AM

	2047 ALT B			2047 ALT C			2047 ALT D			2047 ALT E		
	Sectional Travel Time	Sectional Speed	Section Volume	Sectional Travel Time	Sectional Speed	Section Volume	Sectional Travel Time	Sectional Speed	Section Volume	Sectional Travel Time	Sectional Speed	Section Volume
12 on ramp	4	48	3212	4	48	3115	4	47	3221	4	47	3210
11 on ramp	18	58	3202	18	58	3118	18	58	3216	18	58	3202
Mainline between 11 and 10	40	57	3639	40	57	3586	40	57	3663	40	57	3738
10 off ramp	14	55	3631	14	55	3583	14	55	3662	14	54	3723
Mainline between 10 off and 10 on	32	58	3267	33	56	3217	32	57	3220	33	56	3283
10 on ramp	25	56	3730	25	55	3749	25	56	3624	26	54	3837
9N off ramp	10	56	4208	10	54	4277	10	56	4042	11	52	4376
Mainline between 9N and 9S	57	57	3356	57	56	3607	57	56	3262	57	56	3704
9S on ramp	12	60	3342	13	59	3607	12	60	3252	13	58	3706
9A off ramp	22	52	4840	23	52	4885	23	51	4866	23	52	4613
Mainline between 9A off and 9A on	45	59	4098	46	58	4213	45	59	4085	45	59	3968
Weaving section between 9A on and 8 off	21	41	5772	21	41	5743	21	41	5796	20	43	5530
Mainline section between 8 off and 8W on	32	55	4054	32	55	3735	32	55	4052	32	55	3609
7 Off ramp	7	55	4042	7	54	3725	7	55	4055	7	54	3605
Mainline between 7 off and 8W on	59	41	3785	51	47	3436	45	52	3922	42	57	3335
8W on ramp	44	26	4108	37	31	4045	31	36	4416	40	29	3844
6 off ramp	23	29	4626	23	28	4841	16	40	4876	24	27	4544
6 on ramp	16	62	3523	16	62	3578	16	62	3798	16	61	3482
Mainline between 6 and 5	34	59	3928	34	60	3945	34	59	4301	34	60	3845
5 off ramp	26	43	3660	26	43	3787	26	43	4003	16	71	3712
section between 5 off and on	6	59	3524	6	59	3707	6	59	3867	6	59	3561
5 on ramp	25	60	3532	25	60	3706	25	60	3868	25	60	3566
4 off ramp	18	57	4210	18	57	4320	18	57	4574	18	57	4077
Section between 4 off and on	11	44	3805	11	45	3790	11	44	4073	11	44	3716
4 on ramp	29	54	4288	29	55	4228	29	53	4569	29	54	4254
3 off ramp	4	46	4761	4	47	4660	5	44	5045	5	45	4780
Section between 3 off and 3 on	16	58	3833	16	58	3741	16	57	4078	17	55	3853
Weaving between 3 on and 2 off	15	52	5132	15	53	4934	14	54	5165	24	32	5086
section between 2 off and 2 on	7	48	3990	7	50	3842	7	50	4088	7	47	3710
2 on ramp	21	56	4000	21	57	3841	21	56	4091	21	57	3725
1 off	8	48	4545	7	50	4329	8	48	4646	7	51	4156
8 off	8	58	3427	8	58	3345	8	58	3502	8	58	3412
section between 8 off and 1 on	18	55	2794	18	56	2716	18	55	2841	18	55	2820
1 on ramp	18	45	3209	15	53	3092	15	53	3200	15	53	3173
8 on ramp	24	24	4812	18	32	4800	18	32	4970	18	32	4749
Mainline between 8 and 9	23	58	5772	17	76	5918	19	70	6054	17	76	5760
9 off ramp	49	40	5767	30	65	5932	62	31	5859	37	50	5754
section between 9 off and on	9	54	4861	8	57	4867	8	60	4540	8	68	4416
9 on ramp	11	57	5055	11	57	5071	11	56	4809	11	59	4567
Mainline between 9 on and S Broadway on	15	58	5052	16	55	5077	15	58	4814	15	58	4574
S Broadway on	40	59	5265	40	58	5265	40	59	5017	40	59	4799

Table C73 – Westchester County – I 287 Mainline and Ramp Volumes – Westbound AM

Location	2047 B	2047 C	2047 D	2047 E
9 - 10 WB	5475	5454	5218	5025
ON RAMP FROM S. BROADWAY TO TAPPAN ZEE BRIDGE	408	523	495	525
9 WB ON	197	199	263	155
9 WB OFF	913	1064	698	739
8 - 9 WB	5767	5932	5914	5754
8 WB ON # 2	1951	2250	2385	2047
8 WB ON # 1	1242	1175	1161	1108
8 WB OFF	861	845	882	797
1 - 8 WB	3427	3345	3502	3412
1 WB OFF	1125	996	1147	748
2 - 1 WB	4545	4329	4646	4156
2 WB ON	545	486	551	424
2 WB OFF	1141	1106	1077	1376
3 - 2 WB	5132	4934	5165	5086
3 WB ON	1303	1194	1088	1217
3 WB OFF	918	903	948	944
4 - 3 WB	4764	4659	5048	4778
4 WB On	962	877	955	1051
4 WB Off	419	544	512	371
5 - 4 WB	4211	4317	4576	4069
5 WB ON	683	620	713	485
5 WB Off	3524	252	438	318
6 - 5 WB	3927	3942	4308	3836
6 WB ON	251	230	343	207
6 WB OFF	1096	1250	1078	1061
7 - 6 WB	4640	4860	4885	4559
7 WB OFF	1153	1690	959	1471
8W - 7 WB	3616	3301	3952	3156
8W WB ON	190	253	136	252
8E - 8W WB	4056	3733	4046	3608
8 - 8E WB	4054	3740	4047	3614
8 WB Off	1705	1996	1745	1903
8 WB ON	915	823	935	808
9A - 8 WB	4883	4933	4865	4722
9A WB ON	1048	953	1064	1014
9A WB OFF	1009	904	1027	882
9S - 9A WB	4842	4883	4867	4612
9S WB On	1506	1284	1623	919
9S WB Off	850	658	782	656
10 - 9S WB	4205	4280	4039	4383

Table C74 -Westchester County- AM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets (Alternatives B, C, D and E)

				ALT B 2047			ALT C 2047			ALT D 2047			ALT E 2047		
Start	End	Direction	Length	Travel Time	Average Speed	VMt	Travel Time	Average Speed	VMt	Travel Time	Average Spe	VMt	Travel Time	Average Spe	VMt
Toll Plaza	12 Off Ramp Gore Point	EB	12.2	16.5	44	65970	16.1	45	65356	20.1	36	60043	15.9	46	63760
Toll Plaza	8 Off Ramp to 87 SB Gore Point	EB	1.1	1.4	49	8381	1.8	39	8344	3.1	22	7597	2.2	32	8194
Int 9 On Ramp Gore Point	8E Off Ramp Gore Point	EB	7.2	10.1	40	39009	9.6	42	38241	14.1	29	34880	9.4	43	38527
8E On EB Gore Point	12 Off Ramp Gore Point	EB	4.8	6.0	52	24929	6.0	52	25075	5.6	56	23334	5.9	53	23418
I-95 On Ramp	Middle of Bridge	WB	12.9	15.3	51	53024	14.5	53	53001	14.8	52	53953	14.5	53	51839
I-95 ON Ramp	8E Off Ramp Gore Point	WB	4.6	5.0	56	17607	5.1	55	17897	5.0	55	17445	5.0	55	17921
8E/7 On Ramp	Middle of Bridge	WB	8.2	10.3	48	35417	9.4	52	35104	9.7	51	36508	9.5	52	33918
5 On Ramp	Middle of Bridge	WB	5.2	6.2	51	23733	5.6	56	23738	6.2	51	24166	5.9	54	22930

Table C75 – Westchester County – I 287 Mainline - Comparison of Build (Alternatives B, C, D, E) Volumes and Speeds – Eastbound PM

	2047 ALT B			2047 ALT C			2047 ALT D			2047 ALT E		
	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume	Sectional Travel Time (seconds)	Sectional Speed	Section Volume
TP to Exit 9	15	51	5719	15	52	5719	18	42	5622	15	50	5622
Exit 9 on ramp	17	59	5129	18	56	5386	37	27	5393	17	57	5393
mainline between 9 and 8	34	56	5778	39	49	6369	96	20	6710	36	54	6710
Exit 8	12	37	5786	14	30	6325	16	27	6691	13	34	6691
Between 8 off and on	39	54	3913	49	43	3935	57	37	4272	46	46	4272
8 on ramp	20	60	3337	20	60	2979	20	60	3337	20	60	3337
Mainline between 8 and 1	5	56	4014	5	57	3577	5	57	3981	5	56	3981
1 on ramp	17	60	4010	21	50	3588	19	55	3988	18	59	3988
Mainline between 1 and 2	20	58	4742	42	28	4035	26	45	4470	21	54	4470
Weaving area between 2 on and 3 off	14	46	5435	26	25	4602	19	35	5058	16	42	5058
Section between 3 off and 3 on	17	46	4631	32	24	3693	23	33	4236	19	40	4236
3 on SB ramp	17	42	5545	38	19	4289	25	29	5079	24	30	5079
Weaving area between 3 on NB ramp and 4 off	17	48	6786	34	24	5085	25	32	6047	21	39	6047
Section between 4 off and 4 on	11	53	6061	27	21	4493	18	32	5361	16	35	5361
4 on Ramp	15	58	6059	36	24	4530	27	32	5290	24	36	5290
Mainline between 4 and 5	11	58	6986	24	27	5351	17	39	5949	18	35	5949
5 off ramp	25	51	6987	57	22	5378	38	34	5789	45	29	5789
Section between 5 off and 5 on	15	55	6031	36	22	4529	23	35	4774	27	30	4774
5 on ramp	12	47	6610	28	20	5069	18	31	5143	22	25	5143
Mainline between 5 and 6	16	57	6591	43	21	4860	27	34	4993	31	29	4993
6 off ramp	21	47	6571	56	18	4668	35	28	4798	42	23	4798
section between 6 off and 6 on	17	57	5747	30	33	4125	28	36	4246	47	21	4246
6 on ramp	17	53	5729	26	33	4094	33	27	4082	49	18	4082
mainline between 6 and 7	11	52	6347	18	33	4418	27	22	4506	35	17	4506
7 on ramp	20	53	6731	33	32	4779	51	21	4967	70	15	4967
8W off ramp	24	58	7033	70	20	5134	65	22	5376	98	14	5376
8E off ramp	10	50	5888	17	31	4032	22	23	4542	33	16	4542
Section Between 8 E off and on	5	44	4888	6	36	3529	7	32	3480	10	22	3480
8E on ramp	26	57	4908	38	38	3721	51	29	3492	98	15	3611
8 on ramp	26	50	5544	33	38	4417	49	26	3871	36	36	4166
9A off ramp	12	47	5992	15	38	4781	13	44	4493	29	20	4493
Mainline between 9A off and on	31	59	4864	32	58	3624	32	58	3391	44	42	3391
9 A on ramp	22	59	4311	24	55	3074	38	34	2865	34	38	2865
9S off ramp	8	46	5243	11	34	4387	16	23	4493	7	55	4493
Mainline between 9S off and 9N on	52	58	3301	52	58	2761	221	14	2722	52	58	2722
9N on ramp	25	55	3309	24	57	2769	144	10	2735	23	59	2735
10 off ramp	8	38	4304	6	50	3705	14	20	3733	5	55	3733
Mainline between 10 and 11	102	57	3174	101	58	2821	101	58	2646	101	58	2646
11 off ramp	13	54	3166	13	55	2836	13	56	2643	13	55	2643
12 off ramp	13	52	2642	12	54	2335	12	54	2150	12	53	2150

Table C76– Westchester County – I 287 Mainline and Ramp Volumes – Eastbound PM

Location	2047 B	2047 C	2047 D	2047 E
10 - 9 EB	5714	5730	6255	5638
9 EB Off	589	249	215	229
9 EB ON	648	1207	858	1046
9 - 8 EB	5778	6369	7057	6710
8 EB OFF # 1	1857	1810	2293	1944
8 EB ON	1330	1157	1291	1264
8 - 1 EB	4014	3577	4054	3981
1 EB ON	730	447	432	510
1 - 2 EB	4006	3593	4067	3991
2 EB ON	690	632	675	675
2 -3 EB	5435	4602	5123	5058
3 EB Off	776	785	682	729
3 EB ON # 1	1401	1017	1337	1360
3 EB ON # 2	772	587	806	682
3 - 4 EB	6786	5085	6483	6047
4 EB OFF	732	568	770	635
4 EB On	935	814	1031	744
4-5 EB	6992	5381	6525	5750
5 EB OFF	972	776	847	855
5 EB ON	587	621	618	453
5 - 6 EB	6610	5069	6079	5143
6 EB OFF	813	528	836	465
6 EB ON	630	423	451	473
6-7 EB	6347	4418	5276	4506
7 EB ON	823	833	867	1080
7 -8W EB	7013	5129	6073	5364
8W EB OFF	1064	1062	1251	830
8W - 8E EB	5888	4032	4812	4542
8E EB OFF	1000	540	1228	1035
8E - 8 EB	4913	3565	3585	3495
8 EB ON #1	616	482	372	341
8 EB ON #2	435	702	553	573
8 - 9A EB	5992	4781	4516	4493
9A EB OFF	1699	1753	1933	1674
9A EB ON	930	1304	461	1640
9A - 9S EB	5243	4387	2892	4493
9S EB OFF	1974	1647	1363	1739
9S EB ON	1001	939	814	1000
9S - 10 EB	4304	3705	2380	3733
10 EB OFF	1133	895	588	1092

Table C77 – Westchester County – I 287 Mainline - Comparison of Build (Alternatives B, C, D, E) Volumes and Speeds – Westbound PM

	2047 ALT B			2047 ALT C			2047 ALT D			2047 ALT E		
	Sectional Travel Time	Sectional Speed	Section Volume	Sectional Travel Time	Sectional Speed	Section Volume	Sectional Travel Time	Sectional Speed	Section Volume	Sectional Travel Time	Sectional Speed	Section Volume
12 on ramp	4	49	3247	4	49	3130	4	49	3379	4	49	3199
11 on ramp	18	59	3241	18	59	3127	18	59	3379	18	59	3209
Mainline between 11 and 10	40	58	3771	40	58	3555	40	57	3685	40	58	3718
10 off ramp	14	55	3760	14	55	3561	14	53	3606	14	55	3710
Mainline between 10 off and 10 on	32	57	3561	32	57	3238	32	58	3177	32	58	3276
10 on ramp	25	56	3938	25	56	3673	25	56	3613	25	56	3777
9N off ramp	10	55	4308	10	56	4096	10	56	4033	10	56	4271
Mainline between 9N and 9S	56	57	3258	57	56	3305	56	57	3227	57	57	3437
9S on ramp	12	60	3252	14	55	3275	12	60	3253	14	54	3267
9A off ramp	23	51	4462	26	45	4694	22	52	4438	26	45	4611
Mainline between 9A off and 9A on	45	59	3561	92	29	3598	45	59	3557	92	29	3700
Weaving section between 9A on and 8 off	20	43	5528	36	24	4727	19	44	5417	32	27	4750
Mainline section between 8 off and 8W on	33	53	4193	32	55	3165	33	54	4080	33	54	3617
7 Off ramp	7	53	4183	7	54	3177	7	53	4082	7	54	3623
Mainline between 7 off and 8W on	57	42	3622	45	53	2748	57	42	3422	46	52	3117
8W on ramp	46	25	4068	20	57	3429	37	30	3865	28	40	3824
6 off ramp	28	24	4723	12	53	4089	24	27	4587	18	37	4531
6 on ramp	36	28	4127	16	61	3711	35	28	4189	16	61	3865
Mainline between 6 and 5	70	28	4945	39	51	4581	67	30	4985	36	55	4836
5 off ramp	46	24	4542	29	38	4284	50	23	4404	31	36	4479
section between 5 off and on	14	25	4349	8	46	4120	15	24	4136	9	42	4291
5 on ramp	70	21	4266	36	41	4123	61	25	4150	42	35	4286
4 off ramp	45	23	4863	28	37	4801	36	29	4737	32	32	4851
Section between 4 off and on	12	43	4158	12	42	4196	11	44	4130	15	33	4309
4 on ramp	33	47	4616	36	43	4611	31	50	4569	49	32	4692
3 off ramp	6	32	5066	7	30	5010	6	35	5007	7	28	5056
Section between 3 off and 3 on	17	56	3195	20	47	3118	16	57	3204	20	47	3206
Weaving between 3 on and 2 off	17	45	4074	22	36	3886	15	51	4096	23	33	3946
section between 2 off and 2 on	7	51	3341	7	49	3063	7	51	3305	7	51	3161
2 on ramp	21	56	3363	21	57	3078	20	59	3317	21	58	3181
1 off	8	48	4219	7	53	3982	7	52	4126	7	53	4064
8 off	9	55	3382	9	57	3521	8	58	3429	8	57	3645
section between 8 off and 1 on	19	52	2663	19	53	2909	18	54	2776	18	54	2965
1 on ramp	16	52	2751	16	52	3270	15	53	2899	16	52	3209
8 on ramp	17	33	4846	18	32	5718	17	33	5095	18	33	5640
Mainline between 8 and 9	17	78	6637	18	73	7640	17	78	6934	17	78	7594
9 off ramp	32	57	6648	38	49	7698	32	58	6916	36	51	7619
section between 9 off and on	9	61	6305	10	52	6496	13	43	6633	10	57	6660
9 on ramp	12	55	6539	11	57	6967	11	56	6854	11	56	7121
Mainline between 9 on and S Broadway on	16	55	6542	16	55	6952	15	58	6848	16	56	7105
S Broadway on	41	57	6982	41	57	7218	39	59	7242	40	58	7334

Table C78 – Westchester County – I 287 Mainline and Ramp Volumes – Westbound PM

Location	2047 B	2047 C	2047 D	2047 E
9 - 10 WB	7416	7480	5883	6010
ON RAMP FROM S. BROADWAY TO TAPPAN ZEE BRIDGE	897	505	756	433
9 WB ON	239	478	230	446
9 WB OFF	356	1204	280	963
8 - 9 WB	6648	7698	6918	7619
8 WB ON # 2	3547	3787	3716	3933
8 WB ON # 1	640	1116	688	935
8 WB OFF	974	827	882	912
1 - 8 WB	3382	3521	3429	3645
1 WB OFF	845	474	708	432
2 - 1 WB	4219	3982	4126	4064
2 WB ON	845	898	804	876
2 WB OFF	735	814	804	781
3 - 2 WB	4074	3886	4096	3946
3 WB ON	880	840	884	770
3 WB OFF	1878	1907	1816	1856
4 - 3 WB	5059	5009	5001	5065
4 WB On	845	788	850	748
4 WB Off	682	627	647	524
5 - 4 WB	4882	4788	4726	4855
5 WB ON	730	669	542	565
5 WB Off	615	505	807	566
6 - 5 WB	4950	4558	5026	4829
6 WB ON	540	489	559	748
6 WB OFF	594	399	377	651
7 - 6 WB	4741	4073	4603	4532
7 WB OFF	1423	1276	1582	1429
8W - 7 WB	3425	2771	3226	3114
8W WB ON	498	446	626	510
8E - 8W WB	4192	3160	4078	3613
8 - 8E WB	4198	3161	4076	3613
8 WB Off	1325	1542	1331	1119
8 WB ON	1481	979	1395	802
9A - 8 WB	4043	3831	4007	4026
9A WB ON	638	529	598	607
9A WB OFF	1057	1031	1043	943
9S - 9A WB	4464	4708	4437	4621
9S WB On	1195	1526	1179	1469
9S WB Off	1055	799	849	801
10 - 9S WB	4304	4102	4023	4281

Table C79 - Westchester County- PM Peak Hour Travel Times, Average Speeds and Vehicle Miles Traveled in Select Markets (Alternatives B, C, D and E)

			ALT B 2047			ALT C 2047			ALT D 2047			ALT E 2047		
End	Direction	Length	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT	Travel Time	Average Speed	VMT
12 Off Ramp Gore Point	EB	12.2	13.5	54	59525	20.4	36	48993	25.4	29	50440	21.6	34	50593
8 Off Ramp to 87 SB Gore Point	EB	1.1	1.3	53	6435	1.4	48	6888	2.8	25	7096	1.4	51	7096
8E Off Ramp Gore Point	EB	7.2	7.6	53	37886	14.0	29	31084	13.3	30	33468	13.6	30	33468
12 Off Ramp Gore Point	EB	4.8	5.6	55	20123	6.0	52	16476	11.7	27	15563	7.6	41	15715
Middle of Bridge	WB	12.9	17.7	44	56349	16.1	48	55194	17.0	45	54008	16.7	46	55026
8E Off Ramp Gore Point	WB	4.6	5.0	56	17294	6.1	46	16732	5.0	56	16825	6.0	46	17152
Middle of Bridge	WB	8.2	12.7	39	39055	10.0	49	38461	12.0	41	37183	10.6	47	37874
Middle of Bridge	WB	5.2	7.1	45	26303	6.5	48	27631	6.6	47	24742	6.9	46	26066

