

Parking Garage Feasibility Study Report

Village of Croton-on-Hudson

February 17, 2011

Croton-on-Hudson, NY



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February 17, 2011

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**RE: Croton-Harmon Station Parking Garage Feasibility Study
Croton-on-Hudson, New York**

Dear Ms. King:

Timothy Haahs & Associates, Inc. (TimHaahs) is pleased to submit the Croton-Harmon Station Garage Feasibility Study Report. We hope this report will serve as a valuable decision-making tool regarding station parking assets and future planning efforts. Please feel free to contact either Jim Zullo or me with any immediate questions or concerns.

Thank you for the opportunity to be of service to the Village of Croton-on-Hudson. We look forward to finalizing this project and working with you in the future.

Very truly yours,


Vicky Gagliano, MBA, LEED AP
Parking Specialist


James Zullo, CAPP, LEED AP
Vice President

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
INTRODUCTION	1
Study Area	1
Methodology	3
CURRENT PARKING CONDITIONS	3
Parking Inventory	3
Parking Demand	5
Parking Occupancy	6
Current Parking Adequacy	7
FUTURE PARKING CONDITIONS	8
Demographic Research	8
Transit Ridership Growth	11
Competitive Parking Facilities	12
Future Parking Summary	13
FIELD OBSERVATIONS	14
PUBLIC WORKSHOP	15
Builders of the Current Parking System	15
Barriers of the Current Parking System	16
Public Workshop Recommendations	16
RECOMMENDATIONS	17
Parking Enforcement	17
Safety Issues	18
Signage and Wayfinding	18
Revenue and Parking Rates	18
Functional Layout and User Distribution (Phase I Layout)	18
PARKING DEVELOPMENT ALTERNATIVES	19
Project Goals	19
Concept Plans	19
Phase I – Short Term Improvements	20
Phase II – Reconfiguration of DPW Surface Lot	20
Phase III – Preferred Parking Structure and DPW Surface Lot	20
Phase IIIa – Preferred Parking Structure without DPW Surface Lot	21
PRELIMINARY FINANCIAL ANALYSIS	28
Debt Service	29
Pro Forma Assumptions	29
Commuter Parking Expansion Supports NY Transit Objectives	33
PARTNERSHIPS TO DEVELOP COMMUTER PARKING AND TOD	35
SUMMARY	36

TABLE OF CONTENTS

Figure 1: Study Area	2
Figure 2: Parking Inventory by Type	4
Figure 3: Weekday Typical Parking Occupancy	6
Figure 4: Croton-Harmon Commuter Shed Area	10
Figure 5: Phase I Short Term Improvements	22
Figure 6: Phase II – Reconfiguration of DPW Surface Lot.....	23
Figure 7: Phase III - Preferred Parking Structure and DPW Surface Lot.....	24
Figure 8: Phase IIIa - Preferred Parking Structure without DPW Surface Lot	25
Figure 9: Reference Images – A	26
Figure 10: Reference Images – B	26
Figure 11: Perspective Rendering 1	27
Figure 12: Perspective Rendering 2	27
Table 1: Parking Inventory ¹	4
Table 2: Peak Parking Demand	5
Table 3: Peak Parking Occupancy.....	6
Table 4: Effective Supply	7
Table 5: Historical Croton-Harmon MNR Ridership	11
Table 6: Train Station Annual Train Fare	12
Table 7: Nearby Train Station Annual Parking and Train Fare	13
Table 8: Future Parking Demand and Adequacy	13
Table 9: Estimated Construction Cost	28
Table 10: Preliminary Pro Forma Phase II.....	31
Table 11: Preliminary Pro Forma Phase IIIa.....	32
Appendix A: Public Workshop Details	
Appendix B: Croton-Harmon Train Service	
Appendix C: Metro North Articles	

Executive Summary

The Croton-Harmon Station is a regional intermodal transportation center for the lower Hudson Valley area servicing commuters from Westchester, Putnam and Dutchess Counties. The train station provides access to both Metro-North and AMTRAK services. The parking facility owned and operated by the Village of Croton-on-Hudson (the “Village”) provides access to the transit system for over 2,000 commuters daily, which is second only to Grand Central Station in the number of daily commuters.

In early 2010 the Village completed a major construction project (Recipient of the 2010 Ward House Award ASCE Lower Hudson Branch) to alleviate tidal flooding conditions that occurred periodically in approximately 5.3 acres in the southeast portion of the parking lot adjacent to the Croton Bay. Approximately 600 parking spaces in the area were subject to tidal flooding in this area. Due to the past flooding and the potential of increased demand for train station parking, the Village engaged Timothy Haahs and Associates, Inc. (TimHaahs) to perform a *Parking Garage Feasibility Study* to analyze the potential development of structured parking at Croton-Harmon Station. The overall intent of the feasibility study is to create a parking master plan to explore options that would increase parking capacity to meet future growth, possibly free up portions of the lot for other uses, enhance the station environment and commuter experience by improving pedestrian, bicycle, and vehicular safety and traffic flow, and potentially serve as replacement parking should the flood repaired areas of the lot be impacted by tidal flooding in the future.

The study area included the Croton-Harmon Station parking lot area which consists of nine sections or sub-lots (A through J) totaling approximately 2,036 spaces on 47 acres. These areas accommodate permit and daily parking customers. Based on surveys conducted by TimHaahs staff in April and May of 2010, peak parking demand occurred at the lot at approximately 1pm on a weekday when 1,735 spaces were occupied resulting in a peak occupancy of 85%. Once a “cushion” is applied to the total parking supply the overall parking adequacy is a surplus of 199 spaces (April 2010).

To calculate the future parking demand, based on the data reviewed, we have assumed a one percent annual parking growth rate from 2010 to 2015 and a two percent annual parking growth rate from 2015 to 2025. Accordingly, based on the effective parking supply from the April 2010 survey, the Croton-Harmon station will reach full occupancy between years 2017-2018. These projections may be significantly impacted by the performance of the regional economy, gas prices and increases in parking availability at adjacent stations. According to Village representatives, the 2011 parking occupancy to date has increased above the occupancy data collected for this report. We do not anticipate a significant impact to our recommendations or findings because of this increased demand.

In order to gain input from Village residents and commuters, TimHaahs and Village representatives hosted a public workshop on January 12, 2010. Approximately 60 residents and commuters attended and provided their opinions. Some public recommendations that we have directly addressed include:

- Improved circulation and accessibility to the station
- Addition of covered walkways
- Addition of a parking garage and more amenities
- Integration of better signage and wayfinding

- Relocation of DPW to provide more parking
- Improve pedestrian and bicycle access and crossings
- Improve traffic circulation specifically adjacent to the station entrance

As part of the study, TimHaahs performed a conceptual feasibility study for a proposed parking structure on the existing Croton-Harmon Station lot. The study includes site feasibility assessments for the development of additional parking either from surface parking at the DPW site or a new parking structure. Based on the boring logs for the DPW garage and other projects in the vicinity a new parking structure would require a foundation using piles.

The study analyzed the anticipated financial performance of the Croton-Harmon Station Parking System should either Phase II (DPW Surface Lot) or Phase IIIA (Parking Structure) be implemented. Our preliminary financial analysis projected the following:

- | | |
|--|-----------|
| • Phase II - Net Operating Income - Year One | \$ 1.9 MM |
| • Phase IIIa - Net Operating Income - Year One | \$ 1.2 MM |
| • Existing 2010 Net Operating Income | \$ 1.7 MM |

Due to the lingering economic effects of the recession, and the demographic projections for the region outlined herein, adequate parking capacity exists at the Croton-Harmon Station for the near future. As such, a new parking structure facility is not needed immediately and we recommend that the Village of Croton-on-Hudson wait at least another one to two years before undertaking any planning to expand the parking facility. When parking demand eventually exceeds capacity at the Croton-Harmon Station, the Village should first consider developing the DPW site as preferred daily or monthly parking as depicted in the Phase II concept plan. This project would improve traffic flow, add approximately 123 spaces and the convenient location of this site warrants a premium parking fee. The additional revenue generated by these spaces will financially support the associated development costs. However, the financial analysis does not contemplate the cost to secure additional land, demolition of the existing building, and construct a new DPW facility. If warranted by future demand, structured parking can be added to increase the total parking capacity at the Station.

Introduction

The Village of Croton-on-Hudson, New York (the Village) retained Timothy Haahs & Associates, Inc. (TimHaahs) to perform a feasibility study related to the development of a proposed parking structure at the Croton-Harmon train station parking lot. We have reviewed the current parking conditions, supply and demand analysis, and potential growth projections to explore feasible parking expansion opportunities for the station.

Situated at the confluence of the Croton River and the Hudson River in the Village of Croton-on-Hudson, the station offers service from the Metro-North Railroad line connecting passengers to the Grand Central Terminal in Manhattan, New York. Express and local train service to Grand Central Terminal during peak hours takes 47 minutes and 67 minutes, respectively. The station serves as the main transfer point between the Hudson Line's local and express service, and almost all Amtrak trains on the line offer service at the station.

According to Village representatives, ridership from this station has been steadily growing due to the express train schedule and frequency during peak hours. To accommodate this growth, the Village is managing their parking assets with quarterly permits and daily parking. Parking in the 47-acre surface parking lot is available for both Village residents and non-resident commuters. Mass transit via the Metro-North Railroad is vital to the Village of Croton-on-Hudson and its neighboring communities, as residents are able to commute daily to New York City and points north while enjoying the community lifestyle of a suburban neighborhood.

TimHaahs recognizes the importance of effective parking planning and management for transit-oriented locations. A well-managed and planned parking system is important to the Village and its residents. To assist the Village in meeting these objectives, we have conducted a supply/demand analysis and future demand analysis. We have included input received from residents and commuters during the public workshop held on January 12, 2010 in our report. During the workshop, we received feedback from residents and commuters about their desires and key issues regarding parking at the station. We have incorporated their concerns, thoughts, and ideas into our recommendations for the parking system, to inform our study of parking planning, traffic issues and amenities at the station.

Study Area

The study boundary includes the train station parking lot area, consisting of nine sections or sub-lots, bordered by Route 9 to the east, the Metro-North Railroad tracks to the west, Croton Point Avenue to the north (with the exception of Section A), and the Hudson River (Croton Bay) to the south. The Village owns and operates this land located in the Light Industrial zoning district (approximately 47 acres) and nine parking Sections (A-J). Figure 1 on the following page depicts an aerial image of the study area, with the nine Sections highlighted in orange.

Figure 1: Study Area



Source: TimHaahs and Microsoft Bing, 2010

Methodology

TimHaahs reviewed several documents and reports as part of the study, including:

- Village of Croton-on-Hudson Transit Oriented District Study (http://www.crotononhudson-ny.gov/Public_Documents/CrotonHudsonNY_BComm/CrotonTOD.pdf)
- Geotechnical information about the site
- NYS Rail Plan 2009, NYMTC Regional Transportation Plan (<https://www.nysdot.gov/divisions/policy-and-strategy/planning-bureau/state-rail-plan>)
- NYMTC Congestion Management Process (<http://www.nymtc.org/project/CMS/cms.html>)
- Coordinated Public Transit-Human Service Transportation Plan for the NYMTC Region (<http://www.nymtc.org/project/PTHSP/cphstp.html>)
- NYSDOT Transportation Master Plan (<https://www.nysdot.gov/main/transportation-plan/transportation-plan>)
- Metro North Railroad ridership data
- AMTRAK ridership data
- Traffic Study Report by RBA, 2008

Destination surveys were not provided, however, the data provided was sufficient to inform our study.

After reviewing the background information, we reviewed current parking conditions in the referenced parking sections. To evaluate current parking conditions, our team physically counted all of the parking spaces in each lot, to provide the total number of parking spaces available, or the parking inventory. During the inventory process, our team conducted visual field observations to note any items of concern.

TimHaahs conducted field observations Tuesday, January 26, 2010 and Wednesday, January 27, 2010. During this site visit, our team reviewed signage, new pay stations, striping, vehicular and pedestrian safety, designated user lots, and traffic flow. Our team travelled to the adjacent train stations preceding and following Croton-Harmon station on the Metro-North Railroad line to observe nearby parking conditions.

Village staff performed parking occupancy counts during the week of April 19, 2010 for three days; TimHaahs then verified these counts on May 6, 2010. We performed multiple counts on varied weeks as part of the study to verify that parking demand had stabilized after the repair of portions of the lot. These sections of the lot were previously prone to flooding which had displaced several hundred vehicles. To quantify the future growth potential, TimHaahs teamed with 4ward Planning, a market research specialist, to conduct a demographic growth analysis of the Village and the surrounding areas.

Current Parking Conditions

Parking Inventory

Our team identified a total of 2,036 parking spaces in the nine surface parking sections adjacent to the train station. Table 1 on the following page details total number of parking spaces by section. Please note that our inventory counts occurred after the repair of Sections F and H, and included the latest striping layout.

