



*Parking Demand Analysis*

# **Sleepy Hollow Commuter-Rail Station**

**Sleepy Hollow, New York**

**Draft**

**January 2005**

**Prepared for:  
Metro-North Railroad**

**Prepared by:  
Urbitrans Associates, Inc.**

**Parking Demand Analysis**

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## **1.0 EXECUTIVE SUMMARY**

This report provides an analysis of existing and projected future parking demand for a proposed new station (“Sleepy Hollow”) to be located between the existing Philipse Manor and Tarrytown stations. The new station is being proposed by Roseland/Sleepy Hollow LLC and the Village of Sleepy Hollow and is the subject of an ongoing EIS review process. The parking demand analysis, based on unconstrained conditions, provides a projection for parking demand with a horizon of 8 to 10 years from the date of expected construction completion in order to ensure that the project is sized accordingly to meet Metro-North projected needs and growth at such a station. As such, a 2020 analysis was developed and found that parking demand projected was 1,120 spaces. Further, in 2015, approximately 750 spaces, (representing approximately 70% of the expected long-term growth), would be needed. The parking demand analysis described in this report resulted in the following findings:

### ***FINDINGS***

#### ***Existing Parking Conditions***

- Existing parking utilization at Metro-North station along the Lower Hudson line in Westchester is generally between 90 - 100 percent.
- A total of 2,066 parking spaces (combined permit and metered/ daily spaces) are currently available at the four stations on the lower Hudson line within a fifteen minute drive time of the proposed Sleepy Hollow station (Philipse Manor, Scarborough and Ossining and Tarrytown Stations).
- All four of these stations provide permit parking. Tarrytown, Scarborough and Ossining also provide metered and/or daily parking.
- The four stations close to the proposed Sleepy Hollow station – Tarrytown, Philipse Manor, Scarborough and Ossining – have parking demands approaching capacity and/or experiencing a wait list for spaces.

#### ***Projected Future Parking Conditions***

- Projected parking supply deficits (overflow demand) at the Philipse Manor, Tarrytown, Scarborough, and Ossining stations might be accommodated at the proposed station in the Village of Sleepy Hollow.
- The analysis of projected total future unmet parking demand indicates that approximately 750 spaces will be required for the proposed Sleepy Hollow Station by 2015, and that 1,120 spaces will be required by 2020.

## **2.0 INTRODUCTION**

### **2.1 Project Description**

GM/Roseland are planning a mixed-use development called Lighthouse Landing within the Village of Sleepy Hollow, which proposes a new MNR station. This proposal anticipates future growth in patronage on MNR's Hudson Line, as well as future population growth throughout Westchester County, New York. According to population projections provided by the New York Metropolitan Transportation Council (NYMTC), a population increase of approximately seven-percent (7%) is expected between 2000 and 2025 within the ridership-catchment area for this section of Lower Westchester. In addition, MNR projects ridership along this line-segment to increase by approximately 38-percent by 2025, corresponding to an average annual ridership increase of approximately two-percent (2%) per year.

Metro-North Railroad prepares future ridership projections for groups of stations or "segments" of each line as part of its planning function. The ridership projections for a given segment include a wide range of factors which may influence travelers' decisions to use MNR. Some of those factors, such as service improvements, construction projects, or employment/population growth, may affect other line segments, but still influence ridership on the study line-segment. Since the parking demand projections are based on MNR ridership projections, these factors were accounted for in the parking demand estimates to the extent that they influenced future estimates of ridership. Some conditions on other line segments are not relevant to ridership, but may still influence parking. For example, if future demand for parking at stations along the Lower Hudson/Westchester line (as implied by the ridership projections) exceeds supply, it is projected that some of the ridership and parking demand from those stations could shift to adjacent stations.

As defined in this report, total parking demand is comprised of two components: 1) total existing parking demand and 2) total future parking demand. Total existing parking demand was estimated by examination of conditions at the stations studied, including but not limited to weekday AM peak hour boardings, field counts of existing station parking capacity and utilization, and modal split. Total future parking demand was estimated based on the anticipated growth in ridership at each station and a conversion of this ridership growth to estimated parking demand at each station in the horizon year 2020. The methodology of the parking demand model used to conduct this analysis is described in subsequent sections of this report.

### **2.2 Scope of the Report**

This report identifies the future parking demand for a new commuter-rail station in the Village of Sleepy Hollow. The following items are addressed in this report:

- Existing parking facilities (supply) and typical weekday peak period parking utilization (demand) at the four study stations along the Lower Hudson/Westchester line-segment ;
- Estimated future year 2020 parking demand for a proposed station to be located between the existing Philipse Manor and Tarrytown stations in the Village of Sleepy Hollow.

### 3.0 EXISTING CONDITIONS

This section of the report describes the existing parking facilities (supply) and existing weekday peak period parking utilization (demand) at the four stations located along the Lower Hudson/Westchester line-segment, that are anticipated to generate future diversions to Sleepy Hollow if the proposed station were constructed. The purpose of this section is to establish a basis for the future parking demand analyses presented in a subsequent section of this report.