Intersection Analysis

2010, 2017 and 2047 No Build Results

Table C80 – Rockland County – Intersection Analysis – AM

	NB 2010			NB 2017			NB		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Airmont Rd and Rt 59									
EB SUM	849	80.3	F	859	129.9	F	881	131.9	F
WB Sum	574	35.4	D	587	41.0	D	603	153.6	F
SB Sum	1199.5	49.5	D	1182	51.7	D	1265	94.8	F
NB Sum	374	33.7	C	400	34.9	C	528	25.4	C
Composit		53.6	D		69.6	E		104.4	F
College road ad Rt 59									
EB SUM	1042	42.5	D	1017	50.6	D	1061	33.5	C
WB Sum	561	20.6	C	570	23.1	C	590	14.0	B
SB Sum	149.5	12.7	B	182.5	21.0	C	276	11.6	B
NB Sum	259.5	19.6	B	284	17.5	B	319	46.7	D
Composit		31.2	C		35.8	D		27.6	C
Rt 306 & Rt 59									
EB SUM	694	44.5	D	734	49.4	D	770	74.2	E
WB Sum	629	50.2	D	690	56.2	E	712	57.8	E
SB Sum	467	25.5	C	427	26.9	C	517	28.0	C
NB Sum	239	22.6	C	241	27.0	C	347	28.6	C
Composit		39.3	D		44.5	D		52.3	D
Main St(Rt 59) & Rt 9W									
EB SUM	760	28.8	C	834	44.5	D	1128	205.2	F
WB Sum	99	26.9	C	114	36.2	D	257	39.2	D
SB Sum	651	32.2	C	714	45.5	D	709	32.0	C
NB Sum	228	35.7	D	239	27.1	C	349	31.7	C
		30.8	C		42.2	D		112.7	F
Chestnut & Rt 59									
EB SUM	200	11.5	B	185	13.9	B	501	17.2	B
WB Sum	238	15.3	B	262	15.9	B	290	18.8	B
SB Sum	252	14.4	B	283	10.7	B	246	11.1	B
NB Sum	39	5.0	A	45	4.3	A	63	7.0	A
Composit		13.4	B		12.8	B		15.7	B
NewClarkstown Rd & Rt 59									
EB SUM	1773	6.9	A	2163	7.2	A	2411	12.3	B
WB Sum	745	17.1	B	827	18.3	B	980	23.2	C
SB Sum	751	21.2	C	702	19.0	B	916	41.5	D
Composit		14.6	B		13.9	B		24.3	C
Pascack Rd Bypass & Rt 59									
EB SUM	1150	35.7	D	1279	31.5	C	1548	34.6	C
WB Sum	709	24.4	C	712	28.9	C	946	18.4	B
SB Sum	586	13.7	B	585	12.0	B	553	16.6	B
NB Sum	366	19.5	B	435	23.2	C	458	30.0	C
Composit		26.2	C		25.9	C		26.8	C
Grand View Ave & Rt 59									
EB SUM	1144	56.9	E	1252	63.3	E	1516	34.3	C
WB Sum	1050	36.8	D	1086	38.0	D	1343	51.9	D
SB Sum	861	44.4	D	785	52.1	D	1035	39.4	D
NB Sum	283	42.3	D	278	44.5	D	321	75.9	E
Composit		46.1	D		51.1	D		44.3	D
Co Rd 33 (N Middletown Road) & Rt 59									
EB SUM	1293	28.8	C	1336	29.8	C	1657	36.1	D
WB Sum	462	27.8	C	508	26.4	C	632	21.7	C
SB Sum	536	30.0	C	549	31.4	C	634	37.9	D
NB Sum	177	29.8	C	167	30.1	C	205	39.4	D
Composit		28.9	C		29.5	C		33.8	C
Smith St & Rt 59									
EB SUM	736	19.3	B	778	23.9	C	976	22.4	C
WB Sum	1118	30.4	C	1169	33.0	C	1222	45.8	D
SB Sum	374	259.8	F	471	48.6	D	403	138.5	F
NB Sum	314	32.5	C	288	36.4	D	300	33.2	C
Composit		61.2	E		33.5	C		49.5	D
Mountainview Ave & Rt 59									
EB SUM	1163	38.5	D	1235	55.2	E	1401	258.0	F
WB Sum	780	43.4	D	821	48.9	D	919	45.4	D
SB1 Sum		59.5	E		49.9	D		47.6	D
SB2 Sum	189	38.0	D	266	43.9	D	378	113.4	F
NB Sum	53	50.2	D	56	50.3	D	187	23.3	C
Composit		42.6	D		51.5	D		146.3	F

Table C80 – Rockland County – Intersection Analysis – AM (cont)

	NB 2010			NB 2017			NB		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Spook Rock & Airmont									
EB SUM	278	5.6	A	270	5.5	A	343	5.7	A
WB Sum	108	19.2	B	100	17.4	B	124	32.1	C
SB Sum	544	66.2	E	621	120.2	F	790	170.7	F
NB Sum	108	22.7	C	118	20.4	C	152	18.4	B
Composit		40.6	D		72.4	E		101.9	F
Int # 8 - Orange Avenue/Lafayette Avenue(Rt 59)									
EB Sum	49	29.2	C	54	33.7	C	75	50.1	D
WB Sum	86	19.1	B	104	15.2	B	80	27.2	C
SB Sum	798	20.2	C	845	18.3	B	1111	19.0	B
NB Sum	196	40.6	D	217	38.9	D	300	39.6	D
Composit		24.1	C		22.4	C		24.9	C
Int # 27 - Airmont Road/Rella Blvd/Montebello Road									
EB Sum	399	1.2	A	444	1.2	A	491	3.0	A
SB Sum	723	13.8	B	736	13.0	B	821	19.4	B
NB Sum		5.6	A		5.2	A		2.1	A
Composit		8.2	A		7.5	A		9.5	A
Int # 46 - Route 59/Route 45									
EB Sum	702	33.5	C	793	97.3	F	890	93.1	F
WB Sum	643	33.4	C	683	68.6	E	726	15.7	B
SB Sum	479	280.5	F	698	20.1	C	744	169.2	F
NB Sum	349	43.2	D	353	24.4	C	462	38.9	D
Composit		89.5	F		52.1	E		84.4	F
Int # 51 - Route 45/Old Nyack Tpke									
EB Sum	162	23.6	C	150	29.2	C	199	26.7	C
WB Sum	11	27.1	C	3	18.2	B	10	20.5	C
SB Sum	175	26.0	C	236	25.3	C	244	30.7	C
NB Sum		13.6	B		16.2	B		15.7	B
Composit		21.8	C		23.7	C		24.8	C
Int # 65 - Route 306/Bardonia Rd									
EB Sum	67	31.8	C	86	32.3	C	89	29.3	C
WB Sum	112	22.9	C	150	24.4	C	131	19.7	B
SB Sum	1232	19.2	B	1266	19.4	B	1466	22.8	C
NB Sum	551	17.2	B	641	16.9	B	832	16.6	B
Composit		19.2	B		19.6	B		20.8	C
Int # 73 - Route 304/West Nyack Rd									
EB Sum	335	60.1	E	329	67.6	E	445	165.2	F
WB Sum	70	12.6	B	87	14.6	B	77	15.0	B
SB Sum	1220	22.1	C	1302	24.2	C	1423	35.6	D
NB Sum	378	16.3	B	476	17.4	B	541	21.6	C
Composit		27.0	C		28.9	C		55.1	E
Int # 93 - Route 303/Snake Hill Rd									
EB Sum	227	66.4	E	282	113.3	F	243	90.8	F
WB Sum		#N/A			#N/A			#N/A	
SB Sum	1658	20.6	C	1698	26.1	C	1554	17.9	B
NB Sum	418	52.5	D	475	54.8	D	606	53.7	D
Composit		30.9	C		41.7	D		34.3	C
Int #92 - Route 303/Int #12 Off Ramp									
EB Sum	307	25.4	C	344	29.2	C	359	31.3	C
WB Sum									
SB Sum	536	20.0	B	620	18.6	B	787	17.9	B
NB Sum	370	29.9	C	359	29.1	C	721	33.9	C
Composit		24.3	C		24.2	C		26.6	C
Int # 91 - Route 303/Mall Exit									
EB Sum		#N/A			30.0	C		4.7	A
WB Sum									
SB Sum	370	29.9	C	359	29.1	C	721	33.9	C
NB Sum	661	18.7	B	738	18.8	B	933	21.1	C
Composit		22.7	C		22.1	C		26.7	C
Int # 107 - Route 9W/High									
EB Sum	215	7.9	A	225	11.0	B	225	23.2	C
WB Sum	500	33.9	C	511	41.8	D	583	27.0	C
SB Sum	608	17.5	B	701	31.2	C	648	113.7	F
NB Sum	407	17.0	B	436	26.2	C	624	19.0	B
Composit		20.9	C		30.5	C		51.2	D

Table C80 – Rockland County – Intersection Analysis – AM (cont)

	NB 2010			NB 2017			NB		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Int # 116 - Main St/Franklin St									
EB Sum	131	12.8	B	98	16.9	B	297	17.4	B
WB Sum	186	9.9	A	171	10.0	A	311	11.0	B
SB Sum	59	15.0	B	95	16.4	B	139	12.4	B
NB Sum	150	13.9	B	144	15.2	B	221	16.3	B
Composit		12.3	B		14.0	B		14.4	B
Int # 120 - Main St/Broadway									
EB Sum	126	12.0	B	124	9.2	A	284	14.9	B
WB Sum	138	13.9	B	120	12.0	B	242	15.8	B
SB Sum	211	19.8	B	278	20.2	C	279	23.7	C
NB Sum	114	14.4	B	99	17.1	B	151	17.1	B
Composit		15.7	B		16.0	B		18.0	B
EB 11 Ramps & Rt 59(New Intersection)									
EB Sum									
WB Sum									
SB Sum									
Composit									
Airmont RD/I-287 EB Ramps									
EB	975	14.7	B	1000	20.2	C	1076.667	86.1	F
NB	902	51.6	D	832	52.7		964	140.2	F
SB	958	38.8	C	958	41.1		1082.667	43.0	D
Composit		34.6	C		25.5	C		76.1	E
Airmont RD/I-287 wB Ramps									
WB	712	26.6	C	677	24.7	C	722	25.8	C
NB	612	7.7	A	598	8.6	A	677.6667	8.1	A
SB	815	19.0	B	906	18.8	B	1094.5	15.6	B
Composit		18.3	B		17.8	B		16.5	B

Table C81 – Rockland County – Intersection Analysis – PM

	Existing 2010			NB 2017			NB 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Airmont Rd and Rt 59									
EB SUM	850	132.2	F	795	150.5	F	955	93.8863	F
WB Sum	838	36.3	D	902	50.7	D	1089	52.38202	D
SB Sum	1082	28.6	C	1046	30.6	C	1083	40.91852	D
NB Sum	672	38.8	D	716	45.3	D	672	183.003	F
Composit		58.1	E		66.4	E		82.6502	F
College road ad Rt 59									
EB SUM	935	30.5	C	961	38.6	D	1012	39.22997	D
WB Sum	868	19.6	B	858	20.8	C	1003	22.07117	C
SB Sum	279	20.3	C	329	17.7	B	314	19.0174	B
NB Sum	407	29.4	C	481	29.8	C	566	40.55307	D
Composit		25.4	C		28.6	C		31.35311	C
Rt 306 & Rt 59									
EB SUM	851	129.6	F	908	111.3	F	909	35.75725	D
WB Sum	767	78.0	E	776	144.6	F	918	93.1706	F
SB Sum	385	30.4	C	414	29.6	C	501	34.31577	C
NB Sum	373	30.5	C	377	34.3	C	552	48.20812	D
Composit		81.3	F		96.4	F		56.19578	E
Main St(Rt 59) & Rt 9W									
EB SUM	1017	39.8	D	1060	50.7	D	1175	48.54022	D
WB Sum	121	27.3	C	141	32.8	C	131	35.8385	D
SB Sum	612	37.0	D	464	38.1	D	518	40.3016	D
NB Sum	308	33.4	C	359	38.2	D	359	36.21422	D
Composit		37.3	D		44.3	D		43.79777	D
Chestnut & Rt 59									
EB SUM	358	23.1	C	356	30.8	C	257	8.4008	A
WB Sum	486	17.9	B	559	19.3	B	685	74.9977	E
SB Sum	69	10.9	B	65	10.5	B	89	29.9674	C
NB Sum	112	6.1	A	102	6.9	A	170	15.05669	B
Composit		20	B		21.4	C		48.9252	D
NewClarkstown Rd & Rt 59									
EB SUM	812	7.2	A	887	7.7	A	1044	6.64918	A
WB Sum	1216	26.6	C	1421	17.0	B	1449	53.1809	D
SB Sum	387	15.4	B	318	31.5	C	492	30.6156	C
Composit		18.3	B		15.6	B		33.18761	C
Pascack Rd Bypass & Rt 59									
EB SUM	995	28.9	C	1022	29.4	C	1249	20.6992	C
WB Sum	1528	108.6	F	1615	57.6	E	1580	122.5706	F
SB Sum	664	9.1	A	763	10.3	B	747	82.6258	F
NB Sum	351	26.2	C	379	25.4	C	352	54.55126	D
Composit		59.3	E		37.2	D		76.48048	E
Grand View Ave & Rt 59									
EB SUM	1004	51.4	D	1022	25.2	C	1167	34.01063	C
WB Sum	1473	46.1	D	1521	61.1	E	1795	82.7371	F
SB Sum	662	43.5	D	689	50.7	D	772	41.3056	D
NB Sum	360	50.5	D	338	36.3	D	490	69.83874	E
Composit		47.6	D		46.5	D		60.20497	E
Co Rd 33 (N Middletown Road) & Rt 59									
EB SUM	1303	38.2	D	1399	49.6	D	1682	52.13788	D
WB Sum	1346	80.7	F	1347	31.4	C	1494	33.93859	C
SB Sum	588	28.6	C	556	35.7	D	658	35.86555	D
NB Sum	418	32.4	C	417	45.7	D	469	43.785	D
Composit		51.6	D		40.5	D		42.42189	D
Smith St & Rt 59									
EB SUM	547	19.3	B	509	19.6	B	584	19.83523	B
WB Sum	1893	81.6	F	1864	78.1	E	1855	126.4357	F
SB Sum	275	51.6	D	322	69.5	E	375	98.8246	F
NB Sum	173	32.1	C	189	30.0	C	199	30.63452	C
Composit		64	E		63.7	E		96.00979	F
Mountainview Ave & Rt 59									
EB SUM	826	26.2	C	934	23.0	C	938	27.71703	C
WB Sum	852	49.2	D	706	41.1	D	793	46.9027	D
SB1 Sum	197	48.0	D	170	50.6	D	205	48.6201	D
SB2 Sum	574	46.4	D	573	52.6	D	631	63.4544	E
NB Sum	65	57.7	E	57	55.9	E	61	51.82115	D
Composit		41.1	D		37.9	D		44.2798	D

Table C81 – Rockland County – Intersection Analysis – PM (cont)

	Existing 2010			NB 2017			NB 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Spook Rock & Airmont									
EB SUM	336	6.7	A	374	5.8	A	558	8.95351	A
WB Sum	124	21.8	C	144	21.0	C	148	18.9303	B
SB Sum	388	23.8	C	407	18.8	B	490	30.9228	C
NB Sum	195	26.0	C	173	21.3	C	231	31.5928	C
Composit		18.4	B		15	B		21.19849	C
Int # 8 - Orange Avenue/Lafayette Avenue(Rt 59)									
EB Sum	121	47.2	D	125	34.5	C	154	74.8899	E
WB Sum	112	67.2	E	133	78.1	E	266	151.912	F
SB Sum	356	31.1	C	375	35.4	D	348	15.66922	B
NB Sum	655	62.6	E	617	80.3	F	1031	52.9456	D
Composit		52.5	D		62	E		62.24649	E
Int # 27 - Airmont Road/Rella Blvd/Montebello Road									
EB Sum	383	1.8	A	515	2.0	A	437	3.18009	A
WB Sum		#N/A			#N/A			#N/A	
SB Sum	802	11.5	B	885	13.9	B	1240	47.3123	D
NB Sum	412	5.1	A	457	4.6	A	529	6.45014	A
Composit		7.6	A		8.3	A		28.77777	C
Int # 46 - Route 59/Route 45									
EB Sum	947	82.0	F	885	19.6	B	1033	30.2888	C
WB Sum	956	86.9	F	1084	12.0	B	1382	36.52841	D
SB Sum	637	152.6	F	627	55.6	E	648	85.7051	F
NB Sum	285	57.5	E	387	47.1	D	469	198.7412	F
Composit		97.1	F		28	C		65.25138	E
Int # 51 - Route 45/Old Nyack Tpke									
EB Sum	112	23.0	C	179	29.9	C	247	30.78019	C
WB Sum	103	16.2	B	57	17.3	B	92	18.6694	B
SB Sum	163	22.2	C	272	29.0	C	298	23.55918	C
NB Sum	177	16.8	B	209	14.3	B	240	17.17316	B
Composit		19.5	B		24	C		23.33588	C
Int # 65 - Route 306/Bardonia Rd									
EB Sum	80	24.2	C	91	31.9	C	90	28.5975	C
WB Sum	195	18.2	B	222	20.1	C	280	19.4547	B
SB Sum	790	17.1	B	841	17.7	B	1033	18.4582	B
NB Sum	1068	20.9	C	1073	19.7	B	1189	23.27673	C
Composit		19.4	B		19.5	B		21.12682	C
Int # 73 - Route 306/West Nyack Rd									
EB Sum	343	220.2	F	444	26.2	C	504	35.2874	D
WB Sum	327	28.6	C	273	12.0	B	336	13.19191	B
SB Sum	867	19.4	B	899	48.3	D	1050	137.9658	F
NB Sum	1164	33.2	C	1167	58.8	E	1185	73.2438	E
Composit		51.9	D		45.6	D		82.5626	F
Int # 93 - Route 303/Snake Hill Rd									
EB Sum	787	22.1	C	805	21.1	C	747	19.8942	B
WB Sum					#N/A			#N/A	
SB Sum	693	6.9	A	696	7.0	A	776	8.89229	A
NB Sum	1777	28.6	C	1872	33.9	C	2031	32.29828	C
Composit		22.4	C		25.3	C		24.58273	C
Int #92 - Route 303/Int #12 Off Ramp									
EB Sum	1001	43.6	D	1088	26.7	C	1235	34.1943	C
WB Sum									
SB Sum	233	40.6	D	278	38.2	D	342	38.3908	D
NB Sum	1192	23.5	C	1228	39.6	D	1288	45.3585	D
Composit		33.4	C		34	C		39.71328	D
Int # 91 - Route 303/Mall Exit									
EB Sum	101	36.3	D	43	30.9	C	58	32.0457	C
WB Sum									
SB Sum	1192	23.5	C	1228	39.6	D	1288	45.3585	D
NB Sum	335	10.5	B	428	11.8	B	507	10.81275	B
Composit		21.6	C		32.4	C		35.49372	D
Int # 107 - Route 9W/High									
EB Sum	587	9.8	A	443	8.4	A	346	6.63444	A
WB Sum	426	38.4	D	435	21.3	C	508	27.00132	C
SB Sum	94	15.0	B	96	12.4	B	118	14.5968	B
NB Sum	499	9.4	A	643	9.2	A	715	9.44345	A
Composit		24.6	C		15	B		17.88413	B

Table C81 – Rockland County – Intersection Analysis – PM (cont)

	Existing 2010			NB 2017			NB 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Int # 116 - Main St/Franklin St									
EB Sum	285	15.2	B	275	16.6	B	259	14.9391	B
WB Sum	201	11.4	B	198	9.3	A	222	10.42077	B
SB Sum	60	14.5	B	60	11.4	B	71	13.785	B
NB Sum	127	10.9	B	96	12.4	B	142	15.9646	B
Composit		13.1	B		13.2	B		13.58399	B
Int # 120 - Main St/Broadway									
EB Sum	243	14.5	B	259	13.3	B	254	11.8128	B
WB Sum	113	14.0	B	114	11.1	B	117	11.3214	B
SB Sum	97	15.0	B	139	16.1	B	143	18.01031	B
NB Sum	127	11.8	B	140	13.4	B	177	16.8928	B
Composit		13.9	B		13.5	B		14.31339	B
EB 11 Ramps & Rt 59									
(New Intersection)									
EB Sum									
WB Sum									
SB Sum									
Composit									
Airmont RD/I-287 EB Ramps									
EB	451	16.9	B	459	33.0	C	798.3333333	47.53368	D
NB	1239	18.6	B	1290	18.0	B	1488.666667	42.8307	D
SB	1192	17.3	B	1287	10.5	B	1125.666667	38.91616	D
Composit		17.8	B		17	B		36.2	D
Airmont RD/I-287 wB Ramps									
WB	1100	25.8	C	1155	24.5	C	1240.333333	79.2781	E
NB	807	20.1	C	857	19.3	B	1102.666667	21.19383	C
SB	741	29.3	C	901	34.9	C	874	31.91109	C
Composit		25.1	C		26.2	C		46.5	D

Table C82 – Westchester County – Intersection Analysis – AM

	AM - 2010			NB 2017			NB 2047		
LOS	Volume	Sum Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
S Broadway and 119									
NB	1353	21.7	C	1306	18.4	B	1252	41.7	D
SB	846	19.5	B	832	19.7	B	898	22.9	C
EB	135	53.8	D	295	73.6	E	235	56.6	E
WB	613	19.4	B	832	21.5	C	641	51.6	D
Composit		22.1	C		24.5	C		39.4	D
S Broadway/I- 287 EB ramps Int 9									
NB	548	102.2	F	468	164.1	F	430	380.9	F
SB	1095	21.2	C	1105	33.3	C	1207	45.0	D
EB	0	0.0	A	0	0.0	A	0	0.0	A
WB	1243	12.0	B	1380	12.7	B	1349	10.3	B
Composit		32.6	C		44.4	D	2986	77.7	E
119/I-287 WB ramps Int 9									
NB	557	38.5	D	704	50.2	D	560	62.3	E
SB	16	0.0	A	16	0.0	A	16	0.0	A
EB	517	29.2	C	726	33.5	C	497	27.9	C
WB	469	24.8	C	645	25.3	C	468	24.7	C
Composit		30.9	C		36.3	D		39.1	D
119/Benedict Ave									
SB	516	16.8	B	682	18.4	B	868	44.4	D
EB	791	22.3	C	898	22.0	C	886	22.4	C
WB	985	67.1	E	1039	46.8	D	906	64.5	E
Composit		40.3	D		30.9	C		43.9	D
119/Taxter Rd									
NB	1079	44.4	D	1167	82.8	F	1319	149.6	F
EB	1557	33.1	C	1579	34.6	C	1670	53.5	D
WB	868	9.1	A	839	8.8	A	1031	9.0	A
Composit		30.6	C		44.2	D	4020	73.7	E
119/S Stone Ave									
NB	644	58.4	E	630	35.5	D	656	50.6	D
SB	587	28.1	C	603	25.9	C	648	26.4	C
EB	2028	84.8	F	2095	74.4	E	2115	85.5	F
WB	909	41.6	D	1074	41.4	D	955	38.8	D
Composit		63.3	E		54.2	D	3718	61.3	E
119 Ramp EB/W Hartsdale Ave									
NB	641	163.3	F	542	183.5	F	674	211.5	F
SB	685	6.4	A	644	7.1	A	678	6.6	A
EB	489	62.6	E	506	69.2	E	522	54.0	D
Composit		77.0	E		82.2	F	1874	93.5	F
119 Ramp WB/W Hartsdale Ave									
NB	830	26.1	C	790	24.5	C	892	24.3	C
SB	706	23.7	C	622	20.1	C	761	24.1	C
WB	580	29.5	C	583	17.8	B	590	21.6	C
Composit		26.0	C		21.2	C		23.5	C
119/Aquaeduct Rd									
NB	1087	11.6	B	1059	51.7	D	1107	75.4	E
SB	1145	19.9	B	1123	21.5	C	1048	26.4	C
EB	2128	81.1	F	2069	57.5	E	1975	58.1	E
WB	1044	36.0	D	1099	33.7	C	1238	38.5	D
Composit		45.4	D		43.9	D		50.9	D
119/N Central Ave									
NB	360	330.6	F	557	217.4	F	382	352.7	F
SB	769	47.8	D	792	43.8	D	799	45.5	D
EB (119)	2052	27.6	C	1879	32.7	C	1936	35.5	D
WB (119)	832	5.2	A	798	5.1	A	930	7.8	A
Composit		54.0	D		55.0	D	4047	61.1	E
Bronx River PKWY/N Central Ave									
NB	151	8.8	A	88	10.5	B	192	26.9	C
EB	1370	148.9	F	1871	41.6	D	1484	202.2	F
WB	778	0.0	A	831	0.0	A	726	5.8	A
Composit		89.3	F		28.3	C		128.8	F
119/Main Ave/Bank									
NB	964	33.8	C	1003	26.0	C	1102	38.1	D
EB	3970	34.9	C	4118	34.9	C	3794	61.8	E
Composit		34.7	C		33.1	C		56.4	E