Table 1: Parking Inventory¹

Section	Parking User Type	Inventory (Supply)
A	Quarterly Permit	154
B	Preferred Permit	69
B	Quarterly Permit	141
C	Quarterly Permit	171
D	Handicapped	58
E	Quarterly Permit - Resident Only	65
F	Daily Parking	520
H ²	Quarterly Permit	453
I	Quarterly Permit - Resident Only	88
I	Quarterly Permit - Resident Only	5
J	Quarterly Permit	284
J ³	Quarterly Permit	28
Total		2,036

Source: Timothy Haahs & Associates, Inc., 2010

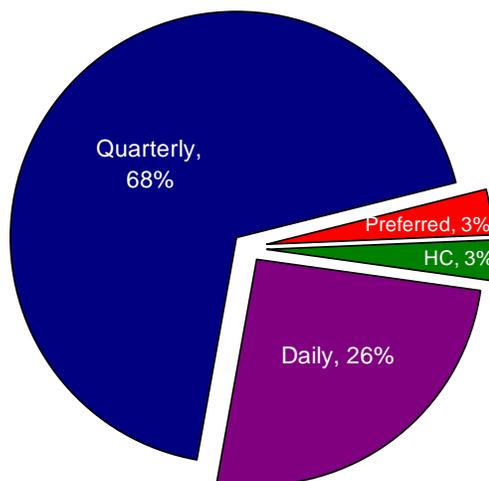
¹ Parking spaces signed and designated for taxis, MNR, and the Village are not included in the total space count.

² Please note that Section G has been included into the Section H parking inventory.

³ These 28 spaces located along the guide rail in Section J and are temporarily eliminated during the winter months to facilitate snow plowing efficiency.

Figure 2 below shows the breakdown of spaces by user type. Sixty-eight percent of the spaces are allocated to quarterly permits, 26 percent for daily permits, three percent for preferred quarterly permits, and the remaining three percent for ADA spaces (handicapped “HC” permitted vehicles).

Figure 2: Parking Inventory by Type



Source: Timothy Haahs & Associates, Inc., 2010

Parking Demand

TimHaahs conducted parking demand counts on Tuesday, Wednesday, and Thursday during the week of April 19, 2010. We noted demand levels every two hours starting at 7 am through 9 pm. We did not include spaces designated and authorized for other entities in our analysis. Although the occupancy counts on all three days were very close (only a two percent difference), we noted that the typical weekday peak demand occurred Thursday, April 22, 2010 afternoon at 1 pm at 1,735 vehicles. TimHaahs verified the demand data collected by the Village on Thursday, May 6, 2010. Our findings confirmed stable conditions with a variance of less than three percent.

Table 2: Peak Parking Demand

Section	Parking Supply	Weekday Typical Occupancy (Thursday)							
		7am	9am	11am	1pm	3pm	5pm	7pm	10pm
A - Quarterly Permit	154	2%	27%	32%	32%	32%	31%	16%	5%
B - Preferred Permit	69	14%	62%	64%	65%	65%	58%	41%	19%
B - Quarterly Permit	141	33%	99%	99%	99%	96%	82%	35%	11%
C - Quarterly Permit	171	100%	100%	100%	100%	99%	69%	41%	14%
D - Handicapped	58	28%	93%	97%	100%	97%	60%	26%	7%
E - Quarterly Resident Permit	65	100%	100%	100%	100%	95%	65%	32%	9%
F - Daily	520	34%	69%	65%	78%	74%	61%	35%	17%
H - Quarterly Permit	453	48%	100%	100%	100%	99%	68%	34%	9%
I - Quarterly Resident Permit	88	35%	100%	100%	99%	98%	78%	26%	8%
I - Quarterly Resident Permit (Guide Rail)	5	0%	80%	80%	80%	80%	80%	20%	0%
J - Quarterly Permit	284	9%	77%	82%	82%	82%	61%	34%	10%
J - Quarterly Permit (Guide Rail)	28	0%	86%	96%	100%	100%	75%	14%	0%
Total	2,036	37%	82%	82%	85%	83%	63%	33%	11%

Source: Timothy Haahs & Associates, Inc., 2010

According to parking demand data, most vehicles entered the lot prior to 9 am. This coincides with the need for officers to direct traffic into the lot during those hours. Conversely, vehicles began to exit the lot after 1 pm, and in larger quantities after 3 pm. During the evening, there were only 232 vehicles remaining during the final count at 10 pm.



Photo taken from the train station looking northeast at 9am (4/21/10)

We understand that some patrons may use the Croton-Harmon station parking lot to park for sporting and special events in New York City. The additional parking demand from these events was not included as a factor in the analysis of additional parking demand.

Parking Occupancy

TimHaahs analyzed parking occupancy during the weekday demand counts to determine the usage for each section of the parking lot. The daily parking spaces in Section F realized peak occupancy of 78 percent. While this may be lower than other sections, these daily spaces provide more convenient station access as well as higher revenue. A high turn over of the parking spaces in Section F is also expected.

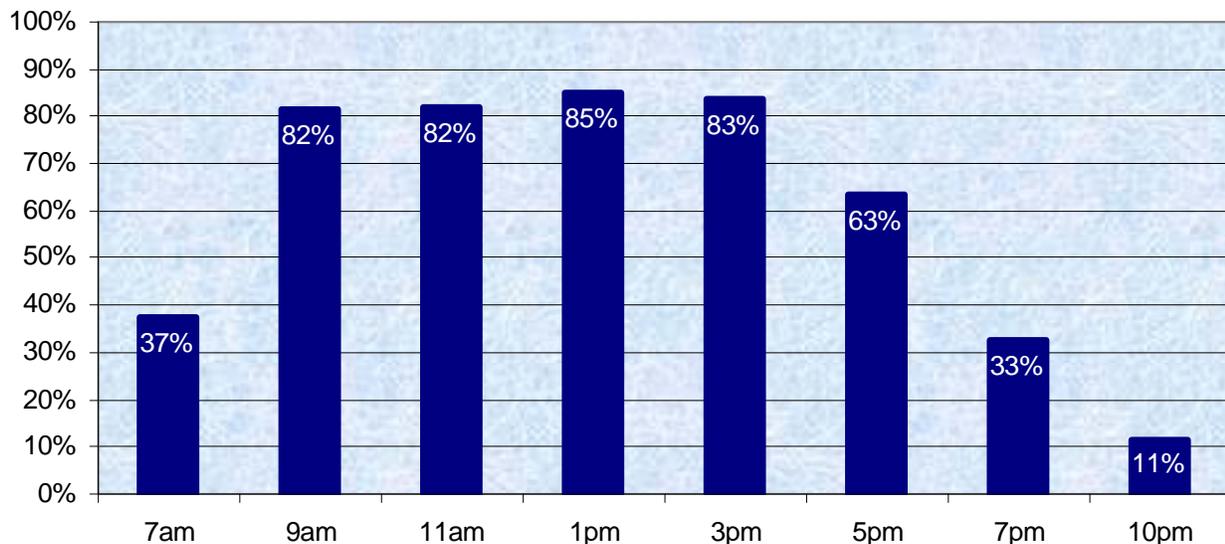
Table 3: Peak Parking Occupancy

Section	Parking Supply	Weekday Typical Occupancy (Thursday)							
		7am	9am	11am	1pm	3pm	5pm	7pm	10pm
A - Quarterly Permit	154	2%	27%	32%	32%	32%	31%	16%	5%
B - Preferred Permit	69	14%	62%	64%	65%	65%	58%	41%	19%
B - Quarterly Permit	141	33%	99%	99%	99%	96%	82%	35%	11%
C - Quarterly Permit	171	100%	100%	100%	100%	99%	69%	41%	14%
D - Handicapped	58	28%	93%	97%	100%	97%	60%	26%	7%
E - Quarterly Resident Permit	65	100%	100%	100%	100%	95%	65%	32%	9%
F - Daily	520	34%	69%	65%	78%	74%	61%	35%	17%
H - Quarterly Permit	453	48%	100%	100%	100%	99%	68%	34%	9%
I - Quarterly Resident Permit	88	35%	100%	100%	99%	98%	78%	26%	8%
I - Quarterly Resident Permit (Guide Rail)	5	0%	80%	80%	80%	80%	80%	20%	0%
J - Quarterly Permit	284	9%	77%	82%	82%	82%	61%	34%	10%
J - Quarterly Permit (Guide Rail)	28	0%	86%	96%	100%	100%	75%	14%	0%
Total	2,036	37%	82%	82%	85%	83%	63%	33%	11%

Source: Timothy Haahs & Associates, Inc., 2010

Hourly occupancy trends, as shown in Figure 3 below, show peak hours of 9 am to 3 pm. These hours exceed 80% of total occupancy. This represents peak weekday conditions (Thursday); demand levels during the remainder of the week are less than what is shown.

Figure 3: Weekday Typical Parking Occupancy



Source: Timothy Haahs & Associates, Inc., 2010

Current Parking Adequacy

When calculating parking adequacy, a “cushion” is applied to the parking supply to compensate for improperly parked vehicles, spaces lost due to maintenance or snow removal, and the flow of vehicles in and out of parking spaces. Industry standards typically apply a cushion between five and 15 percent depending on user type, facility purpose, and location. A five percent cushion was determined to be appropriate for the Croton-Harmon train station parking lot due to its use as a mass transit commuter parking lot. Since most of the users regularly park in the lot (via quarterly permits), they are familiar with the layout and even park in the same spaces regularly. The five percent cushion has been applied to all parking sections, as shown in the following table as the effective supply.

Table 4: Effective Supply

Section	Actual Supply	Effective Supply
A - Quarterly Permit	154	146
B - Preferred Permit	69	66
B - Quarterly Permit	141	134
C - Quarterly Permit	171	162
D - Handicapped	58	55
E - Quarterly Resident Permit	65	62
F - Daily	520	494
H - Quarterly Permit	453	430
I - Quarterly Resident Permit	88	84
I - Quarterly Resident Permit (Guide Rail)	5	5
J - Quarterly Permit	284	270
J - Quarterly Permit (Guide Rail)	28	27
Total	2,036	1,934

Source: Timothy Haahs & Associates, Inc., 2010

After applying the cushion, the effective supply is 1,934 spaces. With this cushion, the surplus supply during the peak hour is 199 spaces.

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Future Parking Conditions

Several factors impact future parking demand at the Croton-Harmon station. Changes in demographics, transit ridership, and competitive facilities are all factors in determining the future parking demand growth. Fuel prices and employment impact future parking demand as well, but are difficult to include in future projections.

Demographic Research

The TimHaahs team reviewed a variety of data sources, including U.S. Census Data, New York State Department of Labor Data, Westchester County demographic reports and Bureau of Labor Statistics data when preparing estimated population growth rates.

Additionally, we utilized a proprietary analytic data program, Scan US, to further enhance the analysis. Scan US is a sophisticated demographic analysis software application based on US Census data and US Postal Code counts, which is capable of accurately allocating population and households within geographies down to the block level, for the present year (estimate) and five years out (projected).

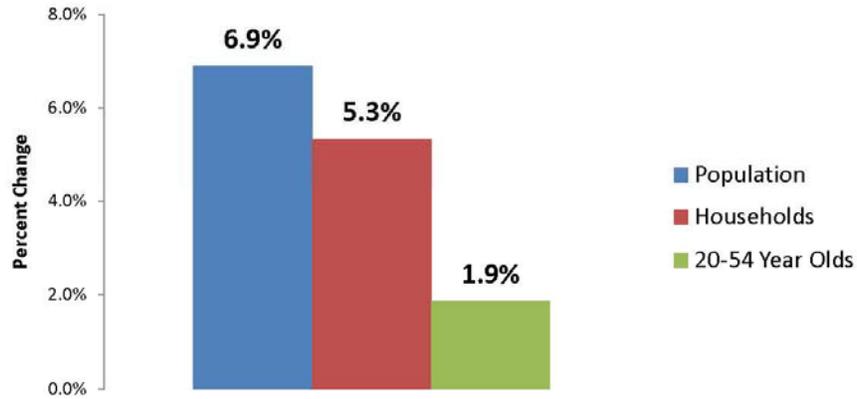
Though growth is projected in population across all geographies examined in the commuter shed from 2010 to 2015, the relatively slow annual growth rate (1/2 percent or less per annum for all geographies, in general) is indicative of an area which is built-out or growth limited through land-use restrictions. This finding suggests future demand for commuter parking at the Croton-Harmon Station will be minimally influenced by nearby population trends. Furthermore, the size of the population group of ages 20 to 54, is expected to shrink as nearby residents age and move into retirement.

Based on our broad assessment of demographic and labor trends, along with geographic dispersion of likely parking patrons of the station for the next five years (2010 – 2015), the commuter growth would be minimal as the primary commuter age group of 20-54 years is expected to decline a negative 2.2 percent.

- Population Growth Rate Scenario 2010 to 2015 2.2 percent
- Commuter (20-54 age group) Growth Rate Scenario 2010 to 2015 -2.2 percent

Estimated population growth rates are weighted based on the assumed percentage of parking demand from each commuter shed that we examined. They are also weighted based on the projected 2010 to 2015 rate of change for the 20 to 54 year old age group within the commuter shed that we examined. Supporting data and a map of the commuter shed area are included on the following pages.