#### 3.1 Existing Commuter Train Service

Commuter trains serving stations along the Hudson Line provide weekday, weekend, and holiday service between the Poughkeepsie and Grand Central station terminals. Service is provided during both peak and off-peak periods, and periodic express-train service is provided between selected stations throughout the day. Table 1 summarizes the estimated number of inbound boardings (weekday AM peak hour, weekday off-peak, and total weekday boardings) at the stations studied along the Lower Hudson/Westchester line-segment, based on surveys conducted by MNR.

**Table 1 – Year 2003 Weekday Inbound Station Boardings: Sleepy Hollow catchment area**

Station	Weekday AM Peak	Weekday Off-Peak	Total Weekday
Tarrytown	1,854	747	2,601
Sleepy Hollow*	N/A	N/A	N/A
Philipse Manor	318	60	378
Scarborough	773	113	886
Ossining	1,081	502	1,583
<b>TOTAL =</b>	<b>4,026</b>	<b>1,422</b>	<b>5,448</b>

\* Potential new station.

#### 3.2 Existing Parking Facilities and Observed Utilization

Permit, metered and/or daily parking spaces are available at, or in the immediate vicinity of, the study stations located on the Lower Hudson/Westchester line-segment studied. As shown in Table 2, a total of approximately 2,066 parking spaces (combined permit and metered/daily spaces) are available at the four study stations – Tarrytown, Philipse Manor, Scarborough, and Ossining – that are anticipated to contribute overflow demand to the proposed Sleepy Hollow station. All four stations provide permit parking. Philipse Manor currently does not provide metered or daily parking in the vicinity. Scarborough provides daily parking spaces.

Parking utilization is defined as the percentage of occupied parking spaces at a particular parking facility. Utilization is determined by recording the number of vehicles parked at a facility with a known number of parking spaces. The parking utilization observed between 10:00 a.m. and 3:00 p.m. was recorded at each station along the Lower Hudson/Westchester line-segment in October

2003 and February 2004. Although the absolute maximum parking capacity is represented by the total number of parking spaces, (supply) utilization rates of 95-percent are considered to be the “practical” capacity, in order to provide for periodic vehicle turnover and to help reduce the number of motorists circulating through the lot as they search for available parking. For downtown locations, using a 95% parking capacity is appropriate for a location with relatively low turnover.

Table 2 shows the existing parking demand by type of space, as well as the overall observed parking utilization for each station. As shown in Table 2, the overall parking utilization for the four study stations is approximately 95 percent. Tarrytown, Scarborough, and Philipse Manor stations were found to have utilization rates between 90- and 100-percent, and the Ossining station was found to be parked marginally over-capacity by the presence of illegally-parked vehicles close to the station. It should be noted that Ossining Station is also accessible to Rockland County residents via the Haverstraw Ferry. The ferry terminal parking lot on the west side of the Hudson River provides an additional 337 spaces that are approximately 50-percent utilized, but these spaces are not included in the parking demand projections because the lot serves riders in Rockland County.

**Table 2 – Existing Parking Conditions: Sleepy Hollow catchment area**

Station	Existing Parking Supply			Existing Parking Demand			Observed Utilization
	Metered/Daily	Permit	Total	Metered/Daily	Permit	Total	
Tarrytown	140	769	909	126	692	818	90%
Sleepy Hollow*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Philipse Manor	0	140	140	0	138	138	99%
Scarborough	137	305	442	132	294	426	96%
Ossining**	80	495	575	83	495	578	100%
<b>TOTAL =</b>	<b>357</b>	<b>1,709</b>	<b>2,066</b>	<b>341</b>	<b>1,619</b>	<b>1,960</b>	<b>95%</b>

\* Potential new station.

\*\* Includes only 575 spaces at Ossining. (Does not include 337 spaces at the Haverstraw Ferry lot.)

## **4.0 FUTURE PARKING DEMAND ESTIMATES**

This section of the report describes the future parking demand projections for the study stations along the Lower Hudson/Westchester line-segment, as well as future parking demand projections for a new commuter-rail station being considered by GM/Roseland for construction in the Village of Sleepy Hollow. The projected future parking demand for each station in a particular horizon year is comprised of two components: 1) total existing parking demand, and 2) total future parking demand. Total existing parking demand consists of parked vehicles currently observed in the field at each station, plus any estimated latent demand that cannot currently be accommodated at each station due to existing parking supply limitations (latent demand is determined as explained below in section 4.1.1.). Total future parking demand consists of both a primary future demand component, associated with projected future ridership growth at each station, as well as a secondary future demand component based on each station's propensity to attract additional riders due to provisions for additional parking in the future, based on a factor of 95% practical capacity of the lot.

### **4.1 Total Existing Parking Demand**

The flowchart in Figure 1 illustrates the parking demand model. The methodology for determining total existing parking demand is illustrated on the left side of Figure 1 and discussed in the following sections.

#### **4.1.1 Constrained Station Classification and Latent Demand**

Stations studied were categorized as either "constrained" or "unconstrained." This classification was based on the existing parking supply and utilization observed at each station. If a particular station was found to have either a very high utilization rate (greater than 85-percent) or a moderately high utilization rate (greater than 75-percent plus a waiting list for parking permits), it was determined to be constrained. By definition, a constrained station is a station which has an existing parking demand that is perceived by motorists to be close to the existing parking supply, and will soon require additional capacity.