Table C82 – Westchester County – Intersection Analysis – AM (cont)

		AM - 2010		NB 2017			NB 2047		
LOS	Volume	Sum Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Hamilton St/ Bank									
NB	1077	13.1	B	1095	11.1	B	1178	17.3	B
WB	1347	15.3	B	1215	13.7	B	1356	15.8	B
Composit		14.3 B			12.4 B			16.5 B	
E Post Rd/Mamroneck									
NB	561	5.0	A	484	5.6	A	660	7.4	A
SB	127	24.4	C	120	25.3	C	217	42.2	D
EB	627	30.0	C	729	21.7	C	576	91.7	F
WB	255	28.2	C	319	26.7	C	384	26.4	C
Composit		20.4 C			18.2 B		1837	41.9 D	
Westchester Ave/Bloomindale Rd *									
NB	388	32.7	C	370	34.2	C	384	35.7	D
SB	603	16.4	B	592	15.3	B	599	15.0	B
EB	805	55.0	D	1013	54.3	D	943	48.7	D
WB	1777	21.3	C	1554	19.1	B	1662	19.7	B
Composit		29.3 C			30.2 C			28.3 C	
I-287 Int 8W/Bloomindale Rd *									
NB	85	37.9	D	51	31.8	C	50	41.9	D
SB	705	29.1	C	598	31.4	C	636	33.4	C
EB	250	43.4	D	350	108.0	F	294	66.7	E
WB	1582	24.7	C	1692	21.2	C	1887	25.4	C
Composit		28.1 C			35.0 C			31.7 C	
Westchester Ave EB/ White Plains Rd									
NB	640	29.6	C	958	33.3	C	1125	46.3	D
SB	222	22.2	C	754	30.7	C	787	43.1	D
EB	1154	19.4		921	21.4	C	1126	22.4	C
Composit		23.0			28.4 C			36.6 D	
Westchester Ave WB/ White Plains Rd									
NB	173	35.4	D	817	16.5	B	1040	20.1	C
SBWB	929	33.7	C	571	24.3	C	550	25.6	C
WB	1216	55.9		571	24.5	C	550	26.2	C
Composit		45.4			21.1 C			23.1 C	
Bryant Ave/ North St									
NB	838	46.5	D	946	47.6	D	1145	57.0	E
SB	588	30.4	C	524	25.6	C	621	30.3	C
EB	160	12.2	B	129	8.2	A	209	18.7	B
WB	420	14.8	B	469	16.0	B	645	20.0	B
Composit		32.4 C			32.4 C			38.5 D	
Westchester AV E/Kenilworth RD									
NB	147	0.0	A	183	0.0	A	173	0.0	A
SB	300	3.6	A	217	3.0	A	237	3.2	A
EB	240	4.1	A	374	2.7	A	440	2.6	A
Composit		3.0 A			21.1 A			2.2 A	
Westechester AV W/Kenilworth Rd									
NB	151	4.2	A	162	4.1	A	162	4.1	A
SB	146	2.2	A	70	1.6	A	125	2.6	A
WB	746	0.0	A	1106	0.0	A	1220	0.0	A
Composit		0.9 A			0.6 A			0.7 A	
Westchester Ave E/ Webb									
NB	119	0.6	A	180	0.4	A	164	0.1	A
EB	624	1.1	A	496	1.4	A	588	1.2	A
Composit		1.0 A			1.1 A			1 A	
Polly Park Rd/Purchase St									
NB	295	9.4	A	237	10.9	B	291	10.0	B
SB	388	12.6	B	431	12.2	B	470	14.7	B
EB	52	15.3	B	36	8.0	A	38	12.1	B
WB	60	16.0	B	62	17.7	B	74	14.8	B
Composit		11.8 B			12.0 B			13 B	
Bowman Ave/Webb									
NB	278	11.9	B	362	9.4	A	404	10.4	B
SB	111	16.6	B	92	18.9	B	73	13.4	B
EB	176	15.8	B	155	13.6	B	174	15.6	B
WB	51	8.8	A	42	12.1	B	58	8.5	A
Composit		13.6 B			11.9 B			11.8 B	
Westchester Ave/Ridge ST									
NB	371	15.6	B	296	16.2	B	291	17.2	B
SB	499	83.7	F	412	103.2	F	642	48.9	D
EB	806	48.1	D	610	11.0	B	679	12.8	B
WB	778	16.7	B	708	18.1	B	793	16.1	B
Composit		40.5 D			33.0 C			24 C	

Table C82 – Westchester County – Intersection Analysis – AM (cont)

	AM - 2010			NB 2017			NB 2047		
LOS	Volume	Sum Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Bowman Ave/S Ridge St									
NB	425	26.9	C	319	28.5	C	325	25.0	C
SB	586	35.0	C	604	39.3	D	689	35.7	D
EB	350	27.9	C	348	29.5	C	335	29.9	C
WB	168	27.1	C	265	27.3	C	216	29.7	C
Composit		30.2	C		32.8	C		31.4	C
Ochard									
NB	876	28.5	C	777	31.0	C	876	34.0	C
SB	1380	16.2	B	1435	15.1	B	1721	31.0	C
WB	619	22.6	C	806	23.2	C	838	24.8	C
Composit		21.3	C		21.4	C		30.3	C
Main /MLK									
NB	1162	42.3	D	1097	30.6	C	1132	45.1	D
EB	1912	7.8	A	1847	6.8	A	1623	27.7	C
Composit		20.8	C		15.7	B		34.8	C
Hamilton/Cottage PL									
SB	367	59.8	E	377	62.1	E	389	70.4	E
EB	395	8.2	A	337	8.0	A	612	8.8	A
WB	926	17.8	B	975	19.8	B	1038	27.5	C
Composit		24.7	C		26.9	C		30.1	C
I-287 EB/Rt 100A									
EB	747	20.80209	C	559	19.0	B	735	31.1	C
NB	1009	6.74007	A	1216	8.4	A	1343	8.4	A
SB	834	19.99932	B	457	6.7	A	568	8.9	A
Composit		15.0653763	B		10.7	B		14.8	B
I-287 WB/Rt 100A									
WB	677	32.6498	C	428	8.4	A	500	9.7	A
NB	754	12.41171	B	619	15.8	B	738	17.2	B
SB	941	9.507786	A	818	9.1	A	910	9.5	A
Composit		17.0359066	B		11.1	B		12.2	B
Exit 8A Off Ramp/Rt 119									
EB	475	21.599844	C	1170	57.2	E	1351	78.3	E
WB	454	32.47994	C	653	52.8	D	622	54.4	D
NB	187	11.7481	B	95	16.4	B	101	16.9	B
SB	902	3.927759	A	617	10.8	B	939	11.8	B
Composit		15.2356551	B		43.2	D		50.6	D
Exit 2 WB Off Ramps/Rt 9A									
WB	886	41.6298	D	1182	9.4	A	1312	10.3	B
SB	961	24.85	C	607	26.3	C	668	26.9	C
NB	637	4.05991	A	523	27.9	C	496	26.7	C
Composit		25.5036294	C		18.0	B		18.1	B
Exit 2 EB On ramp/Rt 9A									
NB	1198	11.28167	B	818	10.6	B	789	9.6	A
SB	846	4.60895	A	929	5.0	A	973	5.1	A
Composit		8.51986906	A		7.6	A		7.1	A
Exit 5 ramps/Rt 9A									
EB	1040	0	A	1119	24.3	C	1163	22.1	C
WB	2142	3.36282	A	1804	5.0	A	2030	4.9	A
NB	822	15.835896	B	964	2.0	A	826	1.2	A
Composit		5.05001672	A		9.8	A		9.1	A
Exit 6 EB ramps/Rt 22									
EB	816	9.06699	A	1027	14.1	B	1106	26.2	C
NB	970	16.2443	B	661	11.6	B	927	13.3	B
SB	834	12.39892	B	975	9.7	A	1417	13.7	B
Composit		12.7848604	B		11.9	B		17.6	B
Exit 6 WB ramps/Rt 22									
WB	801	17.31654	B	820	17.4	B	851	17.8	B
NB	32	59.79338	E	2	9.0	A	2	15.2	B
SB	280	43.98695	D	137	27.3	C	123	27.4	C
Composit		25.247334	C		18.8	B		19	B
Exit 9S EB ramps<Westchester Ave									
EB - i-287 ramp	1531	16.3775255	B	1357	9.9	A	1351	9.5	A
EB Westchetser Ave	1468	25.47374	C	173	23.6	C	187	21.2	C
Composit		20.8300907	C		11.5	B		10.9	B
I-287 EB Exit ramps/Boston Post Rd									
EB	678	21.3555	C	914	24.6	C	819	24.0	C
NB	124	38.02464	D	66	29.6	C	103	36.5	D
SB	357	19.43885	B	263	13.6	B	283	12.2	B
Composit		22.5485365	C		22.5	C		22.3	C

Table C83 – Westchester County – Intersection Analysis – PM

	NB 2010			NB 2017			NB 2047		
LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
S Broadway and 119									
NB	1365	52.8	D	1372	69.4	E	1359	43.3	D
SB	1070	28.5	C	900	31.4	C	841	35.3	D
EB	141	34.8	C	121	31.9	C	171	34.6	C
WB	743	14.5	B	596	15.4	B	1098	16.9	B
Composit		35.6	D		45.7	D		32.6	C
S Broadway/I-287 EB ramps Int 9									
NB	1189	47.4	D	1132	51.5	D	1067	81.4	F
SB	1363	7.6	A	1137	8.0	A	1273	15.4	B
EB	0	0.0	A	0	0.0	A	0	0.0	A
WB	476	21.1	C	490	20.2	C	557	33.1	C
Composit		25.4	C		28	C		43.1	D
119/I-287 WB ramps Int 9									
NB	320	25.0	C	197	27.8	C	429	28.3	C
SB	13	0.0	A	13	0.0	A	16	0.0	A
EB	582	36.3	D	588	33.4	C	705	33.0	C
WB	667	12.0	B	640	14.4	B	982	18.5	B
Composit		23.4	C		23.9	C		25.1	C
119/Benedict Ave									
SB	277	34.0	C	294	34.6	C	275	39.7	D
EB	604	27.3	C	573	27.3	C	645	28.4	C
WB	711	22.7	C	655	21.7	C	908	25.9	C
Composit		26.4	C		26.3	C		28.9	C
119/Taxter Rd									
NB	691	33.9	C	675	55.2	E	606	196.5	F
EB	787	61.5	E	846	65.7	E	780	110.1	F
WB	1173	10.1	B	1208	11.2	B	1507	9.9	A
Composit		31.5	C		39.0	D		76.0	E
119/S Stone Ave									
NB	767	87.1	F	751	101.5	F	779	93.5	F
SB	696	30.7	C	770	33.5	C	766	31.1	C
EB	1394	31.2	C	1363	45.3	D	1339	34.6	C
WB	813	32.2	C	770	33.4	C	942	37.1	D
Composit		43.0	D		51.9	D		46.5	D
119 Ramp EB/W Hartsdale Ave									
NB	598	16.3	B	626	26.6	C	699	28.7	C
SB	820	3.7	A	957	4.4	A	1041	4.8	A
EB	387	32.0	C	413	33.1	C	441	41.1	D
Composit		13.9	B		17.3	B		19.8	B
119 Ramp WB/W Hartsdale Ave									
NB	706	17.6	B	789	19.6	B	820	24.2	C
SB	1049	29.9	C	1101	29.8	C	1250	31.6	C
WB	583	29.8	C	597	29.8	C	664	36.5	D
Composit		26.2	C		26.6	C		30.6	C
119/Aquaeduct Rd									
NB	790	4.3	A	828	4.9	A	828	5.0	A
SB	580	39.6	D	687	66.0	E	650	49.4	D
EB	1847	38.6	D	1997	40.6	D	1930	41.3	D
WB	1666	45.4	D	1728	52.8	D	1851	57.4	E
Composit		35.5	D		42.3	D		42.2	D
119/N Central Ave									
NB	647	38.4	D	696	35.9	D	735	39.1	D
SB	1254	17.5	B	1194	21.0	C	1233	21.6	C
EB (119)	1325	24.1	C	1459	25.9	C	1375	22.5	C
WB (119)	2025	34.4	C	2370	49.3	D	2488	57.2	E
Composit		28.3	C		35.8	D		39.2	D
Bronx River PKWY/N Central Ave									
NB	327	37.8	D	262	42.1	D	254	39.6	D
EB	1431	38.4	D	1281	72.3	E	1378	109.6	F
WB	1289	18.4	B	1325	28.0	C	1357	28.5	C
Composit		29.8	C		49.1	D		66.9	E
119/Main Ave/Bank									
NB	1742	29.2	C	1136	23.2	C	1093	26.4	C
EB	2831	35.7	D	2967	42.1	D	2757	62.6	E
Composit		33.2	C		36.9	D		52.3	D
Hamilton St/ Bank									
NB	1802	16.2	B	1274	11.6	B	1257	13.2	B
WB	2373	11.1	B	2889	8.8	A	2778	9.4	A
Composit		13.3	B		9.7	A		10.6	B

Table C83 – Westchester County – Intersection Analysis – PM (cont)

	NB 2010			NB 2017			NB 2047		
LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
E Post Rd/Mamroneck									
NB	798	45.9	D	450	28.2	C	483	34.6	C
SB	654	61.2	E	466	57.3	E	575	84.1	F
EB	442	56.1	E	633	25.0	C	831	37.9	D
WB	605	18.5	B	597	24.0	C	485	21.9	C
Composit		45.1	D		32.4	C		45.2	D
Westchester Ave/Bloomindale Rd *									
NB	582	38.6	D	421	31.4	C	615	28.0	C
SB	166	29.0	C	142	25.7	C	251	28.7	C
EB	649	24.1	C	986	35.6	D	996	32.6	C
WB	1477	19.9	B	1272	20.9	C	1533	21.1	C
Composit		25.1	C		27.8	C		26.3	C
I-287 Int 8W/Bloomindale Rd *									
NB	934	17.4	B	927	54.2	D	901	20.0	B
SB	607	37.0	D	661	33.8	C	651	33.6	C
EB	340	54.9	D	376	75.8	E	375	62.4	E
WB	1215	27.0	C	892	32.3	C	1296	45.1	D
Composit		29.1	C		45.5	D		37.8	D
Westchester Ave EB/ White Plains Rd									
NB	183	24.6	C	608	52.4	D	730	78.4	E
SB	425	24.2	C	851	102.3	F	828	83.1	F
EB	1154	19.2	B	920	13.7	B	1178	13.9	B
Composit		20.9	C		55.3	E		52.1	D
Westchester Ave WB/ White Plains Rd									
NB	173	38.5	D	573	12.9	B	557	13.7	B
SBWB	929	29.3	C	874	53.7	D	880	44.2	D
WB	929	24.7	C	874	36.4	D	880	32.0	C
Composit		28.0	C		37.1	D		32.2	C
Bryant Ave/ North St									
NB	681	32.3	C	720	34.4	C	913	38.9	D
SB	758	27.4	C	682	33.2	C	856	30.1	C
EB	477	21.4	C	408	30.4	C	418	23.8	C
WB	999	8.6	A	745	20.9	C	986	9.2	A
Composit		21.1	C		29.5	C		25.3	C
Westchester AV E/Kenilworth RD									
NB	249	0.0	A	359	0.0	A	506	0.7	A
SB	196	3.9	A	200	3.3	A	265	4.8	A
EB	927	2.0	A	376	0.9	A	925	2.1	A
Composit		1.9	A		1.1	A		2.1	A
Westechester AV W/Kenilworth Rd									
NB	304	5.9	A	268	6.8	A	395	14.2	B
SB	128	1.9	A	160	1.9	A	162	4.5	A
WB	943	0.0	A	960	0.0	A	1363	0.0	A
Composit		1.5	A		1.5	A		3.3	A
Westchester Ave E/ Webb									
NB	90	0.0	A	112	1.0	A	86	1.4	A
EB	986	1.2	A	1003	1.2	A	1466	1.6	A
Composit		1.1	A		1.2	A		1.6	A
Polly Park Rd/Purchase St									
NB	159	34.6	C	135	22.7	C	155	59.9	E
SB	323	7.9	A	430	8.8	A	479	10.1	B
EB	110	10.3	B	113	11.6	B	166	10.4	B
WB	416	91.7	F	434	56.4	E	257	43.4	D
Composit		47.0	D		29.3	C		25.5	C
Bowman Ave/Webb									
NB	184	31.6	C	311	13.0	B	330	14.2	B
SB	227	19.6	B	218	16.7	B	263	32.1	C
EB	59	13.7	B	85	18.4	B	47	12.5	B
WB	389	24.8	C	346	26.3	C	255	27.2	C
Composit		24.1	C		19.1	B		23.1	C
Westchester Ave/Ridge ST									
NB	341	21.2	C	357	25.8	C	964	61.5	E
SB	376	124.6	F	171	242.5	F	36	542.6	F
EB	747	9.0	A	855	9.6	A	1122	93.7	F
WB	238	23.3	C	344	18.5	B	419	23.5	C
Composit		39.0	D		37.8	D		76.3	E

Table C83 – Westchester County – Intersection Analysis – PM (cont)

LOS	NB 2010			NB 2017			NB 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Bowman Ave/S Ridge St									
NB	693	33.1	C	715	37.6	D	803	56.7	E
SB	463	31.6	C	285	30.6	C	111	32.0	C
EB	341	17.1	B	321	17.2	B	406	18.6	B
WB	212	16.4	B	250	21.2	C	228	20.5	C
Composit		27.4	C		29.5	C		39.6	D
Ochard									
NB	925	41.1	D	983	44.6	D	990	44.0	D
SB	1010	14.4	B	1033	18.7	B	1148	18.3	B
WB	828	34.2	C	698	32.0	C	727	33.9	C
Composit		29.3	C		31.5	C		31.1	C
Main /MLK									
NB	1312	41.2	D	1961	25.7	C	1633	35.1	D
EB	1605	14.7	B	1281	15.8	B	1255	22.0	C
Composit		26.6	C		21.8	C		29.4	C
Hamilton/Cottage PL									
SB	237	39.8	D	284	34.7	C	292	40.6	D
EB	648	8.3	A	583	8.8	A	467	13.5	B
WB	1344	15.2	B	1297	15.8	B	1591	14.6	B
Composit		15.8	B		16.4	B		17.6	B
I-287 EB/Rt 100A									
EB	747	20.80209	C	674	16.9	B	813	18.7	B
NB	1009	6.74007	A	1070	8.4	A	1131	8.7	A
SB	834	19.99932	B	888	20.2	C	951	24.4	C
Composit		15.06538	B		14.5	B		16.7	B
I-287 WB/Rt 100A									
WB	677	32.6498	C	726	55.6	E	785	57.7	E
NB	754	12.41171	B	695	10.1	B	823	11.6	B
SB	941	9.507786	A	866	15.8	B	946	18.1	B
Composit		17.03591	B		26.7	C		28.2	C
Exit 8A Off Ramp/Rt 119									
EB	475	21.59984	C	501	21.7	C	480	24.3	C
WB	454	32.47994	C	419	33.8	C	589	35.6	D
NB	187	11.7481	B	198	14.7	B	233	17.5	B
SB	902	3.927759	A	886	3.4	A	1136	13.8	B
Composit		15.23566	B		15.5	B		21.5	C
Exit 2 WB Off Ramps/Rt 9A									
WB	886	41.6298	D	856	43.5	D	793	27.4	C
SB	961	24.85	C	1074	25.9	C	1188	26.2	C
NB	637	4.05991	A	658	5.4	A	622	4.7	A
Composit		25.50363	C		26.5	C		21.4	C
Exit 2 EB On ramp/Rt 9A									
NB	1198	11.28167	B	1197	11.0	B	1207	11.8	B
SB	846	4.60895	A	919	4.4	A	920	4.4	A
Composit		8.519869	A					8.6	A
Exit 5 ramps/Rt 9A									
EB	1041	7.75361	A	1124	8.1	A	1126	8.2	A
WB	2141	4.524783	A	2045	3.9	A	2315	4.3	A
NB	2141	15.6916	B	874	16.2	B	791	13.1	B
Composit		9.647714	A		7.7	A		7.0	A
Exit 6 EB ramps/Rt 22									
EB	816	9.06699	A	837	9.5	A	743	11.0	B
NB	970	16.2443	B	949	19.6	B	982	18.8	B
SB	834	12.39892	B	732	11.9	B	857	12.6	B
Composit		12.78486	B		14.0	B		14.5	B
Exit 6 WB ramps/Rt 22									
WB	801	17.31654	B	664	16.7	B	817	17.5	B
NB	32	59.79338	E	65	33.7	C	21	41.2	D
SB	280	43.98695	D	319	44.3	D	362	56.4	E
Composit		25.24733	C		26.2	C		29.6	C
Exit 9S EB ramps<Westchester Ave									
EB - i-287 ramp	1531	16.37753	B	1691	17.3	B	1783	30.0	C
EB Westchetser Ave	1468	25.47374	C	1191	22.3	C	1456	25.5	C
Composit		20.83009	C		19.3	B		28.0	C
I-287 EB Exit ramps/Boston Post Rd									
EB	678	21.3555	C	644	24.0	C	518	24.5	C
NB	124	38.02464	D	170	36.7	D	145	31.2	C
SB	357	19.43885	B	372	17.3	B	458	18.9	B
Composit		22.54854	C		23.7	C		23.1	C

