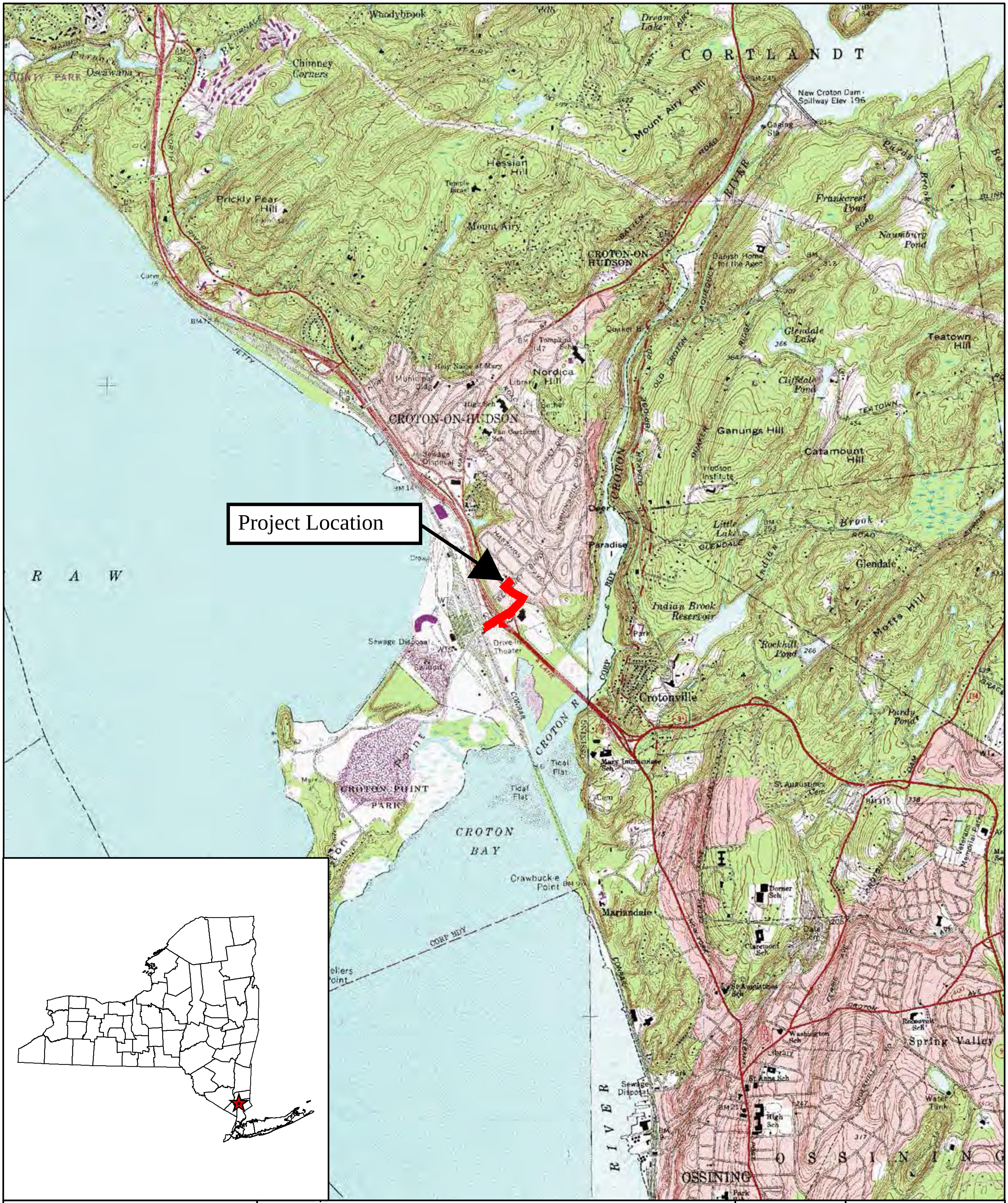
APPENDIX A

Maps, Plans and Typical Sections



Project Location Map

Croton-on-Hudson Parking Facility
and Bicycle Enhancements
Croton-on-Hudson, Weschester Co.

N W E S

Figure 1

Date: 01/31/2011

Project No. 22961

CHA

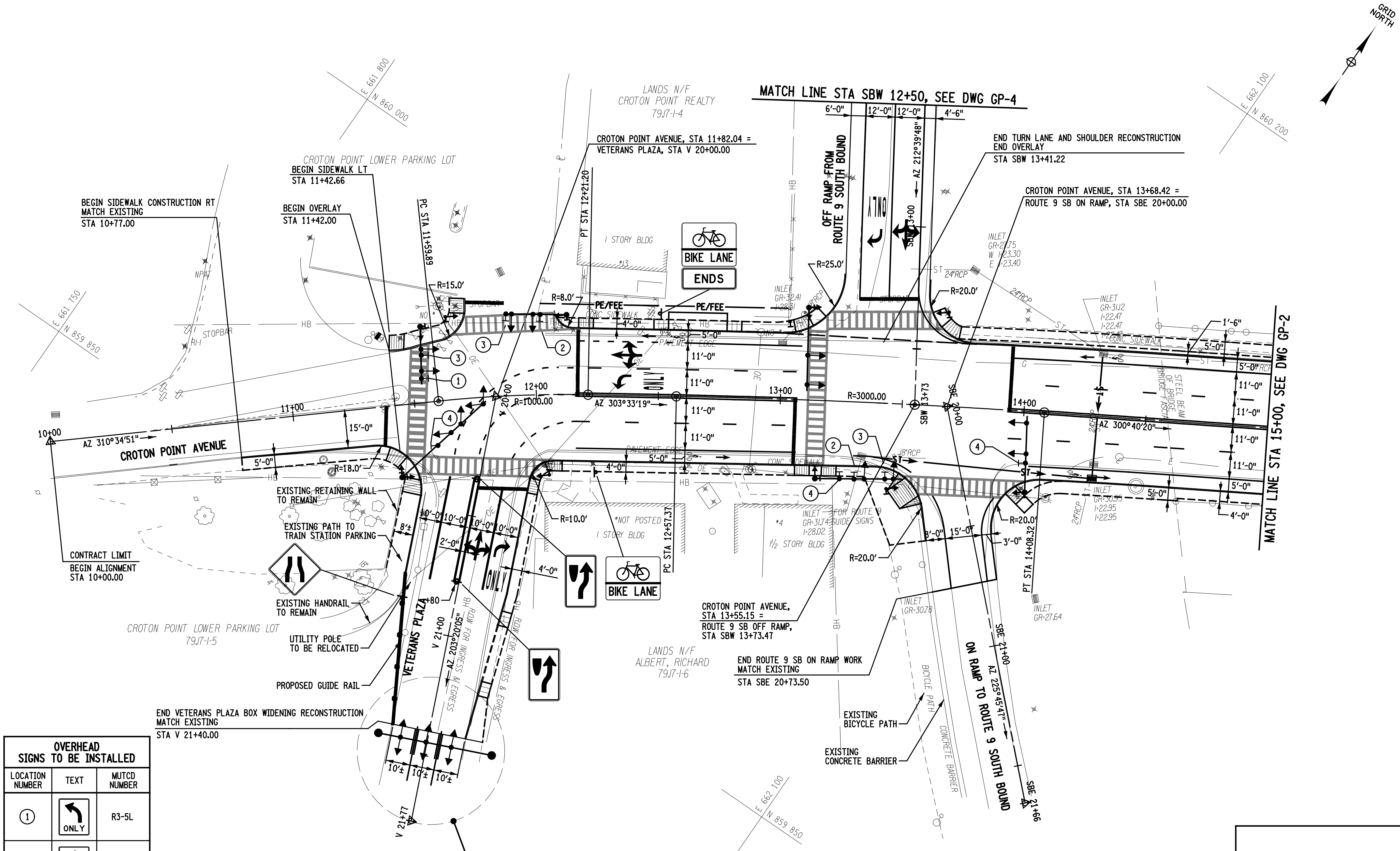
Project Area Map

Croton-on-Hudson Parking Facility and Bicycle Enhancements
Village of Croton-on-Hudson, Westchester Co.

Figure 2

Date: January 2012

Project No. 22961



OVERHEAD SIGNS TO BE INSTALLED		
LOCATION NUMBER	TEXT	MUTCD NUMBER
1	ONLY	R3-5L
2	ONLY	R3-5R
3		NYR3-28
4	NO TURN ON RED	R10-11

NOTES:

1. CROSSWALK STRIPING "GREYED-OUT" FOR CLARITY IN SHOWING TRAFFIC SIGNAL SYSTEM.
2. SIGNAGE HAS BEEN SHOWN ON THESE PLANS TO PROVIDE INFORMATION ON THE ACCOMMODATION OF PEDESTRIAN BICYCLE AND VEHICULAR TRAFFIC. ADDITIONAL SIGNAGE WILL BE ADDED DURING DETAILED DESIGN.
3. HOURS OF OPERATION SHOWN FOR THE OVERHEAD SIGNALS FOR THE VARIABLE LANE DESIGNATIONS ON VETERAN'S PLAZA ARE SUBJECT TO CHANGE DURING DETAILED DESIGN.

OVERHEAD SIGNALS (2AM - 2PM)

SOUTHBOUND APPROACH	GREEN	GREEN	RED
NORTHBOUND APPROACH	RED	RED	GREEN

OVERHEAD SIGNALS (2PM - 2AM)

SOUTHBOUND APPROACH	GREEN	RED	RED
NORTHBOUND APPROACH	RED	GREEN	GREEN

20 0 20 FT
SCALE

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DATE/TIME = 2/28/2013
USER = 3178

No.	Submittal / Revision	App'd	By	Date

Village of Croton-on-Hudson New York

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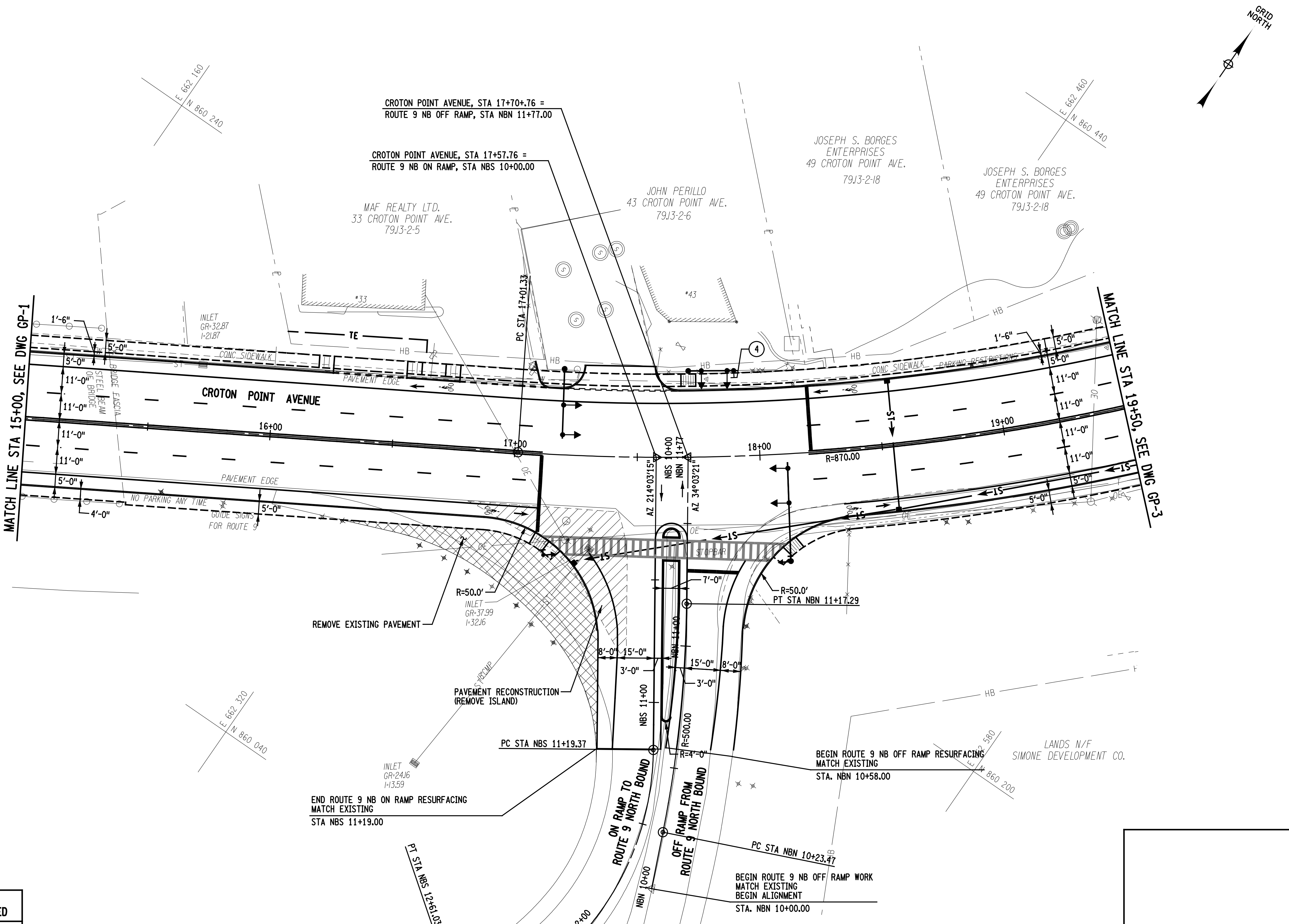
CROTON-HARMON PARKING FACILITY, VEHICULAR, PEDESTRIAN AND BICYCLE ENHANCEMENTS

GENERAL PLANS - ALT 2
BIKE LANE ALTERNATIVE

Issue Date: 03/12 | Project No.: 22961 | Scale: AS SHOWN

GP-1

SHEET XX OF XX



OVERHEAD SIGNS TO BE INSTALLED		
LOCATION NUMBER	TEXT	MUTCD NUMBER
4	NO TURN ON RED	R10-11

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20 0 20 FT
SCALE

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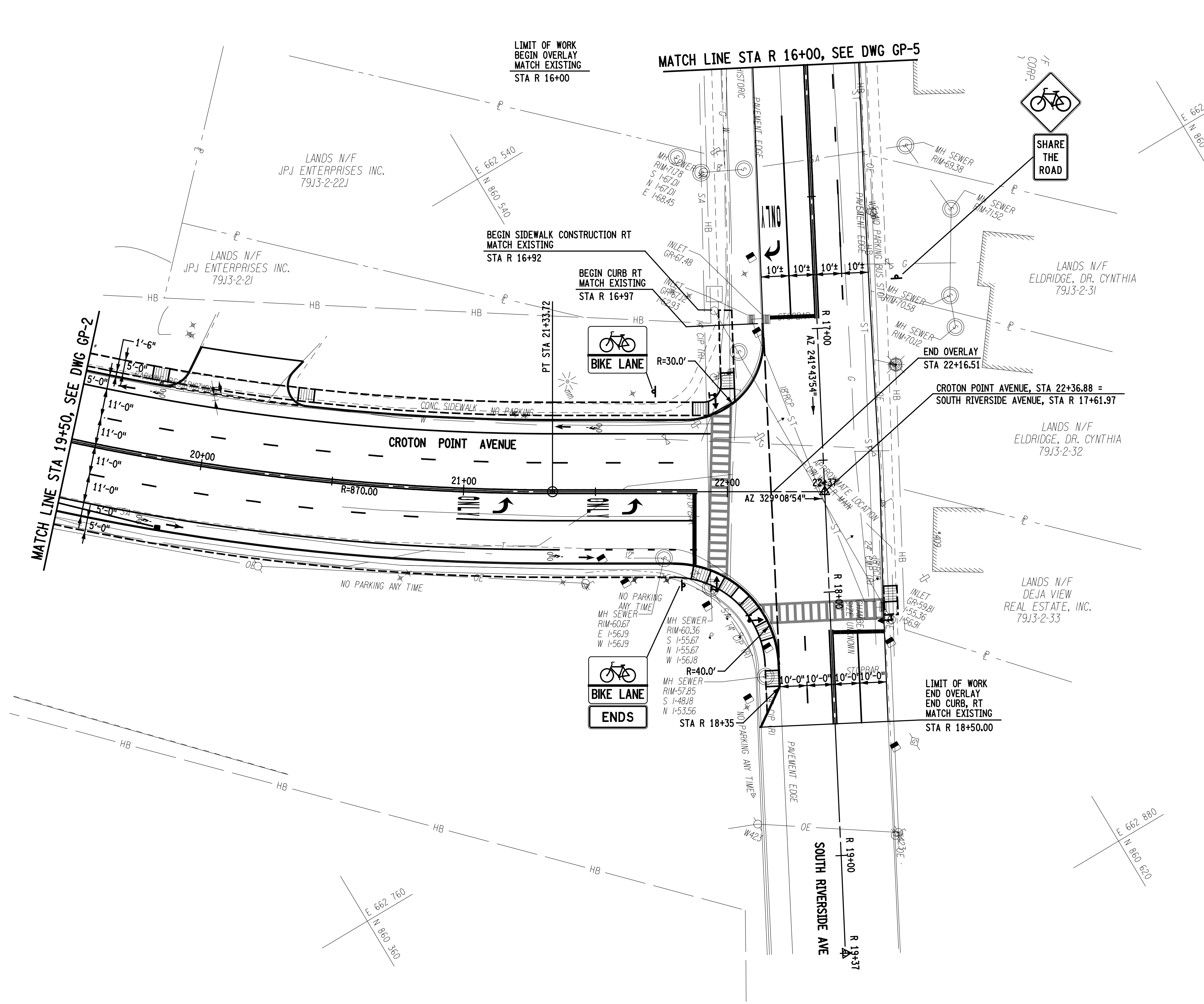
CROTON-HARMON PARKING FACILITY, VEHICULAR, PEDESTRIAN AND BICYCLE ENHANCEMENTS

GENERAL PLANS - ALT 2
BIKE LANE ALTERNATIVE

Issue Date: 03/12 | Project No.: 22961 | Scale: AS SHOWN

GP-2

SHEET XX OF XX



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Village of Croton-on-Hudson New York

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CROTON-HARMON PARKING FACILITY, VEHICULAR, PEDESTRIAN AND BICYCLE ENHANCEMENTS

GENERAL PLANS - ALT 2
BIKE LANE ALTERNATIVE

Issue Date: 03/12 | Project No.: 22961 | Scale: AS SHOWN

GP-3

SHEET XX OF XX

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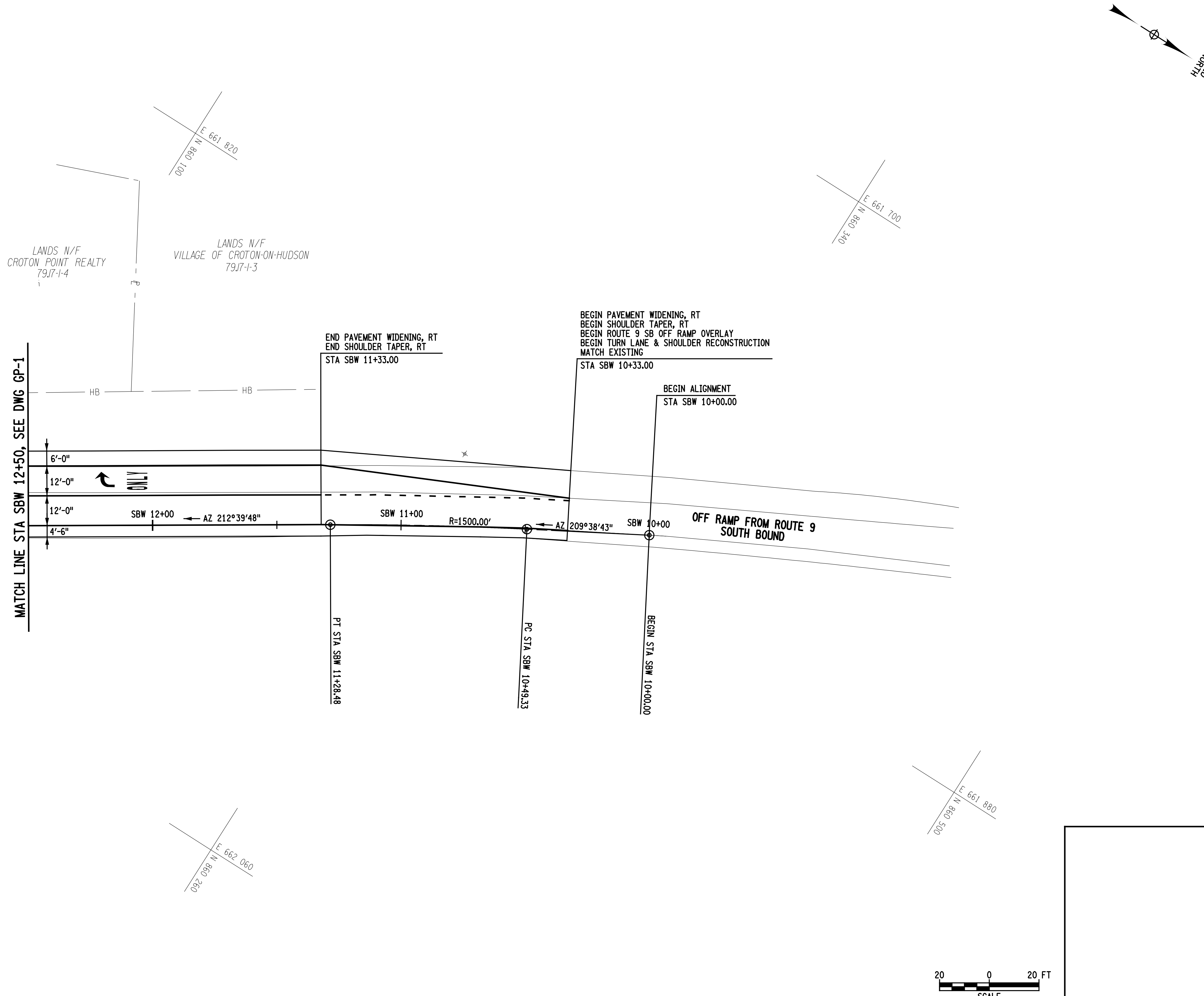

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Village of Croton-on-Hudson New York

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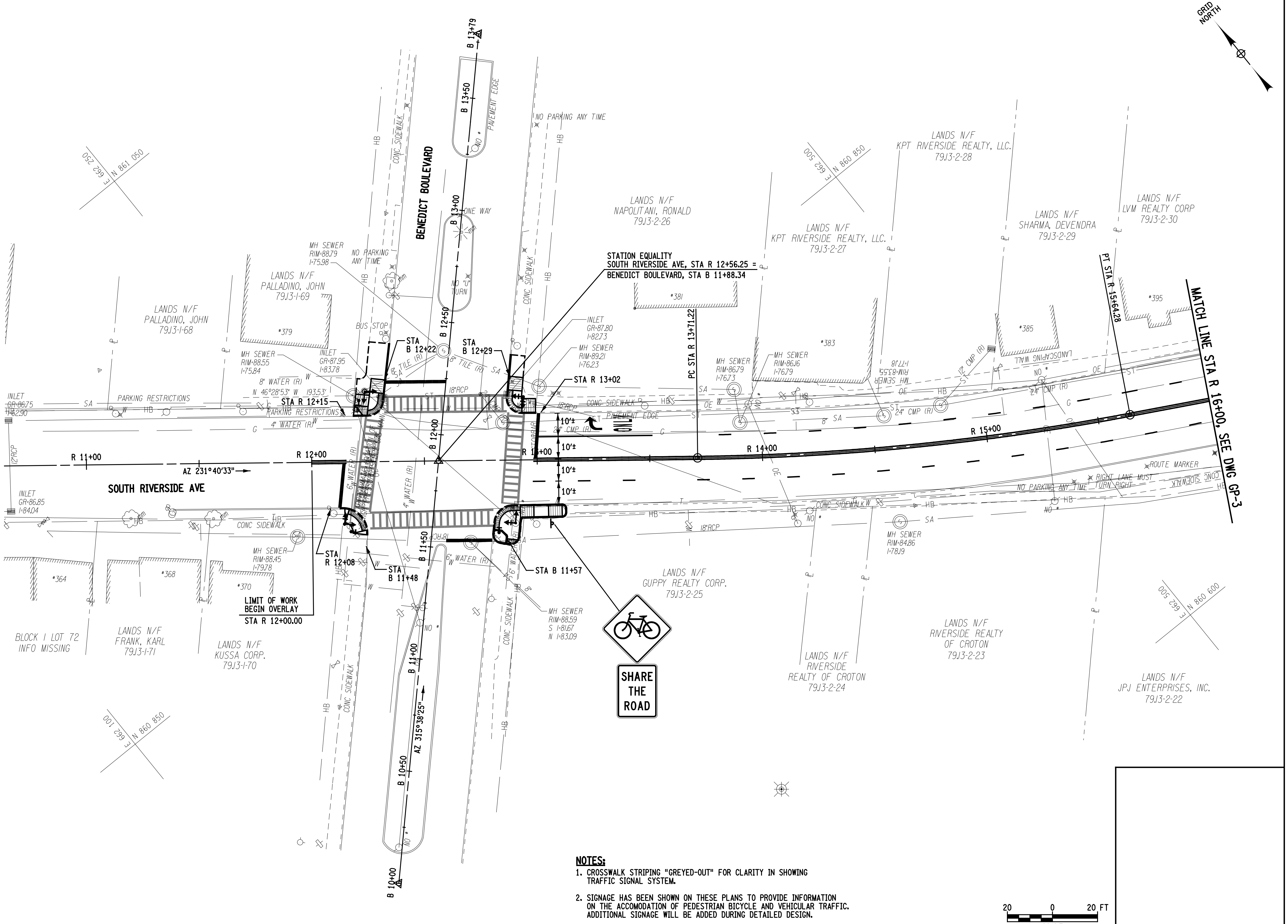
CROTON-HARMON PARKING FACILITY, VEHICULAR, PEDESTRIAN AND BICYCLE ENHANCEMENTS

GENERAL PLANS - ALT 2
BIKE LANE ALTERNATIVE

Issue Date: 03/12 | Project No.: 22961 | Scale: AS SHOWN

GP-4

SHEET XX OF XX



NOTES:

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No.	Submittal / Revision	App'd	By	Date

Village of Croton-on-Hudson New York

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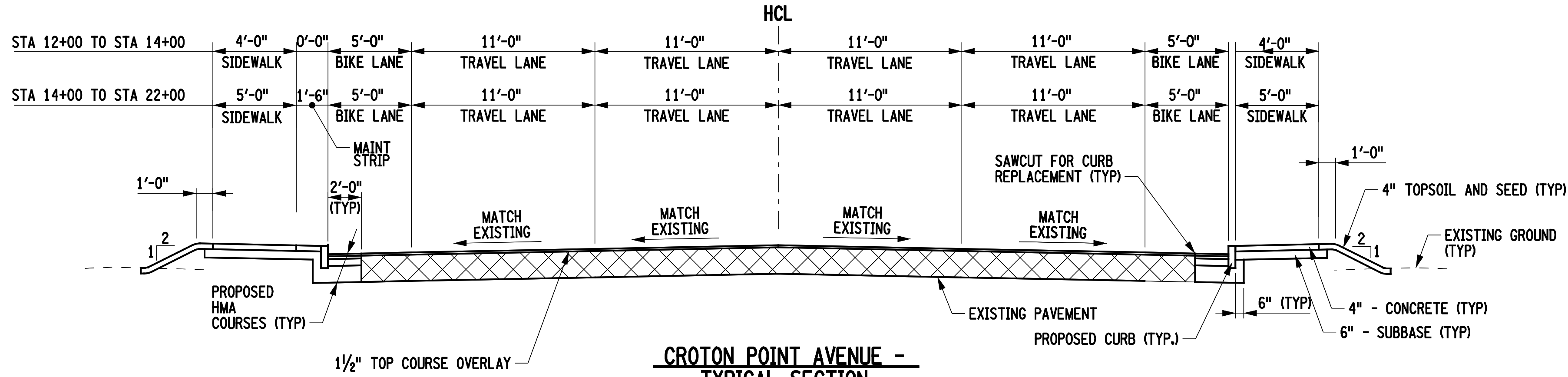
CROTON-HARMON PARKING FACILITY, VEHICULAR, PEDESTRIAN AND BICYCLE ENHANCEMENTS

GENERAL PLANS

Issue Date: 03/12 | Project No.: 22961 | Scale: AS SHOWN

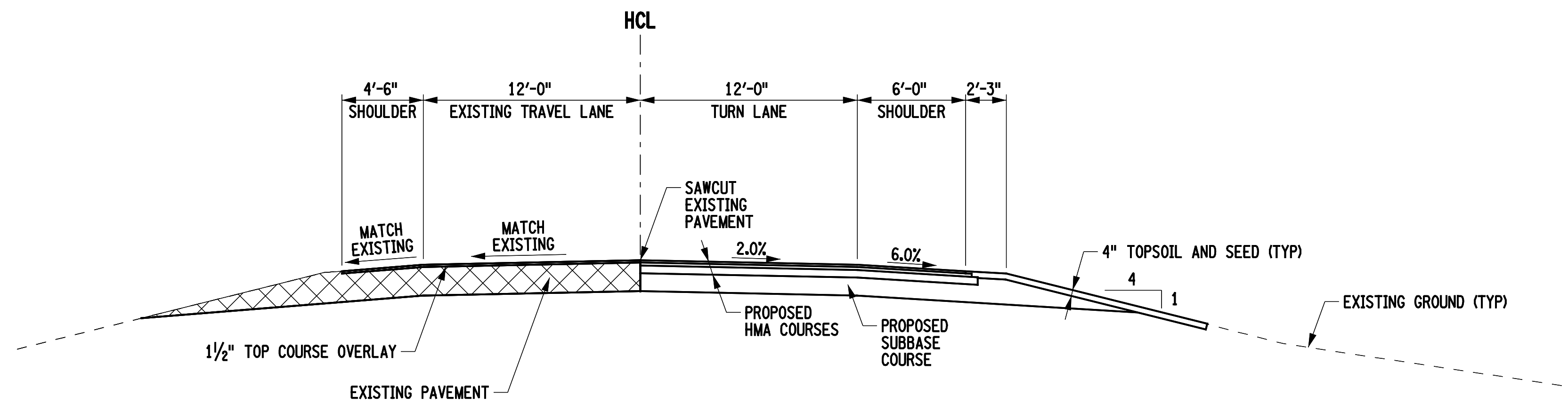
GP-5

SHEET XX OF XX



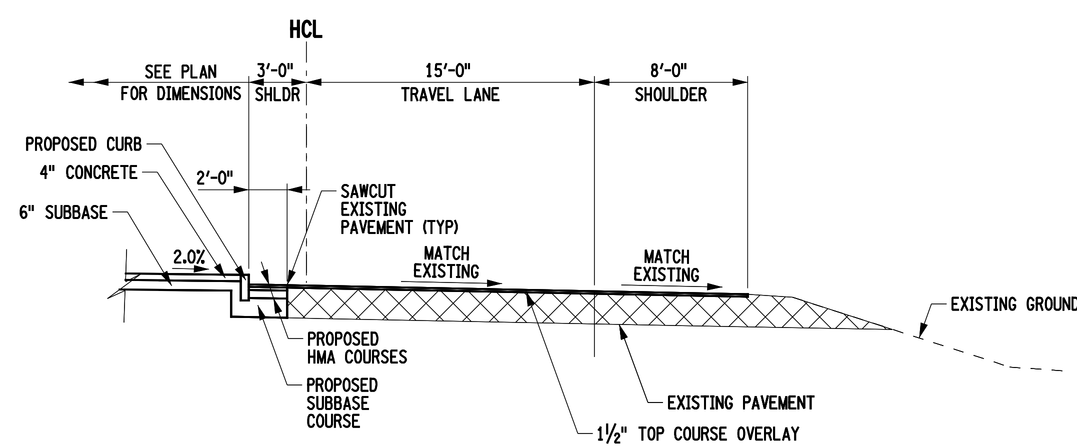
CROTON POINT AVENUE - TYPICAL SECTION

NTS



ROUTE 9 SOUTHBOUND OFF RAMP

NTS



ROUTE 9 NORTHBOUND OFF RAMP

NTS

NOTE:

MIRROR DETAIL FOR ROUTE 9 NORTHBOUND ON RAMP

No.	Submittal / Revision	App'd	By	Date

Village of Croton-on-Hudson New York

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CROTON-HARMON PARKING FACILITY, VEHICULAR, PEDESTRIAN AND BICYCLE ENHANCEMENTS

TYPICAL SECTIONS - ALTERNATIVE 2

Issue Date: 03/12 | Project No.: 22961 | Scale: AS SHOWN

TS-1

SHEET XX OF XX

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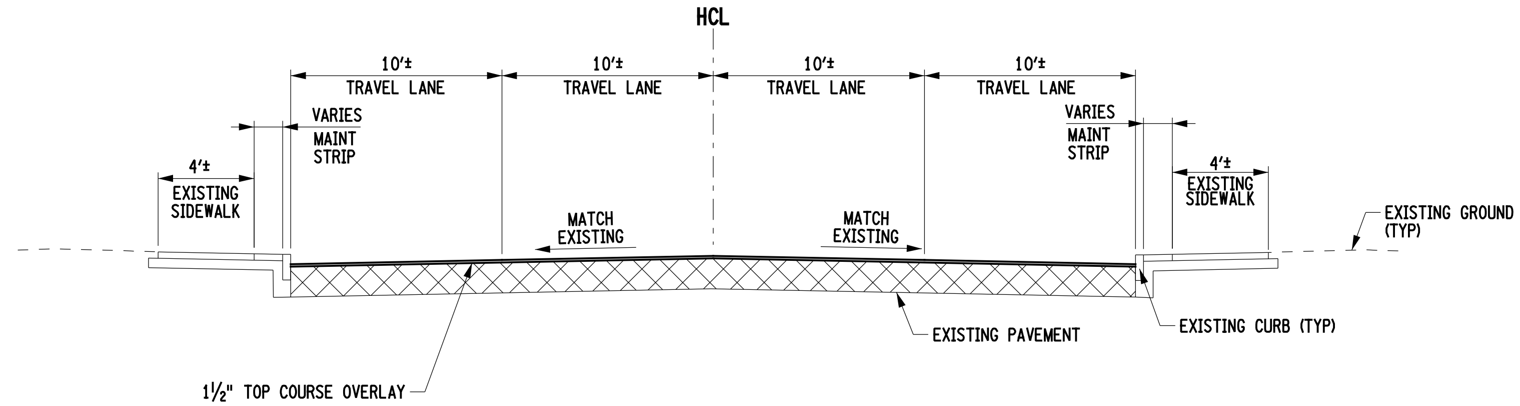
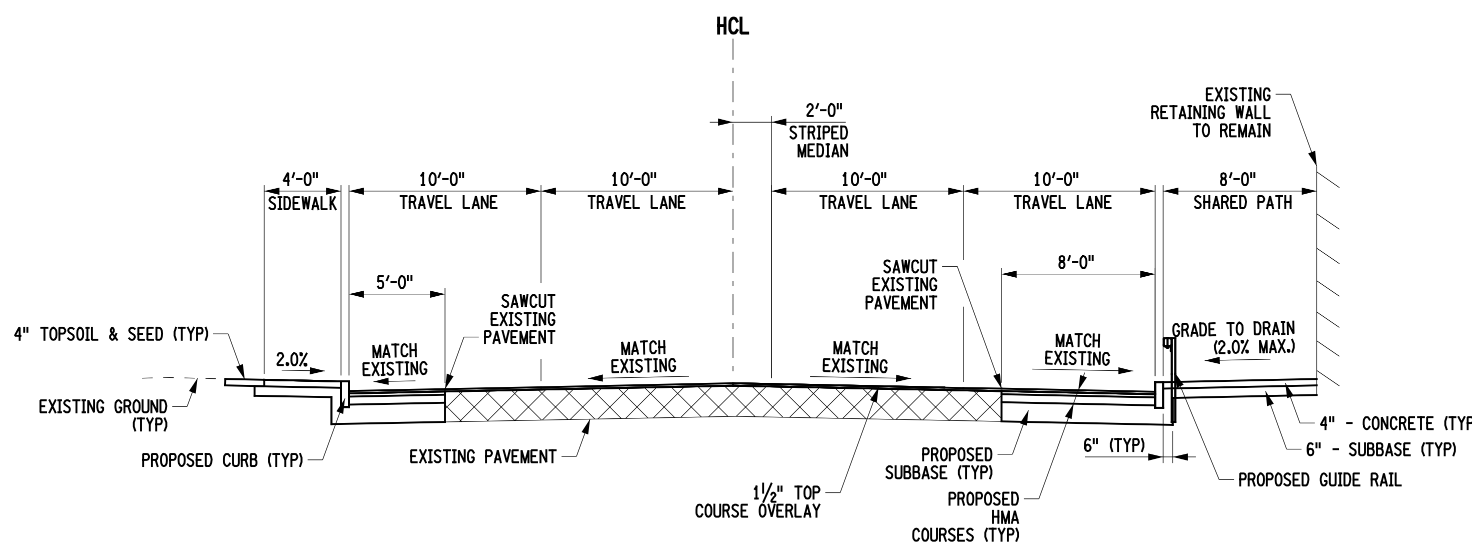


SOUTH RIVERSIDE AVENUE
TYPICAL SECTION
NTS



VETERANS PLAZA
TYPICAL SECTION
NTS

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Village of Croton-on-Hudson New York

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CROTON-HARMON PARKING FACILITY, VEHICULAR, PEDESTRIAN AND BICYCLE ENHANCEMENTS

TYPICAL SECTIONS - ALTERNATIVE 2

Issue Date: 03/12 | Project No.: 22961 | Scale: AS SHOWN

TS-2
SHEET XX OF XX

APPENDIX B

Environmental Information

NEPA ASSESSMENT CHECKLIST

(Revised 12-29-03)

Date: **04/23/2013**
PIN: **8780.41**
Project Description: **Croton-on-Hudson Parking Facility and Bicycle Enhancements Project**

Answer the following questions by checking YES or NO.

I. THRESHOLD QUESTION

1. Does the project involve unusual circumstances as described in 23 CFR '771.117(b)? **YES**☐ **NO**☒

☐ If **YES**, the project does not qualify as a Categorical Exclusion and an EA or EIS is required. You may STOP COMPLETING THE CHECKLIST.

- OR-

☒ If **NO**, continue…

II. AUTOMATIC CATEGORICAL EXCLUSION

2. Is the project an action listed as an Automatic Categorical Exclusion in 23 CFR '771.117(c) (C List) and/or is the project an element-specific project classified by FHWA as a Categorical Exclusion on July 22, 1996? **YES**☐ **NO**☒

☐ If **YES** to question 2, the project qualifies for a C List Categorical Exclusion, "Automatic Categorical Exclusion". You may STOP COMPLETING THE CHECKLIST. The checklist should be included in the appendix of the Final Design Report (or Project Scoping Report/Final Design Report). The CATEGORICAL EXCLUSION DETERMINATION memo is to be sent to the appropriate Main Office Design liaison unit with a copy of the Final Design Report (or Project Scoping Report/Final Design Report). A copy of the CATEGORICAL EXCLUSION DETERMINATION memo must also be sent to the Office of Budget and Finance, Project and Letting Management, and others (see sample DETERMINATION memo attached).

(Note - Even if YES to question 2, there may be specific environmental issues that still require an action such as an EO 11990 Wetland Finding or a determination of effect on cultural resources. The project is still an Automatic Categorical Exclusion but the necessary action must be taken, such as obtaining FHWA's signature on the wetland finding. Refer to the appropriate section of the Environmental Procedures Manual for guidance.)

-OR-

☒ If **NO** to question 2 above, continue below…

III. PROGRAMMATIC CATEGORICAL EXCLUSION

3. Is the project on new location or does it involve a change in the functional classification or added mainline capacity (add through-traffic lanes)? **YES**☐ **NO**☒
Clarification:

4. Is this a Type I project under 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction"? **YES**☐ **NO**☒
Clarification:

5. If the project is located within the limits of a designated sole source aquifer area or the associated stream flow source area, is the drainage pattern altered? **YES**☐ **NO**☒
Clarification:

6. Does the project involve changes in travel patterns? **YES**☐ **NO**☒
Clarification:

7. Does the project involve the acquisition of more than minor amounts of temporary or permanent right-of-way (a minor amount of right-of-way is defined as not more than 10 percent of a parcel for parcels under 4 ha (10 acres) in size, 0.4 ha (1 acre) of a parcel 4 ha to 40.5 ha (10 to 100 acres) in size and 1 percent of a parcel for parcels greater than 40.5 ha (100 acres) in size? **YES**☐ **NO**☒
Clarification:

8. Does the project require a Section 4(f) evaluation and determination in accordance with the FHWA guidance? **YES**☐ **NO**☒
Clarification:

9. Does the project involve commercial or residential displacement? **YES**☐ **NO**☒
Clarification:

10. If Section 106 applies, does FHWA=s determination indicate an opinion of adverse effect? **YES**☐ **NO**☒
Clarification:

11. Does the project require a ACOE Nationwide Permit #23 – Approved Categorical Exclusion?* **YES**☐ **NO**☒
Clarification:

12. Does the project require any work in wetlands requiring an “Individual” Executive Order 11990 Wetland Finding?* **YES**☐ **NO**☒
Clarification:

---

* Corrections as per memo dated 8/22/96, from M. Sengenberger & M. Ivey to Reg. Environmental Contacts

13. Has it been determined that the project will significantly encroach upon a flood plain based on preliminary hydraulic analysis and consideration of EO 11988 criteria as appropriate? **YES☐ NO☒**
Clarification:

14. Does the project involve construction in, across or adjacent to a river designated as a component proposed for or included in the National System of Wild and Scenic Rivers? **YES☐ NO☒**
Clarification:

15. Does the project involve any change in access control? **YES☐ NO☒**
Clarification:

16. Does the project involve any known hazardous materials sites or previous land uses with potential for hazardous material remains within the right-of-way? **YES☒ NO☐**
Clarification:

17. Does the project occur in an area where there are Federally listed endangered or threatened species or critical habitat? **YES☐ NO☒**
Clarification:

18. Is the project, pursuant to EPM Chapter 1A and Table 2 and Table 3 of 40 CFR Parts 51 and 93, non-exempt or does it exceed any ambient air quality standard? **YES☐ NO☒**
Clarification:

19. Does the project lack consistency with the New York State Coastal Zone Management Plan and policies of the Department of State, Office of Coastal Zone Management? **YES☐ NO☒**
Clarification:

20. Does the project impact or acquire any Prime or Unique Farmland as defined in 7 CFR Part 657 of the Federal Farmland Protection Policy Act and are there outstanding compliance activities necessary? (Note: Interpret compliance activity to mean completion of Form AD 1006.) **YES☐ NO☒**
Clarification:

☐ If **NO** for questions, 3-20, go on to answer question 21…

-OR- ____

☒ If **YES** to any question 3-20, project will not qualify as a Programmatic Categorical Exclusion. Answer questions 21 and 22 for documentation only and go on to question 23…

21. Does the project involve the use of a temporary road, detour or ramp closure? **YES**☐ **NO**☒
    Clarification:

☐ If **NO** to questions 3-20 and **NO** to question 21, the project qualifies as a Programmatic Categorical Exclusion. You may STOP COMPLETING THE CHECKLIST. The checklist should be included in the appendix of the Final Design Report (or Scope Summary Memorandum/Final Design Report). The CATEGORICAL EXCLUSION DETERMINATION memo is to be sent to the appropriate Main Office Design liaison unit with a copy of the Final Design Report (or Scope Summary Memorandum/Final Design Report). A copy of the Categorical Exclusion memo must also be sent to the Office of Budget and Finance, Project and Letting Management, and others.

-OR- ____

☐ If **YES** to question 21, preparer should complete question 22 (i-v). If questions 3-20 are **NO** and 21 is **YES**, the project will still qualify as a Programmatic Categorical Exclusion if questions 22 (i-v) are **YES**.

22. Since the project involves the use of temporary road, detour or ramp closure, will all of the following conditions be met:

    i. Provisions will be made for pedestrian access, where warranted, and access by local traffic and so posted. **YES**☐ **NO**☐
       Clarification:

    ii. Through-traffic dependent business will not be adversely affected. **YES**☐ **NO**☐
       Clarification:

    iii. The detour or ramp closure, to the extent possible, will not interfere with any local special event or festival. **YES**☐ **NO**☐
       Clarification:

    iv. The temporary road, detour or ramp closure does not substantially change the environmental consequences of the action. **YES**☐ **NO**☐
       Clarification:

    v. There is no substantial controversy associated with the temporary road,

detour or ramp closure. **YES**☐ **NO**☐
Clarification:

☐ If questions 3-20 are **NO**, 21 is **YES** and 22 (i-v) are YES, the project qualifies for a Programmatic Categorical Exclusion. You may STOP COMPLETING THE CHECKLIST. The checklist should be included in the appendix of the Final Design Report (or Scope Summary Memorandum/Final Design Report). The CATEGORICAL EXCLUSION DETERMINATION memo should be sent to the appropriate Main Office Design liaison unit with a copy of the Final Design Report (or Scope Summary Memorandum/Final Design Report.) A copy of the CATEGORICAL EXCLUSION DETERMINATION memo must also be sent to the Office of Budget and Finance, Project and Letting Management, and others.

-OR-

☒ If questions 3-20 are **NO** or effect is **clarified**, 21 is **YES** and any part of 22 is **NO**, go on to question 23.

23. Is the project section listed in 23 CFR §771.117(d) (D List) or is the project an action similar to those listed in 23 CFR §771.117(d)? **YES**☒ **NO**☐

For those questions which precluded a Programmatic Categorical Exclusion, documentation should be provided for any **YES** response to questions 3-20 or for a **NO** response to any part of questions 22 (i-v). This documentation, as well as the checklist, should be included in the Design Approval Document, i.e., Final Design Report, etc., to be submitted to the Main Office/FHWA Design liaison unit for submission to the FHWA Division for classification of the project as a D List Categorical Exclusion, "Categorical Exclusion with Documentation".

Documentation

16. A Hazardous Waste/Contaminated Materials Site Screening, which included a review of NYSDEC regulatory data files and a site walkover, was conducted on March 6, 2012

The Hazardous Waste/Contaminated Materials Site Screening identified four facilities with the potential to impact the Site; three of which are along S. Riverside Avenue where only a cold mill inlay is proposed and one on Croton Point Avenue at the northwest corner of Croton Point Avenue and S. Riverside Avenue.

At the northwest corner of Croton Point Avenue and S. Riverside Avenue (67 Croton Point Avenue) is the Croton-on-Hudson Gulf. The regulatory review indicates that this Hazardous Waste/Contaminated Materials Site involves the presence of underground storage tanks (USTs), records indicating that facilities are listed as non-generators of ignitable hazardous waste (including benzene) (which indicates that the facilities may transport, store, treat and/or dispose of hazardous waste), records indicating the presence of leaking underground storage tanks (LUSTs), and spills of petroleum products.

No other hazardous waste/contaminated materials were identified during the course of the Hazardous Waste/Contaminated Materials Site Screening. The potential risk for involvement with documented or undocumented inactive hazardous waste materials is low.

It is recommended that NYSDOT Special Specifications for petroleum identification and potential disposal be included in the contract documents to address this.

617.20
Appendix A
State Environmental Quality Review

FULL ENVIRONMENTAL ASSESSMENT FORM

PURPOSE: The full EAF is designed to help applicants and agencies determine, in an orderly manner, whether a project or action may be significant. The question of whether an action may be significant is not always easy to answer. Frequently, there are aspects of a project that are subjective or unmeasurable. It is also understood that those who determine significance may have little or no formal knowledge of the environment or may not be technically expert in environmental analysis. In addition, many who have knowledge in one particular area may not be aware of the broader concerns affecting the question of significance. The full EAF is intended to provide a method whereby applicants and agencies can be assured that the determination process has been orderly, comprehensive in nature, yet flexible enough to allow introduction of information to fit a project or action.

FULL EAF COMPONENTS: The full EAF is comprised of three parts:

Part 1: Provides objective data and information about a given project and its site. By identifying basic project data, it assists a reviewer in the analysis that takes place in Part 2 and 3.

Part 2: Focuses on identifying the range of possible impacts that may occur from a project or action. It provides guidance as to whether an impact is likely to be considered small to moderate or whether it is a potentially-large impact. The form also identified whether an impact can be mitigated or reduced.

Part 3: If any impact in Part 2 is identified as potentially-large, than Part 3 is used to evaluate whether or not the impact is actually important.

DETERMINATION OF SIGNIFICANCE – Type 1 and Unlisted Actions

Identify the Portions of EAF completed for this project: ☒ ***Part 1*** ☒ ***Part 2*** ☐ ***Part 3***

Upon review of the information recorded on this EAF (Parts 1, 2 and 3 if appropriate), and any other supporting information, and considering both the magnitude and importance of each impact, it is reasonably determined by the lead agency that:

☐ A. The project will not result in any large and important impact(s) and, therefore, is one which **will not** have a significant impact on the environment, therefore, **a negative declaration will be prepared**.

☐ B. Although the project could have a significant effect on the environment, there will not be a significant effect for this Unlisted Action because the mitigation measures described in PART 3 have been required, therefore, **a CONDITIONED negative declaration will be prepared.***.

☐ C. The project may result in one or more large and important impacts that may have a significant impact on the environment, therefore, **a positive declaration will be prepared**.

*A Conditioned Negative Declaration is only valid for Unlisted actions.

Croton-on-Hudson Parking Facility and Bicycle Enhancements
NAME OF ACTION

NAME OF LEAD AGENCY

PRINT OR TYPE NAME OF RESPONSIBLE OFFICER IN LEAD AGENCY	**TITLE OF RESPONSIBLE OFFICER**
SIGNATURE OF RESPONSIBLE OFFICER IN LEAD AGENCY	**SIGNATURE OF PREPARED (IF DIFFERENT FROM RESPONSIBLE OFFICER)**

Date

PART 1 – PROJECT INFORMATION
PREPARED BY PROJECT SPONSOR

Notice: This document is designed to assist in determining whether the action proposed may have a significant effect on the environment. Please complete the entire form, Parts A through E. Answers to these questions will be considered as part of the application for approval and may be subject to further verification and public review. Provide any additional information you believe will be needed to complete Parts 2 and 3.
It is expected that completion of the full EAF will be dependent on information currently available and will not involve new studies, research or investigation. If information requiring such additional work is unavailable, so indicate and specify each instance.

NAME OF ACTION: Croton-on-Hudson Parking Facility and Bicycle Enhancements			
LOCATION OF ACTION: Croton Point Ave from Veterans Plaza to S. Riverside and S. Riverside Ave. from Croton Point Avenue to Benedict Boulevard			
NAME OF APPLICANT/SPONSOR: Village of Croton-on-Hudson		(914) 271-4848	
		BUSINESS TELEPHONE	
1 Van Wyck Street	Croton-on-Hudson	NY	10520
STREET ADDRESS	**CITY/PO**	**STATE**	**ZIP**
NAME OF OWNER (IF DIFFERENT): N/A			
		BUSINESS TELEPHONE	
STREET ADDRESS	**CITY/PO**	**STATE**	**ZIP**
DESCRIPTION OF ACTION: This project is proposed to provide safer accommodations that better balance the needs of all users (vehicular, bicyclists and pedestrians) and provide effective vehicular mobility through the corridor during all periods of the day with appropriate traffic control measures. This objective will be accomplished through the construction of new sidewalks, re-delineation of the existing roadway to accommodate bike lanes, and installation of three new traffic signals and geometric improvements to key intersections.			

Please complete each question –Indicate N.A. if not applicable.

A. SITE DESCRIPTION

Physical setting of overall project, both developed and undeveloped areas.

1. Present land use: ☒ Urban ☐ Industrial ☐ Commercial ☐ Residential(suburban) ☐ Rural (non-farm) ☐ Forest ☐ Agriculture ☐ Other _____

2. Total acreage of project area: 2.45 acres.

APPROXIMATE ACREAGE	PRESENTLY	AFTER COMPLETION
Meadow or Brushland (Non-agricultural)	_____ acres	_____ acres
Forested	_____ acres	_____ acres
Agricultural (includes orchards, cropland, pasture, etc.)	_____ acres	_____ acres
Wetland (Freshwater or tidal as per Articles 24,25 of ECL)	_____ acres	_____ acres
Water Surface Area	_____ acres	_____ acres
Unvegetated (Rock, earth or fill)	_____ acres	_____ acres
Roads, buildings and other paved surfaces	2.10 acres	2.20 acres
Other (Indicate type)	0.35 acres	0.25 acres

3. What is predominant soil type(s) on project site? UvC (50%), Ub (40%), Uf (10%)
   a. Soil drainage:
   ☒ well drained 50% of site
   ☒ Moderately well drained 40% of site
   ☒ Poorly drained 10% of site
   b. If any agricultural land is involved, how many acres of soil are classified within soil group 1 through 4 of the NYS Land Classification System? N/A Acres (See 1 NYCRR 370).:

4. Are there bedrock outcroppings on project site? ☐ Yes ☒ No.

a. What is depth to bedrock? _____ (in feet):

5. Approximate percentage of proposed project site with slopes?
☒ 0-10% 100 % ☐ 10-15% _____ % ☐ 15% or greater _____ %.

6. Is project substantially contiguous to, or contain a building, site, or district, listed on the State or the National Registers of Historic Places? ☐ Yes ☒ No

7. Is project substantially contiguous to, to a site listed on the Register of National Natural Landmarks?
☐ Yes ☒ No

8. What is the depth of the water table: 1.5 - >6 (in feet)

9. Is the site located over a primary, principal, or sole source aquifer? ☒ Yes ☐ No.

10. Do hunting, fishing or shall fishing opportunities presently exist in the project area? ☐ Yes ☒ No.

11. Does project site contain any species of plant or animal life that is identified as threatened or endangered?
☐ Yes ☒ No. According to: NYSDEC National Heritage Program.
Identify each species:

12. Are there any unique or unusual land forms on the project site? (i.e., cliffs, dunes, other geological formations)? ☐ Yes ☒ No.
Describe:

13. Is the project site presently used by the community or neighborhood as an open space or recreation area?
☐ Yes ☒ No.
If yes, explain:

14. Does the present site include scenic views known to be important to the community? ☐ Yes ☒ No.

15. Streams within or contiguous to project area? None.

16. Lakes, ponds, wetland areas within or contiguous to project area?

Name: None	Size (in acres) _____
Name:	Size (in acres) _____
Name:	Size (in acres) _____

17. Is the site served by existing public utilities? ☒ Yes ☐ No.
a. If yes, does sufficient capacity exist to allow connection: ☒ Yes ☐ No.
b. If yes, will improvements be necessary to allow connection: ☐ Yes ☒ No.

18. Is the site located in an agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☒ No.

19. Is the site located in or substantially contiguous to a Critical Environmental Area designated pursuant to Article 8 of the ECL, and 6 NYCRR 617? ☒ Yes ☐ No.

20. Has the site ever been used for the disposal of solid or hazardous wastes? ☐ Yes ☒ No.

B. PROJECT DESCRIPTION

1. Physical dimensions and scale of project (fill in dimensions as appropriate).

a. Total contiguous acreage owned or controlled by project sponsor 2.45 acres.
b. Project acreage to be developed: 2.45 acres initially; 2.45 acres ultimately.
c. Project acreage to remain undeveloped 0 acres.
d. Length of project, in miles: 0.35 +/- (if appropriate).
e. If the project is an expansion, indicate percent of expansion proposed N/A %
f. Number of off-street parking spaces existing N/A; proposed N/A.
g. Maximum vehicular trips generated per hour N/A (upon completion of project).
h. If residential, number and type of housing units:

	One family	**Two family**	**Multiple family**	**Condominium**
Initially	N/A			

Ultimately	N/A			

i. Dimensions (in feet) of largest proposed structure N/A height; N/A width; N/A length.
j. Linear feet of frontage along a public thoroughfare project will occupy is? N/A Ft.

2. How much natural material (i.e., rock, earth, etc.) will be removed from the site? 1900 cy Tons/cubic yards.

3. Will disturbed areas be reclaimed: ☒ Yes ☐ No ☐N/A
   a. If yes, for what intended purpose is the site being reclaimed? _____
   b. Will topsoil be stockpiled for reclamation? ☐ Yes ☒ No
   c. Will upper subsoil be stockpiled for reclamation? ☒ Yes ☐ No

4. How many acres of vegetation (trees, shrubs, ground covers) will be removed from site? 0.15 acres.

5. Will any mature forest (over 100 years old) or other locally-important vegetation be removed by this project?
   ☐ Yes ☒ No

6. If single phase project: Anticipated period of construction 8 months, (including demolition).

7. If multi-phased:
   a. Total number of phases anticipated N/A (number).
   b. Anticipated date of commencement phase 1 N/A month N/A year, (including demolition).
   c. Approximate completion date of final phase N/A month N/A year.
   d. Is phase 1 functionally dependent on subsequent phases? ☐ Yes ☒ No

8. Will blasting occur during construction? ☐ Yes ☒ No

9. Number of jobs generated: during construction? 10; after project is complete? 0

10. Number of job eliminated by this project? 0

11. Will project require relocation of any projects or facilities: ☒ Yes ☐ No
    If yes, explain utility poles

12. Is surface liquid waste disposal involved? ☐ Yes ☒ No
    a. If yes, indicate type of waste (sewage, industrial, etc.) and amount _____
    b. Name of water body into which effluent will be discharged _____

13. Is subsurface liquid waste disposal involved? ☐ Yes ☒ No Type: _____

14. Will surface area of an existing water body increase or decrease by proposal? ☐ Yes ☒ No
    Explain: _____

15. Is project, or any portion of project, located in a 100 year flood plain? ☐ Yes ☒ No

16. Will the project generate solid waste? ☐ Yes ☒No
    a. If yes, what is the amount per month? _____ Tons.
    b. If yes, will an existing solid waste facility be used: ☐ Yes ☐ No
    c. If yes, give name _____; location _____
    d. Will any wastes not go into a sewage disposal system or into a sanitary landfill? ☐ Yes ☐ No
    e. If yes, explain: _____

17. Will the project involve the disposal of solid waste: ☐ Yes ☒ No.
    a. If yes, what is the anticipated rate of disposal: _____ tons/month.
    b. If yes, what is the anticipated site life: _____ years.