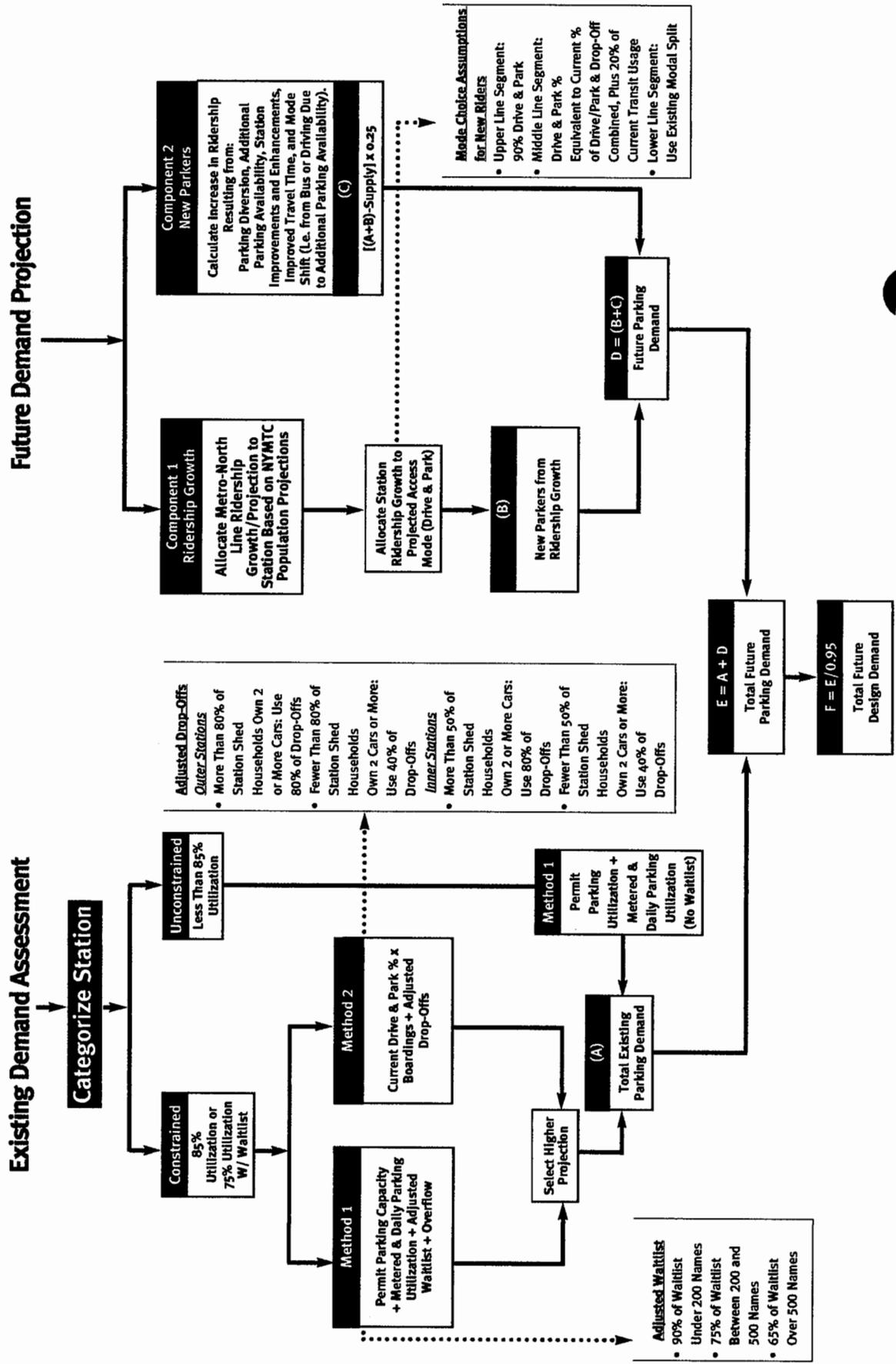
Latent demand is defined as the demand assigned to a particular constrained station where commuters do not park due to the perceived lack of available parking. In other words, these commuters would park at the station if there were a sufficient number of parking spaces. In Figure 1 latent demand is accounted for under both Method 1 (Adjusted Waitlist) and Method 2 (Adjusted Drop Offs). This classification is significant as it allows for demand, which is not physically represented at each station to be included in the demand assessment.

Since Metro-North ridership projections are by entire line-segments, the projection process for the proposed Sleepy Hollow station, by necessity, begins with an analysis of the entire Lower Hudson/Westchester segment. However, once the ridership demand was allocated to all 13 stations along the line-segment, (Ludlow to Croton-Harmon) only the four nearby stations that are anticipated to contribute or share parking demand with a potential station in Sleepy Hollow were investigated, specifically the Tarrytown, Philipse Manor, Scarborough, and Ossining stations. Stations on the Harlem line within commuter driving distance to Sleepy Hollow –

Figure 1

Sleepy Hollow Station Parking Demand Analysis

Parking Demand Projection Process



Hawthorne and Pleasantville – were investigated, but due to lack of direct route and the driving time from the catchment areas of these stations to Sleepy Hollow, the unmet parking demand for these stations was not considered to be a major contributor to parking demand at the proposed station.