2017 and 2047 Highway Build (A1) & Highway Build + HOV (A2) Results

2017 and 2047 Highway Build (A1) & Highway Build + HOV (A2) Results

Table C84 – Rockland County – Intersection Analysis – AM

	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Airmont Rd and Rt 59												
EB SUM	833	44.5	D	942	34.8	C	904	31.2	C	977	40.3	D
WB Sum	571	39.9	D	567	231.2	F	515	144.2	F	530	255.0	F
SB Sum	1181	28.3	C	1307	21.8	C	1008.5	23.1	C	1162	28.3	C
NB Sum	400	19.0	B	505	41.5	D	458	47.9	D	476	45.8	D
Composit		33.8	C		64.2	E		51.2	D		72.9	E
College road ad Rt 59												
EB SUM	1063	41.1	D	1152	43.7	D	948	29.2	C	1123	50.3	D
WB Sum	567	15.9	B	619	14.3	B	539	13.7	B	696	15.1	B
SB Sum	193	7.9	A	239	15.4	B	163	8.5	A	253	14.5	B
NB Sum	273	24.8	C	341	67.0	E	274.5	22.5	C	313	34.6	C
Composit		29.1	C		36.5	D		22.1	C		34.1	C
Rt 306 & Rt 59												
EB SUM	745	65.0	E	814	74.5	E	736	55.3	E	819	87.7	F
WB Sum	733	83.0	F	763	78.1	E	722	61.4	E	739	156.4	F
SB Sum	442	27.9	C	519	27.1	C	439	26.5	C	591.5	29.9	C
NB Sum	256	20.9	C	295	26.7	C	259	20.0	B	352	28.5	C
Composit		58.3	E		59.5	E		47.3	D		86.0	F
Main St(Rt 59) & Rt 9W												
EB SUM	580	12.3	B	1052	21.5	C	568	6.6	A	604	7.1	A
WB Sum	257	20.4	C	314	20.3	C	252	20.5	C	297.5	18.9	B
SB Sum	678	33.8	C	649	57.7	E	724	50.7	D	588	46.7	D
NB Sum	251	44.4	D	296	54.6	D	266	40.9	D	345	45.2	D
		26.3	C		35.7	D		31.2	C		28.9	C
Chestnut & Rt 59												
EB SUM	357	15.4	B	523	38.0	D	330	14.0	B	543	32.9	C
WB Sum	237	15.2	B	293	20.4	C	233	15.4	B	303.5	22.3	C
SB Sum	189	10.1	B	273	12.4	B	187	10.3	B	205	12.5	B
NB Sum	44	6.4	A	55	9.0	A	44	2.4	A	52.5	5.8	A
Composit		13.6	B		26.0	C		12.9	B		24.9	C
NewClarkstown Rd & Rt 59												
EB SUM	2183	11.3	B	2457	14.3	B	2541	16.5	B	2981	17.3	B
WB Sum	881	24.7	C	1058	29.0	C	1180	18.2	B	1310	24.1	C
SB Sum	929	41.2	D	919	35.9	D	995	38.6	D	888	37.2	D
Composit		24.9	C		25.3	C		23.5	C		24.5	C
Pascack Rd Bypass & Rt 59												
EB SUM	1436	34.8	C	1541	32.7	C	1654	33.6	C	1828	31.8	C
WB Sum	791	13.6	B	1011	20.2	C	1416	18.2	B	1541.5	28.0	C
SB Sum	643	16.8	B	658	18.1	B	645	16.4	B	730.5	17.7	B
NB Sum	351	30.4	C	487	30.2	C	148	27.6	C	230	31.4	C
Composit		25.5	C		26.4	C		24.9	C		28.0	C
Grand View Ave & Rt 59												
EB SUM	1416	40.0	D	1540	40.9	D	1628	46.2	D	1872.5	47.7	D
WB Sum	1140	49.0	D	1305	48.9	D	1176	59.4	E	1316.5	70.7	E
SB Sum	790	35.4	D	970	35.6	D	1459	26.2	C	1577	34.1	C
NB Sum	267	82.2	F	276	68.1	E	253	128.9	F	301	182.5	F
Composit		45.0	C		44.1	D		47.8	D		57.4	E
Co Rd 33 (N Middletown Road) & Rt 59												
EB SUM	1308	31.6	C	1525	36.8	D	1197	23.0	C	1518	32.2	C
WB Sum	455	21.5	C	527	25.2	C	467	24.1	C	514.3333	22.3	C
SB Sum	582	34.1	C	697	38.1	D	624	35.3	D	691	33.9	C
NB Sum	175	35.7	D	205	40.5	D	166	41.6	D	223.5	38.7	D
Composit		30.6	C		35.3	D		27.6	C		31.4	C
Smith St & Rt 59												
EB SUM	832	22.4	C	975	24.0	C	677	19.5	B	784.6667	22.1	C
WB Sum	1112	32.5	C	1189	37.1	D	1128	35.4	D	1202.5	40.0	D
SB Sum	355	288.2	F	367	285.5	F	377	216.3	F	379.5	276.3	F
NB Sum	357	37.2	D	392	39.2	D	389	44.6	D	433.5	45.2	D
Composit		64.1	E		64.2	E		59.1	E		67.8	E
Mountainview Ave & Rt 59												
EB SUM	556	19.8	B	1002	19.5	B	573	19.4	B	582	23.7	C
WB Sum	841	6.8	A	788	6.2	A	866	4.9	A	778.5	6.7	A
SB1 Sum	258	49.9	D	235	46.6	D	244	45.1	D	238	45.8	D
SB2 Sum												
NB Sum	40	38.8	D	211	33.1	C	46	43.8	D	54.5	36.6	D
Composit		10.8	B		14.0	B		10.1	B		12.7	B

Table C84 – Rockland County – Intersection Analysis – AM (cont)

	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Spook Rock & Airmont												
EB SUM	292	6.3	A	326	7.3	A	203	6.9	A	214	6.3	A
WB Sum	87	31.1	C	126	31.1	C	102	29.4	C	130	34.0	C
SB Sum	626	27.3	C	791	251.1	F	630	32.3	C	804	63.3	E
NB Sum	114	20.1	C	124	25.6	C	95	13.9	B	150	23.1	C
Composit		21.4	C		152.2	F		25.3	C		46.3	D
Int # 8 - Orange Avenue/Lafayette Avenue(Rt 59)												
EB Sum	53	40.3	D	68	47.4	D	53	42.6	D	66	44.1	D
WB Sum	82	24.0	C	90	33.8	C	84	18.3	B	119	15.7	B
SB Sum	968	8.2	A	1051	19.4	B	989	9.3	A	1074.5	17.3	B
NB Sum	239	70.8	E	320	143.7	F	210	34.0	C	267	158.8	F
Composit		21.6	C		47.5	D		15.1	B		43.1	D
Int # 27 - Airmont Road/Rella Blvd/Montebello Road												
EB Sum	446	0.6	A	480	2.2	A	527	1.6	A	565.5	3.8	A
SB Sum	746	12.7	B	844	20.6	C	674	17.2	B	690	22.0	C
NB Sum		2.8	A		1.9	A		1.9	A		2.4	A
Composit		6.5	A		9.8	A		7.9	A		9.7	A
Int # 46 - Route 59/Route 45												
EB Sum	784	33.1	C	867	70.9	E	817	34.9	C	976.5	76.0	E
WB Sum	729	17.4	B	797	20.8	C	946	39.2	D	988	53.0	D
SB Sum	621	39.0	D	682	160.8	F	826	48.1	D	907.5	139.6	F
NB Sum	402	27.8	C	501	38.5	D	345	32.1	C	443.5	39.1	D
Composit		29.2	C		72.7	E		39.7	D		81.6	F
Int # 51 - Route 45/Old Nyack Tpke												
EB Sum	164	31.4	C	226	29.4	C	161	28.5	C	194.5	26.6	C
WB Sum	10	18.0	B	14	19.0	B	10	10.0	A	4	12.7	B
SB Sum	196	26.3	C	211	28.7	C	248	24.6	C	277	24.5	C
NB Sum		18.8	B		14.6	B		20.1	C		19.0	B
Composit		25.4	C		24.4	C		24.4	C		23.5	C
Int # 65 - Route 306/Bardonia Rd												
EB Sum	122	30.2	C	139	26.5	C	52	26.2	C	86	33.7	C
WB Sum	147	22.1	C	165	16.9	B	126	23.4	C	171	18.3	B
SB Sum	1280	19.5	B	1569	25.1	C	1282	20.3	C	1443.5	22.1	C
NB Sum	541	14.1	B	669	16.1	B	594	15.8	B	742.5	15.5	B
Composit		18.9	B		22.3	C		19.3	B		20.2	C
Int # 73 - Route 304/West Nyack Rd												
EB Sum	281	31.1	C	365	55.5	E	370	32.1	C	448	180.0	F
WB Sum	86	12.2	B	133	16.4	B	47	6.9	A	106.5	9.8	A
SB Sum	1314	25.5	C	1541	42.6	D	1314	30.0	C	1419	34.7	C
NB Sum	410	19.2	B	451	18.8	B	372	18.1	B	474.5	20.4	C
Composit		24.5	C		38.8	D		27.7	C		57.5	E
Int # 93 - Route 303/Snake Hill Rd												
EB Sum	499	23.3	C	584	22.4	C	555	20.9	C	650	26.2	C
WB Sum		#N/A			#N/A			#N/A			#N/A	
SB Sum	1768	13.8	B	1842	18.9	B	1771	13.7	B	1770.5	16.7	B
NB Sum	412	36.1	D	569	37.0	D	456	33.7	C	513.5	35.7	D
Composit		19.0	B		23.1	C		18.4	B		22.1	C
Int #92 - Route 303/Int #12 Off Ramp												
EB Sum	378	25.1	C	376	28.5	C	326	29.8	C	358	29.1	C
WB Sum												
SB Sum	502	19.2	B	650	17.5	B	623	18.3	B	672	18.1	B
NB Sum	332	30.2	C	606	33.2	C	396	29.6	C	515.5	48.1	D
Composit		24.0	C		25.8	C		24.4	C		30.7	C
Int # 91 - Route 303/Mall Exit												
EB Sum		4.7	A		26.2	C		#N/A			#N/A	
WB Sum												
SB Sum	332	30.2	C	606	33.2	C	396	29.6	C	515.5	48.1	D
NB Sum	658	16.8	B	803	18.0	B	745	21.4	C	802.5	17.1	B
Composit		21.3	C		24.5	C		24.2	C		29.3	C
Int # 107 - Route 9W/High												
EB Sum	180	22.9	C	187	18.8	B	160	24.7	C	170	17.2	B
WB Sum	356	70.3	E	384	90.4	F	420	105.8	F	333	88.6	F
SB Sum	721	30.3	C	813	148.9	F	724	48.1	D	759	81.9	F
NB Sum	501	11.0	B	782	19.6	B	475	12.5	B	583	10.7	B
Composit		32.2	C		80.6	F		50.1	D		54.6	D

Table C84 – Rockland County – Intersection Analysis – AM (cont)

	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Int # 116 - Main St/Franklin St												
EB Sum	213	12.4	B	396	16.4	B	246	14.6	B	259.5	13.9	B
WB Sum	447	13.3	B	529	14.5	B	472	12.8	B	498.6667	13.6	B
SB Sum	165	16.1	B	193	17.1	B	121	15.3	B	210	21.5	C
NB Sum	156	17.1	B	124	12.4	B	107	13.6	B	149	12.7	B
Composit		14.2	B		15.3	B		13.7	B		15.0	B
Int # 120 - Main St/Broadway												
EB Sum	98	10.4	B	254	12.4	B	141	12.2	B	165	11.2	B
WB Sum	135	16.2	B	140	16.6	B	122	15.3	B	145	17.8	B
SB Sum	266	10.5	B	337	14.7	B	292	14.0	B	342.5	16.4	B
NB Sum	133	15.2	B	197	18.7	B	199	17.5	B	200	18.6	B
Composit		12.7	B		15.2	B		14.8	B		16.1	B
EB 11 Ramps & Rt 59(New Intersection)												
EB Sum	1278	35.9	D	1644	92.8	F	1577	37.9	D	1397	193.3	F
WB Sum	877	36.1	D	866	38.4	D	869	38.7	D	803	41.0	D
SB Sum	161	38.3	D	336	40.6	D	157	32.2	C	246	38.6	D
Composit		36.1	D		70.0	E		37.8	D		127.7	F
Airmont RD/I-287 EB Ramps												
EB	1039	26.8	C	1023	96.9	F	603	15.2	B	625	14.1	B
NB	871	40.8		988	59.3	E	881	40.5		911	146.8	F
SB	957	41.7		1097	33.6	C	1147	32.8		1280	39.0	D
Composit		24.7	C		53.8	D		20.9	C		55.7	E
Airmont RD/I-287 wB Ramps					22.6	C					24.9	C
WB	657	25.9	C	786	34.9	C	815	36.2	D	925	34.5	C
NB	643	7.8	A	721	10.0	A	490	9.6	A	456	9.2	A
SB	907	16.1	B	1080	22.1	C	971	23.5	C	1200	23.5	C
Composit		16.6	B		22.6	C		25.0	C		24.9	C

Table C85 – Rockland County – Intersection Analysis – PM

	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Airmont Rd and Rt 59												
EB SUM	1020	108.5	F	946	116.28	F	1090	50.9	D	1045	48.25398	D
WB Sum	808	26.6	C	1055	42.21937	D	870	27.6	C	1114	48.47981	D
SB Sum	1065	44.0	D	1092	74.8564	E	1099	38.3	D	1214.5	59.7373	E
NB Sum	665	148.1	F	656	186.6429	F	642	82.5	F	655	188.5444	F
Composit		78	E		95.67315	F		47.1	D		74.57683	E
College road ad Rt 59												
EB SUM	973	25.2	C	1048	27.87412	C	929	18.9	B	1061.5	25.39853	C
WB Sum	855	13.5	B	1103	16.29416	B	867	13.5	B	1126	17.42116	B
SB Sum	304	12.9	B	284	29.1446	C	290	16.9	B	289	19.25704	B
NB Sum	401	254.7	F	325	346.218	F	405	245.0	F	339	324.816	F
Composit		56.1	E		60.88301	E		53.6	D		57.62908	E
Rt 306 & Rt 59												
EB SUM	903	53.0	D	911	47.728	D	899	50.8	D	912.3333	47.95935	D
WB Sum	863	40.4	D	898	65.7565	E	880	48.2	D	912.5	52.9259	D
SB Sum	404	35.8	D	552	40.60003	D	408	28.1	C	581	113.367	F
NB Sum	389	44.0	D	473	46.51917	D	388	45.0	D	449.5	46.76331	D
Composit		44.7	D		51.85052	D		45.4	D		62.66734	E
Main St(Rt 59) & Rt 9W												
EB SUM	973	45.7	D	1056	46.42607	D	989	44.6	D	1039	47.34924	D
WB Sum	148	33.2	C	118	39.5581	D	166	34.5	C	157.5	32.8431	C
SB Sum	399	24.0	C	461	35.29683	D	548	32.2	C	469.5	31.90398	C
NB Sum	282	36.5	D	351	35.00617	D	286	34.8	C	324.5	36.00551	D
Composit		38.4	D		41.41792	D		38.9	D		40.70905	D
Chestnut & Rt 59												
EB SUM	226	2.6	A	240	2.54882	A	357	6.5	A	346	8.84916	A
WB Sum	518	17.9	B	526	62.7786	E	535	18.6	B	676	87.9087	F
SB Sum	22	21.5	C	81	25.0567	C	77	26.0	C	132	185.608	F
NB Sum	133	14.5	B	158	70.65422	E	136	17.3	B	166	48.40163	D
Composit		13.6	B		46.57321	D		15.1	B		71.98713	E
NewClarkstown Rd & Rt 59												
EB SUM	933	5.7	A	1097	7.23318	A	955	6.8	A	923.5	8.03119	A
WB Sum	1578	15.2	B	1673	32.5624	C	1625	17.4	B	1896	23.8587	C
SB Sum	432	34.2	C	404	31.4384	C	330	28.5	C	383.5	34.8457	C
Composit		15	B		23.6664	C		15.2	B		20.61075	C
Pascack Rd Bypass & Rt 59												
EB SUM	1126	21.5	C	1257	21.5851	C	1091	24.8	C	1168	26.8949	C
WB Sum	1669	15.4	B	1936	62.44	E	1728	43.9	D	1879	92.4417	F
SB Sum	776	11.9	B	716	18.51749	B	1097	19.3	B	1235	23.3662	C
NB Sum	283	35.3	D	293	39.72266	D	296	26.7	C	403.5	26.13866	C
Composit		17.9	B		41.15063	D		31.4	C		52.18555	D
Grand View Ave & Rt 59												
EB SUM	978	22.4	C	1195	38.70717	D	1132	48.7	D	1209.5	50.9198	D
WB Sum	1578	60.3	E	1767	63.813	E	1588	61.5	E	1831	74.4749	E
SB Sum	519	34.6	C	688	36.90805	D	723	35.5	D	840.5	35.46312	D
NB Sum	393	42.9	D	467	51.8774	D	378	76.7	E	442	64.91868	E
Composit		43.8	D		50.67576	D		54.3	D		59.32266	E
Co Rd 33 (N Middletown Road) & Rt 59												
EB SUM	1212	39.5	D	1425	43.95618	D	1317	57.2	E	1510	70.38153	E
WB Sum	1417	26.4	C	1469	28.90256	C	1232	80.4	F	1309	126.0307	F
SB Sum	617	34.8	C	715	39.09704	D	582	38.2	D	647	30.64454	C
NB Sum	421	43.8	D	485	44.0262	D	421	47.5	D	479	45.8868	D
Composit		34.2	C		37.71361	D		61	E		79.35541	E
Smith St & Rt 59												
EB SUM	526	19.4	B	613	21.60146	C	526	20.1	C	479	17.0258	B
WB Sum	1939	112.7	F	1915	120.8676	F	1649	120.6	F	1909.5	51.1496	D
SB Sum	396	190.5	F	338	72.62091	E	241	53.6	D	344	182.7952	F
NB Sum	173	33.4	C	171	32.59579	C	194	33.4	C	324.5	38.64991	D
Composit		102.2	F		90.50405	F		87.7	F		59.28981	E
Mountainview Ave & Rt 59												
EB SUM	1053	18.9	B	1118	17.76409	B	1052	19.5	B	1091.5	20.15309	C
WB Sum	591	44.7	D	670	46.5234	D	717	45.5	D	710	46.1616	D
SB1 Sum				190						179		
SB2 Sum												
NB Sum	63	55.8	E	45	47.74184	D	68	52.0	D	66	53.00102	D
Composit		29.2	C		29.00228	C		30.8	C		31.20209	C

Table C85 – Rockland County – Intersection Analysis – PM (cont)

	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Spook Rock & Airmont												
EB SUM	337	7.3	A	525	9.67354	A	338	8.7	A	583	9.95372	A
WB Sum	166	21.3	C	201	22.5391	C	192	21.6	C	189.5	23.3348	C
SB Sum	412	20.5	C	550	33.4792	C	424	23.2	C	525.5	32.9883	C
NB Sum	193	24.6	C	228	32.9871	C	424	23.2	C	217	32.468	C
Composit		17.3	B		23.63307	C		18.9	B		22.84216	C
Int # 8 - Orange Avenue/Lafayette Avenue(Rt 59)												
EB Sum	126	40.0	D	168	76.6544	E	161	34.7	C	186	43.54643	D
WB Sum	418	42.1	D	245	155.759	F	460	51.7	D	683	84.7409	F
SB Sum	289	16.4	B	266	17.84798	B	335	47.7	D	327.5	55.6864	E
NB Sum	691	14.2	B	1011	59.0784	E	842	68.8	E	751	74.0046	E
Composit		24.4	C		68.3644	E		57.4	E		71.78045	E
Int # 27 - Airmont Road/Rella Blvd/Montebello Road												
EB Sum	440	1.3	A	437	1.32034	A	405	1.3	A	408.5	1.17729	A
WB Sum		#N/A			#N/A			#N/A			#N/A	
SB Sum	1012	23.2	C	1281	41.71302	D	1001	20.0	B	1287.5	32.3734	C
NB Sum	518	5.8	A	634	6.63727	A	528	6.6	A	614	6.84275	A
Composit		13.7	B		24.76198	C		12.4	B		20.07062	C
Int # 46 - Route 59/Route 45												
EB Sum	604	17.4	B	697	19.26783	B	605	17.6	B	670	16.82309	B
WB Sum	1273	31.4	C	1390	39.60205	D	1352	34.5	C	1373	13.61488	B
SB Sum	591	112.1	F	592	170.3739	F	609	80.7	F	544	212.5206	F
NB Sum	430	65.1	E	522	99.9849	F	367	52.7	D	481	138.505	F
Composit		49.9	D		69.20631	E		42.9	D		69.16454	E
Int # 51 - Route 45/Old Nyack Tpke												
EB Sum	203	35.8	D	239	32.88639	C	152	27.8	C	220	28.4894	C
WB Sum	37	18.2	B	45	19.1249	B	39	21.1	C	61	23.8415	C
SB Sum	251	23.0	C	315	19.91116	B	280	25.2	C	314.5	18.57718	B
NB Sum	205	18.9	B	262	16.5955	B	187	16.4	B	245	17.08315	B
Composit		25.3	C		22.46773	C		23	C		21.11825	C
Int # 65 - Route 306/Bardonia Rd												
EB Sum	87	25.3	C	112	29.5816	C	90	26.9	C	95.5	30.2051	C
WB Sum	210	18.3	B	276	19.9527	B	216	20.0	C	280.5	19.0672	B
SB Sum	852	18.9	B	1045	20.45395	C	688	18.1	B	1035	19.2734	B
NB Sum	1034	19.1	B	1208	18.84785	B	1110	21.3	C	1242.5	20.51627	C
Composit		19.2	B		20.05214	C		20.4	C		20.22701	C
Int # 73 - Route 306/West Nyack Rd												
EB Sum	383	122.6	F	479	65.0107	E	423	76.9	E	437	39.4632	D
WB Sum	143	19.8	B	202	18.72146	B	178	25.9	C	198.5	22.02202	C
SB Sum	947	85.3	F	955	140.7586	F	771	58.5	E	1108.5	67.2096	E
NB Sum	1259	162.1	F	1328	75.7002	E	1354	41.1	D	1293.5	36.29928	D
Composit		122.5	F		91.06355	F		50.6	D		47.10181	D
Int # 93 - Route 303/Snake Hill Rd												
EB Sum	855	40.0	D	1014	43.8402	D	852	35.2	D	728	30.6985	C
WB Sum		#N/A			#N/A			#N/A			#N/A	
SB Sum	748	13.0	B	779	16.45214	B	704	38.0	D	761	37.17189	D
NB Sum	1801	72.9	E	1902	71.1702	E	1755	23.2	C	1856	24.54565	C
Composit		51.5	D		52.13904	D		29.4	C		28.75726	C
Int #92 - Route 303/Int #12 Off Ramp												
EB Sum	907	53.8	D	984	49.2463	D	1089	33.7	C	1113	38.6243	D
WB Sum												
SB Sum	195	50.5	D	255	48.0266	D	343	46.8	D	403	44.5111	D
NB Sum	1232	46.9	D	1328	70.9393	E	1048	39.2	D	1095.5	63.1119	E
Composit		49.9	D		60.34769	E		37.9	D		49.80506	D
Int # 91 - Route 303/Mall Exit												
EB Sum	142	31.7	C	119	31.3806	C	54	36.2	D	86	28.8175	C
WB Sum												
SB Sum	1232	46.9	D	1328	70.9393	E	1048	39.2	D	1095.5	63.1119	E
NB Sum	222	8.2	A	320	11.26186	B	399	11.0	B	437	15.12717	B
Composit		40.2	D		57.46773	E		31.6	C		48.33362	D
Int # 107 - Route 9W/High												
EB Sum	363	7.6	A	289	7.4239	A	632	10.5	B	349	8.01822	A
WB Sum	443	19.4	B	578	18.84892	B	418	33.1	C	526.5	19.13361	B
SB Sum	119	15.7	B	125	13.7206	B	108	16.7	B	99	13.2329	B
NB Sum	641	9.4	A	830	13.2197	B	655	10.9	B	731	11.0851	B
Composit		14.4	B		15.44333	B		21.4	C		14.78669	B