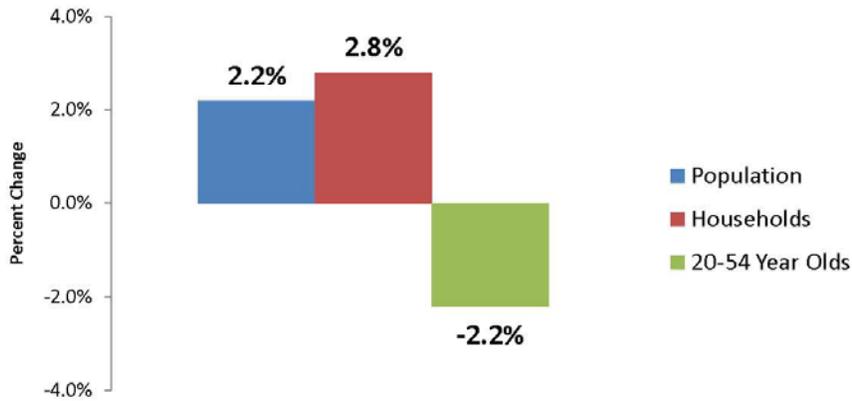
**Croton-Harmon Commuter Shed Area
 Percentage Change in Key Metrics
 2000-2010**



Source: US Census Bureau; ScanUS; 4ward Planning, 2011

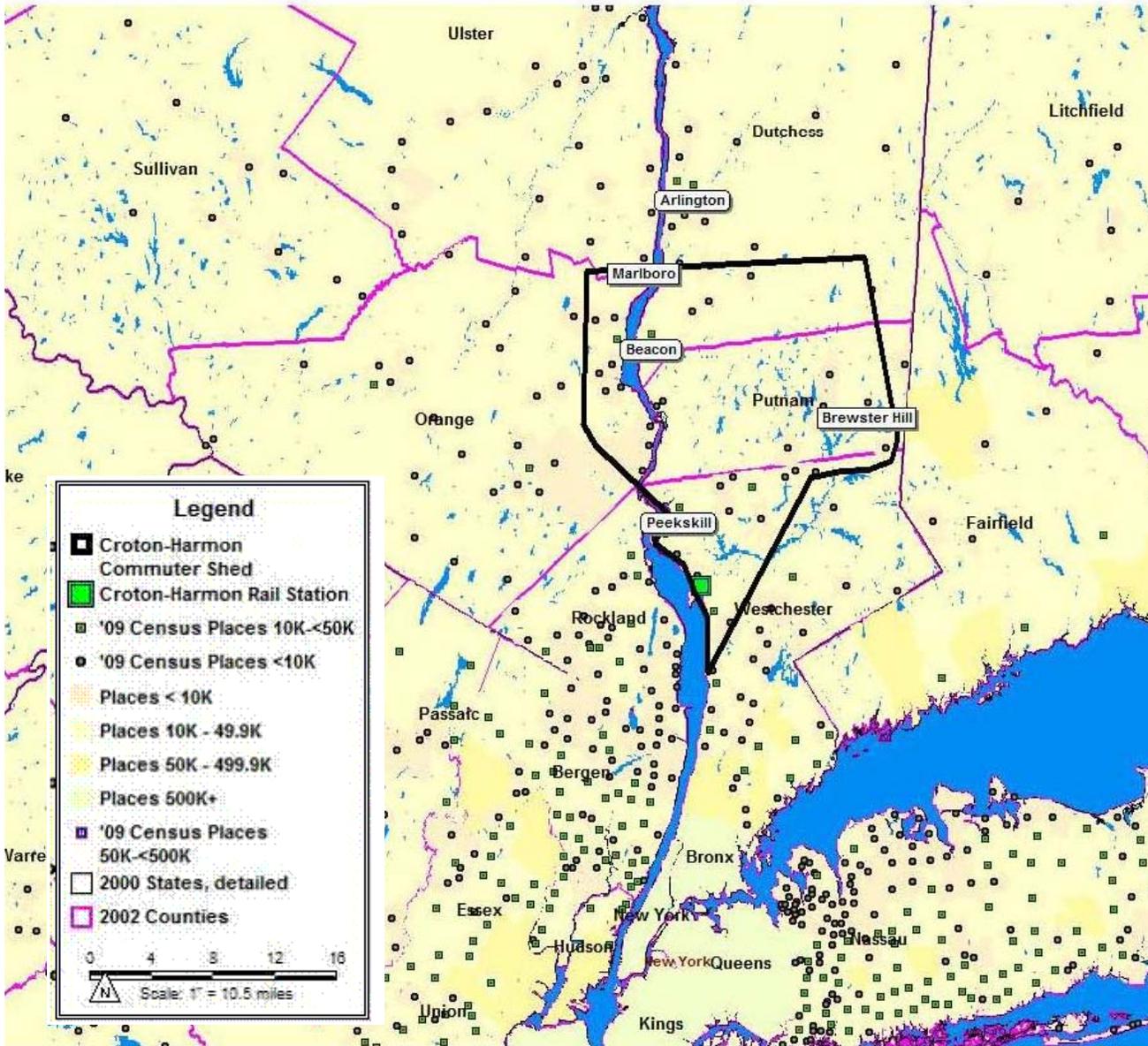
	2000	2010	2015
Population	414,238	442,831	452,471
Households	150,573	158,625	163,056
20-54 Year Olds	219,941	224,061	219,120

**Croton-Harmon Commuter Shed Area
 Percentage Change in Key Metrics
 2010-2015**



Source: US Census Bureau; ScanUS; 4ward Planning, 2011

Figure 4: Croton-Harmon Commuter Shed Area



Source: ScanUS; 4ward Planning LLC, 2011

Transit Ridership Growth

According to Metro-North representatives, long-term ridership numbers beyond 2015 are not available (due to the current economy). We understand that the entire Metro-North system experienced a 4.2 percent decrease in ridership in 2009. The latest projections for the lower Hudson segment of Metro-North's Hudson line (where the Croton-Harmon station is located) is that ridership is expected to decrease slightly through 2010 and then grow moderately through 2015.

MTA/MNR Representatives estimate that average daily ridership on the lower Hudson line will be approximately 9,600 in 2010*, increasing to approximately 10,750 by 2015. This represents average annual ridership growth of 2.3 percent for the lower Hudson segments. The basis for this growth rate was not provided by Metro-North and therefore could not be compared against the demographic information previously discussed.

According to AMTRAK representatives, ridership for the past seven to eight years has been fairly consistent with approximately 40,000 passengers annually (20,000 on and 20,000 off). This equates to approximately 58 AMTRAK passengers per day at the Croton-Harmon Station.

Table 5: Historical Croton-Harmon MNR Ridership

Historical Ridership	2004	2005	2006	2007	2008	2009
AM Peak inbound ridership	2,547	2,593	2,617	2,661	2,773	2,575
Weekday off peak ridership	731	775	889	924	982	928
Total weekday ridership	3,278	3,368	3,506	3,585	3,755	3,503
Weekend ridership	2,798	3,022	2,142	2,249	2,212	2,115
Annual % Change	2004	2005	2006	2007	2008	2009
AM Peak inbound ridership	-	2%	1%	2%	4%	-7%
Weekday off peak ridership	-	6%	15%	4%	6%	-5%
Total weekday ridership	-	3%	4%	2%	5%	-7%
Weekend ridership	-	8%	-29%	5%	-2%	-4%

Source: Metro North Railroad

Please note that all inbound counts at Croton-Harmon include transfers such as a customer who transfers from a local train to an express train. The totals above do not include customers on Amtrak trains.

* 2010 ridership actual numbers are not yet available

Competitive Parking Facilities

During our study, we visited nearby train stations, including Cortlandt Station and Ossining Station, both of which are on the same Metro-North line as Croton-Harmon. At Cortlandt Station, one station directly north of Croton-Harmon, we noted that most of existing surface spaces (approximately 900 stalls) were occupied, and that the station is currently undergoing an expansion project to add an additional 730 parking spaces. The expansion is expected to open in November 2011. The station offers permit as well as daily parking.

Based on our findings, the current parking expansion of Cortlandt Station may have an impact on the demand at Croton-Harmon Station. Currently there are five express trains leaving from Cortlandt Station every 30 minutes during the peak hours of 7 am to 9 am, compared to eight departing from Croton-Harmon Station. In addition to the frequency of express trains, there is \$57.33 per month (\$688 per year) difference in permit parking rates between these two stations, with Croton as the higher priced station. However, for a commuter traveling to Grand Central using a monthly ticket, the fare from Croton is \$3,192 per year, while the fare from Cortlandt is \$3,780 per year, a \$49 per month (\$588 per year) difference. The price difference may be significant enough to sway users from Croton to Cortlandt. Thus there is a net premium of approximately \$8 per month that commuters would pay to park at Croton-Harmon for better service and a shorter trip (by approximately ten minutes).

The next station to the south is Ossining Station, where lots were approximately 99% full, based on our observation. Construction on the station façade and other maintenance was in progress. To accommodate displaced spaces due to construction, valet parking was being implemented. According to Metro-North RR, no additional parking is planned for this location. When comparing Croton-Harmon to Ossining, commuters will most likely park and depart from Croton-Harmon Station due to parking capacity.

We have collected information from nearby stations to highlight total number of spaces, wait list availability, travel time variance (when compared to Croton-Harmon to Grand Central), and annual train fare when purchasing a monthly ticket (x12):

Table 6: Train Station Annual Train Fare

Station	Total Spaces	Wait List	Travel Time Variance	Monthly Fare	Annual Fare w/Monthly Ticket
Croton Harmon	2,036	No	-	\$266	\$3,192
Cortlandt	886*	N/A	+10 min.	\$315	\$3,780
Peekskill	488	N/A	+13 min.	\$315	\$3,780
Ossining	533	yes *	-4 min.	\$266	\$3,192
Scarborough	420	N/A Valet	-6 min.	\$266	\$3,192

* Waiting list verified on 1/12/11

Source: Timothy Haahs and Associates, Inc. 2011

We have compared the annual cost to park and purchase a monthly train ticket. Both Ossining and Scarborough are less expensive for resident permits. However, all of the other stations (with the exception of Peekskill) are less expensive for non-residents when compared to Croton-Harmon.

Table 7: Nearby Train Station Annual Parking and Train Fare

Station	Annual Fare w/Monthly Ticket	Annual Parking Permit		Annual Parking & Fare		Annual Variance	
		Resident	Non-Resident	Resident	Non-Resident	Resident	Non-Resident
Croton Harmon	\$3,192	\$612	\$1,056	\$3,804	\$4,248		
Cortlandt	\$3,780	\$368	\$368	\$4,148	\$4,148	\$344	(\$100)
Peekskill	\$3,780	\$396	\$960	\$4,176	\$4,740	\$372	\$492
Ossining	\$3,192	\$380	\$500	\$3,572	\$3,692	(\$232)	(\$556)
Scarborough	\$3,192	\$550	\$970	\$3,742	\$4,162	(\$62)	(\$86)

Source: Timothy Haahs and Associates, Inc. 2011

Based on the above information, a non-resident commuter could choose any of the other nearby stations to park, and save money each year; however, service and/or travel time may vary.

Future Parking Summary

We have assumed a one percent parking demand growth rate for the next five years and a two percent parking demand growth rate for years five through ten, based on:

- minimal population growth rate for the target demographic area
- positive growth rate in transit ridership
- an increase in competitive parking facilities
- no other future uses on the site
- historical permit sales as provided by Village representatives

Table 8: Future Parking Demand and Adequacy

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Demand	1,752	1,770	1,788	1,805	1,824	1,860	1,897	1,935	1,974	2,013
Effective Supply	1,934	1,934	1,934	1,934	1,934	1,934	1,934	1,934	1,934	1,934
Adequacy	182	164	146	129	110	74	37	(1)	(40)	(79)

Source: Timothy Haahs and Associates, Inc. 2010

Should the Village decide to develop the parking lot property with additional land uses, the future parking supply and demand projections above should be revised to include the impact from those additional land uses. Assuming that economic conditions remain somewhat stable or improve slightly, current parking facilities would be able to support commuter parking needs through 2018. If it becomes necessary to accommodate more vehicles in the next five years, we would also recommend relocating the DPW building to provide room for additional surface parking. However, the cost to relocate the DPW has not been determined.

Field Observations

We conducted field observations on January 27, 2010 and noted the following:

- Two officers were directing traffic on Croton Point Avenue between 7:30 am and 8:15 am. Currently this intersection does not have a traffic signal, but we understand that the Village is in the process of adding signals to this intersection. We anticipate the signal will improve the safety of vehicles, pedestrians, and cyclists entering and exiting the station.
- Approximately 70 percent of the lot was filled during the morning rush. We observed several motorists parking in a specific location (i.e. near a light pole or at the end of an aisle) to help them locate their vehicle upon return.
- There are numerous blind spots at the end of the drive aisles due to an absence of green space or other unused “end caps.” The inability to visibly see if another vehicle is approaching is a safety issue for both motorists and pedestrians.
- The drive aisle in the southern portion of Section H was rather narrow and many vehicle bumpers extended well into the path of travel.
- The two-way drive aisle leading to Sections I and J is not sufficient for two way traffic flow when vehicles are parked against the guard rail.
- There was an overall absence of clear signage throughout the lot. Specifically, signage is needed for visitors, kiss and ride, taxi areas, handicap areas, and the location of Section A.
- During this visit, we noted two pay station locations in the parking lot. Each location had three newly installed multi-space parking meters in operation. While we were on location, we surveyed a few transit passengers using these pay stations. The overall consensus was positive and they viewed the new pay stations favorably. Some users noted certain issues including the time to process a transaction, that there is no way to correct the transaction if the wrong stall number was entered, and that change was not provided. All these factors could be considered as normal adjustments, to be expected after installation of a new system. However, lengthy transaction times could cause frustration to passengers if not addressed, as commuters tend to get frustrated when they are in a hurry to catch a train.
- While observing Section D of the lot, taxis have been assigned spaces along the front row. The current method provides taxi companies nearest the exit doors an advantage. The taxis also occupy the most desired parking spaces.
- We noticed parking enforcement officers checking permits regularly during our visits. Although permit holders are instructed to affix the permits in a specific location, the officer noted that a large number of vehicles do not abide by this rule, making enforcement task more time consuming than necessary.