Although existing parking demand at unconstrained stations can be observed directly in the field, existing parking demand for constrained stations must be estimated in order to capture latent unmet demand. Two methods were used to estimate the existing parking demand for a constrained station, and a conservative estimate of parking demand was made by selecting the greater calculated demand of the two methods.

Method 1 is based on existing parking characteristics at the subject station and incorporates the following factors in assessing constrained station demand:

- Station parking capacity and utilization for permit and daily /metered parkers;
- Permit wait list; and
- Overflow parking.

Under Method 1, existing parking demand is calculated as the sum of the permit parking capacity, the number of occupied metered and daily spaces observed in the field, a percentage of people on the waitlist (percentage based on the length of the waitlist), and any overflow of parked vehicles observed on the street in the area.

Method 2 is based on ridership and includes the following factors:

- The number of AM peak boardings at the subject station (from MNR's July 2003 Mail&Ride data);
- Percentage of riders who drive to the station (modal split rates derived from MNR's 1997 survey); and
- An estimate of the number of persons currently dropped-off who would likely drive and park if the station had available parking capacity (based on 2000 Census auto-ownership rates).

Under Method 2, existing parking demand is calculated as the product of the percentage (modal split) of riders who drove and parked and the number of observed weekday AM boardings, plus the number of persons who would likely drive if the station had available parking capacity.

Based on the results of the station parking surveys conducted in late 2003 and early 2004, and the criteria described above, the four stations closest to Sleepy Hollow were determined to be constrained stations. Table 3 summarizes the estimated total existing parking demand calculations for these stations. *Appendix "A" contains the existing parking demand calculation worksheets.*

#### *4.1.2 Unconstrained Station Classification and Demand*

An unconstrained station is defined as a station where the parking demand at the subject station is not influenced by the station's parking capacity (or lack thereof). The existing parking demand at unconstrained stations can be observed directly in the field (the existing utilization).

Total Existing Parking Demand Estimates  
Study Stations on Lower Hudson/Westchester line segment

Table 3

Station	Existing Station Characteristics					Total Existing Parking Demand Estimates										Method 1 or 2 Greater?	(A) Total Existing Parking Demand
	Observed Demand	Observed Utilization	Waitlist?	Number on Waitlist / Latent Demand	Constrained Station? <sup>5</sup>	Method 1			Method 2				Existing Demand Estimate <sup>9</sup>				
						Permit Parking Capacity	Permit Parking Demand	Metered & Daily Parking Demand	Adjusted Waitlist <sup>6</sup>	Existing Demand Estimate <sup>7</sup>	AM Boardings	Drive & Park %		Adjusted Drop-Offs <sup>8</sup>			
Tarrytown <sup>1</sup>	818	90%	NO	0	YES	769	692	126	0	895	1,854	42.7%	78	870	1	895	
Sleepy Hollow <sup>2</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
Philipse Manor	138	99%	NO	0	YES	140	138	0	0	140	318	38.8%	10	133	1	140	
Scarborough <sup>1,3</sup>	426	96%	NO	70	YES	305	294	132	63	500	773	56.7%	57	495	1	500	
Ossining <sup>4</sup>	578	100%	YES	122	YES	495	495	83	110	687	1,081	68.5% *	61	633	1	687	
<b>TOTAL</b>	<b>1,960</b>					<b>1,709</b>	<b>1,619</b>	<b>341</b>	<b>173</b>	<b>2,222</b>	<b>4,026</b>		<b>206</b>	<b>2,131</b>		<b>2,222</b>	

1 = Parking fees for non-residents at Tarrytown and Scarborough are significantly higher than resident parking fees, thus limiting the attractiveness of parking at these stations.

2 = Potential new station.

3 = 7% of AM peak ridership from Ossining is from Briarcliff Manor. These projections assume that 7% of Ossining customers (i.e. 70) would transfer to the Scarborough Station if parking were available to non-residents.

4 = Does not include 337-space lot for Haverstraw Ferry.

5 = Station is constrained if utilization is ≥85%, or if utilization is ≥75% with a waitlist.

6 = 90% of waitlist under 200 names, 75% of waitlist between 200 and 500 names, 65% of waitlist over 500 names.

7 = For constrained stations: Demand = Permit Parking Capacity + Metered Parking Demand + Adjusted Waitlist. For unconstrained stations: Demand = Permit Parking Demand + Metered Parking Demand

8 = Based on car ownership and station location.

9 = For constrained stations: Demand = (AM Boardings x Drive&Park %) + Adjusted Drop-Offs. For unconstrained stations: Demand = Permit Parking Demand + Metered Parking Demand

## **4.2 Future Parking Demand**

Future parking demand was projected for the study stations under a 2020 horizon year. The parking demand model used to estimate the future demand incorporates data for each individual station on a given line-segment. This demand projection focuses on future parking increases generated by two components: 1) future ridership growth and 2) new riders attracted by provisions for additional parking. The estimated future parking demand for each study station was then added to the total existing parking demand for each station respectively. The future parking demand methodology is illustrated on the right side of Figure 1, and discussed in detail in the following sections.