18. Will project use herbicides or pesticides? ☐ Yes ☒ No.

19. Will project routinely produce odors (more than one hour per day)? ☐ Yes ☒ No

20. Will project produce operating noise exceeding the local ambient noise levels? ☐ Yes ☒ No

21. Will project result in an increase in energy use? ☒ Yes ☐ No
    If yes, indicate type(s) electric for traffic signals

22. If water supply is from wells, indicate pumping capacity N/A gallons/minute

23. Total anticipated water usage per day N/A gallons/day.

24. Does project involve Local, State or Federal funding? ☒ Yes ☐ No

If yes, explain FHWA funding.

25. Approvals Required:

			Type	Submittal Date
City, Town, Village Board	☒ Yes	☐ No		
City, Town, Village Plng. Board	☐ Yes	☒ No		
City, Town, Zoning Board	☐ Yes	☒ No		
City, County Health Department	☐ Yes	☒ No		
Other Local Agencies	☒ Yes	☐ No	Waterfront Revitalization Consistency/SEQR	
Other Regional Agencies	☐ Yes	☒ No		
State Agencies	☒ Yes	☐ No	Highway Work Permit	
Federal Agencies	☒ Yes	☐ No	Design Approval/NEPA	

C. ZONING and PLANNING INFORMATION

1. Does proposed action involve a planning or zoning decision? ☐ Yes ☒ No
   If yes, indicate decision required:

☐ zoning amendment	☐ zoning variance	☐ special use permit	☐ subdivision	☐ site plan
☐ new/revision of master plan	☐ resource management plan	☐ Other:		

2. What is the zoning classification(s) of the site? N/A

3. What is the maximum potential development of the site if developed as permitted by the present zoning? N/A

4. What is the proposed zoning of the site? No change in zoning proposed

5. What is the maximum potential development of the site if developed as permitted by the proposed zoning? N/A

6. Is the proposed action consistent with the recommended uses in adopted local land use plans? ☒ Yes ☐ No

7. What are the predominant land use(s) and zoning classifications within a ¼ mile radius of proposed action? Commercial land uses. Zoning - L1 (Light Industrial), C-2 (General Commercial) RA-5 (One Family Residence)

8. Is the proposed action compatible with adjoining/surrounding land uses within a ¼ mile? ☒ Yes ☐ No

9. If the proposed action is the subdivision of land, how many lots are proposed? N/A
   a. What is the minimum lot size proposed? N/A

10. Will proposed action require any authorization(s) for the formation of sewer or water districts? ☐ Yes ☒ No

11. Will the proposed action create a demand for any community provided serviced (recreation, education, police, fire protection)? ☐ Yes ☒ No
    a. If yes, is existing capacity sufficient to handle projected demand? ☐ Yes ☐ No

12. Will the proposed action result in the generation of traffic significantly above present levels? ☐ Yes ☒ No
    a. If yes, is the existing road network adequate to handle the additional traffic? ☐ Yes ☐ No

D. INFORMATIONAL DETAILS

Attach any additional information as may be needed to clarify your project. If there are, or may be, any adverse impacts associated with your proposal, please discuss such impacts and measures which you propose to mitigate or avoid them.

E. VERIFICATION

I certify that the information provided above is true to the best of my knowledge.

Applicant/Sponsor Name: ______________________ Date: ______________
Signature: ______________________ Title: ______________

If the action is in the Coastal Area, and you are a state agency, complete the Coastal Assessment Form before proceeding with this assessment.

PART 2 – PROJECT IMPACTS AND THEIR MAGNITUDE
RESPONSIBILITY OF LEAD AGENCY

GENERAL INFORMATION (Read Carefully)

- In completing the form, the reviewer should be guided by the question: ***Have my responses and determinations been reasonable?*** The reviewer is not expected to be an expert environmental analyst.
- The examples provided are to assist the reviewer by showing types of impacts and, wherever possible, the threshold of magnitude that would trigger a response in column 2. The examples are generally applicable throughout the State and for most situations. But, for any specific project or site other examples and/or lower thresholds may be appropriate for a Potential large Impact response, thus requiring evaluation in Part 3.
- The impacts of each project, on each site, in each locality, will vary. Therefore, the examples are illustrative and have been offered as guidance. They do not constitute an exhaustive list of impacts and thresholds to answer each question.
- The number of examples per question does not indicate the importance of each question.
- In identifying impacts, consider long term, short term and cumulative effects .

INSTRUCTIONS (Read Carefully)

a. Answer each of the 20 questions in PART 2. Answer ***Yes*** if there will be ***any*** impact.
b. **Maybe** answers should be considered as **Yes** answers.
c. If answering ***Yes*** to a question, check the appropriate box (column 1 or 2) to indicate the potential size of the impact. If impact threshold equals or exceeds any example provided, check column 2. If impact will occur, but threshold is lower than example, check column 1.
d. Identifying that an impact will be potentially large (column 2) does not mean that it is also necessarily significant. Any large impact must be evaluated in PART 3 to determine significance. Identifying an impact in column 2 simply asks that it be looked at further.
e. If reviewer has doubt about size of the impact, then consider the impact as potentially large and proceed to PART 3.
f. If a potentially large impact checked in column 2 can be mitigated by change(s) in the project to a small to moderate impact, also check the ***Yes*** box in column 3. A ***No*** response indicates that such a reduction is not possible. This must be explained in Part 3.

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact be Mitigated by Project Change
IMPACT ON LAND			
1. Will the proposed action result in a physical change to the project site? ☐ Yes ☒ No **Examples** that would apply to column 2:			
■ Any construction on slopes of 15% or greater, (15 foot rise per 100 foot of length), or where the general slopes in the project area exceed 10%.	☐	☐	☐ Yes ☐ No
■ Construction of paved parking area for 1,000 or more vehicles.	☐	☐	☐ Yes ☐ No
■ Construction of land where the depth to the water table is less than 3 feet.	☐	☐	☐ Yes ☐ No
■ Construction on land where bedrock is exposed or generally within 3 feet of existing ground surface.	☐	☐	☐ Yes ☐ No
■ Construction that will continue for more than 1 year or involve more than one phase or stage.	☐	☐	☐ Yes ☐ No
■ Excavation for mining purposes that would remove more than 1,000 tons of natural material (i.e., rock or soil) per year.	☐	☐	☐ Yes ☐ No
■ Construction or expansion of a sanitary landfill.	☐	☐	☐ Yes ☐ No
■ Construction in a designated floodway.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
2. Will there be an effect to any unique or unusual land forms found on the site? (i.e., cliffs, dunes, geological formations, etc.) ☐ Yes ☒ No			
■ Specific land forms:	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact be Mitigated by Project Change
3. Will proposed action affect any water body designated as protected? (Under articles 15, 24, 25 of the Environmental Conservation Law, ECL) ☐ Yes ☒ No **Examples** that would apply to column 2:			
■ Developable area of site contains a protected water body.	☐	☐	☐ Yes ☐ No
■ Dredging more than 100 cubic yards of material from channel of a protected stream.	☐	☐	☐ Yes ☐ No
■ Extension of utility distribution facilities through a protected water body.	☐	☐	☐ Yes ☐ No
■ Construction in a designated freshwater or tidal wetland.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
4. Will proposed action affect any non-protected existing or new body of water? ☐ Yes ☒ No **Examples** that would apply to column 2:			
■ A 10% increase or decrease in the surface area of any body of water or more than a 10 acre increase or decrease.	☐	☐	☐ Yes ☐ No
■ Construction of a body of water that exceeds 10 acres of surface area.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
5. Will Proposed Action affect surface surface or groundwater quality or quantity? ☐ Yes ☒ No **Examples** that would apply to column 2:			
■ Proposed action will require a discharge permit.	☐	☐	☐ Yes ☐ No
■ Proposed action requires use of a source of water that does not have approval to serve proposed (project) action.	☐	☐	☐ Yes ☐ No
■ Proposed action requires water supply from wells with greater than 45 gallons per minute pumping capacity.	☐	☐	☐ Yes ☐ No
■ Construction or operation causing contamination of a water supply system.	☐	☐	☐ Yes ☐ No
■ Proposed action will adversely affect groundwater.	☐	☐	☐ Yes ☐ No
■ Liquid affluent will be conveyed off the site to facilities which presently do not exist or have inadequate capacity.	☐	☐	☐ Yes ☐ No
■ Proposed action would use water in excess of 20,000 gallons per day.	☐	☐	☐ Yes ☐ No
■ Proposed action would likely cause siltration or other discharge into an existing body of water to the extent that there will be an obvious visual contrast to natural conditions.	☐	☐	☐ Yes ☐ No
■ Proposed action will require the storage of petroleum or chemical products greater than 1,100 gallons.	☐	☐	☐ Yes ☐ No
■ Proposed action will allow residential uses in areas without water and/or sewer services.	☐	☐	☐ Yes ☐ No
■ Proposed action locates commercial and/or industrial uses which may require new or expansion of existing waste treatment and/or storage facilities.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
6. Will proposed action alter drainage flow or patterns, or surface water runoff: ☐ Yes ☒ No **Examples** that would apply to column 2:			
■ Proposed action would change flood water flows.	☐	☐	☐ Yes ☐ No
■ Proposed action may cause substantial erosion.	☐	☐	☐ Yes ☐ No
■ Proposed action is incompatible with existing drainage patterns.	☐	☐	☐ Yes ☐ No
■ Proposed action will allow development in a designated floodway.	☐	☐	☐ Yes ☐ No
■ Other impacts:			
IMPACT ON AIR			
7. Will proposed action affect air quality? ☐ Yes ☒ No **Examples** that would apply to column 2:			
■ Proposed action will induce 1,000 or more vehicle trips in any given hour.	☐	☐	☐ Yes ☐ No
■ Proposed action will result in the incineration of more than 1 ton of refuse per hour.	☐	☐	☐ Yes ☐ No
■ Emission rate of total contaminants will exceed 5 lbs. per hour or a heat source producing more than 10 million BTU's per hour.	☐	☐	☐ Yes ☐ No
■ Proposed action will allow an increase in the amount of land committed to industrial use.	☐	☐	☐ Yes ☐ No
■ Proposed action will allow an increase in the density of industrial development within existing industrial areas.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact be Mitigated by Project Change
IMPACT ON PLANTS AND ANIMALS			
8. Proposed action affect any threatened or endangered species? ☐Yes ☒ No **Examples** that would apply to column 2:			
■ Reduction of one or more species listed on the New York or Federal list, using the site, over or near site, or found on the site.	☐	☐	☐ Yes ☐ No
■ Removal of any portion of a critical or significant wildlife habitat.	☐	☐	☐ Yes ☐ No
■ Application of pesticide or herbicide more than twice a year, other than for agricultural purposes.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
9. Will Proposed action substantially affect non-threatened or non-endangered species? ☐Yes ☒ No **Examples** that would apply to column 2:			
■ Proposed action would substantially interfere with any resident or migratory fish, shellfish or wildlife species.	☐	☐	☐ Yes ☐ No
■ Proposed action requires the removal of more than 10 acres of mature forest (over 100 years of age) or other locally important vegetation.	☐	☐	☐ Yes ☐ No
IMPACT ON AGRICULTURAL LAND RESOURCES			
10. Will the Proposed action affect agricultural land resources? ☐Yes ☒ No **Examples** that would apply to column 2:	☐	☐	☐ Yes ☐ No
■ Proposed action would sever, cross or limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc.)	☐	☐	☐ Yes ☐ No
■ Construction activity would excavate or compact the soil profile of agricultural land.	☐	☐	☐ Yes ☐ No
■ Proposed action would irreversibly convert more than 10 acres of agricultural land or if located in an Agricultural District, more than 2.5 acres of agricultural land.	☐	☐	☐ Yes ☐ No
■ Proposed action would disrupt or prevent installation of agricultural land management systems (e.g., subsurface drain lines, outlet ditches, strip cropping); or create a need for such measures (e.g., cause a farm field to drain poorly due to increased runoff.	☐	☐	☐ Yes ☐ No
■ Other impacts:			
IMPACT ON AESTHETIC RESOURCES			
11. Will proposed action affect aesthetic resources? ☐Yes ☒ No (if necessary, use the Visual EAF Addendum in Section 617.20, Appendix B.) **Examples** that would apply to column 2:			
■ Proposed land uses, or project components obviously different from, or in sharp contrast to current surrounding land use patterns, whether man-made or natural.	☐	☐	☐ Yes ☐ No
■ Proposed land uses or project components visible to users of aesthetic resources which will eliminate, or significantly reduce, their enjoyment of the aesthetic qualities of that resource.	☐	☐	☐ Yes ☐ No
■ Proposed components that will result in the elimination, or significant screening, of scenic views known to be important to the area.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
IMPACT ON HISTORIC AND ARCHAEOLOGICAL RESOURCES			
12. Will proposed action impact any site or structure of historic, pre-historic or paleontological importance? ☐Yes ☒ No **Examples** that would apply to column 2:			
■ Proposed action occurring wholly or partially within or substantially contiguous to any facility or site listed on the State or national Register of historic places.	☐	☐	☐ Yes ☐ No
■ Any impact to an archaeological site or fossil bed located within the project site.	☐	☐	☐ Yes ☐ No
■ Proposed action will occur in an area designated as sensitive for archaeological sites on the NYS Site Inventory.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact be Mitigated by Project Change
IMPACT ON OPEN SPACE AND RECREATION			
13. Will proposed action affect the quantity of quality of existing or future open spaces or recreational opportunities? ☐Yes ☒ No **Examples** that would apply to column 2:			
■ The permanent foreclosure of a future recreational opportunity.	☐	☐	☐ Yes ☐ No
■ A major reduction of an open space important to the community.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
IMPACT ON CRITICAL ENVIRONMENTAL AREAS			
14. Will proposed action impact the exceptional or unique characteristics of a critical environmental area (CEA) established pursuant to subdivision 6 NYCRR 617.14(g)? ☐Yes ☒ No. List the environmental characteristics that caused the designation of the CEA.:			
Croton Point Park CEA			
Examples that would apply to column 2:			
■ Proposed action to locate within the CEA.	☒	☐	☐ Yes ☐ No
■ Proposed action will result in a reduction in the quantity of the resource.	☐	☐	☐ Yes ☐ No
■ Proposed action will result in a reduction in the quality of the resource.	☐	☐	☐ Yes ☐ No
■ Proposed action will impact the use, function or enjoyment of the resource.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
IMPACT ON TRANSPORTATION			
15. Will there be an affect to existing transportation systems? ☒Yes ☐ No. **Examples** that would apply to column 2:			
■ Alteration of present patterns of movement of people and/or goods.	☐	☐	☐ Yes ☐ No
■ Proposed action will result in major traffic problems.	☐	☐	☐ Yes ☐ No
■ Other impacts: Installation and coordination of signals at the Croton Point Avenue with the US Route 9 northbound ramps, US Route 9 southbound ramps and Veterans Plaza will replace existing personnel manually facilitating vehciular/pedestrian/bicycle crossings	☒	☐	☐ Yes ☐ No
IMPACT ON ENERGY			
16. Will proposed action affect the community's sources of fuel or energy supply? ☐Yes ☒ No. **Examples** that would apply to column 2:			
■ Proposed action will cause a greater than 5% increase in the use of any form of energy in the municipality.	☐	☐	☐ Yes ☐ No
■ Proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two family residences or to serve a major commercial or industrial use.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
NOISE AND ODOR IMPACTS			
17. Will there be objectionable odors, noise, or vibrations as a result of the Proposed Action? ☐Yes ☒ No. **Examples** that would apply to column 2:			
■ Blasting within 1,500 feet of a hospital, school or other sensitive facility.	☐	☐	☐ Yes ☐ No
■ Odors will occur routinely (more than one hour per day).	☐	☐	☐ Yes ☐ No
■ Proposed action will produce operating noise exceeding the local ambient noise levels for noise outside of structures..	☐	☐	☐ Yes ☐ No
■ Proposed action will remove natural barriers that would act as a noise screen	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
IMPACT ON PUBLIC HEALTH			
18. Will Proposed action affect public health and safety? ☐Yes ☒ No. **Examples** that would apply to column 2:			
■ Proposed action may cause a risk of explosion or release of hazardous substances (i.e., oil, pesticides, chemicals, radiation, etc.) in the event of accident or upset conditions, or there may be a chronic low level discharge or emission.	☐	☐	☐ Yes ☐ No
■ Proposed action may result in the burial of "hazardous wastes" in any form (i.e. toxic, poisonous, highly reactive, radioactive, irritating, infectious, etc.)	☐	☐	☐ Yes ☐ No
■ Storage facilities for one million or more gallons of liquified natural gas or other flammable liquids.	☐	☐	☐ Yes ☐ No

	1 Small to Moderate Impact	2 Potential Large Impact	3 Can Impact be Mitigated by Project Change
■ Proposed action may result in the excavation or other disturbance within 2,000 feet of a site used for the disposal of solid or hazardous waste.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
IMPACT ON GROWTH AND CHARACTER OF COMMUNITY OR NEIGHBORHOOD			
19. Will Proposed action affect the character of the existing community? ☐Yes ☒ No. **Examples** that would apply to column 2:	☐	☐	☐ Yes ☐ No
■ The permanent population of the city, town or village in which the project is located is likely to grow by more than 5%.	☐	☐	☐ Yes ☐ No
■ The municipal budget for capital expenditures or operating services will increase by more than 5% per year as a result of this project.	☐	☐	☐ Yes ☐ No
■ The Proposed action will conflict with officially adopted plans or goals.	☐	☐	☐ Yes ☐ No
■ The Proposed action will cause a change in the density of land use.	☐	☐	☐ Yes ☐ No
■ The Proposed action will replace or eliminate existing facilities, structures or areas of historic importance to the community.	☐	☐	☐ Yes ☐ No
■ Development will create a demand for additional community services (e.g., schools, police, fire, etc.).	☐	☐	☐ Yes ☐ No
■ Proposed action will set an important precedent for future projects.	☐	☐	☐ Yes ☐ No
■ Proposed action will create or eliminate employment.	☐	☐	☐ Yes ☐ No
■ Other impacts:	☐	☐	☐ Yes ☐ No
20. Is there, or is there likely to be, public controversy related to potential adverse environmental impacts? ☒ Yes ☐ No			
If any action in Part 2 is identified as a potential large impact, or if you cannot determine the magnitude of impact, proceed to Part 3.			

PART 3 – EVALUATION OF THE IMPORTANCE OF IMPACTS
RESPONSIBILITY OF LEAD AGENCY

Part 3 must be prepared if one or more impact(s) is considered to be potentially large, even if the impact(s) may be mitigated.

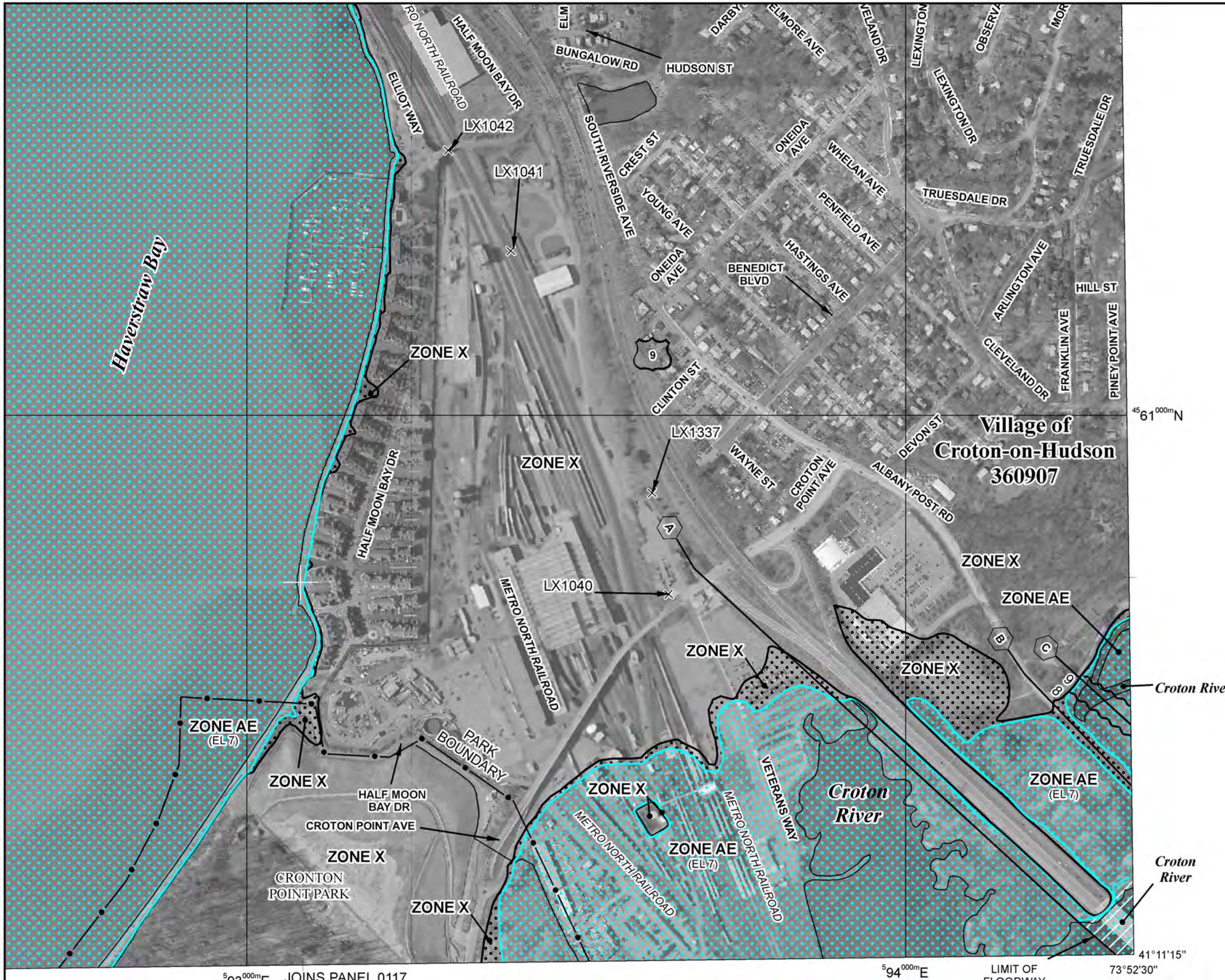
Instructions:

Discuss the following for each impact identified in column 2 of Part 2:

1. Briefly describe the impact.
2. Describe (if applicable) how the impact could be mitigated or reduced to a small to moderate impact by project change(s).
3. Based on the information available, decide if it is reasonable to conclude that this impact is important.

   To answer the question of importance, consider:
   - The probability of he impact occurring
   - The duration of the impact
   - Its irreversibility, including permanently lost resources of value
   - Whether the impact can or will be controlled
   - The regional consequence of the impact
   - Its potential divergence from local needs and goals
   - Whether known objections to the project relate to this impact

   (Continue on attachments)



MAP SCALE 1" = 500'

250 0 500 1000 FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0109F

FIRM

FLOOD INSURANCE RATE MAP

for WESTCHESTER COUNTY, NEW YORK (ALL JURISDICTIONS)

CONTAINS:

COMMUNITY	NUMBER
CROTON-ON-HUDSON, VILLAGE OF	360907

PANEL 109 OF 426

MAP SUFFIX: F

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
36119C0109F

EFFECTIVE DATE
SEPTEMBER 28, 2007

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Village of Croton-on-Hudson

COASTAL ASSESSMENT FORM

A. INSTRUCTIONS (Please print or type all answers)

1. *Applicants, or in the case of direct actions (city, town, village) agencies, shall complete this CAF for proposed actions which are subject to the consistency review law. This assessment is intended to supplement other information used by a (city, town, village) agency in making a determination of consistency.*

2. *Before answering the questions in Section C, the preparer of this form should review the policies and explanations of policy contained in the Local Waterfront Revitalization Program (LWRP), a copy of which is on file in the (city, town, village) clerk's office. A proposed action should be evaluated as to its significant beneficial and adverse effects upon the coastal area.*

3. *If any question in Section C on this form is answered "yes", then the proposed action may affect the achievement of the LWRP policy standards and conditions contained in the consistency review law. Thus, the action should be analyzed in more detail and, if necessary, modified prior to making a determination that it is consistent to the maximum extent practicable with the LWRP policy standards and conditions. If an action cannot be certified as consistent with the LWRP policy standards and conditions, it shall not be undertaken.*

B. DESCRIPTION OF SITE AND PROPOSED ACTION:

1. Type of (city, town, village) agency action (check appropriate response):
   a) Directly undertaken (e.g. capital construction, planning activity, agency regulation, land transaction) X
   b) Financial assistance (e.g. grant, loan, subsidy) ______
   c) Permit, approval, license, certification ______
   d) Agency undertaking action ______

2. Describe nature and extent of action: Construction of new sidewalks, redelineation of existing roadway for bike lanes, installation of three new traffic signals and geometric improvements to key intersections primarily within the existing ROW.

3. Location of actions: Croton Point Avenue, S. Riverside Avenue
   (street or site description)

4. Size of site: 1,740 ft. (0.35 miles)

5. Present land use: Commercial

6. Present zoning classification: L-1 Light Industrial, C-2 General Commercial, RA-5 (One Family Residential)

7. List and describe any unique or unusual land forms within or contiguous to the project site (i.e. bluffs, dunes, swales, ground depressions, other geological formations:
None

8. Percent of site which contains slopes of 15% or greater: 0%

9. List and describe streams, lakes, ponds or wetlands existing within or contiguous to the project area. Give name and size of each if available:

a) Name: None

b) Size (in acres): None

10. If an application for the proposed action has been filed with the (city, town, village) agency, the following information shall be provided:

a) Name of applicant: ____________________

b) Mailing address: ____________________

c) Telephone number: (area code) (______) ____________________

d) Application number, if any: ____________________

11. Will the action be directly undertaken, require funding or approval by a state or federal agency? NO ______ YES x

If yes, which state or federal agency? FHWA (Funding), NYSDOT Highway Work Permit

C. COASTAL ASSESSMENT:

(Check either "yes" or "no" for each of the following questions)

	YES	NO
1. Will the proposed action be located in, or contiguous to, or have a potentially adverse effect upon any of the resource areas identified on the coastal area map:		x
a) Significant fish or wildlife habitats?		x
b) Scenic resources of local or statewide significance?		x
c) Important agricultural lands?		x
d) Natural protective features in an erosion hazard area?		x

If the answer to any question above is "yes", please explain in Section D any measures which will be undertaken to mitigate any adverse effects.

2. Will the proposed action have a significant effect upon:

	YES	NO
a) Commercial or recreational use of fish and wildlife resources?		x
b) Scenic quality of the coastal environment?		x
c) Development of future or existing water dependent uses?		x
d) Operation of the State's major ports?		x
e) Land or water uses within a small harbor area?		x
f) Stability of the shoreline?		x
g) Surface or groundwater quality?		x
h) Existing or potential public recreation opportunities?		x
i) Structures, sites or districts of historic, archeological or cultural significance to the (city, town, village), State or nation?		x

3. Will the proposed action involve or result in any of the following:

	YES	NO
a) Physical alteration of land along the shoreline, land under water or coastal waters?		x
b) Physical alteration of two (2) acres or more of land located elsewhere in the coastal area?		x
c) Expansion of existing public services or infrastructure in undeveloped or low density areas of the coastal area?		x
d) Energy facility not subject to Article VII or VIII of the Public Service Law?		x
e) Mining, excavation, filling or dredging in coastal waters?		x
f) Reduction of existing or potential public access to or along the shore?		x
g) Sale or change in use of publicly-owned lands located on shoreline or under water?		x
h) Development within a designated flood or erosion hazard area?		x
i) Development on a beach, dune, barrier island or other natural feature that provides protection against flooding or erosion?		x
j) Construction or reconstruction of erosion protective structures?		x
k) Diminished surface or groundwater quality?		x
l) Removal of ground cover from the site?		x

4. Project

a) If project is to be located adjacent to shore: N/A

	YES	NO
1. Will water-related recreation be provided?		x
2. Will public access to the foreshore be provided?		x
3. Does the project require a waterfront site?		x
4. Does it supplant a recreational or maritime use?		x
5. Do essential public services and facilities presently exist at or near the site?		x
6. Is it located in a flood prone area?		x
7. Is it located in an area of high erosion?		x
b) If the project site is publicly owned:		
1. Will the project protect, maintain and/or increase the level and types of public access to water-related recreation resources and facilities?		x
2. If located in the foreshore, will access to those and adjacent lands be provided?		x
3. Will it involve the siting and construction of major energy facilities?		x
4. Will it involve the discharge of effluent from major steam electric generating and industrial facilities into coastal facilities?		x
c) Is the project site presently used by the community neighborhood an open space or recreation area?		x
d) Does the present site offer or include scenic views or vistas known to be important to the community?		x
e) Is the project site presently used for commercial fishing or fish processing?		x
f) Will the surface area of any waterways or wetland area be increased or decreased by the proposals?		x
g) Does any mature forest (over 100 years old) or other locally important vegetation exist on this site which will be removed by the project?		x
h) Will the project involve any waste discharges into coastal waters?		x
i) Does the project involve surface or subsurface liquid waste disposal?		x
j) Does the project involve transport, storage, treatment or disposal of solid waste or hazardous materials?		x

	YES	NO
k) Does the project involve shipment or storage of petroleum products?		x
l) Does the project involve discharge of toxic hazardous substances or other pollutants into coastal waters?		x
m) Does the project involve or change existing ice management practices?		x
n) Will the project affect any area designated as a tidal or freshwater wetland?		x
o) Will the project alter drainage flow, patterns or surface water runoff on or from the site?		x
p) Will best management practices be utilized to control storm water runoff into coastal waters?	x	
q) Will the project utilize or affect the quality or quantity of sole source or surface water supplies?		x
r) Will the project cause emissions which exceed federal or state air quality standards or generate significant amounts of nitrates or sulfates?		x

D. REMARKS OR ADDITIONAL INFORMATION.

For questions answered "yes" in Section C, explain methods you will undertake to reduce adverse effects. Review the LWRP to see if the project is consistent with each policy. List policies the project is not consistent with and explain all mitigating actions.

(Add any additional sheets necessary to complete this form)

See Attached Sheet

E. SUBMISSION REQUIREMENTS.

The final version of this form shall be sent to the Department of State *(New York State Dept. of State, Coastal Management Program, 162 Washington Avenue, Albany, NY 12231)* if any question in Section C is answered "yes" and either of the following conditions is met.

- Section B.1 (a) or B.1 (b) is checked **OR**
- Section B.1 (c) and B.11 is answered "yes"

==

If assistance or further information is needed to complete this form, please contact the Village Engineer at (914) 271-4783.

Preparer's Name: Christine Lilholt

Title: Project Engineer

Agency: CHA

Telephone No.: (518) 453-8773 E-mail: clilholt@chacompanies.com

Date: July 30, 2013

D. REMARKS OR ADDITIONAL INFORMATION

Consistency with the Village of Croton-on-Hudson's Local Waterfront Revitalization Program.

The proposed project is located within an area that has an approved Local Waterfront Revitalization Program (LWRP). As such, the project must be consistent with the LWRP. The following local policies apply to the proposed project, and consistency with these policies is discussed below.

Section C.4.p)

Policy 37 – Best management practices will be utilized to minimize the non-point discharge of excess nutrients, organics and eroded soils into coastal waters.

Policy 37A – Standards and specifications for the control of non-point source discharge as set forth in Westchester County's Best Management Practice Manual or other recognized reference shall be utilized during development of any site.

Policy 37B - Control of the development of hilltops, and steep slopes should be exerted in order to prevent erosion and minimize the runoff and flooding from new construction.

Best management practices include both structural and non-structural methods of preventing or mitigating pollution caused by the discharge of stormwater runoff. No permanent measures are proposed.

This project will disturb less than one acre and will not require a SPDES permit. Currently, Croton Point Avenue, S. Riverside Avenue and Veterans plaza have a closed drainage system with the exception of the south side of Croton Point Avenue from the US Route 9 Bridge to S. Riverside Avenue where stormwater sheet flows off the pavement. The proposed curbing and sidewalk will incorporate the south side of Croton Point Avenue from the US Route 9 ramp into the current closed drainage system. The remainder of the drainage system will function much as it does today.

The project will employ effective temporary erosion and sediment control practices during construction, as set forth in NYSDOT's statewide stormwater and erosion and sedimentation control specifications, standard construction details, and design and construction guidance procedures.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

Joe Martens
Commissioner

August 12, 2011

Rosalie Wilson
Pinyon Environmental, Inc
376 Broadway, Suite 210
Saratoga Springs, NY 12866

Dear Ms. Wilson:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the proposed Croton-on-Hudson Pedestrian Upgrade Project, area as indicated on the map you provided, located in the Town of Croton on Hudson, Westchester County.

Enclosed is a report of rare or state-listed animals and plants, significant natural communities, and other significant habitats, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site. For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

The enclosed report may be included in documents that will be available to the public. However, any enclosed maps displaying locations of rare species are considered sensitive information, and are intended only for the internal use of the recipient; they should not be included in any document that will be made available to the public, without permission from the New York Natural Heritage Program.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.ht ml.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,
Jean Pietrusiak
Jean Pietrusiak, Information Services
NYS Department Environmental Conservation

Enc.
cc: Region 3

812

Natural Heritage Report on Rare Species and Ecological Communities

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor,
Albany, NY 12233-4757
(518) 402-8935

~The information in this report includes only records entered into the NY Natural Heritage databases as of the date of the report. This report is not a definitive statement on the presence or absence of all rare species or significant natural communities at or in the vicinity of this site.
~Refer to the User's Guide for explanations of codes, ranks and fields.
~Location maps for certain species and communities may not be provided 1) if the species is vulnerable to disturbance, 2) if the location and/or extent is not precisely known, 3) if the location and/or extent is too large to display, and/or 4) if the animal is listed as Endangered or Threatened by New York State.

Natural Heritage Report on Rare Species and Ecological Communities

BIRDS

Asio flammeus

Office Use

Short-eared Owl **NY Legal Status:** Endangered **NYS Rank:** S2 - Imperiled 11279
Nonbreeding **Federal Listing:** **Global Rank:** G5 - Secure ESU
Last Report: ** **EO Rank:** **
County: Westchester
Town: Cortlandt
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

Circus cyaneus

Office Use

Northern Harrier **NY Legal Status:** Threatened **NYS Rank:** S3B,S3N - Vulnerable 11289
Nonbreeding **Federal Listing:** **Global Rank:** G5 - Secure ESU
Last Report: ** **EO Rank:** **
County: Westchester
Town: Cortlandt
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

Haliaeetus leucocephalus

Office Use

Bald Eagle **NY Legal Status:** Threatened **NYS Rank:** S2S3B,S2N - Imperiled 7329
Nonbreeding **Federal Listing:** **Global Rank:** G5 - Secure ESU
Last Report: ** **EO Rank:** **
County: Westchester
Town: Cortlandt, Ossining
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

1 of 4

Haliaeetus leucocephalus

Bald Eagle
Nonbreeding

NY Legal Status: Threatened
Federal Listing:
Last Report: **
NYS Rank: S2S3B,S2N - Imperiled
Global Rank: G5 - Secure
EO Rank: **
Office Use
11062
ESU

County: Westchester
Town: Cortlandt, Ossining
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

FISH

Acipenser brevirostrum

Shortnose Sturgeon

NY Legal Status: Endangered
Federal Listing: Endangered
Last Report: **
NYS Rank: S1 - Critically imperiled
Global Rank: G3 - Vulnerable
EO Rank: **
Office Use
1091
HRF BOF
USFWS

County: Albany, Bronx, Columbia, Dutchess, Greene, New York, Orange, Putnam, Rensselaer, Rocklanc
Town: Albany - City , Athens, Beacon -City, Bethlehem, Catskill, Clarkstown, Clermont, Coeymans, Colonie
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: Shortnose sturgeon are found in the long tidal portion of Hudson River. The river constitutes the lower part of a 315 mile stream system. It is fed upstream by two large main channel streams, which provide 80% of the freshwater input, and numerous other For more information, including management considerations, please contact the NYS DEC Hudson River Fisheries Unit at 845-256-3071.

Acipenser brevirostrum

Shortnose Sturgeon

NY Legal Status: Endangered
Federal Listing: Endangered
Last Report: **
NYS Rank: S1 - Critically imperiled
Global Rank: G3 - Vulnerable
EO Rank: **
Office Use
11619
HRF BOF
USFWS

County: Rockland, Westchester
Town: Clarkstown, Cortlandt, Haverstraw, Mount Pleasant, Ossining, Stony Point
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: The juvenile overwinter in a brackish portion of the Hudson River near Haverstraw. For more information, including management considerations, please contact the NYS DEC Hudson River Fisheries Unit at 845-256-3071.

OTHER

Anadromous Fish Concentration Area

NY Legal Status: Unlisted
Federal Listing:
Last Report: no date
NYS Rank: S3 - Vulnerable
Global Rank: GNR - Not ranked
EO Rank: Extant
Office Use
5070

County: Westchester
Town: Cortlandt, Ossining
Location: Croton River and Bay
S
General Quality and Habitat: A large shallow bay on the Hudson River within tidal influences and extensive beds of submergent aquatic vegetation.

Raptor Winter Concentration Area

	NY Legal Status: Unlisted		**NYS Rank:**	SNR - Rank not assigned	Office Use 11290
Nonbreeding	**Federal Listing:**		**Global Rank:**	GNR - Not ranked	
	Last Report:	2006-03-28	**EO Rank:**	Fair	
	County:	Westchester			
	Town:	Cortlandt			
	Location:	At, or in the vicinity of, the project site.			
	General Quality and Habitat:	**For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.			

8 Records Processed

More detailed information about many of the rare and listed animals and plants in New York, including biology, identification, habitat, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org, from NatureServe Explorer at http://www.natureserve.org/explorer, from NYSDEC at http://www.dec.ny.gov/animals/7494.html (for animals), and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

More detailed information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org. For descriptions of all community types, go to http://www.dec.ny.gov/animals/29384.html and click on Draft Ecological Communities of New York State.

Westchester County

Federally Listed Endangered and Threatened Species and Candidate Species

This list represents the best available information regarding known or likely County occurrences of Federally-listed and candidate species and is subject to change as new information becomes available.

Common Name	Scientific Name	Status
Atlantic sturgeon[1]	*Acipenser oxyrinchus oxyrinchus*	P
Bald eagle [2]	*Haliaeetus leucocephalus*	D
Bog turtle	*Clemmys [=Glyptemys] muhlenbergii*	T
Indiana bat (S)	*Myotis sodalis*	E
New England cottontail	*Sylvilagus transitionalis*	C
Shortnose sturgeon[3]	*Acipenser brevirostrum*	E

Status Codes: E=Endangered, T=Threatened, P=Proposed, C=Candidate, D=Delisted.

W=Winter S=Summer

[1] Primarily occurs in Hudson River. Principal responsibility for this species is vested with the National Oceanic and Atmospheric Administration/Fisheries.

[2] The bald eagle was delisted on August 8, 2007. While there are no ESA requirements for bald eagles after this date, the eagles continue to receive protection under the Bald and Golden Eagle Protection Act (BGEPA). Please follow the Service's May 2007 Bald Eagle Management Guidelines to determine whether you can avoid impacts under the BGEPA for your projects. If you have any questions, please contact the endangered species branch in our office.

[3] Primarily occurs in Hudson River. Principal responsibility for this species is vested with the National Oceanic and Atmospheric Administration/Fisheries.

Lilholt, Christine

From: Elly Weber <weber@pinyon-env.com>
Sent: Thursday, July 25, 2013 11:22 AM
To: Lilholt, Christine
Subject: FW: Croton-on-Hudson Project
Attachments: Croton Environmental Review 11252011.pdf

(These all are from the same email chain, it looks like.)

Elly Weber
Biologist/Environmental Scientist
MOBILE 720 234 6691 OFFICE 303 980 5200
Weber@Pinyon-Env.com

Pinyon Environmental, Inc.
Corporate Headquarters
9100 West Jewell Avenue, Suite 200
Lakewood, CO 80232
TEL 303 980 5200 FAX 303 980 0089
www.pinyon-env.com

From: Elly Weber
Sent: Monday, April 01, 2013 11:39 AM
To: 'steve_papa@fws.gov'
Subject: Croton-on-Hudson Project

Steve,

I got your phone message from last week. Thank you for returning my call. Attached is the overall environmental review document for the project. There is a plan sheet that shows the project area in the report.

I'll try to call you sometime today or tomorrow.

Elly Weber
Biologist/Environmental Scientist

Pinyon Environmental, Inc.
Corporate Headquarters
9100 West Jewell Avenue, Suite 200
Lakewood, CO 80232
TEL 303 980 5200 FAX 303 980 0089
www.pinyon-env.com

Lilholt, Christine

From:	Elly Weber <weber@pinyon-env.com>
Sent:	Thursday, July 25, 2013 11:21 AM
To:	Lilholt, Christine
Subject:	FW: Croton-on-Hudson Project

Elly Weber
Biologist/Environmental Scientist
MOBILE 720 234 6691 OFFICE 303 980 5200
Weber@Pinyon-Env.com

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Corporate Headquarters
9100 West Jewell Avenue, Suite 200
Lakewood, CO 80232
TEL 303 980 5200 FAX 303 980 0089
www.pinyon-env.com

From: Elly Weber
Sent: Monday, April 01, 2013 12:17 PM
To: 'Papa, Steve'
Cc: 'Lilholt, Christine'
Subject: RE: Croton-on-Hudson Project

Steve,

Wonderful, thanks. Let me know if you need additional information.

Elly Weber
Biologist/Environmental Scientist

Pinyon Environmental, Inc.
Corporate Headquarters
9100 West Jewell Avenue, Suite 200
Lakewood, CO 80232
TEL 303 980 5200 FAX 303 980 0089
www.pinyon-env.com

From: Papa, Steve [mailto:steve_papa@fws.gov]
Sent: Monday, April 01, 2013 12:16 PM
To: Elly Weber
Subject: Re: Croton-on-Hudson Project

OK. Thanks. This would be in my area of review so I will take a look at and get back to you towards the end of this week.

Steve

On Mon, Apr 1, 2013 at 1:39 PM, Elly Weber <weber@pinyon-env.com> wrote:

Steve,

I got your phone message from last week. Thank you for returning my call. Attached is the overall environmental review document for the project. There is a plan sheet that shows the project area in the report.

I'll try to call you sometime today or tomorrow.

Elly Weber

Biologist/Environmental Scientist

--
Steven T. Papa
U.S. Fish and Wildlife Service
Long Island Field office
340 Smith Rd
Shirley, NY 11967
(631) 286-0485 (tel)
631) 286-4003 (fax)
Steve_Papa@fws.gov

Subject: FW: Final Documents Croton-on-Hudson 8780.41

From: Elly Weber [mailto:weber@pinyon-env.com]
Sent: Tuesday, April 30, 2013 5:55 PM
To: Lilholt, Christine
Subject: RE: Final Documents Croton-on-Hudson 8780.41

Christine,

I just left Steve Papa with FWS a message asking about the status.

Regarding my availability the next two weeks for a conference call, I'm available mid-day Monday the 5th, afternoon of Tuesday the 7th, any time Thursday or Friday the 9th and 10th. The week after is more open. I'm available Monday the 13th mid-day or later, Tuesday the 14th in the afternoon, and any time Wednesday-Friday the 15-17th. (I hope that's not too confusing)

Thank you,

Elly Weber
Biologist/Environmental Scientist

Pinyon Environmental, Inc.
Corporate Headquarters
9100 West Jewell Avenue, Suite 200
Lakewood, CO 80232
TEL 303 980 5200 FAX 303 980 0089
www.pinyon-env.com

Lilholt, Christine

Subject: FW: 8780.41: Croton-on-Hudson Draft Design Report

From: Elly Weber [mailto:weber@pinyon-env.com]
Sent: Monday, May 06, 2013 2:50 PM
To: Lilholt, Christine
Cc: Lauren Evans
Subject: RE: 8780.41: Croton-on-Hudson Draft Design Report

Christine,

Thanks.

On a different note, I'm still waiting to hear back from Fish and Wildlife after I pinged them again last week. I'll let you know when I get a response.

Elly Weber
Biologist/Environmental Scientist

Pinyon Environmental, Inc.
Corporate Headquarters
9100 West Jewell Avenue, Suite 200
Lakewood, CO 80232
TEL 303 980 5200 FAX 303 980 0089
www.pinyon-env.com

Pinyon

3 Azalea Court
Clifton Park, New York 12065
518.369.3988
www.Pinyon-Env.com

October 21, 2011

Mr. Mark Castiglione, Acting Director
Hudson River Valley National Heritage Area.
Capitol Building, Room 254
Albany, NY 12224

Subject: Croton-on-Hudson Parking Facility Pedestrian and Bicycle Enhancements
PIN 8780.41 - Croton-on-Hudson, Westchester County, New York.

Dear Mr. Castiglione:

CHA Consulting, Inc. (CHA), has been contracted by the Village of Croton-on-Hudson to provide engineering services in planning and designing roadway, pedestrian and bicycle enhancements along Croton Point Avenue and South Riverside Avenue in the Village of Croton-on-Hudson, Westchester County, New York.. This project is a locally administered federally-funded project with the Village of Croton-on-Hudson as the project sponsor. Pinyon Environmental, Inc. (Pinyon), has been retained by CHA to provide a cultural resource assessment, in accordance with FHWA and NYS DOT design requirements, to determine if there will be any impacts through the development of this project.

The site is located in an urban area of Westchester County, along Croton Point Avenue from Veterans Plaza (Croton train station) to South Riverside Avenue and north on South Riverside Avenue to its intersection with Benedict Boulevard and includes the north- and south-bound entrance ramps onto Route 9. The project includes the construction of pedestrian and bicycle enhancements, drainage improvements, traffic signal installation, capacity improvements at the Route 9 ramps and other miscellaneous work.

The project appears to be located in the Hudson River Valley National Heritage Area and, as such, we are contacting your agency as the management entity for the Hudson River Valley National Heritage Area.

Included is a site location map, a photo location map and photos of the project area for your reference.

If you have any questions, please contact me at 518.369.3988 or e-mail simmonds@pinyon-env.com.

Sincerely,
PINYON ENVIRONMENTAL, INC.

Kathy Simmonds

Kathleen A. Simmonds
Environmental Scientist

cc. C. Lilholt, CHA (e-mail)
R. Wilson, Pinyon (e-mail)

Lilholt, Christine

From:	Elly Weber <weber@pinyon-env.com>
Sent:	Wednesday, March 27, 2013 12:26 PM
To:	Lilholt, Christine
Subject:	Agency Correspondence from Hudson Valley National Heritage Area

Christine,

I just spoke with Mark Castiglione on the phone regarding the letter sent in October of 2011. The letter itself is a notification and isn't asking for written concurrence or an opinion. He said that the agency doesn't typically respond in writing to these types of notifications for projects like the Croton-on-Hudson project. He verbally stated that the agency has no comment or objection to this project.

Thank you,

Elly Weber
Biologist/Environmental Scientist

Pinyon Environmental, Inc.
Corporate Headquarters
9100 West Jewell Avenue, Suite 200
Lakewood, CO 80232
TEL 303 980 5200 FAX 303 980 0089
www.pinyon-env.com

OFFICE OF PARKS, RECREATION · HISTORIC PRESERVATION
NEW YORK STATE

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

January 24, 2012

Christine J. Lilholt
CHA
111 Winners Circle, PO Box 5269
Albany, New York 12205-0269

Re: FHWA, CORPS, DEC, DOT
Village of Croton-on-Hudson Parking facility & bicycle enhance, Croton Point Ave station to S. Riverdale Ave to Be
CROTON ON HUDSON, Westchester County
12PR00181

Dear Ms. Lilholt:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, it is the SHPO's opinion that your project will have No Effect upon cultural resources in or eligible for inclusion in the National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Deputy Commissioner for Historic Preservation

RECEIVED

JAN 26 2012

Stockbridge-Munsee Tribal Historic Preservation Office

Sherry White - Tribal Historic Preservation Officer
W13447 Camp 14 Road
P.O. Box 70
Bowler, WI 54416

RECEIVED
APR 27

Date 4/23/12
Project Number PIN 8780.41
TCNS Number
Company Name Village of Croton-on-Hudson

We have received you letter for the above listed project. Before we can process the request we need more information. The additional items needed are checked below.

Additional Information Required:

_____Site visit by Tribal Historic Preservation Officer
_____Archeological survey, Phase 1
_____Literature/record search including colored maps
_____Pictures of the site
_____Any reports the State Historic Preservation Office may have
_____Has the site been previously disturbed
_____ Review fee must be included with letter

If site has been previously disturbed please explain what the use was and when it was disturbed.

Other comments or information needed ______________________________

After reviewing your letter we find that:

__X__ "No Properties" the Tribe concurs with a Federal agency's finding that there are no National Register eligible or listed properties within the Federal undertaking's area of potential effect or APE 36CFR 800.4 (d) (1)

______"No Effect" historic or prehistoric properties are present but the Federal undertaking will have no effect on the National Register eligible or listed properties as defined in Sec. 800.16(i)

______"No Adverse Effect" refers to written opinions provided to a Federal agency as to whether or not the Tribe agrees with (or believes that there should be) a Federal agency finding that its Federal undertaking would have "No Adverse Effect" 36 CFR 800.5(b)

______"Adverse Effect" refers to written opinions provided to a Federal Agency that undertaking would cause Adverse Effects to the area of potential effect on National Register or eligible properties according to the criteria set forth in 36 CFR 800. 5(a) (1), (2) (i)- (vii)

_____ Project not within a county the Mohican Tribe has interest in

Should this project inadvertently uncover a Native Amercian site, we ask that you halt all construction and notify the Stockbridge-Munsee Tribe immediately.

Please do not resubmit project for changes that are not ground disturbance.

Sincerely,

Sherry White

Sherry White
Tribal Historic Preservation Officer

Delaware Nation

Jason Ross

Section 106 / Museum Manager

To: Janine King, Assistant Village Manager

cc:

Date: April 25, 2012

Re: Parking Facility and Bicycle Enhancements

Hello Ms. King,

The Delaware Nation Cultural Preservation Department recently received your correspondence regarding the project listed below.

PIN 8780.41, Village of Croton-on-Hudson

Parking Facility and Bicycle Enhancements

Village of Croton-on-Hudson

Westchester County, New York

The Delaware Nation Cultural Preservation Director, Mrs. Tamara Francis-Fourkiller has reviewed the information provided and has determined that the project is ***a*** *pass and to please continue with the project as planned***.** If you have any questions please do no hesitate in contacting our office anytime or you can email me anytime as well.

Thank you again for taking the time and effort to properly consult with the Delaware Nation.

Best Regards,

Jason Ross

Section 106/Museum Manager

Cultural Preservation Department

The Delaware Nation

P.O. Box 825

Anadarko, OK 73005

PH# 405) 247-2448

FAX# 405) 247-8905

www.delawarenation.com

Asbestos Screening Field Form

Project Name: Village of Croton-on-Hudson Parking Facility and Bicycle Enhancements

Project # PIN 8780.41

Inspection Date: 4/11/2013

Proposed Homogenous Sample #	Location	Color	Material	Quantity	TSI,SM,MM	Friable	Damage	Comments
001A-001C	Premolded Bituminous Joint Filler At Concrete Joints on Croton Point Avenue	Black	1" Thick Black Bituminous Material	19 locations along the corridor - 1860.8 meters (6,105 linear feet)	MM	No	No	This suspect asbestos-containing joint filler was observed along Croton Point Avenue at periodic joints separating the concrete forms of the roadway.
002A-002C	Tar / Sealant Applied Over Pre-molded Bituminous Joint Filler in Concrete Joints on Croton Point Avenue	Black	4" Wide Application of Tar / Sealant Over Premolded Joint Filler	19 locations along the corridor - 1860.8 meters (6,105 linear feet)	MM	No	No	This suspect asbestos-containing tar / sealant was observed applied over the premolded bituminous joint filler within the periodic joints separating the concrete forms of the roadway.
003A-003C	Gray Sidewalk Edge Sealant	Gray	1" Thick Application of Sealant	1.11 square meters (12 square feet)	MM	No	No	This gray sidewalk edge sealant was observed in one location - along the southwest sidewalk at the intersection of Veterans Plaza and Croton Point Avenue. The sealant coats the joint between the curb and the concrete sidewalk pads.
004A-004C	Vertical Premolded Bituminous Joint Filler At Jersey Barrier Lining Southbound Entrance to Route 9	Gray / Black	1" Thick Black Bituminous Material (approximately 8" wide)	0.27 square meters (3 square feet)	MM	No	No	The vertically applied premolded bituminous joint filler was observed at a joint between two sections of jersey barrier along the southbound entrance ramp to Route 9.
005A-005C	Premolded Bituminous Joint Filler At Concrete Joints on South Riverside Avenue	Black	1" Thick Black Bituminous Material	40 cross seam locations along the corridor and 3 vertical seams - 524.26 meters (1,720 linear feet)	MM	No	No	This suspect asbestos-containing joint filler was observed along South Riverside Avenue at periodic joints separating the concrete forms of the roadway.
006A-006C	Tar / Sealant Applied Over Pre-molded Bituminous Joint Filler in Concrete Joints on South Riverside Avenue	Black	4" Wide Application of Tar / Sealant Over Premolded Joint Filler	40 cross seam locations along the corridor and 3 vertical seams - 524.26 meters (1,720 linear feet)	MM	No	No	This suspect asbestos-containing tar / sealant was observed applied over the premolded bituminous joint filler within the periodic joints separating the concrete forms of the roadway.
007A-007C	Black Sidewalk Edge Sealant	Black	1" Thick Application of Sealant	45.72 square meters (150 linear feet)	MM	No	No	This black sidewalk edge sealant was observed in one location - along the southeast corner of the sidewalk at the intersection of South Riverside Avenue and Benedict Boulevard. The edge sealant continues east of the gas station. The sealant coats the joint between the curb and the concrete sidewalk pads.

Notes: TSI = thermal system insulation

SM = surfacing material

MM = miscellaneous material

4.4.18 Asbestos

4.4.18.1 Screening

An asbestos screening has been performed for this project and it has been determined that there are five suspect asbestos-containing materials associated with the surface features on the sidewalks and roadway. These following suspect asbestos-containing materials were identified:

- Premolded bituminous joint filler at the concrete joints on Croton Point Avenue.
- Tar/sealant applied over the premolded bituminous joint filler at the concrete joints on Croton Point Avenue.
- Grey Sidewalk Edge Sealant.
- Vertical premolded bituminous joint filler at jersey barrier lining the southbound entrance to Route 9.

In addition, there were no suspect asbestos-containing materials identified in the sub-grade based on the review of the record drawings.

4.4.18.2 Assessment and Quantification -

On April 11, 2013, CHA staff visited the site to sample the above mentioned materials for suspect asbestos-containing materials (ACMs). During this visit, CHA observed the following additional suspect ACMs:

- Premolded bituminous joint filler at the concrete joints on South Riverside Avenue.
- Tar/sealant applied over the premolded bituminous joint filler at the concrete joints on South Riverside Avenue.
- Black Sidewalk Edge Sealant at the intersection of South Riverside Avenue and Benedict Avenue.

A total of seven materials were quantified and the bulk samples were transmitted under chain of custody to EMSL Laboratories of New York, a New York State Department of Health Environmental Laboratory Approval Program (ELAP) accredited laboratory for asbestos analysis. Table 1 summarizes the samples collected during the site visit and the corresponding analytical results.

Table 1
Asbestos Bulk Sample Summary

SAMPLE NUMBER	SUSPECT MATERIAL DESCRIPTION	SAMPLE LOCATION	ASBESTOS CONTENT (%)
AS-041113-SR-01A	Premolded bituminous joint filler at concrete joints	Croton Point Avenue	ND
AS-041113-SR-01B	Premolded bituminous joint filler at concrete joints	Croton Point Avenue	ND
AS-040813-SR-01C	Premolded bituminous joint filler at concrete joints	Croton Point Avenue	ND

SAMPLE NUMBER	SUSPECT MATERIAL DESCRIPTION	SAMPLE LOCATION	ASBESTOS CONTENT (%)
AS-041113-SR-02A	Tar/sealant over premolded bituminous joint filler at concrete joints	Croton Point Avenue	ND
AS-041113-SR-02B	Tar/sealant over premolded bituminous joint filler at concrete joints	Croton Point Avenue	ND
AS-041113-SR-02C	Tar/sealant over premolded bituminous joint filler at concrete joints	Croton Point Avenue	ND
AS-041113-SR-03A	Premolded bituminous joint filler at concrete joints	South Riverside Avenue	ND
AS-041113-SR-03B	Premolded bituminous joint filler at concrete joints	South Riverside Avenue	ND
AS-041113-SR-03C	Premolded bituminous joint filler at concrete joints	South Riverside Avenue	ND
AS-041113-SR-04A	Tar/sealant over premolded bituminous joint filler at concrete joints	South Riverside Avenue	ND
AS-041113-SR-04B	Tar/sealant over premolded bituminous joint filler at concrete joints	South Riverside Avenue	ND
AS-041113-SR-04C	Tar/sealant over premolded bituminous joint filler at concrete joints	South Riverside Avenue	ND
AS-041113-SR-05A	Grey sidewalk edge sealant	Intersection of Veteran's Place/Croton Point Avenue	ND
AS-041113-SR-05B	Grey sidewalk edge sealant	Intersection of Veteran's Place/Croton Point Avenue	ND
AS-041113-SR-05C	Grey sidewalk edge sealant	Intersection of Veteran's Place/Croton Point Avenue	ND
AS-041113-SR-06A	Vertical premolded bituminous joint filler at jersey barrier	Southbound Entrance to Route 9	ND
AS-041113-SR-06B	Vertical premolded bituminous joint filler at jersey barrier	Southbound Entrance to Route 9	ND
AS-041113-SR-06C	Vertical premolded bituminous joint filler at	Southbound	ND

SAMPLE NUMBER	SUSPECT MATERIAL DESCRIPTION	SAMPLE LOCATION	ASBESTOS CONTENT (%)
	jersey barrier	Entrance to Route 9	
AS-041113-SR-07A	Black sidewalk edge sealant	Intersection of South Riverside Avenue/Benedict Boulevard	ND
AS-041113-SR-07B	Black sidewalk edge sealant	Intersection of South Riverside Avenue/Benedict Boulevard	ND
AS-041113-SR-07C	Black sidewalk edge sealant	Intersection of South Riverside Avenue/Benedict Boulevard	< 1% Chrysotile

ND = No asbestos detected.

Based on the laboratory analysis, less than 1% chrysotile was detected in the black sidewalk edge sealant, however, based on the fact that an ACM is defined as any material containing greater than 1% of asbestos, the black sidewalk edge sealant is not considered an ACM. The remaining materials sampled were found to have no asbestos detected.