Our recommendations to address some of these issues are included under the Management Recommendation section of this report.

Public Workshop

TimHaahs assisted the Village in hosting a public workshop for both resident and non-resident commuters of Croton-Harmon Station. This workshop was held on January 12, 2010 at the Croton-Harmon Fire Station at 7:30 pm. The focus of this two hour workshop was to hear and gather public opinions on the current parking lot and possible structure.



Photo taken during the workshop held on 1/12/10.

Five representatives from TimHaahs, several Village staff members, and approximately 60 residents and commuters attended and participated in small group discussions during the event. The workshop included six breakout groups with a leader recording the responses. Every person in each group was given the opportunity to voice their opinions about what they like, dislike, and how they would improve the parking facilities at the station. At the end of the workshop, all of the groups shared their responses with the entire assembly. Some of the major topics discussed during the workshop are included below. (A full list is included in Appendix A.)

Builders of the Current Parking System

We identified the following factors as contributing positively to the current parking system and ridership at Croton-Harmon Station:

- Revenue generator for the Village
- Convenient and safe lots with good lighting and wide parking stalls
- Accessible from the highway
- Express train service
- Resident-only parking areas
- Convenient automated pay stations
- Timely snow removal
- Nice amenities (news stand, dry cleaners, coffee shop)
- Connection to bus/AMTRAK

Barriers of the Current Parking System

We identified the following factors as hindering the current parking system and ridership at Croton-Harmon Station:

- Vehicular/Pedestrian/Cyclist conflict areas
- Poor sidewalks
- Lots disconnected from the Village
- Need for more shops and amenities
- Poor signage
- Difficult access from Route 9 South
- No covered parking areas
- Expensive non-resident rate and daily rate
- Need for more daily and monthly parking spaces
- DPW building disconnects parking and reduces feeling of safety/lighting in back lots
- Poor circulation during peak times at kiss and ride area, bus area, and taxi loading areas

Public Workshop Recommendations

The following are recommendations provided during the public workshop for improvements at the Croton-Harmon Station:

- Improve circulation and accessibility to the station
- Add covered walkways
- Add parking garage and more amenities
- Add better signage and wayfinding
- Relocate DPW to provide more parking
- Improve pedestrian and bicycle access and crosswalks
- Improve traffic circulation specifically adjacent to the station entrance
- Add more daily parking spaces adjacent to the station entrance to make more revenue
- Add more events and improve the station as Village “Gateway”

Recommendations

The following section outlines recommendations on how to improve the parking system through best management practices. When possible, it is most desirable to maximize the efficiency of a parking system through changes in the management, versus adding new parking. This does not mean that new parking facilities should not be constructed. However, new facilities should not be built as a first response when other lower cost options are available. All recommendations were either noted in the public workshop as a recommendation or listed as a way to address some of the concerns discussed. Recommended changes to the parking system's operation, management and infrastructure are provided below:

Parking Enforcement

One of the most difficult aspects of parking operations is enforcement. We noted regular enforcement during our site. One way to conduct quicker and more accurate enforcement of permits is to utilize a License Plate Recognition (LPR) system.

License Plate Recognition (LPR) technology uses digital cameras and lasers to perform vehicle recognition (size, shape and color). Combined with accurate GPS, LPR automatically detects and notifies the Parking Enforcement Officer (PEO) of illegally parked vehicles. Pictorial evidence is present to the PEO for violation assessment. LPR can also be used for scofflaw searches. Despite its sophisticated technology, LPR systems have proven reliable in everyday operation and in all temperatures and weather.

Parking enforcement productivity can increase significantly with LPR enforcement systems, thereby allowing time to enforce other high priority activities. It allows enforcement regardless of weather conditions. Productivity gains can be significant, especially with the enforcement of time limitations of short term meters. Additional advantages of LPR systems include:

- Capable of tracking vehicles with outstanding tickets, fines, warrants
- Simplifies enforcement in commuter lots
- Allows enforcement officers to verify proper payment in the daily parking areas
- Allows enforcement officers to verify monthly permit holders
- Could also be used to enforce time limits along the downtown area of the Village (if desired)
- Allows smaller enforcement staff to cover a larger area, which will allow the Village to utilize personnel in other areas or increase enforcement efforts (which will in turn increase fine and ticket revenue)

The cost of LPR systems have dropped to a reasonable rate (\$40,000 to \$80,000 not including the cost of the vehicle necessary for mounting the equipment) and the return on investment is typically less than two years. Given the manual nature of the Village's permit distribution process, an LPR system can be a cost-effective way to eliminate the need for physical permits and increase revenues associated with violators and scofflaws. The Village is currently using handheld computers for enforcement.

Safety Issues

1. Provide a larger buffer at the end of the drive aisles in Sections F and H to reduce blind corners.
2. Sign the south point of Section H as compact vehicles only, or convert one side of parking to parallel, or eliminate parking on one side of the aisle completely.
3. Eliminate 8 spaces along the guard rail at the entrance of Sections I and J to increase the lane width for two-way traffic.
4. Add striped pedestrian paths in Sections I and J and an elevated crosswalk with caution signals from Section F and H across to Section D.
5. Measure existing lighting during evening hours to ensure proper and uniform lighting conditions, especially in the more remote lots north and south of the station.

Signage and Wayfinding

1. Add numbers, banners, or letters to the light posts in all lots so that users can have a point of reference as to where they parked.
2. Add clear signs to direct traffic flow in and around the station for motorists, buses, pedestrians, and cyclists.
3. Add clear signs to direct traffic to Kiss and Ride, bus stop, and handicap parking locations.
4. Replace the small Section A sign at the intersection of Croton Point Avenue with a larger sign showing “Commuter Permit Parking”.

Revenue and Parking Rates

1. Charge taxis for the ability to use the station queue on a per taxi permit basis. The permits can be sold at a slightly lower amount than the current fee schedule.
2. Consider charging commuters a premium to park in Section B while keeping the current rate for residents in Section H.
3. Increase the preferred rate in Section C due to the proximity to the station and allow residents to purchase non-discounted permits in this area first.
4. Change Section E to a daily preferred lot with higher daily rates due to the proximity to the station.
5. Conduct at least one complete audit of handicap vehicles each quarter to verify proper use.

Functional Layout and User Distribution (Phase I Layout)

The recommendations below are short term improvements which address the taxi, bus, and traffic flow in front of the station entrance. Additional detail on these recommendations is provided in the next section of the report along with recommendations for long term improvements.

1. Relocate taxi stands from Section D to along the curb south of the station adjacent to the DPW parking lot (adjacent to Section E). The taxi waiting lane could be aligned in a one-way northbound direction.
2. Move the bus drop off area to a cut out adjacent to Lot E along Veterans Plaza.

3. Adjust traffic patterns on roadways adjacent to station as noted in Phase I.

Parking Development Alternatives

Project Goals

TimHaahs conducted a conceptual feasibility study for a proposed parking structure on the existing Croton-Harmon Station surface lot. The study includes site feasibility assessments for the development of additional parking either in surface parking at the DPW site, or in a new parking structure. The schematic design concepts presented address the development of additional parking to meet future commuter growth and potential station area development. They strive to better organize the station area with regard to traffic flow, pedestrian safety, and enhancing the public domain.

The goals of this feasibility study were communicated by the leadership of Croton-on-Hudson and discussed at the public workshop meeting held on January 12, 2010. The recommendations provided by residents and commuters during the workshop included:

- *Improve circulation and station accessibility*
- *Add covered walkways*
- *Add parking garage and more amenities*
- *Add better signage and wayfinding*
- *Relocate DPW to provide more parking*
- *Improve pedestrian and bicycle access and crossings*
- *Improve traffic circulation, specifically near the station entrance*
- *Add more daily parking spaces adjacent to the train station entrance to generate more revenue*
- *Add more events and improve the station area as Village “Gateway”*

Concept Plans

The concept plans for both parking facility improvements and parking expansion enhance the functionality of the facility, provide more convenient parking, and reduce conflicts between pedestrians, motor vehicles and bicycles.

The concept plans illustrate strategies to add parking through an expansion of surface parking at the DPW site. Should the demolition or relocation of the DPW facility not be economically or physically viable, we have included a concept plan for the development of a new parking structure, keeping the DPW building in place.

The concept plans for the Croton-Harmon parking facility improvements and expansions are presented in four phases.

Phase I – Short Term Improvements

The intent of the Phase I plan is to implement short term improvements mainly to the bus and taxi drop-off and pick-up areas to improve overall traffic flow in front of the station. The proposed modifications will provide short term improvements without significant capital expense. Key elements include:

- Reconfiguration of Section E to widen the taxi, bus, commuter entrance lane
- Relocation of the bus drop-off area to Veterans Plaza
- Relocation of taxi waiting and passenger pick-up and drop-off areas to the west and south of Section E. Taxi queuing will be on a first come first serve basis
- Improvement of wayfinding to direct traffic to kiss and ride and daily parking lot
- Restrictions of through traffic in front of the station to enhance pedestrian safety
- Provision of pedestrian guide rails at strategic locations to guide pedestrians to designated walkways, creating more organized and safer pedestrian flow to and from the train station, and reducing pedestrian/vehicular conflict
- Provision of one-way traffic flow around Section E to reduce conflict between commuter and taxi drop off and pick up activities
- Provision of one-way traffic flow and angled parking in Section E to enhance traffic flow and reduce conflicts
- Reconfiguration and enhancement results in the loss of 13 parking spaces

Phase II – Reconfiguration of DPW Surface Lot

The conceptual plan depicted in Phase II is a continuation of Phase I with the proposed demolition of the DPW facility and possibly the salt shed. The DPW site can be developed into a premium location as a premium priced surface parking section. Also by moving the salt shed, improvements to the recreational boat launch area can be made. Key elements include:

- Key elements of Phase I
- Development of preferred permit or daily parking at DPW site for increased parking, convenience, and revenues
- Reconfiguration of DPW surface parking results in a net gain of 127 spaces

Phase III – Preferred Parking Structure and DPW Surface Lot

The Phase III plan introduces a five level parking garage with 497 spaces conveniently situated between the two station buildings. Its location with the proposed pedestrian bridges provides direct access to the second level of both the north and south station building. The convenient location of the parking structure and access to the station's buildings would allow the Village to charge preferred parking rates to financially support the facility. More information on this is provided in the Preliminary Financial Analysis section.

This phase incorporates several design features to improve the convenience of the station area including:

- The structure location and design accommodates functional layouts for enhanced traffic and pedestrian flow, and segregation of bus, taxi and kiss and ride.
- Convenient, direct access off Veterans Plaza, with a dedicated right-hand turn lane into the facility, allows commuters proceeding to the south to pass unencumbered
- Two bay structure with 90 degree parking providing high efficiency per space
- Relocation of kiss and ride and bus drop-off location to the north for an enhanced traffic flow and easier wayfinding experience
- Provisions of pedestrian guide rails at strategic locations to guide pedestrians to designated walkways, creating more organized and safer pedestrian flow to and from the train station, and reducing pedestrian/vehicular conflict.
- Placement of stamped asphalt on sections of Veterans Plaza adjacent to main plaza to aesthetically calm traffic and enhance safety
- Provision of an area for designated and conveniently located bicycle storage
- Prominent stairway located at the new “station plaza” allows commuters parked in eastern lots to access the second level of the station buildings and avoid vehicular conflicts immediately in front of station buildings
- An elevated walkway over Veterans Plaza and stairs on the east side will greatly reduce vehicle/pedestrian conflicts
- Elevated walkway at the second level of the deck provides commuters with convenient access to and from both station buildings, reducing pedestrian/vehicular conflict
- Integrates retail space at the northeastern corner to provide additional amenities and further activates the “station plaza”
- Increased parking has the potential to increase revenue and accommodate future commuter parking demand, or parking displaced by potential development of surface parking
- Façade at the “station plaza” area can be enhanced with a Digital Display video screen to provide news, community announcements, train schedules and advertising to generate additional revenue
- Visually improved station area with banner signage and advertising to generate additional revenue
- Addition of seasonal kiosk stands to provide amenities for commuters during certain seasons also creating a vibrancy around the “station plaza”
- Integrated sustainable design features such as solar arrays to provide renewable energy, indoor bike storage to promote alternative modes of access to the station, preferred parking for energy efficient vehicles, energy efficient lighting, and incorporation of electric vehicle charging stations
- Structured parking scenario results in a net gain of 467 spaces.