Table C85 – Rockland County – Intersection Analysis – PM (cont)

	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Int # 116 - Main St/Franklin St												
EB Sum	328	15.7	B	342	16.7717	B	356	16.8	B	344	16.1423	B
WB Sum	302	12.0	B	304	12.82245	B	324	11.8	B	324.3333	11.58462	B
SB Sum	81	13.0	B	102	18.7457	B	61	15.5	B	88	13.8759	B
NB Sum	120	10.1	B	135	15.0474	B	133	13.0	B	129	13.8498	B
Composit		13.3	B		15.37566	B		14.3	B		13.91333	B
Int # 120 - Main St/Broadway												
EB Sum	270	12.6	B	268	13.0747	B	285	13.9	B	251	11.4427	B
WB Sum	112	12.2	B	114	14.5035	B	110	18.8	B	107	14.0774	B
SB Sum	114	8.0	A	142	12.18339	B	127	13.5	B	140	13.87814	B
NB Sum	186	11.6	B	200	17.8359	B	205	18.4	B	202	18.249	B
Composit		11.5	B		14.44011	B		15.8	B		14.29662	B
EB 11 Ramps & Rt 59												
(New Intersection)												
EB Sum	923	43.5	D	962	67.138	E	1162	44.3	D	1259	43.56459	D
WB Sum	633	29.8	C	732	33.39913	C	716	32.6	C	747	32.01562	C
SB Sum	525	39.4	D	564	39.1173	D	516	41.7	D	547	44.72055	D
Composit		38.3	D		49.20144	D		40.3	D		40.43072	D
Airmont RD/I-287 EB Ramps											39.9	D
EB	496	14.9	B	496	14.9	B	521	18.8	B	784	27.3	C
NB	1333	27.9	C	1333	27.9	C	1391	49.6	D	1511	72.7	E
SB	1245	19.0	B	1245	38.0	D	1261	7.0	A	1228	15.2	B
Composit		22.2	C		22.2	C		27.6	C		39.9	D
Airmont RD/I-287 wB Ramps					27.9	C					27.0	C
WB	1256	31.6	C	1256	31.6	C	1277	23.0	C	1266	24.9	C
NB	860	20.8	C	860	20.8	C	840	9.0	A	1108	12.1	B
SB	904	29.5	C	904	29.5	C	880	36.0	D	994	46.3	D
Composit		27.9	C		27.9	C		22.9	C		27.0	C

Table C86 – Westchester County – Intersection Analysis – AM

LOS	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
S Broadway and 119												
NB												
SB												
EB												
WB												
Composit												
S Broadway/I-287 EB ramps Int 9												
NB	487	217.9	F	454	293.1	F	558	143.6	F	536	330.6	F
SB	1133	37.1	D	1209	47.6	D	1038	35.3	D	1023	33.2	C
EB	0	0.0	A	0	0.0	A	0	0.0	A	0	0.0	A
WB	1500	10.2	B	1220	6.1	A	1259	4.9	A	1033	3.6	A
Composit		52.4	D	2883	68.7	E		43.1	D	2592	82.9	F
119/I-287 WB ramps Int 9												
NB	679	46.7	D	581	44.5	D	895	50.8	D	1047	88.5	F
SB	16	0.0	A	16	0.0	A	16	0.0	A	16	0.0	A
EB	773	37.6	D	572	29.7	C	910	32.0	C	545		
WB	721	24.1	C	536	26.0	C	529	25.4	C	531	28.7	C
Composit		35.7	D		33.3	C		37.5	D			
119/Benedict Ave												
SB	670	15.8	B	730	20.6	C	586	18.3	B	794	24.7	C
EB	922	20.8	C	911	21.1	C	895	19.5	B	1039	24.5	C
WB	1099	49.4	D	1023	51.6	D	955	49.3	D	901	51.8	D
Composit		31.3	C		32.7	C		30.9	C		33.6	C
119/Taxter Rd												
NB	1193	106.5	F	1240	81.3	F	1184	60.5	E	1184	187.4	F
EB	1572	31.2	C	1652	42.2	D	1539	40.4	D	1748	34.2	C
WB	831	8.6	A	863	8.5	A	713	7.0	A	829	8.4	A
Composit		51.0	D	3755	47.4	D		40.4	D	3761	76.7	E
119/S Stone Ave												
NB	630	39.8	D	636	44.6	D	640	58.5	E	669	48.9	D
SB	608	25.4	C	634	24.9	C	552	25.0	C	617	25.1	C
EB	2139	71.5	E	2187	88.5	F	2063	66.1	E	2156	83.8	F
WB	1020	41.3	D	991	40.9	D	951	38.2	D	905	38.8	D
Composit		53.5	D	3812	62.5	E		53.2	D	3678	60.7	E
119 Ramp EB/W Hartsdale Ave												
NB	552	178.9	F	540	166.7	F	620	168.8	F	615	243.5	F
SB	716	8.4	A	743	7.0	A	656	6.4	A	620	7.4	A
EB	507	64.7	E	494	66.9	E	504	52.8	D	550	73.8	E
Composit		77.5	E	1777	72.2	E		76.1	E	1785	109.2	F
119 Ramp WB/W Hartsdale Ave												
NB	813	25.7	C	800	24.9	C	822	24.9	C	873	27.3	C
SB	765	22.1	C	796	24.8	C	798	23.1	C	692	21.3	C
WB	563	23.5	C	605	18.3	B	560	45.9	D	549	51.9	D
Composit		23.8	C		23.1	C		29.6	C		31.7	C
119/Aquaeduct Rd												
NB	1092	63.1	E	1250	44.2	D	599	130.7	F	662	119.4	F
SB	1103	20.2	C	1058	25.9	C	556	147.6	F	584	110.9	F
EB	2082	57.3	E	2221	77.0	E	1724	110.7	F	1695	159.9	F
WB	1050	33.8	C	1275	40.9	D	1356	49.5	D	1448	52.5	D
Composit		46.2	D		74.9	E		98.8	F		111.8	F
119/N Central Ave												
NB	505	299.8	F	595	225.0	F	760	256.4	F	649	314.3	F
SB	801	45.0	D	721	43.3	D	838	44.3	D	783	49.5	D
EB (119)	2043	30.5	C	1868	30.9	C	1547	48.0	D	1416	48.8	D
WB (119)	763	5.2	A	959	8.4	A	832	8.1	A	894	9.6	A
Composit		61.7	E	4143	55.7			78.7	E	3742	85.6	F
Bronx River PKWY/N Central Ave												
NB	168	12.3	B	255	29.7	C	199	13.5	B	164	26.7	C
EB	1820	59.2	E	1463	124.0	F	1771	49.2	D	1633	85.7	F
WB	838	0.7	A	894	8.0	A	820	2.7	A	671	39.7	D
Composit		39.0	D		75.1	E		33.0	C		69.2	E
119/Main Ave/Bank												
NB	1164	26.3	C	1088	27.4	C	850	51.5	D	914	69.0	E
EB	4031	39.8	D	4246	44.5	D	3295	47.7	D	3305	75.3	E
Composit		36.8	D		41.0	D		48.4	D		74.0	E

Table C86 – Westchester County – Intersection Analysis – AM (cont)

LOS	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Hamilton St/ Bank												
NB	1259	11.4	B	1232	11.3	B	976	13.7	B	1011	30.0	C
WB	1116	13.7	B	1241	15.2	B	1246	18.0	B	1155	19.8	B
Composit		12.5	B		13.3	B		16.3	B		24.5	C
E Post Rd/Mamroneck												
NB	560	5.5	A	693	8.4	A	650	7.9	A	697	7.7	A
SB	152	34.0	C	300	36.1	D	138	33.2	C	389	55.2	E
EB	603	28.4	C	669	73.2	E	624	64.5	E	466	135.5	F
WB	349	30.1	C	343	26.9	C	342	26.3	C	475	25.4	C
Composit		21.6	C	2005	37.4	D		33.6	C	2027	50.3	D
Westchester Ave/Bloomindale Rd *												
NB	299	35.1	D	405	33.2	C	371	36.5	D	420	44.3	D
SB	680	15.0	B	705	15.4	B	686	39.8	D	617	32.5	C
EB	1011	54.3	D	1070	61.0	E	732	44.9	D	853	55.3	E
WB	1617	17.8	B	1787	28.7	C	1498	17.2	B	1747	19.3	B
Composit		28.9	C		35.5	D		30.3	C		32.9	C
I-287 Int 8W/Bloomindale Rd *												
NB	38	40.9	D	75	39.4	D	44	43.1	D	71	63.2	E
SB	651	31.4	C	809	36.3	D	638	33.5	C	759	35.6	D
EB	217	48.6	D	270	55.1	E	234	70.1	E	237	55.5	E
WB	1619	23.3	C	1823	24.1	C	1774	25.1	C	1885	32.3	
Composit		27.8	C		30.6	C		31.3	C		36.4	D
Westchester Ave EB/ White Plains Rd												
NB	955	39.1	D	1074	39.9	D	991	30.9	C	1056	35.4	D
SB	695	27.2	C	850	38.6	D	724	30.2	C	810	71.6	E
EB	967	21.4	C	1016	23.1	C	932	21.7	C	1002	21.0	C
Composit		29.4	C		33.7	C		27.5	C		40.6	D
Westchester Ave WB/ White Plains Rd												
NB	888	17.8	B	913	18.5	B	839	15.5	B	930	19.7	B
SBWB	497	23.4	C	647	29.9	C	542	25.0	C	618	23.7	C
WB	497	23.9	C	647	39.6	D	542	25.7	C	618	23.8	C
Composit		20.9	C		28.0	C		21.0	C		22.0	C
Bryant Ave/ North St												
NB	875	45.6	D	1151	55.0	D	1038	44.7	D	1164	56.4	E
SB	548	24.0	C	666	35.9	D	467	24.6	C	566	32.2	C
EB	178	17.6	B	229	14.2	B	198	16.9	B	238	15.7	B
WB	457	11.7	B	653	27.0	C	476	13.6	B	634	14.0	B
Composit		29.9	C		40.0	D		31.1	C		37.1	D
Westchester AV E/Kenilworth RD												
NB	153	0.0	A	164	0.0	A	147	0.0	A	194	0.0	A
SB	204	3.3	A	309	3.4	A	207	3.1	A	209	3.7	A
EB	369	2.5	A	339	3.2	A	320	3.3	A	569	2.3	A
Composit		2.2	A		2.6	A		2.5	A		2.1	A
Westechester AV W/Kenilworth Rd												
NB	140	4.6	A	162	4.0	A	129	4.4	A	232	4.5	A
SB	56	3.0	A	96	3.1	A	65	2.0	A	69	2.6	A
WB	1078	0.0	A	1262	0.0	A	1075	0.0	A	1152	0.0	A
Composit		0.6	A		0.6	A		0.5	A		0.8	A
Westchester Ave E/ Webb												
NB	165	0.0	A	145	0.2	A	156	0.1	A	139	0.8	A
EB	503	1.2	A	545	1.2	A	558	1.2	A	540	1.4	A
Composit		0.9	A		1.0	A		0.9	A		1.3	A
Polly Park Rd/Purchase St												
NB	249	11.4	B	277	11.3	B	282	10.2	B	326	12.5	B
SB	352	14.8	B	537	13.6	B	424	11.7	B	479	15.9	B
EB	34	7.0	A	62	6.8	A	36	8.8	A	44	8.1	A
WB	34	7.0	A	67	15.2	B	56	14.6	B	75	13.4	B
Composit		13.7	B		12.6	B		11.2	B		14.1	B
Bowman Ave/Webb												
NB	375	8.5	A	360	10.8	B	402	9.0	A	381	11.6	B
SB	47	19.5	B	114	15.6	B	71	12.3	B	62	13.8	B
EB	167	15.2	B	158	14.6	B	163	13.8	B	171	15.3	B
WB	57	15.1	B	55	12.8	B	46	6.9	A	65	12.2	B
Composit		11.6	B		12.6	B		10.4	B		12.8	B
Westchester Ave/Ridge ST												
NB	259	18.8	B	325	16.8	B	295	13.9	B	314	16.7	B
SB	598	50.2	D	604	51.3	D	523	58.5	E	639	71.1	E
EB	624	9.9	A	608	11.5	B	611	14.7	B	682	12.6	B
WB	690	14.9	B	808	15.5	B	765	18.5	B	665	16.2	B
Composit		23.7	C		23.8	C		26.3	C		30.4	C

Table C86 – Westchester County – Intersection Analysis – AM (cont)

LOS	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Bowman Ave/S Ridge St												
NB	272	23.8	C	447	31.0	C	295	25.4	C	430	34.5	C
SB	765	34.9	C	792	37.5	D	612	31.4	C	723	48.0	D
EB	307	30.6	C	415	33.3	C	337	28.5	C	298	27.6	C
WB	212	26.5	C	234	27.8	C	204	29.9	C	218	27.0	C
Composit		31.0	C		33.8	C		29.3	C		38.1	C
Ochard												
NB	878	27.9	C	914	28.5	C	886	30.6	C	815	38.4	D
SB	1471	16.3	B	1536	22.2	C	1543	18.3	B	1502	42.6	D
WB	784	23.7	C	924	26.2	C	907	36.1	D	992	51.8	D
Composit		21.4	C		25.0	C		26.4	C		44.3	D
Main /MLK												
NB	1159	37.0	D	1134	45.5	D	1095	63.5	E	901	91.4	F
EB	1865	6.9	A	1693	17.7	B	1089	26.8	C	1030	101.2	F
Composit		18.4	B		28.9	C		45.2	D		96.6	F
Hamilton/Cottage PL												
SB	396	63.0	E	353	59.8	E	411	63.6	E	344	73.0	E
EB	351	8.3	A	592	9.6	A	649	8.5	A	757	11.1	B
WB	996	17.5	B	1120	26.8	C	967	24.9	C	971	40.9	D
Composit		26.0	C		27.5	C		27.5	C		35.3	D
I-287 EB/Rt 100A												
EB	594	17.4	B	748	26.1	C	642	29.3	C	577	20.0	C
NB	1264	9.1	A	1279	9.4	A	1259	6.6	A	1334	9.9	A
SB	590	8.9	A	603	9.0	A	569	9.0	A	542	7.4	A
Composit		11.1	B		14.1	B		13.0	B		11.7	B
I-287 WB/Rt 100A												
WB	497	8.9	A	544	9.8	A	436	8.8	A	449	11.0	B
NB	649	13.7	B	831	17.5	B	614	12.8	B	724	14.5	B
SB	881	10.7	B	957	11.3	B	901	9.6	A	1020	9.7	A
Composit		11.2	B		13.2	B		10.4	B		11.5	B
Exit 8A Off Ramp/Rt 119												
EB	1265	47.7	D	1162	87.8	F	1074	64.6	E	1327	129.5	F
WB	627	51.1	D	587	55.6	E	535	50.7	D	533	52.0	D
NB	99	11.9	B	105	39.1	D	102	16.3	B	113	50.6	D
SB	570	10.8	B	860	15.2	B	562	11.8	B	861	13.9	B
Composit		38.9	D		56.0	E		46.1	D		76.7	E
Exit 2 WB Off Ramps/Rt 9A												
WB	1077	8.9	A	1291	10.2	B	1030	13.3	B	1150	14.8	B
SB	672	27.0	C	681	25.2	C	608	26.9	C	716	27.5	C
NB	457	27.5	C	534	27.7	C	608	25.1	C	522	25.7	C
Composit		18.3	B		18.0	B		19.9	B		21.0	E
Exit 2 EB On ramp/Rt 9A												
NB	800	10.9	B	843	10.2	B	821	10.2	B	852	10.8	B
SB	962	4.5	A	938	4.5	A	832	4.5	A	897	4.5	A
Composit		7.4	A		7.2	A		7.3	A		7.6	A
Exit 5 ramps/Rt 9A												
EB	1172	28.4	C	1278	42.2	D	1154	24.3	C	1179	46.5	D
WB	1841	5.0	A	2043	4.8	A	1585	3.9	A	1769	4.0	A
NB	912	1.9	A	969	2.0	A	577	23.2	C	543	60.4	E
Composit		11.3	B		11.2	B		14.3	B		27.1	C
Exit 6 EB ramps/Rt 22												
EB	1057	16.7	B	1096	19.6	B	1148	15.1	B	1206	27.0	C
NB	841	12.6	B	915	10.9	B	808	12.8	B	771	19.4	B
SB	1072	9.5	A	1270	11.2	B	1172	10.2	B	1278	16.8	B
Composit		12.9	B		13.9	B		12.7	B		21.2	C
Exit 6 WB ramps/Rt 22												
WB	787	17.1	B	890	17.2	B	917	18.8	B	1016	19.7	B
NB	0	3.5	A	0	3.5	A	0	0.0	A	0	4.7	A
SB	159	29.9	C	168	31.2	C	139	29.0	C	179	34.0	C
Composit		19.3	B		19.4	B		20.1	C		21.8	C
Exit 9S EB ramps<Westchester Ave												
EB - i-287 ramp	1459	9.6	A	1363	9.7	A	1363	9.7	A	1403	10.0	A
EB Westchetser Ave	176	23.9	C	247	26.6	C	119	19.9	B	251	21.3	C
Composit		11.2	B		12.3	B		10.5	B		11.7	B
I-287 EB Exit ramps/Boston Post Rd												
EB	909	22.9	C	861	22.5	C	881	23.5	C	877	23.3	C
NB	55	33.7	C	92	37.0	D	70	36.7	D	95	30.5	C
SB	292	14.1	B	287	12.3	B	286	13.9	B	266	12.6	B
Composit		21.4	C		21.2	C		22.0	C		21.6	C

Table C87 – Westchester County – Intersection Analysis – PM

LOS	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
S Broadway and 119												
NB												
SB												
EB												
WB												
Composit												
S Broadway/I-287 EB ramps Int 9												
NB	1116	69.0	E	1145	70.3	E	1150	47.1	D	1072	37.6	D
SB	975	5.2	A	1493	23.3	C	1271	9.5	A	1336	18.9	B
EB	0	0.0	A	0	0.0	A	0	0.0	A	0	0.0	A
WB	541	16.3	B	623	15.2	B	698	33.5	C	793	30.0	C
Composit		34.5	D		38.3	D		28.7	C		28.3	C
119/I-287 WB ramps Int 9												
NB	225	27.0	C	463	29.8	C	180	26.7	C	285	28.8	C
SB	16	0.0	A	13	0.0	A	13	0.0	A	13	0.0	A
EB	589	28.6	C	766	27.9	C	323	28.6	C	491	28.4	C
WB	507	13.5	B	960	26.8	C	535	15.5	B	536	13.3	B
Composit		22.2	C		27.7	C		21.2	C		22.1	C
119/Benedict Ave												
SB	285	31.5	C	241	39.0	D	246	32.7	C	225	32.5	C
EB	601	26.4	C	515	28.3	C	714	26.3	C	855	29.8	C
WB	473	23.5	C	779	24.4	C	593	20.0	B	626	25.5	C
Composit		26.4	C		28.0	C		24.9	C		28.6	C
119/Taxter Rd												
NB	567	23.3	C	744	184.4	F	794	16.6	B	829	119.0	F
EB	872	78.1	E	633	147.4	F	920	14.2	B	896	49.0	D
WB	869	15.4	B	1302	15.0	B	1057	10.7	B	1382	11.5	B
Composit		41.0	D		93.3	F		13.6	B		51.0	D
119/S Stone Ave												
NB	783	93.7	F	768	95.9	F	762	66.8	E	750	74.4	E
SB	590	37.3	D	801	30.9	C	737	30.2	C	684	32.0	C
EB	1212	41.5	D	1428	52.3	D	1346	34.5	C	1426	55.6	E
WB	735	34.5	C	884	37.1	D	821	32.6	C	1062	39.5	D
Composit		51.5	D		53.1	D		39.9	D		50.7	D
119 Ramp EB/W Hartsdale Ave												
NB	493	19.0	B	752	21.6	C	616	16.3	B	614	111.9	F
SB	698	4.4	A	949	4.5	A	919	4.6	A	1098	7.2	A
EB	392	32.8	C	435	35.4	D	419	33.8	C	436	32.9	C
Composit		16.0	B		16.8	B		14.5	B		42.3	D
119 Ramp WB/W Hartsdale Ave												
NB	640	19.4	B	796	22.0	C	771	18.1	B	791	26.5	C
SB	901	30.1	C	1134	32.0	C	1167	31.0	C	1247	33.4	C
WB	473	35.7	D	598	27.1	C	603	33.2	C	667	41.1	D
Composit		28.0	C		27.7	C		27.6	C		33.3	C
119/Aquaeduct Rd												
NB	617	4.6	A	826	4.8	A	793	4.7	A	877	5.5	A
SB	590	40.7	D	670	58.0	E	634	41.4	D	681	54.5	D
EB	1663	42.6	D	2056	41.1	D	1886	38.8	D	1806	50.2	D
WB	1564	66.2	E	1788	53.2	D	1638	51.5	D	1874	88.7	F
Composit		45.4	D		41.6	D		37.9	D		57.0	E
119/N Central Ave												
NB	610	35.8	D	770	37.3	D	679	40.3	D	674	47.2	D
SB	1075	21.4	C	1172	27.1	C	1311	19.0	B	999	35.2	D
EB (119)	1326	23.5	C	1490	27.9	C	1345	21.0	C	1198	43.2	D
WB (119)	2182	55.0	D	2466	51.4	D	2196	44.5	D	2485	68.4	E
Composit		37.7	D		38.8	D		32.2	C		53.9	D
Bronx River PKWY/N Central Ave												
NB	306	41.2	D	251	40.0	D	361	35.1	D	482	32.1	C
EB	1209	80.7	F	1435	88.9	F	1355	44.7	D	972	405.3	F
WB	1070	22.9	C	1300	22.0	C	1399	21.1	C	1147	60.7	E
Composit		52.1	D		55.6	E		33.0	C		184.2	F
119/Main Ave/Bank												
NB	1255	23.0	C	1465	23.2	C	1191	24.3	C	1385	72.0	E
EB	2865	35.3	D	3137	35.2	D	2714	45.2	D	2124	117.3	F
Composit		31.6	C		31.4	C		38.8	D		99.4	F
Hamilton St/ Bank												
NB	1336	11.0	B	1550	11.2	B	1238	10.1	B	1360	37.5	D
WB	2579	7.8	A	2802	8.6	A	2795	8.2	A	2822	18.5	B
Composit		8.9	A		9.5	A		8.8	A		24.6	C