As a result, the joint filler and sealants on the sidewalks and roadway were found to be non-asbestos. Analytical reports for the bulk asbestos sample analysis are included as Attachment A and personal and Laboratory certifications are included as Attachment C.

4.4.18.3 Mitigation Summary -

Based on the fact that the suspect materials sampled were found to be non-asbestos, no asbestos abatement will be necessary.

ATTACHMENT A

Bulk Asbestos Sample Analytical Report

EMSL Analytical, Inc.
307 West 38th Street, New York, NY 10018
Phone/Fax: (212) 290-0051 / (212) 290-0058
http://www.emsl.com manhattanlab@emsl.com

EMSL Order: 031315106
CustomerID: CLOU50
CustomerPO:
ProjectID:

Attn: **Scott Rosecrans**
CHA
3 Winners Circle
Albany, NY 12205

Phone: (518) 453-8702
Fax: (518) 453-4773
Received: 04/16/13 9:41 AM
Analysis Date: 4/20/2013
Collected: 4/11/2013

Project: **VILLAGE OF CROTON-ON- HUDSON/ 22961/ NY**

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID AS-041113-SR-01A *031315106-0001*		**Description** / **Homogeneity**	CROTON POINT AVENUE - PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-01B *031315106-0002*		**Description** / **Homogeneity**	CROTON POINT AVENUE - PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-01C *031315106-0003*		**Description** / **Homogeneity**	CROTON POINT AVENUE - PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-02A *031315106-0004*		**Description** / **Homogeneity**	CROTON POINT AVENUE - TAR/ SEALANT OVER PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-02B *031315106-0005*		**Description** / **Homogeneity**	CROTON POINT AVENUE - TAR/ SEALANT OVER PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-02C *031315106-0006*		**Description** / **Homogeneity**	CROTON POINT AVENUE - TAR/ SEALANT OVER PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**

Initial Report From 04/20/2013 15:15:41

EMSL Analytical, Inc.
307 West 38th Street, New York, NY 10018
Phone/Fax: (212) 290-0051 / (212) 290-0058
http://www.emsl.com manhattanlab@emsl.com

EMSL Order:	031315106
CustomerID:	CLOU50
CustomerPO:	
ProjectID:	

Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID AS-041113-SR-03A *031315106-0007*		**Description** / **Homogeneity**	SOUTH RIVERSIDE AVENUE - PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-03B *031315106-0008*		**Description** / **Homogeneity**	SOUTH RIVERSIDE AVENUE - PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-03C *031315106-0009*		**Description** / **Homogeneity**	SOUTH RIVERSIDE AVENUE - PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-04A *031315106-0010*		**Description** / **Homogeneity**	SOUTH RIVERSIDE AVENUE - TAR/ SEALANT OVER PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-04B *031315106-0011*		**Description** / **Homogeneity**	SOUTH RIVERSIDE AVENUE - TAR/ SEALANT OVER PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-04C *031315106-0012*		**Description** / **Homogeneity**	SOUTH RIVERSIDE AVENUE - TAR/ SEALANT OVER PREMOLDED BITUMINOUS JOINT FILLER AT CONCRETE JOINTS / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-05A *031315106-0013*		**Description** / **Homogeneity**	INTERSECTION OF VETERAN'S PLAZA/ CROTON POINT AVE - GREY SIDEWALK EDGE SEALANT / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Gray /Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Gray /Black			**None Detected**

Initial Report From 04/20/2013 15:15:41

Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID AS-041113-SR-05B *031315106-0014*		**Description** / **Homogeneity**	INTERSECTION OF VETERAN'S PLAZA/ CROTON POINT AVE - GREY SIDEWALK EDGE SEALANT / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Gray /Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Gray /Black			**None Detected**
Sample ID AS-041113-SR-05C *031315106-0015*		**Description** / **Homogeneity**	INTERSECTION OF VETERAN'S PLAZA/ CROTON POINT AVE - GREY SIDEWALK EDGE SEALANT / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Gray /Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Gray /Black			**None Detected**
Sample ID AS-041113-SR-06A *031315106-0016*		**Description** / **Homogeneity**	SOUTH BOUND ENTRANCE TO ROUTE 9 - VERTICAL PREMOLDED BITUMINOUS JOINT FILLER AT JERSEY BARRIER / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Gray			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Gray			**None Detected**
Sample ID AS-041113-SR-06B *031315106-0017*		**Description** / **Homogeneity**	SOUTH BOUND ENTRANCE TO ROUTE 9 - VERTICAL PREMOLDED BITUMINOUS JOINT FILLER AT JERSEY BARRIER / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Gray			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Gray			**None Detected**
Sample ID AS-041113-SR-06C *031315106-0018*		**Description** / **Homogeneity**	SOUTH BOUND ENTRANCE TO ROUTE 9 - VERTICAL PREMOLDED BITUMINOUS JOINT FILLER AT JERSEY BARRIER / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Gray			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Gray			**None Detected**
Sample ID AS-041113-SR-07A *031315106-0019*		**Description** / **Homogeneity**	INTERSECTION OF SOUTH RIVERSIDE AVE/ BENEDICT BLVD - BLACK SIDEWALK EDGE SEALANT / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**
Sample ID AS-041113-SR-07B *031315106-0020*		**Description** / **Homogeneity**	INTERSECTION OF SOUTH RIVERSIDE AVE/ BENEDICT BLVD - BLACK SIDEWALK EDGE SEALANT / Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**None Detected**

EMSL Analytical, Inc.
307 West 38th Street, New York, NY 10018
Phone/Fax: (212) 290-0051 / (212) 290-0058
http://www.emsl.com manhattanlab@emsl.com

EMSL Order:	031315106
CustomerID:	CLOU50
CustomerPO:	
ProjectID:	

Test Report:Asbestos Analysis of Bulk Material

Test		Color	Non Asbestos Fibrous	Non Asbestos Non-Fibrous	Asbestos
Sample ID AS-041113-SR-07C *031315106-0021*		**Description** **Homogeneity**	INTERSECTION OF SOUTH RIVERSIDE AVE/ BENEDICT BLVD - BLACK SIDEWALK EDGE SEALANT Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 NOB	4/20/2013	Black			**Inconclusive: None Detected**
TEM NYS 198.4 NOB	4/20/2013	Black			**<1% Chrysotile** **<1% Total**

Analyst(s)
David Z. Chen
Kamel Alawawda

James Hall, Laboratory Manager
or other approved signatory

NOB = Non Friable Organically Bound N/A = Not Applicable

-In New York State, TEM is currently the only method that can be used to determine if NOB materials can be considered or treated as non-asbestos containing.
-NYS Guidelines for Vermiculite containing samples are available at http://www.wadsworth.org/labcert/elapcert/forms/Vermiculite%20Guidance_Rev082712.pdf.
EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples were received in good condition unless otherwise noted.
This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. This report may contain data that is not covered by the NVLAP accreditation.

Samples analyzed by EMSL Analytical, Inc. New York, NY NYS ELAP 11506

Initial Report From 04/20/2013 15:15:41

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number *(Lab Use Only)*:

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
Phone: (800) 220-3675
Fax: (856) 786-5974

Company: CHA Consulting, Inc.	EMSL-Bill to: ☑ Same ☐ Different If Bill to is Different note instructions in Comments**
Street: III Winners Circle	*Third Party Billing requires written authorization from third party*
City: Albany State/Province: NY	Zip/Postal Code: Country:
Report To (Name): Scott Rosecrans	Telephone #:
Email Address: srosecrans@chacompanies.com	Fax #: Purchase Order:
Project Name/Number: Village of Croton-on-Hudson/22961	Please Provide Results: ☐ Fax ☑ Email
U.S. State Samples Taken: NY	CT Samples: ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☑ 1 Week ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PLM - Bulk (reporting limit)	TEM – Bulk
☐ PLM EPA 600/R-93/116 (<1%)	☐ TEM EPA NOB – EPA 600/R-93/116 Section 2.5.5.1
☐ PLM EPA NOB (<1%)	☑ NY ELAP Method 198.4 (TEM)
Point Count ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ Chatfield Protocol (semi-quantitative)
Point Count w/Gravimetric ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ TEM % by Mass – EPA 600/R-93/116 Section 2.5.5.2
☐ NIOSH 9002 (<1%)	☐ TEM Qualitative via Filtration Prep Technique
☐ NY ELAP Method 198.1 (friable in NY)	☐ TEM Qualitative via Drop Mount Prep Technique
☑ NY ELAP Method 198.6 NOB (non-friable-NY)	**Other**
☐ OSHA ID-191 Modified	☐
☐ Standard Addition Method	

☑ **Check For Positive Stop – Clearly Identify Homogenous Group** **Date Sampled:** 4/11/13

Samplers Name: Scott Rosecrans **Samplers Signature:** Scott Rose

Sample #	HA #	Sample Location	Material Description	
AS-041113-	SR-01A	Croton Point Avenue	Premolded bituminous joint filler at concrete joints	Stop 1st positive
AS-041113-	SR-01B	"	"	↓
AS-041113-	SR-01C	"	"	↓
AS-041113-	SR-02A	"	Tar/Sealant over premolded bituminous joint filler at concrete joints	Stop 1st positive
AS-041113-	SR-02B	"	"	↓
AS-041113-	SR-02C	"	"	↓
AS-041113-	SR-03A	South Riverside Avenue	Premolded bituminous joint filler at concrete joints	Stop 1st positive
AS-041113-	SR-03B	"	"	↓
AS-041113-	SR-03C	"	"	↓

Client Sample # (s): AS-041113-SR-01A - AS-041113-SR-07C **Total # of Samples:** 21

Relinquished (Client): Scott Rosecrans **Date:** 4/15/13 **Time:** 11:30

Received (Lab): **Date:** **Time:**

Comments/Special Instructions:

EMSL ANALYTICAL, INC.
LABORATORY•PRODUCTS•TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number *(Lab Use Only)*:

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
Phone: (800) 220-3675
Fax: (856) 786-5974

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
AS-041113	SR-04A	South Riverside Avenue	Tar/Sealant over premolded bituminous joint filler at concrete joints Stop 1st positive
AS-041113-	SR-04B	"	"
AS-041113-	SR-04C	"	"
AS-041113-	SR-05A	Intersection of Veteran's Plaza/Croton Point Avenue	Grey Sidewalk Edge Sealant Stop 1st positive
AS-041113-	SR-05B	"	"
AS-041113-	SR-05C	"	"
AS-041113-	SR-06A	Southbound Entrance to Route 9	Vertical Premolded bituminous joint filler at Jersey Barrier Stop 1st positive
AS-041113-	SR-06B	"	"
AS-041113-	SR-06C	"	"
AS-041113-	SR-07A	Intersection of South Riverside Ave/Benedict Blvd	Black sidewalk edge Sealant Stop 1st positive
AS-041113-	SR-07B	"	"
AS-041113-	SR-07C	"	"

***Comments/Special Instructions:**

ATTACHMENT B

Personal and Laboratory Certifications

NEW YORK STATE - DEPARTMENT OF LABOR
DIVISION OF SAFETY AND HEALTH
LICENSE AND CERTIFICATE UNIT
STATE CAMPUS BUILDING 12
ALBANY, NY 12240

ASBESTOS HANDLING LICENSE

CHA Consulting, Inc.

III Winners Circle

Albany, NY 12205

FILE NUMBER: 11-60318
LICENSE NUMBER: 60318
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 06/27/2012
EXPIRATION DATE: 07/31/2013

Duly Authorized Representative – Margaret M Rudzinski:

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

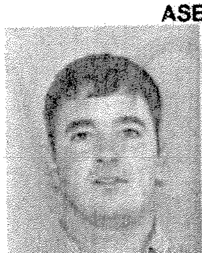
Maureen A Cox

Maureen A. Cox, Director
FOR THE COMMISSIONER OF LABOR

SH 432 (4-07)

STATE OF NEW YORK - DEPARTMENT OF LABOR

ASBESTOS CERTIFICATE



SCOTT F ROSECRANS
CLASS(EXPIRES)
D INSP(07/13)

CERT# 00-20439
DMV# 884156968

MUST BE CARRIED ON ASBESTOS PROJECTS

EYES BRO
HAIR BRO
HGT 6' 01"

IF FOUND RETURN TO:
NYSDOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. JAMES HALL
EMSL ANALYTICAL, INC
307 WEST 38TH STREET
NEW YORK, NY 10018

NY Lab Id No: 11506

is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved subcategories and/or analytes are listed below:

Metals I

Lead, Total	NIOSH 7082

Miscellaneous Air

Asbestos	40 CFR 763 APX A No. III
	NIOSH 7402
	YAMATE,AGARWAL GIBB
Fibers	NIOSH 7400 A RULES

Serial No.: 48690

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify the laboratory's accreditation status.

Pinyon Environmental INC
9100 W Jewell Ave, Suite 200
Lakewood, CO 80232
303.980.5200 1.888.641.7337
303.980.0089 fax
www.pinyon-env.com

August 14, 2012

Ms. Christine Lilholt, PE
CHA Tech Services, LLC
III Winners Circle
P.O. Box 5269
Albany, NY 12205-0269

Subject: Limited Hazardous Materials Assessment for Croton-on-Hudson Parking Facility Pedestrian and Bicycle Enhancements; PIN 8780.41 Croton-on-Hudson, Westchester County, New York

Dear Ms. Lilholt:

CHA Consulting, Inc. (CHA), has been contracted by the Village of Croton-on-Hudson to provide engineering services in planning and designing roadway, pedestrian and bicycle enhancements ("Project") along Croton Point Boulevard located in the Village of Croton-on-Hudson in Westchester County, New York ("Site", depicted in Figure 1). This is a locally-administered and federally-funded project, and therefore must follow design procedures outlined in the New York State Department of Transportation (NYSDOT) Procedures for Locally Administered Federal-Aid Projects Manual (PLAFAP) and the Environmental Manual (EM). Pinyon Environmental, Inc. (Pinyon), has been retained by CHA to assess hazardous waste and contaminated materials on and in the vicinity of the Site, prior to the proposed activities.

INTRODUCTION AND PROJECT BACKGROUND

The Site is comprised of an approximately 1,000-foot stretch of Croton Point Avenue roadway, located to the east of Veterans Plaza and the west of South Riverside Avenue (see Figure 1). The Site is adjoined to the west, northwest, and southwest by the Croton-Harmon Metro North Rail Station, associated parking facilities, and undeveloped land. The western-central portion of the Site is intersected by Route 9, which extends over Croton Point Avenue in a north/south orientation via an overpass. In addition, associated on and off ramps extend from Croton Point Avenue to Route 9. The central and eastern portions of the Site are adjoined to the north by commercial properties, including a gasoline station on the northwestern corner of the Croton Point Avenue and South Riverside Avenue intersection. A large commercial shopping plaza adjoins the eastern portion to the south. The surrounding area is generally comprised of the Metro North Rail Station facility and Croton Point Park to the west; residential properties to the north (east of Route 9); and mixed commercial and residential properties along South Riverside Avenue.

The proposed Project includes plans to replace existing sidewalk and roadside infrastructure in order to accommodate pedestrian and bicycle traffic. In addition, the proposed Project will upgrade signage and signals to increase safety for travelers in the vicinity of the Site. Figure 1, depicting the proposed development and Project schematics, is included as an attachment.

METHODS

The purpose of this Limited Hazardous Materials Assessment (LHA) was to evaluate the potential presence of hazardous and/or toxic materials which may impact the Site. This assessment was conducted in accordance with generally accepted standards, practices and procedures (expressed or implied), including the New York State Department of Transportation (NYSDOT), Hazardous Waste and Contaminated Materials, Project Environmental Guidelines (dated June 1999). A copy of the NYSDOT Hazardous Waste and Contaminated Materials Site Inspection Checklist is included as an attachment.

The scope of services for the project included the following:

1. A reconnaissance survey of the Site and surrounding area to evaluate present conditions on March 6, 2012, by Rosie Wilson.

2. Evaluation of the Site's history through the analysis of available historic maps, historic aerial photographs, and local governmental and/or Tribal records.

3. A review of the compliance history of the Site, and any adjacent/nearby sites, as identified by an environmental regulatory database search (Environmental Data Resources Inc. (EDR)). The compliance history was conducted in accordance with ASTM Phase I Environmental Site Assessment search standards.

4. A review of reasonably available records from appropriate federal, state, and local regulatory agencies for documented soil and/or ground-water contamination investigations conducted at the Site and the vicinity, as identified by the EDR database search.

RESULTS

Site Inspection

Petroleum/Chemical/Hazardous storage – No petroleum, chemical, or hazardous materials storage observed.

Structures and Pipelines - No wastewater discharges, stormwater management, pipelines or pipes observed during the Site visit.

Evidence of Contamination - No staining, odors, stressed or dead vegetation, spills/leaks/discolored water, etc., or monitoring wells observed during Site visit.

Other - No potential asbestos containing materials (ACMs) (road fabric, construction debris), potential lead based paint (LBP) (guardrails), or equipment potentially containing polychlorinated biphenyls (PCBs) (mechanical/electric equipment, transformers) observed during site visit.

Site History

Historic Sanborn Maps

A review of historic Sanborn maps (several years dated between 1935 and 1965) indicates that Croton Point Avenue was present in 1935. At that time, Benedict Boulevard intersected Croton Point Avenue along the western portion of the Site (in the approximate location of western Site boundary). An auto repair garage with two associated gasoline tanks was depicted on the northeast intersection of Benedict Boulevard and Croton Point Avenue (presumably located on Site). An additional auto repair garage, associated gasoline tank (located in the roadway), and parking facilities were present to the west (presumably off-site). With the exception of scattered residential and/or small commercial structures to the north, the area was generally undeveloped.

In 1950, the previously mentioned structure on the northeast intersection of Benedict Boulevard and Croton Point Avenue remained present; however, the gasoline tanks were no longer depicted. In addition, the previously mentioned structure and gasoline tank to the west were no longer depicted. The Site, adjoining, and surrounding properties remained relatively unchanged. The 1965 Sanborn map depicts Route 9, the overpass, and associated on- and off-ramps along the western portion of the Site. The previously mentioned Benedict Boulevard and Croton Point Avenue intersection and auto repair garage were no longer present. The adjoining properties to the north and southeast of Croton Point Avenue (east of Route 9) were more developed with residential and/or small commercial structures; however, the properties at the northwestern intersection of Croton Point Avenue and South Riverside Avenue remained vacant.

An auto repair facility and associated gasoline tanks were reportedly present on the western portion of the Site from at least 1935 until 1950. No information regarding the removal of these tanks was provided in the agency database listings; therefore, the potential presence of tanks represents a recognized environmental condition.

Historic Aerial Photographs

A review of aerial photographs (various years dated 1953 to 2006) confirms that Croton Point Avenue was present in 1953. The adjoining properties and surrounding areas along the eastern portion were generally undeveloped in 1953, with some apparent small commercial and/or residential properties. A railroad and parking facilities were present to the west. The area appeared more developed in 1964, with the apparent construction of Route 9 in progress. In addition, commercial structures were present adjoining the eastern portion of Croton Point Avenue. The 1973 aerial photographs depicted a completed Route 9 and associated on- and off-ramps, with an overpass extending over Croton Point Avenue. The adjoining and surrounding properties were more developed and remain relatively unchanged through the early 1980s.

In 1984, a large commercial plaza and other commercial structures consistent with current developed uses were present along the eastern portion of the Site. A small structure was visible on the northwestern corner of the Croton Point Avenue and South Riverside intersection; however, specific details were not distinguishable. An apparent gasoline station was present on the northwest corner of the Croton Point Avenue and South Riverside intersection in 1994, consistent in the size and location to the current adjoining gasoline station. The Site, adjoining, and surrounding properties remained relatively unchanged through 2006.

The presence of a gasoline station adjoining the eastern portion of the Site (located on the northwestern corner of the Croton Point Avenue and South Riverside intersection) is considered to be a recognized environmental condition (note: more detailed information regarding this facility is discussed in the Agency Database Listings section, below).

Agency Database Listings

The agency database identified 155 listings within applicable radii of the Site and approximately 20 facilities with poor or inadequate addresses (unmappable, orphan sites) that are assumed to be within the general vicinity of the Site. Pinyon reviewed adjoining and nearby properties in close proximity to the Site boundaries, with specific emphasis on facilities that have the potential to impact the Site. Based on the location of the facilities relative to the Site, the topographic gradient and presumed groundwater flow direction (west/southwest), and current/historic property uses, the following facilities were identified with the potential to impact the Site.

Croton-on-Hudson Gulf, 67 Croton Point Avenue – According to a review of available records, this adjoining property (located on the northwest intersection of Croton Point Avenue and South Riverside Avenue) is an active petroleum bulk storage facility, which has been in service since at least 1966. Records indicate the presence of several underground storage tanks (USTs), including: three USTs ranging with capacities of 550 gallons to 6,000-gallons reportedly installed in 1966 and subsequently removed (date unknown); five USTs ranging in capacities of 1,000-gallons to 12,000-gallons reportedly installed in 1988 and subsequently removed in 1994; and, three, 10,000-gallon gasoline USTs reportedly installed in 2009. In addition, available records indicate that this facility is listed as a non-generator of ignitable hazardous waste (including benzene), which indicates that this facility may transport, store, treat and/or dispose of hazardous waste. No known spills are reported for this facility and no other information was provided in available records. Given the proposed development, location of this facility relative to the Site, and the presumed groundwater flow direction, this facility is considered to be a recognized environmental condition.

Riverside Gulf, 379 South Riverside Avenue – According to a review of available records, this nearby property (located upgradient approximately 450 feet northeast of the Site) is the location of a leaking underground storage tank (LUST) event. The spill was reported on November 19, 1990, as the result of a tank test failure on a gasoline UST. Records indicate that groundwater was affected; however, the spill was closed in 1995. No other information regarding the spill or subsequent remedial actions was provided in available records. The facility address was also recognized as the Nappy Auto Collision, Inc., facility, below.

Nappy Auto Collision, Inc., 379 South Riverside Avenue – According to a review of available records, this nearby property is a historic registered UST facility (note: the facility status is now unregulated). Records indicate the presence of several storage tanks, including: four, 3,000-gallon gasoline and diesel USTs which were reportedly closed-in-place in 1992; and, three, 550-gallon kerosene/other USTs which were removed in 1998. In addition, a 275-gallon aboveground storage tank (AST) was removed from the property in 1992. No other information regarding the historic presence of storage tanks was provided in available records. Given the reported spill at this facility (above), the proximity to the Site, and the presumed direction of groundwater flow, this facility is considered to be a recognized environmental condition.

Oil City, 380 South Riverside Avenue – According to a review of available records, this nearby property (located upgradient approximately 450 feet north of the Site) is an active petroleum bulk storage facility and the location of two LUST events. The spills were reported on October 12 and October 28, 1988, as the result of a tank test failure and subsequent discovery of contaminated soil, respectively. Records indicate that four tanks were discovered to be leaking and were removed; contaminated soil was excavated and groundwater was reportedly not impacted. The spill was closed in circa 1990 following the installation of five currently active tanks, including: two, 8,000-gallon gasoline USTs; one, 8,000-gallon diesel UST; one, 500-gallon fuel oil UST; and, one, 300-gallon waste oil UST. No other information regarding the spill or subsequent remedial actions was provided in available records. In addition, available records indicate that this facility is listed as a non-generator of ignitable hazardous waste (including benzene), which indicates that this facility may transport, store, treat and/or dispose of hazardous waste. Given the reported spill at this facility (above), the proximity to the Site, and the presumed direction of groundwater flow, this facility is considered to be a recognized environmental condition.

CONCLUSIONS:

Based on a review of available information, several facilities were identified in the Site vicinity which have the potential to impact soil and groundwater sources. Given the potential for petroleum hydrocarbon impacted soil and groundwater to be present from historic and current Site and nearby property activities, it is recommended that construction activities be evaluated with respect to the depth of construction. Should the depth of excavation activities approach the depth of groundwater, a Materials Management Plan should be developed. During times when excavation is completed in the vicinity of the facilities identified as a risk, a Monitoring Technician should be on-site in order to document any encountered conditions of concern (including petroleum hydrocarbon impacted soil and groundwater).

If a Materials Management Plan is required, it is recommended that further review of New York State Department of Environmental Conservation and Westchester County environmental files be reviewed in order to completely evaluate the status of the adjoining Croton-on-Hudson Gulf gasoline station and the extent of remediation activities at nearby former LUST event facilities.

Please feel free to contact me if you have any questions or concern regarding this letter report. Thank you for choosing Pinyon for your environmental consulting needs.

Sincerely,

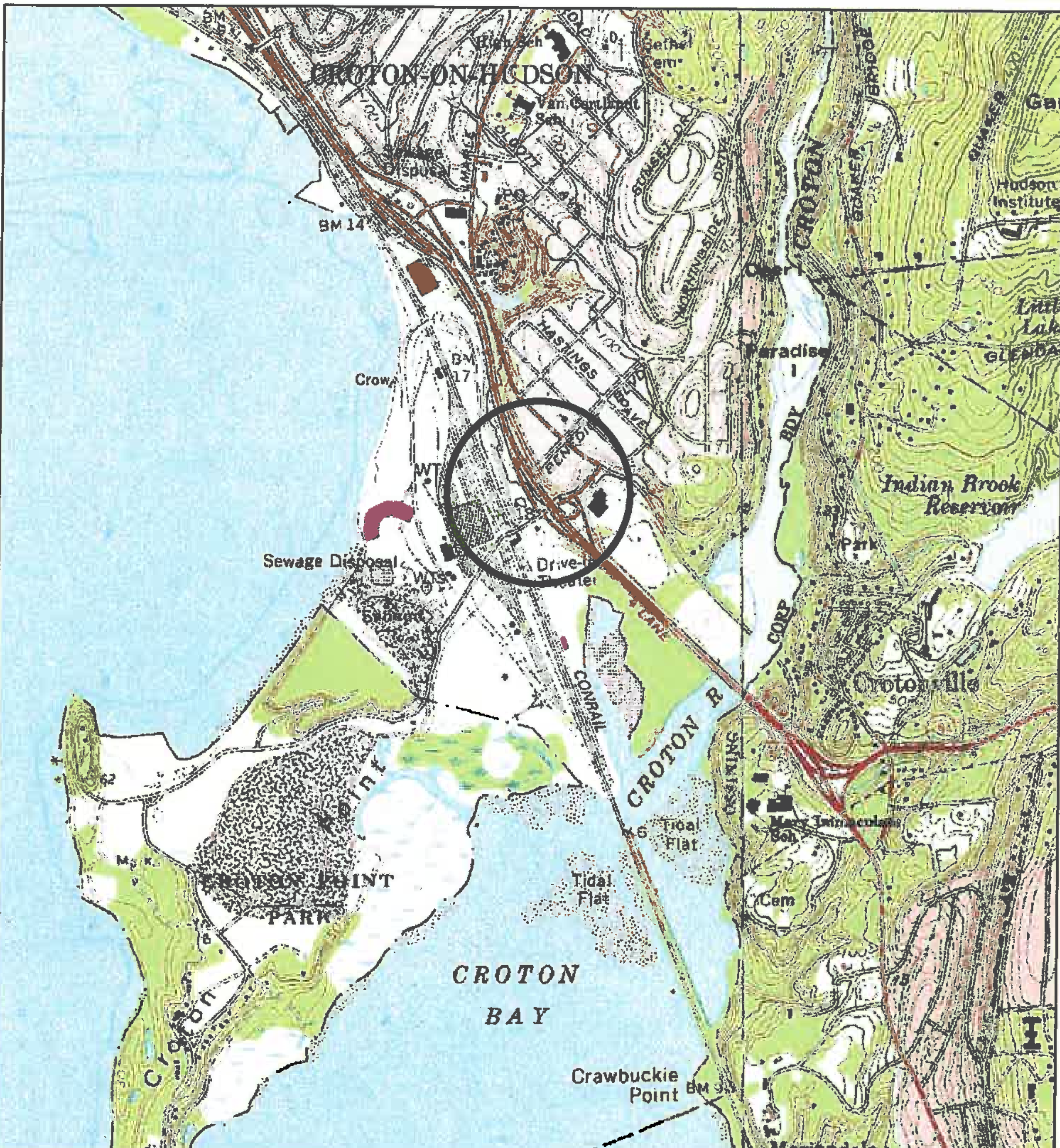
PINYON ENVIRONMENTAL, INC.

FOR

Rosie Wilson
Environmental Scientist

Attachments:

Figure 1: Site Location
Figure 2: Proposed Project Site
Figure 3: Facilities of Concern
NYSDOT Hazardous Waste and Contaminated Materials Site Inspection Checklist



N

Legend

USGS 7.5' Topographic Map
Haverstraw, NY 1964 (revised 1979)

Site

0 750 1,500
Feet

Pinyon

SITE LOCATION

Croton Harmon Parking Facility
Vehicular, Pedestrian and Bicycle Study
Croton-on-Hudson, Westchester County, New York

Site Location: Not Surveyed		Drawn By: MJS	Figure 1
Z:\PROJECTS\61078901 Croton-on-Hudson NY\Acad Figures\Fig 1 Croton.mxd	Job No. 6/10-789-01.8000	Reviewed By: TWS	Revision 0

LEGEND

Site Boundary

Pinyon

PROPOSED PROJECT SITE

Croton Harmon Parking Facility
Vehicular, Pedestrian and Bicycle Study
Croton-on-Hudson, Westchester County, New York

Site Location: Not Surveyed		Drawn By: SLS	Figure 2
Z:\PROJECTS\61078901 Croton-on-Hudson NY\Acad Figures\Proposed\Figures.dwg	Job No. 6/10-789-01.4.03	Reviewed By: RPW	Revision: 02-17-12

N

LEGEND

Site Boundary

0 400

Approximate Scale in Feet

Pinyon

FACILITIES OF CONCERN

Croton Harmon Parking Facility
Vehicular, Pedestrian and Bicycle Study
Croton-on-Hudson, Westchester County, New York

Site Location: Not Surveyed		Drawn By: SLS	Figure 3
Z:\PROJECTS\61078901 Croton-on-Hudson NY\Acad Figures\Proposed\Figures.dwg	Job No. 6/10-789-01.4.03	Reviewed By: RPW	Revision: 02-17-12

ATTACHMENT 5.1.D

SITE INSPECTION CHECKLIST

Mark all the following features you observe during your site visit. MAKE ALL OBSERVATIONS FROM A DISTANCE AND DO NOT RISK EXPOSING YOURSELF TO UNKNOWN CHEMICALS OR CONTAMINANTS!

SITE NAME/ADDRESS: Croton Harmon Parking Facility

A) VISUAL EVIDENCE OF CONTAMINATION: None observed at site or adjoining properties

- ____ Soil discoloration or staining
- ____ Evidence of previous fires
- ____ Stressed or dead vegetation
- ____ Spills, leaks, leachate, or discolored water
- ____ Air emissions or odors
- ____ Oil sheens on water
- ____ Seeps or discolored springs discharging from the ground surface (hillsides, embankments, etc.) at lower elevations nearby

B) STRUCTURES AND PIPELINES:

- ✓ Underground Tanks (observed on adjoining property)
- ____ Aboveground Tanks
- ✓ Vents/Fill Pipes (observed on adjoining property)
- ____ Pump Island Remnants
- ____ Lagoons or Impoundments
- ____ Sumps
- ✓ Drums or Transformers ← pole-mounted
- ____ Ponds or Basins
- ____ Landfills or Dump Sites
- ____ Pipelines or Pipes
- ____ Dumpsters/Bulk Waste
- ____ Berms or Dikes
- ____ Air Stacks
- ____ Posted Signs
- ✓ Sewers or Manholes
- ✓ Railroad Tracks (observed on adjoining property)
- ✓ Drainage Ditches
- ____ Floor Drains
- ____ Well casings or riser pipes from monitoring wells

C) HAZARDOUS MATERIALS: None observed

- ____ Stored pesticides, paints, solvents, chemical products, etc.
- ____ Transformers or electrical equipment

D) OTHER FEATURES NOTED:

- overhead utility lines (with transformers)
- bridge/overpasses

4.4.15 Air Quality

The project, known as the Croton Harmon Parking Facility and Bicycle Enhancements seeks to construct pedestrian and bicycle infrastructure on both sides of Croton Point Avenue between Veterans Plaza and S. Riverside Avenue. The proposed project is located in Westchester County, New York. The Build condition includes the following improvements:

- Signalization at the intersections of Croton Point Avenue with Veterans Plaza, US Route 9 southbound ramps, and at US Route 9 northbound ramps.
- Retains the reversible lane concept on Veterans Plaza but adds a 10-foot lane for approximately 100-feet to always permit two (2) entering and two (2) exiting lanes; they do also include transition back to the existing 3-lanesection.
- Construction of a southbound right turn-lane on the US Route 9 southbound off-ramp
- Narrowing of the US Route 9 eastbound channelized right turn-lane to go through the intersection proper.

The proposed project is not expected to increase traffic volumes above the no-build alternative in the ETC (2013), ETC+10 (2023) or ETC+20 (2033) years.

4.4.15.1 Regulatory Framework

The 1990 Clean Air Act (CAA) amendments and guidelines, issued by the U.S. Environmental Protection Agency (EPA), set forth guidelines to be followed by agencies responsible for attainment of the National Ambient Air Quality Standards (NAAQS). The CAA section 176(c) requires that Federal transportation projects are consistent with state air quality goals, found in the State Implementation Plan (SIP), developed by the New York State Department of Environmental Conservation (NYSDEC). The process to ensure this consistency is called Transportation Conformity. Conformity to the SIP means that transportation activities will not cause new violations of the NAAQS, worsen existing violations of the standards, or delay timely attainment of the relevant standard. In complying with these guidelines, the following screening will demonstrate air quality conformity

To assess air quality impacts related to traffic generation, procedures outlined in the NYSDOT Environmental Procedures Manual (EPM) were used. The procedures address the CAA and guidance from the U.S. EPA. The NYSDOT EPM procedures involve a screening of traffic volume and level of service to determine the need for a detailed microscale air quality analysis.

4.4.15.2 Transportation Conformity

The project site is located in Westchester County, which is considered a marginal non-attainment area for the 2008 8-hr Ozone NAAQS and a non-attainment area for the 2006 PM 2.5 NAAQS. The project is designated as an exempt project on the Transportation Plan and the 2011-2015 Transportation Improvement Program (TIP) for the Mid-Hudson South Planning Area. This TIP has been found to conform by the New York Metropolitan Transportation Council (NYMTC) and Federal Highway Administration (FHWA), approved by amendment to the May 1999 TIP on September 6, 2000, by NYMTC and adopted on August 4, 2011. The project's design scope and concept have not changed since the TIP amendment determination was made.

CRITERIA POLLUTANTS AND THEIR EFFECTS

Pollutants that have established national standards are referred to as criteria pollutants. The sources of these pollutants, their effects on human health and the nation's welfare and their final deposition in the atmosphere vary considerably. Of the six EPA criteria pollutants, GDOT is primarily concerned with only four: carbon monoxide (CO), ozone (O_3), fine particulate matter ($PM_{2.5}$) and Mobile Source Air Toxics (MSATs). Brief descriptions of the criteria pollutants follow.

Ozone (O_3)

Ozone (O_3), a colorless toxic gas, is a major component of smog. Ozone can cause acute respiratory problems, aggravate asthma, cause significant temporary decreases in lung capacity of 15 to over 20 percent in some healthy adults; and cause inflammation of lung tissue. Ozone also damages vegetation by inhibiting its growth. Although ozone is not directly emitted, it forms in the atmosphere through a chemical reaction between volatile organic compounds VOCs and nitrogen oxides (NOx), which are emitted from industrial sources and automobiles. Substantial O_3 formations generally require a stable atmosphere with strong sunlight.

Carbon Monoxide (CO)
Carbon monoxide (CO), a colorless and odorless gas, interferes with the transfer of oxygen to the brain. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. Prolonged exposure to high levels of CO can cause headaches, drowsiness, loss of equilibrium, heart disease, and in severe cases, CO inhalation can result in death. CO concentrations can vary greatly over relatively short distances. Relatively high concentrations are typically found near congested intersections, along heavily used roadways carrying slow-moving traffic and in areas where atmospheric dispersion is inhibited by urban “street canyon” conditions. To accurately assess air quality conditions, CO concentrations must be predicted on a localized (micro-scale) basis.

Particulate Matter (PM)
Particulate matter pollution is composed of solid particles or liquid droplets small enough to remain suspended in the air. This can include dust, soot, smoke, salts, acids and metals, which can be irritating, but are usually non-poisonous. Particulate matter pollution can also include bits of solid or liquid substances that can be highly toxic. The main health effect of airborne particulate matter relates to the respiratory system. Federal and State health officials have identified health concerns specific to fine particulate matter ($PM_{2.5}$), which are particles smaller than or equal to 2.5 microns (μm) in size. $PM_{2.5}$ can penetrate the human respiratory system's natural defenses and damage the respiratory tract when inhaled, and fine particulate matter penetrates deeper into the lungs and damages lung tissues more than larger, coarser particulate matter. $PM_{2.5}$ results from fuel combustion (from motor vehicles, power generation and industrial facilities), residential fireplaces and wood stoves. PM2.5 can also be formed in the atmosphere from gases such as sulfur dioxide (SO2), NOx and VOCs.

Mobile Source Air Toxics (MSATs)
In addition to the criteria air pollutants for which there are NAAQS, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the CAA. MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxins are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxins result from engine wear or from impurities in oil or gasoline.

4.4.15.3 Carbon Monoxide (CO) Microscale Analysis
The NYSDOT EPM outlines a three-step screening process to determine if a microscale air quality analysis is necessary. The process is as follows: if the first screening threshold is exceeded, the second screening is performed; if any one of the second screening thresholds is exceeded, the third screening is performed; if the third screening threshold is exceeded, a detailed microscale analysis is warranted. If the thresholds are satisfied for any step, the screening process is stopped and no further analysis is necessary.

The first step of the screening is to analyze the level of service for the signalized intersections. A level of service of C or better indicates a detailed microscale air quality analysis is not required. A level of service of D or worse indicates the threshold is exceeded, and it is necessary to perform the second screening.

The second step of the screening, for intersections operating at level of service D or worse, is to analyze five project-related and traffic related thresholds. These five thresholds are a 10% or more reduction in the source-receptor distance; a 10% or more increase in traffic volume on the affected roadways; a 10%

or more increase in vehicle emissions; any increase in the number of queued lanes; and a 20% reduction in speed, when the build estimated average speed is at 30 mph or less. If none of these thresholds are exceeded a detailed microscale air quality analysis is not necessary. If any one of these thresholds is exceeded, then it is necessary to perform the third screening.

The third step of the screening requires analyzing the volume threshold of the project. The volume threshold screening involves analyzing the project specific emission factors compared to the EPM's vehicle threshold tables. A project that has a peak hour traffic volume equal to or less than the EPM's tabulated value indicates the threshold is not exceeded and the project does not need a microscale air quality analysis. If the volume threshold is exceeded, a detailed microscale air quality analysis is warranted.

LOS Screening

Intersections impacted by a project with a build ETC, ETC+10, and ETC+20 level of service (LOS) of only A, B, or C, are generally excluded from microscale air quality analysis. Any intersections with LOS D or worse would then proceed to Capture Screening. Intersections within the project area exhibiting ETC, ETC +10 or ETC+20 build LOS D or worse are limited to the intersection of Croton Point Avenue and the Route 9 southbound on/off-ramps in the ETC+20 alternative.

Capture Criteria Screening

The next step of the CO screening examines only those intersections with LOS of D or greater. The criteria for the Capture Criteria Screening are as follows:

a) 10% or more source-receptor distance reduction
b) 10% or more traffic volume increase
c) 10%or more vehicle emission increase
d) Any number of queued lane increase
e) 20% or more speed decrease for speeds at 30 mph or less

If any one of the above criteria are realized, for the given intersection, the assessment would proceed to the Volume Threshold Criteria. One additional lane would be installed along the Route 9 southbound off ramp at the intersection with Croton Point Avenue; therefore the volume threshold analysis is required.

Volume Threshold Screening

The vehicle threshold tables (EPM Table 3a, Table 3b, and Table 3c) tie the volume threshold with emission factors. The advantage of this approach is that emission factors determined by project area specific vehicle speed, thermal states, and emission control strategies are used in the determination of vehicle thresholds. A wind speed of 1 m/s and an atmospheric stability of E are assumed in the development of the tables. The thresholds establish traffic volumes below which a violation of the NAAQS for carbon monoxide is extremely unlikely. Therefore, projects whose ETC, ETC+10, and ETC+20 peak hour volume, or if unavailable, design hour volumes (see discussion in Section 10.C.iii.) are equal to or less than the applicable threshold do not need a microscale air quality analysis.

The emissions factors are based on primarily on vehicle mix and vehicle speed, as well as other factors such as temperature, cold start percentage and fuel mix. However vehicle mix and speed are the only variable inputs required for the volume threshold criteria test. Emission rates were calculated for free flow speeds and vehicle idle. See table 1 below for emission rate calculations.

Table 1 - Emission Factor Calculation

	Vehicle Mix		Emission Factor (ETC+20)		CO Partial Emissions			
	Urban Minor Arterial	Urban Collector	0 mph (Idle)	25 mph (Free Flow)	Arterial Queue (Idle) Emissions (g/hr.)	Arterial Free Flow Emissions (g/mile)	Collector Queue (Idle) Emissions (g/hr.)	Collector Free Flow Emissions (g/mile)
LDGV	49.89%	50.28%	25.29	2.35	12.617181	1.172415	12.715812	1.181580
LDGT1	7.50%	7.57%	23.52	2.30	1.764000	0.172500	1.780464	0.174110
LDGT2	24.98%	25.19%	25.20	2.48	6.294960	0.619504	6.347880	0.624712
LDGT3	7.87%	8.31%	24.97	2.45	1.965139	0.192815	2.075007	0.203595
LDGT4	3.63%	3.84%	25.44	2.50	0.923472	0.090750	0.976896	0.096000
HDGV2B	1.23%	0.86%	79.54	6.93	0.978342	0.085239	0.684044	0.059598
HDGV3	0.49%	0.34%	105.69	9.21	0.517881	0.045129	0.359346	0.031314
HDGV4	0.14%	0.10%	105.52	9.19	0.147728	0.012866	0.105520	0.009190
HDGV5	0.18%	0.12%	127.01	11.06	0.228618	0.019908	0.152412	0.013272
HDGV6	0.06%	0.04%	138.79	12.09	0.083274	0.007254	0.055516	0.004836
HDGV7	0.07%	0.05%	161.93	14.10	0.113351	0.009870	0.080965	0.007050
HDGV8A	0.10%	0.07%	177.28	15.44	0.177280	0.015440	0.124096	0.010808
LDDV	0.08%	0.08%	4.80	0.47	0.003840	0.000376	0.003840	0.000376
LDDT12	0.12%	0.12%	2.20	0.21	0.002640	0.000252	0.002640	0.000252
LDDT34	0.80%	0.85%	2.50	0.24	0.020000	0.001920	0.021250	0.002040
HDDV2B	0.22%	0.15%	1.07	0.10	0.002354	0.000220	0.001605	0.000150
HDDV3	0.16%	0.11%	1.22	0.12	0.001952	0.000192	0.001342	0.000132
HDDV4	0.10%	0.07%	1.43	0.14	0.001430	0.000140	0.001001	0.000098
HDDV5	0.14%	0.10%	1.54	0.15	0.002156	0.000210	0.001540	0.000150
HDDV6	0.10%	0.07%	1.58	0.15	0.001580	0.000150	0.001106	0.000105
HDDV7	0.17%	0.12%	1.96	0.19	0.003332	0.000323	0.002352	0.000228
HDDV8A	0.46%	0.32%	2.71	0.26	0.012466	0.001196	0.008672	0.000832
HDDV8B	0.48%	0.34%	2.97	0.29	0.014256	0.001392	0.010098	0.000986
HDGB	0.08%	0.06%	203.87	17.76	0.163096	0.014208	0.122322	0.010656
HDDBT	0.16%	0.11%	3.61	0.35	0.005776	0.000560	0.003971	0.000385
HDDBS	0.24%	0.17%	2.44	0.24	0.005856	0.000576	0.004148	0.000408
MC	0.55%	0.56%	206.83	8.91	1.137565	0.049005	1.158248	0.049896
				Total	27.189525	2.51441	26.80209	2.482759

Vehicle mix source: MOBILE6.2 CO Emission Factors for Project-Level Microscale Analysis, Appendix A - Vehicle Distributions by NYSDOT Region, NYSDOT Jan 2009.
Free Flow Speed source: NYSDOT EPM Chapter 1.1 Table 5
Emission Factor source: MOBILE6 CO Emission Factor Table EF1

The volume threshold analysis is then completed by comparing approach volumes of each roadway to the volume threshold presented in EPM Tables 3a and 3c. Threshold volumes in Table 3a are based solely on free flow emission factors; Table 3a was utilized for the Route 9 SB onramp link. Threshold volumes in

Table 3c are based on both idle and free flow emission rates; Table 3c was utilized for the Route 9 SB off-ramp, and Croton Point Avenue EB and WB.

Table 2 - Volume Threshold Analysis

	Functional Classification	AM Approach Volume	PM Approach Volume	Volume Threshold	Volume Threshold Exceedance?
Croton Point Avenue WB	Urban Minor Arterial	1001	414	4000	N
Croton Point Avenue EB	Urban Collector	383	866	4000	N
Route 9 SB Off-ramp	Urban Minor Arterial	565	126	4000	N
Route 9 SB On-ramp *	Urban Minor Arterial	344	386	3095	N

*Free flow Volume
Volume Threshold source: NYSDOT EPM Chapter 1.1 Tables 3a and 3c.

As presented in Table 2, the Volume threshold is not exceeded for the studied intersection. No CO impacts are projected and no Microscale CO study is required.

In summary, an air quality analysis is not necessary since the project will not increase traffic volumes, reduce source-receptor distances, or change other existing conditions to such a degree as to jeopardize attainment of National Ambient Air Quality Standards.

4.4.15.4 Mesoscale Analysis

If the project would significantly affect traffic conditions over a large area, it is also appropriate to consider regional air quality effects of the project by way of a mesoscale analysis. A Mesoscale Analysis is not required for this project since the project would not increase traffic volumes in the immediate or surrounding area, would not significantly affect air quality conditions over a large area and is not a regionally significant project.

4.4.15.5 Mobile Source Air Toxics (MSATs) Analysis -

Mobile Source Air Toxics (MSAT) assessments are required statewide for most federal transportation projects. Based on the example projects defined in the FHWA guidance "Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents" dated December 6, 2012, the project would be classified as a project with low potential MSAT effects. In addition to the criteria air pollutants that must meet the NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/iris/). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines.

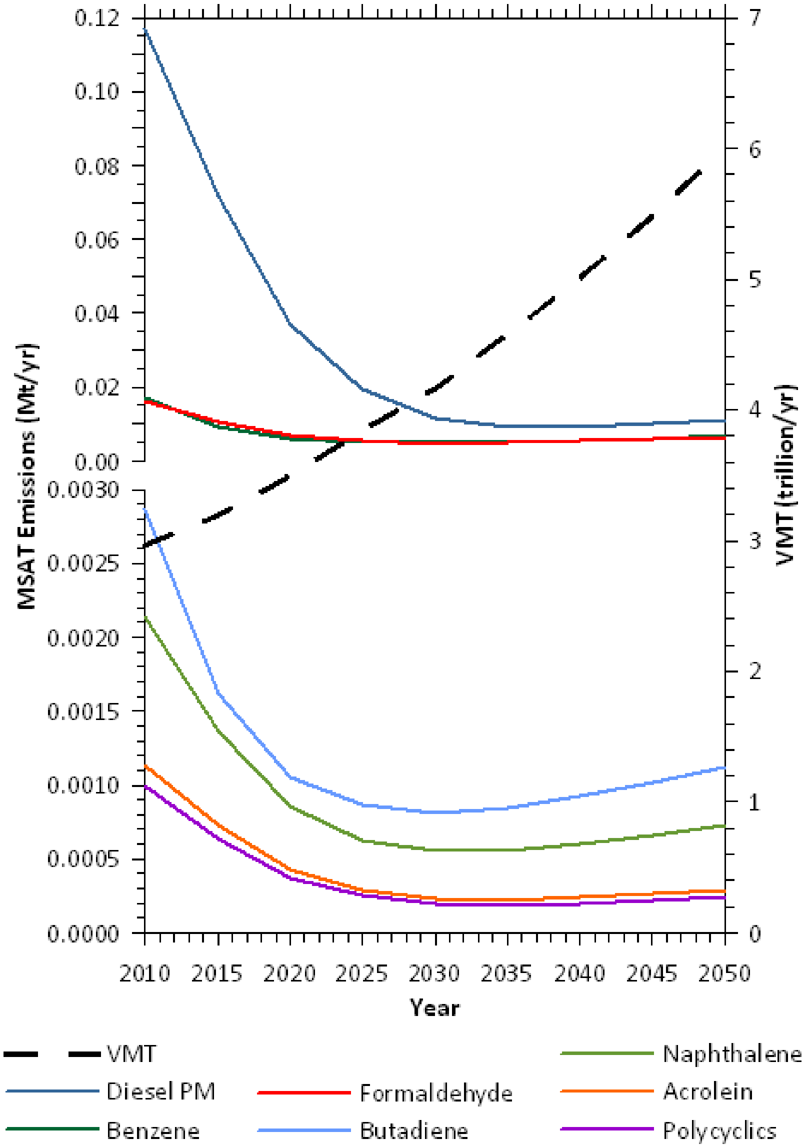
Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES improves upon the previous MOBILE model in several key aspects: MOVES is based on a vast amount of in-use vehicle data collected and analyzed since the latest release of MOBILE, including millions of emissions measurements from light-duty vehicles. Analysis of this data enhanced EPA's understanding of how mobile sources contribute to emissions inventories and the relative effectiveness of various control strategies. In addition, MOVES accounts for the significant effects that vehicle speed and temperature have on PM emissions estimates, whereas MOBILE did not. MOVES2010b includes all air toxic pollutants in NATA that are emitted by mobile sources. EPA has incorporated more recent data into MOVES2010b to update and enhance the quality of MSAT emission estimates. These data reflect advanced emission control technology and modern fuels, plus additional data for older technology vehicles.

Based on an FHWA analysis using EPA's MOVES2010b model, as shown in Figure 1, even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.
The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emissions total.

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.
Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

Figure 3: NATIONAL MSAT EMISSION TRENDS 2010 - 2050
FOR VEHICLES OPERATING ON ROADWAYS
USING EPA's MOVES2010b MODEL



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles traveled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors
Source: EPA MOVES2010b model runs conducted during May - June 2012 by FHWA.

Qualitative MSAT Assessment
For any alternative, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. As noted, the proposed project would not increase traffic volumes, and would not significantly alter the alignment of the existing roadways. Therefore, the VMT would not increase and no MSAT impacts would be projected.

Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, http://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

4.4.15.6 Particulate Matter (PM) Analysis -

The project is located in a non-attainment area for PM 2.5. Section 93.123(b)(1) of the conformity rule defines the projects that require a PM2.5 or PM10 hot-spot analysis as:

i. New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles;
ii. Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
iii. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
iv. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
v. Projects in or affecting locations, areas, or categories of sites which are identified in the PM2.5 or PM10 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The proposed project would not affect vehicle mix, nor does it currently experience significant levels of diesel traffic, and would not increase traffic volumes. Per the criteria provided above, the project is not projected to be of local air quality concern. This project is determined to be a SEQR Type II Action and is classified as a NEPA Class II Categorical Exclusion. As such, the project actions do not individually or cumulatively have a significant effect on PM emissions. It can therefore be concluded that the project will have no significant adverse impact on ambient PM levels.

4.4.15.7 Greenhouse Gas Analysis -

The issue of global climate change is an important national and global concern that is being addressed in several ways by the Federal government. The Transportation section is the second largest source of total greenhouse gases (GHG) in the U.S. and the largest source of CO_2 emissions - the predominant GHG. In 2004, the transportation sector was responsible for 31% of all U.S. $C0_2$ emissions. The principal anthropogenic (human-made) source of carbon emissions is the combustion of fossil fuels, which account for approximately 80% of anthropogenic emissions of carbon worldwide. Almost all (98%) of the transportation-sector emissions result from the consumption of petroleum products; such as motor gasoline, diesel fuel, jet fuel, and residual fuel.

Recognizing this concern, FHWA is working with other modal administrations through the Department of Transportation Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to GHG - particularly CO_2 emissions - and to assess the risks to transportation systems and services from climate changes.

The project is not expected to affect GHG production since no additional traffic volume will result from the construction of the proposed project.

PIN#___________

Smart Growth Screening Tool (STEP 1)

NYSDOT & Local Sponsors –Fill out the Smart Growth Screening Tool until the directions indicate to STOP for the project type under consideration. For all other projects, complete answering the questions. For any questions, refer to Smart Growth Guidance document.

Title Of Proposed Project:	Croton-on-Hudson Parking Facility and Bicycle Enhancements
Location of Project:	Village of Croton-on-Hudson, Westchester County, New York
Brief Description:	The project is proposed to provide safer accommodations that better balances the needs of all users (vehicular, bicyclists and pedestrians) and provides effective vehicular mobility through the corridor during all periods of the day with appropriate traffic control measures. This objective will be accomplished through the construction of new sidewalks, re-delineation of the existing roadway to accommodate bike lanes, and installation of three new traffic signals and geometric improvements to key intersections.

A. Infrastructure:

(Addresses SG Law criterion a. **-** To advance projects for the use, maintenance or improvement of existing infrastructure)

1. Does this project use, maintain, or improve existing infrastructure?

   Yes ☒ **No** ☐ **N/A** ☐

Explain: (use this space to expand on your answers above – the form has no limitations on the length of your narrative)

The proposed project consists of re-striping the existing travel lanes on Croton Point Avenue and minor box widening to accommodate 5 ft. bike lanes and 4 to 5 ft. wide sidewalks on essentially the same horizontal and vertical alignments to minimize right of way impacts. Additional improvements include widening the US Route 9 southbound off ramp to accommodate an exclusive right turn lane, realignment of the Route 9 northbound on ramp at Croton Point Avenue, and widening Veterans Plaza to accommodate reversible lane operations, also on essentially the same horizontal and vertical alignments.

Maintenance Projects:

a. Continue with screening tool for the four (4) types of maintenance projects listed below, as defined in **NYSDOT PDM Exhibit 7-1 and described in 7-4:** https://www.dot.ny.gov/divisions/engineering/design/dqab/pdm

- Shoulder rehabilitation and/or repair;
- Upgrade sign(s) and/or traffic signals;
- Park & ride lot rehabilitation;
- 1R projects that include single course surfacing (inlay or overlay), per Chapter 7 of the NYSDOT Highway Design Manual.

b. For all other maintenance projects, STOP here. Attach this document to the programmatic Smart Growth Impact Statement and signed Attestation for Maintenance projects (located in Appendix 2, page 13 in Guidance document).

B. Sustainability:

NYSDOT defines Sustainability as follows: A sustainable society manages resources in a way that fulfills the community/social, economic and environmental needs of the present without compromising the needs and opportunities of future generations. A transportation system that supports a sustainable society is one that:

- Allows individual and societal transportation needs to be met in a manner consistent with human and ecosystem health and with equity within and between generations.
- Is safe, affordable, and accessible, operates efficiently, offers choice of transport mode, and supports a vibrant economy.
- Protects and preserves the environment by limiting transportation emissions and wastes, minimizes the consumption of resources and enhances the existing environment as practicable.

For more information on the Department's Sustainability strategy, refer to Appendix 1 of the Guidance and the NYSDOT web site. www.dot.ny.gov/programs/greenlites/sustainability

(Addresses SG Law criterion j **:** to promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations, by among other means encouraging broad based public involvement in developing and implementing a community plan and ensuring the governance structure is adequate to sustain and implement.)

1. Will this project promote sustainability by strengthening existing communities?
   Yes ☒ **No** ☐ **N/A** ☐

2. Will the project reduce greenhouse gas emissions?
   Yes ☐ **No** ☒ **N/A** ☐

Explain: (use this space to expand on your answers above)

The project consists of the construction of new continuous sidewalks along both sides of Croton Point Avenue and the inclusion of bike lanes in both the east- and westbound directions along Croton Point Avenue which tie into the existing Riverwalk Bike Route and the path that accesses the Metro North Railroad. Existing Bee-Line Bus stations within the corridor will be retained as part of the project. Providing and accommodating facilities for these various transportation modes can reduce automobile dependence and thus potentially reduce transportation based air pollution and greenhouse gas emissions.

The project is consistent with the Village of Croton-on-Hudson's Comprehensive Plan and their Bicycle / Pedestrian Master Plan.

C. Smart Growth Location:

Plans and investments should preserve our communities by promoting its distinct identity through a local vision created by its citizens.

(Addresses SG Law criteria b and c**:** to advance projects located in municipal centers; to advance projects in developed areas or areas designated for concentrated infill development in a municipally approved comprehensive land use plan, local waterfront revitalization plan and/or brownfield opportunity area plan.)

1. Is this project located in a developed area?
   Yes ☒ **No** ☐ **N/A** ☐

2. Is the project located in a municipal center?
   Yes ☐ **No** ☒ **N/A** ☐

3. Will this project foster downtown revitalization?
   Yes ☐ **No** ☒ **N/A** ☐

4. Is this project located in an area designated for concentrated infill development in a municipally approved comprehensive land use plan, waterfront revitalization plan, or Brownfield Opportunity Area plan?
   Yes ☐ **No** ☒ **N/A** ☐

Explain: (use this space to expand on your answers above)

Croton Point Avenue is a vital link in the transportation corridor that provides access from US Route 9 and S. Riverside Avenue to the Croton-Harmon Train Station, located on Veterans Plaza, south of Croton Point Avenue and west of US Route 9, to Croton Point Park and the bike route Riverwalk. Due to its close proximity to New York City, the station is a commuter hub, as well as a major transfer point between local and express trains and the Westchester County Bee-Line Bus Service. Commercial development exists within the project area. The proposed project includes facilities for alternative modes of transportation to support this vital transportation corridor and access to the commercial developments.

D. Mixed Use Compact Development:

Future planning and development should assure the availability of a range of choices in housing and affordability, employment, education transportation and other essential services to encourage a jobs/housing balance and vibrant community-based workforce**.**

(Addresses SG Law criteria e and i: to foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, the diversity and affordability of housing in proximity to places of employment, recreation and commercial development and the integration of all income groups; to ensure predictability in building and land use codes.)