Phase IIIa – Preferred Parking Structure without DPW Surface Lot

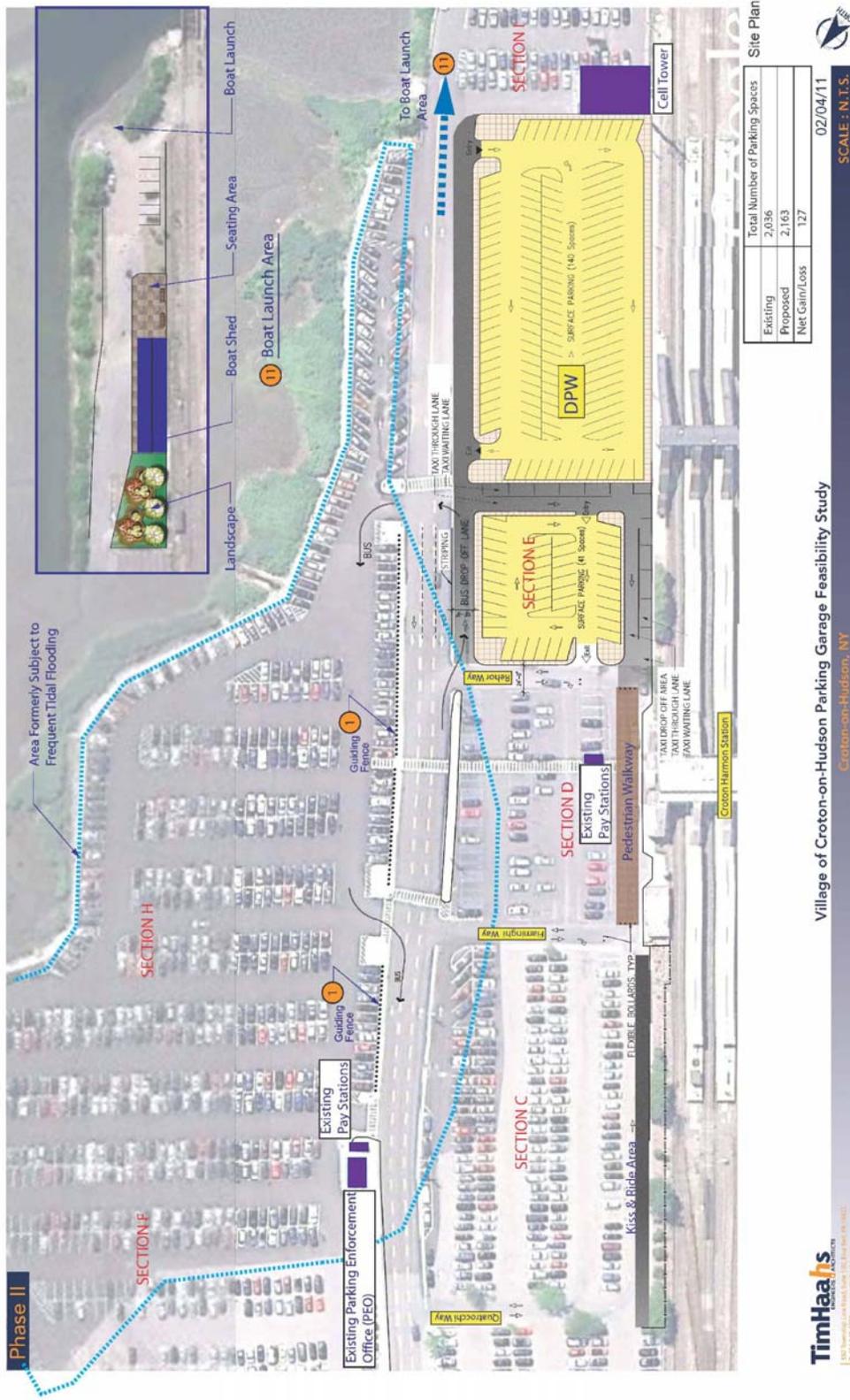
- The Phase IIIa plan eliminates the additional parking developed at the DPW site due to the potential inability to relocate the facility. All other functional improvements and enhancements associated with the Phase III plan remain.
- This concept results in a net gain of 340 spaces.

Figure 5: Phase I Short Term Improvements



Source: Timothy Haahs and Associates, Inc. 2010

Figure 6: Phase II – Reconfiguration of DPW Surface Lot



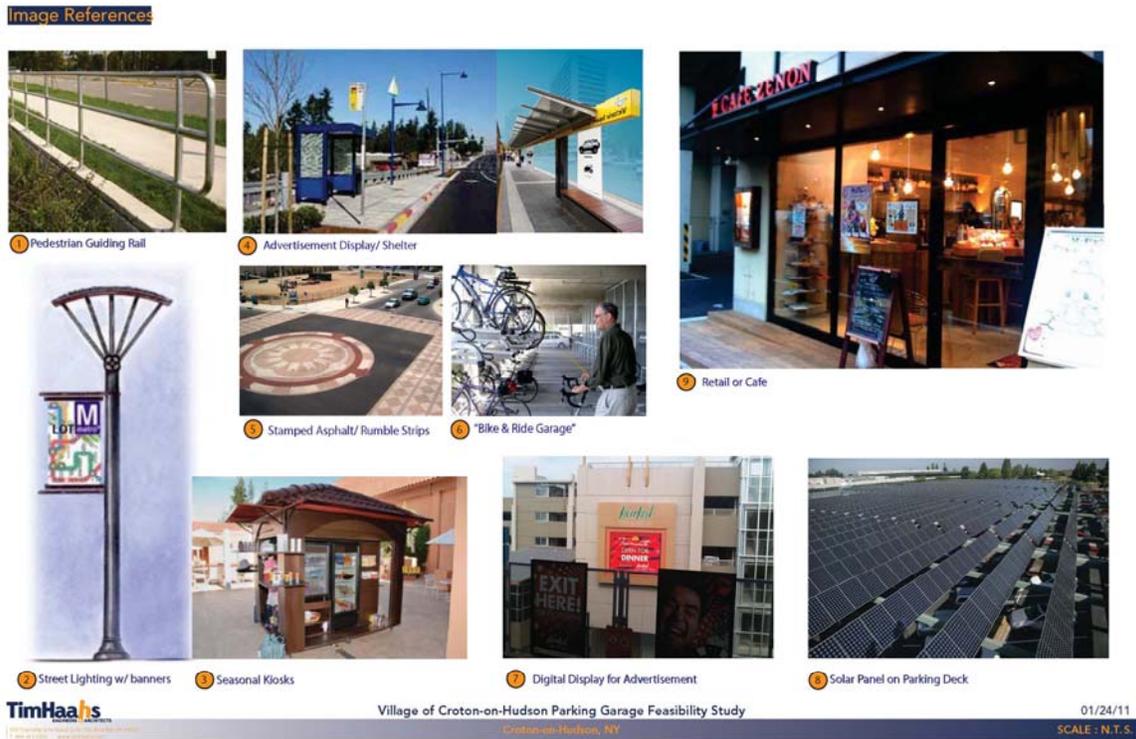
Source: Timothy Haahs and Associates, Inc. 2010

Figure 8: Phase IIIa - Preferred Parking Structure without DPW Surface Lot



Source: Timothy Haahs and Associates, Inc. 2010

Figure 9: Reference Images – A



Source: Timothy Haahs and Associates, Inc. 2010

10 Transit Plaza

Figure 10: Reference Images – B



Source: Timothy Haahs and Associates, Inc. 2010

Figure 11: Perspective Rendering 1



Source: Timothy Haahs and Associates, Inc. 2010

Figure 12: Perspective Rendering 2



Source: Timothy Haahs and Associates, Inc. 2010

Preliminary Financial Analysis

TimHaahs analyzed the anticipated financial performance of the Croton-Harmon Train Station Parking System, should Phase II and Phase IIIa be chosen for implementation.

We have provided the estimated construction cost for Phase II and Phase IIIa below. For the purpose of our analysis, we evaluated Phase II and Phase IIIa separately. In other words, our financial model reflects either the implementation of Phase II OR the implementation of Phase IIIa, but not both. We have assumed the Phase IIIa cost would include items 1, 2, and 3 as detailed in the following table. The figures below do not include the cost to relocate the DPW building. or secure the land for the new location.

Table 9: Estimated Construction Cost

Phase	(5 % General Condition, 5 % allowance , 5 % soft fee Included)	Comments
Phase I - Reconfiguration of Section E (41 spaces); Redefinition of Kiss N Ride area and Pedestrian walkway in front of the station	\$223,000	Resurfacing of 14,000sf @ \$3/+-sf; striping @ \$10/stall; concrete curbs, sidewalk signage, pedestrian fencing, bollards
Phase II - Reconfiguration of DPW site into 140 space surface lot.	\$983,850	New asphalt with sub-grade of 44,100 sf @ \$12/sf Concrete side walk, striping and traffic arrow signage Since the new surface lot is impervious with a building, it is assumed that no storm-water management is required. *The demolition cost and debris disposal costs are excluded.
Phase III - Reconfiguration of sections C (60 spaces) & D (77 spaces); reconfiguration of DPW site (127 spaces); enhancement of traffic flow into the station	\$1,844,000	Surface lot enhancements - \$16/sf+-(parking footprint) Stamped asphalt, guiding fence, signage budget are included. Since the new DPW surface lot is impervious with a building, it is assumed that no strom water management is required.
Phase III - 5 level parking garage with 497 spaces	\$10,533,000	\$17,000/space (parking deck with limited faced enhancement, shell spaces for retail usage) 1. additional cost for deep foundation (piles, caissons etc.) : \$360,000 2. (2) pedestrian bridges: \$150,000. 3. Commuter access stair : \$200,000
Total Phase III	\$12,377,000	
Phase IIIa - Design of III with out new DPW surface lot (127 spaces)	\$11,393,150	Eliminated grass strip and sidewalk on south side of the garage to extend taxi through and waiting lanes

Source: Timothy Haahs and Associates, Inc. 2010

Debt Service

Debt service has been calculated using a 30 year term and a five percent cost of capital. The annual debt service payment for Phase II is estimated as approximately \$64,000. This equates to an additional debt payment of \$504 per space (\$64,000 divided by the 127 space net gain).

The annual debt service payment for Phase IIIa is estimated as approximately \$741,141. This equates to an additional debt payment of \$2,180 per space (\$741,141 divided by the 340 space net gain).

Pro Forma Assumptions

We have made the following assumptions in our Phase II and Phase IIIa preliminary pro forma operating statement.

Operating Revenue

1. Permit rates for Phase II and Phase IIIa are as follows:

Rate	Phase II	Phase IIIa
Non-Resident Quarterly	\$88.00	\$95.00
Resident Quarterly	\$51.00	\$55.00
Preferred Quarterly	\$150.00	\$150.00
Reserved Quarterly	n/a	\$180.00
Daily	\$8.00	\$8.00
Weekend Daily	\$5.00	\$5.00
Preferred Daily	n/a	\$10.00
Annual Increase	2%	2.5%

2. Total permit users is equal to the May 2010, plus one percent annual growth.
3. In Phase IIIa we have assumed 5 percent of the General Quarterly Permit holders would purchase a Preferred Quarterly Permit and 50 percent of the Daily parkers would utilize the Preferred Daily parking area. We have also assumed that 40 of the Preferred Quarterly Permit holders would purchase a Reserved Permit.
4. Total daily users are equal to the occupancy counts performed plus one percent annual growth.
5. Total weekend users is 350 (Saturday and Sunday) plus one percent annual growth.
6. Revenue from the ground level retail has not been included in Phase IIIa.
7. Revenue from taxi permits has not been included in either Phase.

Operating Expenses

1. We have assumed the following expenses per space:

i. Labor	\$65 (Surface)	\$80 (Garage)
ii. Supplies	\$10	
iii. Repairs/Maintenance	\$3	
iv. Insurance	\$25 (Surface)	\$40 (Garage)
v. Miscellaneous	\$5	
vi. Utilities	\$50 (Garage Only)	

2. We have assumed the following expenses on an annual basis:

i. Rental Agreement NYS DOT	\$2,760	
ii. Snow Removal	\$12,000	
iii. Landscaping	\$3,000	
iv. Telephone	\$3,000	
v. Cable	\$750	
vi. Alarm Monitoring	\$900	
vii. Septic	\$850	
viii. Equipment Repairs	\$1,000 (Surface)	\$28,000 (Garage)
ix. Vehicle Repairs	\$2,000	
x. Pay Station Software	\$4,200	
xi. Permit Software Maintenance	\$4,000	
xii. Pay Station Maintenance	\$10,000	

3. We have assumed a \$75 per space capital reserve for all structured spaces.

4. We have assumed all expenses increase by three percent annually.

5. We have not included a parking management fee expense, as the Village will operate the facility.

The preliminary pro forma operating statements for are included on the following pages.