Table C87 – Westchester County – Intersection Analysis – PM (cont)

LOS	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
E Post Rd/Mamroneck												
NB	363	30.7	C	413	37.4	D	527	69.0	E	824	68.3	E
SB	498	94.7	F	556	62.2	E	460	40.3	D	294	189.1	F
EB	519	46.1	D	545	25.3	C	791	23.2	C	477	189.0	F
WB	487	28.0	C	446	22.6	C	624	16.4	B	717	47.1	D
Composit		51.4	D		37.7	D		34.7	C		102.0	F
Westchester Ave/Bloomindale Rd *												
NB	400	27.2	C	435	30.1	C	387	31.3	C	828	35.6	D
SB	166	29.6	C	224	28.1	C	159	29.0	C	212	28.7	C
EB	913	32.9	C	1050	36.2	D	969	35.1	D	905	44.1	D
WB	1191	21.2	C	1580	25.0	C	1410	20.7	C	1766	32.2	C
Composit		26.6	C		29.5	C		27.3	C		35.7	D
I-287 Int 8W/Bloomindale Rd *												
NB	892	45.4	D	792	22.5	C	882	25.4	C	722	101.5	F
SB	488	35.2	D	672	33.6	C	535	38.6	D	758	36.0	D
EB	333	71.2	E	412	90.6	F	326	59.5	E	397	82.0	F
WB	734	34.9	C	1314	39.1	D	1216	33.6	C	1218	117.8	F
Composit		43.7	D		40.4	D		34.9	C		89.4	F
Westchester Ave EB/ White Plains Rd												
NB	552	48.9	D	665	64.7	E	619	48.8	D	619	90.3	F
SB	772	88.4	F	919	89.5	F	878	91.6	F	861	112.0	F
EB	700	13.5	B	994	14.7	B	510	13.3	B	783	23.4	C
Composit		51.7	D		54.3	D		58.5	E		75.4	E
Westchester Ave WB/ White Plains Rd												
NB	503	12.6	B	632	12.6	B	628	10.4	B	586	11.5	B
SBWB	861	36.5	D	1066	50.5	D	1033	25.4	C	997	63.4	E
WB	861	31.3	C	1066	34.0	C	1033	23.2	C	997	40.8	D
Composit		29.1	C		35.5	D		21.1	C		42.9	D
Bryant Ave/ North St												
NB	687	38.7	D	907	43.5	D	787	39.0	D	907	45.7	D
SB	534	30.6	C	805	29.5	C	280	21.1	C	798	29.9	C
EB	411	31.7	C	419	25.1	C	397	26.9	C	439	228.5	F
WB	683	19.3	B	942	9.9	A	629	9.5	A	841	42.7	D
Composit		29.8	C		27.0	C		25.4	C		67.5	E
Westchester AV E/Kenilworth RD												
NB	309	0.0	A	521	0.0	A	327	0.0	A	382	43.1	D
SB	186	3.8	A	313	4.5	A	313	3.8	A	421	36.7	D
EB	314	0.8	A	738	1.1	A	329	0.8	A	2024	12.5	B
Composit		1.2	A		1.4	A		1.5	A		20.2	C
Westechester AV W/Kenilworth Rd												
NB	188	5.0	A	385	6.9	A	196	4.4	A	312	6.5	A
SB	151	3.1	A	200	4.1	A	215	2.9	A	280	107.7	F
WB	778	0.0	A	1003	0.0	A	910	0.0	A	1093	5.7	A
Composit		1.3	A		2.2	A		1.1	A		22.8	C
Westchester Ave E/ Webb												
NB	75	1.8	A	143	0.9	A	105	0.4	A	117	0.2	A
EB	881	1.2	A	1518	1.5	A	987	1.1	A	1671	2.1	A
Composit		1.3	A		1.5	A		1.1	A		2.0	A
Polly Park Rd/Purchase St												
NB	123	22.3	C	222	40.7	D	124	60.5	E	188	99.9	F
SB	315	8.7	A	483	7.7	A	507	8.0	A	721	22.6	C
EB	140	10.5	B	162	11.9	B	157	11.3	B	144	10.5	B
WB	371	39.5	D	288	36.2	D	352	71.2	E	373	84.8	F
Composit		22.8	C		21.7	C		33.7	C		47.8	D
Bowman Ave/Webb												
NB	256	14.7	B	303	18.3	B	250	23.2	C	359	91.7	F
SB	189	17.6	B	225	19.1	B	240	15.9	B	336	33.3	C
EB	87	13.9	B	140	17.6	B	116	26.2	C	111	13.0	B
WB	329	26.0	C	216	19.8	B	308	21.7	C	208	80.9	F
Composit		19.6	B		18.7	B		21.2	C		61.5	E
Westchester Ave/Ridge ST												
NB	295	23.9	C	998	51.7	D	398	23.1	C	1002	71.6	E
SB	257	502.1	F	11	80.5	F	5	295.1	F	51	382.6	F
EB	674	10.7	B	1347	22.8	C	799	8.0	A	1218	117.9	F
WB	314	20.8	C	459	29.7	C	322	23.3	C	283	44.8	D
Composit		97.3	F		34.4	C		15.2	B		96.9	F

Table C87 – Westchester County – Intersection Analysis – PM (cont)

LOS	Alt A1 2017			Alt A1 2047			Alt A2 2017			Alt A2 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Bowman Ave/S Ridge St												
NB	592	37.4	D	804	43.5	D	734	33.9	C	769	68.9	E
SB	352	36.0	D	210	41.6	D	118	31.6	C	153	39.4	D
EB	310	14.9	B	353	16.2	B	355	16.1	B	395	21.5	C
WB	202	22.8	C	115	23.5	C	298	19.5	B	107	82.2	F
Composit		30.3	C		35.2	D		26.7	C		53.6	D
Ochard												
NB	901	42.8	D	1085	46.6	D	1124	43.3	D	1223	65.2	E
SB	1039	21.4	C	1362	31.0	C	1027	15.8	B	1459	25.4	C
WB	482	30.5	C	599	31.9	C	373	28.7	C	301	27.0	C
Composit		31.1	C		36.7	D		30.0	C		41.9	D
Main /MLK												
NB	1893	27.5	C	1982	24.2	C	1865	23.9	C	1718	43.3	D
EB	1378	19.2	B	1354	17.9	B	1176	16.7	B	1050	38.3	D
Composit		24.0	C		21.7	C		21.1	C		41.4	D
Hamilton/Cottage PL												
SB	220	36.8	D	310	42.2	D	261	29.8	C	250	40.9	D
EB	618	9.9	A	621	8.7	A	646	11.1	B	978	9.8	A
WB	1206	17.2	B	1221	16.1	B	1318	14.3	B	1386	16.8	B
Composit		17.1	B		17.7	B		15.2	B		16.5	B
I-287 EB/Rt 100A												
EB	637	15.9	B	809	16.0	B	700	15.7	B	733	23.1	C
NB	1063	7.2	A	1065	8.8	A	1105	7.5	A	1135	10.8	B
SB	900	20.5	C	867	19.4	B	895	21.3	C	953	28.1	C
Composit		13.9	B		14.2	B		14.2	B		19.8	B
I-287 WB/Rt 100A												
WB	736	54.7	D	684	26.6	C	773	45.8	D	797	72.9	E
NB	694	9.8	A	762	11.5	B	765	11.3	B	719	10.1	B
SB	882	15.9	B	1012	17.2	B	869	14.6	B	900	26.4	C
Composit		26.4	C		18.1	B		23.6	C		36.9	D
Exit 8A Off Ramp/Rt 119												
EB	492	21.1	C	379	24.2	C	511	20.8	C	580	20.5	C
WB	410	30.1	C	565	33.0	C	407	30.2	C	592	38.1	D
NB	202	14.1	B	221	15.8	B	187	12.0	B	194	14.6	B
SB	793	4.0	A	1045	5.9	A	785	3.4	A	953	3.6	A
Composit		15.2	B		17.0	B		14.7	B		17.6	B
Exit 2 WB Off Ramps/Rt 9A												
WB	836	35.2	D	831	31.9	C	804	30.6	C	700	40.1	D
SB	1080	25.8	C	1215	26.0	C	1081	24.6	C	1121	24.0	C
NB	672	4.7	A	625	4.5	A	741	4.7	A	672	4.4	A
Composit		23.4	C		22.8	C		20.8	C		23.2	C
Exit 2 EB On ramp/Rt 9A												
NB	1212	11.1	B	1189	12.0	B	1289	11.4	B	1206	12.1	B
SB	921	3.9	A	1000	5.2	A	843	4.4	A	793	4.3	A
Composit		8.0	A		8.9	A		8.6	A		9.0	A
Exit 5 ramps/Rt 9A												
EB	1045	8.9	A	1157	7.9	A	1051	7.2	A	1086	11.2	B
WB	2129	3.9	A	2328	4.2	A	1999	4.1	A	2314	8.6	A
NB	889	16.3	B	904	15.7	B	830	14.7	B	698	15.4	B
Composit		7.9	A		7.5	A		7.2	A		10.4	B
Exit 6 EB ramps/Rt 22												
EB	809	7.8	A	903	9.8	A	869	9.5	A	708	39.1	D
NB	958	18.7	B	1097	19.9	B	1086	19.9		1218	33.3	
SB	802	12.2	B	836	11.7	B	815	12.0	B	1154	12.5	B
Composit		13.3	B		14.3	B		14.3	B		26.9	C
Exit 6 WB ramps/Rt 22												
WB	610	7.0	A	638	7.9	A	404	11.7	B	285	13.1	B
NB	46	32.5	C	45	31.8	C	4	50.7	D	90	47.9	D
SB	0	0.0	A	0	0.0	A	308	43.8	D	363	79.3	E
Composit		8.8	A		9.5	A		25.7	C		49.9	D
Exit 9S EB ramps<Westchester Ave												
EB - i-287 ramp	1801	19.1	B	1727	24.8	C	1835	16.9	B	1087	66.6	E
EB Westchetser Ave	1221	23.3	C	1361	24.5	C	1110	21.0	C	1751	99.3	F
Composit		20.8	C		24.7	C		18.5	B		86.8	F
I-287 EB Exit ramps/Boston Post Rd												
EB	621	24.4	C	565	21.3	C	663	22.6	C	301	21.4	C
NB	162	35.7	D	156	35.9	D	204	31.7	C	151	36.7	D
SB	416	17.8	B	481	19.4	B	434	18.7	B	495	21.9	C
Composit		23.6	C		22.4	C		22.7	C		24.1	C

2047 Transit Builds Results

2047 Transit Builds Results

Table C88 – Rockland County – Intersection Analysis – AM

	Alt B			Alt C			Alt D			Alt E		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Airmont Rd and Rt 59												
EB SUM	961	120.3	F	847	143.7	F	942	116.8	F	913	119.3	F
WB Sum	463	304.9	F	552	250.6	F	688	39.8	D	652	54.1	D
SB Sum	1394	29.3	C	1295.5	25.5	C	1155	28.6	C	1099	24.3	C
NB Sum	486	34.5	C	496	41.1	D	499	23.4	C	549	21.2	C
Composit		95.2	F		98.3	F		55.4	E		56.8	E
College road ad Rt 59												
EB SUM	1287	84.0	F	1213	52.2	D	1082	31.8	C	1004	29.4	C
WB Sum	577	13.1	B	596	12.5	B	627	14.3	B	665	15.9	B
SB Sum	302	13.0	B	288.5	14.2	B	245	11.3	B	253	12.1	B
NB Sum	358	85.2	F	349.5	58.2	E	288.5	31.9	C	302.5	36.2	D
Composit		59.5	E		38.9	D		24.7	C		24.3	C
Rt 306 & Rt 59												
EB SUM	838	98.5	F	842.6667	130.9	F	825	86.4	F	830.3333	89.2	F
WB Sum	640	55.8	E	701.5	82.8	F	751.5	158.8	F	720.5	180.7	F
SB Sum	583	29.4	C	524	25.6	C	525	29.0	C	604	27.7	C
NB Sum	324	23.8	C	298	20.1	C	332.6667	27.5	C	339	28.9	C
Composit		60.0	E		79.4	E		88.3	F		92.6	F
Main St(Rt 59) & Rt 9W												
EB SUM	981	14.8	B	1031	21.4	C	949.5	14.5	B	947	13.3	B
WB Sum	328	24.0	C	360.5	22.9	C	402	20.7	C	348.5	22.1	C
SB Sum	582	68.4	E	610	49.4	D	636	53.8	D	608.5	62.1	E
NB Sum	330	44.1	D	323.5	45.1	D	349.5	49.4	D	331	48.2	D
		34.5	C		32.3	C		31.5	C		33.1	C
Chestnut & Rt 59												
EB SUM	543	41.6	D	576	37.0	D	530	37.3	D	528	23.7	C
WB Sum	360	16.9	B	335.5	14.7	B	390.5	19.2	B	336	15.3	B
SB Sum	279	13.8	B	294	12.1	B	237	12.5	B	277	14.4	B
NB Sum	62	4.7	A	52	6.6	A	67.5	7.5	A	71	6.1	A
Composit		26.4	C		24.0	C		25.1	C		18.2	B
NewClarkstown Rd & Rt 59												
EB SUM	2358	19.7	B	2430	23.5	C	2842	37.3	D	3045	27.0	C
WB Sum	849	23.6	C	872	23.4	C	1131	25.2	C	1235	25.5	C
SB Sum	1038	587.6	F	1065	446.5	F	820	678.4	F	1086	683.3	F
Composit		213.2	F		166.3	F		189.3	F			
Pascack Rd Bypass & Rt 59												
EB SUM	1571	53.7	D	1457	64.6	E	1675	70.6	E	1932	45.4	D
WB Sum	1044	42.8	D	1084	39.3	D	1506.5	136.2	F	1427.5	36.8	D
SB Sum	668	19.6	B	702.5	20.9	C	732.5	21.2	C	734	20.0	B
NB Sum	526	104.3	F	494.5	140.3	F	515.5	110.0	F	449	97.8	F
Composit		51.7	D		59.1	E		89.3	F		43.8	D
Grand View Ave & Rt 59												
EB SUM	1726	47.4	D	1702	47.7	D	1958.5	66.9	E	2046.5	65.0	E
WB Sum	1363	48.6	D	1360.5	46.4	D	1408.5	64.6	E	1373	64.9	E
SB Sum	972	43.0	D	919	39.9	D	1310	27.4	C	1349	26.7	C
NB Sum	290	96.2	F	316	136.9	F	299	227.7	F	341.5	246.3	F
Composit		50.0	D		52.2	D		65.5	E		67.0	E
Co Rd 33 (N Middletown Road) & Rt 59												
EB SUM	1499	33.4	C	1407.667	30.0	C	1262.333	32.4	C	1339.333	32.5	C
WB Sum	614	26.1	C	556.6667	27.3	C	503.6667	25.4	C	508.6667	24.9	C
SB Sum	753	41.0	D	773	37.7	D	755	35.8	D	745.5	37.8	D
NB Sum	223	37.9	D	234.5	43.4	D	222.5	35.7	D	242.5	41.0	D
Composit		34.1	C		32.5	C		32.3	C		33.3	C
Smith St & Rt 59												
EB SUM	1014	21.7	C	981	22.6	C	784.6667	19.5	B	737	21.5	C
WB Sum	1153	33.9	C	1165	38.1	D	1159	33.5	C	1182.5	34.5	C
SB Sum	390	266.7	F	369	259.2	F	344.5	297.4	F	399	307.9	F
NB Sum	487	43.3	D	453	36.7	D	444.5	34.5	C	425	40.0	D
Composit		61.2	E		60.2	E		62.9	E		71.6	E
Mountainview Ave & Rt 59												
EB SUM	833	26.6	C	919.5	25.0	C	808.5	23.4	C	825.5	22.2	C
WB Sum	787	6.3	A	807.5	10.8	B	875.5	8.8	A	802.5	8.0	A
SB1 Sum	293	79.4	E	256	53.5	D	287	71.6	E	253.5	52.4	D
SB2 Sum												
NB Sum	230	41.9	D	210	34.4	C	243.5	25.0	C	239	28.3	C
Composit		17.2	B		17.8	B		14.8	B		14.8	B

Table C88 – Rockland County – Intersection Analysis – AM (cont)

	Alt B			Alt C			Alt D			Alt E		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Spook Rock & Airmont												
EB SUM	267	7.0	A	274	5.7	A	179	7.6	A	253.5	6.4	A
WB Sum	150	29.4	C	125	29.8	C	106.5	31.3	C	126	32.3	C
SB Sum	783	76.8	E	774.5	55.7	E	779	83.0	F	802.5	170.3	F
NB Sum	226	89.0	F	200	38.8	D	165	21.6	C	122	21.1	C
Composit		60.7	E		40.9	D		59.3	E		111.1	F
Int # 8 - Orange Avenue/Lafayette Avenue(Rt 59)												
EB Sum	58	52.9	D	65.5	60.3	E	62	47.7	D	80.5	40.2	D
WB Sum	79	49.6	D	94	86.0	F	103	49.4	D	56	29.9	C
SB Sum	1053	20.4	C	1076	19.2	B	1041.5	20.5	C	1067.5	18.2	B
NB Sum	326	171.6	F	321	118.9	F	317	211.0	F	310	66.2	E
Composit		55.7	E		45.5	D		63.2	E		29.6	C
Int # 27 - Airmont Road/Rella Blvd/Montebello Road												
EB Sum	469	2.9	A	506.5	2.6	A	479	2.1	A	471	1.8	A
SB Sum	741	19.7	B	768	17.3	B	675	18.7	B	765	20.3	C
NB Sum		3.1	A		2.8	A		1.9	A		1.7	A
Composit		9.3	A		8.5	A		8.2	A		9.1	A
Int # 46 - Route 59/Route 45												
EB Sum	870	115.4	F	903	75.5	E	884.5	114.1	F	840	110.6	F
WB Sum	697	18.2	B	659.5	30.4	C	937.5	55.2	E	961	43.1	D
SB Sum	692	190.8	F	737.5	160.7	F	828	158.4	F	760.5	165.6	F
NB Sum	477	38.2	D	479	37.0	D	483	47.1	D	502.5	52.5	D
Composit		96.3	F		80.7	F		97.8	F		93.6	F
Int # 51 - Route 45/Old Nyack Tpke												
EB Sum	193	27.3	C	214	23.2	C	228.5	31.9	C	187.5	31.1	C
WB Sum	15	14.1	B	7	14.5	B	13	17.8	B	44	23.8	C
SB Sum	217	27.7	C	209	26.5	C	249.5	26.3	C	226	26.6	C
NB Sum		14.2	B		16.7	B		14.0	B		19.2	B
Composit		23.0	C		22.3	C		24.7	C		25.3	C
Int # 65 - Route 306/Bardonia Rd												
EB Sum	60	25.5	C	46.5	33.4	C	197.5	31.3	C	135.5	37.8	D
WB Sum	170	26.1	C	166	17.9	B	149	16.6	B	165.5	24.5	C
SB Sum	1721	24.3	C	1610	22.8	C	1637.5	24.7	C	1615.5	22.5	C
NB Sum	727	16.7	B	716.5	15.9	B	643	15.7	B	715	15.3	B
Composit		22.4	C		20.7	C		22.5	C		21.4	C
Int # 73 - Route 304/West Nyack Rd												
EB Sum	442	250.1	F	446	238.4	F	317	74.0	E	410	107.4	F
WB Sum	113	15.1	B	111	17.6	B	87	15.7	B	77	13.8	B
SB Sum	1658	56.9	E	1624.5	43.8	D	1544	34.5	C	1479	62.0	E
NB Sum	441	18.8	B	431	19.1	B	468	21.2	C	459.5	20.7	C
Composit		81.0	F		71.9	E		36.4	D		60.3	E
Int # 93 - Route 303/Snake Hill Rd												
EB Sum	575	9.0	A	559	6.4	A	516	27.5	C	642	27.2	C
WB Sum		#N/A			#N/A			#N/A			#N/A	
SB Sum	1823	21.8	C	1877.5	20.0	B	1771.5	20.7	C	1918	17.9	B
NB Sum	552	54.9	D	594.5	53.7	D	504	37.4	D	512	35.1	D
Composit		25.5	C		24.1	C		25.0	C		22.7	C
Int #92 - Route 303/Int #12 Off Ramp												
EB Sum	350	29.0	C	321.5	28.1	C	336.5	45.6	D	322	28.8	C
WB Sum												
SB Sum	587	18.0	B	603	17.9	B	562	21.1	C	668	18.3	B
NB Sum	585	31.2	C	629	31.8	C	517.5	76.2	E	522.5	34.5	C
Composit		25.6	C		25.6	C		47.1	D		26.1	C
Int # 91 - Route 303/Mall Exit												
EB Sum		18.6	B		14.9	B		42.3	D		17.3	B
WB Sum												
SB Sum	585	31.2	C	629	31.8	C	517.5	76.2	E	522.5	34.5	C
NB Sum	728	18.7	B	708.5	17.4	B	668.5	29.3	C	778.5	21.2	C
Composit		24.2	C		24.2	C		49.8	D		26.6	C
Int # 107 - Route 9W/High												
EB Sum	191	26.4	C	164	22.0	C	147	22.6	C	130	28.2	C
WB Sum	377	111.6	F	396.5	109.7	F	321	115.8	F	381	122.1	F
SB Sum	749	76.5	E	797	108.2	F	805	75.5	E	802	109.0	F
NB Sum	728	21.1	C	754	19.6	B	769	21.3	C	740	20.9	C
Composit		58.6	E		70.1	E		57.6	E		74.5	E
Int # 116 - Main St/Franklin St												
EB Sum	380	15.4	B	393	15.5	B	393.5	14.7	B	387.5	17.1	B
WB Sum	506	15.1	B	526	14.8	B	562.3333	15.8	B	546.6667	16.6	B
SB Sum	189	16.1	B	174	18.4	B	184	16.0	B	213	17.6	B
NB Sum	186	18.5	B	174	20.6	C	145	12.9	B	121	14.5	B
Composit		15.8	B		16.3	B		15.2	B		16.7	B
Int # 120 - Main St/Broadway												
EB Sum	237	14.8	B	263	17.3	B	236	13.0	B	245	14.6	B
WB Sum	134	15.1	B	152	17.0	B	148	17.3	B	149	18.4	B
SB Sum	341	16.9	B	334	13.1	B	349.5	19.5	B	329.5	18.4	B
NB Sum	168	21.0	C	188	17.0	B	186	16.8	B	232	18.5	B
Composit		16.8	B		15.7	B		16.9	B		17.5	B
EB 11 Ramps & Rt 59(New Intersection)												
EB Sum	1516	77.3	E	1677	65.7	E	1452	184.9	F	1581	155.1	F
WB Sum	873	67.2	E	881	65.4	E	962	46.0	D	860	41.3	D
SB Sum	313	35.1	D	315.5	39.5	D	312	36.1	D	289.5	39.5	D
Composit		69.2	E		62.7	E		118.8	F		107.0	F