1. Will this project foster mixed land uses?
   Yes ☐ **No** ☐ **N/A** ☒

2. Will the project foster brownfield redevelopment?
   Yes ☐ **No** ☐ **N/A** ☒

3. Will this project foster enhancement of beauty in public spaces?
   Yes ☐ **No** ☐ **N/A** ☒

4. Will the project foster a diversity of housing in proximity to places of employment and/or recreation?

   Yes ☐ **No** ☐ **N/A** ☒

5. Will the project foster a diversity of housing in proximity to places of commercial development and/or compact development?
   Yes ☐ **No** ☐ **N/A** ☒

6. Will this project foster integration of all income groups and/or age groups?
   Yes ☐ **No** ☐ **N/A** ☒

7. Will the project ensure predictability in land use codes?
   Yes ☐ **No** ☐ **N/A** ☒

8. Will the project ensure predictability in building codes?
   Yes ☐ **No** ☐ **N/A** ☒

Explain: (use this space to expand on your answers above)

This section, Mixed Use Compact Development is not applicable for this project. This project includes facilities to accommodate various transportation modes to enhance Croton Point Avenue, which is a vital link in the transportation corridor that provides access from US Route 9 and S. Riverside Avenue to the Croton-Harmon Train Station, located on Veterans Plaza, south of Croton Point Avenue and west of US Route 9, to Croton Point Park and the bike route Riverwalk and the surrounding area. The project neither precludes nor fosters mixed use compact development.

E. Transportation and Access:

NYSDOT recognizes that Smart Growth encourages communities to offer a wide range of transportation options, from walking and biking to transit and automobiles, which increase people's access to jobs, goods, services, and recreation**.**

(Addresses SG Law criterion f**:** to provide mobility through transportation choices including improved public transportation and reduced automobile dependency.)

1. Will this project provide public transit?
   Yes ☒ **No** ☐ **N/A** ☐

2. Will this project enable reduced automobile dependency?
   Yes ☒ **No** ☐ **N/A** ☐

3. Will this project improve bicycle and pedestrian facilities (such as shoulder widening to provide for on-road bike lanes, lane striping, crosswalks, new or expanded sidewalks or new/improved pedestrian signals)?
   Yes ☒ **No** ☐ **N/A** ☐

(Note: Question 3 is an expansion on question 2. The recently passed Complete Streets legislation requires that consideration be given to complete street design features in the planning, design, construction, reconstruction and rehabilitation, but not including resurfacing, maintenance, or pavement recycling of such projects.)

Explain: (use this space to expand on your answers above)

The project consists of the construction of new continuous sidewalks along both sides of Croton Point Avenue and the inclusion of bike lanes in both the east and westbound directions along Croton Point Avenue which tie into the existing Riverwalk Bike Route and the path that accesses the Metro North Railroad. Existing Bee-Line Bus stations within the corridor will be retained as part of the project. The inclusion of pedestrian and bicycle accommodations will improve circulation and access to Croton-Harmon Train Station for transit dependent pedestrians and bicyclists.

F. Coordinated, Community-Based Planning:

Past experience has shown that early and continuing input in the transportation planning process leads to better decisions and more effective use of limited resources. For information on community based planning efforts, the MPO may be a good resource if the project is located within the MPO planning area.

(Addresses SG Law criteria g and h: to coordinate between state and local government and inter-municipal and regional planning; to participate in community based planning and collaboration.)

1. Has there been participation in community-based planning and collaboration on the project?
   Yes ☒ **No** ☐ **N/A** ☐

2. Is the project consistent with local plans?
   Yes ☒ No ☐ N/A ☐

3. Is the project consistent with county, regional, and state plans?
   Yes ☒ No ☐ N/A ☐

4. Has there been coordination between inter-municipal and regional planning on the project?
   Yes ☒ **No** ☐ **N/A** ☐

Explain: (use this space to expand on your answers above)

Several meetings and coordination have occurred for this project including a stakeholder meeting, a Bicycle and Pedestrian Committee Meeting, two Village Board Meetings, and a

Public Informational Meeting. In addition, information pertaining to the project has been included on the Village's website.

The project is consistent with the Village of Croton-on-Hudson's Comprehensive Plan and their Bicycle / Pedestrian Master Plan.

G. Stewardship of Natural and Cultural Resources:

Clean water, clean air and natural open land are essential elements of public health and quality of life for New York State residents, visitors, and future generations. Restoring and protecting natural assets, and open space, promoting energy efficiency, and green building, should be incorporated into all land use and infrastructure planning decisions.

(Addresses SG Law criterion d :To protect, preserve and enhance the State's resources, including agricultural land, forests surface and ground water, air quality, recreation and open space, scenic areas and significant historic and archeological resources.)

1. Will the project protect, preserve, and/or enhance agricultural land and/or forests?
   Yes ☐ **No** ☐ **N/A** ☒

2. Will the project protect, preserve, and/or enhance surface water and/or groundwater?
   Yes ☒ **No** ☐ **N/A** ☐

3. Will the project protect, preserve, and/or enhance air quality?
   Yes ☒ **No** ☐ **N/A** ☐

4. Will the project protect, preserve, and/or enhance recreation and/or open space?
   Yes ☐ **No** ☐ **N/A** ☒

5. Will the project protect, preserve, and/or enhance scenic areas?
   Yes ☐ **No** ☐ **N/A** ☒

6. Will the project protect, preserve, and/or enhance historic and/or archeological resources?

   Yes ☒ **No** ☐ **N/A** ☐

Explain: (use this space to expand on your answers above)

The project is not located in or adjacent to an Agricultural District and it will not convert any prime or unique farmland, or farmland of state or local importance, as defined by the USDA Natural Resources Conservation Service, to a nonagricultural use.

The project is located in the Croton-Ossining Area primary aquifer. This project will take measures in design and construction to avoid, minimize or mitigate any possible adverse

impacts to the aquifer. These measures are intended to minimize contamination from highway runoff and construction activities. Project activities will comply with the applicable standards in 6 NYCRR Part 703.

The project will not increase traffic volumes in the immediate and surrounding areas, nor would it affect vehicle mix, thereby preserving and protecting the air quality. In addition, providing alternate modes of transportation (transit, bicycle and pedestrian facilities) has the potential to reduce automobile use thereby further protecting, preserving and enhancing air quality.

The project does not involve work in or adjacent to State- or Federal-designated scenic or recreational rivers. There are no other recreational or open space areas within the project limits. The proposed improvements on Croton Point Avenue will enhance mobility and access to Croton Point Park.

The project does not involve federally owned, jurisdictional or controlled property that is eligible for inclusion in the National Register of Historic Places and will not require project activities within previously undisturbed areas that have the potential to contain archeological resources.

Smart Growth Impact Statement (STEP 2)

NYSDOT: Complete a Smart Growth Impact Statement (SGIS) below using the information from the Screening Tool.

Local Sponsors: The local sponsors are **not** responsible for completing a Smart Growth Impact Statement. Proceed to Step 3.

Smart Growth Impact Statement

PIN:
Project Name:

Pursuant to ECL Article 6, this project is compliant with the New York State Smart Growth Public Infrastructure Policy Act. This project has been determined to meet the relevant criteria, to the extent practicable, described in ECL Sec. 6-0107. Specifically, the project:

-
-
-
-
-
-
-

This publically supported infrastructure project complies with the state policy of maximizing the social, economic and environmental benefits from public infrastructure development. The project will not contribute to the unnecessary costs of sprawl development, including environmental degradation, disinvestment in urban and suburban communities, or loss of open space induced by sprawl.

Review & Attestation Instructions (STEP 3)

Local Sponsors: Once the Smart Growth Screening Tool is completed, the next step is to submit the project certification statement (Section A) to Responsible Local Official for signature. After signing the document, the completed Screening Tool and Certification statement should be sent to NYSDOT for review as noted below.

NYSDOT: For state-let projects, the Screening Tool and SGIS is forwarded to Regional Director/ RPPM/Main Office Program Director or designee for review, and upon approval, the attestation is signed (Section B.2). For locally administered projects, the sponsor's submission and certification statement is reviewed by NYSDOT staff, the appropriate box (Section B.1) is checked, and the attestation is signed (Section B.2).

A. CERTIFICATION (LOCAL PROJECT)

I HEREBY CERTIFY, to *the best of my knowledge, all of the above to be true and correct.*

Preparer of this document:

Signature	Date
Title	Printed Name

Responsible Local Official (for local projects):

Signature	Date
Title	Printed Name

B. ATTESTATION (NYSDOT)

1. ***I HEREBY:***

☐ *Concur with the above certification, thereby attesting that this project is in compliance with the State Smart Growth Public Infrastructure Policy Act*

☐ *Concur with the above certification, with the following conditions (information requests, confirming studies, project modifications, etc.):*

____

____

____

____

(Attach additional sheets as needed)

☐ *do not concur with the above certification, thereby deeming this project ineligible to be a recipient of State funding or a subrecipient of Federal funding in accordance with the State Smart Growth Public Infrastructure Policy Act.*

2. ***NOW THEREFORE,*** pursuant to ECL Article 6, this project is compliant with the New York State Smart Growth Public Infrastructure Policy Act, to the extent practicable, as described in the attached Smart Growth Impact Statement.

NYSDOT Commissioner, Regional Director, MO Program Director,
Regional Planning & Programming Manager (or official designee):

________________________	__________
Signature	Date
________________________	__________________________
Title	Printed Name

APPENDIX C

Traffic Information

PIN: 8780.41
DESCRIPTION: Croton-on-Hudson Parking Facility and Bicycle Enhancements
MUNICIPALITY/COUNTY: Village of Croton-on-Hudson / Westchester County
PEDESTRIAN GENERATOR CHECKLIST
DATE: 4/23/13

Note: The term "generator" in this document refers to both pedestrian generators (where pedestrians originate) and destinations (where pedestrians travel to). A check of yes indicates a potential need to accommodate pedestrians and coordination with the Regional Bicycle and Pedestrian Coordinator is necessary during project scoping. Answers to the following questions should be checked with the local municipality to ensure accuracy.

1.	Is there an existing or planned sidewalk, trail, or pedestrian crossing facility? **Comments: There are existing sidewalks along both the east and west sides of S. Riverside Ave. and primarily along the north side of Croton Point Ave. within the project limits. Sidewalks also exist along the south side of Croton Point Ave at various locations. Pedestrian facilities exist at several of the intersections. The proposed project will provide continuous sidewalks on both sides of the corridor that meet current ADA standards.**	**YES**☒ **NO**☐
2.	Are there bus stops, transit stations or depots/terminals located in or within 800m of the project area? **Comments: The Westchester County Bee-line currently operates three bus stops within the project limits; one on S. Riverside Avenue (east side), one on Croton Point Avenue (north side) and one on the US Route 9 northbound off ramp. Croton Point Avenue provides access to the Croton Harmon Train Station via Veterans Plaza.**	**YES**☒ **NO**☐
3.	Is there more than occasional pedestrian activity? Evidence of pedestrian activity may include a worn path. **Comments: There are existing sidewalks within the project limits and a worn path on the south side of Croton Point Avenue where no sidewalk exists. There is evidence of pedestrian activity within the project corridor based upon the existing traffic counts.**	**YES**☒ **NO**☐
4.	Are there existing or approved plans for generators of pedestrian activity in or within 800m of the project that promote or have the potential to promote pedestrian traffic in the project area, such as schools, parks, playgrounds, places of employment, places of worship, post offices, municipal buildings, restaurants, shopping centers or other commercial areas, or shared-use paths? **Comments: There are several generators of pedestrian activity within and around the proposed project area, including the Croton Point Park westerly of the project area as well as a few retail establishments that promote pedestrian activity.**	**YES**☒ **NO**☐
5.	Are there existing or approved plans for seasonal generators of pedestrian activity in or within 800m of the project that promote or have the potential to promote pedestrian traffic in the project area, such as ski resorts, state parks, camps, amusement parks? **Comments: There are no existing or approved plans for seasonal generators of pedestrian activity.**	**YES**☒ **NO**☐
6.	Is the project located in a residential area within 800m of existing or planned pedestrian generators such as those listed in #4? **Comments:**	**YES**☐ **NO**☒
7.	From record plans, were pedestrian facilities removed during a previous highway reconstruction project? **Comments: Pedestrian Facilities have not been removed during previous highway reconstruction projects.**	**YES**☐ **NO**☒
8.	Did a study of secondary impacts indicate that the project promotes or is likely to promote commercial and/or residential development within the intended life cycle of the project? **Comments:**	**YES**☐ **NO**☒
9.	Does the community's comprehensive plan call for development of pedestrian facilities in the area? **Comments: The Village of Croton-on-Hudson comprehensive plan and pedestrian and bicycle plans recommend sidewalks within the project limits.**	**YES**☒ **NO**☐
10.	Based on the ability of students to walk and bicycle to school, would the project benefit from engineering measures under the Safe-Routes-To-School-Program? Eligible infrastructure-related improvements must be within a 3.2km radius of the project. **Comments:**	**YES**☐ **NO**☒

ADDITIONAL COMMENTS:
Include comment on exceptional circumstances from EI 04-011 if pedestrian accommodations are warranted but not provided.

***Note**: This checklist should be revisited due to a project delay or if site conditions or local planning changes during the project development process.*

Traffic Analysis

Table of Contents

Traffic Analysis

The following discussion describes the traffic data used for this project and the methods used to analyze existing and future conditions. The exhibits that are printed in the main body of the design report follow the design report naming convention. Exhibits unique to this appendix begin with the letter “C”.

Croton Point Avenue provides access to the Croton-Harmon train station located at the westerly end of the project limits, via Veterans Plaza. Vehicular volumes are high and very directional with approximately 75% of the traffic traveling to the train station during the AM peak period and 75% from the train station during the PM peak period. Croton Point Avenue is free-flowing since there are no traffic signals or stop control for the vehicles between S. Riverside Avenue and Veterans Plaza. Given the highly directional vehicular flows and few gaps in Croton Point Avenue free flowing traffic, there are few opportunities for pedestrians or bicyclists to cross Croton Point Avenue and for side street traffic from Veterans Plaza, the US Route 9 southbound and the US Route 9 northbound off ramps to access Croton Point Avenue. As a result of the limited gaps to access Croton Point Avenue, vehicles experience long delays and queues extending along each of these roadways. The lengthy queues along the US Route 9 southbound off ramp potentially impact US Route 9 traffic. In addition, the lengthy US Route 9 southbound off ramp queues exacerbate the situation, as there is a constant stream of traffic wishing to exit US Route 9.

The Village of Croton-on-Hudson provides personnel at Veterans Plaza during 1 hour of both the AM and PM peak periods and at the US Route 9 southbound ramp for 1-hour during the AM peak period to help facilitate pedestrian and bicyclist crossings. The use of personnel at these intersections is an interim measure used during the peak periods implemented by the Village to accommodate pedestrian and bicycle crossings, while also attempting to facilitate vehicular flow on these side streets to reduce the long delays, queues (including traffic backups to the US Route 9 mainline) and poor levels of service that would otherwise exist without active control.

1.0 DESIGN YEAR

The following design years are used in accordance with the NYSDOT Project Development Manual Appendix 5:

- Existing (2011)
- Estimated time of completion (ETC) (2013)
- ETC + 10 years (2023)
- ETC + 20 years (2033) (traffic volumes for air screening only)

2.0 GROWTH RATES

The growth rate used to calculate No-Build condition background traffic growth for this project was 0.62% per year as per information from the New York Metropolitan Transportation Council (NYMTC).

3.0 STUDY AREA

The traffic study area includes the project limits described in Section 1.2.1 of the design report which begins at the intersection of Croton Point Avenue and Veterans Plaza and proceeds easterly for approximately 1,240 feet to the intersection of Croton Point Avenue and S. Riverside Avenue. From this intersection, the project proceeds northerly for approximately 500 feet to the intersection of S. Riverside Avenue and Benedict Boulevard.

Croton Point Avenue is a four-lane undivided roadway consisting of two 11.5 - 12 ft. wide eastbound travel lanes and two 11 - 13 ft. wide westbound travel lanes. S. Riverside Avenue also typically consists of a four lane undivided section with two 10 ft. wide northbound travel lanes and two 10 ft. wide southbound travel lanes.

Veterans Plaza consists of a three lane section with one 10 ft. wide northbound travel lane, one 10 ft. wide southbound travel lane and a 10 ft. wide center lane, used as a reversible travel lane. During the AM peak hours, it is used as an inbound lane (southbound direction) and during the PM peak hours, it is used as an outbound lane (northbound direction) to accommodate the high directional traffic volumes.

The US Route 9 southbound and northbound off ramps intersect Croton Point Avenue and each consist of a single 13 ft. wide travel lane.

The project limits include the following five study intersections:

Unsignalized Intersections:

- Croton Point Avenue & Veterans Plaza
- Croton Point Avenue & US Route 9 southbound on/off ramp
- Croton Point Avenue & US Route 9 northbound on/off ramp

Signalized Intersections:

- Croton Point Avenue & S. Riverside Avenue
- S. Riverside Avenue & Benedict Boulevard

Both of these signalized intersections are actuated. The S. Riverside Avenue and Croton Point Avenue intersection is controlled by a multi-phase, actuated traffic signal. All movements operate by permitted phasing with the exception of the S. Riverside Avenue southbound right turn movement, which operates as a permitted phase and also overlaps with the Croton Point Avenue eastbound approach. Pedestrian pushbuttons and signals are provided to cross the south leg of S. Riverside Avenue and the west leg of Croton Point Avenue.

At the S. Riverside Avenue and Benedict Boulevard intersection, all movements have permitted operation. Pedestrian pushbuttons and signals are provided to cross the north leg of S. Riverside Avenue and the west leg of Benedict Boulevard, although there is no marked crosswalk across this west leg of the intersection. There is a marked crosswalk to cross the south leg of S. Riverside Avenue but no pedestrian pushbutton or signal to accommodate the crossing.

For the unsignalized intersections, stop control exists on the minor street approaches. Stop control exists on the US Route 9 southbound off ramp and the US Route 9 northbound off ramp. At the Croton Point Avenue with Veterans Plaza intersection, three of the approaches (Veterans Plaza northbound, southbound access drive and Croton Point Avenue eastbound) are all stop controlled. The Croton Point Avenue westbound approach is the only uncontrolled approach, making this a non-typical controlled intersection as most unsignalized intersections are either two-way or all-way stopped controlled intersections.

The Village of Croton-on-Hudson currently assigns personnel to the Croton Point Avenue and Veterans Plaza intersection during 1 hour of the AM and PM peak periods and personnel at the Croton Point Avenue and US Route 9 southbound on / off ramps during 1 hour of the AM peak period to facilitate pedestrian and bicycle crossings at these locations. In addition, they monitor the traffic along the southbound off ramp, and help facilitate traffic flow at both intersections to manage queue along the ramp.

4.0 TRAFFIC DATA

4.1 Traffic Speeds

The existing posted speed limit on Croton Point Avenue and S. Riverside Avenue within the project limits is 30 miles per hour. Speed data was not collected to record actual vehicle operating speeds. Vehicles were observed during traffic data collection and speeds appeared to be low and appropriate for the context and design of the roadways.

4.2 Travel Time & Delays

Travel time estimates were not computed since this is a pedestrian and bicycle enhancement project and not a major capacity improvement project.

4.3 Traffic Volume Source

Traffic Volumes were collected for this traffic analysis from the following:

- A study entitled, "Village of Croton-on-Hudson Croton Harmon Parking Facility, Pedestrian and Bicycle", performed by the RBA Group, dated July 2008 for the Village of Croton-on-Hudson was used as the basis for the turning movements at the five study area intersections. The manual turning movement counts for that study were obtained in April 2008 during the weekday AM (6:30 to 8:45) and PM (5:15 to 7:30) commuter peak periods and were recorded in 15-minute increments by vehicle classification.

- CHA collected turning movement counts from 12 am on Tuesday, July 19, 2011 through 12 am on July 22, 2011, recorded in 15-minute increments by vehicle classification for the following intersections:

  - Croton Point Avenue and US Route 9 southbound on / off ramps
  - Croton Point Avenue and US Route 9 northbound on / off ramps

- CHA installed an automatic traffic recording (ATR) device on Veterans Plaza to collect hourly traffic volumes, speed data and vehicle classification data for a continuous 72-hour period during this same period.

The turning movement and ATR traffic count data obtained by CHA is provided in Attachment C-2 of this Appendix.

The volumes obtained by CHA were used to verify the accuracy of the traffic data in the RBA study for use in the intersection capacity analysis, to evaluate growth that has occurred over the 3-year period, and for use in the Traffic Signal Warrant Study for the following intersections:

- Croton Point Avenue and Veterans Plaza
- Croton Point Avenue and US Route 9 southbound on / off ramps
- Croton Point Avenue and US Route 9 northbound on / off ramps

The design year traffic volumes include an increase of the existing volumes to account for background growth.

4.4 Traffic Flow Diagrams

Traffic flow diagrams are presented for the AM and PM peak hour traffic volumes on Figures C.4.4.1 through C.4.4.4 in Attachment C-1 of this Appendix.

Exhibit 2.3.1.6-1 and Exhibit 2.3.1.6-2 presents the existing (2011) and projected ETC (2013) and ETC+10 (2023) traffic volumes for the study area.

Exhibit - 2.3.1.6-1
Traffic Data

Route	**Croton Point Avenue** (From Veterans Plaza to US Route 9 southbound ramps)	**Croton Point Avenue** (From US Route 9 southbound ramps to S. Riverside Avenue)	**S. Riverside Avenue (NY 9A)**
Directional Distribution	EB / WB 25% / 75% AM, 75% / 25% PM	EB / WB 75% / 25% AM, 30% / 70% PM	SB/NB 75% / 25% AM 27% / 73% PM
Peak Hour Factor	0.87 AM, 0.80 PM	0.84 AM, 0.89 PM	0.92 AM, 0.96 PM
% Peak Hour Trucks	2% AM, 1% PM	5% AM, 1% PM	4% AM, 1% PM
% Daily Trucks	3%	3%	3%

Exhibit - 2.3.1.6-2
Existing and Forecast Traffic Volumes

Route	**Croton Point Avenue** (From Veterans Plaza to US Route 9 southbound ramps)		**Croton Point Avenue** (From US Route 9 southbound ramps to S. Riverside Avenue)		**S. Riverside Avenue (NY 9A)** (From Croton Point Avenue to Benedict Boulevard)	
Year	ADT	DHV	ADT	DHV	ADT	DHV
Existing (2011)	9,400	1,500	11,200	980	7,650	720
ETC (2013)	9,500	1,520	11,350	995	7,750	730
ETC+10 (2023)	10,100	1,615	12,075	1055	8,240	775

5.0 TRAFFIC CHANGES DUE TO BUILD ALTERNATIVES

It is not anticipated that the Build Alternative would change the traffic patterns in the area. Therefore, the Build Alternative traffic volumes are the same as the volumes for the No-Build Alternative.

6.0 TRUCK TRAFFIC

Heavy vehicle (truck) traffic for the study corridor intersections during the peak hours was calculated to be between 1 and 5% in the AM and PM peak hours based on collected field data.

7.0 ANALYSIS

TrafficWare's Synchro/SimTraffic was used to analyze the intersections within the study corridor. The delay times and level of service (LOS) were analyzed for each intersection approach and for the overall intersection to identify the performance characteristics of the existing conditions and for the design horizons. The delay times, approach LOS, and intersection LOS obtained from the Synchro models are based on the methodologies and procedures of the 2000 Highway Capacity Manual (HCM), published by the Transportation Research Board. SimTraffic was used to check queue lengths and the model's accuracy in depicting future roadway layout and traffic controls.

8.0 CALIBRATION

The existing LOS results from Synchro/SimTraffic appear consistent with the observed queues and delays during peak traffic periods.

9.0 LEVEL OF SERVICE CRITERIA

LOS is presented as a letter from A to F with A representing free flowing, unimpeded traffic with little or no delay and F representing highly congested traffic flow with long delays.

Standard design objectives for signalized intersections is to achieve a LOS D or better on each lane group in urban areas during peak hours (NYSDOT Highway Design Manual, Chapter 5.9.2). For unsignalized intersections, the LOS is only calculated for minor movements since the through movement on the major street is not affected by intersection traffic control. However, it is recognized that there are many competing objectives and considerations, especially in urban areas, that may affect the desirability and feasibility of achieving this goal for peak hours. In these cases, peak-hour LOS E or F on individual lane groups may be acceptable. Attachment C-3 of this appendix includes a detailed description of the LOS criteria for signalized and unsignalized intersections from the HCM 2000.

10.0 LEVEL OF SERVICE, TRAVEL SPEEDS, DELAYS AND QUEUES

10.1 <u>Existing and No-Build Level of Service</u>

Summaries of the LOS for the existing and future year No-Build are presented in Exhibits 2.3.1.7-1 and 2.3.1.7-2. LOS worksheets for all of the capacity analyses are provided in Attachment C-4 of this Appendix.

S. Riverside Avenue with Croton Point Avenue and with Benedict Boulevard were analyzed as signalized intersections. Croton Point Avenue with Veterans Plaza, with the US Route 9 southbound on/off ramps and with the US Route 9 northbound on/off ramp were analyzed as unsignalized Intersections, without the use of manual control.

Exhibit 2.3.1.7-1
Level of Service Summary
Existing Condition

Intersection & Approach	Control[1]	Existing			
		AM		PM	
		LOS	Delay	LOS	Delay
Croton Point Ave & Veterans Plaza					
Eastbound		A	1.0	A	0.0
Westbound	U	B	10.0	A	5.8
Northbound		F	138.0	C	15.3
Southbound		F	NA	F	NA
Overall		E	38.3	NA	NA
Croton Point Ave & Route 9 southbound ramps					
Eastbound		A	0.0	A	0.0
Westbound	U	A	2.3	A	6.7
Southbound		F	166.8	C	18.2
Overall		E	49.0	A	3.1
Croton Point Ave & Route 9 northbound ramps					
Eastbound		A	0.0	A	0.0
Westbound	U	A	0.2	A	1.4
Northbound		F	66.8	F	83.4
Overall		C	20.2	C	23.8
Croton Point Ave & S. Riverside Ave					
Eastbound		B	11.4	B	11.6
Northbound	S	A	7.0	B	12.3
Southbound		A	3.3	A	5.6
Overall		A	5.6	B	10.5
S. Riverside Ave & Benedict Blvd					
Eastbound		B	15.2	B	19.2
Westbound		C	23.5	C	22.7
Northbound	S	B	10.8	A	9.5
Southbound		B	16.0	A	8.2
Overall		B	16.8	B	11.7

[1] U= unsignalized, S = signalized
NA = Delay excessive or not reportable / Level of Service not reportable

As shown in these analyses, the two signalized study area intersections currently operate satisfactorily overall (LOS B or better) during the AM and PM peak hours and are projected to continue operating at the same LOS at ETC and ETC+10 with all approaches operating at LOS C or better.

The Croton Point Avenue and Veterans Plaza intersection shows an overall LOS E with both the north- and southbound approaches operating at LOS F during the AM peak period. The overall LOS for the PM peak period could not be determined. The southbound approach shows a LOS F with an undetermined amount of delay. This intersection will continue to operate with unsatisfactory LOS and long delays through the ETC+10 (2023) No-Build conditions.

The Croton Point Avenue and US Route 9 southbound ramps show an overall LOS E during the AM peak period with the southbound approach experiencing a LOS F. The overall and approach LOS is acceptable during the PM peak period. Without improvements, this intersection will continue to have unsatisfactory operations during the AM peak period through the ETC+10 (2023) No-Build condition.

The Croton Point Avenue and US Route 9 northbound ramps show an overall LOS C with the northbound approach operating at LOS F during both the AM and PM peak periods. This intersection will begin to experience longer delays and unacceptable LOS for the northbound approach through the ETC+10 (2023) No-Build condition. In addition, the overall operations will deteriorate to LOS D and LOS E during the AM and PM peak periods, respectively through 2023.

During the AM peak period, while the overall LOS for the Croton Point Avenue at the US Route 9 northbound ramps operate at LOS C, the northbound approach experiences long delays resulting in a

LOS F. The Croton Point Avenue at Veterans Plaza and the US Route 9 northbound ramps experience unacceptable LOS with long delays and queues.

Exhibit 2.3.1.7-2
Level of Service Summary
No-Build Condition

Intersection & Approach	Control[1]	ETC (2013)				ETC+10 (2023)			
		AM		PM		AM		PM	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Croton Point Ave & Veterans Plaza									
Eastbound	U	A	1.0	A	0.0	A	1.0	A	0.0
Westbound		B	10.2	A	5.8	B	11.4	A	5.8
Northbound		F	161.3	C	15.6	F	333.7	C	17.3
Southbound		F	NA	F	NA	F	NA	F	NA
Overall		E	43.4	NA	NA	F	80.3	NA	NA
Croton Point Ave & Route 9 southbound ramps									
Eastbound	U	A	0.0	A	0.0	A	0.0	A	0.0
Westbound		A	2.3	A	6.8	A	2.4	A	7.3
Southbound		F	180.1	C	18.6	F	264.5	C	21.1
Overall		F	52.7	A	3.2	F	77.0	A	3.5
Croton Point Ave & Route 9 northbound ramps									
Eastbound	U	A	0.0	A	0.0	A	0.0	A	0.0
Westbound		A	0.2	A	1.4	A	0.2	A	1.5
Northbound		F	72.5	F	92.0	F	111.1	F	142.7
Overall		C	21.8	D	26.2	D	33.4	E	40.5
Croton Point Ave & S. Riverside Ave									
Eastbound	S	B	11.4	B	11.6	B	11.7	B	11.8
Northbound		A	6.9	B	12.4	A	7.1	B	13.1
Southbound		A	3.3	A	5.6	A	3.3	A	5.8
Overall		A	5.7	B	10.6	A	5.8	B	10.9
S. Riverside Ave & Benedict Blvd									
Eastbound	S	B	15.2	B	19.2	B	15.2	B	19.3
Westbound		C	23.7	C	22.7	C	24.8	C	23.1
Northbound		B	10.8	A	9.6	B	10.9	A	9.8
Southbound		B	16.1	A	8.2	B	17.0	A	8.3
Overall		B	16.9	B	11.7	B	17.6	B	11.9

[1] U= unsignalized, S = signalized
NA = Delay excessive or not reportable / Level of Service not reportable

10.2 Level of Service for Build Alternatives

The use of personnel during 1 hour of the peak period hours does not accommodate the conditions during non-peak periods and the shoulder hours of the peak period where vehicular, pedestrian and bicycle volumes are high. In addition, this manual control requires a significant local cost and allocation of resources to manage operations at Veterans Plaza and the state highway ramp and poses an inherent safety risk to the personnel providing manual control.

Given the poor levels of service at unsignalized intersections, the long delay, queues and inherit safety risk for personnel helping facilitate operations, improvements are necessary to provide acceptable levels of service at these three intersections:

- Croton Point Avenue at Veterans Plaza
- Croton Point Avenue at Route 9 southbound ramps
- Croton Point Avenue at Route 9 northbound ramps

A traffic signal warrant analysis was conducted to determine if the volumes meet the warranting criteria for a traffic signal. A traffic signal could be the appropriate traffic control for these intersections, if it meets one or more of the warrants, as a traffic signal produces gaps in traffic that can be used by minor street traffic to enter the major street, and offers positive guidance to pedestrians by providing visual and occasionally audible pedestrian signal indications. The traffic signal essentially offers the same benefits as manual control with the exception that personnel are not at a safety risk, and the benefits can be experienced throughout the entire day, as opposed to the 2-hours of the day currently provided by the manual control.

The hourly volumes for each of the above noted intersections were compared against the volume warrant criteria in the Manual of Uniform Traffic Control Devices (MUTCD). The analysis performed shows that the volumes met the warranting criteria of the four-hour and peak hour warrants for the Croton Point Avenue with the US Route 9 southbound ramps and the northbound ramps, and the peak hour warrant was met for the Croton Point Avenue and Veterans Plaza intersection. See Section 12.0 for a complete discussion of the signal warrant analysis.

Therefore, a traffic signal is proposed to be installed at the three above noted intersections, with full vehicle detection and coordination with the two signalized intersections on S. Riverside Avenue at Croton Point Avenue and Benedict Boulevard. In addition, the following improvements are proposed:

- Exclusive right turn lane constructed on the US Route 9 southbound off ramp such that this approach will consist of an exclusive right turn lane and a shared left / through / right lane.
- Veterans Plaza widened at Croton Point Avenue to accommodate two outbound lanes; an exclusive right turn lane and a shared left/ through /right turn lane, and two inbound lanes.

Summaries of the LOS for the Build future years are presented in Exhibit 3.3.1.7-2. LOS worksheets for all of the capacity analyses are provided in Attachment C-4 of this Appendix.

Exhibit 3.3.1.7-2
Level of Service Summary
Build Condition

Intersection & Approach	Control[1]	ETC (2013)				ETC+10 (2023)			
		AM		PM		AM		PM	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Croton Point Ave & Veterans Plaza									
Eastbound	S	E	70.3	D	51.9	E	71.2	D	52.3
Westbound		B	12.9	B	16.5	B	13.7	B	17.2
Northbound		C	31.4	C	22.5	C	31.2	C	22.4
Southbound		E	57.0	E	58.4	E	56.6	E	64.4
Overall		C	21.5	C	24.6	C	22.0	C	24.9
Croton Point Ave & Route 9 southbound ramps									
Eastbound	S	C	22.8	C	20.4	C	23.9	C	21.1
Westbound		B	18.1	B	11.2	B	18.6	B	10.7
Southbound		E	68.6	D	41.8	E	72.0	D	41.9
Overall		C	33.5	B	19.8	C	34.9	B	20.1
Croton Point Ave & Route 9 northbound ramps									
Eastbound	S	A	8.5	C	21.1	A	9.0	C	22.6
Westbound		B	16.5	A	6.4	B	17.5	A	9.5
Northbound		D	37.3	C	23.2	D	37.3	C	23.0
Overall		C	21.2	B	18.7	C	21.9	B	20.0
Croton Point Ave & S. Riverside Ave									
Eastbound	S	A	3.7	A	5.8	A	1.7	A	5.6
Northbound		E	57.2	D	50.8	E	57.5	D	50.4
Southbound		A	5.0	B	12.3	A	6.6	B	11.6
Overall		A	8.9	B	18.3	A	9.5	B	17.9
S. Riverside Ave & Benedict Blvd									
Eastbound	S	D	39.8	D	45.3	D	38.4	D	44.7
Westbound		E	63.9	E	57.8	E	63.3	E	58.1
Northbound		B	10.8	A	3.2	B	11.4	A	4.3
Southbound		B	12.1	A	4.2	B	13.5	A	4.5
Overall		C	26.6	B	13.2	C	27.2	B	14.0

[1] U= unsignalized, S = signalized

The capacity analysis shows that with signalization and the proposed improvements discussed above, the overall operations of Croton Point Avenue with Veterans Plaza, the US Route 9 southbound ramps and the US Route 9 northbound ramps will improve such that the overall LOS will be C or better through

ETC+10 (2023) with many of the approaches also experiencing less delay and improved LOS including the Veterans Plaza northbound and southbound approaches, the US Route 9 southbound off ramp, and the US Route 9 northbound off ramp. Overall LOS operations at the Croton Point Avenue with S. Riverside Avenue and Benedict Boulevard will be LOS C or better through ETC+10 (2023).

11.0 SAFETY CONSIDERATIONS, ACCIDENT HISTORY AND ANALYSIS

Accident analyses were conducted for the intersections within the project limits using police accident reports compiled from the Village of Croton-on-Hudson Police Department for the three-year period of June 2008 to June 2011. These accident records documented 55 accidents occurring on study area roadways during this time period. Approximately 11% of the accidents were personal injury accidents, and the remaining 89% were property damage only accidents. There were no fatalities. Summaries of the accident severity for the project intersections are provided in Exhibit 2.3.1.8-1.

Exhibit 2.3.1.8-1
Intersection Accident Summary by Severity

Location	Fatal	Injury	Property Damage Only (PDO)	Total
Croton Point Avenue & Veterans Plaza	0	1	9	10
Croton Point Avenue & US Route 9 southbound ramps	0	1	9	10
Croton Point Avenue & US Route 9 northbound ramps	0	0	8	10
Croton Point Avenue & S. Riverside Avenue	0	2	15	19
S. Riverside Avenue & Benedict Boulevard	0	2	4	6
Total	**0**	**6**	**45**	**55**
% of Total	**0**	**13%**	**87%**	**100%**

The predominant crash type within the project limits are rear end (17) accidents which account for approximately 31% of the total crashes. Overtaking (9) and left turn (7) accidents were also predominate types of accidents. These two crash types account for 29% of the total crashes.

There were six reported crashes involving pedestrians or bicyclists, of which 2 of these types of accidents occurred at each of the following intersections: [1] Croton Point Avenue & Veterans Plaza [2] Croton Point Avenue & US Route 9 southbound on/off ramps and [3] Croton Point Avenue & S. Riverside Avenue. Exhibit 2.3.1.8-2 summarizes the accident types for the intersections within the project limits.

Exhibit 2.3.1.8-2 Intersection Accident Summary by Type											
Location	**Angle**	**Rear End**	**Fixed Object**	**Overtake**	**Sideswipe**	**Left-Turn**	**Pedestrian /Bike**	**Head-On**	**Other**	**Total**	**% of Total**
Croton Point Avenue & Veterans Plaza	2	1	1	4	0	0	2	0	0	10	18%
Croton Point Avenue & US Route 9 southbound ramps	0	6	0	0	0	0	2	0	2	10	18%
Croton Point Avenue & US Route 9 northbound ramps	3	1	1	2	0	2	0	1	0	10	18%
S. Riverside Avenue & Croton Point Avenue	0	5	0	3	3	5	2	0	1	19	35%
S. Riverside Avenue & Benedict Boulevard	0	4	0	0	0	0	0	0	2	6	11%
Total	**5**	**17**	**2**	**9**	**3**	**7**	**6**	**1**	**5**	**55**	**100%**
% of Total	**9%**	**31%**	**4%**	**16%**	**5%**	**13%**	**11%**	**2%**	**9%**	**55**	**100%**

The accident rates for intersections are expressed as accidents per million entering vehicles (ACC/MEV). For intersections on the State facility, the statewide average accident rate for similar facilities is provided for comparison purposes. Accident rates for the project area intersections are summarized in Exhibit 2.3.1.8-3.

Exhibit 2.3.1.8-3 Intersection Accident Rates		
Location	**Accident Rate ACC/MEV**	**Statewide Average ACC/MEV**
Croton Point Avenue & Veterans Plaza	0.67	-
Croton Point Avenue & US Route 9 northbound ramps	0.64	0.19
Croton Point Avenue & US Route 9 southbound ramps	0.72	0.11
S. Riverside Avenue & Croton Point Avenue	1.50	-
S. Riverside Avenue & Benedict Boulevard	0.57	-

Only the intersections on State routes are applicable to be compared to the Statewide Average Accident Rates published by NYSDOT. This would include the intersections of Croton Point Avenue with the US Route 9 southbound ramps and the US Route 9 northbound ramps; each of which exceed the statewide average rate.

A review of the accident types at Croton Point Avenue and the US Route 9 southbound ramps shows that there is a pattern of rear end accidents on the US Route 9 southbound off ramp. This pattern may be attributed to the queues on the ramp and the congestion at the intersection as a result of the high directional flow of traffic to the Croton Harmon Station during the AM peak period. The 2 pedestrian/bicyclist accidents could be attributed to the fact that at two-way stop controlled intersections, right-turning motorists often look only to the left in order to check for vehicular conflicts, endangering or inconveniencing pedestrians crossing from the right or on the right. This situation is exacerbated by the fact that many of these drivers do not come to a complete stop if they do not perceive any conflicts.

A review of the accident types at Croton Point Avenue and the US Route 9 northbound ramps shows that there were a few angle, turn and overtaking accidents. There was not a pattern to these accidents. However, contributing factors included driver inattention/distraction, failure to yield right of way and turning improperly.

Although not compared to the statewide average rate, since it is not on the State highway system, the accident data showed that 35% of the total accidents (19) in the project area occurred at the Croton Point Avenue and S. Riverside Avenue intersection for the three year period. Predominate accident types were rear-end (5) and left-turn (5) accidents. Wet pavement / snow contributed to four of the nineteen accidents. Of the remaining nineteen accidents, five had contributing factors of failing to yield right of way, traffic control disregarded and turning improperly and six had contributing factors of driver inattention and following too closely.

The preferred Build Alternative includes the addition of three traffic signals on Croton Point Avenue at Veterans Plaza, the US Route 9 southbound on /off ramps, and the US Route 9 northbound on/off ramps. In addition, the preferred Build Alternative includes construction of a southbound right turn lane on the US Route 9 southbound off ramp and realigning the US Route 9 northbound on ramp that will be controlled by the signal.

Signal control provides vehicles exiting the minor street approaches (Veterans Plaza, the southbound off ramp and the northbound off ramp) with an exclusive phase to enter Croton Point Avenue and provides phasing for pedestrians and bicyclists to cross each of the roadways. Signalization also eliminates the need for manual control and the inherit safety risk associated with this control.

Constructing an exclusive southbound right turn lane provides both operational and safety benefits by providing an additional lane for right turning vehicles to move through the intersection during the minor street phase, which can reduce the queue of traffic along the ramp and reduce the potential for rear-end crashes. In addition, advance detection is proposed for the off ramps so that queues do not extend to the US Route 9 mainline.

In addition, realigning the US Route 9 northbound on ramp at Croton Point Avenue will improve the overall navigation of the road, which can reduce the potential for accidents from the east to northbound channelized right turn and the west to northbound left turn movements. Narrowing of the Croton Point Avenue and US Route 9 northbound on ramp intersection such that the eastbound free-flowing channelized right-turn on Croton Point Avenue would be eliminated and right-turns would be made from the signalized intersection proper would improve the pedestrian crossing.

The proposed improvements can reduce the likelihood of some vehicle conflicts that involved failure ot yield right of way and turning improperly.

Collision diagrams are provided for these locations in Attachment C-5 to this Appendix.

12.0 SIGNAL WARRANT ANALYSIS

A signal warrant analysis was conducted for the existing conditions at the following three intersections:

- Croton Point Avenue & Veterans Plaza
- Croton Point Avenue & US Route 9 southbound on/off ramps
- Croton Point Avenue & US Route 9 northbound on/off ramps

The signal warrant analysis is based on methodologies described within Chapter 4C of Manual on Uniform Traffic Control Devices, (MUTCD) 2009. There are nine warrants that can be evaluated to determine if traffic signal control would be warranted. The nine warrants are:

Warrant 1: Eight-Hour Vehicular Volume
Warrant 2: Four-Hour Vehicular Volume
Warrant 3: Peak Hour
Warrant 4: Pedestrian Volume
Warrant 5: School Crossing
Warrant 6: Coordinated Signal System
Warrant 7: Crash Experience
Warrant 8: Roadway Network
Warrant 9: Intersection Near a Grade Crossing

The warrants that are applicable to this project are Warrants 1, 2, 3, 4 and 7. Although Warrants 5, 6, 8, and 9 are discussed below, they are not applicable to this project.

Warrant 1: This warrant is intended at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Warrant 2: This warrant is intended at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Warrant 3: This warrant is intended at locations where for one hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street. This warrant is applied only in unusual cases such as office complexes, manufacturing plants, industrial complexes, or high occupancy vehicle facilities that attract or discharge large number of vehicles over a short time.

The Croton-Harmon train station is a facility that attracts and discharges a large number of vehicles over a short time. Therefore, this warrant is applicable to this project.

Warrant 4: This warrant is intended for locations where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

Warrant 5: This warrant is intended for locations that are established crossings for school age children. This warrant is not applicable.

Warrant 6: This warrant is intended to maintain progression of traffic movement along a signalized corridor. The intersection is not currently located within a coordinated signal system. Therefore, this warrant does not apply.

Warrant 7: This warrant is intended where the severity and frequency of certain type accidents that could be remedied by a signal are the principal reason for installing a traffic control signal.

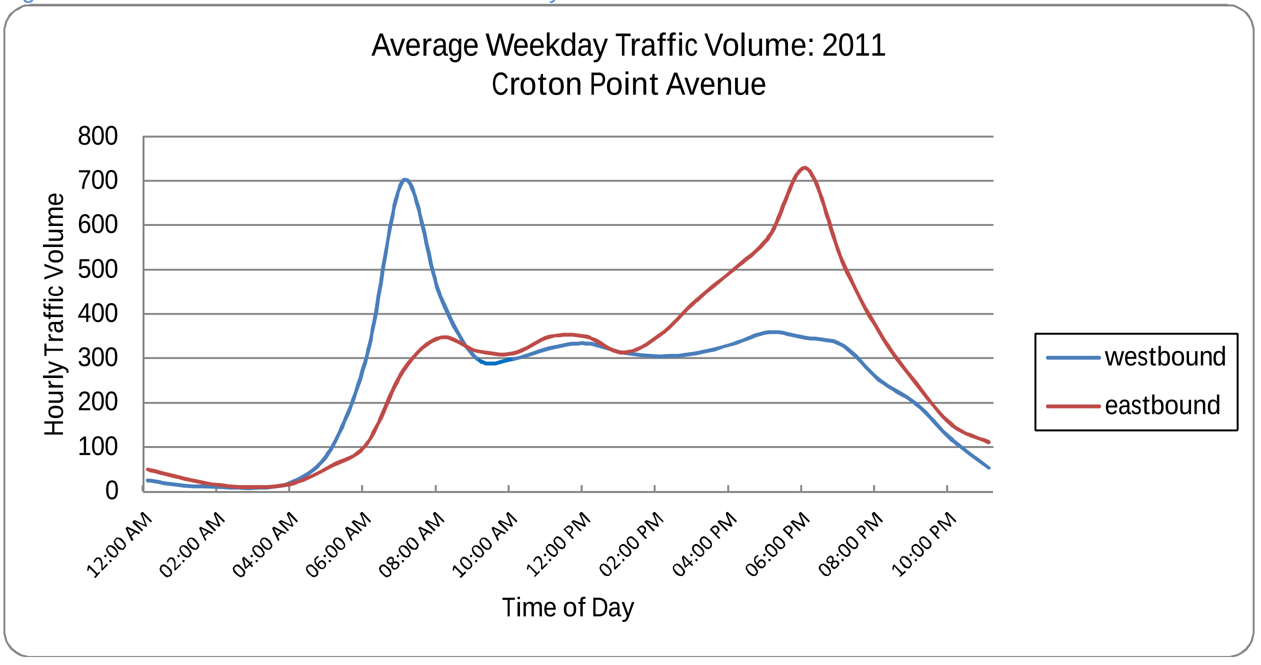
Warrant 8: This warrant applies to intersections that are the junctions of two roadways that are part of the principle roadway network for through traffic movements.

Warrant 9: This warrant is intended for locations where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal. This warrant is not applicable for the study intersection.

The existing vehicular and pedestrian volumes and accident history were compared to only these 5 (Warrants 1, 2, 3, 4 and 7) applicable warrants.

The existing hourly variation of directional weekday traffic volumes on Croton Point Avenue is illustrated in Figure 1 below.

Figure 1: Croton Point Avenue Traffic Volume Hourly Variation



As Figure 1 illustrates, volumes are very high on Croton Point Avenue and very directional with sharp peaks in the westbound direction during the AM peak period and in the eastbound direction during the PM peak period.

Figures 2, 3 and 4 show the hourly variations of the traffic at the three intersections included in this study. Figure 2 shows that the hourly volumes on the US Route 9 northbound off ramp are fairly consistent throughout the day, whereas the US Route 9 southbound off ramp has a sharp peak during the AM peak period (Figure 3) and Veterans Plaza has a sharp peak during the PM peak period (Figure 4).

Figure 2: Croton Point Avenue and US Route 9 northbound off ramp Traffic Volumes

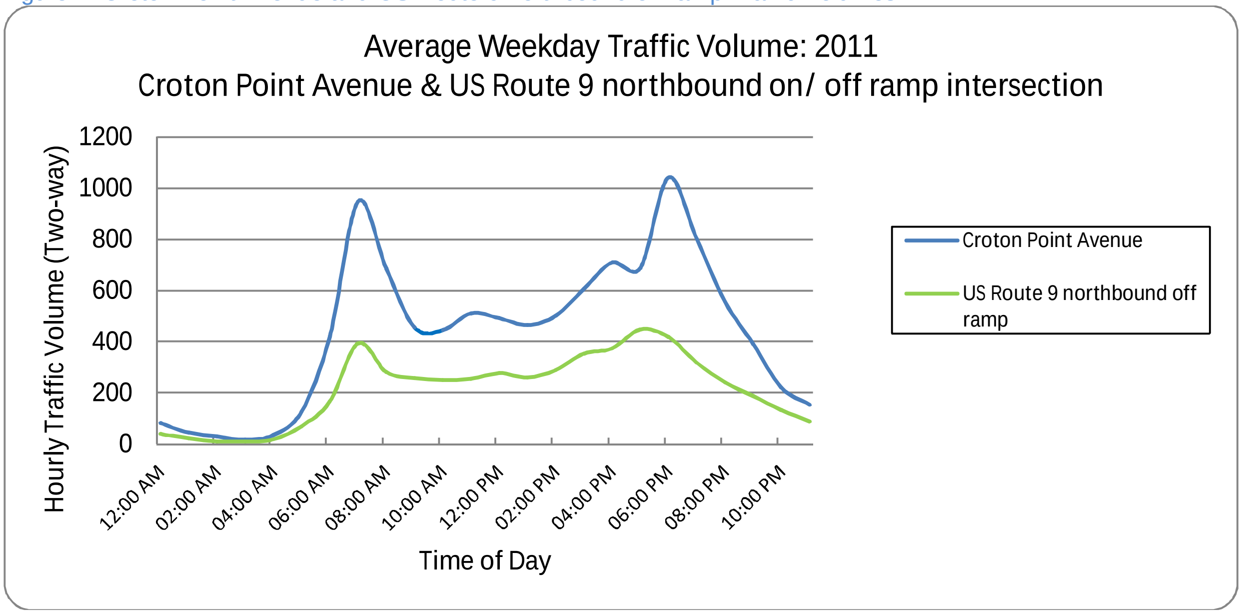


Figure 1: Croton Point Avenue and US Route 9 southbound off ramp Hourly Traffic Volumes

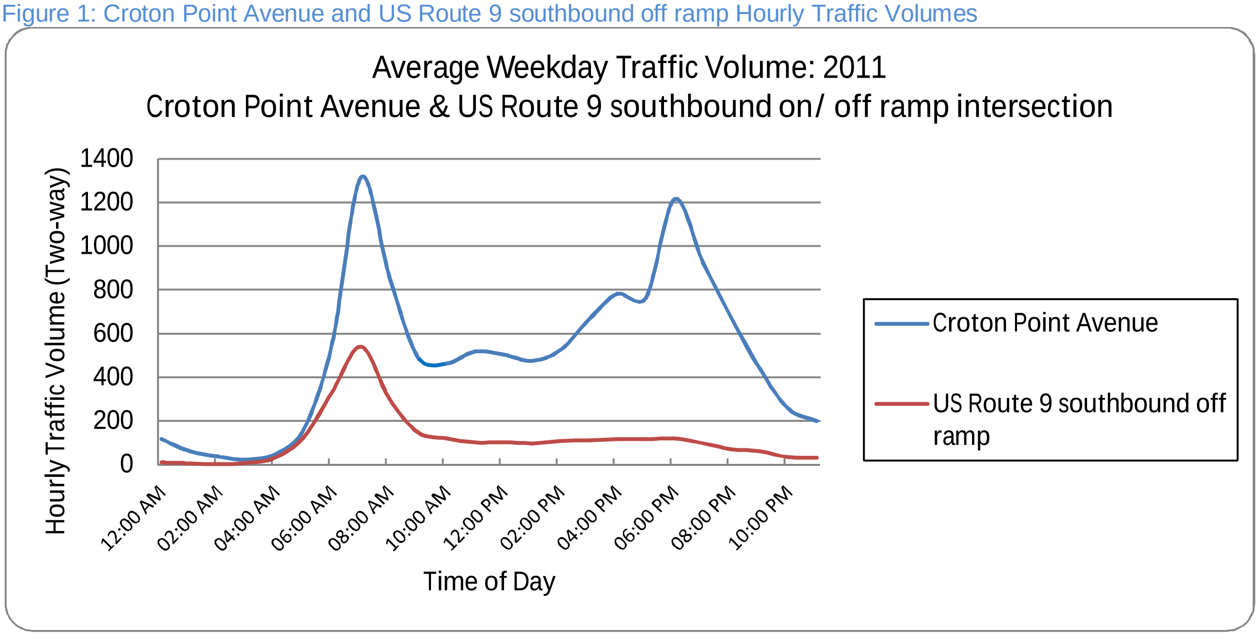
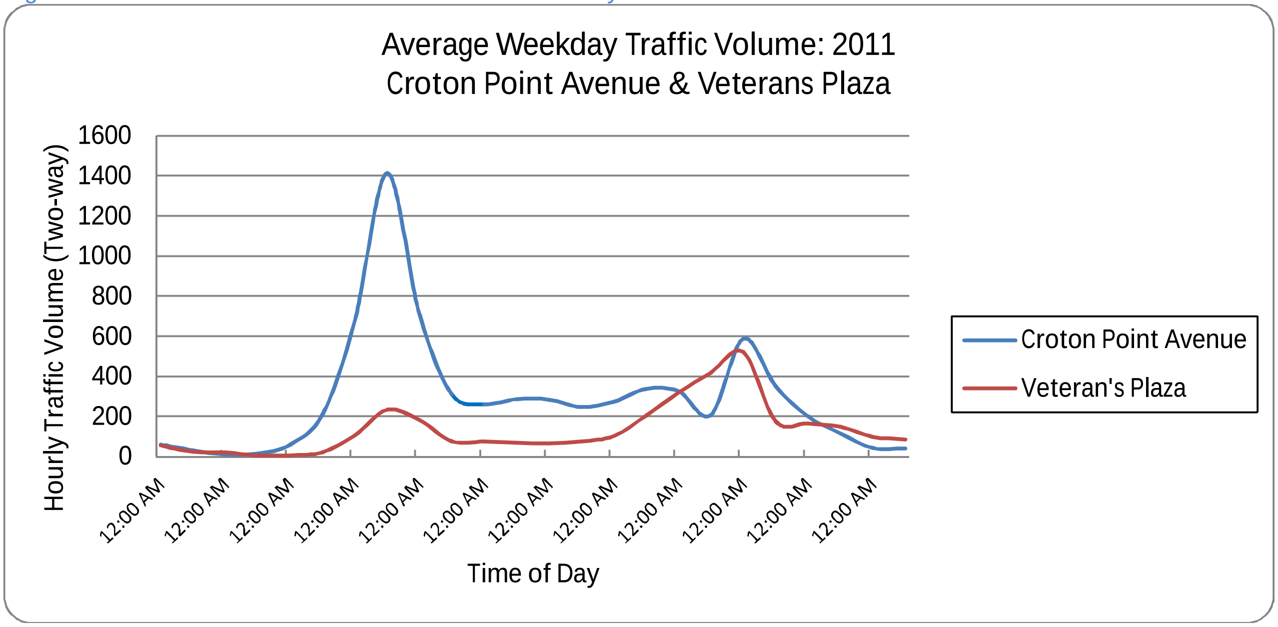


Figure 4: Croton Point Avenue and Veterans Plaza Hourly Traffic Volumes



The following is a summary of the Traffic Signal Warrant Analyses. See Attachment C-6.

A. Croton Point Avenue and Veterans Plaza

Since Veterans Plaza operates with a reversible lane, two separate signal warrant analyses were performed. The signal warrant analysis was conducted for the AM peak and non-peak periods (hours from 6 am to 4 pm) assuming a single lane northbound approach (minor-street) and two lanes for the Croton Point Avenue eastbound and westbound approaches (major-street). The signal warrant analysis was conducted for the PM peak period (4 pm to 7 pm) assuming two lanes for the northbound approach (minor-street) and two lanes for the Croton Point Avenue eastbound and westbound approaches (major street).

The traffic volumes on Croton Point Avenue and Veterans Plaza meet the minimum volume criteria for Warrant 3 (Peak Hour). The Peak Hour warrant is suitable for this location as the Croton-Harmon train station is a facility that attracts and discharges a large number of vehicles over a short time.

Given the poor unacceptable LOS as an unsignalized intersection, the use of manual control during 1 hour of the AM and PM peak hour to help facilitate pedestrian and bicycle crossings, and that the volumes meet the warranting criteria for a traffic signal, a traffic signal is recommended at this intersection.

B. Croton Point Avenue and US Route 9 southbound on/off ramps

The traffic volumes on Croton Point Avenue and the US Route 9 southbound off ramp meet the minimum volume criteria for Warrant 2 (Four-Hour Vehicular Volume) and Warrant 3 (Peak Hour).

Given the unacceptable LOS as an unsignalized intersection, the use of manual control during 1 hour of the AM peak period to help facilitate pedestrian and bicycle crossings, and that the volumes meet the warranting criteria for a traffic signal, a traffic signal is recommended at this intersection.

C. Croton Point Avenue and US Route 9 northbound on/off ramps

The traffic volumes on Croton Point Avenue and the US Route 9 northbound off ramp meet the minimum volume criteria for Warrant 2 (Four-Hour Vehicular Volume) and Warrant 3 (Peak Hour).

Given the unacceptable LOS as an unsignalized intersection and that the volumes meet the warranting criteria for a traffic signal, a traffic signal is recommended at this intersection.