Table 10: Preliminary Pro Forma Phase II

	Rate	Users	times/yr	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue													
Non-Residential Permits	\$88.00	1,227	12	\$1,295,577	\$1,334,703	\$1,375,011	\$1,416,537	\$1,459,316	\$1,503,388	\$1,548,790	\$1,595,563	\$1,643,749	\$1,693,391
Residential Permits	\$51.00	568	12	\$347,720	\$358,221	\$369,039	\$380,184	\$391,666	\$403,494	\$415,680	\$428,233	\$441,166	\$454,489
Preferred Permits	\$150.00	68	12	\$121,751	\$125,428	\$129,215	\$133,118	\$137,138	\$141,279	\$145,546	\$149,942	\$154,472	\$159,135
Daily Parking	\$8.00	416	260	\$865,783	\$891,929	\$918,865	\$946,615	\$975,203	\$1,004,654	\$1,034,995	\$1,066,251	\$1,098,452	\$1,131,626
Weekend Parking	\$5.00	350	52	\$91,000	\$93,748	\$96,579	\$99,496	\$102,501	\$105,596	\$108,785	\$112,071	\$115,455	\$118,942
Total Revenue				\$2,721,830	\$2,804,029	\$2,888,711	\$2,975,950	\$3,065,824	\$3,158,412	\$3,253,796	\$3,352,060	\$3,453,293	\$3,557,582
Expenses													
	per space	annual											
Labor	\$65	\$140,595		\$140,595	\$144,813	\$149,157	\$153,632	\$158,241	\$162,988	\$167,878	\$172,914	\$178,102	\$183,445
Supplies	\$10	\$21,630		\$21,630	\$22,279	\$22,947	\$23,636	\$24,345	\$25,075	\$25,827	\$26,602	\$27,400	\$28,222
Rental Agmt NYS	\$1.28	\$2,760		\$2,760	\$2,843	\$2,928	\$3,016	\$3,106	\$3,200	\$3,296	\$3,394	\$3,496	\$3,601
Repairs/Maintenance	\$3	\$6,489		\$6,489	\$6,684	\$6,884	\$7,091	\$7,303	\$7,523	\$7,748	\$7,981	\$8,220	\$8,467
Snow Removal	\$5.55	\$12,000		\$12,000	\$12,360	\$12,731	\$13,113	\$13,506	\$13,911	\$14,329	\$14,758	\$15,201	\$15,657
Landscaping	\$1.39	\$3,000		\$3,000	\$3,090	\$3,183	\$3,278	\$3,377	\$3,478	\$3,582	\$3,690	\$3,800	\$3,914
Telephone	\$1.39	\$3,000		\$3,000	\$3,090	\$3,183	\$3,278	\$3,377	\$3,478	\$3,582	\$3,690	\$3,800	\$3,914
Cable	\$0.35	\$750		\$750	\$773	\$796	\$820	\$844	\$869	\$892	\$922	\$950	\$979
Alarm Monitoring	\$0.42	\$900		\$900	\$927	\$955	\$983	\$1,013	\$1,043	\$1,075	\$1,107	\$1,140	\$1,174
Septic	\$0.39	\$850		\$850	\$876	\$902	\$929	\$957	\$985	\$1,015	\$1,045	\$1,077	\$1,109
Insurance	\$25	\$54,075		\$54,075	\$55,697	\$57,368	\$59,089	\$60,862	\$62,688	\$64,568	\$66,505	\$68,501	\$70,556
Equipment Repairs	\$0.46	\$1,000		\$1,000	\$1,030	\$1,061	\$1,093	\$1,126	\$1,159	\$1,194	\$1,230	\$1,267	\$1,305
Vehicle Repairs	\$0.92	\$2,000		\$2,000	\$2,060	\$2,122	\$2,185	\$2,251	\$2,319	\$2,388	\$2,460	\$2,534	\$2,610
Pay Station Software	\$1.94	\$4,200		\$4,200	\$4,326	\$4,456	\$4,589	\$4,727	\$4,869	\$5,015	\$5,165	\$5,320	\$5,480
Pay Station Maintenance	\$4.62	\$10,000		\$10,000	\$10,300	\$10,609	\$10,927	\$11,255	\$11,593	\$11,941	\$12,299	\$12,668	\$13,048
Permit Software Maint.	\$1.85	\$4,000		\$4,000	\$4,120	\$4,244	\$4,371	\$4,502	\$4,637	\$4,776	\$4,919	\$5,067	\$5,219
Miscellaneous	\$5	\$10,815		\$10,815	\$11,139	\$11,474	\$11,818	\$12,172	\$12,538	\$12,914	\$13,301	\$13,700	\$14,111
Total Expenses				\$278,064	\$286,406	\$294,988	\$303,848	\$312,963	\$322,352	\$332,023	\$341,984	\$352,243	\$362,810
Net Operating Income				\$2,443,766	\$2,517,623	\$2,593,713	\$2,672,102	\$2,752,860	\$2,836,059	\$2,921,773	\$3,010,077	\$3,101,049	\$3,194,772
Debt Service													
Existing Debt Service ¹													
Phase II	(\$485,930)												
Term (in years)	\$983,850												
Rate	30												
Payment	5%												
Total Debt Service	(\$64,001)												
	(\$549,931)												
Net Income				\$1,893,835	\$1,967,693	\$2,043,782	\$2,122,171	\$2,202,929	\$2,286,128	\$2,371,842	\$2,460,146	\$2,551,119	\$2,644,841
Capital Reserve													

¹ Purchase of land plus flood mitigation project

Source: Timothy Haahs and Associates, Inc. 2010

Table 11: Preliminary Pro Forma Phase IIIa

	Rate	Users	times/yr	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue													
Non-Residential Permits	\$95.00	1,166	12	\$1,328,703	\$1,375,539	\$1,424,027	\$1,474,224	\$1,526,190	\$1,579,989	\$1,635,683	\$1,693,341	\$1,753,031	\$1,814,826
Residential Permits	\$55.00	568	12	\$374,992	\$388,211	\$401,895	\$416,062	\$430,728	\$445,911	\$461,629	\$477,902	\$494,748	\$512,188
Preferred Permits	\$150.00	89	12	\$160,169	\$165,815	\$171,660	\$177,711	\$183,975	\$190,461	\$197,174	\$204,125	\$211,320	\$218,769
Reserved Permits	\$180.00	40	12	\$86,400	\$89,446	\$92,599	\$95,863	\$99,242	\$102,740	\$106,362	\$110,111	\$113,992	\$118,011
Daily Parking	\$8.00	208	260	\$432,891	\$448,151	\$463,948	\$480,302	\$497,233	\$514,760	\$532,906	\$551,138	\$571,138	\$591,270
Preferred Daily	\$10.00	208	260	\$541,114	\$560,188	\$579,935	\$600,378	\$621,541	\$643,450	\$666,132	\$689,613	\$713,922	\$739,088
Weekend Parking	\$5.00	350	52	\$91,000	\$94,208	\$97,529	\$100,966	\$104,526	\$108,210	\$112,024	\$115,973	\$120,061	\$124,294
Total Revenue				\$3,015,269	\$3,121,557	\$3,231,592	\$3,345,506	\$3,463,435	\$3,585,521	\$3,711,911	\$3,842,755	\$3,978,213	\$4,118,445
Expenses													
				per space annual									
Labor	\$80	\$190,080		\$190,080	\$195,782	\$201,656	\$207,706	\$213,937	\$220,355	\$226,965	\$233,774	\$240,788	\$248,011
Supplies	\$10	\$23,760		\$23,760	\$24,473	\$25,207	\$25,963	\$26,742	\$27,544	\$28,371	\$29,222	\$30,098	\$31,001
Rental Acmt NYS	\$1.16	\$2,760		\$2,760	\$2,843	\$2,928	\$3,016	\$3,106	\$3,200	\$3,296	\$3,394	\$3,496	\$3,601
Repairs/Maintenance	\$3	\$7,128		\$7,128	\$7,342	\$7,562	\$7,789	\$8,023	\$8,263	\$8,511	\$8,767	\$9,030	\$9,300
Snow Removal	\$5.05	\$12,000		\$12,000	\$12,360	\$12,731	\$13,113	\$13,506	\$13,911	\$14,329	\$14,758	\$15,201	\$15,657
Landscaping	\$1.26	\$3,000		\$3,000	\$3,090	\$3,183	\$3,278	\$3,377	\$3,478	\$3,582	\$3,690	\$3,800	\$3,914
Telephone	\$1.26	\$3,000		\$3,000	\$3,090	\$3,183	\$3,278	\$3,377	\$3,478	\$3,582	\$3,690	\$3,800	\$3,914
Cable	\$0.32	\$750		\$750	\$773	\$796	\$820	\$844	\$869	\$896	\$922	\$950	\$979
Alarm Monitoring	\$0.38	\$900		\$900	\$927	\$955	\$983	\$1,013	\$1,043	\$1,075	\$1,107	\$1,140	\$1,174
Septic	\$0.36	\$850		\$850	\$876	\$902	\$929	\$957	\$985	\$1,015	\$1,045	\$1,077	\$1,109
Insurance	\$40	\$95,040		\$95,040	\$97,891	\$100,828	\$103,853	\$106,968	\$110,177	\$113,483	\$116,887	\$120,394	\$124,006
Equipment Repairs	\$11.78	\$28,000		\$28,000	\$28,840	\$29,705	\$30,596	\$31,514	\$32,460	\$33,433	\$34,436	\$35,470	\$36,534
Vehicle Repairs	\$0.84	\$2,000		\$2,000	\$2,060	\$2,122	\$2,185	\$2,251	\$2,319	\$2,388	\$2,460	\$2,534	\$2,610
Pay Station Software	\$1.77	\$4,200		\$4,200	\$4,326	\$4,456	\$4,589	\$4,727	\$4,869	\$5,015	\$5,165	\$5,320	\$5,480
Pay Station Maintenance	\$4.21	\$10,000		\$10,000	\$10,300	\$10,609	\$10,927	\$11,255	\$11,593	\$11,941	\$12,299	\$12,668	\$13,048
Permit Software Maint.	\$1.68	\$4,000		\$4,000	\$4,120	\$4,244	\$4,371	\$4,502	\$4,637	\$4,776	\$4,919	\$5,067	\$5,219
Utilities (Garage Only)	\$50	\$118,800		\$24,850	\$25,596	\$26,363	\$27,154	\$27,969	\$28,808	\$29,672	\$30,562	\$31,479	\$32,424
Miscellaneous	\$5	\$11,880		\$11,880	\$12,236	\$12,603	\$12,982	\$13,371	\$13,772	\$14,185	\$14,611	\$15,049	\$15,501
Total Expenses				\$424,198	\$436,924	\$450,032	\$463,533	\$477,439	\$491,762	\$506,515	\$521,710	\$537,361	\$553,482
Net Operating Income				\$2,591,071	\$2,684,633	\$2,781,561	\$2,881,973	\$2,985,996	\$3,093,759	\$3,205,396	\$3,321,045	\$3,440,851	\$3,564,962
Debt Service													
Existing Debt Service ¹	(\$485,930)												
Phase III	\$11,393,150												
Term (in years)	30												
Rate	5%												
Payment	(\$741,141)												
Total Debt Service	(\$1,227,071)												
Net Income				\$1,364,000	\$1,457,563	\$1,554,490	\$1,654,902	\$1,756,926	\$1,866,689	\$1,978,325	\$2,093,975	\$2,213,781	\$2,337,892
Capital Reserve	\$75			\$178,200	\$183,546	\$189,052	\$194,724	\$200,566	\$206,583	\$212,780	\$219,164	\$225,738	\$232,511
Income after Capital Reserve				\$1,185,800	\$1,274,017	\$1,365,437	\$1,460,179	\$1,558,360	\$1,660,106	\$1,765,545	\$1,874,811	\$1,988,042	\$2,105,381

¹ Purchase of land plus flood mitigation project

Source: Timothy Haahs and Associates, Inc. 2010

Commuter Parking Expansion Supports NY Transit Objectives

In exploring the feasibility of structured parking at the station, TimHaahs reviewed the *New York State Rail Plan 2009* and the *New York State DOT Transportation Master Plan for 2030*. It is clear that the expansion of the commuter parking at Croton-Harmon Station would promote and enhance the regional mass transit system in accordance with the *New York State Rail Plan*, and the *New York State DOT Transportation Master Plan for 2030*.

Specifically, the expansion of commuter parking and investment in station facilities would improve access to the mass transit system, increase ridership and provide additional economic support. Improved access to Metro-North Railroad at Croton-Harmon Station would also contribute to environmental sustainability through decreased fuel use and improved air quality with reduced highway vehicle miles traveled, corresponding vehicle emissions and ultimately the state's reliance on fossil fuels. The NY State Rail Plan specifically identifies the strategy: "expand park and ride capacity and rail station parking where required to support increased ridership."

The initiative of the Village of Croton-On-Hudson to evaluate future parking demand at Croton-Harmon Station and plan for expansion to meet future needs is a proactive measure that fully supports the goals and objectives of the state's transportation planning.

Excerpts from the referenced documents which support the expansion of commuter parking at the station to provide improved access to mass transit are listed below.

New York State Rail Plan 2009

"The vision for intercity passenger rail is a safe, faster, reliable, frequent service that is highly competitive with the other intercity modes for intermediate travel distances and is connected to local and regional transit services and intercity buses. Between Albany and New York City, and in the Hudson Valley, intercity passenger rail is the preferred choice for travelers providing energy efficient service directly to Manhattan." p.vi.

"In addition to contributing to the state's economic vitality, rail transportation reduces the need for investments in highways, relieves congestion, provides redundancy in the transportation system, and is more energy efficient than many other transport modes." p.1.

"Enhanced rail services contribute to environmental sustainability through decreased fuel use and improved air quality with reduced highway vehicle and aircraft miles traveled and corresponding vehicle emissions." p.4.

"For passenger rail strategies - Expand park and ride capacity and rail station parking where required to support increased ridership and revitalize and improve passenger station facilities, amenities and operations."-p.10

"Metro-North Investments....Planned projects include....expansion of station facilities and parking to advance the development of key intermodal facilities." -p105

New York State Dot Transportation Master Plan For 2030

“New York State’s vision for transportation in 2030 is of a seamless system in which travelers can conveniently shift between modes and operators to complete trips that meet their individual and business needs.” –p.3

“With highway travel expected to continue growing, the State’s metropolitan areas will require improved public transportation services to satisfy customer travel requirements and help mitigate congestion resulting from increased vehicular travel.” –p23-24

“In cooperation with localities, operators will provide adequate parking at public transportation access points and reasonable intervals between stops to make the service more convenient for its riders.” –p39

Opportunities for Commuter Parking Expansion

TimHaahs has included information that may assist the Village in identifying opportunities and strategies for funding parking infrastructure improvements, including federal and state grant opportunities and public/private partnerships.

New York Smart Growth Public Infrastructure Policy Act

The State of New York has recently adopted landmark Smart Growth and Sustainable Development legislation that was sponsored in the New York State Assembly. Known as the Smart Growth Public Infrastructure Policy Act (A8011B/S5560B), the new law requires the state to make wiser, more sustainable infrastructure investments based on smart growth principles, including an emphasis on investments in urban and town centers.