### *4.2.1 Component 1: Ridership Growth*

The first and largest component of the future parking demand increase is comprised of new riders directly attributable to future increases in Metro-North ridership. The 2020 horizon year ridership projections used for this study were obtained from Metro-North. The future ridership estimates (new trips) were then assigned to the 22 zip codes comprising the catchment area for the entire Lower Hudson/Westchester line-segment in accordance with population growth projections for each zip code determined using NYMTC population forecasts. The new trips were subsequently allocated to each station on the Lower Hudson/Westchester line-segment based on the catchment area for each station (i.e. the range of zip codes contributing ridership) identified using Metro-North's Mail&Ride data.

### *4.2.2 Component 2: New Parkers due to Additional Parking Availability*

The second component of the future parking demand increase represents motorists who presently do not use Metro-North services due to a perceived lack of convenient parking at an existing station, but are attracted to the station once additional parking is provided. This attraction can be attributed to a number of factors, including but not limited to: the availability of additional parking at the station, associated improvements to the station, improved travel time, and changes in travel mode. The magnitude of the future parking demand increase associated with this phenomenon is typically determined by applying an "elasticity factor" to the difference between the existing parking supply and the future parking demand. Elasticity factors applied in past studies have generally ranged between 0.20 and 0.30, and have been consistently sufficient to support any increase in demand. For the purposes of this study, an elasticity factor of 0.25 was estimated and applied to the parking supply at each station to account for this phenomenon.

## **4.3 Total Future Demand**

The sum of both future parking demand components was then added to the total existing parking demand to yield the total future parking demand at each station for 2020. The total future parking demand values were then divided by a practical utilization factor of 0.95 to arrive at a total future design demand. As described previously, this provides for a marginal number of additional parking spaces to accommodate periodic vehicle turnover and to help reduce the number of motorists circulating through the lot as they search for available parking. *Appendix "B" contains the future parking demand calculation worksheets.*

#### **4.4 Future Demand: Sleepy Hollow Station**

The Village of Sleepy Hollow and GM/Roseland are considering constructing a new commuter-rail station as part of a mixed-use development in Sleepy Hollow, New York. The station would be located along the Lower Hudson/Westchester line-segment between the existing Philipse Manor and Tarrytown stations. This study evaluated the need for this new station from a parking demand perspective, by examining projected parking supply deficits (overflow) at existing stations near Sleepy Hollow from which Metro-North riders might be likely to divert in an effort to find available parking. Existing stations along the Lower Hudson/Westchester line-segment most likely to experience such diversions are the Tarrytown, Philipse Manor, Scarborough, and Ossining stations. Currently, there are no plans for expansion at any of these stations.

The projected parking deficits at the Tarrytown, Philipse Manor, Scarborough, and Ossining stations are shown in the last (right) column of Table 4, titled “unmet demand”. These values represent unmet overflow demand that might be accommodated at a new station in the Village of Sleepy Hollow. As indicated in Table 4, the projected total unmet parking demand at these four stations is projected at 1,120 spaces in the 2020 horizon year.

Summary of Station Parking Demand: Year 2020  
Study Stations on Lower Hudson/Westchester line-segment

Table 4

Station	Existing AM Inbound Boardings	Existing Parking Supply	Existing Percent Utilization	# on Waitlist <sup>1/</sup> Latent Demand	Constrained Station? <sup>2</sup>	Driving Mode Share	(A) Total Existing Parking Demand	(B) New Parkers From Growth	(C) Other New Parkers <sup>3</sup>	(D = B + C) Future Parking Demand	(E = A + D) Total Future Parking Demand	(F = E / 0.95) Total Future Design Demand	Unmet Demand
Tarrytown	1,854	909	90%	0	YES	42.7%	895	547	133	681	1,576	1,659	750
Philipse Manor	318	140	99%	0	YES	38.8%	140	5	1	6	146	153	13 <sup>6</sup>
Scarborough	773	442	96%	70 <sup>4</sup>	YES	56.7%	500	25	21	46	546	575	133
Ossining*	1,081	575	100%	122 <sup>5</sup>	YES	68.5%	687	36	37	72	759	799	224
<b>TOTAL =</b>	<b>4,026</b>	<b>2,066</b>					<b>2,222</b>	<b>613</b>	<b>192</b>	<b>805</b>	<b>3,027</b>	<b>3,186</b>	<b>1,120</b>

Notes

- 90% of waitlist under 200 names, 75% of waitlist between 200 and 500 names, 65% of waitlist over 500 names.
- Station is constrained if utilization is ≥85%, or if utilization is ≥75% with a waitlist.
- $C = [(A + B) \cdot \text{Existing Supply} \times 0.25]$ , where 0.25 = elasticity factor.
- 7% of AM peak ridership from Ossining is from Briarcliff Manor. These projections assume that 7% of Ossining customers (i.e. 70) would transfer to the Scarborough Station if parking were available to non-residents.
- Confirmed waitlist.
- Due to physical constraints, increased parking supply is not feasible at Philipse Manor; therefore future demand growth has been assigned to Tarrytown.
- All new trips from zip code 10956 (Haverstraw) are assigned to the Ossining Station, but parking is located at the Haverstraw Ferry parking lot. The parking lot is projected to reach capacity in 2020.