Attachment C-1
Figures

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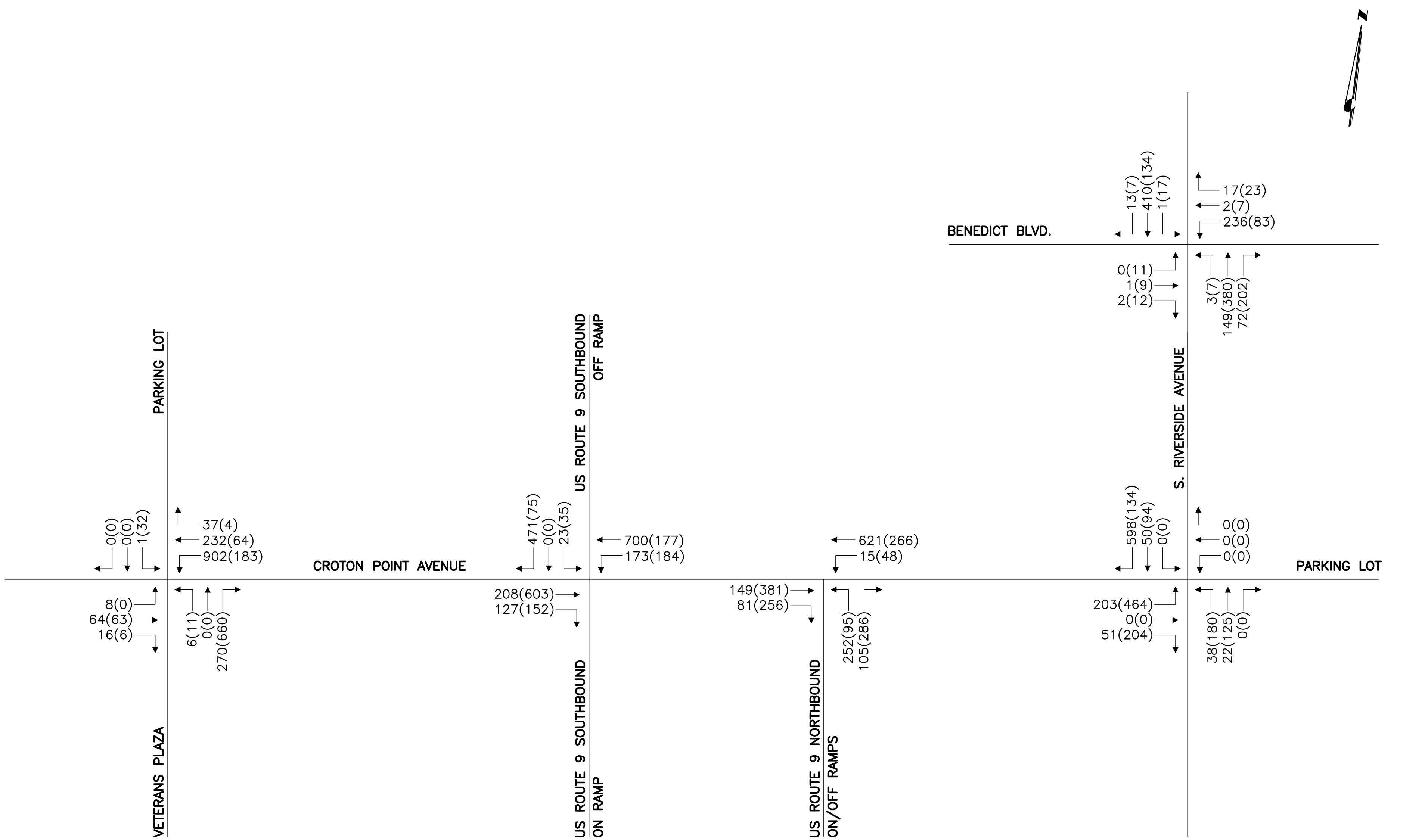

LEGEND:
AM PEAK HOUR (PM PEAK HOUR)

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EXISTING PEAK HOUR TRAFFIC VOLUMES

CROTON–ON–HUDSON PARKING FACILITY
AND BICYCLE ENHANCEMENTS
CROTON–ON–HUDSON, NY

PROJECT NO.
22961

DATE: 11/09/11

FIGURE 1

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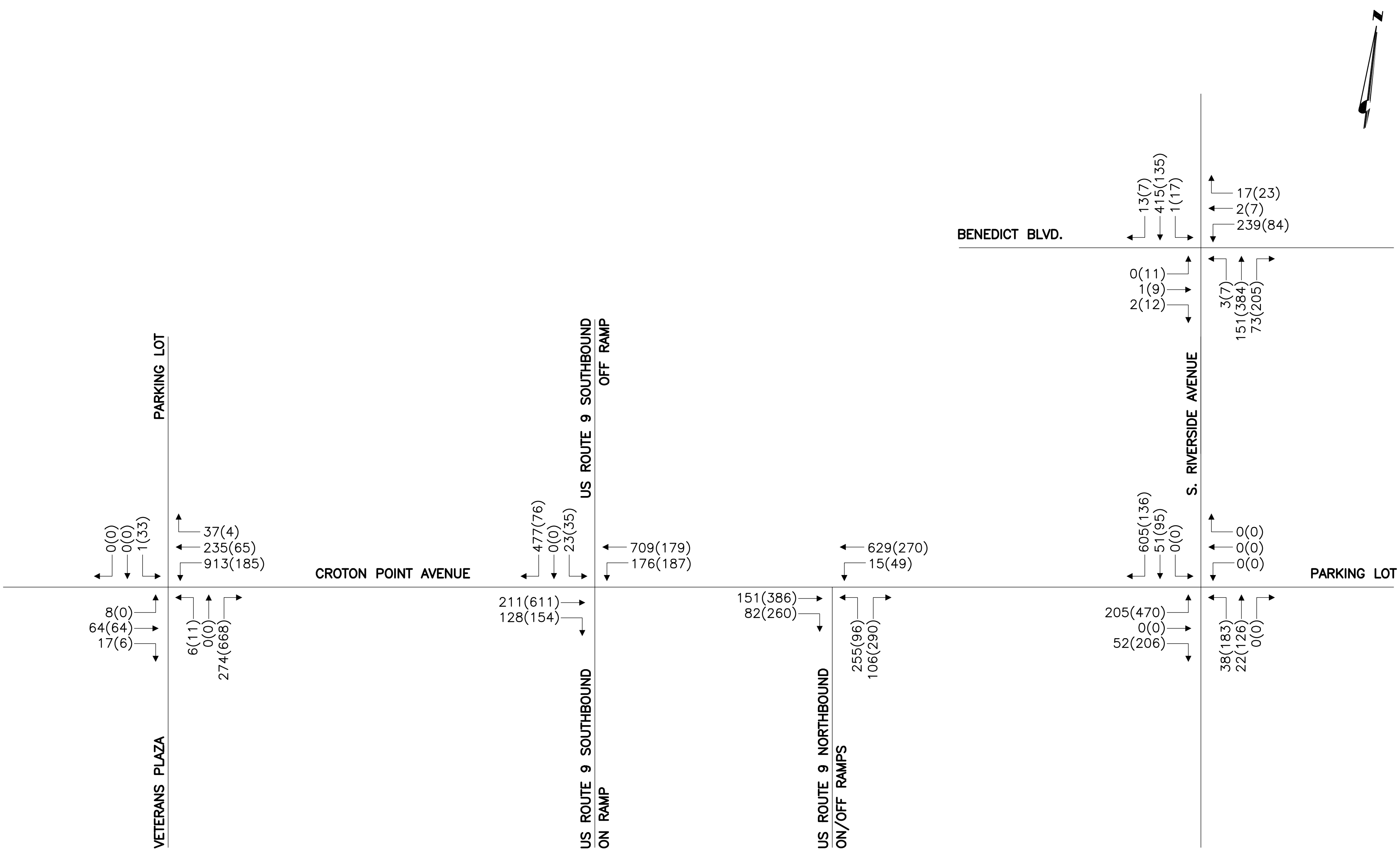

LEGEND:
AM PEAK HOUR (PM PEAK HOUR)

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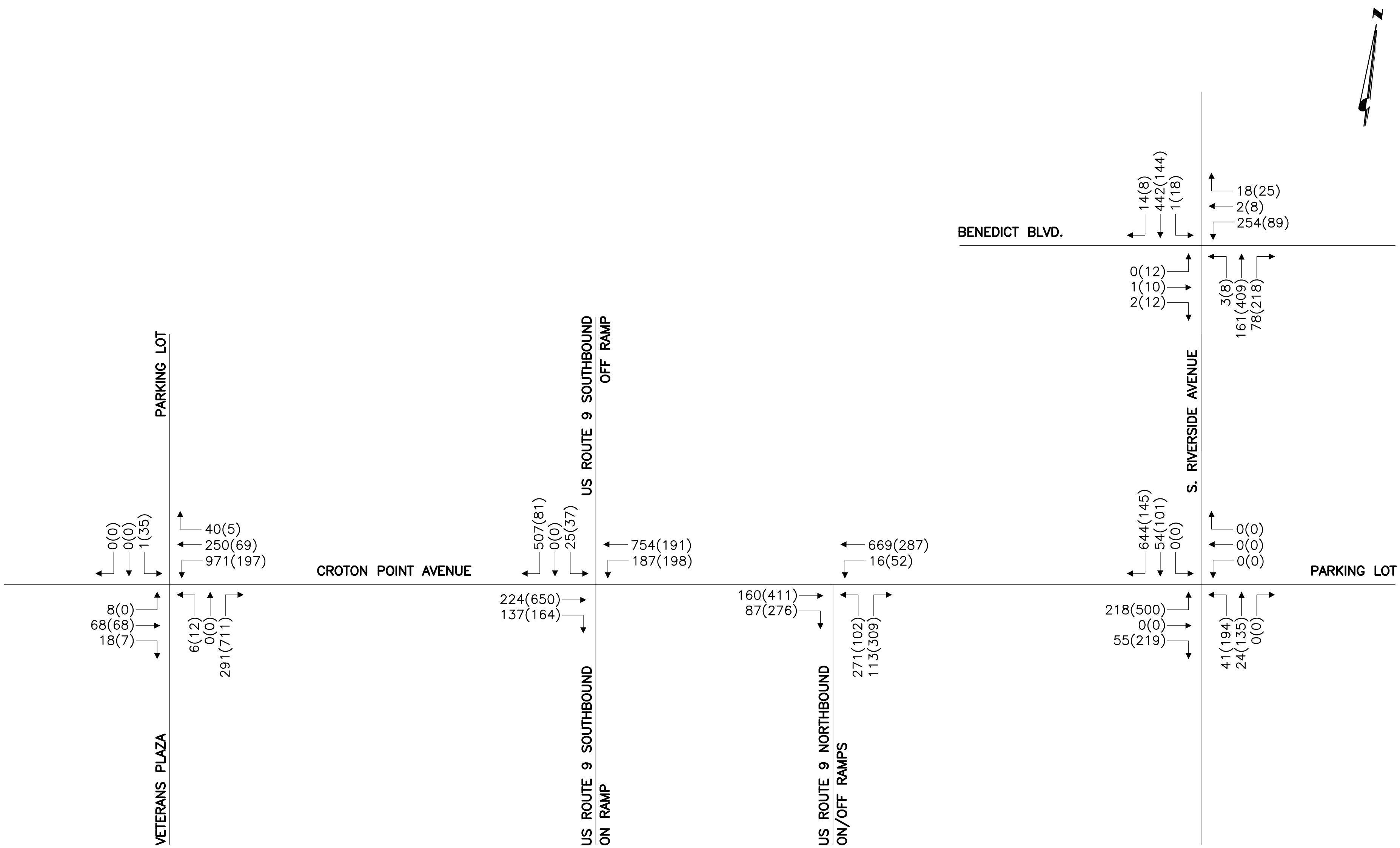
ETC (2013) PEAK HOUR TRAFFIC VOLUMES

CROTON–ON–HUDSON PARKING FACILITY
AND BICYCLE ENHANCEMENTS
CROTON–ON–HUDSON, NY

PROJECT NO.
22961

DATE: 11/09/11

FIGURE 2



LEGEND:
AM PEAK HOUR (PM PEAK HOUR)

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ETC+10 (2023) PEAK HOUR TRAFFIC VOLUMES

CROTON–ON–HUDSON PARKING FACILITY
AND BICYCLE ENHANCEMENTS
CROTON–ON–HUDSON, NY

PROJECT NO. 22961

DATE: 11/09/11

FIGURE 3

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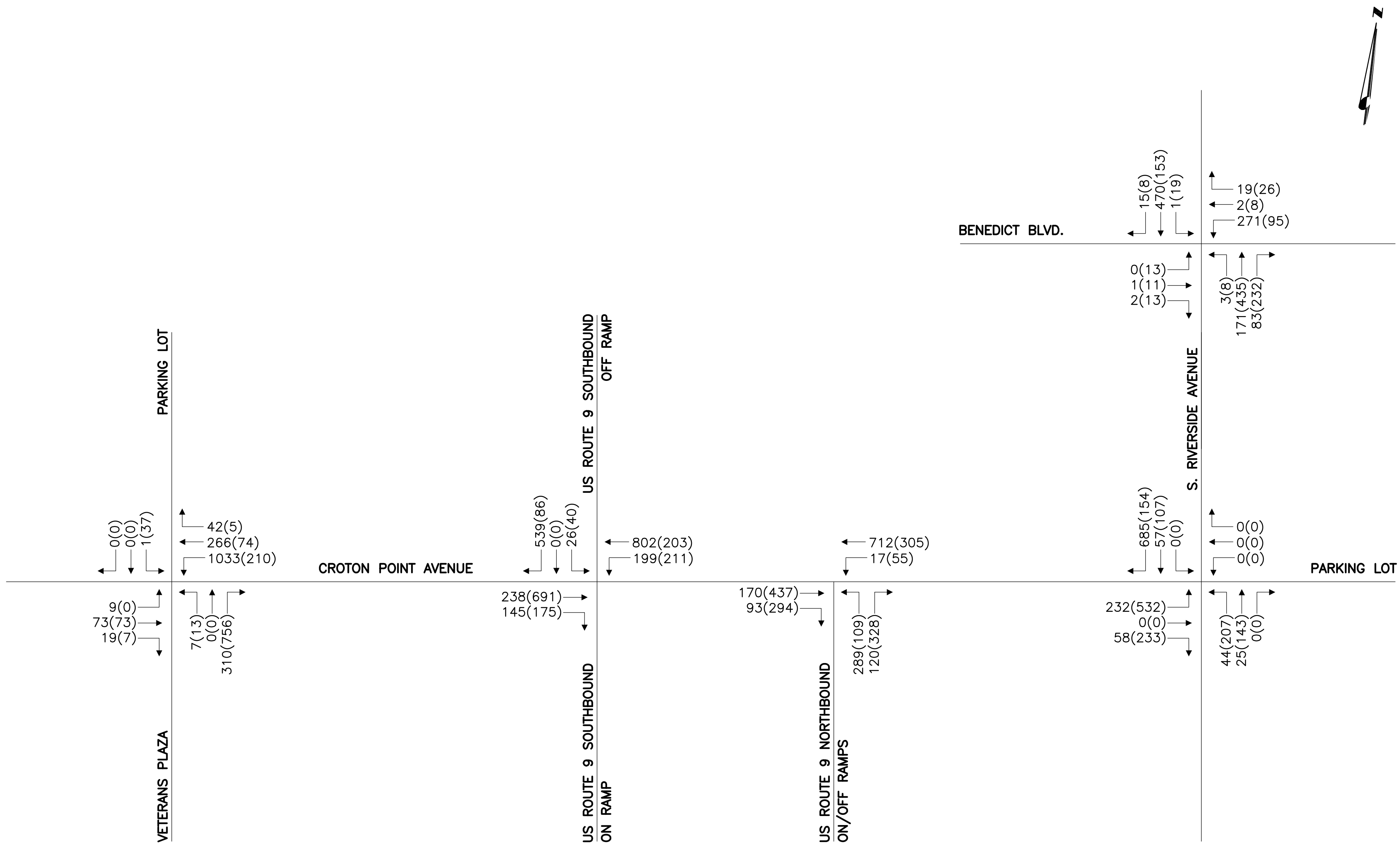

LEGEND:
AM PEAK HOUR (PM PEAK HOUR)

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ETC+20 (2033) PEAK HOUR TRAFFIC VOLUMES

CROTON–ON–HUDSON PARKING FACILITY
AND BICYCLE ENHANCEMENTS
CROTON–ON–HUDSON, NY

PROJECT NO.
22961

DATE: 11/09/11

FIGURE 4

Attachment C-2
Traffic Count Data

Croton-On-Hudson Parking & Bicycle Enhan
Croton Point Ave & US Route 9 NB Ramps
Village of Croton-On-Hudson, NY

III Winners Circle
Albany, NY 12205

File Name : croton point ave & us route 9 nb ramps
Site Code : 00000000
Start Date : 7/19/2011
Page No : 1

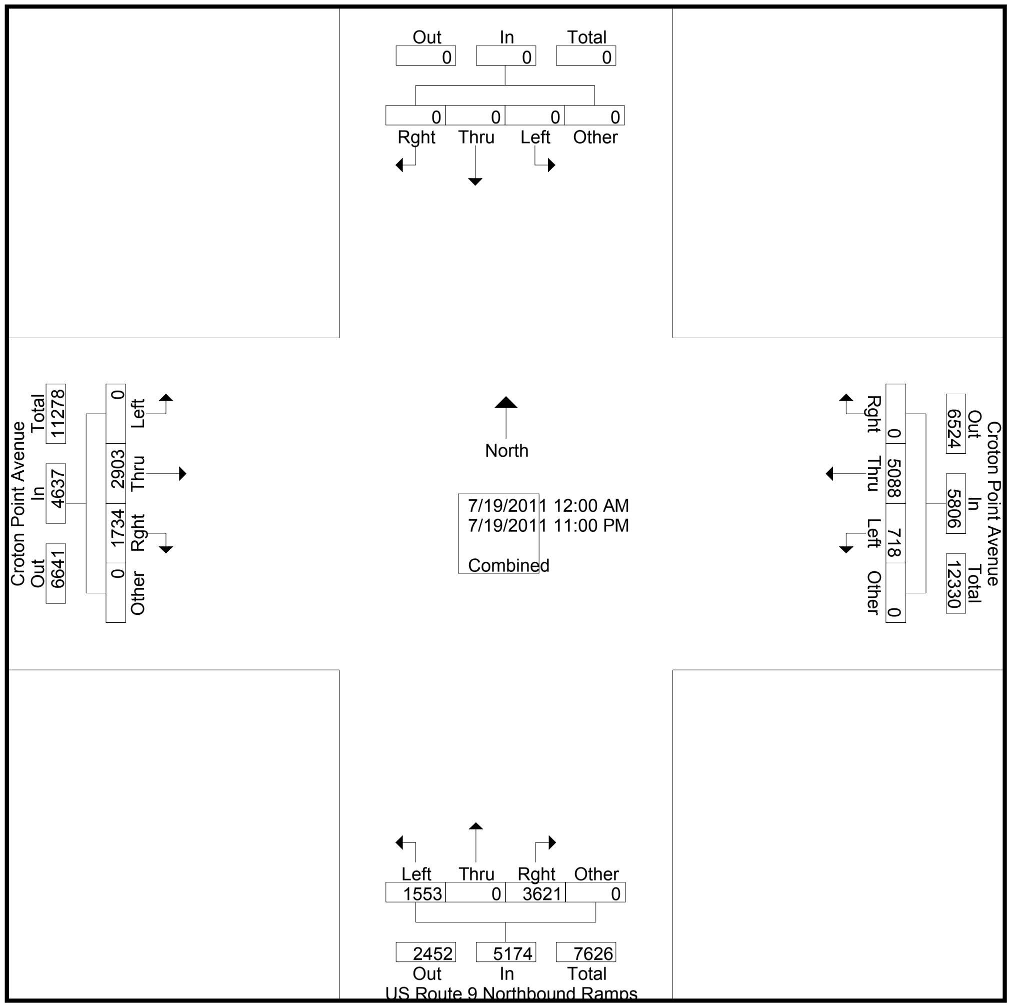
Groups Printed- Combined

	From North					Croton Point Avenue From East					US Route 9 Northbound Ramps From South					Croton Point Avenue From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
12:00 AM	0	0	0	0	0	4	21	0	0	25	16	0	23	0	39	0	27	30	0	57	121
01:00 AM	0	0	0	0	0	2	11	0	0	13	11	0	12	0	23	0	17	15	0	32	68
02:00 AM	0	0	0	0	0	2	8	0	0	10	5	0	6	0	11	0	8	11	0	19	40
03:00 AM	0	0	0	0	0	2	6	0	0	8	5	0	5	0	10	0	5	4	0	9	27
04:00 AM	0	0	0	0	0	1	23	0	0	24	11	0	9	0	20	0	11	1	0	12	56
05:00 AM	0	0	0	0	0	3	92	0	0	95	40	0	31	0	71	0	26	6	0	32	198
06:00 AM	0	0	0	0	0	11	298	0	0	309	118	0	49	0	167	0	60	52	0	112	588
07:00 AM	0	0	0	0	0	16	686	0	0	702	279	0	115	0	394	0	160	87	0	247	1343
08:00 AM	0	0	0	0	0	35	406	0	0	441	115	0	167	0	282	0	180	67	0	247	970
09:00 AM	0	0	0	0	0	32	268	0	0	300	60	0	198	0	258	0	119	37	0	156	714
10:00 AM	0	0	0	0	0	36	263	0	0	299	52	0	199	0	251	0	112	34	0	146	696
11:00 AM	0	0	0	0	0	43	281	0	0	324	57	0	198	0	255	0	152	37	0	189	768
12:00 PM	0	0	0	0	0	41	293	0	0	334	57	0	220	0	277	0	129	29	0	158	769
01:00 PM	0	0	0	0	0	47	267	0	0	314	51	0	210	0	261	0	103	49	0	152	727
02:00 PM	0	0	0	0	0	42	263	0	0	305	57	0	233	0	290	0	119	77	0	196	791
03:00 PM	0	0	0	0	0	57	254	0	0	311	79	0	275	0	354	0	156	140	0	296	961
04:00 PM	0	0	0	0	0	64	269	0	0	333	74	0	301	0	375	0	199	179	0	378	1086
05:00 PM	0	0	0	0	0	63	296	0	0	359	89	0	359	0	448	0	217	113	0	330	1137
06:00 PM	0	0	0	0	0	53	294	0	0	347	105	0	313	0	418	0	416	280	0	696	1461
07:00 PM	0	0	0	0	0	57	274	0	0	331	86	0	233	0	319	0	286	186	0	472	1122
08:00 PM	0	0	0	0	0	34	218	0	0	252	59	0	182	0	241	0	178	127	0	305	798
09:00 PM	0	0	0	0	0	38	161	0	0	199	54	0	134	0	188	0	111	81	0	192	579
10:00 PM	0	0	0	0	0	24	93	0	0	117	40	0	93	0	133	0	57	47	0	104	354
11:00 PM	0	0	0	0	0	11	43	0	0	54	33	0	56	0	89	0	55	45	0	100	243
Grand Total	0	0	0	0	0	718	5088	0	0	5806	1553	0	3621	0	5174	0	2903	1734	0	4637	15617
Apprch %	0	0	0	0		12.4	87.6	0	0		30	0	70	0		0	62.6	37.4	0		
Total %	0	0	0	0	0	4.6	32.6	0	0	37.2	9.9	0	23.2	0	33.1	0	18.6	11.1	0	29.7	

Croton-On-Hudson Parking & Bicycle Enhan
Croton Point Ave & US Route 9 NB Ramps
Village of Croton-On-Hudson, NY

III Winners Circle
Albany, NY 12205

File Name : croton point ave & us route 9 nb ramps
Site Code : 00000000
Start Date : 7/19/2011
Page No : 2



CHA

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 1

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
12:00 AM	0	5	0	0	5	4	0	3	0	7	0	17	16	0	33	45
12:15 AM	1	5	0	0	6	6	0	5	0	11	0	3	0	0	3	20
12:30 AM	4	3	0	0	7	2	0	5	0	7	0	6	4	0	10	24
12:45 AM	0	7	0	0	7	1	0	5	0	6	0	1	0	0	1	14
Total	5	20	0	0	25	13	0	18	0	31	0	27	20	0	47	103
01:00 AM	1	1	0	0	2	1	0	1	0	2	0	7	5	0	12	16
01:15 AM	0	1	0	0	1	2	0	2	0	4	0	3	2	0	5	10
01:30 AM	1	1	0	0	2	3	0	1	0	4	0	1	3	0	4	10
01:45 AM	0	3	0	0	3	3	0	3	0	6	0	0	0	0	0	9
Total	2	6	0	0	8	9	0	7	0	16	0	11	10	0	21	45
02:00 AM	2	4	0	0	6	2	0	0	0	2	0	5	8	0	13	21
02:15 AM	0	0	0	0	0	1	0	0	0	1	0	1	2	0	3	4
02:30 AM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
02:45 AM	0	3	0	0	3	3	0	0	0	3	0	1	1	0	2	8
Total	2	8	0	0	10	7	0	0	0	7	0	7	11	0	18	35
03:00 AM	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5	5
03:15 AM	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	3
03:30 AM	1	1	0	0	2	2	0	1	0	3	0	0	0	0	0	5
03:45 AM	0	2	0	0	2	1	0	2	0	3	0	1	0	0	1	6
Total	1	4	0	0	5	5	0	3	0	8	0	5	1	0	6	19
04:00 AM	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
04:15 AM	0	7	0	0	7	0	0	0	0	0	0	3	1	0	4	11
04:30 AM	0	8	0	0	8	3	0	1	0	4	0	3	1	0	4	16
04:45 AM	0	10	0	0	10	7	0	5	0	12	0	7	0	0	7	29
Total	0	26	0	0	26	10	0	6	0	16	0	16	2	0	18	60
05:00 AM	0	11	0	0	11	6	0	6	0	12	0	2	1	0	3	26
05:15 AM	1	19	0	0	20	9	0	10	0	19	0	1	0	0	1	40
05:30 AM	0	20	0	0	20	11	0	7	0	18	0	11	2	0	13	51
05:45 AM	2	36	0	0	38	14	0	10	0	24	0	8	4	0	12	74
Total	3	86	0	0	89	40	0	33	0	73	0	22	7	0	29	191

Croton-On-Hudson
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72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
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Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
06:00 AM	0	58	0	0	58	29	0	6	0	35	0	10	18	0	28	121
06:15 AM	4	54	0	0	58	21	0	11	0	32	0	8	11	0	19	109
06:30 AM	2	91	0	0	93	39	0	12	0	51	0	14	10	0	24	168
06:45 AM	8	88	0	0	96	29	0	18	0	47	0	9	24	0	33	176
Total	14	291	0	0	305	118	0	47	0	165	0	41	63	0	104	574
07:00 AM	4	192	0	0	196	55	0	22	0	77	0	27	14	0	41	314
07:15 AM	5	138	0	0	143	50	0	17	0	67	0	42	18	0	60	270
07:30 AM	2	216	0	0	218	88	0	39	0	127	0	46	26	0	72	417
07:45 AM	10	170	0	0	180	75	0	32	0	107	0	50	24	0	74	361
Total	21	716	0	0	737	268	0	110	0	378	0	165	82	0	247	1362
08:00 AM	8	99	0	0	107	30	0	38	0	68	0	51	18	0	69	244
08:15 AM	6	121	0	0	127	41	0	40	0	81	0	42	15	0	57	265
08:30 AM	17	97	0	0	114	14	0	36	0	50	0	40	8	0	48	212
08:45 AM	14	90	0	0	104	29	0	50	0	79	0	55	12	0	67	250
Total	45	407	0	0	452	114	0	164	0	278	0	188	53	0	241	971
09:00 AM	4	79	0	0	83	11	0	61	0	72	0	20	6	0	26	181
09:15 AM	6	63	0	0	69	21	0	47	0	68	0	33	9	0	42	179
09:30 AM	6	66	0	0	72	17	0	38	0	55	0	31	9	0	40	167
09:45 AM	5	60	0	0	65	10	0	42	0	52	0	23	8	0	31	148
Total	21	268	0	0	289	59	0	188	0	247	0	107	32	0	139	675
10:00 AM	14	41	0	0	55	10	0	51	0	61	0	17	3	0	20	136
10:15 AM	5	57	0	0	62	13	0	43	0	56	0	28	12	0	40	158
10:30 AM	16	72	0	0	88	20	0	50	0	70	0	31	9	0	40	198
10:45 AM	9	64	0	0	73	13	0	53	0	66	0	17	6	0	23	162
Total	44	234	0	0	278	56	0	197	0	253	0	93	30	0	123	654
11:00 AM	10	63	0	0	73	16	0	45	0	61	0	25	5	0	30	164
11:15 AM	10	61	0	0	71	17	0	51	0	68	0	30	2	0	32	171
11:30 AM	9	81	0	0	90	18	0	46	0	64	0	45	12	0	57	211
11:45 AM	5	62	0	0	67	16	0	56	0	72	0	45	18	0	63	202
Total	34	267	0	0	301	67	0	198	0	265	0	145	37	0	182	748
12:00 PM	13	76	0	0	89	9	0	59	0	68	0	33	5	0	38	195

CHA

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
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Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
12:15 PM	5	79	0	0	84	20	0	55	0	75	0	29	0	0	29	188
12:30 PM	9	78	0	0	87	12	0	51	0	63	0	18	15	0	33	183
12:45 PM	5	66	0	0	71	16	0	55	0	71	0	36	11	0	47	189
Total	32	299	0	0	331	57	0	220	0	277	0	116	31	0	147	755
01:00 PM	11	66	0	0	77	14	0	59	0	73	0	19	11	0	30	180
01:15 PM	17	76	0	0	93	10	0	59	0	69	0	28	5	0	33	195
01:30 PM	8	63	0	0	71	13	0	52	0	65	0	34	19	0	53	189
01:45 PM	10	58	0	0	68	8	0	43	0	51	0	28	11	0	39	158
Total	46	263	0	0	309	45	0	213	0	258	0	109	46	0	155	722
02:00 PM	11	60	0	0	71	11	0	52	0	63	0	18	11	0	29	163
02:15 PM	10	59	0	0	69	16	0	46	0	62	0	24	18	0	42	173
02:30 PM	10	68	0	0	78	17	0	62	0	79	0	48	28	0	76	233
02:45 PM	11	78	0	0	89	13	0	54	0	67	0	34	15	0	49	205
Total	42	265	0	0	307	57	0	214	0	271	0	124	72	0	196	774
03:00 PM	11	74	0	0	85	15	0	63	0	78	0	33	10	0	43	206
03:15 PM	17	64	0	0	81	29	0	76	0	105	0	22	24	0	46	232
03:30 PM	9	69	0	0	78	23	0	67	0	90	0	53	43	0	96	264
03:45 PM	23	54	0	0	77	16	0	61	0	77	0	43	59	0	102	256
Total	60	261	0	0	321	83	0	267	0	350	0	151	136	0	287	958
04:00 PM	17	61	0	0	78	22	0	71	0	93	0	62	63	0	125	296
04:15 PM	12	53	0	0	65	19	0	79	0	98	0	50	49	0	99	262
04:30 PM	15	54	0	0	69	16	0	82	0	98	0	35	10	0	45	212
04:45 PM	11	82	0	0	93	13	0	74	0	87	0	49	61	0	110	290
Total	55	250	0	0	305	70	0	306	0	376	0	196	183	0	379	1060
05:00 PM	18	69	0	0	87	16	0	107	0	123	0	52	21	0	73	283
05:15 PM	18	76	0	0	94	27	0	87	0	114	0	29	10	0	39	247
05:30 PM	15	78	0	0	93	28	0	76	0	104	0	80	51	0	131	328
05:45 PM	14	82	0	0	96	30	0	98	0	128	0	54	25	0	79	303
Total	65	305	0	0	370	101	0	368	0	469	0	215	107	0	322	1161
06:00 PM	8	67	0	0	75	30	0	88	0	118	0	140	90	0	230	423
06:15 PM	15	61	0	0	76	25	0	118	0	143	0	95	97	0	192	411

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Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
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Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
06:30 PM	8	76	0	0	84	37	0	73	0	110	0	81	48	0	129	323
06:45 PM	17	76	0	0	93	29	0	64	0	93	0	103	77	0	180	366
Total	48	280	0	0	328	121	0	343	0	464	0	419	312	0	731	1523
07:00 PM	13	65	0	0	78	27	0	53	0	80	0	47	22	0	69	227
07:15 PM	15	80	0	0	95	18	0	57	0	75	0	104	81	0	185	355
07:30 PM	9	58	0	0	67	19	0	52	0	71	0	122	94	0	216	354
07:45 PM	18	63	0	0	81	12	0	69	0	81	0	23	13	0	36	198
Total	55	266	0	0	321	76	0	231	0	307	0	296	210	0	506	1134
08:00 PM	9	61	0	0	70	14	0	43	0	57	0	68	64	0	132	259
08:15 PM	7	51	0	0	58	11	0	46	0	57	0	28	14	0	42	157
08:30 PM	12	46	0	0	58	12	0	38	0	50	0	60	42	0	102	210
08:45 PM	9	58	0	0	67	12	0	46	0	58	0	15	12	0	27	152
Total	37	216	0	0	253	49	0	173	0	222	0	171	132	0	303	778
09:00 PM	11	52	0	0	63	13	0	28	0	41	0	41	26	0	67	171
09:15 PM	11	39	0	0	50	9	0	26	0	35	0	35	19	0	54	139
09:30 PM	7	27	0	0	34	9	0	29	0	38	0	9	8	0	17	89
09:45 PM	9	27	0	0	36	13	0	27	0	40	0	8	11	0	19	95
Total	38	145	0	0	183	44	0	110	0	154	0	93	64	0	157	494
10:00 PM	7	32	0	0	39	13	0	19	0	32	0	33	20	0	53	124
10:15 PM	4	25	0	0	29	12	0	14	0	26	0	16	9	0	25	80
10:30 PM	6	7	0	0	13	8	0	13	0	21	0	7	15	0	22	56
10:45 PM	2	14	0	0	16	4	0	15	0	19	0	5	3	0	8	43
Total	19	78	0	0	97	37	0	61	0	98	0	61	47	0	108	303
11:00 PM	5	17	0	0	22	8	0	13	0	21	0	23	25	0	48	91
11:15 PM	2	9	0	0	11	11	0	17	0	28	0	12	2	0	14	53
11:30 PM	2	7	0	0	9	4	0	13	0	17	0	7	2	0	9	35
11:45 PM	3	7	0	0	10	10	0	10	0	20	0	6	7	0	13	43
Total	12	40	0	0	52	33	0	53	0	86	0	48	36	0	84	222
12:00 AM	1	8	0	0	9	5	0	11	0	16	0	19	20	0	39	64
12:15 AM	1	3	0	0	4	5	0	8	0	13	0	2	7	0	9	26
12:30 AM	1	4	0	0	5	6	0	8	0	14	0	5	2	0	7	26

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
12:45 AM	0	4	0	0	4	3	0	3	0	6	0	0	4	0	4	14
Total	3	19	0	0	22	19	0	30	0	49	0	26	33	0	59	130
01:00 AM	1	1	0	0	2	3	0	5	0	8	0	4	3	0	7	17
01:15 AM	0	5	0	0	5	6	0	4	0	10	0	12	8	0	20	35
01:30 AM	1	6	0	0	7	1	0	2	0	3	0	1	0	0	1	11
01:45 AM	0	2	0	0	2	4	0	3	0	7	0	6	3	0	9	18
Total	2	14	0	0	16	14	0	14	0	28	0	23	14	0	37	81
02:00 AM	2	1	0	0	3	0	0	0	0	0	0	2	6	0	8	11
02:15 AM	1	2	0	0	3	2	0	0	0	2	0	6	1	0	7	12
02:30 AM	0	2	0	0	2	1	0	3	0	4	0	1	0	0	1	7
02:45 AM	2	1	0	0	3	1	0	3	0	4	0	0	4	0	4	11
Total	5	6	0	0	11	4	0	6	0	10	0	9	11	0	20	41
03:00 AM	1	2	0	0	3	3	0	3	0	6	0	1	4	0	5	14
03:15 AM	0	1	0	0	1	3	0	2	0	5	0	1	0	0	1	7
03:30 AM	0	1	0	0	1	0	0	2	0	2	0	1	0	0	1	4
03:45 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	1	7	0	0	8	6	0	7	0	13	0	3	4	0	7	28
04:00 AM	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
04:15 AM	0	1	0	0	1	2	0	2	0	4	0	1	0	0	1	6
04:30 AM	0	4	0	0	4	2	0	3	0	5	0	2	1	0	3	12
04:45 AM	2	16	0	0	18	9	0	7	0	16	0	4	0	0	4	38
Total	2	25	0	0	27	13	0	12	0	25	0	8	1	0	9	61
05:00 AM	1	10	0	0	11	3	0	5	0	8	0	4	1	0	5	24
05:15 AM	1	17	0	0	18	8	0	9	0	17	0	4	1	0	5	40
05:30 AM	0	19	0	0	19	9	0	4	0	13	0	9	3	0	12	44
05:45 AM	1	49	0	0	50	16	0	12	0	28	0	10	5	0	15	93
Total	3	95	0	0	98	36	0	30	0	66	0	27	10	0	37	201
06:00 AM	3	67	0	0	70	28	0	6	0	34	0	18	13	0	31	135
06:15 AM	0	51	0	0	51	22	0	15	0	37	0	12	6	0	18	106
06:30 AM	1	79	0	0	80	37	0	6	0	43	0	17	12	0	29	152
06:45 AM	7	95	0	0	102	42	0	21	0	63	0	23	18	0	41	206
Total	11	292	0	0	303	129	0	48	0	177	0	70	49	0	119	599

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Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
07:00 AM	2	194	0	0	196	59	0	20	0	79	0	26	15	0	41	316
07:15 AM	4	135	0	0	139	55	0	32	0	87	0	42	27	0	69	295
07:30 AM	4	196	0	0	200	83	0	47	0	130	0	37	26	0	63	393
07:45 AM	2	154	0	0	156	86	0	43	0	129	0	56	22	0	78	363
Total	12	679	0	0	691	283	0	142	0	425	0	161	90	0	251	1367
08:00 AM	7	106	0	0	113	39	0	46	0	85	0	45	23	0	68	266
08:15 AM	6	120	0	0	126	36	0	45	0	81	0	48	23	0	71	278
08:30 AM	9	82	0	0	91	26	0	45	0	71	0	35	12	0	47	209
08:45 AM	11	95	0	0	106	18	0	44	0	62	0	50	12	0	62	230
Total	33	403	0	0	436	119	0	180	0	299	0	178	70	0	248	983
09:00 AM	4	75	0	0	79	16	0	72	0	88	0	41	8	0	49	216
09:15 AM	9	79	0	0	88	12	0	64	0	76	0	41	10	0	51	215
09:30 AM	12	65	0	0	77	14	0	52	0	66	0	34	12	0	46	189
09:45 AM	7	74	0	0	81	16	0	41	0	57	0	26	7	0	33	171
Total	32	293	0	0	325	58	0	229	0	287	0	142	37	0	179	791
10:00 AM	6	71	0	0	77	11	0	51	0	62	0	21	10	0	31	170
10:15 AM	7	75	0	0	82	21	0	49	0	70	0	34	7	0	41	193
10:30 AM	9	78	0	0	87	13	0	47	0	60	0	31	10	0	41	188
10:45 AM	15	65	0	0	80	7	0	58	0	65	0	35	9	0	44	189
Total	37	289	0	0	326	52	0	205	0	257	0	121	36	0	157	740
11:00 AM	7	70	0	0	77	16	0	36	0	52	0	25	1	0	26	155
11:15 AM	6	73	0	0	79	11	0	59	0	70	0	39	10	0	49	198
11:30 AM	19	63	0	0	82	11	0	65	0	76	0	36	12	0	48	206
11:45 AM	12	84	0	0	96	11	0	52	0	63	0	44	12	0	56	215
Total	44	290	0	0	334	49	0	212	0	261	0	144	35	0	179	774
12:00 PM	15	65	0	0	80	18	0	54	0	72	0	32	9	0	41	193
12:15 PM	13	80	0	0	93	11	0	75	0	86	0	39	7	0	46	225
12:30 PM	9	82	0	0	91	12	0	54	0	66	0	36	7	0	43	200
12:45 PM	15	72	0	0	87	19	0	60	0	79	0	29	10	0	39	205
Total	52	299	0	0	351	60	0	243	0	303	0	136	33	0	169	823
01:00 PM	13	79	0	0	92	15	0	50	0	65	0	18	6	0	24	181

Croton-On-Hudson
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Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
01:15 PM	15	70	0	0	85	19	0	56	0	75	0	36	8	0	44	204
01:30 PM	8	66	0	0	74	6	0	54	0	60	0	37	19	0	56	190
01:45 PM	20	70	0	0	90	13	0	39	0	52	0	23	14	0	37	179
Total	56	285	0	0	341	53	0	199	0	252	0	114	47	0	161	754
02:00 PM	6	63	0	0	69	7	0	59	0	66	0	29	10	0	39	174
02:15 PM	13	76	0	0	89	20	0	65	0	85	0	31	28	0	59	233
02:30 PM	11	68	0	0	79	16	0	58	0	74	0	55	27	0	82	235
02:45 PM	9	70	0	0	79	13	0	68	0	81	0	29	14	0	43	203
Total	39	277	0	0	316	56	0	250	0	306	0	144	79	0	223	845
03:00 PM	15	66	0	0	81	16	0	56	0	72	0	31	19	0	50	203
03:15 PM	10	68	0	0	78	24	0	83	0	107	0	25	17	0	42	227
03:30 PM	10	61	0	0	71	23	0	72	0	95	0	63	42	0	105	271
03:45 PM	19	67	0	0	86	21	0	71	0	92	0	44	60	0	104	282
Total	54	262	0	0	316	84	0	282	0	366	0	163	138	0	301	983
04:00 PM	20	66	0	0	86	14	0	77	0	91	0	63	54	0	117	294
04:15 PM	22	90	0	0	112	19	0	69	0	88	0	48	45	0	93	293
04:30 PM	7	54	0	0	61	12	0	61	0	73	0	25	20	0	45	179
04:45 PM	22	74	0	0	96	7	0	85	0	92	0	61	51	0	112	300
Total	71	284	0	0	355	52	0	292	0	344	0	197	170	0	367	1066
05:00 PM	23	62	0	0	85	15	0	83	0	98	0	55	22	0	77	260
05:15 PM	17	78	0	0	95	22	0	89	0	111	0	24	15	0	39	245
05:30 PM	9	71	0	0	80	17	0	97	0	114	0	107	66	0	173	367
05:45 PM	14	95	0	0	109	24	0	87	0	111	0	36	14	0	50	270
Total	63	306	0	0	369	78	0	356	0	434	0	222	117	0	339	1142
06:00 PM	13	77	0	0	90	22	0	78	0	100	0	140	75	0	215	405
06:15 PM	18	98	0	0	116	19	0	89	0	108	0	88	71	0	159	383
06:30 PM	17	83	0	0	100	16	0	84	0	100	0	94	63	0	157	357
06:45 PM	13	69	0	0	82	21	0	66	0	87	0	100	65	0	165	334
Total	61	327	0	0	388	78	0	317	0	395	0	422	274	0	696	1479
07:00 PM	17	76	0	0	93	22	0	70	0	92	0	45	31	0	76	261
07:15 PM	6	74	0	0	80	21	0	57	0	78	0	114	58	0	172	330

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 8

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
07:30 PM	15	67	0	0	82	24	0	61	0	85	0	105	77	0	182	349
07:45 PM	17	64	0	0	81	15	0	46	0	61	0	26	11	0	37	179
Total	55	281	0	0	336	82	0	234	0	316	0	290	177	0	467	1119
08:00 PM	9	54	0	0	63	20	0	49	0	69	0	75	56	0	131	263
08:15 PM	8	59	0	0	67	16	0	63	0	79	0	20	13	0	33	179
08:30 PM	13	48	0	0	61	20	0	32	0	52	0	65	39	0	104	217
08:45 PM	10	53	0	0	63	21	0	46	0	67	0	21	11	0	32	162
Total	40	214	0	0	254	77	0	190	0	267	0	181	119	0	300	821
09:00 PM	13	69	0	0	82	22	0	46	0	68	0	32	37	0	69	219
09:15 PM	17	59	0	0	76	16	0	44	0	60	0	34	22	0	56	192
09:30 PM	12	41	0	0	53	19	0	24	0	43	0	30	26	0	56	152
09:45 PM	3	35	0	0	38	15	0	31	0	46	0	50	24	0	74	158
Total	45	204	0	0	249	72	0	145	0	217	0	146	109	0	255	721
10:00 PM	14	39	0	0	53	11	0	19	0	30	0	29	18	0	47	130
10:15 PM	4	23	0	0	27	11	0	35	0	46	0	4	9	0	13	86
10:30 PM	4	16	0	0	20	10	0	28	0	38	0	21	13	0	34	92
10:45 PM	7	15	0	0	22	10	0	25	0	35	0	6	10	0	16	73
Total	29	93	0	0	122	42	0	107	0	149	0	60	50	0	110	381
11:00 PM	5	16	0	0	21	4	0	20	0	24	0	29	28	0	57	102
11:15 PM	1	8	0	0	9	10	0	27	0	37	0	5	11	0	16	62
11:30 PM	0	6	0	0	6	9	0	10	0	19	0	9	2	0	11	36
11:45 PM	2	9	0	0	11	7	0	5	0	12	0	7	12	0	19	42
Total	8	39	0	0	47	30	0	62	0	92	0	50	53	0	103	242
12:00 AM	3	7	0	0	10	4	0	6	0	10	0	16	25	0	41	61
12:15 AM	1	7	0	0	8	5	0	7	0	12	0	2	5	0	7	27
12:30 AM	1	5	0	0	6	3	0	6	0	9	0	9	7	0	16	31
12:45 AM	0	5	0	0	5	4	0	3	0	7	0	0	1	0	1	13
Total	5	24	0	0	29	16	0	22	0	38	0	27	38	0	65	132
01:00 AM	0	4	0	0	4	1	0	4	0	5	0	10	12	0	22	31
01:15 AM	1	6	0	0	7	3	0	6	0	9	0	3	5	0	8	24
01:30 AM	1	3	0	0	4	2	0	3	0	5	0	4	2	0	6	15

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 9

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
01:45 AM	1	0	0	0	1	4	0	3	0	7	0	0	1	0	1	9
Total	3	13	0	0	16	10	0	16	0	26	0	17	20	0	37	79
02:00 AM	0	1	0	0	1	0	0	4	0	4	0	5	2	0	7	12
02:15 AM	0	3	0	0	3	3	0	1	0	4	0	1	5	0	6	13
02:30 AM	0	3	0	0	3	1	0	1	0	2	0	2	0	0	2	7
02:45 AM	0	3	0	0	3	1	0	5	0	6	0	1	4	0	5	14
Total	0	10	0	0	10	5	0	11	0	16	0	9	11	0	20	46
03:00 AM	3	1	0	0	4	1	0	3	0	4	0	3	6	0	9	17
03:15 AM	1	1	0	0	2	2	0	1	0	3	0	2	0	0	2	7
03:30 AM	1	4	0	0	5	1	0	1	0	2	0	1	0	0	1	8
03:45 AM	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	3
Total	5	7	0	0	12	5	0	5	0	10	0	7	6	0	13	35
04:00 AM	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
04:15 AM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
04:30 AM	0	6	0	0	6	2	0	1	0	3	0	2	0	0	2	11
04:45 AM	0	8	0	0	8	6	0	7	0	13	0	3	0	0	3	24
Total	0	17	0	0	17	9	0	8	0	17	0	8	0	0	8	42
05:00 AM	1	15	0	0	16	7	0	2	0	9	0	4	0	0	4	29
05:15 AM	1	22	0	0	23	9	0	11	0	20	0	2	0	0	2	45
05:30 AM	1	18	0	0	19	10	0	4	0	14	0	12	0	0	12	45
05:45 AM	0	41	0	0	41	17	0	12	0	29	0	12	0	0	12	82
Total	3	96	0	0	99	43	0	29	0	72	0	30	0	0	30	201
06:00 AM	0	71	0	0	71	24	0	10	0	34	0	12	6	0	18	123
06:15 AM	1	57	0	0	58	19	0	11	0	30	0	11	9	0	20	108
06:30 AM	3	85	0	0	88	32	0	8	0	40	0	19	13	0	32	160
06:45 AM	4	98	0	0	102	31	0	23	0	54	0	28	16	0	44	200
Total	8	311	0	0	319	106	0	52	0	158	0	70	44	0	114	591
07:00 AM	3	163	0	0	166	67	0	14	0	81	0	27	22	0	49	296
07:15 AM	3	129	0	0	132	53	0	17	0	70	0	36	16	0	52	254
07:30 AM	6	209	0	0	215	85	0	34	0	119	0	38	24	0	62	396
07:45 AM	3	163	0	0	166	82	0	28	0	110	0	52	26	0	78	354
Total	15	664	0	0	679	287	0	93	0	380	0	153	88	0	241	1300

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 10

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
08:00 AM	3	102	0	0	105	30	0	35	0	65	0	48	20	0	68	238
08:15 AM	5	122	0	0	127	40	0	42	0	82	0	57	21	0	78	287
08:30 AM	8	90	0	0	98	20	0	34	0	54	0	31	19	0	50	202
08:45 AM	10	95	0	0	105	21	0	47	0	68	0	38	18	0	56	229
Total	26	409	0	0	435	111	0	158	0	269	0	174	78	0	252	956
09:00 AM	8	70	0	0	78	11	0	48	0	59	0	27	7	0	34	171
09:15 AM	10	64	0	0	74	16	0	50	0	66	0	22	13	0	35	175
09:30 AM	15	48	0	0	63	18	0	40	0	58	0	28	12	0	40	161
09:45 AM	11	60	0	0	71	19	0	38	0	57	0	32	10	0	42	170
Total	44	242	0	0	286	64	0	176	0	240	0	109	42	0	151	677
10:00 AM	9	59	0	0	68	11	0	50	0	61	0	23	10	0	33	162
10:15 AM	6	69	0	0	75	9	0	47	0	56	0	31	2	0	33	164
10:30 AM	3	69	0	0	72	18	0	47	0	65	0	37	15	0	52	189
10:45 AM	10	69	0	0	79	11	0	52	0	63	0	32	9	0	41	183
Total	28	266	0	0	294	49	0	196	0	245	0	123	36	0	159	698
11:00 AM	5	60	0	0	65	15	0	50	0	65	0	34	8	0	42	172
11:15 AM	15	78	0	0	93	17	0	47	0	64	0	38	6	0	44	201
11:30 AM	18	74	0	0	92	11	0	32	0	43	0	48	13	0	61	196
11:45 AM	12	73	0	0	85	12	0	55	0	67	0	46	11	0	57	209
Total	50	285	0	0	335	55	0	184	0	239	0	166	38	0	204	778
12:00 PM	15	71	0	0	86	17	0	56	0	73	0	40	1	0	41	200
12:15 PM	11	74	0	0	85	11	0	57	0	68	0	25	2	0	27	180
12:30 PM	6	66	0	0	72	18	0	49	0	67	0	41	12	0	53	192
12:45 PM	8	70	0	0	78	9	0	36	0	45	0	29	9	0	38	161
Total	40	281	0	0	321	55	0	198	0	253	0	135	24	0	159	733
01:00 PM	13	66	0	0	79	15	0	57	0	72	0	20	9	0	29	180
01:15 PM	9	70	0	0	79	14	0	59	0	73	0	21	12	0	33	185
01:30 PM	9	67	0	0	76	17	0	60	0	77	0	30	22	0	52	205
01:45 PM	7	49	0	0	56	10	0	42	0	52	0	16	12	0	28	136
Total	38	252	0	0	290	56	0	218	0	274	0	87	55	0	142	706
02:00 PM	7	58	0	0	65	16	0	64	0	80	0	18	7	0	25	170

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 11

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
02:15 PM	11	57	0	0	68	14	0	59	0	73	0	13	16	0	29	170
02:30 PM	10	59	0	0	69	15	0	43	0	58	0	33	36	0	69	196
02:45 PM	18	73	0	0	91	12	0	70	0	82	0	26	22	0	48	221
Total	46	247	0	0	293	57	0	236	0	293	0	90	81	0	171	757
03:00 PM	13	69	0	0	82	16	0	63	0	79	0	30	15	0	45	206
03:15 PM	16	57	0	0	73	16	0	80	0	96	0	32	20	0	52	221
03:30 PM	13	53	0	0	66	21	0	79	0	100	0	55	50	0	105	271
03:45 PM	16	61	0	0	77	18	0	54	0	72	0	38	60	0	98	247
Total	58	240	0	0	298	71	0	276	0	347	0	155	145	0	300	945
04:00 PM	24	84	0	0	108	28	0	67	0	95	0	54	61	0	115	318
04:15 PM	14	70	0	0	84	19	0	86	0	105	0	57	42	0	99	288
04:30 PM	15	60	0	0	75	27	0	60	0	87	0	30	22	0	52	214
04:45 PM	13	59	0	0	72	25	0	92	0	117	0	62	59	0	121	310
Total	66	273	0	0	339	99	0	305	0	404	0	203	184	0	387	1130
05:00 PM	13	64	0	0	77	18	0	92	0	110	0	47	25	0	72	259
05:15 PM	12	75	0	0	87	18	0	95	0	113	0	31	8	0	39	239
05:30 PM	15	69	0	0	84	18	0	88	0	106	0	85	60	0	145	335
05:45 PM	21	70	0	0	91	35	0	78	0	113	0	51	21	0	72	276
Total	61	278	0	0	339	89	0	353	0	442	0	214	114	0	328	1109
06:00 PM	9	76	0	0	85	25	0	75	0	100	0	142	88	0	230	415
06:15 PM	12	69	0	0	81	44	0	77	0	121	0	116	76	0	192	394
06:30 PM	18	60	0	0	78	29	0	75	0	104	0	43	27	0	70	252
06:45 PM	10	71	0	0	81	19	0	53	0	72	0	106	64	0	170	323
Total	49	276	0	0	325	117	0	280	0	397	0	407	255	0	662	1384
07:00 PM	13	61	0	0	74	29	0	56	0	85	0	60	41	0	101	260
07:15 PM	20	79	0	0	99	35	0	68	0	103	0	79	46	0	125	327
07:30 PM	18	67	0	0	85	19	0	58	0	77	0	113	74	0	187	349
07:45 PM	9	67	0	0	76	17	0	51	0	68	0	20	10	0	30	174
Total	60	274	0	0	334	100	0	233	0	333	0	272	171	0	443	1110
08:00 PM	7	58	0	0	65	22	0	40	0	62	0	76	48	0	124	251
08:15 PM	4	57	0	0	61	14	0	46	0	60	0	26	16	0	42	163

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 12

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
08:30 PM	11	60	0	0	71	8	0	47	0	55	0	54	54	0	108	234
08:45 PM	4	48	0	0	52	8	0	50	0	58	0	26	12	0	38	148
Total	26	223	0	0	249	52	0	183	0	235	0	182	130	0	312	796
09:00 PM	9	46	0	0	55	12	0	36	0	48	0	23	20	0	43	146
09:15 PM	11	32	0	0	43	13	0	51	0	64	0	47	27	0	74	181
09:30 PM	4	22	0	0	26	6	0	29	0	35	0	12	9	0	21	82
09:45 PM	6	34	0	0	40	15	0	32	0	47	0	13	15	0	28	115
Total	30	134	0	0	164	46	0	148	0	194	0	95	71	0	166	524
10:00 PM	7	32	0	0	39	10	0	29	0	39	0	30	31	0	61	139
10:15 PM	5	20	0	0	25	15	0	27	0	42	0	11	10	0	21	88
10:30 PM	7	24	0	0	31	5	0	35	0	40	0	5	4	0	9	80
10:45 PM	5	31	0	0	36	11	0	20	0	31	0	3	0	0	3	70
Total	24	107	0	0	131	41	0	111	0	152	0	49	45	0	94	377
11:00 PM	4	18	0	0	22	11	0	13	0	24	0	39	27	0	66	112
11:15 PM	2	10	0	0	12	6	0	18	0	24	0	10	2	0	12	48
11:30 PM	5	8	0	0	13	10	0	16	0	26	0	15	12	0	27	66
11:45 PM	2	13	0	0	15	8	0	6	0	14	0	4	6	0	10	39
Total	13	49	0	0	62	35	0	53	0	88	0	68	47	0	115	265
Grand Total	2157	15262	0	0	17419	4663	0	10866	0	15529	0	8713	5203	0	13916	46864
Apprch %	12.4	87.6	0	0		30	0	70	0		0	62.6	37.4	0		
Total %	4.6	32.6	0	0	37.2	10	0	23.2	0	33.1	0	18.6	11.1	0	29.7	
Passenger Cars	2090	14827	0	0	16917	4453	0	10610	0	15063	0	8463	5031	0	13494	45474
% Passenger Cars	96.9	97.1	0	0	97.1	95.5	0	97.6	0	97	0	97.1	96.7	0	97	97
SU Trucks_Buses	53	344	0	0	397	185	0	183	0	368	0	231	155	0	386	1151
% SU Trucks_Buses	2.5	2.3	0	0	2.3	4	0	1.7	0	2.4	0	2.7	3	0	2.8	2.5
MU Trucks	14	91	0	0	105	25	0	73	0	98	0	19	17	0	36	239
% MU Trucks	0.6	0.6	0	0	0.6	0.5	0	0.7	0	0.6	0	0.2	0.3	0	0.3	0.5

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
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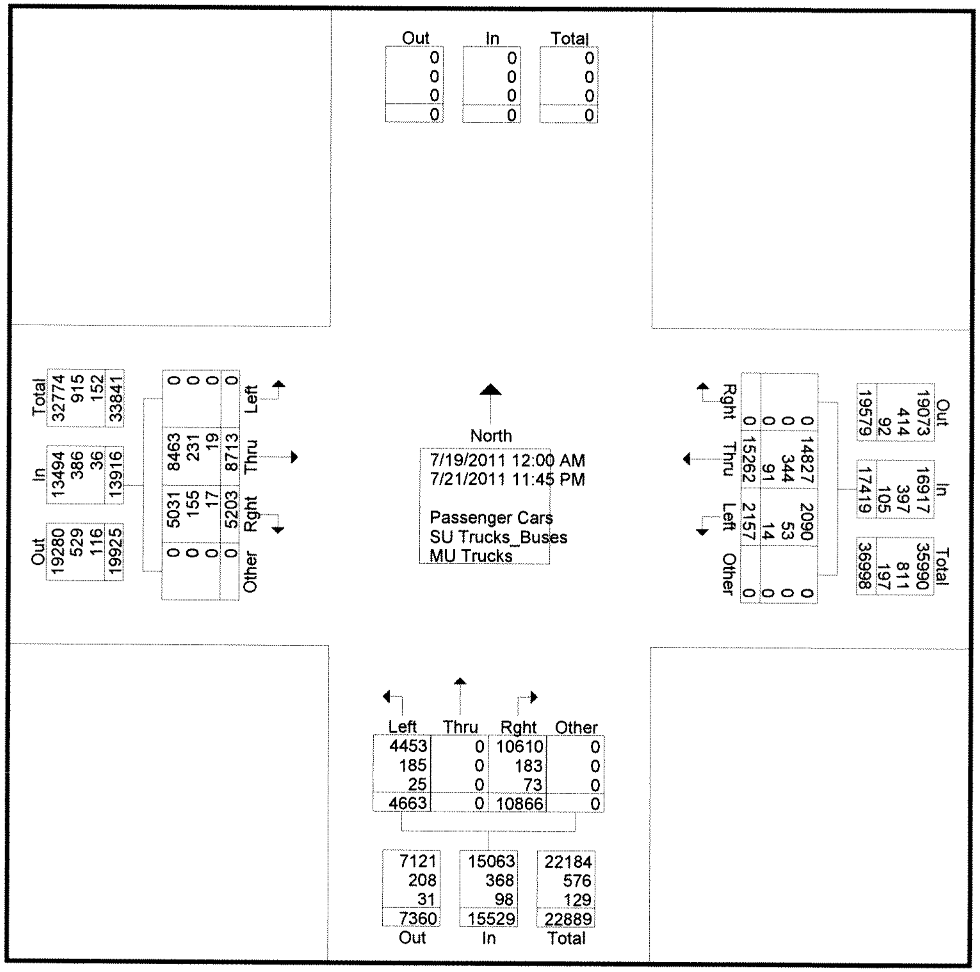


Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

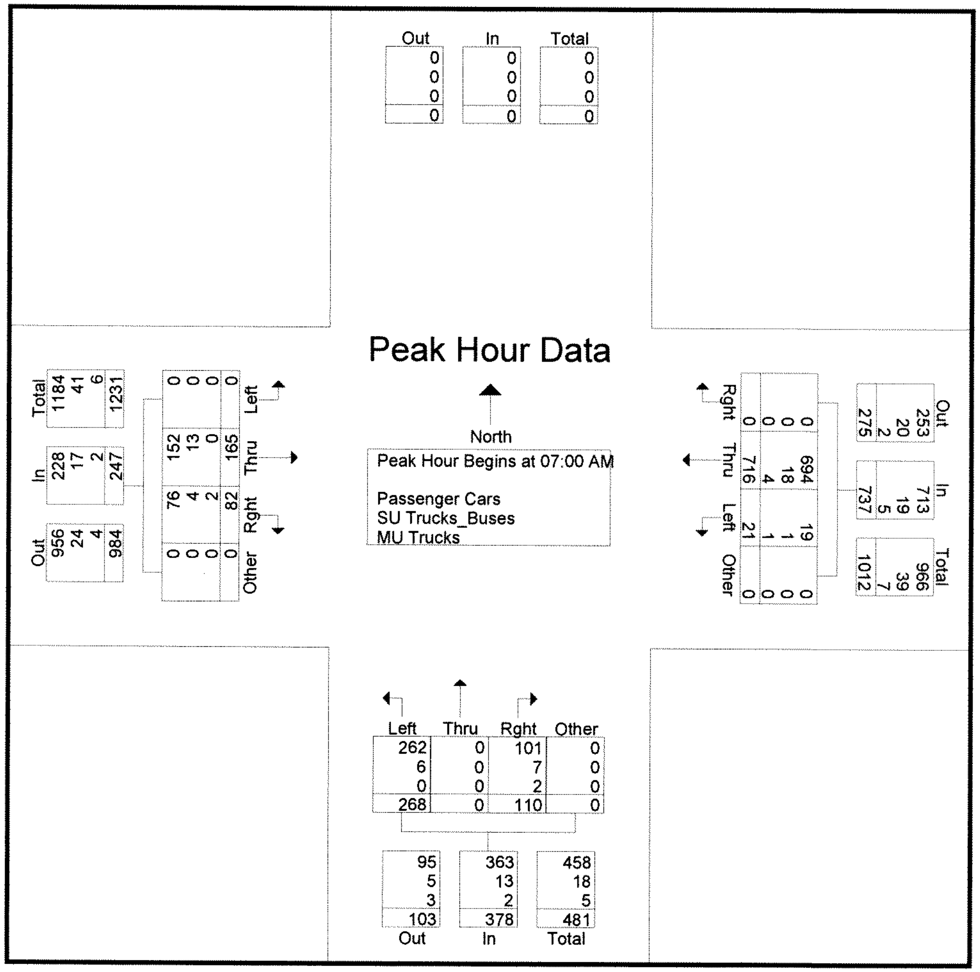
File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 14

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	4	192	0	0	196	55	0	22	0	77	0	27	14	0	41	314
07:15 AM	5	138	0	0	143	50	0	17	0	67	0	42	18	0	60	270
07:30 AM	2	**216**	0	0	**218**	**88**	0	**39**	0	**127**	0	46	**26**	0	72	**417**
07:45 AM	**10**	170	0	0	180	75	0	32	0	107	0	**50**	24	0	**74**	361
Total Volume	21	716	0	0	737	268	0	110	0	378	0	165	82	0	247	1362
% App. Total	2.8	97.2	0	0		70.9	0	29.1	0		0	66.8	33.2	0		
PHF	.525	.829	.000	.000	.845	.761	.000	.705	.000	.744	.000	.825	.788	.000	.834	.817
Passenger Cars	19	694	0	0	713	262	0	101	0	363	0	152	76	0	228	1304
% Passenger Cars	90.5	96.9	0	0	96.7	97.8	0	91.8	0	96.0	0	92.1	92.7	0	92.3	95.7
SU Trucks_Buses	1	18	0	0	19	6	0	7	0	13	0	13	4	0	17	49
% SU Trucks_Buses	4.8	2.5	0	0	2.6	2.2	0	6.4	0	3.4	0	7.9	4.9	0	6.9	3.6
MU Trucks	1	4	0	0	5	0	0	2	0	2	0	0	2	0	2	9
% MU Trucks	4.8	0.6	0	0	0.7	0	0	1.8	0	0.5	0	0	2.4	0	0.8	0.7

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 15



Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

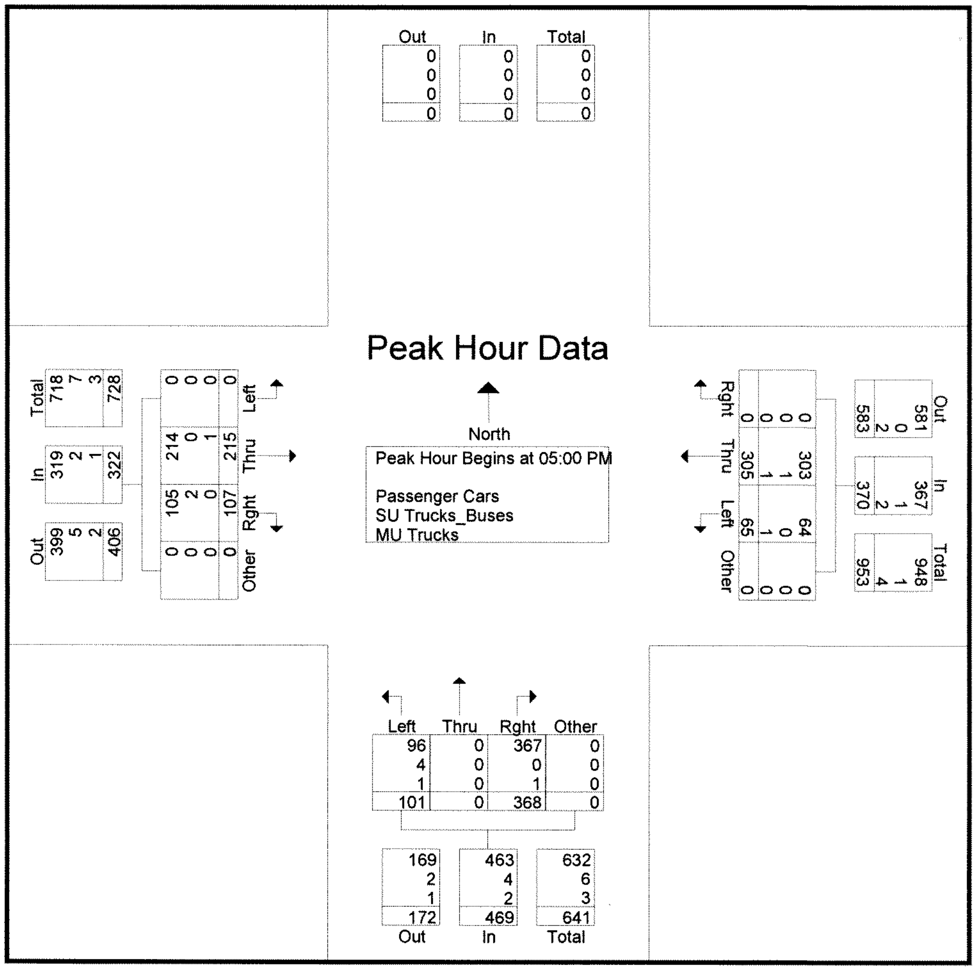
File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 16

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	**18**	69	0	0	87	16	0	**107**	0	123	0	52	21	0	73	283
05:15 PM	18	76	0	0	94	27	0	87	0	114	0	29	10	0	39	247
05:30 PM	15	78	0	0	93	28	0	76	0	104	0	**80**	**51**	0	**131**	**328**
05:45 PM	14	**82**	0	0	**96**	**30**	0	98	0	**128**	0	54	25	0	79	303
Total Volume	65	305	0	0	370	101	0	368	0	469	0	215	107	0	322	1161
% App. Total	17.6	82.4	0	0		21.5	0	78.5	0		0	66.8	33.2	0		
PHF	.903	.930	.000	.000	.964	.842	.000	.860	.000	.916	.000	.672	.525	.000	.615	.885
Passenger Cars	64	303	0	0	367	96	0	367	0	463	0	214	105	0	319	1149
% Passenger Cars	98.5	99.3	0	0	99.2	95.0	0	99.7	0	98.7	0	99.5	98.1	0	99.1	99.0
SU Trucks_Buses	0	1	0	0	1	4	0	0	0	4	0	0	2	0	2	7
% SU Trucks_Buses	0	0.3	0	0	0.3	4.0	0	0	0	0.9	0	0	1.9	0	0.6	0.6
MU Trucks	1	1	0	0	2	1	0	1	0	2	0	1	0	0	1	5
% MU Trucks	1.5	0.3	0	0	0.5	1.0	0	0.3	0	0.4	0	0.5	0	0	0.3	0.4

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 17



CHA

III Winners Circle
Albany, NY 12205

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 18

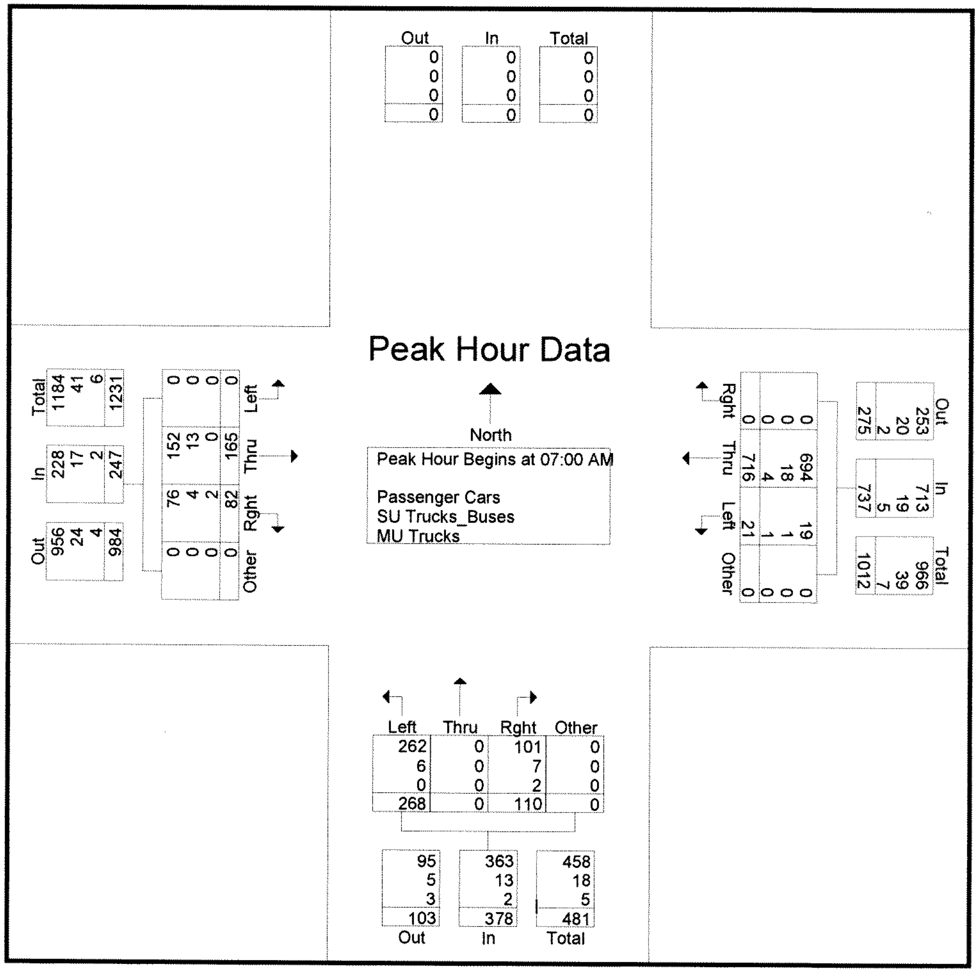
*AM

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	2	194	0	0	196	59	0	20	0	79	0	26	15	0	41	316
07:15 AM	**4**	135	0	0	139	55	0	32	0	87	0	42	**27**	0	69	295
07:30 AM	4	**196**	0	0	**200**	83	0	**47**	0	**130**	0	37	26	0	63	**393**
07:45 AM	2	154	0	0	156	**86**	0	43	0	129	0	**56**	22	0	**78**	363
Total Volume	12	679	0	0	691	283	0	142	0	425	0	161	90	0	251	1367
% App. Total	1.7	98.3	0	0		66.6	0	33.4	0		0	64.1	35.9	0		
PHF	.750	.866	.000	.000	.864	.823	.000	.755	.000	.817	.000	.719	.833	.000	.804	.870
Passenger Cars	19	694	0	0	713	262	0	101	0	363	0	152	76	0	228	1304
% Passenger Cars	158.3	102.2	0	0	103.2	92.6	0	71.1	0	85.4	0	94.4	84.4	0	90.8	95.4
SU Trucks_Buses	1	18	0	0	19	6	0	7	0	13	0	13	4	0	17	49
% SU Trucks_Buses	8.3	2.7	0	0	2.7	2.1	0	4.9	0	3.1	0	8.1	4.4	0	6.8	3.6
MU Trucks	1	4	0	0	5	0	0	2	0	2	0	0	2	0	2	9
% MU Trucks	8.3	0.6	0	0	0.7	0	0	1.4	0	0.5	0	0	2.2	0	0.8	0.7

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 19



Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011

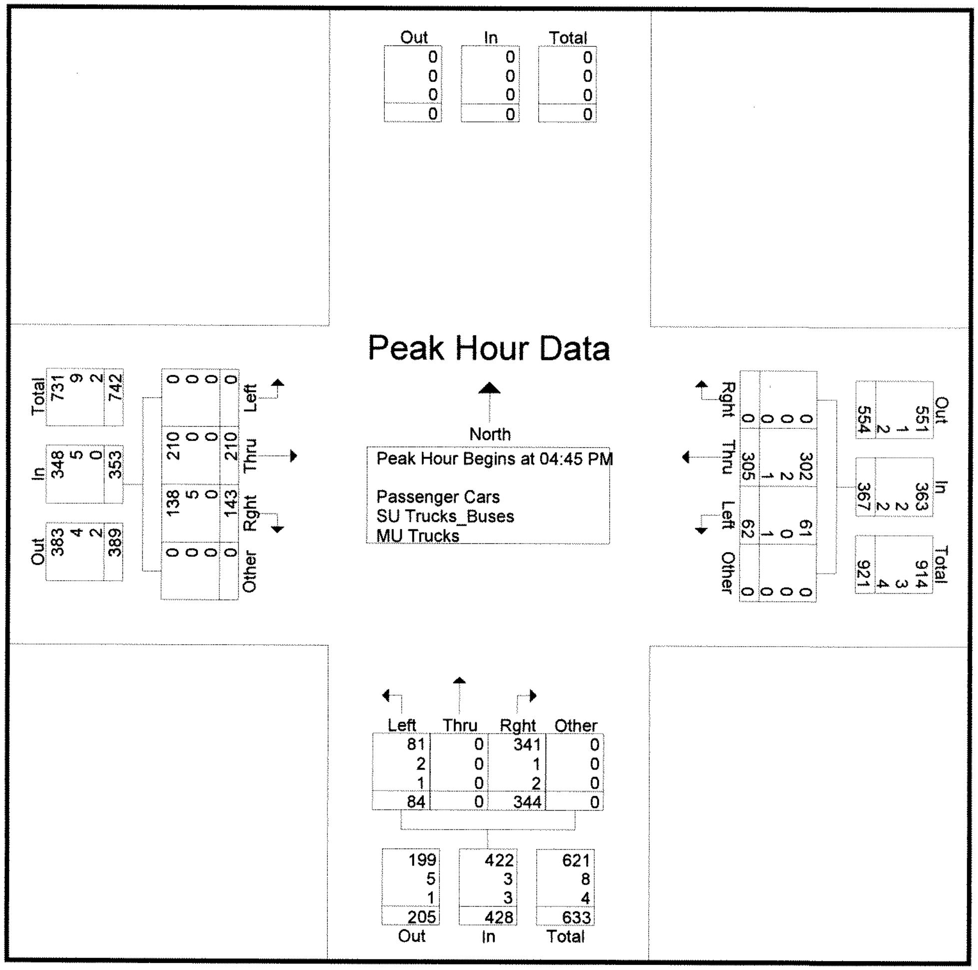
*PM

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	22	74	0	0	**96**	7	0	85	0	92	0	61	51	0	112	300
05:00 PM	**23**	62	0	0	85	15	0	83	0	98	0	55	22	0	77	260
05:15 PM	17	**78**	0	0	95	**22**	0	89	0	111	0	24	15	0	39	245
05:30 PM	9	71	0	0	80	17	0	**97**	0	**114**	0	**107**	**66**	0	**173**	**367**
Total Volume	71	285	0	0	356	61	0	354	0	415	0	247	154	0	401	1172
% App. Total	19.9	80.1	0	0		14.7	0	85.3	0		0	61.6	38.4	0		
PHF	.772	.913	.000	.000	.927	.693	.000	.912	.000	.910	.000	.577	.583	.000	.579	.798
Passenger Cars	61	302	0	0	363	81	0	341	0	422	0	210	138	0	348	1133
% Passenger Cars	85.9	106.0	0	0	102.0	132.8	0	96.3	0	101.7	0	85.0	89.6	0	86.8	96.7
SU Trucks_Buses	0	2	0	0	2	2	0	1	0	3	0	0	5	0	5	10
% SU Trucks_Buses	0	0.7	0	0	0.6	3.3	0	0.3	0	0.7	0	0	3.2	0	1.2	0.9
MU Trucks	1	1	0	0	2	1	0	2	0	3	0	0	0	0	0	5
% MU Trucks	1.4	0.4	0	0	0.6	1.6	0	0.6	0	0.7	0	0	0	0	0	0.4

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 21



Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

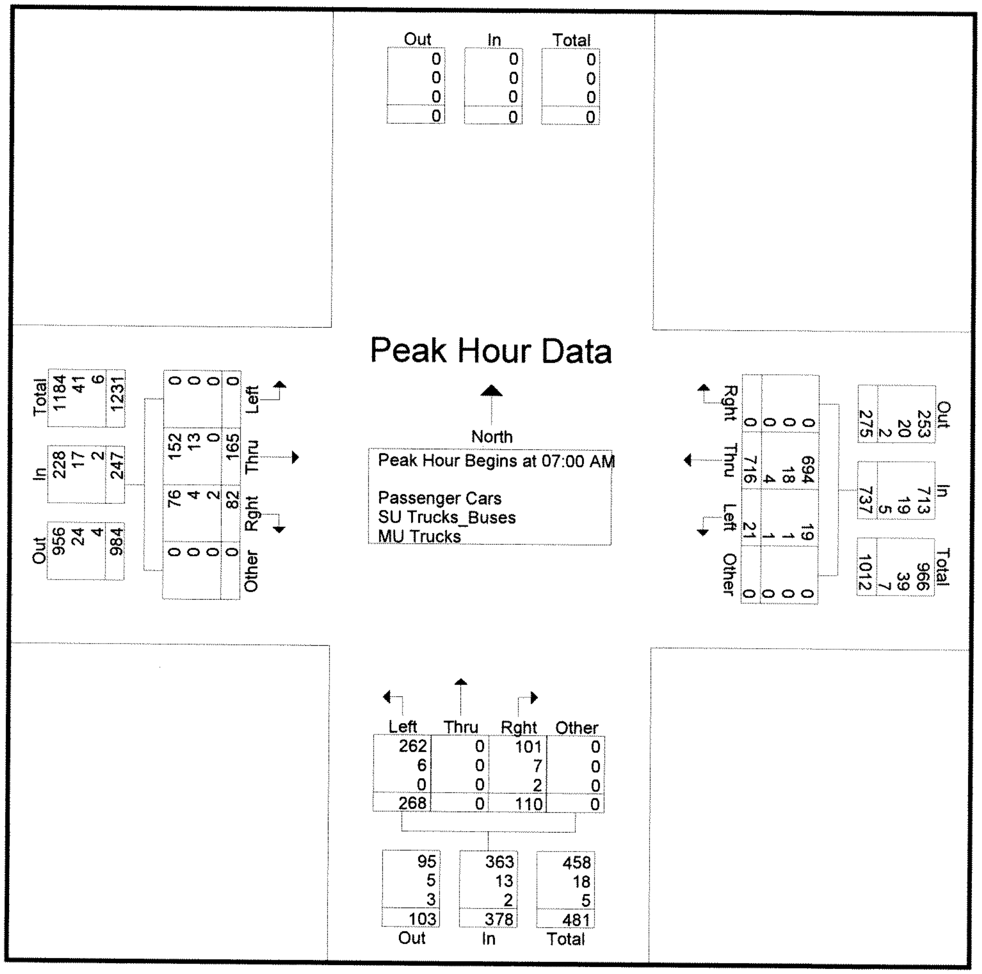
File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	3	163	0	0	166	67	0	14	0	81	0	27	22	0	49	296
07:15 AM	3	129	0	0	132	53	0	17	0	70	0	36	16	0	52	254
07:30 AM	**6**	**209**	0	0	**215**	**85**	0	**34**	0	**119**	0	38	24	0	62	**396**
07:45 AM	3	163	0	0	166	82	0	28	0	110	0	**52**	**26**	0	**78**	354
Total Volume	15	664	0	0	679	287	0	93	0	380	0	153	88	0	241	1300
% App. Total	2.2	97.8	0	0		75.5	0	24.5	0		0	63.5	36.5	0		
PHF	.625	.794	.000	.000	.790	.844	.000	.684	.000	.798	.000	.736	.846	.000	.772	.821
Passenger Cars	19	694	0	0	713	262	0	101	0	363	0	152	76	0	228	1304
% Passenger Cars	126.7	104.5	0	0	105.0	91.3	0	108.6	0	95.5	0	99.3	86.4	0	94.6	100.3
SU Trucks_Buses	1	18	0	0	19	6	0	7	0	13	0	13	4	0	17	49
% SU Trucks_Buses	6.7	2.7	0	0	2.8	2.1	0	7.5	0	3.4	0	8.5	4.5	0	7.1	3.8
MU Trucks	1	4	0	0	5	0	0	2	0	2	0	0	2	0	2	9
% MU Trucks	6.7	0.6	0	0	0.7	0	0	2.2	0	0.5	0	0	2.3	0	0.8	0.7

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 23



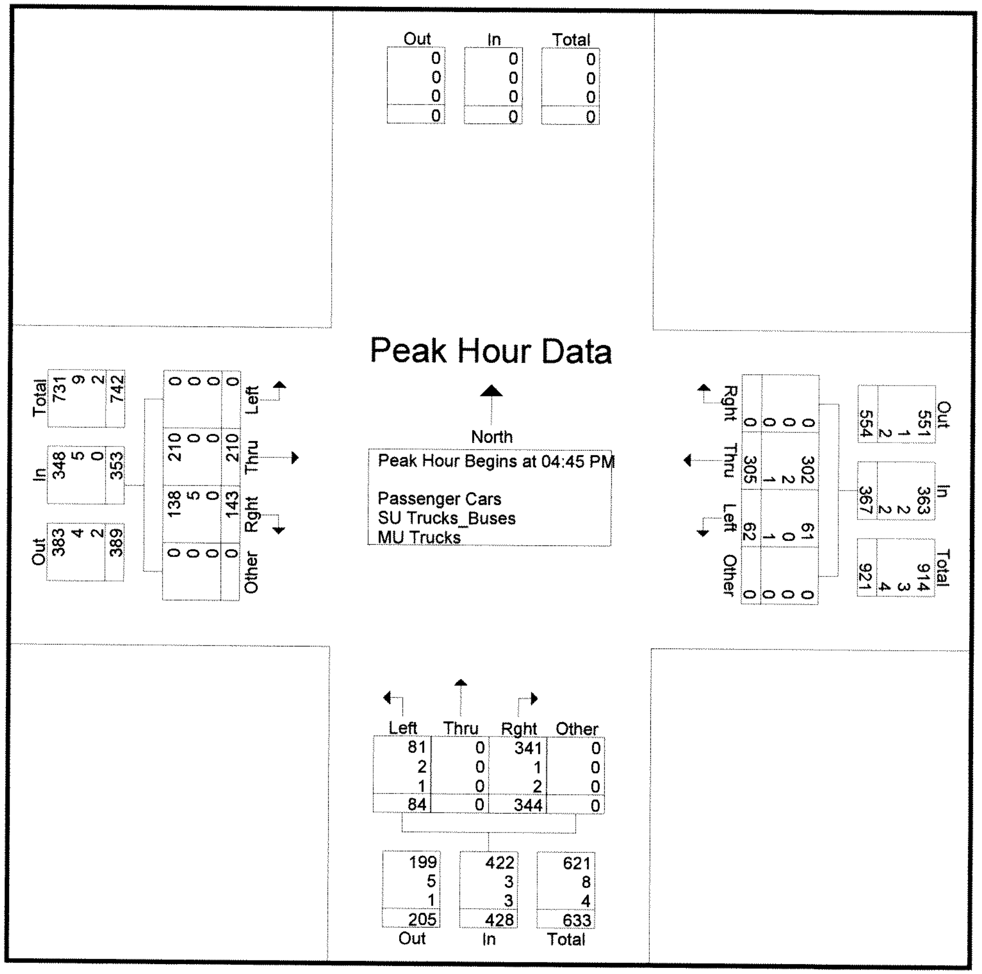
III Winners Circle
Albany, NY 12205

	From East					From South					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	13	59	0	0	72	**25**	0	92	0	**117**	0	62	59	0	121	310
05:00 PM	13	64	0	0	77	18	0	92	0	110	0	47	25	0	72	259
05:15 PM	12	**75**	0	0	**87**	18	0	**95**	0	113	0	31	8	0	39	239
05:30 PM	**15**	69	0	0	84	18	0	88	0	106	0	**85**	**60**	0	**145**	**335**
Total Volume	53	267	0	0	320	79	0	367	0	446	0	225	152	0	377	1143
% App. Total	16.6	83.4	0	0		17.7	0	82.3	0		0	59.7	40.3	0		
PHF	.883	.890	.000	.000	.920	.790	.000	.966	.000	.953	.000	.662	.633	.000	.650	.853
Passenger Cars	61	302	0	0	363	81	0	341	0	422	0	210	138	0	348	1133
% Passenger Cars	115.1	113.1	0	0	113.4	102.5	0	92.9	0	94.6	0	93.3	90.8	0	92.3	99.1
SU Trucks_Buses	0	2	0	0	2	2	0	1	0	3	0	0	5	0	5	10
% SU Trucks_Buses	0	0.7	0	0	0.6	2.5	0	0.3	0	0.7	0	0	3.3	0	1.3	0.9
MU Trucks	1	1	0	0	2	1	0	2	0	3	0	0	0	0	0	5
% MU Trucks	1.9	0.4	0	0	0.6	1.3	0	0.5	0	0.7	0	0	0	0	0	0.4

Croton-On-Hudson
Route 9 NB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : Route 9 NB Ramps & Croton Point Ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 25



Croton-On-Hudson Parking Facility & Bicy
Croton Point Ave & US Route 9 SB Ramps
Village of Croton-On-Hudson, NY

III Winners Circle
Albany, NY 12205

File Name : Croton Point Ave & US Route 9 SB Ramps
Site Code : 00000000
Start Date : 7/19/2011
Page No : 1

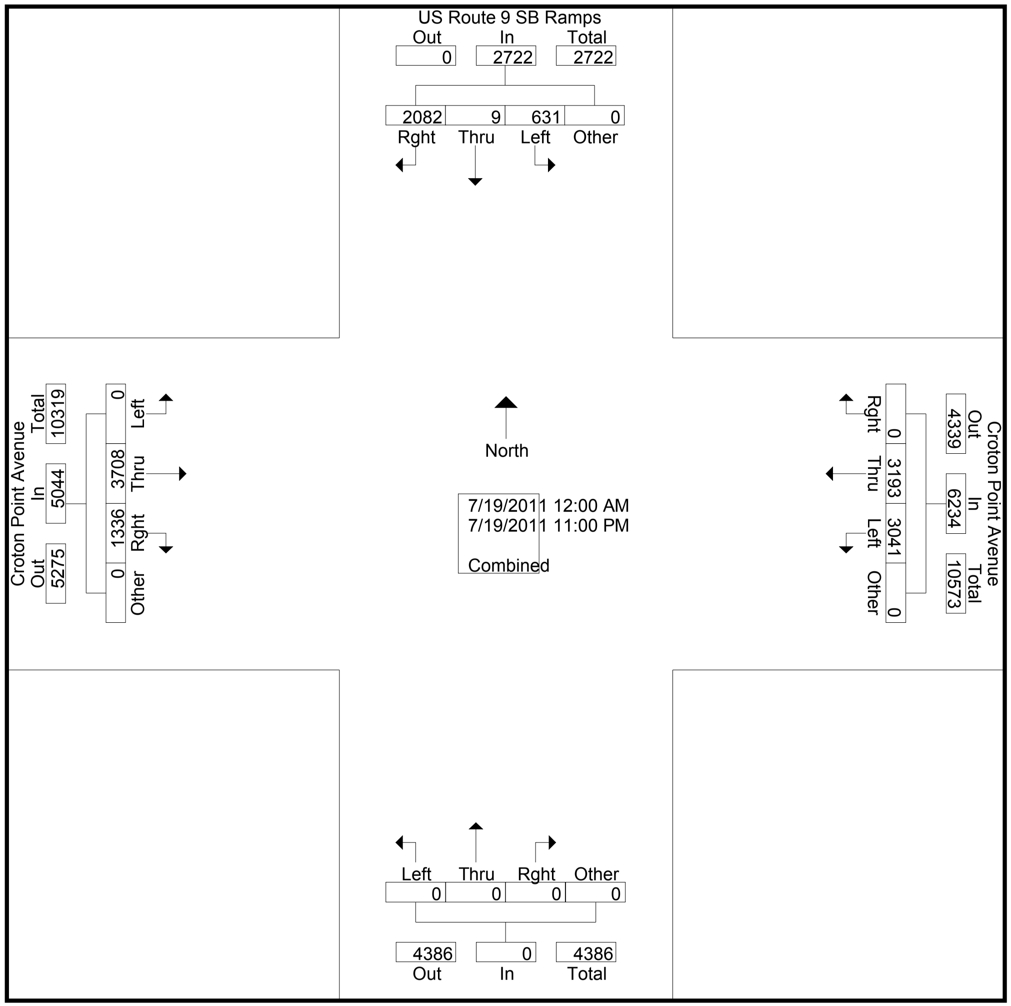
Groups Printed- Combined

	US Route 9 SB Ramps From North					Croton Point Avenue From East					From South					Croton Point Avenue From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
12:00 AM	1	0	10	0	11	10	27	0	0	37	0	0	0	0	0	0	55	26	0	81	129
01:00 AM	2	0	5	0	7	8	14	0	0	22	0	0	0	0	0	0	30	10	0	40	69
02:00 AM	1	0	2	0	3	6	7	0	0	13	0	0	0	0	0	0	18	5	0	23	39
03:00 AM	3	0	5	0	8	6	5	0	0	11	0	0	0	0	0	0	6	7	0	13	32
04:00 AM	7	0	27	0	34	8	29	0	0	37	0	0	0	0	0	0	7	6	0	13	84
05:00 AM	16	0	112	0	128	37	93	0	0	130	0	0	0	0	0	0	18	18	0	36	294
06:00 AM	21	1	315	0	337	93	319	0	0	412	0	0	0	0	0	0	95	56	0	151	900
07:00 AM	26	0	515	0	541	186	760	0	0	946	0	0	0	0	0	0	231	139	0	370	1857
08:00 AM	45	0	256	0	301	230	303	0	0	533	0	0	0	0	0	0	219	108	0	327	1161
09:00 AM	54	1	93	0	148	199	130	0	0	329	0	0	0	0	0	0	110	54	0	164	641
10:00 AM	46	1	75	0	122	203	112	0	0	315	0	0	0	0	0	0	107	43	0	150	587
11:00 AM	52	1	49	0	102	210	123	0	0	333	0	0	0	0	0	0	145	40	0	185	620
12:00 PM	46	1	57	0	104	211	130	0	0	341	0	0	0	0	0	0	119	44	0	163	608
01:00 PM	39	1	58	0	98	210	105	0	0	315	0	0	0	0	0	0	116	45	0	161	574
02:00 PM	49	0	59	0	108	207	109	0	0	316	0	0	0	0	0	0	151	58	0	209	633
03:00 PM	47	0	66	0	113	189	142	0	0	331	0	0	0	0	0	0	250	85	0	335	779
04:00 PM	46	1	71	0	118	213	127	0	0	340	0	0	0	0	0	0	334	109	0	443	901
05:00 PM	41	1	75	0	117	219	164	0	0	383	0	0	0	0	0	0	289	93	0	382	882
06:00 PM	38	0	82	0	120	198	191	0	0	389	0	0	0	0	0	0	661	167	0	828	1337
07:00 PM	22	1	45	0	68	138	95	0	0	233	0	0	0	0	0	0	303	83	0	386	687
08:00 PM	13	0	35	0	48	114	72	0	0	186	0	0	0	0	0	0	188	71	0	259	493
09:00 PM	10	0	32	0	42	84	69	0	0	153	0	0	0	0	0	0	127	34	0	161	356
10:00 PM	5	0	19	0	24	46	37	0	0	83	0	0	0	0	0	0	68	18	0	86	193
11:00 PM	1	0	19	0	20	16	30	0	0	46	0	0	0	0	0	0	61	17	0	78	144
Grand Total	631	9	2082	0	2722	3041	3193	0	0	6234	0	0	0	0	0	0	3708	1336	0	5044	14000
Apprch %	23.2	0.3	76.5	0		48.8	51.2	0	0		0	0	0	0		0	73.5	26.5	0		
Total %	4.5	0.1	14.9	0	19.4	21.7	22.8	0	0	44.5	0	0	0	0	0	0	26.5	9.5	0	36	

Croton-On-Hudson Parking Facility & Bicy
Croton Point Ave & US Route 9 SB Ramps
Village of Croton-On-Hudson, NY

III Winners Circle
Albany, NY 12205

File Name : Croton Point Ave & US Route 9 SB Ramps
Site Code : 00000000
Start Date : 7/19/2011
Page No : 2



Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 1

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
12:00 AM	0	0	5	0	5	2	7	0	0	9	0	33	15	0	48	62
12:15 AM	0	0	3	0	3	2	9	0	0	11	0	2	5	0	7	21
12:30 AM	0	0	0	0	0	1	4	0	0	5	0	10	2	0	12	17
12:45 AM	1	0	3	0	4	3	5	0	0	8	0	0	1	0	1	13
Total	1	0	11	0	12	8	25	0	0	33	0	45	23	0	68	113
01:00 AM	0	0	0	0	0	0	2	0	0	2	0	12	5	0	17	19
01:15 AM	1	0	1	0	2	3	1	0	0	4	0	4	1	0	5	11
01:30 AM	0	0	2	0	2	2	1	0	0	3	0	4	1	0	5	10
01:45 AM	0	0	0	0	0	2	4	0	0	6	0	0	0	0	0	6
Total	1	0	3	0	4	7	8	0	0	15	0	20	7	0	27	46
02:00 AM	1	0	1	0	2	3	3	0	0	6	0	12	2	0	14	22
02:15 AM	0	0	0	0	0	0	1	0	0	1	0	3	2	0	5	6
02:30 AM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	3
02:45 AM	0	0	0	0	0	1	4	0	0	5	0	2	0	0	2	7
Total	1	0	1	0	2	5	10	0	0	15	0	17	4	0	21	38
03:00 AM	2	0	0	0	2	0	0	0	0	0	0	3	0	0	3	5
03:15 AM	0	0	1	0	1	2	1	0	0	3	0	0	1	0	1	5
03:30 AM	0	0	2	0	2	1	2	0	0	3	0	0	1	0	1	6
03:45 AM	0	0	3	0	3	2	2	0	0	4	0	1	1	0	2	9
Total	2	0	6	0	8	5	5	0	0	10	0	4	3	0	7	25
04:00 AM	0	0	3	0	3	0	0	0	0	0	0	3	1	0	4	7
04:15 AM	3	0	7	0	10	5	2	0	0	7	0	1	1	0	2	19
04:30 AM	1	0	9	0	10	1	10	0	0	11	0	3	0	0	3	24
04:45 AM	4	0	7	0	11	2	14	0	0	16	0	3	5	0	8	35
Total	8	0	26	0	34	8	26	0	0	34	0	10	7	0	17	85
05:00 AM	1	0	15	0	16	3	15	0	0	18	0	2	1	0	3	37
05:15 AM	1	0	20	0	21	8	22	0	0	30	0	0	3	0	3	54
05:30 AM	6	0	26	0	32	8	20	0	0	28	0	7	9	0	16	76
05:45 AM	6	0	46	0	52	16	37	0	0	53	0	6	4	0	10	115
Total	14	0	107	0	121	35	94	0	0	129	0	15	17	0	32	282

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 2

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
06:00 AM	3	0	80	0	83	14	72	0	0	86	0	26	7	0	33	202
06:15 AM	5	0	67	0	72	10	63	0	0	73	0	14	13	0	27	172
06:30 AM	4	1	89	0	94	34	93	0	0	127	0	21	21	0	42	263
06:45 AM	4	0	86	0	90	32	83	0	0	115	0	30	13	0	43	248
Total	16	1	322	0	339	90	311	0	0	401	0	91	54	0	145	885
07:00 AM	7	0	120	0	127	43	204	0	0	247	0	37	21	0	58	432
07:15 AM	4	0	129	0	133	35	140	0	0	175	0	57	29	0	86	394
07:30 AM	7	0	121	0	128	51	248	0	0	299	0	70	47	0	117	544
07:45 AM	8	0	164	0	172	60	179	0	0	239	0	70	39	0	109	520
Total	26	0	534	0	560	189	771	0	0	960	0	234	136	0	370	1890
08:00 AM	8	1	62	0	71	46	95	0	0	141	0	69	37	0	106	318
08:15 AM	9	0	88	0	97	57	109	0	0	166	0	54	41	0	95	358
08:30 AM	9	0	42	0	51	68	44	0	0	112	0	44	18	0	62	225
08:45 AM	18	0	56	0	74	58	62	0	0	120	0	53	19	0	72	266
Total	44	1	248	0	293	229	310	0	0	539	0	220	115	0	335	1167
09:00 AM	13	1	17	0	31	54	32	0	0	86	0	16	16	0	32	149
09:15 AM	10	0	27	0	37	42	44	0	0	86	0	32	14	0	46	169
09:30 AM	10	0	27	0	37	46	39	0	0	85	0	33	12	0	45	167
09:45 AM	8	1	15	0	24	47	19	0	0	66	0	24	11	0	35	125
Total	41	2	86	0	129	189	134	0	0	323	0	105	53	0	158	610
10:00 AM	8	0	12	0	20	39	12	0	0	51	0	13	6	0	19	90
10:15 AM	13	0	28	0	41	35	38	0	0	73	0	29	11	0	40	154
10:30 AM	8	0	16	0	24	58	32	0	0	90	0	33	10	0	43	157
10:45 AM	10	0	12	0	22	54	21	0	0	75	0	13	8	0	21	118
Total	39	0	68	0	107	186	103	0	0	289	0	88	35	0	123	519
11:00 AM	9	0	6	0	15	55	22	0	0	77	0	24	8	0	32	124
11:15 AM	9	0	17	0	26	45	33	0	0	78	0	30	4	0	34	138
11:30 AM	16	2	15	0	33	64	34	0	0	98	0	45	16	0	61	192
11:45 AM	16	0	10	0	26	46	32	0	0	78	0	50	11	0	61	165
Total	50	2	48	0	100	210	121	0	0	331	0	149	39	0	188	619
12:00 PM	11	0	9	0	20	57	23	0	0	80	0	27	5	0	32	132

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 3

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
12:15 PM	12	0	20	0	32	53	45	0	0	98	0	20	8	0	28	158
12:30 PM	5	0	14	0	19	53	36	0	0	89	0	28	10	0	38	146
12:45 PM	11	0	12	0	23	55	24	0	0	79	0	36	17	0	53	155
Total	39	0	55	0	94	218	128	0	0	346	0	111	40	0	151	591
01:00 PM	12	0	15	0	27	49	31	0	0	80	0	19	7	0	26	133
01:15 PM	11	1	18	0	30	63	27	0	0	90	0	24	12	0	36	156
01:30 PM	11	0	17	0	28	49	23	0	0	72	0	43	15	0	58	158
01:45 PM	11	1	8	0	20	43	20	0	0	63	0	28	7	0	35	118
Total	45	2	58	0	105	204	101	0	0	305	0	114	41	0	155	565
02:00 PM	9	0	19	0	28	50	19	0	0	69	0	21	14	0	35	132
02:15 PM	11	0	11	0	22	46	31	0	0	77	0	31	10	0	41	140
02:30 PM	16	0	13	0	29	48	37	0	0	85	0	61	18	0	79	193
02:45 PM	16	0	14	0	30	61	29	0	0	90	0	34	16	0	50	170
Total	52	0	57	0	109	205	116	0	0	321	0	147	58	0	205	635
03:00 PM	14	0	15	0	29	55	30	0	0	85	0	29	24	0	53	167
03:15 PM	12	0	20	0	32	43	52	0	0	95	0	34	23	0	57	184
03:30 PM	13	0	17	0	30	49	41	0	0	90	0	85	23	0	108	228
03:45 PM	6	0	17	0	23	42	28	0	0	70	0	96	27	0	123	216
Total	45	0	69	0	114	189	151	0	0	340	0	244	97	0	341	795
04:00 PM	12	0	17	0	29	49	35	0	0	84	0	115	45	0	160	273
04:15 PM	13	0	14	0	27	44	27	0	0	71	0	87	24	0	111	209
04:30 PM	20	0	12	0	32	48	21	0	0	69	0	25	13	0	38	139
04:45 PM	7	0	24	0	31	64	30	0	0	94	0	103	37	0	140	265
Total	52	0	67	0	119	205	113	0	0	318	0	330	119	0	449	886
05:00 PM	6	0	15	0	21	59	28	0	0	87	0	67	22	0	89	197
05:15 PM	12	0	21	0	33	46	56	0	0	102	0	27	16	0	43	178
05:30 PM	9	0	19	0	28	60	45	0	0	105	0	122	35	0	157	290
05:45 PM	9	0	22	0	31	54	56	0	0	110	0	71	22	0	93	234
Total	36	0	77	0	113	219	185	0	0	404	0	287	95	0	382	899
06:00 PM	7	0	28	0	35	45	51	0	0	96	0	223	49	0	272	403
06:15 PM	5	1	17	0	23	34	47	0	0	81	0	188	35	0	223	327

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 4

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
06:30 PM	15	0	24	0	39	54	63	0	0	117	0	114	23	0	137	293
06:45 PM	5	0	27	0	32	53	51	0	0	104	0	176	53	0	229	365
Total	32	1	96	0	129	186	212	0	0	398	0	701	160	0	861	1388
07:00 PM	14	0	17	0	31	39	48	0	0	87	0	55	18	0	73	191
07:15 PM	5	0	25	0	30	60	38	0	0	98	0	180	41	0	221	349
07:30 PM	8	0	13	0	21	41	35	0	0	76	0	209	49	0	258	355
07:45 PM	6	1	16	0	23	49	25	0	0	74	0	30	21	0	51	148
Total	33	1	71	0	105	189	146	0	0	335	0	474	129	0	603	1043
08:00 PM	3	0	12	0	15	49	22	0	0	71	0	129	27	0	156	242
08:15 PM	5	0	10	0	15	39	23	0	0	62	0	37	36	0	73	150
08:30 PM	4	0	13	0	17	35	21	0	0	56	0	98	31	0	129	202
08:45 PM	6	0	8	0	14	50	21	0	0	71	0	21	22	0	43	128
Total	18	0	43	0	61	173	87	0	0	260	0	285	116	0	401	722
09:00 PM	8	0	11	0	19	34	28	0	0	62	0	59	12	0	71	152
09:15 PM	4	0	10	0	14	34	14	0	0	48	0	50	14	0	64	126
09:30 PM	1	0	10	0	11	25	11	0	0	36	0	16	4	0	20	67
09:45 PM	0	0	9	0	9	20	20	0	0	40	0	19	4	0	23	72
Total	13	0	40	0	53	113	73	0	0	186	0	144	34	0	178	417
10:00 PM	2	0	6	0	8	24	19	0	0	43	0	51	9	0	60	111
10:15 PM	4	0	6	0	10	24	15	0	0	39	0	21	7	0	28	77
10:30 PM	2	0	2	0	4	2	12	0	0	14	0	20	8	0	28	46
10:45 PM	0	0	10	0	10	13	5	0	0	18	0	8	1	0	9	37
Total	8	0	24	0	32	63	51	0	0	114	0	100	25	0	125	271
11:00 PM	0	0	3	0	3	9	14	0	0	23	0	48	14	0	62	88
11:15 PM	0	0	6	0	6	7	12	0	0	19	0	13	1	0	14	39
11:30 PM	0	0	4	0	4	4	8	0	0	12	0	9	2	0	11	27
11:45 PM	0	0	16	0	16	4	12	0	0	16	0	13	7	0	20	52
Total	0	0	29	0	29	24	46	0	0	70	0	83	24	0	107	206
12:00 AM	0	0	4	0	4	2	11	0	0	13	0	39	15	0	54	71
12:15 AM	1	0	0	0	1	2	6	0	0	8	0	8	3	0	11	20
12:30 AM	0	0	2	0	2	4	6	0	0	10	0	7	3	0	10	22

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 5

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
12:45 AM	0	0	2	0	2	1	7	0	0	8	0	4	1	0	5	15
Total	1	0	8	0	9	9	30	0	0	39	0	58	22	0	80	128
01:00 AM	1	0	3	0	4	0	3	0	0	3	0	6	1	0	7	14
01:15 AM	0	0	1	0	1	3	8	0	0	11	0	20	6	0	26	38
01:30 AM	0	0	2	0	2	2	5	0	0	7	0	1	1	0	2	11
01:45 AM	1	0	1	0	2	3	3	0	0	6	0	8	2	0	10	18
Total	2	0	7	0	9	8	19	0	0	27	0	35	10	0	45	81
02:00 AM	0	0	1	0	1	1	0	0	0	1	0	8	3	0	11	13
02:15 AM	1	0	1	0	2	1	3	0	0	4	0	6	3	0	9	15
02:30 AM	1	0	0	0	1	1	2	0	0	3	0	0	1	0	1	5
02:45 AM	0	0	1	0	1	2	0	0	0	2	0	4	0	0	4	7
Total	2	0	3	0	5	5	5	0	0	10	0	18	7	0	25	40
03:00 AM	1	0	2	0	3	2	3	0	0	5	0	4	3	0	7	15
03:15 AM	0	0	2	0	2	1	3	0	0	4	0	1	2	0	3	9
03:30 AM	1	0	0	0	1	0	1	0	0	1	0	0	3	0	3	5
03:45 AM	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	3
Total	2	0	4	0	6	6	7	0	0	13	0	5	8	0	13	32
04:00 AM	1	0	6	0	7	3	1	0	0	4	0	0	3	0	3	14
04:15 AM	0	0	4	0	4	0	3	0	0	3	0	1	1	0	2	9
04:30 AM	1	0	6	0	7	1	5	0	0	6	0	2	0	0	2	15
04:45 AM	3	0	12	0	15	3	23	0	0	26	0	1	1	0	2	43
Total	5	0	28	0	33	7	32	0	0	39	0	4	5	0	9	81
05:00 AM	2	0	11	0	13	4	10	0	0	14	0	3	2	0	5	32
05:15 AM	2	0	19	0	21	9	17	0	0	26	0	4	2	0	6	53
05:30 AM	7	0	37	0	44	9	17	0	0	26	0	5	7	0	12	82
05:45 AM	7	0	49	0	56	17	48	0	0	65	0	8	7	0	15	136
Total	18	0	116	0	134	39	92	0	0	131	0	20	18	0	38	303
06:00 AM	4	0	65	0	69	21	73	0	0	94	0	27	16	0	43	206
06:15 AM	5	0	76	0	81	10	63	0	0	73	0	13	12	0	25	179
06:30 AM	3	0	73	0	76	24	92	0	0	116	0	26	16	0	42	234
06:45 AM	8	0	97	0	105	35	99	0	0	134	0	35	14	0	49	288
Total	20	0	311	0	331	90	327	0	0	417	0	101	58	0	159	907

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 6

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
07:00 AM	3	0	128	0	131	40	207	0	0	247	0	39	23	0	62	440
07:15 AM	8	0	108	0	116	40	148	0	0	188	0	67	32	0	99	403
07:30 AM	3	0	140	0	143	48	206	0	0	254	0	63	46	0	109	506
07:45 AM	9	0	156	0	165	60	188	0	0	248	0	73	43	0	116	529
Total	23	0	532	0	555	188	749	0	0	937	0	242	144	0	386	1878
08:00 AM	9	0	70	0	79	63	94	0	0	157	0	61	35	0	96	332
08:15 AM	8	0	107	0	115	46	110	0	0	156	0	69	33	0	102	373
08:30 AM	7	0	45	0	52	53	53	0	0	106	0	42	22	0	64	222
08:45 AM	19	0	58	0	77	61	52	0	0	113	0	44	21	0	65	255
Total	43	0	280	0	323	223	309	0	0	532	0	216	111	0	327	1182
09:00 AM	18	0	20	0	38	64	29	0	0	93	0	35	11	0	46	177
09:15 AM	18	0	42	0	60	57	34	0	0	91	0	36	22	0	58	209
09:30 AM	18	0	26	0	44	51	28	0	0	79	0	30	8	0	38	161
09:45 AM	9	1	18	0	28	59	34	0	0	93	0	27	5	0	32	153
Total	63	1	106	0	170	231	125	0	0	356	0	128	46	0	174	700
10:00 AM	4	0	20	0	24	56	24	0	0	80	0	29	13	0	42	146
10:15 AM	13	0	25	0	38	56	40	0	0	96	0	29	10	0	39	173
10:30 AM	12	0	20	0	32	62	29	0	0	91	0	31	21	0	52	175
10:45 AM	17	0	13	0	30	51	22	0	0	73	0	27	15	0	42	145
Total	46	0	78	0	124	225	115	0	0	340	0	116	59	0	175	639
11:00 AM	11	0	12	0	23	54	32	0	0	86	0	18	5	0	23	132
11:15 AM	15	0	21	0	36	58	27	0	0	85	0	37	14	0	51	172
11:30 AM	8	0	10	0	18	47	26	0	0	73	0	41	6	0	47	138
11:45 AM	13	0	10	0	23	67	30	0	0	97	0	44	13	0	57	177
Total	47	0	53	0	100	226	115	0	0	341	0	140	38	0	178	619
12:00 PM	14	0	10	0	24	45	35	0	0	80	0	28	12	0	40	144
12:15 PM	14	0	15	0	29	52	38	0	0	90	0	34	5	0	39	158
12:30 PM	12	0	26	0	38	58	34	0	0	92	0	35	14	0	49	179
12:45 PM	11	2	6	0	19	50	36	0	0	86	0	29	14	0	43	148
Total	51	2	57	0	110	205	143	0	0	348	0	126	45	0	171	629
01:00 PM	9	0	11	0	20	64	28	0	0	92	0	17	12	0	29	141

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 7

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
01:15 PM	12	0	25	0	37	55	35	0	0	90	0	32	14	0	46	173
01:30 PM	13	0	14	0	27	51	21	0	0	72	0	43	12	0	55	154
01:45 PM	12	0	14	0	26	60	24	0	0	84	0	26	7	0	33	143
Total	46	0	64	0	110	230	108	0	0	338	0	118	45	0	163	611
02:00 PM	16	0	7	0	23	47	23	0	0	70	0	23	11	0	34	127
02:15 PM	15	0	33	0	48	56	37	0	0	93	0	44	16	0	60	201
02:30 PM	15	1	15	0	31	56	27	0	0	83	0	71	18	0	89	203
02:45 PM	14	0	15	0	29	60	21	0	0	81	0	29	13	0	42	152
Total	60	1	70	0	131	219	108	0	0	327	0	167	58	0	225	683
03:00 PM	9	0	8	0	17	54	27	0	0	81	0	41	13	0	54	152
03:15 PM	12	0	20	0	32	47	44	0	0	91	0	31	21	0	52	175
03:30 PM	19	0	20	0	39	47	35	0	0	82	0	87	23	0	110	231
03:45 PM	15	0	18	0	33	53	34	0	0	87	0	89	27	0	116	236
Total	55	0	66	0	121	201	140	0	0	341	0	248	84	0	332	794
04:00 PM	14	0	13	0	27	53	29	0	0	82	0	104	48	0	152	261
04:15 PM	14	0	30	0	44	73	34	0	0	107	0	80	18	0	98	249
04:30 PM	9	0	10	0	19	48	17	0	0	65	0	36	16	0	52	136
04:45 PM	10	0	19	0	29	53	24	0	0	77	0	102	19	0	121	227
Total	47	0	72	0	119	227	104	0	0	331	0	322	101	0	423	873
05:00 PM	15	1	22	0	38	56	22	0	0	78	0	62	20	0	82	198
05:15 PM	11	0	21	0	32	51	49	0	0	100	0	28	12	0	40	172
05:30 PM	12	0	12	0	24	53	35	0	0	88	0	162	44	0	206	318
05:45 PM	13	0	18	0	31	70	48	0	0	118	0	37	16	0	53	202
Total	51	1	73	0	125	230	154	0	0	384	0	289	92	0	381	890
06:00 PM	5	0	21	0	26	49	50	0	0	99	0	210	49	0	259	384
06:15 PM	8	0	28	0	36	54	45	0	0	99	0	152	42	0	194	329
06:30 PM	8	0	16	0	24	54	40	0	0	94	0	149	31	0	180	298
06:45 PM	13	0	15	0	28	50	37	0	0	87	0	153	47	0	200	315
Total	34	0	80	0	114	207	172	0	0	379	0	664	169	0	833	1326
07:00 PM	10	1	13	0	24	53	42	0	0	95	0	66	16	0	82	201
07:15 PM	8	0	22	0	30	59	39	0	0	98	0	164	46	0	210	338

CHA

III Winners Circle
Albany, NY 12205

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 8

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
07:30 PM	9	0	17	0	26	53	38	0	0	91	0	174	43	0	217	334
07:45 PM	7	0	12	0	19	59	20	0	0	79	0	30	15	0	45	143
Total	34	1	64	0	99	224	139	0	0	363	0	434	120	0	554	1016
08:00 PM	4	0	24	0	28	45	33	0	0	78	0	128	27	0	155	261
08:15 PM	5	0	12	0	17	51	25	0	0	76	0	27	16	0	43	136
08:30 PM	8	0	13	0	21	31	36	0	0	67	0	96	42	0	138	226
08:45 PM	5	0	12	0	17	41	35	0	0	76	0	27	11	0	38	131
Total	22	0	61	0	83	168	129	0	0	297	0	278	96	0	374	754
09:00 PM	7	0	23	0	30	41	46	0	0	87	0	62	12	0	74	191
09:15 PM	5	0	13	0	18	40	37	0	0	77	0	51	10	0	61	156
09:30 PM	2	0	14	0	16	29	31	0	0	60	0	54	11	0	65	141
09:45 PM	3	0	7	0	10	29	21	0	0	50	0	71	36	0	107	167
Total	17	0	57	0	74	139	135	0	0	274	0	238	69	0	307	655
10:00 PM	2	0	6	0	8	35	15	0	0	50	0	45	10	0	55	113
10:15 PM	3	0	11	0	14	18	17	0	0	35	0	10	1	0	11	60
10:30 PM	1	0	0	0	1	14	11	0	0	25	0	34	12	0	46	72
10:45 PM	1	0	15	0	16	8	17	0	0	25	0	15	6	0	21	62
Total	7	0	32	0	39	75	60	0	0	135	0	104	29	0	133	307
11:00 PM	1	0	6	0	7	12	8	0	0	20	0	56	13	0	69	96
11:15 PM	0	0	5	0	5	4	14	0	0	18	0	16	3	0	19	42
11:30 PM	3	0	4	0	7	5	10	0	0	15	0	8	2	0	10	32
11:45 PM	0	0	13	0	13	3	13	0	0	16	0	19	9	0	28	57
Total	4	0	28	0	32	24	45	0	0	69	0	99	27	0	126	227
12:00 AM	1	0	4	0	5	5	6	0	0	11	0	40	18	0	58	74
12:15 AM	0	0	2	0	2	4	7	0	0	11	0	7	3	0	10	23
12:30 AM	1	0	1	0	2	3	5	0	0	8	0	15	7	0	22	32
12:45 AM	0	0	3	0	3	2	7	0	0	9	0	1	4	0	5	17
Total	2	0	10	0	12	14	25	0	0	39	0	63	32	0	95	146
01:00 AM	1	0	0	0	1	3	2	0	0	5	0	21	3	0	24	30
01:15 AM	1	0	3	0	4	3	6	0	0	9	0	7	5	0	12	25
01:30 AM	0	0	1	0	1	2	3	0	0	5	0	6	2	0	8	14