Table C88 – Rockland County – Intersection Analysis – PM

	Alt B			Alt C			Alt D			Alt E		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Airmont Rd and Rt 59												
EB SUM	859	134.9251	F	860	130.9466	F	1030	39.79531	D	1119	51.06488	D
WB Sum	1028	41.37477	D	1074	47.40438	D	1034	30.78841	C	1078	39.30615	D
SB Sum	1166	82.3091	F	1165.5	63.0786	E	1164.5	52.95013	D	1157.5	49.98965	D
NB Sum	659	186.38	F	669	179.7095	F	670	183.7361	F	666	186.2172	F
Composit		101.62	F		94.81185	F		66.07362	E		69.99772	E
College road ad Rt 59												
EB SUM	911	18.01575	B	1027.5	20.05692	C	988.5	21.41047	C	998.5	18.28213	B
WB Sum	970	14.57439	B	980.5	14.21227	B	1017	14.84601	B	1026.5	14.98969	B
SB Sum	273	15.7153	B	264.5	14.3013	B	309	15.9989	B	268.5	18.7954	B
NB Sum	366	302.927	F	379	283.246	F	330	340.885	F	376.5	302.489	F
Composit		57.7811	E		54.94118	D		58.12	E		57.14431	E
Rt 306 & Rt 59												
EB SUM	928	40.48273	D	944.3333	41.04446	D	910.6667	56.37327	E	905.6667	54.41958	D
WB Sum	832	40.12621	D	864.5	47.7088	D	850.5	39.72857	D	949	57.8952	E
SB Sum	548	40.2356	D	499	44.58689	D	586	75.39282	E	532.5	58.58754	E
NB Sum	478	47.21605	D	466	45.07583	D	450	44.42429	D	427	47.58335	D
Composit		41.48302	D		44.43602	D		53.37456	D		55.34303	E
Main St(Rt 59) & Rt 9W												
EB SUM	1030	41.17491	D	1136.5	49.16756	D	1196.5	57.2557	E	1074	48.87408	D
WB Sum	148	36.3353	D	154.5	35.3427	D	196.5	39.4679	D	148	34.5121	C
SB Sum	415	29.31995	C	379	28.88595	C	632	45.0322	D	458	35.79606	D
NB Sum	329	35.53285	D	326.5	36.32343	D	324.5	36.27739	D	288	37.49035	D
Composit		37.27778	D		42.14713	D		49.58257	D		43.08454	D
Chestnut & Rt 59												
EB SUM	281	14.5949	B	271	16.7076	B	340	7.63755	A	359	9.41988	A
WB Sum	598	60.8197	E	470.5	113.4574	F	693	81.2598	F	686	76.6644	E
SB Sum	46	25.4542	C	58	30.3387	C	180	28.5962	C	120	44.5379	D
NB Sum	150	23.51575	C	169	86.58357	F	144	26.57191	C	159	19.65709	B
Composit		42.00949	D		76.71836	E		50.02467	D		48.67337	D
NewClarkstown Rd & Rt 59												
EB SUM	1012	8.15028	A	953	6.53014	A	949	6.72737	A	998.5	7.78869	A
WB Sum	1807	20.4605	C	1907	14.2717	B	1773	25.2499	C	1605	33.0456	C
SB Sum	607	46.3383	D	586.5	39.88706	D	421.5	36.5811	D	484.5	44.0276	D
Composit		21.40545	C		16.4901	B		21.17744	C		26.60187	C
Pascack Rd Bypass & Rt 59												
EB SUM	1306	42.1627	D	1244	31.2822	C	1212	26.9695	C	1301	32.1822	C
WB Sum	1882	42.0387	D	1953.5	31.26929	C	1822.5	110.575	F	1669.5	118.0011	F
SB Sum	717	28.07016	C	683.5	13.77281	B	1186	18.72456	B	1107.5	36.55478	D
NB Sum	360	124.0729	F	419	124.305	F	596	23.8574	C	570.5	85.307	F
Composit		46.6549	D		37.55747	D		56.18941	E		70.56555	E
Grand View Ave & Rt 59												
EB SUM	1268	66.5718	E	1277.5	65.3187	E	1664	64.6078	E	1712.5	52.766	D
WB Sum	1649	58.6448	E	1741.5	57.76515	E	1665	106.8366	F	1564	182.0372	F
SB Sum	680	33.20572	C	730	34.44544	C	709	57.7579	E	696.5	43.76559	D
NB Sum	476	59.894	E	454.5	67.7547	E	519.5	179.0542	F	451	141.9578	F
Composit		57.0103	E		57.09107	E		92.01521	F		106.1423	F
Co Rd 33 (N Middletown Road) & Rt 59												
EB SUM	1395	42.25615	D	1470.667	42.71571	D	1596.333	88.56593	F	1556.333	88.67148	F
WB Sum	1341	120.949	F	1334	123.2949	F	1296.333	133.2663	F	1343.333	127.9506	F
SB Sum	721	39.4194	D	708.5	37.64539	D	638	35.80161	D	654.5	32.77418	C
NB Sum	473	44.6117	D	493.5	45.9991	D	450	45.3994	D	428	45.8312	D
Composit		68.86798	E		69.05198	E		89.78633	F		88.1302	F
Smith St & Rt 59												
EB SUM	579	21.28961	C	543	18.65264	B	534	19.87712	B	531	20.69863	C
WB Sum	1813	91.243	F	1819.5	72.3784	E	1919	55.9294	E	1892	43.43003	D
SB Sum	339	270.962	F	366.5	79.03256	E	355	245.949	F	385	162.448	F
NB Sum	299	33.86958	C	181	31.6781	C	301	35.29166	D	216.5	32.26177	C
Composit		92.3014	F		60.65981	E		69.43634	E		53.78996	D
Mountainview Ave & Rt 59												
EB SUM	968	21.09536	C	1069.5	21.14623	C	1198	20.33885	C	1059.5	18.93573	B
WB Sum	635	45.8429	D	593.5	44.2053	D	840.5	66.3589	E	638.5	47.4001	D
SB1 Sum	186			201			182.5			212.5		
SB2 Sum												
NB Sum	64	54.89365	D	57	57.45685	E	76	53.59228	D	61.5	49.19292	D
Composit		31.81618	C		30.30627	C		39.82673	D		30.32267	C

Table C88 – Rockland County – Intersection Analysis – PM (cont)

	Alt B			Alt C			Alt D			Alt E		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Spook Rock & Airmont												
EB SUM	619	8.79768	A	563.5	11.33004	B	548.5	9.92005	A	561.5	11.1345	B
WB Sum	165	23.4312	C	179	22.4288	C	152.5	22.7337	C	193	22.5577	C
SB Sum	535	36.0175	D	535	33.2675	C	494	28.6994	C	542	38.3866	D
NB Sum	235	29.7564	C	257	36.3572	D	229	34.5634	C	236	32.2192	C
Composit		22.89191	C		24.46474	C		21.77006	C		25.45835	C
Int # 8 - Orange Avenue/Lafayette Avenue(Rt 59)												
EB Sum	172	55.3807	E	182.5	91.9258	F	165	65.2219	E	203	49.8741	D
WB Sum	262	152.409	F	248	134.808	F	647	84.2192	F	641	78.0386	E
SB Sum	296	21.86765	C	298	24.06753	C	356.5	50.6797	D	365	51.8362	D
NB Sum	1022	53.618	D	977	46.3018	D	734	72.8736	E	711	88.3799	F
Composit		63.20038	E		60.16876	E		71.90958	E		73.90912	E
Int # 27 - Airmont Road/Rella Blvd/Montebello Road												
EB Sum	549	8.91945	A	451.5	3.1386	A	428.5	1.44316	A	429.5	2.19936	A
WB Sum		#N/A			#N/A			#N/A			#N/A	
SB Sum	1416	30.91292	C	1371	26.69236	C	1278.5	20.02839	C	1286.5	33.33936	C
NB Sum	598	6.88605	A	617	6.93576	A	541	5.18257	A	615.5	6.53932	A
Composit		20.59819	C		17.3362	B		12.91302	B		20.52784	C
Int # 46 - Route 59/Route 45												
EB Sum	982	28.69424	C	982.5	34.1273	C	671.5	14.63615	B	628.5	19.82505	B
WB Sum	1330	36.255	D	1397	38.20147	D	1330	16.9675	B	1392	38.44462	D
SB Sum	469	59.4515	E	492	107.3147	F	506.5	246.8303	F	583	132.8932	F
NB Sum	532	101.6363	F	513	116.0778	F	480.5	330.9946	F	487.5	102.7708	F
Composit		47.79949	D		58.86963	E		105.8917	F		62.61807	E
Int # 51 - Route 45/Old Nyack Tpke												
EB Sum	223	32.89147	C	216.5	32.44496	C	238	33.40273	C	210	35.4471	D
WB Sum	77	23.2615	C	94	12.4771	B	56	19.4603	B	90	19.7138	B
SB Sum	272	21.63939	C	318.5	22.74839	C	385	26.15216	C	308	24.548	C
NB Sum	255	17.90987	B	247.5	19.58101	B	318	18.44546	B	249	16.9001	B
Composit		23.67046	C		23.14757	C		25.04901	C		24.48896	C
Int # 65 - Route 306/Bardonia Rd												
EB Sum	85	26.0354	C	98	25.153	C	108	26.8752	C	97.5	34.153	C
WB Sum	284	20.8436	C	242.5	21.6493	C	272.5	18.8755	B	273	21.7509	C
SB Sum	1002	17.5854	B	1003	17.9739	B	1015.5	18.8092	B	1003.5	18.0428	B
NB Sum	1242	17.24427	B	1341.5	18.1732	B	1292	20.39685	C	1278	22.47187	C
Composit		18.05044	B		18.66746	B		19.90311	B		21.15117	C
Int # 73 - Route 306/West Nyack Rd												
EB Sum	480	80.8417	F	526.5	72.1392	E	484	37.6077	D	435	53.9421	D
WB Sum	170	22.39541	C	179	15.76521	B	216.5	19.19622	B	231.5	24.03311	C
SB Sum	1139	47.9934	D	1130	45.8959	D	1104.5	65.0528	E	1063.5	65.2675	E
NB Sum	1325	58.85521	E	1357.5	47.6847	D	1297	35.26044	D	1402	44.59921	D
Composit		56.28598	E		49.29458	D		45.11338	D		51.39481	D
Int # 93 - Route 303/Snake Hill Rd												
EB Sum	1174	22.1181	C	1064	20.6211	C	1593	29.4798	C	1024	43.2529	D
WB Sum		#N/A			#N/A			#N/A			#N/A	
SB Sum	791	19.10165	B	767	17.74769	B	748.5	34.46281	C	824.5	64.7704	E
NB Sum	2210	21.40723	C	2122.5	22.14552	C	1793	25.67239	C	1956	27.9511	C
Composit		21.17028	C		20.88205	C		28.73076	C		40.04903	D
Int #92 - Route 303/Int #12 Off Ramp												
EB Sum	1177	22.958	C	1247	25.0471	C	902	61.9781	E	1056.5	36.4393	D
WB Sum												
SB Sum	450	41.2608	D	460	38.7146	D	975	22.6564	C	555	48.7742	D
NB Sum	1527	61.7146	E	1389.5	52.9089	D	1223.5	35.16266	D	1322.5	48.9553	D
Composit		44.33327	D		39.57997	D		39.03104	D		44.41417	D
Int # 91 - Route 303/Mall Exit												
EB Sum	82	32.8127	C	67	45.6066	D	161	33.0825	C	137	30.8123	C
WB Sum												
SB Sum	1527	61.7146	E	1389.5	52.9089	D	1223.5	35.16266	D	1322.5	48.9553	D
NB Sum	583	15.28125	B	593.5	25.91985	C	999	15.23667	B	610	14.71305	B
Composit		48.28367	D		44.85658	D		26.67054	C		37.66109	D
Int # 107 - Route 9W/High												
EB Sum	310	8.24324	A	273	7.28454	A	488	13.4441	B	287	7.62466	A
WB Sum	535	18.29917	B	501.5	18.29175	B	487.5	40.59939	D	504.5	18.57245	B
SB Sum	91	12.8965	B	90	12.542	B	102	19.74	B	125	14.0486	B
NB Sum	753	11.9444	B	767	11.3311	B	825	13.7996	B	724	11.5763	B
Composit		14.69119	B		14.36432	B		25.4956	C		14.67769	B
Int # 116 - Main St/Franklin St												
EB Sum	351	15.2192	B	345.5	15.8725	B	384.5	16.058	B	365.5	15.845	B
WB Sum	318	10.6277	B	326.3333	11.13878	B	353.6667	11.92718	B	311.6667	12.8314	B
SB Sum	127	12.6196	B	117	15.0499	B	89	14.8074	B	87	15.1758	B
NB Sum	127	12.3074	B	132	11.7501	B	122	11.9267	B	129	13.5398	B
Composit		12.87896	B		13.49946	B		13.87055	B		14.39529	B
Int # 120 - Main St/Broadway												
EB Sum	291	12.7821	B	273	13.3025	B	331	14.8461	B	317	14.2413	B
WB Sum	119	10.7652	B	133	12.1827	B	128	16.3176	B	118	11.113	B
SB Sum	122	10.96899	B	156	11.17648	B	159	11.61663	B	148	12.53669	B
NB Sum	194	15.1901	B	206	12.5607	B	198	18.4196	B	204	15.8549	B
Composit		12.79028	B		12.47776	B		15.31475	B		13.86996	B
EB 11 Ramps & Rt 59												
(New Intersection)												
EB Sum	867	315.651	F	922	300.3228	F	1345	69.0307	E	1205	44.41288	D
WB Sum	702	33.11378	C	679	32.79014	C	893	36.81542	D	717	33.03179	C
SB Sum	503	43.897	D	532	37.3805	D	575	44.73767	D	518	36.99442	D
Composit		153.9625	F		149.5721	F		53.8343	D		39.49324	D

Table C89 – Westchester County – Intersection Analysis – AM

LOS	Alt B 2047			Alt C 2047			Alt D 2047			Alt E 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
S Broadway and 119												
NB												
SB												
EB												
WB												
Composit												
S Broadway/I-287 EB ramps Int 9												
NB	981	73.4 E		788	50.7 D		886	45.0 D		817	44.4 D	
SB	1287	29.0 C		1304	32.4 C		1283	27.2 C		1370	44.0 D	
EB	0	0.0 A		0	0.0 A		0	0.0 A		0	0.0 A	
WB	1375	14.9 B		1423	17.5 B		1445	17.1 B		1350	12.8 B	
Composit		35.6 D			30.4 C			27.5 C			32.2 C	
119/I-287 WB ramps Int 9												
NB	946	88.6 F		1065	27.5 C		1024	101.6 F		1019	95.6 F	
SB	16	0.0 A		16	0.0 A		16	0.0 A		16	0.0 A	
EB	925	31.0 C		642	113.5 F		858	31.1 C		615	193.5 F	
WB	400	28.3 C		294	50.0 D		502	28.8 C		331	75.8 E	
Composit		54.1 D			57.9 E			60.5 E			121.9 F	
119/Benedict Ave												
SB	564	20.6 C		620	29.5 C		562	23.6 C		585	59.8 E	
EB	725	21.9 C		708	21.2 C		804	22.6 C		882	27.6 C	
WB	480	31.6 C		359	50.9 D		504	28.8 C		476	59.8 E	
Composit		24.1 C			30.6 C			24.6 C			45.2 D	
119/Taxter Rd												
NB	1096	22.2 C		1150	79.9 E		1114	29.5 C		1032	73.8 E	
EB	1522	45.7 D		1390	67.9 E		1437	65.5 E		1355	54.0 D	
WB	813	13.7 B		638	16.1 B		802	16.2 B		770	16.8 B	
Composit		30.6 C			61.8 E			41.8 D			51.4 D	
119/S Stone Ave												
NB	672	40.3 D		698	42.2 D		715	52.3 D		701	65.8 E	
SB	562	25.3 C		496	25.0 C		580	24.5 C		544	27.8 C	
EB	2255	70.8 E		2125	56.9 E		2214	71.6 E		2259	90.0 F	
WB	789	38.1 D		823	40.0 D		850	40.2 D		843	42.0 D	
Composit		54.0 D			47.2 D			56.0 E			69.0 E	
119 Ramp EB/W Hartsdale Ave												
NB	629	219.0 F		554	257.5 F		622	195.1 F		477	258.1 F	
SB	719	7.2 A		759	8.4 A		730	20.9 C		677	5.6 A	
EB	419	27.3 C		533	41.2 D		444	34.2 C		476	84.3 F	
Composit		87.4 F			92.6 F			84.5 F			102.5 F	
119 Ramp WB/W Hartsdale Ave												
NB	802	23.9 C		852	35.1 D		714	30.7 C		719	38.4 D	
SB	766	24.7 C		1018	32.6 C		818	39.2 D		759	23.4 C	
WB	378	18.6 B		672	56.8 E		434	50.8 D		593	44.4 D	
Composit		23.2 C			80.1 F			84.2 F			103.1 F	
119/Aquaeduct Rd												
NB	1095	22.2 C		1077	60.2 E		1110	5.2 A		1072	40.3 D	
SB	1097	25.9 C		1060	23.5 C		1154	28.2 C		923	44.8 D	
EB	37	38.2 D		1961	134.4 F		1896	192.5 F		1876	186.3 F	
WB	1194	38.0 D		1206	59.6 E		1159	38.5 D		1188	73.8 E	
Composit		29.1 C			58.5 E			52.6 D			48.3 D	
119/N Central Ave												
NB	1106	140.2 F		1056	140.8 F		1239	88.7 F		1403	77.1 E	
SB	588	31.5 C		580	46.0 D		655	35.4 D		360	48.7 D	
EB (119)	1507	51.5 D		1470	34.5 C		1233	42.5 D		1037	39.6 D	
WB (119)	1085	29.9 C		1096	17.9 B		1085	33.1 C		923	14.2 B	
Composit		66.2 E			164.4 F			169.1 F			158.3 F	
Bronx River PKWY/N Central Ave												
NB	237	23.8 C		243	29.7 C		252	20.4 C		178	32.5 C	
EB	1212	291.8 F		1336	261.1 F		1246	304.1 F		1017	272.5 F	
WB	842	12.7 B		697	26.0 C		845	14.3 B		615	5.8 A	
Composit		161.5 F			35.0 C			38.2 D			64.6 E	
119/Main Ave/Bank												
NB	1421	28.6 C		1212	38.1 D		1211	34.4 C		971	64.5 E	
EB	3998	25.4 C		3733	34.0 C		3860	39.5 D		2932	64.6 E	
Composit		26.2 C			18.6 B			17.7 B			20.7 C	

Table C89 – Westchester County – Intersection Analysis – AM (cont)

LOS	Alt B 2047			Alt C 2047			Alt D 2047			Alt E 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Hamilton St/ Bank												
NB	1417	13.3	B	1162	17.9	B	1210	19.3	B	1009	26.4	C
WB	1448	15.1	B	1483	19.2	B	1590	16.6	B	1489	16.8	B
Composit		14.2	B		53.7	D		31.3	C		73.3	E
E Post Rd/Mamroneck												
NB	882	19.7	B	768	7.7	A	715	21.1	C	623	45.3	D
SB	288	73.8	E	436	51.3	D	138	40.6	D	298	82.1	F
EB	664	99.8	F	624	135.0	F	753	40.9	D	413	91.6	F
WB	358	32.6	C	438	20.7	C	375	28.1	C	479	88.4	F
Composit		53.2	D		62.6	E		83.7	F		69.8	E
Westchester Ave/Bloomindale Rd *												
NB	447	41.3	D	267	26.9	C	508	45.8	D	350	38.9	D
SB	641	48.3	D	604	50.4	D	611	49.4	D	610	41.1	D
EB	820	78.0	E	736	72.6	E	913	86.4	F	787	65.3	E
WB	1101	80.3	F	1560	68.6	E	922	124.6	F	1318	93.9	F
Composit		67.1	E		61.9	E		65.6	E		90.1	F
I-287 Int 8W/Bloomindale Rd *												
NB	202	60.9	E	73	38.6	D	230	73.9	E	88	47.6	D
SB	576	34.9	C	679	42.1	D	573	36.0	D	573	55.6	E
EB	210	44.6	D	237	50.1	D	255	58.4	E	253	52.4	D
WB	1707	58.9	E	1624	73.0	E	1735	75.4	E	1478	112.4	F
Composit		52.8	D		46.3	D		44.5	D		89.9	F
Westchester Ave EB/ White Plains Rd												
NB	730	51.3	D	907	48.4	D	901	56.5	E	475	188.1	F
SB	726	63.8	E	685	69.1	E	679	66.0	E	666	68.9	E
EB	1234	19.6	B	941	27.6	C	1079	21.0	C	760	47.0	D
Composit		40.2	D		43.4	D		25.4	C		67.2	E
Westchester Ave WB/ White Plains Rd												
NB	471	24.5	C	646	33.4	C	631	22.1	C	401	164.2	F
SBWB	683	35.3	D	775	43.7	D	654	27.0	C	741	42.7	D
WB	683	41.1	D	775	51.3	D	654	26.9	C	741	42.7	D
Composit		34.7	C		50.5	D		57.9	E		75.3	E
Bryant Ave/ North St												
NB	1369	88.8	F	1366	74.5	E	1257	80.6	F	1097	132.8	F
SB	577	32.4	C	401	47.7	D	578	69.9	E	296	32.3	C
EB	242	9.5	A	301	15.1	B	332	18.8	B	337	22.5	C
WB	833	25.8	C	828	25.2	C	743	27.5	C	776	33.2	C
Composit		54.3	D		50.5	D		57.9	E		75.3	E
Westchester AV E/Kenilworth RD												
NB	103	0.0	A	73	0.0	A	126	0.0	A	87	0.0	A
SB	234	6.2	A	333	7.1	A	212	6.7	A	333	5.4	A
EB	403	3.0	A	517	2.2	A	331	3.5	A	343	3.2	A
Composit		3.6	A		3.8	A		3.9	A		3.8	A
Westechester AV W/Kenilworth Rd												
NB	89	12.5	B	73	52.7	D	129	12.9	B	52	19.1	B
SB	219	50.9	D	250	105.9	F	132	32.6	C	181	41.0	D
WB	871	9.4	A	686	26.8	C	797	9.2	A	693	44.1	D
Composit		17.3	B		48.3	D		12.6	B		42.1	D
Westchester Ave E/ Webb												
NB	168	0.4	A	99	6.1	A	159	0.0	A	163	6.3	A
EB	595	1.4	A	468	9.2	A	524	1.2	A	520	8.4	A
Composit		1.2	A		8.7	A		0.9	A		7.9	A
Polly Park Rd/Purchase St												
NB	321	12.9	B	361	14.6	B	299	12.7	B	348	13.2	B
SB	481	14.6	B	460	16.1	B	459	14.0	B	398	14.3	B
EB	82	12.7	B	52	16.9	B	47	7.6	A	61	13.5	B
WB	130	13.5	B	161	18.3	B	113	19.4	B	179	19.4	B
Composit		13.8	B		15.9	B		13.9	B		14.8	B
Bowman Ave/Webb												
NB	361	13.0	B	369	13.6	B	438	10.2	B	433	16.3	B
SB	130	18.0	B	117	15.9	B	58	15.5	B	112	20.4	C
EB	168	15.4	B	195	16.9	B	148	13.6	B	151	20.0	B
WB	112	11.4	B	119	13.0	B	89	9.8	A	120	13.5	B
Composit		14.2	B		14.6	B		11.3	B		17.1	B
Westchester Ave/Ridge ST												
NB	291	17.0	B	331	14.8	B	301	16.4	B	345	16.4	B
SB	702	51.0	D	738	89.8	F	690	36.1	D	811	115.2	F
EB	644	13.0	B	498	11.9	B	670	13.0	B	592	12.8	B
WB	740	16.9	B	791	17.5	B	648	15.6	B	713	16.8	B
Composit		25.9	C		39.6	D		21.1	C		48.2	D