The law requires state agencies to use smart growth and sustainability criteria when deciding how to spend infrastructure dollars for roads, sewers, water lines and utilities. More specifically, the law targets infrastructure investments toward Main Streets, downtowns, brownfield areas, and central business districts. This legislation may assist the Village in obtaining state funding for commuter parking expansion which would meet the criteria including:

- To advance (i) projects for the use, maintenance or improvement of existing infrastructure and (ii) projects located in or related to developed areas or areas designated for development in a municipally approved comprehensive land use plan.
- To provide mobility through transportation choices including improved public transportation and reduced automobile dependency.

Based on the above criteria, a parking expansion at the station meets the objectives of the legislation. Croton-Harmon is a major rail facility serving both Metro-North and Amtrak services. A parking structure would improve the existing facility; it is consistent with the Village’s Comprehensive Plan (adopted 2003). It would preserve open space by concentrating development in a multi-story deck rather than sprawling fields of parking. Further it promotes intermodal transportation choices and encourages use of public transit for commuting and recreational purposes.

Public/Private Partnership to Develop Commuter Parking

To meet future commuter parking demand the Village of Croton-on-Hudson could seek a private entity to develop a new parking structure at the Croton- Harmon Station.

With limited capital funding, the Village can evaluate the benefits of a public private partnership (P3) through a competitive process, select a private developer to lease a portion of the surface lot, design, finance, build, operate and maintain a new commuter parking facility.

The ground lease would have a term long enough to pay down the debt on the commuter parking facility and allow the developer to make an appropriate return based on their assumption of development risk. The lease can provide for provision of base rent plus additional rent which could be defined as share net revenue after debt service and operational expenses are satisfied. At the end of the lease term to the private developer, the deck would revert to the Village. To provide adequate revenue to finance the deck, the Village would have to establish a preliminary parking rate to support both debt service, operating costs, and profit with periodic rate increases tied to the Consumer Price Index (CPI).

The Village retains significant control through the terms and conditions of the ground lease including facility design approval, development and construction milestones, a guaranteed maximum price, parking rate control, and operational standards. The private sector would likely design, construct, and operate the facility economically while providing the level of quality and service stipulated in the terms of the ground lease. This type of deal structure aligns the Village and developer to design and construct a high quality, cost efficient structure and to manage and maintain it to a high quality, cost effective standard.

Partnerships to Develop Commuter Parking and TOD

The Village and its surface parking assets serve as a major regional commuter hub providing parking to thousands of Metro-North Rail Road patrons. Recognizing that surface parking lots may not represent the highest and best use of its property with such great proximity to the rail system, the Village may consider developing portions of the surface lots to maximize their value and generate new municipal revenues.

This plan would require the Village to either eliminate commuter parking or consolidate portions into a structured facility. Consolidating surface parking in a structure would then allow the Village to develop property currently used for surface lots with an appropriate project. In addition to the parking fees generated by the new facility, the Village may want to consider a “public/private or public/public partnership” to help fund the construction and operations of the new facility.

The Village could potentially seek funding from the State of New York or the MTA/MNR to maintain commuter parking where the agency does not presently own parking facilities. Accordingly, MTA/MNR could provide a financial contribution to develop the parking structure which is secured through a lease with the Village. The state or MTA/MNR financial contribution will likely enhance the economic viability of the structured parking project and vertical development which is likely to increase ridership at the Croton-Harmon Station.

Summary

Due to the lingering economic effects of the recession, and the demographic projections for the region outlined herein, adequate parking capacity exists at the Croton-Harmon Station for the near future. As such, a new parking facility is not needed immediately and we recommend that the Village of Croton-on-Hudson wait at least another one to two years before undertaking any planning to expand the parking facility.

Should economic conditions improve significantly or gas prices increase, thereby making mass transit more economically desirable, the existing parking availability at Croton-Harmon Station could reach capacity in advance of our projections. In addition, if there is an interest on the part of the Village to develop portions of its station area property in accordance with smart growth principles and to maximize the value of its real estate, construction of additional parking would be necessary to replace the parking displaced by the development and to accommodate the parking demand generated by the potential development program. Lastly, although the areas previously subject to frequent tidal flooding have been improved and stabilized for the foreseeable future, should flooding conditions reoccur, the Village should, based on the financial information presented in this study, evaluate the development of either new surface parking at the DPW site or a new parking structure versus the cost of again repairing the flood prone areas.

If parking demand eventually exceeds capacity at the Croton-Harmon Station as a result of the potential occurrences or events referenced above, the Village should first consider developing the DPW site as preferred daily or quarterly parking as depicted in the Phase II concept plan. This site would add approximately 140 spaces and the convenient location of this site warrants a premium parking fee. The additional revenue generated by these spaces, assuming that they achieve full occupancy after a ramp up period, will financially support the associated development costs. However, the financial analysis does not contemplate the cost to demolish the facility, secure additional land, and construct a new DPW facility.

The second alternative would be to develop a 497 space parking structure as depicted in Phase IIIa which would increase station parking by approximately 340 spaces. The construction cost of the parking structure and associated debt service and operating costs would negatively impact the overall net parking revenues for the station parking area as the cost to build and maintain structured parking is much higher than that of surface parking. However, if additional parking spaces are needed, structured parking may be the only option in this location.

Ultimately, the proposed conceptual plans will improve traffic flow, user comfort, pedestrian safety, and station amenities. In addition the parking structure concept plans Phase III and IIIa would significantly enhance the station area with increased premium, covered parking providing direct access to the train station, increased commuter amenities and an improved station environment more reflective of the Village of Croton-on-Hudson.

APPENDIX A

Public Workshop Results

Builders – Advantages of the Current Parking Lots

Description	Category
Source of revenue	Financial
Size of the parking lot	Financial
Convenience for Residents: location/rates/designated lot	User Friendly
Weekend free parking for residents	User Friendly
Accessible to highway	Accessibility
Bike racks	User Friendly
Convenience of Pay Stations	User Friendly
Resident parking section	User Friendly
Drawing in non-residents	Financial
No flooding	Physical
Low crime rate	Safety
Express trains	User Friendly
Redone paving	Physical
Proximity to Hudson river, beautiful scenery	Accessibility
Close to Shoprite and shopping	Accessibility
Inter-connection to bus/taxi lines	Accessibility
Taxis	Accessibility
Proximity to Croton Point Park	Accessibility
Space to host weekend activities to generate revenue	Financial
Corrections made for pedestrian/vehicle interaction	Safety
Increased daily spaces	User Friendly
Traffic flow	Accessibility
3 lanes: 1 in, 1 out, and 1 reversible	Accessibility
Convenient kiss and ride	User Friendly
Coffee shop run by local employees	User Friendly
Wide stalls	Physical
Bright lighting	Safety
Dry cleaners	User Friendly
Amtrak station	User Friendly
Nice news stand	User Friendly
Timely snow removal	User Friendly
Coffee shop run by local employees	User Friendly
Wide stalls	Physical
Bright lighting	Safety
Dry cleaners	User Friendly
Nice news stand	User Friendly
Timely snow removal	User Friendly

Barriers – Disadvantages of the Current Parking Lots

Description	Category
Walking/biking access not convenient and dangerous	Safety
Bad traffic along CPA during rush hour	Accessibility
No landscaping	Physical
Kiss and ride area creates backup	User Friendly
Not enough daily parking	User Friendly
Not enough pedestrian paths within the parking lot	Safety
Not enough shops and amenities	User Friendly
Poor signage	Physical
Rt9S bound backs up, not enough access to the highway	Accessibility
Police traffic regulations slows traffic flow	Accessibility
Taxi location interferes with accessible spaces	Safety
Vehicular/Pedestrian conflicts in front of station	Safety
Bad location for bus drop off	Safety
Metro North building blocks the Hudson river view	Physical
DPW location is inconvenient	Accessibility
Flooding	Physical
Unattractive station building	Physical
Paved paradise to put up a parking lot	User Friendly
Only open parking, no covered parking area	User Friendly
Expensive non- resident rate	User Friendly
Peekskill and Cortlandt plans may impact demand in Croton	Financial
No clock tower	Physical
Rt 9 bike path. Bikers use dirt path to get to parking	Accessibility
Parking in front of Dick Alberts	Financial
Lighting behind DPW garage inadequate	Safety
No facilitation of area attractions	User Friendly
No backup system when pay station not working	User Friendly
MTA employees should park in their own spaces or pay	Financial
Don't like the mass of asphalt	Physical
Sidewalk surfaces are in disrepair	Physical
Vans park behind people	Safety
Pollution and noise from idling diesels	Safety
Increased trains/parking would mean more traffic	Safety
Creates lot of through traffic through the village	Safety
Confusing taxi stands	User Friendly
Street parking on CPA	User Friendly
Slow station elevator	User Friendly
Inadequate monthly parking space	User Friendly
Expensive daily parking rate	User Friendly
Not enough trash and recycling receptacles	User Friendly

Opportunities and Recommended Improvements

Description	Category
Increase entrance/exit to highway	Accessibility
Improve pedestrian access and crossings (safety)	Safety
Solar power to generate/reduce cost	Financial
Separating taxi, kiss and ride and bus locations	Accessibility
Must be revenue producing	Financial
Add landscaping along the water front or to control pedestrian and traffic	Physical
Improve egress and ingress traffic flow to relieve congestion, possible one way flow	Accessibility
Better and more retail concessions; day care, car wash	User Friendly
Structured parking could help simplify congestion in front of station	Accessibility
Use remote lots to help with cost of parking	Financial
Parking structure should be near station/direction connection to the station bldg.	User Friendly
Electric car recharging stations	User Friendly
Relocate DPW	Accessibility
Increase revenue by marketing	Financial
Don't build unless increased demand	Financial
Better signage to improve traffic flow	Accessibility
Minimum impact on tax base	Financial
Create evening event that needs parking	Financial
Lease the air space	Financial
Free weekend parking for ALL	User Friendly
Increase parking for dailing parking	User Friendly
Build a hotel	User Friendly
Add traffic lights	Accessibility
Charge MTA employees who don't park in their assigned space	Financial
Launch point for cyclists coming from NYC	Financial
Improve village gateway	Physical
Add signage to connect to parks along the river	User Friendly
Expand opportunities for water front recreation and tourism i.e Kayaking concession	User Friendly
Improve bike lanes in to the station	Accessibility
Add valet service	User Friendly
Provide more spaces closer to the tracks for daily parkers	User Friendly
Create events for weekends i.e.Farmers market	User Friendly
Add covered walkways	User Friendly
Redistribute monthly and daily spaces	User Friendly

Workshop Attendees

Jane Hallock	Mary Lally
John McKrow	Henry Lippmann
Mark Franzoso	Jon Karpoff
Neal Haber	Bruce Gpwemd
Greg Maher	Carl Occhsner
Dame Durant	Fran Cellen
Lisa Mcternan	Eileen Henry
Joann Minett	Laur Slatz
Sam Watkins	Dean S
John Giglio	Jl Pugh
Louise Giglio	Joe Biber
Anne Dorien	Ann Gallelli
Richard Olver	Leo Wiegman
Abe Zambrano	Marco Gennarelli
Jannie King	JC Stehlin
Jessie Stehlin	James W. Rhodes
Daniel O'Connor	Carol Sahnesy
jean.K. Rivlin	G.Jackson Changisin
Michael Kulk	John McBride
E. John Cucci	Geroge Fletcher
Susan Lunden	Lisa Cohen
Demetra Restuccia	Gary Shaw
John Ghegan	Joe streamy
Anthony Galiotti	Susan Konig
Gary Prophet	Par Moran
Lee Casson	Brian Halpern
Justin Casson	Vito Divenere
John Lally	Roseann Schuyler

APPENDIX B
Train Schedule

Croton Harmon to Grand Central

If bold letter appears in Note column, click on it for details.