**Appendix "A"**  
**Existing Parking Demand Worksheets**

HUDSON LINE EXISTING PARKING DEMAND -- METHOD 1

	Daily (Metered) Parking		Permit Parking		Utilization 85% +	Wait List	Wait List / Lat Demand	Wait List Factor	Wait List Adjusted	Total Capacity	Total Commuter Parked	Utilization	Constrained Station	Parking Demand Method 1	Parking Supply	Available Parking
	Capacity	Parked	Capacity	Parked												
Tarrytown	140	126	769	692	90%	NO	0	0.90	0	909	818	90%	YES	895	909	14
Philipse Manor	0	0	140	138	0%	NO	0	0.90	0	140	138	99%	YES	140	140	0
Scarborough	137	132	305	294	98%	NO	70	0.90	83	442	426	96%	YES	500	442	58
Ossining*	417	251	495	495	60%	YES	122	0.90	110	912	746	100%	YES	856	912	56

\* Includes 337-space Haverstraw ferry lot on the west side of the Hudson River. This lot is approximately 50% utilized.

HUDSON LINE EXISTING PARKING DEMAND – METHOD 2

	AM		Mode Split 1997			Metered Utilization	Permit Utilization	Permit Oversell	Wait List	Constrained Station	Modal Drop #	Station Class	2-car HH%	Drop-Off Adjustment	Drop-Off #	Parking Demand Method 2	Parking Supply	Available Parking
	Inbound	Drop	Walk	Other	Park #													
Tarrytown	1,854	0.427	0.105	0.187	0.283	90%	90%	YES	NO	YES	195	OUTER	0.47	0.40	78	870	909	39
Philipse Manor	318	0.388	0.078	0.473	0.061	0%	99%	YES	NO	YES	25	OUTER	0.47	0.40	10	133	140	7
Scarborough	773	0.567	0.184	0.108	0.141	96%	96%	YES	NO	YES	142	OUTER	0.76	0.40	57	495	442	53
Ossining	1,081	0.685	0.142	0.078	0.095	60%	100%	NO	YES	YES	154	OUTER	0.51	0.40	61	802	912	110

# Future Parking Infrastructure Strategy

## HUDSON LINE EXISTING PARKING DEMAND -- SUMMARY

	AM Inbound	Constrained Station	Total Demand Method 1	Total Demand Method 2	Greater Demand (A)	Method 1 or 2?
Tarrytown	1,854	YES	895	870	895	1
Phillipse Manor	318	YES	140	133	140	1
Scarborough	773	YES	500	495	500	1
Ossining*	1,081	YES	856	802	856	1

\* Includes 337-space Haverstraw ferry lot on the west side of the Hudson River. This lot is approximately 50% utilized.

**Appendix "B"**  
**Year 2020**  
**Future Parking Demand Worksheets**

Tarrytown 2020 Projected Ridership Allocation

Zip Code	Zip Name	Step 2			COEFF-1	New Trips	Step 5		Other Stations Served	Customer Origin	New Trip Total	Station	Exist# Of Trips	Exist# Of Trips	New Trip Distribution
		2000 Pop	% Change	2020 Pop			Growth	Existing Trips							
10502	Ardsley	4,286	1.7%	4,358	72	13				10591	61	TARRYTOWN	1,334	79%	48
10503	Ardsley-on-Hudson	6,631	1.7%	6,742	111	20				10591	321	Philipse Manor	321	19%	12
10510	Briarcliff Manor / Scarborough	14,643	1.7%	14,889	246	44				10591	33	Scarborough	33	2%	1
10520	Croton-on-Hudson	10,774	1.7%	10,955	181	33				10920	150	TARRYTOWN	98	100%	150
10522	Dobbs Ferry	10,622	1.7%	10,801	179	32				10954	381	TARRYTOWN	79	100%	381
10533	Irvington	6,631	1.7%	6,742	111	20				10956	497	TARRYTOWN	118	63%	312
10541	Mahopac	27,356	12.2%	30,692	3,336	601				10960	205	Ossining	70	37%	185
10547	Mohegan Lake	9,768	1.7%	9,932	164	30				10960	216	TARRYTOWN	216	100%	205
10562	Ossining	27,795	1.7%	28,262	467	84				10969	186	TARRYTOWN	98	100%	186
10566	Cortlandt Manor / Peekskill	22,441	1.7%	22,819	378	68				<b>Total Tarrytown New Trips:</b>					
10591	Tarrytown / Sleepy Hollow	20,301	1.7%	20,642	341	61									
10598	Yorktown Heights	20,431	1.7%	20,775	344	62									
10701	Yonkers	64,996	1.7%	66,089	1,093	197									
10703	Yonkers	23,697	1.7%	24,095	398	72									
10705	Yonkers	37,698	1.7%	38,333	635	114									
10706	Yonkers	7,648	1.7%	7,776	128	23									
10710	Yonkers	25,321	1.7%	25,748	427	77									
10920	Congers	8,886	9.4%	9,720	834	150									
10954	Nanuet	22,547	9.4%	24,662	2,115	381									
10956	New City	29,439	9.4%	32,198	2,759	497									
10960	Nyack	12,059	9.4%	13,234	1,135	205									
10989	Valley Cottage	11,017	9.4%	12,050	1,033	186									
<b>TOTALS</b>		<b>425,027</b>	<b>3.9%</b>	<b>441,514</b>	<b>16,487</b>	<b>2,971</b>									