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 9

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
01:45 AM	1	0	0	0	1	1	3	0	0	4	0	0	2	0	2	7
Total	3	0	4	0	7	9	14	0	0	23	0	34	12	0	46	76
02:00 AM	1	0	1	0	2	1	0	0	0	1	0	6	2	0	8	11
02:15 AM	0	0	1	0	1	4	3	0	0	7	0	6	0	0	6	14
02:30 AM	0	0	0	0	0	3	1	0	0	4	0	2	1	0	3	7
02:45 AM	0	0	1	0	1	1	3	0	0	4	0	5	2	0	7	12
Total	1	0	3	0	4	9	7	0	0	16	0	19	5	0	24	44
03:00 AM	1	0	2	0	3	1	1	0	0	2	0	8	4	0	12	17
03:15 AM	2	0	1	0	3	1	2	0	0	3	0	0	3	0	3	9
03:30 AM	1	0	1	0	2	3	1	0	0	4	0	0	1	0	1	7
03:45 AM	0	0	2	0	2	2	0	0	0	2	0	1	1	0	2	6
Total	4	0	6	0	10	7	4	0	0	11	0	9	9	0	18	39
*** BREAK ***																
06:00 AM	3	0	67	0	70	18	75	0	0	93	0	16	14	0	30	193
06:15 AM	5	0	75	0	80	14	64	0	0	78	0	16	11	0	27	185
06:30 AM	7	0	76	0	83	29	87	0	0	116	0	26	19	0	45	244
06:45 AM	12	1	95	0	108	38	93	0	0	131	0	36	13	0	49	288
Total	27	1	313	0	341	99	319	0	0	418	0	94	57	0	151	910
07:00 AM	5	0	108	0	113	26	200	0	0	226	0	45	22	0	67	406
07:15 AM	6	0	104	0	110	47	132	0	0	179	0	46	34	0	80	369
07:30 AM	7	0	136	0	143	55	241	0	0	296	0	57	39	0	96	535
07:45 AM	10	0	132	0	142	54	187	0	0	241	0	70	42	0	112	495
Total	28	0	480	0	508	182	760	0	0	942	0	218	137	0	355	1805
08:00 AM	13	0	60	0	73	51	88	0	0	139	0	62	33	0	95	307
08:15 AM	15	0	76	0	91	65	98	0	0	163	0	67	28	0	95	349
08:30 AM	10	0	52	0	62	55	57	0	0	112	0	42	18	0	60	234
08:45 AM	10	0	53	0	63	66	48	0	0	114	0	50	20	0	70	247
Total	48	0	241	0	289	237	291	0	0	528	0	221	99	0	320	1137
09:00 AM	17	0	16	0	33	57	26	0	0	83	0	18	13	0	31	147
09:15 AM	13	0	33	0	46	37	43	0	0	80	0	22	16	0	38	164

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 10

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
09:30 AM	9	0	22	0	31	34	34	0	0	68	0	33	18	0	51	150
09:45 AM	19	0	15	0	34	48	27	0	0	75	0	23	15	0	38	147
Total	58	0	86	0	144	176	130	0	0	306	0	96	62	0	158	608
10:00 AM	8	1	14	0	23	40	30	0	0	70	0	26	12	0	38	131
10:15 AM	14	1	30	0	45	43	36	0	0	79	0	25	5	0	30	154
10:30 AM	13	0	20	0	33	53	33	0	0	86	0	40	9	0	49	168
10:45 AM	18	0	15	0	33	61	18	0	0	79	0	26	8	0	34	146
Total	53	2	79	0	134	197	117	0	0	314	0	117	34	0	151	599
11:00 AM	13	0	12	0	25	43	29	0	0	72	0	29	4	0	33	130
11:15 AM	14	0	14	0	28	56	35	0	0	91	0	30	10	0	40	159
11:30 AM	16	1	7	0	24	48	33	0	0	81	0	45	18	0	63	168
11:45 AM	16	0	12	0	28	48	37	0	0	85	0	41	11	0	52	165
Total	59	1	45	0	105	195	134	0	0	329	0	145	43	0	188	622
12:00 PM	10	0	9	0	19	46	41	0	0	87	0	31	9	0	40	146
12:15 PM	12	0	19	0	31	47	36	0	0	83	0	19	10	0	29	143
12:30 PM	13	0	19	0	32	57	23	0	0	80	0	42	14	0	56	168
12:45 PM	13	0	13	0	26	61	19	0	0	80	0	27	14	0	41	147
Total	48	0	60	0	108	211	119	0	0	330	0	119	47	0	166	604
01:00 PM	10	0	10	0	20	50	30	0	0	80	0	19	12	0	31	131
01:15 PM	5	0	13	0	18	53	30	0	0	83	0	28	15	0	43	144
01:30 PM	6	1	19	0	26	53	27	0	0	80	0	46	14	0	60	166
01:45 PM	6	0	10	0	16	41	19	0	0	60	0	22	9	0	31	107
Total	27	1	52	0	80	197	106	0	0	303	0	115	50	0	165	548
02:00 PM	5	0	7	0	12	51	21	0	0	72	0	21	14	0	35	119
02:15 PM	11	0	15	0	26	50	23	0	0	73	0	19	16	0	35	134
02:30 PM	11	0	13	0	24	43	29	0	0	72	0	59	21	0	80	176
02:45 PM	8	0	14	0	22	54	30	0	0	84	0	41	7	0	48	154
Total	35	0	49	0	84	198	103	0	0	301	0	140	58	0	198	583
03:00 PM	8	0	12	0	20	50	35	0	0	85	0	37	9	0	46	151
03:15 PM	14	0	19	0	33	36	38	0	0	74	0	38	16	0	54	161
03:30 PM	13	0	15	0	28	42	32	0	0	74	0	92	23	0	115	217

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 11

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
03:45 PM	7	0	16	0	23	49	30	0	0	79	0	91	25	0	116	218
Total	42	0	62	0	104	177	135	0	0	312	0	258	73	0	331	747
04:00 PM	6	0	16	0	22	61	50	0	0	111	0	110	42	0	152	285
04:15 PM	11	0	18	0	29	53	34	0	0	87	0	89	21	0	110	226
04:30 PM	12	1	18	0	31	50	37	0	0	87	0	41	6	0	47	165
04:45 PM	9	1	21	0	31	42	44	0	0	86	0	111	38	0	149	266
Total	38	2	73	0	113	206	165	0	0	371	0	351	107	0	458	942
05:00 PM	10	1	17	0	28	48	32	0	0	80	0	62	23	0	85	193
05:15 PM	10	0	16	0	26	53	39	0	0	92	0	29	8	0	37	155
05:30 PM	6	1	17	0	24	49	38	0	0	87	0	139	33	0	172	283
05:45 PM	11	0	26	0	37	58	45	0	0	103	0	62	27	0	89	229
Total	37	2	76	0	115	208	154	0	0	362	0	292	91	0	383	860
06:00 PM	12	0	24	0	36	48	54	0	0	102	0	219	51	0	270	408
06:15 PM	13	0	18	0	31	56	55	0	0	111	0	180	49	0	229	371
06:30 PM	13	0	18	0	31	48	40	0	0	88	0	57	29	0	86	205
06:45 PM	10	0	10	0	20	49	41	0	0	90	0	161	42	0	203	313
Total	48	0	70	0	118	201	190	0	0	391	0	617	171	0	788	1297
07:00 PM	11	0	20	0	31	38	52	0	0	90	0	90	31	0	121	242
07:15 PM	3	0	18	0	21	49	65	0	0	114	0	122	30	0	152	287
07:30 PM	4	0	20	0	24	49	34	0	0	83	0	184	51	0	235	342
07:45 PM	5	0	10	0	15	51	33	0	0	84	0	25	21	0	46	145
Total	23	0	68	0	91	187	184	0	0	371	0	421	133	0	554	1016
08:00 PM	5	0	10	0	15	44	36	0	0	80	0	119	41	0	160	255
08:15 PM	7	0	14	0	21	44	26	0	0	70	0	35	14	0	49	140
08:30 PM	6	0	11	0	17	56	13	0	0	69	0	102	52	0	154	240
08:45 PM	7	2	8	0	17	42	14	0	0	56	0	31	15	0	46	119
Total	25	2	43	0	70	186	89	0	0	275	0	287	122	0	409	754
09:00 PM	3	0	11	0	14	31	26	0	0	57	0	40	15	0	55	126
09:15 PM	5	0	10	0	15	27	17	0	0	44	0	69	23	0	92	151
09:30 PM	7	0	7	0	14	18	10	0	0	28	0	14	1	0	15	57
09:45 PM	3	0	11	0	14	29	21	0	0	50	0	25	4	0	29	93
Total	18	0	39	0	57	105	74	0	0	179	0	148	43	0	191	427

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 12

Groups Printed- Passenger Cars - SU Trucks_Buses - MU Trucks

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
10:00 PM	1	0	8	0	9	33	10	0	0	43	0	60	9	0	69	121
10:15 PM	1	0	8	0	9	16	16	0	0	32	0	20	9	0	29	70
10:30 PM	1	0	2	0	3	16	13	0	0	29	0	8	3	0	11	43
10:45 PM	1	0	11	0	12	22	20	0	0	42	0	2	4	0	6	60
Total	4	0	29	0	33	87	59	0	0	146	0	90	25	0	115	294
11:00 PM	1	0	5	0	6	12	16	0	0	28	0	66	23	0	89	123
11:15 PM	2	0	9	0	11	6	10	0	0	16	0	10	2	0	12	39
11:30 PM	2	0	4	0	6	7	12	0	0	19	0	25	2	0	27	52
11:45 PM	1	0	10	0	11	5	17	0	0	22	0	9	7	0	16	49
Total	6	0	28	0	34	30	55	0	0	85	0	110	34	0	144	263
Grand Total	1950	27	6312	0	8289	9673	9923	0	0	19596	0	12152	4336	0	16488	44373
Apprch %	23.5	0.3	76.1	0		49.4	50.6	0	0		0	73.7	26.3	0		
Total %	4.4	0.1	14.2	0	18.7	21.8	22.4	0	0	44.2	0	27.4	9.8	0	37.2	
Passenger Cars	1886	24	6153	0	8063	9391	9591	0	0	18982	0	11816	4176	0	15992	43037
% Passenger Cars	96.7	88.9	97.5	0	97.3	97.1	96.7	0	0	96.9	0	97.2	96.3	0	97	97
SU Trucks_Buses	59	2	144	0	205	212	293	0	0	505	0	305	133	0	438	1148
% SU Trucks_Buses	3	7.4	2.3	0	2.5	2.2	3	0	0	2.6	0	2.5	3.1	0	2.7	2.6
MU Trucks	5	1	15	0	21	70	39	0	0	109	0	31	27	0	58	188
% MU Trucks	0.3	3.7	0.2	0	0.3	0.7	0.4	0	0	0.6	0	0.3	0.6	0	0.4	0.4

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
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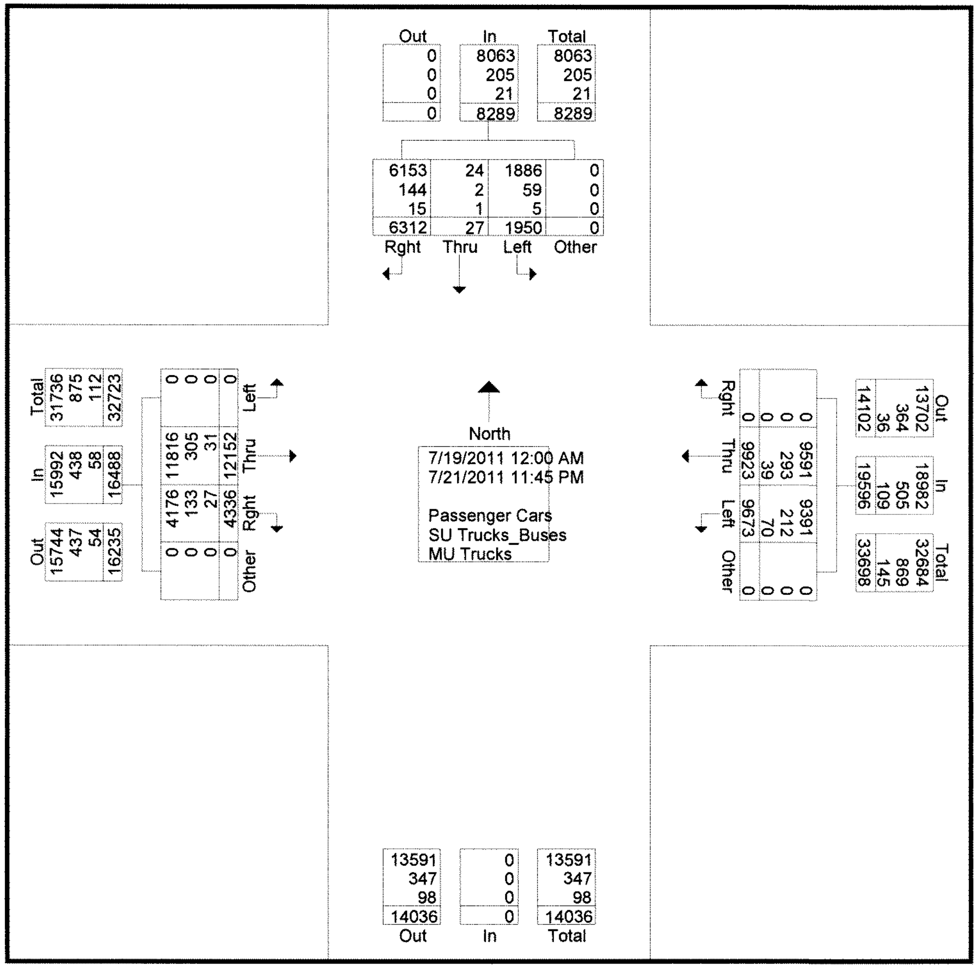

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Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
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AM

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	7	0	120	0	127	43	204	0	0	247	0	37	21	0	58	432
07:15 AM	4	0	129	0	133	35	140	0	0	175	0	57	29	0	86	394
07:30 AM	7	0	121	0	128	51	**248**	0	0	**299**	0	**70**	**47**	0	**117**	**544**
07:45 AM	**8**	0	**164**	0	**172**	**60**	179	0	0	239	0	70	39	0	109	520
Total Volume	26	0	534	0	560	189	771	0	0	960	0	234	136	0	370	1890
% App. Total	4.6	0	95.4	0		19.7	80.3	0	0		0	63.2	36.8	0		
PHF	.813	.000	.814	.000	.814	.788	.777	.000	.000	.803	.000	.836	.723	.000	.791	.869
Passenger Cars	22	0	530	0	552	179	757	0	0	936	0	219	129	0	348	1836
% Passenger Cars	84.6	0	99.3	0	98.6	94.7	98.2	0	0	97.5	0	93.6	94.9	0	94.1	97.1
SU Trucks_Buses	4	0	4	0	8	8	12	0	0	20	0	13	6	0	19	47
% SU Trucks_Buses	15.4	0	0.7	0	1.4	4.2	1.6	0	0	2.1	0	5.6	4.4	0	5.1	2.5
MU Trucks	0	0	0	0	0	2	2	0	0	4	0	2	1	0	3	7
% MU Trucks	0	0	0	0	0	1.1	0.3	0	0	0.4	0	0.9	0.7	0	0.8	0.4

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
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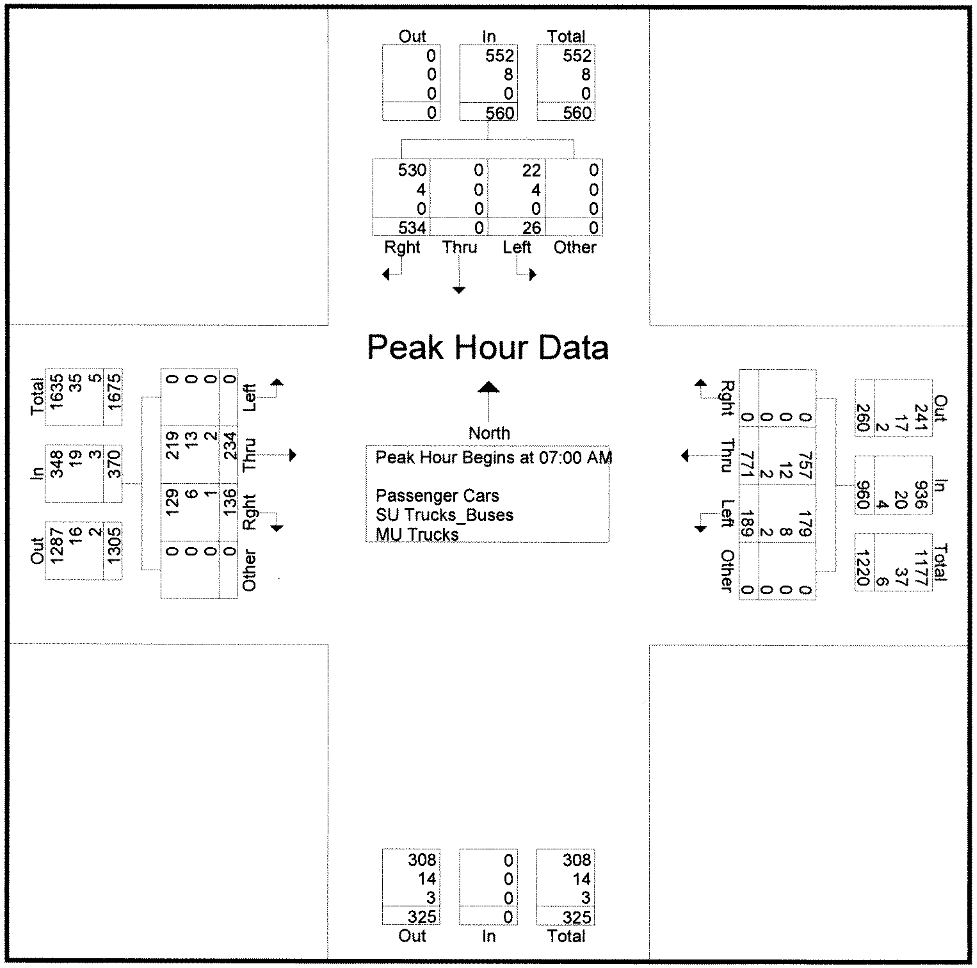

III Winners Circle
Albany, NY 12205

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
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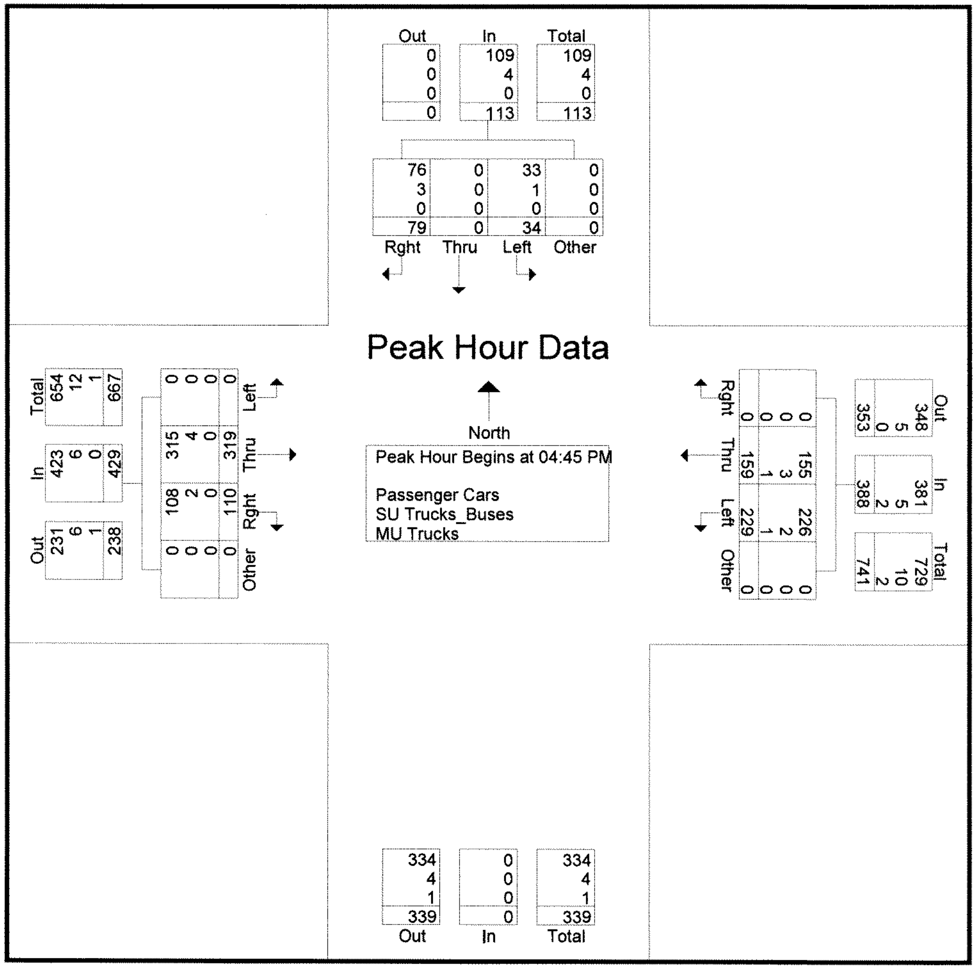
	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	7	0	**24**	0	31	**64**	30	0	0	94	0	103	**37**	0	140	265
05:00 PM	6	0	15	0	21	59	28	0	0	87	0	67	22	0	89	197
05:15 PM	**12**	0	21	0	**33**	46	**56**	0	0	102	0	27	16	0	43	178
05:30 PM	9	0	19	0	28	60	45	0	0	**105**	0	**122**	35	0	**157**	**290**
Total Volume	34	0	79	0	113	229	159	0	0	388	0	319	110	0	429	930
% App. Total	30.1	0	69.9	0		59	41	0	0		0	74.4	25.6	0		
PHF	.708	.000	.823	.000	.856	.895	.710	.000	.000	.924	.000	.654	.743	.000	.683	.802
Passenger Cars	33	0	76	0	109	226	155	0	0	381	0	315	108	0	423	913
% Passenger Cars	97.1	0	96.2	0	96.5	98.7	97.5	0	0	98.2	0	98.7	98.2	0	98.6	98.2
SU Trucks_Buses	1	0	3	0	4	2	3	0	0	5	0	4	2	0	6	15
% SU Trucks_Buses	2.9	0	3.8	0	3.5	0.9	1.9	0	0	1.3	0	1.3	1.8	0	1.4	1.6
MU Trucks	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
% MU Trucks	0	0	0	0	0	0.4	0.6	0	0	0.5	0	0	0	0	0	0.2

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 17



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Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

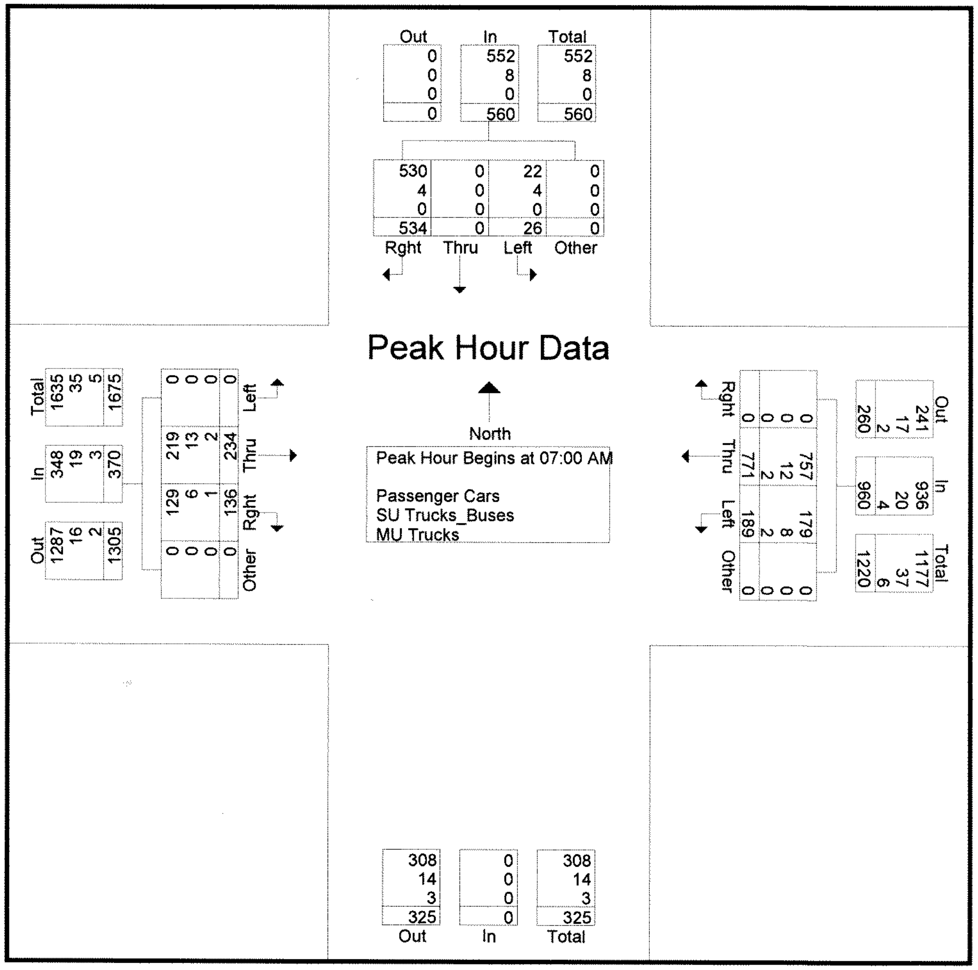
File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	3	0	128	0	131	40	**207**	0	0	247	0	39	23	0	62	440
07:15 AM	8	0	108	0	116	40	148	0	0	188	0	67	32	0	99	403
07:30 AM	3	0	140	0	143	48	206	0	0	**254**	0	63	**46**	0	109	506
07:45 AM	**9**	0	**156**	0	**165**	**60**	188	0	0	248	0	**73**	43	0	**116**	**529**
Total Volume	23	0	532	0	555	188	749	0	0	937	0	242	144	0	386	1878
% App. Total	4.1	0	95.9	0		20.1	79.9	0	0		0	62.7	37.3	0		
PHF	.639	.000	.853	.000	.841	.783	.905	.000	.000	.922	.000	.829	.783	.000	.832	.888
Passenger Cars	22	0	530	0	552	179	757	0	0	936	0	219	129	0	348	1836
% Passenger Cars	95.7	0	99.6	0	99.5	95.2	101.1	0	0	99.9	0	90.5	89.6	0	90.2	97.8
SU Trucks_Buses	4	0	4	0	8	8	12	0	0	20	0	13	6	0	19	47
% SU Trucks_Buses	17.4	0	0.8	0	1.4	4.3	1.6	0	0	2.1	0	5.4	4.2	0	4.9	2.5
MU Trucks	0	0	0	0	0	2	2	0	0	4	0	2	1	0	3	7
% MU Trucks	0	0	0	0	0	1.1	0.3	0	0	0.4	0	0.8	0.7	0	0.8	0.4

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 19



Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

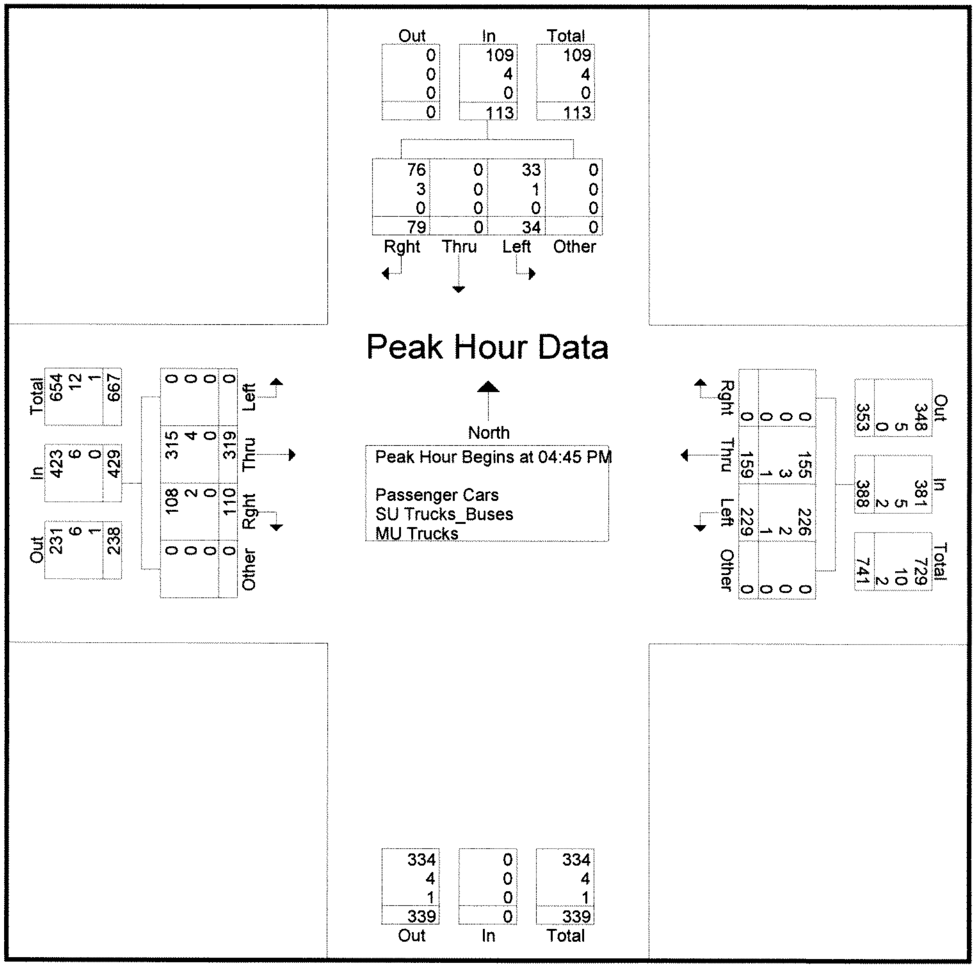
File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 20

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	10	0	19	0	29	53	24	0	0	77	0	102	19	0	121	227
05:00 PM	**15**	**1**	**22**	0	**38**	**56**	22	0	0	78	0	62	20	0	82	198
05:15 PM	11	0	21	0	32	51	**49**	0	0	**100**	0	28	12	0	40	172
05:30 PM	12	0	12	0	24	53	35	0	0	88	0	**162**	**44**	0	**206**	**318**
Total Volume	48	1	74	0	123	213	130	0	0	343	0	354	95	0	449	915
% App. Total	39	0.8	60.2	0		62.1	37.9	0	0		0	78.8	21.2	0		
PHF	.800	.250	.841	.000	.809	.951	.663	.000	.000	.858	.000	.546	.540	.000	.545	.719
Passenger Cars	33	0	76	0	109	226	155	0	0	381	0	315	108	0	423	913
% Passenger Cars	68.8	0	102.7	0	88.6	106.1	119.2	0	0	111.1	0	89.0	113.7	0	94.2	99.8
SU Trucks_Buses	1	0	3	0	4	2	3	0	0	5	0	4	2	0	6	15
% SU Trucks_Buses	2.1	0	4.1	0	3.3	0.9	2.3	0	0	1.5	0	1.1	2.1	0	1.3	1.6
MU Trucks	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
% MU Trucks	0	0	0	0	0	0.5	0.8	0	0	0.6	0	0	0	0	0	0.2

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 21



Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	5	0	108	0	113	26	200	0	0	226	0	45	22	0	67	406
07:15 AM	6	0	104	0	110	47	132	0	0	179	0	46	34	0	80	369
07:30 AM	7	0	**136**	0	**143**	**55**	**241**	0	0	**296**	0	57	39	0	96	**535**
07:45 AM	**10**	0	132	0	142	54	187	0	0	241	0	**70**	**42**	0	**112**	495
Total Volume	28	0	480	0	508	182	760	0	0	942	0	218	137	0	355	1805
% App. Total	5.5	0	94.5	0		19.3	80.7	0	0		0	61.4	38.6	0		
PHF	.700	.000	.882	.000	.888	.827	.788	.000	.000	.796	.000	.779	.815	.000	.792	.843
Passenger Cars	22	0	530	0	552	179	757	0	0	936	0	219	129	0	348	1836
% Passenger Cars	78.6	0	110.4	0	108.7	98.4	99.6	0	0	99.4	0	100.5	94.2	0	98.0	101.7
SU Trucks_Buses	4	0	4	0	8	8	12	0	0	20	0	13	6	0	19	47
% SU Trucks_Buses	14.3	0	0.8	0	1.6	4.4	1.6	0	0	2.1	0	6.0	4.4	0	5.4	2.6
MU Trucks	0	0	0	0	0	2	2	0	0	4	0	2	1	0	3	7
% MU Trucks	0	0	0	0	0	1.1	0.3	0	0	0.4	0	0.9	0.7	0	0.8	0.4

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
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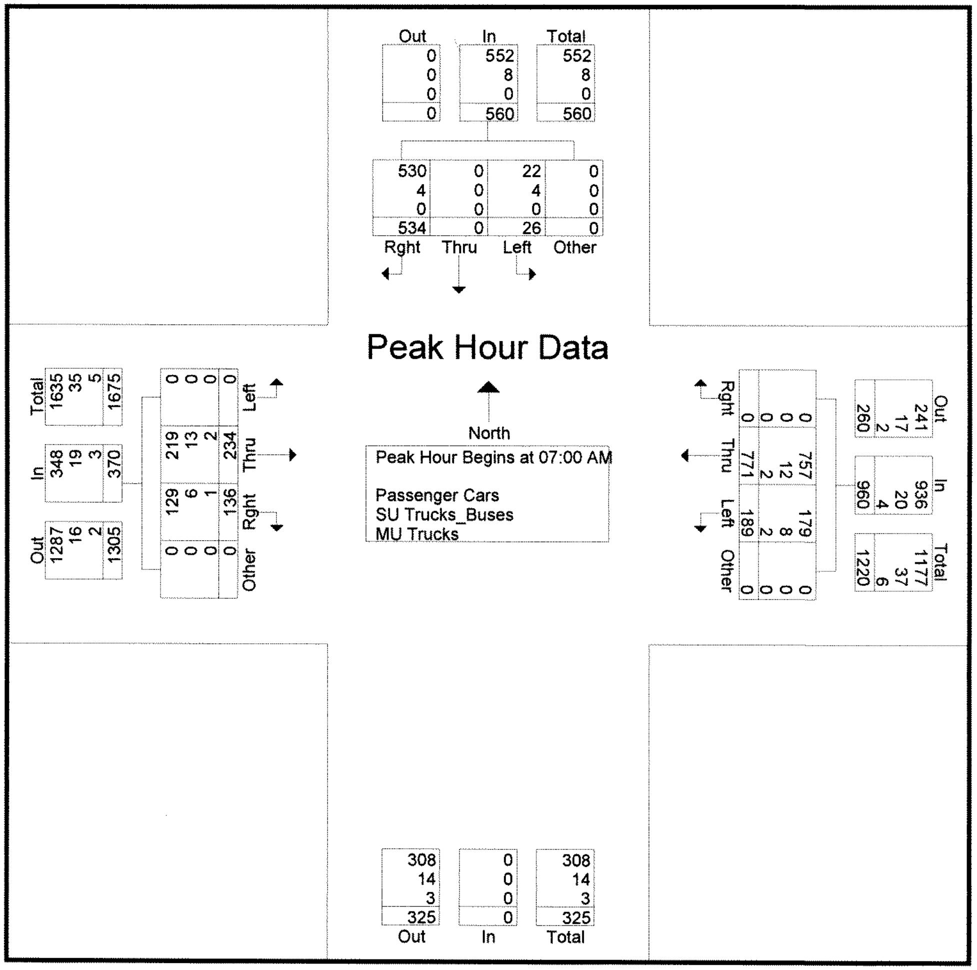


Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 24

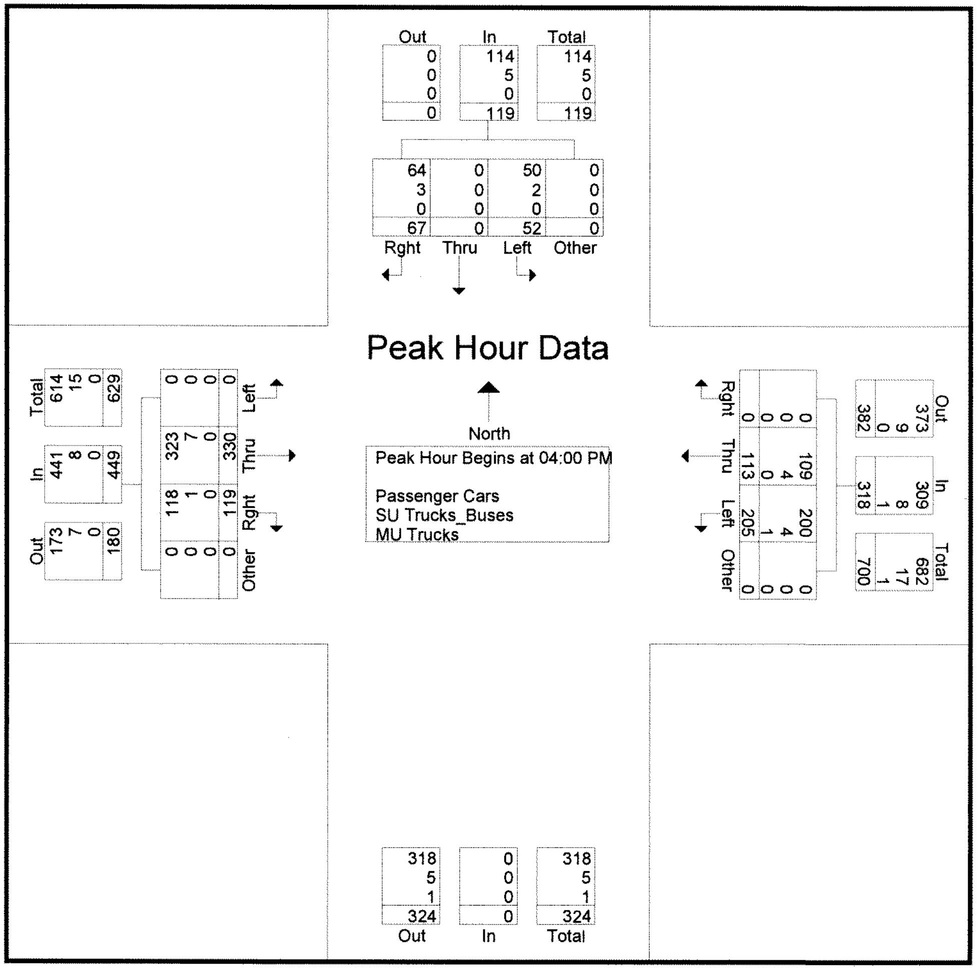
* PM

	From North					From East					From West					
Start Time	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Left	Thru	Rght	Other	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:00 PM																
04:00 PM	6	0	16	0	22	**61**	**50**	0	0	**111**	0	110	**42**	0	**152**	**285**
04:15 PM	11	0	18	0	29	53	34	0	0	87	0	89	21	0	110	226
04:30 PM	**12**	**1**	18	0	**31**	50	37	0	0	87	0	41	6	0	47	165
04:45 PM	9	1	**21**	0	31	42	44	0	0	86	0	**111**	38	0	149	266
Total Volume	38	2	73	0	113	206	165	0	0	371	0	351	107	0	458	942
% App. Total	33.6	1.8	64.6	0		55.5	44.5	0	0		0	76.6	23.4	0		
PHF	.792	.500	.869	.000	.911	.844	.825	.000	.000	.836	.000	.791	.637	.000	.753	.826
Passenger Cars	50	0	64	0	114	200	109	0	0	309	0	323	118	0	441	864
% Passenger Cars	131.6	0	87.7	0	100.9	97.1	66.1	0	0	83.3	0	92.0	110.3	0	96.3	91.7
SU Trucks_Buses	2	0	3	0	5	4	4	0	0	8	0	7	1	0	8	21
% SU Trucks_Buses	5.3	0	4.1	0	4.4	1.9	2.4	0	0	2.2	0	2.0	0.9	0	1.7	2.2
MU Trucks	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
% MU Trucks	0	0	0	0	0	0.5	0	0	0	0.3	0	0	0	0	0	0.1

Croton-On-Hudson
Route 9 SB Ramps & Croton Point Ave
72 Hour Count

III Winners Circle
Albany, NY 12205

File Name : route 9 sb ramps & croton point ave
Site Code : 00000000
Start Date : 7/19/2011
Page No : 25



CHA
III Winners Circle
Albany, NY 12205
518-453-8735

Site Code:
Station ID:

Latitude: 0' 0.000 Undefined

Start	18-Jul-11		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	*	*	23	57	*	*	*	*	*	*	*	*	*	*	23	57
01:00	*	*	15	25	*	*	*	*	*	*	*	*	*	*	15	25
02:00	*	*	9	22	*	*	*	*	*	*	*	*	*	*	9	22
03:00	*	*	7	7	*	*	*	*	*	*	*	*	*	*	7	7
04:00	*	*	46	8	*	*	*	*	*	*	*	*	*	*	46	8
05:00	*	*	152	23	*	*	*	*	*	*	*	*	*	*	152	23
06:00	*	*	488	108	*	*	*	*	*	*	*	*	*	*	488	108
07:00	*	*	**786**	**235**	*	*	*	*	*	*	*	*	*	*	**786**	**235**
08:00	*	*	383	183	*	*	*	*	*	*	*	*	*	*	383	183
09:00	*	*	136	77	*	*	*	*	*	*	*	*	*	*	136	77
10:00	*	*	114	76	*	*	*	*	*	*	*	*	*	*	114	76
11:00	*	*	86	70	*	*	*	*	*	*	*	*	*	*	86	70
12:00 PM	*	*	73	66	*	*	*	*	*	*	*	*	*	*	73	66
01:00	*	*	78	77	*	*	*	*	*	*	*	*	*	*	78	77
02:00	*	*	91	104	*	*	*	*	*	*	*	*	*	*	91	104
03:00	*	*	111	207	*	*	*	*	*	*	*	*	*	*	111	207
04:00	*	*	123	320	*	*	*	*	*	*	*	*	*	*	123	320
05:00	*	*	153	421	*	*	*	*	*	*	*	*	*	*	153	421
06:00	*	*	**164**	**522**	*	*	*	*	*	*	*	*	*	*	**164**	**522**
07:00	*	*	154	177	*	*	*	*	*	*	*	*	*	*	154	177
08:00	*	*	97	167	*	*	*	*	*	*	*	*	*	*	97	167
09:00	*	*	97	150	*	*	*	*	*	*	*	*	*	*	97	150
10:00	*	*	52	100	*	*	*	*	*	*	*	*	*	*	52	100
11:00	*	*	28	87	*	*	*	*	*	*	*	*	*	*	28	87
Lane	0	0	3466	3289	0	0	0	0	0	0	0	0	0	0	3466	3289
Day	0		6755		0		0		0		0		0		6755	
AM Peak			07:00	07:00											07:00	07:00
Vol.			786	235											786	235
PM Peak			18:00	18:00											18:00	18:00
Vol.			164	522											164	522
Comb. Total	0		6755		0		0		0		0		0		6755	

ADT　ADT 6,755　AADT 6,755

Attachment C-3
Level of Service Criteria

From the Highway Capacity Manual 2000 published by the Transportation Research Board:

Signalized Intersections

TABLE A HCS SIGNALIZED LOS STANDARDS	
LOS	Control Delay per Vehicle (s/veh)
A	10 or less
B	10 – 20
C	20 - 35
D	35 – 55
E	55 - 80
F	greater than 80

* s/veh = seconds per vehicle

LOS A describes operations with low control delay, up to 10 s/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

LOS B describes operations with control delay greater than 10 and up to 20 s/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

LOS C describes operations with control delay greater than 20 and up to 35 s/veh. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with control delay greater than 35 and up to 55 s/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay greater than 55 and up to 80 s/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

LOS F describes operations with delay in excess of 80.0 s/veh. This level, considered unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels. Often, vehicles do not pass through the intersection in one signal cycle.

Unsignalized Intersection Delay

The level of service criteria for an unsignalized intersection differs from that of a signalized intersection because of the expectation that signalized intersections encounter more traffic and therefore greater delays. The thresholds for the levels of service of unsignalized intersections are as follows:

TABLE B
HCS UNSIGNALIZED LOS STANDARDS

LOS	Control Delay per Vehicle (s/veh)
A	10 or less
B	10 – 15
C	15 - 25
D	25 – 35
E	35 - 50
F	greater than 50

* s/veh = seconds per vehicle

Levels-of-service A, B, and C are considered acceptable, LOS D is generally considered marginally acceptable during peak periods and LOS E and F are considered unacceptable.

Attachment C-4
Level of Service Worksheets

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	6	0	270	1	0	0	8	64	16	902	232	37
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.79	0.79	0.25	0.25	0.25	0.58	0.58	0.58	0.91	0.91	0.91
Hourly flow rate (vph)	8	0	342	4	0	0	14	110	28	991	255	41
Pedestrians		10			10			10				
Lane Width (ft)		10.0			16.0			13.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		1			1			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1054	
pX, platoon unblocked												
vC, conflicting volume	2409	2450	134	2761	2443	295	306			148		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2409	2450	134	2761	2443	295	306			148		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	5.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.1			2.2		
p0 queue free %	22	100	62	0	100	100	98			31		
cM capacity (veh/h)	10	9	911	3	9	734	847			1430		

Direction, Lane #	NB 1	SB 1	NE 1	SW 1	SW 2
Volume Total	349	4	152	991	296
Volume Left	8	4	14	991	0
Volume Right	342	0	28	0	41
cSH	302	3	847	1430	1700
Volume to Capacity	1.16	1.18	0.02	0.69	0.17
Queue Length 95th (ft)	369	32	1	153	0
Control Delay (s)	138.0	1857.7	1.0	13.0	0.0
Lane LOS	F	F	A	B	
Approach Delay (s)	138.0	1857.7	1.0	10.0	
Approach LOS	F	F			

Intersection Summary			
Average Delay	38.3		
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	23	0	471	0	0	0	0	208	127	173	700	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.82	0.82	0.82	0.84	0.84	0.84
Hourly flow rate (vph)	27	0	554	0	0	0	0	254	155	206	833	0
Pedestrians					10			10				
Lane Width (ft)					0.0			12.0				
Walking Speed (ft/s)					4.0			4.0				
Percent Blockage					0			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											867	
pX, platoon unblocked												
vC, conflicting volume	1372	1664	427	1734	1586	214	833			419		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1372	1664	427	1734	1586	214	833			419		
tC, single (s)	7.6	6.5	6.9	7.5	6.5	6.9	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	69	100	3	100	100	100	100			82		
cM capacity (veh/h)	87	80	574	2	87	791	808			1116		

Direction, Lane #	SE 1	NE 1	NE 2	SW 1	SW 2
Volume Total	581	169	239	484	556
Volume Left	27	0	0	206	0
Volume Right	554	0	155	0	0
cSH	455	1700	1700	1116	1700
Volume to Capacity	1.28	0.10	0.14	0.18	0.33
Queue Length 95th (ft)	615	0	0	17	0
Control Delay (s)	166.8	0.0	0.0	4.9	0.0
Lane LOS	F			A	
Approach Delay (s)	166.8	0.0		2.3	
Approach LOS	F				

Intersection Summary			
Average Delay	49.0		
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (veh/h)	252	105	149	81	15	621
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.80	0.80	0.83	0.83
Hourly flow rate (vph)	319	133	186	101	18	748
Pedestrians	10					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						457
pX, platoon unblocked						
vC, conflicting volume	657	154			196	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	657	154			196	
tC, single (s)	6.8	7.1			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.4	
p0 queue free %	18	84			99	
cM capacity (veh/h)	389	839			1273	

Direction, Lane #	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	452	124	163	267	499
Volume Left	319	0	0	18	0
Volume Right	133	0	101	0	0
cSH	462	1700	1700	1273	1700
Volume to Capacity	0.98	0.07	0.10	0.01	0.29
Queue Length 95th (ft)	310	0	0	1	0
Control Delay (s)	66.8	0.0	0.0	0.7	0.0
Lane LOS	F			A	
Approach Delay (s)	66.8	0.0		0.2	
Approach LOS	F				

Intersection Summary			
Average Delay	20.2		
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	50	598	38	22	203	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	10	12	12
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.97	
Frpb, ped/bikes	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.97	
Flt Protected	1.00	1.00		0.97	0.96	
Satd. Flow (prot)	1900	1557		2966	3102	
Flt Permitted	1.00	1.00		0.80	0.96	
Satd. Flow (perm)	1900	1557		2444	3102	
Peak-hour factor, PHF	0.88	0.88	0.66	0.66	0.89	0.89
Adj. Flow (vph)	57	680	58	33	228	57
RTOR Reduction (vph)	0	0	0	0	31	0
Lane Group Flow (vph)	57	680	0	91	254	0
Confl. Peds. (#/hr)		10	10			10
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	0%	3%	8%	13%	10%	10%
Turn Type		custom	Perm			
Protected Phases	2	2		6		
Permitted Phases		4	6		4	
Actuated Green, G (s)	15.8	26.4		15.8	10.6	
Effective Green, g (s)	15.8	26.4		15.8	10.6	
Actuated g/C Ratio	0.41	0.69		0.41	0.28	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	5.0	
Lane Grp Cap (vph)	782	1557		1006	856	
v/s Ratio Prot	0.03	c0.18				
v/s Ratio Perm		0.26		0.04	0.08	
v/c Ratio	0.07	0.44		0.09	0.30	
Uniform Delay, d1	6.9	2.7		6.9	11.0	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.3		0.1	0.4	
Delay (s)	6.9	2.9		7.0	11.4	
Level of Service	A	A		A	B	
Approach Delay (s)	3.3			7.0	11.4	
Approach LOS	A			A	B	

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	38.4	Sum of lost time (s)	0.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	1	410	13	3	149	72	0	1	2	236	2	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	11	11	16	16	16	16	16	16
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	0.98		0.98			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			0.99	
Frt		1.00			1.00	0.85		0.92			0.99	
Flt Protected		1.00			1.00	1.00		1.00			0.96	
Satd. Flow (prot)		1723			1586	1465		1937			1976	
Flt Permitted		1.00			0.99	1.00		1.00			0.74	
Satd. Flow (perm)		1722			1574	1465		1937			1522	
Peak-hour factor, PHF	0.86	0.86	0.86	0.81	0.81	0.81	0.38	0.38	0.38	0.83	0.83	0.83
Adj. Flow (vph)	1	477	15	4	184	89	0	3	5	284	2	20
RTOR Reduction (vph)	0	2	0	0	0	46	0	3	0	0	3	0
Lane Group Flow (vph)	0	491	0	0	188	43	0	5	0	0	303	0
Confl. Peds. (#/hr)			10	10			10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	0%	2%	14%	0%	16%	4%	0%	0%	0%	1%	0%	11%
Parking (#/hr)			0									
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)		34.0			34.0	34.0		24.0			24.0	
Effective Green, g (s)		34.0			34.0	34.0		24.0			24.0	
Actuated g/C Ratio		0.49			0.49	0.49		0.34			0.34	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Grp Cap (vph)		836			765	712		664			522	
v/s Ratio Prot								0.00				
v/s Ratio Perm		c0.29			0.12	0.03					c0.20	
v/c Ratio		0.59			0.25	0.06		0.01			0.58	
Uniform Delay, d1		13.0			10.5	9.5		15.2			18.9	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		3.0			0.8	0.2		0.0			4.6	
Delay (s)		16.0			11.3	9.7		15.2			23.5	
Level of Service		B			B	A		B			C	
Approach Delay (s)		16.0			10.8			15.2			23.5	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	11	0	660	32	0	0	0	63	6	183	64	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.68	0.68	0.68	0.71	0.71	0.71	0.63	0.63	0.63	0.81	0.81	0.81
Hourly flow rate (vph)	16	0	971	45	0	0	0	100	10	226	79	5
Pedestrians		10			10			10				
Lane Width (ft)		11.0			16.0			13.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		1			1			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1054	
pX, platoon unblocked												
vC, conflicting volume	656	661	115	1619	663	101	94			120		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	656	661	115	1619	663	101	94			120		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	0	0	100	100	100			85		
cM capacity (veh/h)	327	318	933	0	319	940	1496			1470		

Direction, Lane #	NB 1	NB 2	SB 1	NE 1	SW 1	SW 2
Volume Total	340	647	45	110	226	84
Volume Left	16	0	45	0	226	0
Volume Right	324	647	0	10	0	5
cSH	857	933	0	1496	1470	1700
Volume to Capacity	0.40	0.69	Err	0.00	0.15	0.05
Queue Length 95th (ft)	48	146	Err	0	14	0
Control Delay (s)	11.9	17.1	Err	0.0	7.9	0.0
Lane LOS	B	C	F		A	
Approach Delay (s)	15.3		Err	0.0	5.8	
Approach LOS	C		F			

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	35	0	75	0	0	0	0	603	152	184	177	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.77	0.77	0.77	0.98	0.98	0.98
Hourly flow rate (vph)	37	0	80	0	0	0	0	783	197	188	181	0
Pedestrians					10			10				
Lane Width (ft)					0.0			12.0				
Walking Speed (ft/s)					4.0			4.0				
Percent Blockage					0			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											867	
pX, platoon unblocked												
vC, conflicting volume	948	1547	100	1447	1448	500	181			991		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	948	1547	100	1447	1448	500	181			991		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	100	91	100	100	100	100			73		
cM capacity (veh/h)	173	84	928	68	97	521	1407			700		

Direction, Lane #	SE 1	NE 1	NE 2	SW 1	SW 2
Volume Total	117	522	458	248	120
Volume Left	37	0	0	188	0
Volume Right	80	0	197	0	0
cSH	389	1700	1700	700	1700
Volume to Capacity	0.30	0.31	0.27	0.27	0.07
Queue Length 95th (ft)	31	0	0	27	0
Control Delay (s)	18.2	0.0	0.0	9.9	0.0
Lane LOS	C			A	
Approach Delay (s)	18.2	0.0		6.7	
Approach LOS	C				

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (veh/h)	95	286	381	256	48	266
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.84	0.84	0.77	0.77	0.95	0.95
Hourly flow rate (vph)	113	340	495	332	51	280
Pedestrians	10					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						457
pX, platoon unblocked						
vC, conflicting volume	912	424			505	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	912	424			505	
tC, single (s)	6.9	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	56	41			95	
cM capacity (veh/h)	254	577			1054	

Direction, Lane #	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	454	330	497	144	187
Volume Left	113	0	0	51	0
Volume Right	340	0	332	0	0
cSH	438	1700	1700	1054	1700
Volume to Capacity	1.03	0.19	0.29	0.05	0.11
Queue Length 95th (ft)	351	0	0	4	0
Control Delay (s)	83.4	0.0	0.0	3.3	0.0
Lane LOS	F			A	
Approach Delay (s)	83.4	0.0		1.4	
Approach LOS	F				

Intersection Summary			
Average Delay	23.8		
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	94	134	180	125	464	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	10	12	12
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.97	
Frpb, ped/bikes	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.95	
Flt Protected	1.00	1.00		0.97	0.97	
Satd. Flow (prot)	1900	1583		3232	3304	
Flt Permitted	1.00	1.00		0.75	0.97	
Satd. Flow (perm)	1900	1583		2492	3304	
Peak-hour factor, PHF	0.78	0.78	0.86	0.86	0.85	0.85
Adj. Flow (vph)	121	172	209	145	546	240
RTOR Reduction (vph)	0	0	0	0	59	0
Lane Group Flow (vph)	121	172	0	354	727	0
Confl. Peds. (#/hr)		10	10			10
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	0%	1%	1%	1%	2%	1%
Turn Type		custom	Perm			
Protected Phases	2	2		6		
Permitted Phases		4	6		4	
Actuated Green, G (s)	16.0	34.8		16.0	18.8	
Effective Green, g (s)	16.0	34.8		16.0	18.8	
Actuated g/C Ratio	0.34	0.74		0.34	0.40	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	5.0	
Lane Grp Cap (vph)	650	1583		852	1327	
v/s Ratio Prot	0.06	0.04				
v/s Ratio Perm		0.07		c0.14	c0.22	
v/c Ratio	0.19	0.11		0.42	0.55	
Uniform Delay, d1	10.8	1.7		11.8	10.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.0		0.4	0.8	
Delay (s)	11.0	1.7		12.3	11.6	
Level of Service	B	A		B	B	
Approach Delay (s)	5.6			12.3	11.6	
Approach LOS	A			B	B	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	46.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	17	134	7	7	380	202	11	9	12	83	7	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	11	11	16	16	16	16	16	16
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	0.98		0.99			0.99	
Flpb, ped/bikes		1.00			1.00	1.00		0.99			0.99	
Frt		0.99			1.00	0.85		0.95			0.97	
Flt Protected		0.99			1.00	1.00		0.98			0.96	
Satd. Flow (prot)		1735			1817	1510		1922			1968	
Flt Permitted		0.94			1.00	1.00		0.89			0.76	
Satd. Flow (perm)		1642			1810	1510		1738			1541	
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.71	0.71	0.71	0.73	0.73	0.73
Adj. Flow (vph)	20	158	8	8	427	227	15	13	17	114	10	32
RTOR Reduction (vph)	0	2	0	0	0	101	0	12	0	0	13	0
Lane Group Flow (vph)	0	184	0	0	435	126	0	33	0	0	143	0
Confl. Peds. (#/hr)			10	10			10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	0%	1%	0%	0%	1%	1%	0%	10%	0%	1%	0%	0%
Parking (#/hr)			0									
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)		39.0			39.0	39.0		19.0			19.0	
Effective Green, g (s)		39.0			39.0	39.0		19.0			19.0	
Actuated g/C Ratio		0.56			0.56	0.56		0.27			0.27	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Grp Cap (vph)		915			1008	841		472			418	
v/s Ratio Prot												
v/s Ratio Perm		0.11			c0.24	0.08		0.02			c0.09	
v/c Ratio		0.20			0.43	0.15		0.07			0.34	
Uniform Delay, d1		7.7			9.0	7.5		18.9			20.5	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.5			1.3	0.4		0.3			2.2	
Delay (s)		8.2			10.4	7.9		19.2			22.7	
Level of Service		A			B	A		B			C	
Approach Delay (s)		8.2			9.5			19.2			22.7	
Approach LOS		A			A			B			C	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	6	0	274	1	0	0	8	64	17	913	235	37
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.79	0.79	0.25	0.25	0.25	0.58	0.58	0.58	0.91	0.91	0.91
Hourly flow rate (vph)	8	0	347	4	0	0	14	110	29	1003	258	41
Pedestrians		10			10			10				
Lane Width (ft)		10.0			16.0			13.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		1			1			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1054	
pX, platoon unblocked												
vC, conflicting volume	2437	2478	135	2795	2472	299	309			150		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2437	2478	135	2795	2472	299	309			150		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	5.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.1			2.2		
p0 queue free %	17	100	62	0	100	100	98			30		
cM capacity (veh/h)	9	9	910	3	9	731	844			1428		