Table C89 – Westchester County – Intersection Analysis – AM (cont)

LOS	Alt B 2047			Alt C 2047			Alt D 2047			Alt E 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Bowman Ave/S Ridge St												
NB	382	25.9 C		460	27.1 C		378	30.5 C		473	27.8 C	
SB	838	45.0 D		736	37.3 D		657	34.7 C		680	37.8 D	
EB	414	40.8 D		427	38.8 D		341	28.7 C		372	40.4 D	
WB	258	31.0 C		254	29.7 C		229	26.4 C		298	40.8 D	
Composit		38.3 D			34.1 C			31.2 C			36.2 D	
Ochard												
NB	827	25.1 C		788	30.1 C		913	30.3 C		776	32.4 C	
SB	1790	29.5 C		1784	29.7 C		1687	39.5 D		1781	41.2 D	
WB	821	48.4 D		921	35.0 C		849	29.1 C		762	54.3 D	
Composit		33.0 C			31.2 C			34.5 C			42.2 D	
Main /MLK												
NB	1093	54.8 D		1181	66.9 E		1155	60.2 E		991	72.5 E	
EB	1779	29.4 C		1809	52.7 D		1752	9.9 A		1206	54.1 D	
Composit		39.1 D			58.3 E			29.8 C			62.4 E	
Hamilton/Cottage PL												
SB	439	71.4 E		430	73.4 E		411	71.2 E		444	71.4 E	
EB	568	9.3 A		665	10.7 B		463	9.0 A		557	9.4 A	
WB	937	21.1 C		1194	18.9 B		988	20.9 C		1039	16.4 B	
Composit		29.0 C			26.8 C			29.1 C			26.4 C	
I-287 EB/Rt 100A												
EB	757	35.6 D		782	70.5 E		707	59.0 E		892	62.4 E	
NB	1033	12.3 B		1458	12.1 B		996	15.9 B		1209	15.5 B	
SB	528	12.3 B		677	19.3 B		568	23.6 C		541	11.7 B	
Composit		19.9 B			29.4 C			31.2 C			30.6 C	
I-287 WB/Rt 100A												
WB	419	9.7 A		544	13.0 B		511	12.4 B		371	8.2 A	
NB	826	14.2 B		620	14.8 B		780	16.3 B		844	20.7 C	
SB	931	11.2 B		1023	11.1 B		932	12.2 B		968	11.3 B	
Composit		12.0 B			12.6 B			13.7 B			14.4 B	
Exit 8A Off Ramp/Rt 119												
EB	1206	32.6 C		1133	31.8 C		1192	57.8 E		1060	105.9 F	
WB	471	48.3 D		460	42.7 D		471	48.0 D		523	41.0 D	
NB	110	21.8 C		111	16.3 B		84	12.4 B		112	50.5 D	
SB	857	9.0 A		693	12.4 B		843	18.4 B		1036	19.0 B	
Composit		27.3 C			27.5 C			41.7 D			58.3 E	
Exit 2 WB Off Ramps/Rt 9A												
WB	1141	9.6 A		1106	10.1 B		1077	10.1 B		1376	15.5 B	
SB	668	28.6 C		710	30.5 C		709	32.3 C		650	31.8 C	
NB	606	23.0 C		659	24.2 C		669	25.8 C		849	31.8 C	
Composit		18.2 B			19.7 B			20.8 C			24.0 C	
Exit 2 EB On ramp/Rt 9A												
NB	919	9.9 A		1020	12.1 B		976	13.9 B		1110	39.1 D	
SB	871	5.5 A		863	7.0 A		900	6.2 A		846	6.4 A	
Composit		7.7 A			9.8 A			10.2 B			24.9 C	
Exit 5 ramps/Rt 9A												
EB	1563	18.1 B		1036	94.6 F		1636	48.7 D		1100	126.9 F	
WB	27	2.5 A		1814	3.3 A		2297	2.7 A		1805	8.0 A	
NB	830	11.7 B		903	74.0 E		648	21.7 C		786	50.8 D	
Composit		15.7 B			45.5 D			21.8 C			52.6 D	
Exit 6 EB ramps/Rt 22												
EB	1125	24.0 C		1076	19.6 B		1052	30.6 C		995	17.9 B	
NB	960	9.5 A		901	9.4 A		1019	11.3 B		924	12.4 B	
SB	1479	11.3 B		1598	12.0 B		1432	12.0 B		1537	17.7 B	
Composit		14.8			13.6 B			17.4 B			16.3 B	
Exit 6 WB ramps/Rt 22												
WB	1096	21.3 C		1250	22.9 C		1078	15.4 B		1061	25.8 C	
NB	0	3.3 A		0	3.4 A		0	3.8 A		0	3.3 A	
SB	224	78.8 E		146	31.5 C		182	41.3 D		194	59.1 E	
Composit		31.0 C			23.8 C			19.2 B			31.0 C	
Exit 9S EB ramps<Westchester Ave												
EB - i-287 ramp	1459	10.3 B		1474	9.6 A		1264	9.8 A		1271	9.2 A	
EB Westchetser Ave	315	24.9 C		181	22.9 C		212	22.5 C		238	23.1 C	
Composit		12.9 B			11.0 B			11.7 B			11.4 B	
I-287 EB Exit ramps/Boston Post Rd												
EB	929	22.9 C		886	22.4 C		864	23.9 C		784	23.5 C	
NB	139	32.3 C		134	35.2 D		132	32.8 C		113	31.3 C	
SB	284	15.2 B		278	14.1 B		283	13.0 B		265	14.4 B	
Composit		22.2 C			22.0 C			22.4 C			22.2 C	

Table C90 – Westchester County – Intersection Analysis – PM

LOS	Alt B 2047			Alt C 2047			Alt D 2047			Alt E 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
S Broadway and 119												
NB												
SB												
EB												
WB												
Composit												
S Broadway/I-287 EB ramps Int 9												
NB	1042	40.0	D	899	103.7	F	1130	56.6	E	991	52.7	D
SB	1216	13.6	B	1258	18.1	B	1518	40.4	D	1231	14.4	B
EB	0	0.0	A	0	0.0	A	0	0.0	A	0	0.0	A
WB	590	20.7	C	249	27.4	C	215	15.3	B	230	25.2	C
Composit		24.7	C		51.0	D		44.9	D		30.9	C
119/I-287 WB ramps Int 9												
NB	356	29.6	C	1191	53.0	D	364	35.1	D	1028	97.5	F
SB	13	0.0	A	13	0.0	A	13	0.0	A	13	0.0	A
EB	446	35.2	D	27	67.7	E	408	30.3	C	22	83.1	F
WB	700	15.2	B	365	27.7	C	623	20.7	C	295	43.4	D
Composit		24.4	C		47.0	C		27.0	C		84.6	F
119/Benedict Ave												
SB	227	30.8	C	307	24.8	C	161	31.8	C	357	26.2	C
EB	739	28.7	C	193	342.6	F	632	34.6	C	302	180.8	F
WB	718	97.1	F	192	51.8	D	519	26.6	C	229	64.0	E
Composit		58.2	E		120.9	F		31.1	C		88.5	F
119/Taxter Rd												
NB	825	102.9	F	728	365.4	F	687	396.2	F	716	418.5	F
EB	846	61.1	E	472	92.5	F	480	161.3	F	511	107.8	F
WB	1356	10.9	B	1592	10.4	B	1809	18.1	B	1607	10.9	B
Composit		50	D		116.8	F		128.4	F		131.3	F
119/S Stone Ave												
NB	746	103.3	F	754	100.5	F	760	100.4	F	773	96.4	F
SB	719	33.1	C	782	35.9	D	898	33.8	C	743	46.4	D
EB	1369	55.5	E	1328	64.8	E	1482	62.4	E	1275	68.2	E
WB	1020	40.0	D	1008	39.1	D	984	39.1	D	1068	39.5	D
Composit		56.5	E		59.2	E		57.6	E		61.7	E
119 Ramp EB/W Hartsdale Ave												
NB	724	38.8	D	522	151.4	F	721	36.4	D	592	117.1	F
SB	1052	4.9	A	910	7.7	A	1074	8.7	A	947	5.6	A
EB	456	36.9	D	412	73.5	E	450	45.3	D	463	34.5	C
Composit		22.4	C		63.1	E		24.9	C		45.3	D
119 Ramp WB/W Hartsdale Ave												
NB	876	23.9	C	715	35.6	D	900	26.9	C	756	31.9	C
SB	1103	29.9	C	1056	32.4	C	1191	34.3	C	936	28.3	C
WB	704	42.4	D	660	66.2	E	716	42.9	D	630	40.1	D
Composit		31.2	C		42.5	D		34.1	C		32.6	C
119/Aquaeduct Rd												
NB	836	4.2	A	789	37.1	D	782	12.8	B	907	5.9	A
SB	687	83.0	F	601	96.6	F	667	43.5	D	654	53.6	D
EB	2048	37.1	D	1604	62.8	E	2140	42.3	D	2094	113.2	F
WB	1790	40.1	D	1705	57.5	E	1737	56.3	E	1729	43.5	D
Composit		38.9	D		60.9	E		42.7	D		65.5	E
119/N Central Ave												
NB	700	39.3	D	820	113.6	F	790	45.9	D	817	68.4	E
SB	1009	34.0	C	601	29.8	C	793	39.3	D	780	40.9	D
EB (119)	1408	35.7	D	1017	92.0	F	1524	36.1	D	1485	81.0	F
WB (119)	2664	63.6	E	2173	41.4	D	2276	57.6	E	2677	62.4	E
Composit		48.7	D		63.9	E		47.1	D		65.1	E
Bronx River PKWY/N Central Ave												
NB	343	22.1	C	518	36.6	D	447	23.7	C	541	31.7	C
EB	1321	189.8	F	420	518.1	F	992	219.8	F	575	611.5	F
WB	1207	125.0	F	1006	30.7	C	992	219.8	F	1197	44.8	D
Composit		142.5	F		137.6	F		121.0	F		182.6	F
119/Main Ave/Bank												
NB	2197	33.2	C	954	55.5	E	1519	45.5	D	1708	47.2	D
EB	2651	90.1	F	1815	149.6	F	2372	104.0	F	2832	91.0	F
Composit		64.3	E		117.2	F		81.2	F		74.5	E
Hamilton St/ Bank												
NB	2310	14.5	B	1106	21.5	C	1575	13.4	B	1728	17.6	B
WB	2395	9.0	A	2305	21.9	C	2238	10.2	B	2667	14.6	B
Composit		11.7	B		21.7	C		11.6	B		15.8	B

Table C90 – Westchester County – Intersection Analysis – PM (cont)

LOS	Alt B 2047			Alt C 2047			Alt D 2047			Alt E 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
E Post Rd/Mamroneck												
NB	534	161.9	F	440	93.3	F	3	8.8	A	316	233.8	F
SB	446	169.0	F	55	179.3	F	370	163.0	F	580	87.7	F
EB	522	202.2	F	338	134.6	F	490	150.4	F	457	226.2	F
WB	358	36.1	D	395	105.7	F	645	49.0	D	570	71.0	E
Composit		150.7	F		112.5	F		109.8	F		139.7	F
Westchester Ave/Bloomindale Rd *												
NB	553	28.6	C	774	59.0	E	697	37.1	D	664	39.9	D
SB	197	29.2	C	173	86.7	F	149	32.8	C	168	73.6	E
EB	497	24.5	C	13	20.3	C	555	25.6	C	16	37.1	D
WB	1309	39.1	D	1318	89.1	F	1279	39.4	D	1314	67.4	E
Composit		33.2	C		78.3	E		35.6	D		59.2	E
I-287 Int 8W/Bloomindale Rd *												
NB	894	32.9	C	568	182.4	F	823	70.6	E	567	104.0	F
SB	475	38.3	D	479	35.8	D	463	35.5	D	479	68.3	E
EB	381	93.8	F	383	73.7	E	381	93.3	F	387	82.4	F
WB	1036	65.8	E	1052	161.2	F	1269	96.1	F	867	182.4	F
Composit		54.4	D		128.4	F		79.0	E		122.5	F
Westchester Ave EB/ White Plains Rd												
NB	606	75.6	E	587	88.0	F	600	56.9	E	562	133.5	F
SB	1028	65.7	E	1062	27.5	C	893	44.1	D	515	179.4	F
EB	1001	16.2	B	575	44.2	D	1227	21.8	C	987	30.9	C
Composit		49.2	D		47.8	D		36.9	D		95.9	F
Westchester Ave WB/ White Plains Rd												
NB	590	13.7	B	583	33.0	C	620	12.7	B	677	35.2	D
SBWB	969	57.6	E	901	85.7	F	968	26.1	C	607	150.0	F
WB	969	35.1	D	901	42.3	D	968	21.4	C	607	85.7	F
Composit		38.7	D		56.4	E		21.1	C		88.3	F
Bryant Ave/ North St												
NB	957	43.1	D	961	196.9	F	921	44.2	D	814	140.1	F
SB	692	43.1	D	598	71.1	E	881	43.1	D	18	733.6	F
EB	539	32.3	C	588	170.2	F	586	37.0	D	549	206.4	F
WB	923	14.3	B	919	7.1	A	810	33.9	C	578	23.2	C
Composit		32.7	C		110.4	F		40.0	D		129.7	F
Westchester AV E/Kenilworth RD												
NB	549	0.0	A	494	0.0	A	488	9.6	A	545	1.1	A
SB	316	4.8	A	276	6.2	A	286	6.7	A	350	10.0	A
EB	714	1.2	A	550	0.9	A	1727	10.6	B	569	3.9	A
Composit		1.5	A		1.7	A		9.9	A		4.3	A
Westechester AV W/Kenilworth Rd												
NB	414	9.1	A	263	16.6	B	775	11.0	B	131	33.9	C
SB	182	2.6	A	190	9.9	A	210	3.2	A	380	17.8	B
WB	1150	0.0	A	783	13.2	B	912	0.0	A	831	9.3	A
Composit		2.4	A		13.4	B		4.9	A		14.1	B
Westchester Ave E/ Webb												
NB	93	0.0	A	175	0.9	A	105	0.0	A	143	0.0	A
EB	1360	1.5	A	1161	1.4	A	1390	1.5	A	1226	1.4	A
Composit		1.4	A		1.3	A		1.4	A		1.3	A
Polly Park Rd/Purchase St												
NB	265	56.7	E	240	28.7	C	210	112.5	F	227	37.1	D
SB	519	8.6	A	511	8.8	A	797	19.9	B	475	8.2	A
EB	135	12.3	B	143	12.0	B	217	15.8	B	126	10.3	B
WB	276	56.9	E	338	54.0	D	374	93.1	F	332	47.7	D
Composit		30.8	C		25.4	C		48.7	D		25.4	C
Bowman Ave/Webb												
NB	208	17.3	B	311	17.1	B	406	16.1	B	427	15.9	B
SB	244	16.1	B	275	20.9	C	174	20.3	C	212	21.3	C
EB	144	24.1	C	87	36.3	D	138	28.8	C	39	20.4	C
WB	272	22.4	C	338	22.9	C	294	53.7	D	332	27.4	C
Composit		19.7	B		21.7	C		29.5	C		21.0	C
Westchester Ave/Ridge ST												
NB	834	51.9	D	821	54.8	D	677	43.8	D	996	60.3	E
SB	150	1289.3	F	137	0.0	A	186	0.0	A	120	0.0	A
EB	1241	20.8	C	1082	19.4	B	1361	29.8	C	1263	21.1	C
WB	296	29.5	C	464	22.9	C	435	21.1	C	418	20.7	C
Composit		107.6	F		30.6	C		29.9	C		34.1	C

Table C90 – Westchester County – Intersection Analysis – PM (cont)

LOS	Alt B 2047			Alt C 2047			Alt D 2047			Alt E 2047		
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay	LOS
Bowman Ave/S Ridge St												
NB	919	80.0	F	755	35.9	D	604	197.8	F	806	39.1	D
SB	228	48.2	D	277	39.8	D	248	46.5	D	206	42.0	D
EB	384	39.8	D	436	12.7	B	534	90.7	F	393	15.0	B
WB	191	24.9	C	238	21.3	C	294	20.7	C	309	23.4	C
Composit		60.7	E		28.6	C		110.4	F		31.1	C
Ochard												
NB	1080	45.0	D	888	42.7	D	993	45.1	D	1259	53.0	D
SB	1131	21.2	C	1070	67.8	E	1185	23.4	C	1053	39.0	D
WB	586	38.2	D	358	102.9	F	350	30.1	C	342	27.7	C
Composit		33.9	C		63.6	E		32.8	C		44.2	D
Main /MLK												
NB	1154	62.4	E	1588	48.9	D	1402	54.5	D	1244	78.6	E
EB	1358	57.3	E	876	86.9	F	951	31.2	C	1441	52.0	D
Composit		59.7	E		62.4	E		45.1	D		64.3	E
Hamilton/Cottage PL												
SB	464	67.4	E	396	79.5	D	432	69.7	E	396	110.7	F
EB	569	26.3	C	652	18.0	B	727	12.7	B	568	17.4	B
WB	1514	27.6	C	1057	32.0	C	1290	27.5	C	1675	23.7	C
Composit		34.6	C		36.6	D		30.6	C		35.4	D
I-287 EB/Rt 100A												
EB	456	37.9	D	412	80.1	F	450	51.8	D	463	35.4	D
NB	724	38.8	D	522	103.7	F	721	36.4	D	592	81.1	F
SB	1052	4.9	A	910	7.7	A	1074	8.7	A	947	5.6	A
Composit		22.6	C		51.1	D		26.3	C		34.8	C
I-287 WB/Rt 100A												
WB	704	53.3	D	660	93.4	F	1345	51.9	D	630	45.1	D
NB	876	23.9	C	715	35.6	D	905	26.9	C	756	31.9	C
SB	1103	18.9	B	1056	17.3	B	1191	20.7	C	936	15.3	B
Composit		29.6	C		43.4	D		34.5	C		28.8	C
Exit 8A Off Ramp/Rt 119												
EB	522	23.0	C	156	22.1	C	542	22.3	C	219	21.8	C
WB	552	37.7	D	440	30.9	C	729	35.4	D	503	34.0	C
NB	200	12.6	B	173	50.6	D	213	27.5	C	165	45.1	D
SB	973	3.6	A	1560	9.1	A	1429	7.6	A	1469	10.2	B
Composit		17.3	B		17.2	B		18.8	B		18.8	B
Exit 2 WB Off Ramps/Rt 9A												
WB	735	32.7	C	814	38.5	D	804	34.8	C	781	42.3	D
SB	1139	28.4	C	1155	26.5	C	1198	25.2	C	1162	26.4	C
NB	649	4.6	A	756	5.2	A	677	4.5	A	769	4.4	A
Composit		23.5	C		24.2	C		22.9	C		24.7	C
Exit 2 EB On ramp/Rt 9A												
NB	1207	11.3	B	1250	13.4	B	1182	11.4	B	1284	12.8	B
SB	845	4.4	A	943	4.4	A	1077	5.0	A	911	5.0	A
Composit		8.5	A		9.6	A		8.3	A		9.6	A
Exit 5 ramps/Rt 9A												
EB	1065	10.5	B	952	11.4	B	1346	12.4	B	1247	84.7	F
WB	2299	6.2	A	2019	8.9	A	31	2.9	A	2034	1.1	A
NB	971	9.1	A	742	15.1	B	846	8.1	A	858	117.7	F
Composit		7.9	A		10.7	B		10.6	B		50.4	D
Exit 6 EB ramps/Rt 22												
EB	813	19.0	B	534	61.4	E	819	29.6	C	465	18.2	B
NB	1441	16.8		1017	16.8		1226	17.9		1435	23.8	
SB	846	12.3	B	746	34.6	C	803	16.9	B	664	13.8	B
Composit		16.1	B		32.9	C		21.0	C		20.2	C
Exit 6 WB ramps/Rt 22												
WB	594	18.7	B	399	17.9	B	377	15.9	B	651	17.5	B
NB	20	43.8	D	128	40.2	D	27	49.9	D	98	60.7	E
SB	312	53.9	D	373	88.5	F	326	60.3	E	256	88.1	F
Composit		31.1	C		50.4	D		37.0	D		39.7	D
Exit 9S EB ramps<Westchester Ave												
EB - i-287 ramp	1974	28.1	C	1647	47.7	D	1363	52.1	D	1739	61.6	E
EB Westchetser Ave	1383	23.8	C	1395	27.8	C	1711	86.2	F	1253	31.0	C
Composit		26.3	C		38.6	D		71.1	E		48.8	D
I-287 EB Exit ramps/Boston Post Rd												
EB	524	21.9	C	494	23.5	C	266	23.7	C	498	22.3	C
NB	124	36.6	D	134	32.7	C	117	31.5	C	137	35.3	D
SB	491	20.7	C	471	20.4	C	645	21.3	C	510	19.3	B
Composit		23	C		23.3	C		23.1	C		22.5	C