Note: Highlighted cells represent catchment area for the Tarrytown station based on MNR's Mail & Ride data. Cells not highlighted represent communities not included in the Tarrytown catchment area, but included for the purposes of allocating ridership growth along the entire line segment.

Philpse Manor 2020 Projected Ridership Allocation

Zip Code	Zip Name	Step 2			Growth	Step 3	Step 4	Step 5		Step 6	Step 7			
		2000 Pop.	% Change	2020 Pop.				Existing Trips	%		Customer Origin	New Trip Total	Station	Exist# Of Trips
10502	Ardsey	4,286	1.7%	4,358	72	0.00436708	13				PHILIPSE MANOR	321	19%	12
10503	Ardsey-on-Hudson	6,631	1.7%	6,742	111	0.00673258	20				Tarrytown	1,334	79%	48
10510	Blaircliff Manor / Scarborough	14,643	1.7%	14,889	246	0.01492085	44				Scarborough	33	2%	1
10520	Croton-on-Hudson	10,774	1.7%	10,955	181	0.01097835	33							
10522	Debbs Ferry	10,622	1.7%	10,801	179	0.01085704	32							
10533	Ivington	6,631	1.7%	6,742	111	0.00673258	20							
10541	Mahopac	27,356	1.7%	30,692	3,336	0.20234124	601							
10547	Mohegan Lake	9,768	1.7%	9,932	164	0.00994723	30							
10562	Ossining	27,795	1.7%	28,262	467	0.02832535	84							
10566	Contlandt Manor / Peekskill	22,441	1.7%	22,819	378	0.02292715	68							
10591	Tarrytown / Sleepy Hollow	20,301	1.7%	20,642	341	0.02068208	61	100%						
10598	Yonkown Heights	20,431	1.7%	20,775	344	0.02086492	62							
10701	Yonkers	64,996	1.7%	66,089	1,093	0.06629466	197							
10703	Yonkers	23,697	1.7%	24,095	398	0.02414023	72							
10705	Yonkers	37,698	1.7%	38,333	635	0.03851519	114							
10706	Yonkers	7,648	1.7%	7,776	128	0.00776369	23							
10710	Yonkers	25,321	1.7%	25,748	427	0.02589919	77							
10820	Congers	8,866	8.4%	9,720	854	0.05058531	150							
10954	Nanuet	22,547	9.4%	24,662	2,115	0.12828289	381							
10956	New City	29,439	9.4%	32,198	2,759	0.16734397	497							
10960	Nyack	12,059	9.4%	13,234	1,135	0.05884212	205							
10989	Valley Cottage	11,017	9.4%	12,050	1,033	0.06265543	186							
<b>TOTALS</b>		<b>425,027</b>	<b>3.9%</b>	<b>441,514</b>	<b>16,487</b>	<b>1.00000000</b>	<b>2,971</b>	<b>321</b>	<b>100%</b>					<b>12</b>

Note: Highlighted cells represent catchment area for the Philpse Manor station based on MNR's Mail & Ride data. Cells not highlighted represent communities not included in the Philpse Manor catchment area, but included for the purposes of allocating ridership growth along the entire line segment.