Departs CROTON HARMON	Notes	Arrives GRAND CENTRAL	Notes	Travel Time In Minutes	Transfer(s)	Peak Fares Apply?
1:00 AM		2:02 AM		62	THROUGH TRAIN	OFF PEAK
4:45 AM		5:45 AM		60	THROUGH TRAIN	PEAK
5:08 AM		5:50 AM		42	THROUGH TRAIN	PEAK
5:17 AM		6:10 AM		53	THROUGH TRAIN	PEAK
5:27 AM		6:28 AM		61	THROUGH TRAIN	PEAK
5:38 AM		6:20 AM		42	THROUGH TRAIN	PEAK
5:42 AM		6:35 AM		53	THROUGH TRAIN	PEAK
5:57 AM		6:59 AM		62	THROUGH TRAIN	PEAK
6:08 AM		6:50 AM		42	THROUGH TRAIN	PEAK
6:18 AM		7:06 AM		48	THROUGH TRAIN	PEAK
6:25 AM		7:30 AM		65	THROUGH TRAIN	PEAK
6:33 AM		7:17 AM		44	THROUGH TRAIN	PEAK
6:38 AM		7:35 AM		57	THROUGH TRAIN	PEAK
6:47 AM		7:38 AM		51	THROUGH TRAIN	PEAK
6:57 AM		7:42 AM		45	THROUGH TRAIN	PEAK
7:04 AM		8:15 AM		71	THROUGH TRAIN	PEAK
7:19 AM		8:06 AM		47	THROUGH TRAIN	PEAK
7:23 AM		8:09 AM		46	THROUGH TRAIN	PEAK
7:30 AM		8:37 AM		67	THROUGH TRAIN	PEAK
7:44 AM		8:32 AM		48	THROUGH TRAIN	PEAK
7:52 AM		8:39 AM		47	THROUGH TRAIN	PEAK
7:56 AM		8:43 AM		47	THROUGH TRAIN	PEAK
7:59 AM		8:55 AM		56	THROUGH TRAIN	PEAK
8:05 AM		8:58 AM		53	THROUGH TRAIN	PEAK
8:23 AM		9:10 AM		47	THROUGH TRAIN	PEAK
8:31 AM		9:21 AM		50	THROUGH TRAIN	PEAK
8:42 AM		9:47 AM		65	THROUGH TRAIN	PEAK
8:52 AM		9:37 AM		45	THROUGH TRAIN	PEAK
9:00 AM		9:51 AM		51	THROUGH TRAIN	PEAK
9:30 AM		10:21 AM		51	THROUGH TRAIN	OFF PEAK
9:41 AM		10:26 AM		45	THROUGH TRAIN	OFF PEAK
9:55 AM		10:46 AM		51	THROUGH TRAIN	OFF PEAK
10:34 AM		11:21 AM		47	THROUGH TRAIN	OFF PEAK
10:40 AM		11:33 AM		53	THROUGH TRAIN	OFF PEAK
10:55 AM		12:02 PM		67	THROUGH TRAIN	OFF PEAK
11:34 AM		12:25 PM		51	THROUGH TRAIN	OFF PEAK
11:55 AM		1:02 PM		67	THROUGH TRAIN	OFF PEAK
12:34 PM		1:25 PM		51	THROUGH TRAIN	OFF PEAK
12:55 PM		2:02 PM		67	THROUGH TRAIN	OFF PEAK
1:34 PM		2:25 PM		51	THROUGH TRAIN	OFF PEAK
1:55 PM		3:02 PM		67	THROUGH TRAIN	OFF PEAK
2:34 PM		3:26 PM		52	THROUGH TRAIN	OFF PEAK
2:55 PM		4:02 PM		67	THROUGH TRAIN	OFF PEAK
3:34 PM		4:26 PM		52	THROUGH TRAIN	OFF PEAK
4:00 PM		5:07 PM		67	THROUGH TRAIN	OFF PEAK
4:32 PM		5:20 PM		48	THROUGH TRAIN	OFF PEAK
4:37 PM		5:32 PM		55	THROUGH TRAIN	OFF PEAK
5:00 PM		6:07 PM		67	THROUGH TRAIN	OFF PEAK
5:32 PM		6:20 PM		48	THROUGH TRAIN	OFF PEAK
5:36 PM		6:34 PM		58	THROUGH TRAIN	OFF PEAK
5:47 PM		6:38 PM		51	THROUGH TRAIN	OFF PEAK
6:00 PM		7:04 PM		64	THROUGH TRAIN	OFF PEAK
6:34 PM		7:26 PM		52	THROUGH TRAIN	OFF PEAK
7:00 PM		8:04 PM		64	THROUGH TRAIN	OFF PEAK
7:34 PM		8:25 PM		51	THROUGH TRAIN	OFF PEAK
8:00 PM		9:04 PM		64	THROUGH TRAIN	OFF PEAK
8:34 PM		9:25 PM		51	THROUGH TRAIN	OFF PEAK
9:00 PM		10:09 PM		69	THROUGH TRAIN	OFF PEAK
9:34 PM		10:25 PM		51	THROUGH TRAIN	OFF PEAK
10:00 PM		11:09 PM		69	THROUGH TRAIN	OFF PEAK
11:00 PM		12:09 AM		69	THROUGH TRAIN	OFF PEAK
11:59 PM		1:04 AM		65	THROUGH TRAIN	OFF PEAK

Grand Central to Croton Harmon

If bold letter appears in Note column, click on it for details.

Departs	Notes	Arrives	Notes	Travel Time In Minutes	Transfer(s)	Peak Fares Apply?
GRAND CENTRAL		CROTON HARMON				
12:08 AM		1:00 AM		52	THROUGH TRAIN	OFF PEAK
12:20 AM		1:28 AM		68	THROUGH TRAIN	OFF PEAK
1:00 AM		2:05 AM		65	THROUGH TRAIN	OFF PEAK
1:50 AM		2:55 AM		65	THROUGH TRAIN	OFF PEAK
5:36 AM		6:41 AM		65	THROUGH TRAIN	PEAK
6:20 AM		7:25 AM		65	THROUGH TRAIN	PEAK
6:41 AM		7:30 AM		49	THROUGH TRAIN	PEAK
6:50 AM		7:54 AM		64	THROUGH TRAIN	PEAK
7:16 AM		8:05 AM		49	THROUGH TRAIN	PEAK
7:20 AM		8:28 AM		68	THROUGH TRAIN	PEAK
7:38 AM		8:30 AM		52	THROUGH TRAIN	PEAK
7:44 AM		8:50 AM		66	THROUGH TRAIN	PEAK
8:20 AM		9:31 AM		71	THROUGH TRAIN	PEAK
8:45 AM		9:36 AM		51	THROUGH TRAIN	PEAK
9:20 AM		10:28 AM		68	THROUGH TRAIN	OFF PEAK
9:45 AM		10:35 AM		50	THROUGH TRAIN	OFF PEAK
10:20 AM		11:28 AM		68	THROUGH TRAIN	OFF PEAK
10:45 AM		11:35 AM		50	THROUGH TRAIN	OFF PEAK
11:20 AM		12:28 PM		68	THROUGH TRAIN	OFF PEAK
11:45 AM		12:35 PM		50	THROUGH TRAIN	OFF PEAK
12:20 PM		1:28 PM		68	THROUGH TRAIN	OFF PEAK
12:45 PM		1:35 PM		50	THROUGH TRAIN	OFF PEAK
1:20 PM		2:28 PM		68	THROUGH TRAIN	OFF PEAK
1:50 PM		2:33 PM		43	THROUGH TRAIN	OFF PEAK
1:54 PM		2:46 PM		52	THROUGH TRAIN	OFF PEAK
2:20 PM		3:28 PM		68	THROUGH TRAIN	OFF PEAK
2:50 PM		3:33 PM		43	THROUGH TRAIN	OFF PEAK
2:54 PM		3:46 PM		52	THROUGH TRAIN	OFF PEAK
3:20 PM		4:28 PM		68	THROUGH TRAIN	OFF PEAK
3:30 PM		4:13 PM		43	THROUGH TRAIN	OFF PEAK
3:48 PM		4:47 PM		59	THROUGH TRAIN	OFF PEAK
4:10 PM		4:53 PM		43	THROUGH TRAIN	PEAK
4:15 PM		5:05 PM		50	THROUGH TRAIN	PEAK
4:18 PM		5:25 PM		67	THROUGH TRAIN	PEAK
4:35 PM		5:32 PM		57	THROUGH TRAIN	PEAK
4:45 PM		5:28 PM		43	THROUGH TRAIN	PEAK
4:52 PM		5:43 PM		51	THROUGH TRAIN	PEAK
4:54 PM		6:01 PM		67	THROUGH TRAIN	PEAK
5:13 PM		5:55 PM		42	THROUGH TRAIN	PEAK
5:17 PM		6:08 PM		51	THROUGH TRAIN	PEAK
5:20 PM		6:18 PM		58	THROUGH TRAIN	PEAK
5:34 PM		6:16 PM		42	THROUGH TRAIN	PEAK
5:38 PM		6:29 PM		51	THROUGH TRAIN	PEAK
5:41 PM		6:34 PM		53	THROUGH TRAIN	PEAK
5:57 PM		6:48 PM		51	THROUGH TRAIN	PEAK
6:00 PM		6:57 PM		57	THROUGH TRAIN	PEAK
6:20 PM		7:11 PM		51	THROUGH TRAIN	PEAK
6:23 PM		7:20 PM		57	THROUGH TRAIN	PEAK
6:26 PM		7:32 PM		66	THROUGH TRAIN	PEAK
6:45 PM		7:28 PM		43	THROUGH TRAIN	PEAK
6:50 PM		7:42 PM		52	THROUGH TRAIN	PEAK
6:54 PM		8:00 PM		66	THROUGH TRAIN	PEAK
7:21 PM		8:04 PM		43	THROUGH TRAIN	PEAK
7:25 PM		8:22 PM		57	THROUGH TRAIN	PEAK
7:28 PM		8:34 PM		66	THROUGH TRAIN	PEAK
7:53 PM		8:36 PM		43	THROUGH TRAIN	PEAK
7:57 PM		8:54 PM		57	THROUGH TRAIN	PEAK
7:59 PM		9:06 PM		67	THROUGH TRAIN	PEAK
8:29 PM		9:11 PM		42	THROUGH TRAIN	OFF PEAK
8:34 PM		9:29 PM		55	THROUGH TRAIN	OFF PEAK
8:42 PM		9:47 PM		65	THROUGH TRAIN	OFF PEAK
9:05 PM		9:59 PM		54	THROUGH TRAIN	OFF PEAK
9:20 PM		10:28 PM		68	THROUGH TRAIN	OFF PEAK
10:05 PM		10:59 PM		54	THROUGH TRAIN	OFF PEAK
10:20 PM		11:28 PM		68	THROUGH TRAIN	OFF PEAK
11:05 PM		11:59 PM		54	THROUGH TRAIN	OFF PEAK
11:20 PM		12:28 AM		68	THROUGH TRAIN	OFF PEAK

APPENDIX C

Metro North Articles

Metro-North Modifies Midday Schedule Due to Low Ridership
Metro-North Press Release Date 2/26/2010

Beginning at the end of the AM rush, Metro-North will modify its midday schedule to provide hourly service to each of its six line segments: inner and outer Hudson line, inner and outer Harlem line and inner and outer New Haven Line.

Ridership is down by 60-65 percent systemwide. Based on counts obtained thru 9 a.m., the decreases by line are approximately as follows: Hudson Line down 79 percent, Harlem Line down 66 percent and New Haven Line down 56 percent.

Between 10 a.m. and 3 p.m., Metro-North will eliminate about 25 trains across all three lines. Details are available on the website www.mta.info

A decision on what the PM rush will look like will be made shortly and we will keep you posted.

The following changes are in effect:

Hudson Line

Inbound

10:16 am from Tarrytown/GCT arrival 11:10 am is canceled and is combined with the 9:58 am from Croton Harmon.

10:40 am from Croton-Harmon/GCT arrival 11:33 am is canceled and is combined with the 9:40 am from Poughkeepsie.

Outbound

1:50 pm from GCT to Poughkeepsie is combined with the 1:54 pm to Croton-Harmon - train will depart GCT at 1:54.

2:50 pm from GCT to Poughkeepsie is combined with the 2:54 pm to Croton-Harmon the train will depart GCT at 2:54.

Article from the Journal News (July, 2010)

Metro-North Railroad ridership is on the upswing again, and a major reason is the popularity of the stop near Yankee Stadium, which has proved to be a grand slam for the railroad and its riders.

In June, the railroad gave more than 7.2 million rides, an increase of more than 120,000 rides, or 1.7 percent, over the previous June, according to preliminary numbers discussed yesterday at a committee meeting of the Metropolitan Transportation Authority in Manhattan.

About a quarter of that boost came from riders going to or from the Yankees-E. 153rd St. station — 30,000 more passengers took rides to or from the station last month than the previous June, an increase of 45 percent, the numbers showed.

"Yankee Stadium is going gangbusters," railroad spokeswoman Marjorie Anders said of the train stop. "We expect it to keep growing."

Other increases came with the recovering economy, the railroad said. New York City had a 0.2 percent increase in private sector jobs over the 12 months ending with June, according to state Department of Labor figures.

Last year, Metro-North gave 80.2 million rides, a drop from the 83.6 million given the year before, and the first drop since 1991, Anders said.

The railroad also had declines in January and February, but increases since then edged ridership up to an increase of 0.2 percent for the first half of the year, with 39.7 million rides given.

"We think that this month's numbers are a return to our normal pattern of growth," Anders said. "We have historically been on an uphill trajectory, not a downhill trajectory. It's been very unsettling to use to see ridership slip."

She said the railroad expects more riders to return when the economic recovery strengthens. With ridership on the rise, Metro-North collected \$45.6 million in fares systemwide last month, up from \$42.5 million the previous June. That increase is also due to fare increases that took effect the middle of June 2009.

At the same meeting, the Long Island Rail Road reported a 2.7 percent drop in ridership last month from the previous June. A railroad official said there had been a jump in ticket sales in June 2009. The station near Yankee Stadium has been a hit with baseball fans, who appreciate the ease of reaching games without driving, and in many cases being able to travel directly to and from the stop from their home stations.

"It's fantastic," said Somers resident John Gray, 57, a Yankee fan since 1961 who took the train to several games last year and one so far this year. Traveling 15 minutes to the Croton-Harmon station to take the train to the stadium is much more convenient, he said, than fighting the traffic on the way in and out. Describing trying to reach the Major Deegan Expressway by car after a game, Gray said: "It's never pleasant. It's always a half-hour, forty-five minutes just to make it over there."

In all, 95,000 riders traveled to or from the Bronx station last month, the vast majority of them people travelling to and from baseball games, the railroad said. Only about 6,000 rides — 6.3 percent of the total — were commuters, the railroad's numbers show.

The station opened in late May 2009, so June was the first opportunity to compare a full month to the same month the year before.