Scarborough 2020 Projected Ridership Allocation

Zip Code	Zip Name	Step 2			Step 3	Step 4	Step 5		Step 6	Step 7						
		2000 Pop	% Change	2020 Pop			Growth	COEFF-1		New Trips	Existing Trips	%	Other Stations Served	Customer Origin	New Trip Total	Station
10502	Ardley	4,286	1.7%	4,358	72	0.00436708	13				10510	44	SCARBOROUGH	649	90%	40
10503	Ardley-on-Hudson	6,631	1.7%	6,742	111	0.00673258	20				10510	70	Ossining	70	10%	4
10510	Briarcliff Manor / Scarborough	14,643	1.7%	14,889	246	0.01492085	44	649	87%	Scarborough catchment area that also contribute to other stations in the Lower Hudson-Westchester Line Segment.	10562	84	SCARBOROUGH	62	4%	3
10520	Croton-on-Hudson	10,774	1.7%	10,955	181	0.01097835	33				10562	903	Ossining	903	57%	48
10522	Dobbs Ferry	10,622	1.7%	10,801	179	0.01085704	32				10562	61	Croton-Harmon	631	40%	33
10533	Irvington	6,631	1.7%	6,742	111	0.00673258	20				10591	61	SCARBOROUGH	33	2%	1
10541	Manhasset	27,356	12.2%	30,692	3,336	0.20234124	601				10591	1,334	Tarrytown	1,334	79%	48
10547	Mohegan Lake	9,768	1.7%	9,932	164	0.00994723	30				10591	321	Philipse Manor	321	19%	12
10562	Ossining	27,795	1.7%	28,262	467	0.02832535	84	62	8%	Ossining, Croton-Harmon						
10566	Cortlandt Manor / Peekskill	22,441	1.7%	22,819	378	0.02292715	68									
10591	Tarrytown / Sleepy Hollow	20,301	1.7%	20,642	341	0.02068296	61	33	4%	Tarrytown, Philipse M.						
10598	Yorktown Heights	20,431	1.7%	20,775	344	0.02086492	62									
10701	Yonkers	64,996	1.7%	66,089	1,093	0.06629466	197									
10703	Yonkers	23,697	1.7%	24,095	398	0.02414023	72									
10705	Yonkers	37,698	1.7%	38,333	635	0.03851519	114									
10706	Hastings-on-Hudson	7,648	1.7%	7,776	128	0.00776369	23									
10710	Yonkers	25,321	1.7%	25,748	427	0.02589919	77									
10820	Congers	8,886	9.4%	9,720	834	0.05058651	150									
10954	Nanuet	22,547	9.4%	24,662	2,115	0.12829289	381									
10956	New City	29,439	9.4%	32,198	2,759	0.16734397	497									
10960	Nyack	12,099	9.4%	13,234	1,135	0.06884212	205									
10989	Valley Cottage	11,017	9.4%	12,050	1,033	0.06265543	186									
<b>TOTALS</b>		<b>423,027</b>	<b>3.9%</b>	<b>441,514</b>	<b>18,487</b>	<b>1.00000000</b>	<b>2,971</b>	<b>744</b>	<b>100%</b>							

Note: Highlighted cells represent catchment area for the Scarborough station based on MNR's Mail & Ride data. Cells not highlighted represent communities not included in the Scarborough catchment area, but included for the purposes of allocating ridership growth along the entire line segment.

Ossining 2020 Projected Ridership Allocation

Zip Code	Zip Name	Step 2			COEFF-1	New Trips	Existing %	Other Stations Served	Customer Origin	New Trip Total	Station	Exist# Of Trips	Exist% Of Trips	New Trip Distribution
		2000 Pop	% Change	2020 Pop										
10502	Ardley	4,286	1.7%	4,358	72	0.0496708		10510	44	OSSINING	70	10%	4	
10503	Ardley-on-Hudson	6,631	1.7%	6,742	111	0.00673298		10510	84	Scarborough	649	90%	40	
10510	Briarcliff Manor / Scarborough	14,643	1.7%	14,889	246	0.01492085	70	10562	84	OSSINING	903	57%	48	
10520	Croton-on-Hudson	10,774	1.7%	10,955	181	0.01097835		10562	33	Scarborough	62	4%	3	
10522	Dobbs Ferry	10,622	1.7%	10,801	179	0.01085704		10562	32	Croton-Harmon	631	40%	33	
10533	Ivington	6,831	1.7%	6,742	111	0.00673258		10566	497	OSSINING	70	37%	185	
10541	Mahopac	27,356	12.2%	30,682	3,336	0.20234124		10956	497	OSSINING	118	63%	312	
10547	Mohegan Lake	9,768	1.7%	9,932	164	0.00994723				Tarrytown			287	
10562	Ossining	27,795	1.7%	28,262	467	0.02832535	903			Scarborough, Croton-Harmon				
10566	Contlandt Manor / Peekskill	22,441	1.7%	22,819	378	0.02292715								
10591	Tarrytown / Sleepy Hollow	20,301	1.7%	20,642	341	0.02068296								
10598	Yorktown Heights	20,431	1.7%	20,775	344	0.02086492								
10701	Yonkers	64,986	1.7%	66,089	1,093	0.06229466								
10703	Yonkers	23,697	1.7%	24,095	398	0.02414023								
10705	Yonkers	37,698	1.7%	38,333	635	0.03851519								
10706	Hastings-on-Hudson	7,648	1.7%	7,776	128	0.00776369								
10710	Yonkers	25,321	1.7%	25,748	427	0.02589919								
10920	Congers	8,886	9.4%	9,720	834	0.05058531								
10954	Nanuet	22,547	9.4%	24,662	2,115	0.12828289								
10956	New City	29,439	9.4%	32,198	2,759	0.16734897	70			Tarrytown				
10960	Nyack	12,039	9.4%	13,234	1,195	0.09884212								
10983	Valley Cottage	11,017	9.4%	12,050	1,033	0.06265543								
<b>TOTALS</b>		<b>425,027</b>	<b>3.9%</b>	<b>441,514</b>	<b>16,487</b>	<b>1.00000000</b>	<b>1,043</b>							

Note: Highlighted cells represent catchment area for the Ossining station based on MNR's Mail & Ride data. Cells not highlighted represent communities not included in the Ossining catchment area, but included for the purposes of allocating ridership growth along the entire line segment.



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