Direction, Lane #	NB 1	SB 1	NE 1	SW 1	SW 2
Volume Total	354	4	153	1003	299
Volume Left	8	4	14	1003	0
Volume Right	347	0	29	0	41
cSH	292	3	844	1428	1700
Volume to Capacity	1.22	1.28	0.02	0.70	0.18
Queue Length 95th (ft)	403	32	1	158	0
Control Delay (s)	161.3	2045.2	1.0	13.2	0.0
Lane LOS	F	F	A	B	
Approach Delay (s)	161.3	2045.2	1.0	10.2	
Approach LOS	F	F			

Intersection Summary			
Average Delay	43.4		
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	23	0	477	0	0	0	0	211	128	176	709	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.82	0.82	0.82	0.84	0.84	0.84
Hourly flow rate (vph)	27	0	561	0	0	0	0	257	156	210	844	0
Pedestrians					10			10				
Lane Width (ft)					0.0			12.0				
Walking Speed (ft/s)					4.0			4.0				
Percent Blockage					0			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											867	
pX, platoon unblocked												
vC, conflicting volume	1392	1687	432	1758	1608	217	844			423		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1392	1687	432	1758	1608	217	844			423		
tC, single (s)	7.6	6.5	6.9	7.5	6.5	6.9	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	68	100	1	100	100	100	100			81		
cM capacity (veh/h)	84	77	570	1	84	788	801			1111		

Direction, Lane #	SE 1	NE 1	NE 2	SW 1	SW 2
Volume Total	588	172	242	491	563
Volume Left	27	0	0	210	0
Volume Right	561	0	156	0	0
cSH	450	1700	1700	1111	1700
Volume to Capacity	1.31	0.10	0.14	0.19	0.33
Queue Length 95th (ft)	647	0	0	17	0
Control Delay (s)	180.1	0.0	0.0	5.0	0.0
Lane LOS	F			A	
Approach Delay (s)	180.1	0.0		2.3	
Approach LOS	F				

Intersection Summary			
Average Delay	52.7		
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (veh/h)	255	106	151	82	15	629
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.80	0.80	0.83	0.83
Hourly flow rate (vph)	323	134	189	102	18	758
Pedestrians	10					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						457
pX, platoon unblocked						
vC, conflicting volume	665	156			199	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	665	156			199	
tC, single (s)	6.8	7.1			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.4	
p0 queue free %	16	84			99	
cM capacity (veh/h)	384	837			1270	

Direction, Lane #	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	457	126	165	271	505
Volume Left	323	0	0	18	0
Volume Right	134	0	102	0	0
cSH	457	1700	1700	1270	1700
Volume to Capacity	1.00	0.07	0.10	0.01	0.30
Queue Length 95th (ft)	327	0	0	1	0
Control Delay (s)	72.5	0.0	0.0	0.6	0.0
Lane LOS	F			A	
Approach Delay (s)	72.5	0.0		0.2	
Approach LOS	F				

Intersection Summary			
Average Delay	21.8		
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	51	605	38	22	205	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	10	12	12
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.97	
Frpb, ped/bikes	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.97	
Flt Protected	1.00	1.00		0.97	0.96	
Satd. Flow (prot)	1900	1557		2966	3102	
Flt Permitted	1.00	1.00		0.80	0.96	
Satd. Flow (perm)	1900	1557		2444	3102	
Peak-hour factor, PHF	0.88	0.88	0.66	0.66	0.89	0.89
Adj. Flow (vph)	58	688	58	33	230	58
RTOR Reduction (vph)	0	0	0	0	32	0
Lane Group Flow (vph)	58	688	0	91	256	0
Confl. Peds. (#/hr)		10	10			10
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	0%	3%	8%	13%	10%	10%
Turn Type		custom	Perm			
Protected Phases	2	2		6		
Permitted Phases		4	6		4	
Actuated Green, G (s)	15.9	26.5		15.9	10.6	
Effective Green, g (s)	15.9	26.5		15.9	10.6	
Actuated g/C Ratio	0.41	0.69		0.41	0.28	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	5.0	
Lane Grp Cap (vph)	785	1557		1009	854	
v/s Ratio Prot	0.03	c0.18				
v/s Ratio Perm		0.26		0.04	0.08	
v/c Ratio	0.07	0.44		0.09	0.30	
Uniform Delay, d1	6.8	2.7		6.9	11.0	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.3		0.1	0.4	
Delay (s)	6.9	3.0		6.9	11.4	
Level of Service	A	A		A	B	
Approach Delay (s)	3.3			6.9	11.4	
Approach LOS	A			A	B	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	38.5	Sum of lost time (s)	0.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	1	415	13	3	151	73	0	1	2	239	2	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	11	11	16	16	16	16	16	16
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	0.98		0.98			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			0.99	
Frt		1.00			1.00	0.85		0.92			0.99	
Flt Protected		1.00			1.00	1.00		1.00			0.96	
Satd. Flow (prot)		1723			1586	1465		1937			1977	
Flt Permitted		1.00			0.99	1.00		1.00			0.74	
Satd. Flow (perm)		1723			1574	1465		1937			1522	
Peak-hour factor, PHF	0.86	0.86	0.86	0.81	0.81	0.81	0.38	0.38	0.38	0.83	0.83	0.83
Adj. Flow (vph)	1	483	15	4	186	90	0	3	5	288	2	20
RTOR Reduction (vph)	0	2	0	0	0	46	0	3	0	0	3	0
Lane Group Flow (vph)	0	497	0	0	190	44	0	5	0	0	307	0
Confl. Peds. (#/hr)			10	10			10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	0%	2%	14%	0%	16%	4%	0%	0%	0%	1%	0%	11%
Parking (#/hr)			0									
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)		34.0			34.0	34.0		24.0			24.0	
Effective Green, g (s)		34.0			34.0	34.0		24.0			24.0	
Actuated g/C Ratio		0.49			0.49	0.49		0.34			0.34	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Grp Cap (vph)		837			765	712		664			522	
v/s Ratio Prot								0.00				
v/s Ratio Perm		0.29			0.12	0.03					c0.20	
v/c Ratio		0.59			0.25	0.06		0.01			0.59	
Uniform Delay, d1		13.0			10.5	9.5		15.2			18.9	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		3.1			0.8	0.2		0.0			4.8	
Delay (s)		16.1			11.3	9.7		15.2			23.7	
Level of Service		B			B	A		B			C	
Approach Delay (s)		16.1			10.8			15.2			23.7	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	11	0	668	33	0	0	0	64	6	185	65	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.68	0.68	0.68	0.71	0.71	0.71	0.63	0.63	0.63	0.81	0.81	0.81
Hourly flow rate (vph)	16	0	982	46	0	0	0	102	10	228	80	5
Pedestrians		10			10			10				
Lane Width (ft)		11.0			16.0			13.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		1			1			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1054	
pX, platoon unblocked												
vC, conflicting volume	663	668	116	1638	671	103	95			121		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	663	668	116	1638	671	103	95			121		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	0	0	100	100	100			84		
cM capacity (veh/h)	322	314	931	0	315	939	1495			1468		

Direction, Lane #	NB 1	NB 2	SB 1	NE 1	SW 1	SW 2
Volume Total	344	655	46	111	228	85
Volume Left	16	0	46	0	228	0
Volume Right	327	655	0	10	0	5
cSH	855	931	0	1495	1468	1700
Volume to Capacity	0.40	0.70	Err	0.00	0.16	0.05
Queue Length 95th (ft)	49	151	Err	0	14	0
Control Delay (s)	12.0	17.5	Err	0.0	7.9	0.0
Lane LOS	B	C	F		A	
Approach Delay (s)	15.6		Err	0.0	5.8	
Approach LOS	C		F			

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	35	0	76	0	0	0	0	611	154	187	179	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.77	0.77	0.77	0.98	0.98	0.98
Hourly flow rate (vph)	37	0	81	0	0	0	0	794	200	191	183	0
Pedestrians					10			10				
Lane Width (ft)					0.0			12.0				
Walking Speed (ft/s)					4.0			4.0				
Percent Blockage					0			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											867	
pX, platoon unblocked												
vC, conflicting volume	961	1568	101	1467	1468	507	183			1004		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	961	1568	101	1467	1468	507	183			1004		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	78	100	91	100	100	100	100			72		
cM capacity (veh/h)	168	81	926	65	93	516	1405			692		

Direction, Lane #	SE 1	NE 1	NE 2	SW 1	SW 2
Volume Total	118	529	465	252	122
Volume Left	37	0	0	191	0
Volume Right	81	0	200	0	0
cSH	383	1700	1700	692	1700
Volume to Capacity	0.31	0.31	0.27	0.28	0.07
Queue Length 95th (ft)	32	0	0	28	0
Control Delay (s)	18.6	0.0	0.0	10.1	0.0
Lane LOS	C			B	
Approach Delay (s)	18.6	0.0		6.8	
Approach LOS	C				

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (veh/h)	96	290	386	260	49	270
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.84	0.84	0.77	0.77	0.95	0.95
Hourly flow rate (vph)	114	345	501	338	52	284
Pedestrians	10					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						457
pX, platoon unblocked						
vC, conflicting volume	925	429			511	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	925	429			511	
tC, single (s)	6.9	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	54	40			95	
cM capacity (veh/h)	249	572			1048	

Direction, Lane #	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	460	334	505	146	189
Volume Left	114	0	0	52	0
Volume Right	345	0	338	0	0
cSH	432	1700	1700	1048	1700
Volume to Capacity	1.06	0.20	0.30	0.05	0.11
Queue Length 95th (ft)	373	0	0	4	0
Control Delay (s)	92.0	0.0	0.0	3.3	0.0
Lane LOS	F			A	
Approach Delay (s)	92.0	0.0		1.4	
Approach LOS	F				

Intersection Summary			
Average Delay	26.2		
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	95	136	183	126	470	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	10	12	12
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.97	
Frpb, ped/bikes	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.95	
Flt Protected	1.00	1.00		0.97	0.97	
Satd. Flow (prot)	1900	1583		3231	3305	
Flt Permitted	1.00	1.00		0.75	0.97	
Satd. Flow (perm)	1900	1583		2489	3305	
Peak-hour factor, PHF	0.78	0.78	0.86	0.86	0.85	0.85
Adj. Flow (vph)	122	174	213	147	553	242
RTOR Reduction (vph)	0	0	0	0	58	0
Lane Group Flow (vph)	122	174	0	360	737	0
Confl. Peds. (#/hr)		10	10			10
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	0%	1%	1%	1%	2%	1%
Turn Type		custom	Perm			
Protected Phases	2	2		6		
Permitted Phases		4	6		4	
Actuated Green, G (s)	16.0	35.0		16.0	19.0	
Effective Green, g (s)	16.0	35.0		16.0	19.0	
Actuated g/C Ratio	0.34	0.74		0.34	0.40	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	5.0	
Lane Grp Cap (vph)	647	1583		847	1336	
v/s Ratio Prot	0.06	0.04				
v/s Ratio Perm		0.07		c0.14	c0.22	
v/c Ratio	0.19	0.11		0.43	0.55	
Uniform Delay, d1	10.9	1.7		12.0	10.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.0		0.5	0.8	
Delay (s)	11.1	1.7		12.4	11.6	
Level of Service	B	A		B	B	
Approach Delay (s)	5.6			12.4	11.6	
Approach LOS	A			B	B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	17	135	7	7	384	205	11	9	12	84	7	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	11	11	16	16	16	16	16	16
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	0.98		0.99			0.99	
Flpb, ped/bikes		1.00			1.00	1.00		0.99			0.99	
Frt		0.99			1.00	0.85		0.95			0.97	
Flt Protected		0.99			1.00	1.00		0.98			0.96	
Satd. Flow (prot)		1736			1817	1510		1922			1968	
Flt Permitted		0.94			1.00	1.00		0.89			0.75	
Satd. Flow (perm)		1642			1810	1510		1737			1540	
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.71	0.71	0.71	0.73	0.73	0.73
Adj. Flow (vph)	20	159	8	8	431	230	15	13	17	115	10	32
RTOR Reduction (vph)	0	2	0	0	0	102	0	12	0	0	13	0
Lane Group Flow (vph)	0	185	0	0	439	128	0	33	0	0	144	0
Confl. Peds. (#/hr)			10	10			10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	0%	1%	0%	0%	1%	1%	0%	10%	0%	1%	0%	0%
Parking (#/hr)			0									
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)		39.0			39.0	39.0		19.0			19.0	
Effective Green, g (s)		39.0			39.0	39.0		19.0			19.0	
Actuated g/C Ratio		0.56			0.56	0.56		0.27			0.27	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Grp Cap (vph)		915			1008	841		471			418	
v/s Ratio Prot												
v/s Ratio Perm		0.11			c0.24	0.08		0.02			c0.09	
v/c Ratio		0.20			0.44	0.15		0.07			0.34	
Uniform Delay, d1		7.7			9.1	7.5		18.9			20.5	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.5			1.4	0.4		0.3			2.2	
Delay (s)		8.2			10.4	7.9		19.2			22.7	
Level of Service		A			B	A		B			C	
Approach Delay (s)		8.2			9.6			19.2			22.7	
Approach LOS		A			A			B			C	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	6	0	291	1	0	0	8	68	18	971	250	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.79	0.79	0.25	0.25	0.25	0.58	0.58	0.58	0.91	0.91	0.91
Hourly flow rate (vph)	8	0	368	4	0	0	14	117	31	1067	275	44
Pedestrians		10			10			10				
Lane Width (ft)		10.0			16.0			13.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		1			1			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1054	
pX, platoon unblocked												
vC, conflicting volume	2589	2633	143	2969	2627	317	329			158		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2589	2633	143	2969	2627	317	329			158		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	5.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.1			2.2		
p0 queue free %	0	100	59	0	100	100	98			25		
cM capacity (veh/h)	6	6	901	2	6	714	828			1417		

Direction, Lane #	NB 1	SB 1	NE 1	SW 1	SW 2
Volume Total	376	4	162	1067	319
Volume Left	8	4	14	1067	0
Volume Right	368	0	31	0	44
cSH	233	2	828	1417	1700
Volume to Capacity	1.62	2.03	0.02	0.75	0.19
Queue Length 95th (ft)	596	34	1	194	0
Control Delay (s)	333.7	3375.1	1.0	14.8	0.0
Lane LOS	F	F	A	B	
Approach Delay (s)	333.7	3375.1	1.0	11.4	
Approach LOS	F	F			

Intersection Summary			
Average Delay	80.3		
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	25	0	507	0	0	0	0	224	137	187	754	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.82	0.82	0.82	0.84	0.84	0.84
Hourly flow rate (vph)	29	0	596	0	0	0	0	273	167	223	898	0
Pedestrians					10			10				
Lane Width (ft)					0.0			12.0				
Walking Speed (ft/s)					4.0			4.0				
Percent Blockage					0			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											867	
pX, platoon unblocked												
vC, conflicting volume	1479	1793	459	1867	1710	230	898			450		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1479	1793	459	1867	1710	230	898			450		
tC, single (s)	7.6	6.5	6.9	7.5	6.5	6.9	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	58	100	0	0	100	100	100			79		
cM capacity (veh/h)	71	65	547	0	71	772	765			1086		

Direction, Lane #	SE 1	NE 1	NE 2	SW 1	SW 2
Volume Total	626	182	258	522	598
Volume Left	29	0	0	223	0
Volume Right	596	0	167	0	0
cSH	416	1700	1700	1086	1700
Volume to Capacity	1.51	0.11	0.15	0.21	0.35
Queue Length 95th (ft)	833	0	0	19	0
Control Delay (s)	264.5	0.0	0.0	5.2	0.0
Lane LOS	F			A	
Approach Delay (s)	264.5	0.0		2.4	
Approach LOS	F				

Intersection Summary			
Average Delay	77.0		
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (veh/h)	271	113	160	87	16	669
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.80	0.80	0.83	0.83
Hourly flow rate (vph)	343	143	200	109	19	806
Pedestrians	10					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						457
pX, platoon unblocked						
vC, conflicting volume	706	164			210	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	706	164			210	
tC, single (s)	6.8	7.1			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.4	
p0 queue free %	5	83			98	
cM capacity (veh/h)	362	826			1258	

Direction, Lane #	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	486	133	175	288	537
Volume Left	343	0	0	19	0
Volume Right	143	0	109	0	0
cSH	433	1700	1700	1258	1700
Volume to Capacity	1.12	0.08	0.10	0.02	0.32
Queue Length 95th (ft)	430	0	0	1	0
Control Delay (s)	111.1	0.0	0.0	0.7	0.0
Lane LOS	F			A	
Approach Delay (s)	111.1	0.0		0.2	
Approach LOS	F				

Intersection Summary			
Average Delay	33.4		
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	54	644	41	24	218	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	10	12	12
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.97	
Frpb, ped/bikes	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.97	
Flt Protected	1.00	1.00		0.97	0.96	
Satd. Flow (prot)	1900	1557		2966	3101	
Flt Permitted	1.00	1.00		0.80	0.96	
Satd. Flow (perm)	1900	1557		2434	3101	
Peak-hour factor, PHF	0.88	0.88	0.66	0.66	0.89	0.89
Adj. Flow (vph)	61	732	62	36	245	62
RTOR Reduction (vph)	0	0	0	0	32	0
Lane Group Flow (vph)	61	732	0	98	275	0
Confl. Peds. (#/hr)		10	10			10
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	0%	3%	8%	13%	10%	10%
Turn Type		custom	Perm			
Protected Phases	2	2		6		
Permitted Phases		4	6		4	
Actuated Green, G (s)	16.4	27.4		16.4	11.0	
Effective Green, g (s)	16.4	27.4		16.4	11.0	
Actuated g/C Ratio	0.42	0.70		0.42	0.28	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	5.0	
Lane Grp Cap (vph)	791	1557		1013	866	
v/s Ratio Prot	0.03	c0.20				
v/s Ratio Perm		0.27		0.04	0.09	
v/c Ratio	0.08	0.47		0.10	0.32	
Uniform Delay, d1	6.9	2.7		7.0	11.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.3		0.1	0.4	
Delay (s)	7.0	3.0		7.1	11.7	
Level of Service	A	A		A	B	
Approach Delay (s)	3.3			7.1	11.7	
Approach LOS	A			A	B	

Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	39.4	Sum of lost time (s)	0.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	1	442	14	3	161	78	0	1	2	254	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	11	11	16	16	16	16	16	16
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	0.98		0.98			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			0.99	
Frt		1.00			1.00	0.85		0.92			0.99	
Flt Protected		1.00			1.00	1.00		1.00			0.96	
Satd. Flow (prot)		1723			1586	1465		1937			1976	
Flt Permitted		1.00			0.99	1.00		1.00			0.74	
Satd. Flow (perm)		1723			1573	1465		1937			1521	
Peak-hour factor, PHF	0.86	0.86	0.86	0.81	0.81	0.81	0.38	0.38	0.38	0.83	0.83	0.83
Adj. Flow (vph)	1	514	16	4	199	96	0	3	5	306	2	22
RTOR Reduction (vph)	0	2	0	0	0	49	0	3	0	0	4	0
Lane Group Flow (vph)	0	529	0	0	203	47	0	5	0	0	326	0
Confl. Peds. (#/hr)			10	10			10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	0%	2%	14%	0%	16%	4%	0%	0%	0%	1%	0%	11%
Parking (#/hr)			0									
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)		34.0			34.0	34.0		24.0			24.0	
Effective Green, g (s)		34.0			34.0	34.0		24.0			24.0	
Actuated g/C Ratio		0.49			0.49	0.49		0.34			0.34	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Grp Cap (vph)		837			764	712		664			521	
v/s Ratio Prot								0.00				
v/s Ratio Perm		0.31			0.13	0.03					c0.21	
v/c Ratio		0.63			0.27	0.07		0.01			0.63	
Uniform Delay, d1		13.4			10.6	9.6		15.2			19.2	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		3.6			0.9	0.2		0.0			5.6	
Delay (s)		17.0			11.5	9.7		15.2			24.8	
Level of Service		B			B	A		B			C	
Approach Delay (s)		17.0			10.9			15.2			24.8	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	12	0	711	35	0	0	0	68	7	197	69	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.68	0.68	0.68	0.71	0.71	0.71	0.63	0.63	0.63	0.81	0.81	0.81
Hourly flow rate (vph)	18	0	1046	49	0	0	0	108	11	243	85	6
Pedestrians		10			10			10				
Lane Width (ft)		11.0			16.0			13.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		1			1			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1054	
pX, platoon unblocked												
vC, conflicting volume	705	711	123	1744	714	108	101			129		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	705	711	123	1744	714	108	101			129		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	0	0	100	100	100			83		
cM capacity (veh/h)	299	293	923	0	294	932	1487			1458		

Direction, Lane #	NB 1	NB 2	SB 1	NE 1	SW 1	SW 2
Volume Total	366	697	49	119	243	91
Volume Left	18	0	49	0	243	0
Volume Right	349	697	0	11	0	6
cSH	839	923	0	1487	1458	1700
Volume to Capacity	0.44	0.76	Err	0.00	0.17	0.05
Queue Length 95th (ft)	56	184	Err	0	15	0
Control Delay (s)	12.6	19.8	Err	0.0	8.0	0.0
Lane LOS	B	C	F		A	
Approach Delay (s)	17.3		Err	0.0	5.8	
Approach LOS	C		F			

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	37	0	81	0	0	0	0	650	164	198	191	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.77	0.77	0.77	0.98	0.98	0.98
Hourly flow rate (vph)	39	0	86	0	0	0	0	844	213	202	195	0
Pedestrians					10			10				
Lane Width (ft)					0.0			12.0				
Walking Speed (ft/s)					4.0			4.0				
Percent Blockage					0			1				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											867	
pX, platoon unblocked												
vC, conflicting volume	1021	1666	107	1558	1560	539	195			1067		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1021	1666	107	1558	1560	539	195			1067		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	73	100	91	100	100	100	100			69		
cM capacity (veh/h)	147	67	918	53	78	492	1390			655		

Direction, Lane #	SE 1	NE 1	NE 2	SW 1	SW 2
Volume Total	126	563	494	267	130
Volume Left	39	0	0	202	0
Volume Right	86	0	213	0	0
cSH	347	1700	1700	655	1700
Volume to Capacity	0.36	0.33	0.29	0.31	0.08
Queue Length 95th (ft)	40	0	0	33	0
Control Delay (s)	21.1	0.0	0.0	10.8	0.0
Lane LOS	C			B	
Approach Delay (s)	21.1	0.0		7.3	
Approach LOS	C				

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (veh/h)	102	309	411	276	52	287
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.84	0.84	0.77	0.77	0.95	0.95
Hourly flow rate (vph)	121	368	534	358	55	302
Pedestrians	10					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						457
pX, platoon unblocked						
vC, conflicting volume	984	456			544	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	984	456			544	
tC, single (s)	6.9	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	47	33			95	
cM capacity (veh/h)	227	549			1020	

Direction, Lane #	NW 1	NE 1	NE 2	SW 1	SW 2
Volume Total	489	356	536	155	201
Volume Left	121	0	0	55	0
Volume Right	368	0	358	0	0
cSH	407	1700	1700	1020	1700
Volume to Capacity	1.20	0.21	0.32	0.05	0.12
Queue Length 95th (ft)	492	0	0	4	0
Control Delay (s)	142.7	0.0	0.0	3.4	0.0
Lane LOS	F			A	
Approach Delay (s)	142.7	0.0		1.5	
Approach LOS	F				

Intersection Summary			
Average Delay	40.5		
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	101	145	194	135	500	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	10	12	12
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.97	
Frpb, ped/bikes	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.95	
Flt Protected	1.00	1.00		0.97	0.97	
Satd. Flow (prot)	1900	1582		3231	3304	
Flt Permitted	1.00	1.00		0.75	0.97	
Satd. Flow (perm)	1900	1582		2480	3304	
Peak-hour factor, PHF	0.78	0.78	0.86	0.86	0.85	0.85
Adj. Flow (vph)	129	186	226	157	588	258
RTOR Reduction (vph)	0	0	0	0	57	0
Lane Group Flow (vph)	129	186	0	383	789	0
Confl. Peds. (#/hr)		10	10			10
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	0%	1%	1%	1%	2%	1%
Turn Type		custom	Perm			
Protected Phases	2	2		6		
Permitted Phases		4	6		4	
Actuated Green, G (s)	16.3	36.4		16.3	20.1	
Effective Green, g (s)	16.3	36.4		16.3	20.1	
Actuated g/C Ratio	0.34	0.75		0.34	0.42	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	5.0	
Lane Grp Cap (vph)	640	1582		835	1372	
v/s Ratio Prot	0.07	0.04				
v/s Ratio Perm		0.08		c0.15	c0.24	
v/c Ratio	0.20	0.12		0.46	0.57	
Uniform Delay, d1	11.4	1.6		12.6	10.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.0		0.5	0.9	
Delay (s)	11.6	1.7		13.1	11.8	
Level of Service	B	A		B	B	
Approach Delay (s)	5.8			13.1	11.8	
Approach LOS	A			B	B	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	18	144	8	8	409	218	12	10	12	89	8	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	11	11	11	16	16	16	16	16	16
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	0.98		0.99			0.99	
Flpb, ped/bikes		1.00			1.00	1.00		0.99			0.99	
Frt		0.99			1.00	0.85		0.95			0.97	
Flt Protected		0.99			1.00	1.00		0.98			0.96	
Satd. Flow (prot)		1735			1817	1510		1927			1968	
Flt Permitted		0.94			0.99	1.00		0.88			0.75	
Satd. Flow (perm)		1636			1809	1510		1720			1537	
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.71	0.71	0.71	0.73	0.73	0.73
Adj. Flow (vph)	21	169	9	9	460	245	17	14	17	122	11	34
RTOR Reduction (vph)	0	3	0	0	0	109	0	12	0	0	13	0
Lane Group Flow (vph)	0	196	0	0	469	137	0	36	0	0	154	0
Confl. Peds. (#/hr)			10	10			10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	0%	1%	0%	0%	1%	1%	0%	10%	0%	1%	0%	0%
Parking (#/hr)			0									
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Actuated Green, G (s)		39.0			39.0	39.0		19.0			19.0	
Effective Green, g (s)		39.0			39.0	39.0		19.0			19.0	
Actuated g/C Ratio		0.56			0.56	0.56		0.27			0.27	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Grp Cap (vph)		911			1008	841		467			417	
v/s Ratio Prot												
v/s Ratio Perm		0.12			c0.26	0.09		0.02			c0.10	
v/c Ratio		0.22			0.47	0.16		0.08			0.37	
Uniform Delay, d1		7.8			9.3	7.5		19.0			20.6	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.5			1.5	0.4		0.3			2.5	
Delay (s)		8.3			10.8	8.0		19.3			23.1	
Level of Service		A			B	A		B			C	
Approach Delay (s)		8.3			9.8			19.3			23.1	
Approach LOS		A			A			B			C	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	6	0	274	1	0	0	8	64	17	913	235	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	12	16	12	12	15	12	11	11	12
Total Lost time (s)		6.0	6.0		6.0			6.0		6.0	6.0	
Lane Util. Factor		0.95	0.95		1.00			1.00		0.95	0.95	
Frpb, ped/bikes		1.00	1.00		1.00			0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00			1.00		1.00	1.00	
Frt		0.86	0.85		1.00			0.97		1.00	0.99	
Flt Protected		1.00	1.00		0.95			1.00		0.95	0.97	
Satd. Flow (prot)		1424	1418		2046			1771		1641	1661	
Flt Permitted		0.99	1.00		0.27			1.00		0.95	0.97	
Satd. Flow (perm)		1410	1418		590			1771		1641	1661	
Peak-hour factor, PHF	0.79	0.79	0.79	0.25	0.25	0.25	0.58	0.58	0.58	0.91	0.91	0.91
Adj. Flow (vph)	8	0	347	4	0	0	14	110	29	1003	258	41
RTOR Reduction (vph)	0	152	44	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	26	133	0	4	0	0	153	0	652	649	0
Confl. Peds. (#/hr)	10					10	10		10	10		10
Confl. Bikes (#/hr)						5			5			5
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	100%	2%	16%	1%	1%	0%
Turn Type	Perm		pm+ov	Perm			Split			Split		
Protected Phases		8	6 11		4		5	5		6 11	6 11	
Permitted Phases	8		8	4								
Actuated Green, G (s)		14.6	105.2		14.6			16.8		90.6	90.6	
Effective Green, g (s)		14.6	105.2		14.6			16.8		90.6	90.6	
Actuated g/C Ratio		0.10	0.75		0.10			0.12		0.65	0.65	
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		147	1126		62			213		1062	1075	
v/s Ratio Prot			0.08					c0.09		c0.40	0.39	
v/s Ratio Perm		c0.02	0.02		0.01							
v/c Ratio		0.18	0.12		0.06			0.72		0.61	0.60	
Uniform Delay, d1		57.2	4.7		56.5			59.3		14.5	14.3	
Progression Factor		1.00	1.00		1.00			1.00		0.85	0.85	
Incremental Delay, d2		0.6	0.0		0.4			11.0		0.7	0.7	
Delay (s)		57.8	4.8		57.0			70.3		13.0	12.8	
Level of Service		E	A		E			E		B	B	
Approach Delay (s)		31.4			57.0			70.3			12.9	
Approach LOS		C			E			E			B	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	23	0	477	0	0	0	0	211	128	176	709	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	11	11	12	11	12
Total Lost time (s)		6.0	6.0					6.0			6.0	
Lane Util. Factor		0.95	0.95					0.95			0.95	
Frpb, ped/bikes		0.97	0.97					0.98			1.00	
Flpb, ped/bikes		1.00	1.00					1.00			1.00	
Frt		0.86	0.85					0.94			1.00	
Flt Protected		1.00	1.00					1.00			0.99	
Satd. Flow (prot)		1481	1466					3061			3360	
Flt Permitted		1.00	1.00					1.00			0.73	
Satd. Flow (perm)		1481	1466					3061			2485	
Peak-hour factor, PHF	0.85	0.85	0.85	0.92	0.92	0.92	0.82	0.82	0.82	0.84	0.84	0.84
Adj. Flow (vph)	27	0	561	0	0	0	0	257	156	210	844	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	296	292	0	0	0	0	413	0	0	1054	0
Confl. Peds. (#/hr)			10						10	10		
Confl. Bikes (#/hr)			5						5			
Heavy Vehicles (%)	6%	0%	1%	2%	2%	2%	0%	6%	4%	5%	2%	0%
Turn Type	Split		Perm							pm+pt		
Protected Phases	11	11						4 6 8		5	4 5 6 8	
Permitted Phases			11							4 5 6 8		
Actuated Green, G (s)		32.9	32.9					66.3			83.1	
Effective Green, g (s)		32.9	32.9					66.3			83.1	
Actuated g/C Ratio		0.23	0.23					0.47			0.59	
Clearance Time (s)		6.0	6.0									
Vehicle Extension (s)		3.0	3.0									
Lane Grp Cap (vph)		348	345					1450			1580	
v/s Ratio Prot		c0.20						0.13			c0.08	
v/s Ratio Perm			0.20								c0.32	
v/c Ratio		0.85	0.85					0.28			0.67	
Uniform Delay, d1		51.2	51.1					22.4			19.1	
Progression Factor		1.00	1.00					1.01			0.89	
Incremental Delay, d2		17.7	17.1					0.1			0.9	
Delay (s)		68.9	68.3					22.8			18.1	
Level of Service		E	E					C			B	
Approach Delay (s)		68.6			0.0			22.8			18.1	
Approach LOS		E			A			C			B	

Intersection Summary			
HCM Average Control Delay	33.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	255	106	151	82	15	629
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	15	12	11	12	12	11
Total Lost time (s)	6.0		6.0			6.0
Lane Util. Factor	1.00		0.95			0.95
Frpb, ped/bikes	1.00		0.98			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.96		0.95			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	1869		3062			3406
Flt Permitted	0.97		1.00			0.94
Satd. Flow (perm)	1869		3062			3212
Peak-hour factor, PHF	0.79	0.79	0.80	0.80	0.83	0.83
Adj. Flow (vph)	323	134	189	102	18	758
RTOR Reduction (vph)	0	0	45	0	0	0
Lane Group Flow (vph)	457	0	246	0	0	776
Confl. Peds. (#/hr)				10	10	
Confl. Bikes (#/hr)				5		
Heavy Vehicles (%)	2%	8%	7%	5%	15%	2%
Turn Type					Perm	
Protected Phases	4 8 16		2 5			5 6
Permitted Phases					5 6	
Actuated Green, G (s)	53.5		74.5			74.5
Effective Green, g (s)	53.5		74.5			74.5
Actuated g/C Ratio	0.38		0.53			0.53
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)	714		1629			1709
v/s Ratio Prot	c0.24		0.08			
v/s Ratio Perm						c0.24
v/c Ratio	0.64		0.15			0.45
Uniform Delay, d1	35.4		16.7			20.2
Progression Factor	1.00		0.51			0.81
Incremental Delay, d2	2.0		0.0			0.2
Delay (s)	37.3		8.5			16.5
Level of Service	D		A			B
Approach Delay (s)	37.3		8.5			16.5
Approach LOS	D		A			B

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	51	605	38	22	205	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.97	
Frpb, ped/bikes	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	
Frt	1.00	0.85		1.00	0.97	
Flt Protected	1.00	1.00		0.97	0.96	
Satd. Flow (prot)	1773	1457		2944	2986	
Flt Permitted	1.00	1.00		0.77	0.96	
Satd. Flow (perm)	1773	1457		2325	2986	
Peak-hour factor, PHF	0.88	0.88	0.66	0.66	0.89	0.89
Adj. Flow (vph)	58	688	58	33	230	58
RTOR Reduction (vph)	0	0	0	0	11	0
Lane Group Flow (vph)	58	688	0	91	277	0
Confl. Peds. (#/hr)		10	10			10
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	0%	3%	8%	13%	10%	10%
Turn Type		pm+ov	Perm			
Protected Phases	6	4		2	4	
Permitted Phases		6	2		4	
Actuated Green, G (s)	16.9	128.0		16.9	111.1	
Effective Green, g (s)	16.9	128.0		16.9	111.1	
Actuated g/C Ratio	0.12	0.91		0.12	0.79	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	214	1457		281	2370	
v/s Ratio Prot	0.03	c0.37			0.09	
v/s Ratio Perm		0.10		0.04		
v/c Ratio	0.27	0.47		0.32	0.12	
Uniform Delay, d1	56.0	0.9		56.3	3.3	
Progression Factor	0.96	0.53		1.00	1.11	
Incremental Delay, d2	0.8	0.3		0.9	0.1	
Delay (s)	54.8	0.8		57.2	3.7	
Level of Service	D	A		E	A	
Approach Delay (s)	5.0			57.2	3.7	
Approach LOS	A			E	A	

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	1	415	13	3	151	73	0	1	2	239	2	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	0.98		0.98			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			0.98	
Frt		1.00			1.00	0.85		0.92			0.99	
Flt Protected		1.00			1.00	1.00		1.00			0.96	
Satd. Flow (prot)		1723			1531	1416		1925			1959	
Flt Permitted		1.00			0.99	1.00		1.00			0.74	
Satd. Flow (perm)		1722			1521	1416		1925			1508	
Peak-hour factor, PHF	0.86	0.86	0.86	0.81	0.81	0.81	0.38	0.38	0.38	0.83	0.83	0.83
Adj. Flow (vph)	1	483	15	4	186	90	0	3	5	288	2	20
RTOR Reduction (vph)	0	1	0	0	0	30	0	4	0	0	2	0
Lane Group Flow (vph)	0	498	0	0	190	60	0	4	0	0	308	0
Confl. Peds. (#/hr)			10	10			10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	0%	2%	14%	0%	16%	4%	0%	0%	0%	1%	0%	11%
Parking (#/hr)			0									
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2		2	4			8		
Actuated Green, G (s)		93.5			93.5	93.5		34.5			34.5	
Effective Green, g (s)		93.5			93.5	93.5		34.5			34.5	
Actuated g/C Ratio		0.67			0.67	0.67		0.25			0.25	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		1150			1016	946		474			372	
v/s Ratio Prot								0.00				
v/s Ratio Perm		c0.29			0.12	0.04					c0.20	
v/c Ratio		0.43			0.19	0.06		0.01			0.83	
Uniform Delay, d1		10.9			8.8	8.1		39.8			49.9	
Progression Factor		1.00			0.94	1.89		1.00			1.00	
Incremental Delay, d2		1.2			0.4	0.1		0.0			14.0	
Delay (s)		12.1			8.7	15.4		39.8			63.9	
Level of Service		B			A	B		D			E	
Approach Delay (s)		12.1			10.8			39.8			63.9	
Approach LOS		B			B			D			E	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	11	0	668	33	0	0	0	64	6	185	65	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	12	16	12	12	15	12	11	11	12
Total Lost time (s)		6.0	6.0		6.0			6.0		6.0	6.0	
Lane Util. Factor		0.95	0.95		1.00			1.00		0.95	0.95	
Frpb, ped/bikes		1.00	1.00		1.00			1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00			1.00		1.00	1.00	
Frt		0.85	0.85		1.00			0.99		1.00	1.00	
Flt Protected		1.00	1.00		0.95			1.00		0.95	0.98	
Satd. Flow (prot)		1423	1418		2046			2006		1658	1695	
Flt Permitted		0.99	1.00		0.14			1.00		0.95	0.98	
Satd. Flow (perm)		1412	1418		305			2006		1658	1695	
Peak-hour factor, PHF	0.68	0.68	0.68	0.71	0.92	0.92	0.63	0.63	0.63	0.81	0.81	0.81
Adj. Flow (vph)	16	0	982	46	0	0	0	102	10	228	80	5
RTOR Reduction (vph)	0	368	116	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	129	385	0	46	0	0	112	0	155	157	0
Confl. Peds. (#/hr)	10					10	10		10	10		10
Confl. Bikes (#/hr)						5			5			5
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%	0%	0%	29%	0%	0%	0%
Turn Type	Perm		pm+ov	Perm			Split			Split		
Protected Phases		8	6 11		4		5	5		6 11	6 11	
Permitted Phases	8		8	4								
Actuated Green, G (s)		28.2	88.6		28.2			13.4		60.4	60.4	
Effective Green, g (s)		28.2	88.6		28.2			13.4		60.4	60.4	
Actuated g/C Ratio		0.23	0.74		0.23			0.11		0.50	0.50	
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		332	1118		72			224		835	853	
v/s Ratio Prot			c0.17					c0.06		0.09	0.09	
v/s Ratio Perm		0.09	0.10		c0.15							
v/c Ratio		0.39	0.34		0.64			0.50		0.19	0.18	
Uniform Delay, d1		38.6	5.5		41.3			50.1		16.3	16.3	
Progression Factor		1.00	1.00		1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.8	0.2		17.1			1.8		0.1	0.1	
Delay (s)		39.4	5.7		58.4			51.9		16.5	16.5	
Level of Service		D	A		E			D		B	B	
Approach Delay (s)		22.5			58.4			51.9			16.5	
Approach LOS		C			E			D			B	

Intersection Summary			
HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	35	0	76	0	0	0	0	611	154	187	179	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	11	11	11	12	11	12
Total Lost time (s)		6.0	6.0					6.0			6.0	
Lane Util. Factor		0.95	0.95					0.95			0.95	
Frpb, ped/bikes		0.99	0.97					0.99			1.00	
Flpb, ped/bikes		1.00	1.00					1.00			1.00	
Frt		0.94	0.85					0.97			1.00	
Flt Protected		0.97	1.00					1.00			0.98	
Satd. Flow (prot)		1614	1454					3309			3333	
Flt Permitted		0.97	1.00					1.00			0.51	
Satd. Flow (perm)		1614	1454					3309			1757	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.77	0.77	0.77	0.98	0.98	0.98
Adj. Flow (vph)	37	0	81	0	0	0	0	794	200	191	183	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	61	57	0	0	0	0	978	0	0	374	0
Confl. Peds. (#/hr)			10						10	10		
Confl. Bikes (#/hr)			5						5			
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	1%	2%	1%	3%	0%
Turn Type	Perm		Perm							pm+pt		
Protected Phases		11						4 6 8		5	4 5 6 8	
Permitted Phases	11		11							4 5 6 8		
Actuated Green, G (s)		22.2	22.2					60.4			73.8	
Effective Green, g (s)		22.2	22.2					60.4			73.8	
Actuated g/C Ratio		0.18	0.18					0.50			0.61	
Clearance Time (s)		6.0	6.0									
Vehicle Extension (s)		3.0	3.0									
Lane Grp Cap (vph)		299	269					1666			1257	
v/s Ratio Prot								c0.30			c0.03	
v/s Ratio Perm		0.04	c0.04								0.15	
v/c Ratio		0.20	0.21					0.59			0.30	
Uniform Delay, d1		41.4	41.5					21.0			10.9	
Progression Factor		1.00	1.00					0.95			1.01	
Incremental Delay, d2		0.3	0.4					0.5			0.1	
Delay (s)		41.8	41.9					20.4			11.2	
Level of Service		D	D					C			B	
Approach Delay (s)		41.8			0.0			20.4			11.2	
Approach LOS		D			A			C			B	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	96	290	386	260	49	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	15	12	11	12	12	11
Total Lost time (s)	6.0		6.0			6.0
Lane Util. Factor	1.00		0.95			0.95
Frpb, ped/bikes	1.00		0.98			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.90		0.94			1.00
Flt Protected	0.99		1.00			0.99
Satd. Flow (prot)	1823		3204			3426
Flt Permitted	0.99		1.00			0.69
Satd. Flow (perm)	1823		3204			2379
Peak-hour factor, PHF	0.84	0.84	0.77	0.77	0.95	0.95
Adj. Flow (vph)	114	345	501	338	52	284
RTOR Reduction (vph)	0	0	93	0	0	0
Lane Group Flow (vph)	459	0	746	0	0	336
Confl. Peds. (#/hr)				10	10	
Confl. Bikes (#/hr)				5		
Heavy Vehicles (%)	4%	1%	1%	0%	1%	1%
Turn Type					Perm	
Protected Phases	4 8 16		2 5			5 6
Permitted Phases					5 6	
Actuated Green, G (s)	56.4		51.6			51.6
Effective Green, g (s)	56.4		51.6			51.6
Actuated g/C Ratio	0.47		0.43			0.43
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)	857		1378			1023
v/s Ratio Prot	c0.25		c0.23			
v/s Ratio Perm						0.14
v/c Ratio	0.54		0.54			0.33
Uniform Delay, d1	22.5		25.4			22.7
Progression Factor	1.00		0.82			0.28
Incremental Delay, d2	0.6		0.4			0.2
Delay (s)	23.2		21.1			6.4
Level of Service	C		C			A
Approach Delay (s)	23.2		21.1			6.4
Approach LOS	C		C			A

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	95	136	183	126	470	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.97	
Frpb, ped/bikes	1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	
Frt	1.00	0.85		1.00	0.95	
Flt Protected	1.00	1.00		0.97	0.97	
Satd. Flow (prot)	1773	1482		3217	3180	
Flt Permitted	1.00	1.00		0.73	0.97	
Satd. Flow (perm)	1773	1482		2411	3180	
Peak-hour factor, PHF	0.78	0.78	0.86	0.86	0.85	0.85
Adj. Flow (vph)	122	174	213	147	553	242
RTOR Reduction (vph)	0	0	0	0	28	0
Lane Group Flow (vph)	122	174	0	360	767	0
Confl. Peds. (#/hr)		10	10			10
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	0%	1%	1%	1%	2%	1%
Turn Type		pm+ov	Perm			
Protected Phases	6	4		2	4	
Permitted Phases		6	2		4	
Actuated Green, G (s)	24.4	108.0		24.4	83.6	
Effective Green, g (s)	24.4	108.0		24.4	83.6	
Actuated g/C Ratio	0.20	0.90		0.20	0.70	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	361	1482		490	2215	
v/s Ratio Prot	0.07	0.08			c0.24	
v/s Ratio Perm		0.04		c0.15		
v/c Ratio	0.34	0.12		0.92dl	0.35	
Uniform Delay, d1	40.9	0.7		44.8	7.3	
Progression Factor	0.67	1.78		1.00	0.75	
Incremental Delay, d2	0.8	0.0		6.0	0.4	
Delay (s)	28.0	1.2		50.8	5.8	
Level of Service	C	A		D	A	
Approach Delay (s)	12.3			50.8	5.8	
Approach LOS	B			D	A	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	17	135	7	7	384	205	11	9	12	84	7	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	0.98		0.99			0.99	
Flpb, ped/bikes		1.00			1.00	1.00		0.99			0.99	
Frt		0.99			1.00	0.85		0.95			0.97	
Flt Protected		0.99			1.00	1.00		0.98			0.96	
Satd. Flow (prot)		1735			1754	1459		1913			1955	
Flt Permitted		0.94			1.00	1.00		0.89			0.75	
Satd. Flow (perm)		1638			1747	1459		1729			1530	
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.71	0.71	0.71	0.73	0.73	0.73
Adj. Flow (vph)	20	159	8	8	431	230	15	13	17	115	10	32
RTOR Reduction (vph)	0	1	0	0	0	55	0	15	0	0	9	0
Lane Group Flow (vph)	0	186	0	0	439	175	0	30	0	0	148	0
Confl. Peds. (#/hr)			10	10			10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	0%	1%	0%	0%	1%	1%	0%	10%	0%	1%	0%	0%
Parking (#/hr)			0									
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2		2	4			8		
Actuated Green, G (s)		91.1			91.1	91.1		16.9			16.9	
Effective Green, g (s)		91.1			91.1	91.1		16.9			16.9	
Actuated g/C Ratio		0.76			0.76	0.76		0.14			0.14	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		1244			1326	1108		244			215	
v/s Ratio Prot												
v/s Ratio Perm		0.11			c0.25	0.12		0.02			c0.10	
v/c Ratio		0.15			0.33	0.16		0.12			0.69	
Uniform Delay, d1		3.9			4.6	4.0		45.1			49.0	
Progression Factor		1.00			0.72	0.34		1.00			1.00	
Incremental Delay, d2		0.3			0.6	0.3		0.2			8.8	
Delay (s)		4.2			4.0	1.6		45.3			57.8	
Level of Service		A			A	A		D			E	
Approach Delay (s)		4.2			3.2			45.3			57.8	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	6	0	291	1	0	0	8	68	18	971	250	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	12	16	12	12	15	12	11	11	12
Total Lost time (s)		6.0	6.0		6.0			6.0		6.0	6.0	
Lane Util. Factor		0.95	0.95		1.00			1.00		0.95	0.95	
Frpb, ped/bikes		1.00	1.00		1.00			0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00			1.00		1.00	1.00	
Frt		0.86	0.85		1.00			0.97		1.00	0.99	
Flt Protected		1.00	1.00		0.95			1.00		0.95	0.97	
Satd. Flow (prot)		1424	1418		2046			1778		1641	1661	
Flt Permitted		0.99	1.00		0.27			1.00		0.95	0.97	
Satd. Flow (perm)		1410	1418		574			1778		1641	1661	
Peak-hour factor, PHF	0.79	0.79	0.79	0.25	0.25	0.25	0.58	0.58	0.58	0.91	0.91	0.91
Adj. Flow (vph)	8	0	368	4	0	0	14	117	31	1067	275	44
RTOR Reduction (vph)	0	161	47	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	27	141	0	4	0	0	162	0	694	691	0
Confl. Peds. (#/hr)	10					10	10		10	10		10
Confl. Bikes (#/hr)						5			5			5
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	100%	2%	16%	1%	1%	0%
Turn Type	Perm		pm+ov	Perm			Split			Split		
Protected Phases		8	6 11		4		5	5		6 11	6 11	
Permitted Phases	8		8	4								
Actuated Green, G (s)		15.0	104.7		15.0			17.3		89.7	89.7	
Effective Green, g (s)		15.0	104.7		15.0			17.3		89.7	89.7	
Actuated g/C Ratio		0.11	0.75		0.11			0.12		0.64	0.64	
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		151	1121		62			220		1051	1064	
v/s Ratio Prot			0.08					c0.09		c0.42	0.42	
v/s Ratio Perm		c0.02	0.02		0.01							
v/c Ratio		0.18	0.13		0.06			0.74		0.66	0.65	
Uniform Delay, d1		56.9	4.9		56.2			59.2		15.7	15.5	
Progression Factor		1.00	1.00		1.00			1.00		0.82	0.82	
Incremental Delay, d2		0.6	0.1		0.4			12.1		1.0	0.9	
Delay (s)		57.5	5.0		56.6			71.2		13.8	13.5	
Level of Service		E	A		E			E		B	B	
Approach Delay (s)		31.2			56.6			71.2			13.7	
Approach LOS		C			E			E			B	

Intersection Summary			
HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	25	0	507	0	0	0	0	224	137	187	754	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	11	11	12	11	12
Total Lost time (s)		6.0	6.0					6.0			6.0	
Lane Util. Factor		0.95	0.95					0.95			0.95	
Frpb, ped/bikes		0.97	0.97					0.98			1.00	
Flpb, ped/bikes		1.00	1.00					1.00			1.00	
Frt		0.86	0.85					0.94			1.00	
Flt Protected		1.00	1.00					1.00			0.99	
Satd. Flow (prot)		1481	1466					3060			3360	
Flt Permitted		1.00	1.00					1.00			0.72	
Satd. Flow (perm)		1481	1466					3060			2440	
Peak-hour factor, PHF	0.85	0.85	0.85	0.92	0.92	0.92	0.82	0.82	0.82	0.84	0.84	0.84
Adj. Flow (vph)	29	0	596	0	0	0	0	273	167	223	898	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	315	310	0	0	0	0	440	0	0	1121	0
Confl. Peds. (#/hr)			10						10	10		
Confl. Bikes (#/hr)			5						5			
Heavy Vehicles (%)	6%	0%	1%	2%	2%	2%	0%	6%	4%	5%	2%	0%
Turn Type	Split		Perm							pm+pt		
Protected Phases	11	11						4 6 8		5	4 5 6 8	
Permitted Phases			11							4 5 6 8		
Actuated Green, G (s)		33.8	33.8					64.9			82.2	
Effective Green, g (s)		33.8	33.8					64.9			82.2	
Actuated g/C Ratio		0.24	0.24					0.46			0.59	
Clearance Time (s)		6.0	6.0									
Vehicle Extension (s)		3.0	3.0									
Lane Grp Cap (vph)		358	354					1419			1546	
v/s Ratio Prot		c0.21						0.14			c0.09	
v/s Ratio Perm			0.21								c0.34	
v/c Ratio		0.88	0.88					0.31			0.73	
Uniform Delay, d1		51.1	51.1					23.5			20.8	
Progression Factor		1.00	1.00					1.01			0.82	
Incremental Delay, d2		21.0	20.7					0.1			1.4	
Delay (s)		72.2	71.8					23.9			18.6	
Level of Service		E	E					C			B	
Approach Delay (s)		72.0			0.0			23.9			18.6	
Approach LOS		E			A			C			B	

Intersection Summary			
HCM Average Control Delay	34.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	271	113	160	87	16	669
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	15	12	11	12	12	11
Total Lost time (s)	6.0		6.0			6.0
Lane Util. Factor	1.00		0.95			0.95
Frpb, ped/bikes	1.00		0.98			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.96		0.95			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	1868		3060			3406
Flt Permitted	0.97		1.00			0.94
Satd. Flow (perm)	1868		3060			3210
Peak-hour factor, PHF	0.79	0.79	0.80	0.80	0.83	0.83
Adj. Flow (vph)	343	143	200	109	19	806
RTOR Reduction (vph)	0	0	46	0	0	0
Lane Group Flow (vph)	486	0	263	0	0	825
Confl. Peds. (#/hr)				10	10	
Confl. Bikes (#/hr)				5		
Heavy Vehicles (%)	2%	8%	7%	5%	15%	2%
Turn Type					Perm	
Protected Phases	4 8 16		2 5			5 6
Permitted Phases					5 6	
Actuated Green, G (s)	54.8		73.2			73.2
Effective Green, g (s)	54.8		73.2			73.2
Actuated g/C Ratio	0.39		0.52			0.52
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)	731		1600			1678
v/s Ratio Prot	c0.26		0.09			
v/s Ratio Perm						c0.26
v/c Ratio	0.66		0.16			0.49
Uniform Delay, d1	35.0		17.4			21.5
Progression Factor	1.00		0.51			0.81
Incremental Delay, d2	2.3		0.0			0.2
Delay (s)	37.3		9.0			17.5
Level of Service	D		A			B
Approach Delay (s)	37.3		9.0			17.5
Approach LOS	D		A			B

Intersection Summary			
HCM Average Control Delay	21.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	54	644	41	24	218	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.97	
Frpb, ped/bikes	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	
Frt	1.00	0.85		1.00	0.97	
Flt Protected	1.00	1.00		0.97	0.96	
Satd. Flow (prot)	1773	1457		2944	2986	
Flt Permitted	1.00	1.00		0.76	0.96	
Satd. Flow (perm)	1773	1457		2323	2986	
Peak-hour factor, PHF	0.88	0.88	0.66	0.66	0.89	0.89
Adj. Flow (vph)	61	732	62	36	245	62
RTOR Reduction (vph)	0	0	0	0	11	0
Lane Group Flow (vph)	61	732	0	98	296	0
Confl. Peds. (#/hr)		10	10			10
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	0%	3%	8%	13%	10%	10%
Turn Type		pm+ov	Perm			
Protected Phases	6	4		2	4	
Permitted Phases		6	2		4	
Actuated Green, G (s)	16.9	128.0		16.9	111.1	
Effective Green, g (s)	16.9	128.0		16.9	111.1	
Actuated g/C Ratio	0.12	0.91		0.12	0.79	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	214	1457		280	2370	
v/s Ratio Prot	0.03	c0.40			0.10	
v/s Ratio Perm		0.10		0.04		
v/c Ratio	0.29	0.50		0.35	0.12	
Uniform Delay, d1	56.0	1.0		56.5	3.3	
Progression Factor	1.08	1.81		1.00	0.48	
Incremental Delay, d2	0.9	0.3		1.0	0.1	
Delay (s)	61.3	2.0		57.5	1.7	
Level of Service	E	A		E	A	
Approach Delay (s)	6.6			57.5	1.7	
Approach LOS	A			E	A	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	1	442	14	3	161	78	0	1	2	254	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	0.98		0.98			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			0.98	
Frt		1.00			1.00	0.85		0.92			0.99	
Flt Protected		1.00			1.00	1.00		1.00			0.96	
Satd. Flow (prot)		1723			1531	1416		1926			1958	
Flt Permitted		1.00			0.99	1.00		1.00			0.74	
Satd. Flow (perm)		1722			1520	1416		1926			1508	
Peak-hour factor, PHF	0.86	0.86	0.86	0.81	0.81	0.81	0.38	0.38	0.38	0.83	0.83	0.83
Adj. Flow (vph)	1	514	16	4	199	96	0	3	5	306	2	22
RTOR Reduction (vph)	0	1	0	0	0	33	0	4	0	0	2	0
Lane Group Flow (vph)	0	530	0	0	203	63	0	4	0	0	328	0
Confl. Peds. (#/hr)			10	10			10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	0%	2%	14%	0%	16%	4%	0%	0%	0%	1%	0%	11%
Parking (#/hr)			0									
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2		2	4			8		
Actuated Green, G (s)		91.6			91.6	91.6		36.4			36.4	
Effective Green, g (s)		91.6			91.6	91.6		36.4			36.4	
Actuated g/C Ratio		0.65			0.65	0.65		0.26			0.26	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		1127			995	926		501			392	
v/s Ratio Prot								0.00				
v/s Ratio Perm		c0.31			0.13	0.04					c0.22	
v/c Ratio		0.47			0.20	0.07		0.01			0.84	
Uniform Delay, d1		12.1			9.7	8.8		38.4			49.0	
Progression Factor		1.00			1.18	1.18		1.00			1.00	
Incremental Delay, d2		1.4			0.5	0.1		0.0			14.3	
Delay (s)		13.5			11.9	10.5		38.4			63.3	
Level of Service		B			B	B		D			E	
Approach Delay (s)		13.5			11.4			38.4			63.3	
Approach LOS		B			B			D			E	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	12	0	711	35	0	0	0	68	7	197	69	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	12	16	12	12	15	12	11	11	12
Total Lost time (s)		6.0	6.0		6.0			6.0		6.0	6.0	
Lane Util. Factor		0.95	0.95		1.00			1.00		0.95	0.95	
Frpb, ped/bikes		1.00	1.00		1.00			1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00			1.00		1.00	1.00	
Frt		0.86	0.85		1.00			0.99		1.00	0.99	
Flt Protected		1.00	1.00		0.95			1.00		0.95	0.98	
Satd. Flow (prot)		1423	1418		2046			2003		1658	1693	
Flt Permitted		0.99	1.00		0.14			1.00		0.95	0.98	
Satd. Flow (perm)		1411	1418		294			2003		1658	1693	
Peak-hour factor, PHF	0.68	0.68	0.68	0.71	0.92	0.92	0.63	0.63	0.63	0.81	0.81	0.81
Adj. Flow (vph)	18	0	1046	49	0	0	0	108	11	243	85	6
RTOR Reduction (vph)	0	388	112	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	143	421	0	49	0	0	119	0	165	168	0
Confl. Peds. (#/hr)	10					10	10		10	10		10
Confl. Bikes (#/hr)						5			5			5
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%	0%	0%	29%	0%	0%	0%
Turn Type	Perm		pm+ov	Perm			Split			Split		
Protected Phases		8	6 11		4		5	5		6 11	6 11	
Permitted Phases	8		8	4								
Actuated Green, G (s)		29.3	88.4		29.3			13.6		59.1	59.1	
Effective Green, g (s)		29.3	88.4		29.3			13.6		59.1	59.1	
Actuated g/C Ratio		0.24	0.74		0.24			0.11		0.49	0.49	
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		345	1115		72			227		817	834	
v/s Ratio Prot			c0.19					c0.06		0.10	0.10	
v/s Ratio Perm		0.10	0.11		c0.17							
v/c Ratio		0.42	0.38		0.68			0.52		0.20	0.20	
Uniform Delay, d1		38.1	5.8		41.1			50.2		17.2	17.2	
Progression Factor		1.00	1.00		1.00			1.00		0.99	0.99	
Incremental Delay, d2		0.8	0.2		23.3			2.2		0.1	0.1	
Delay (s)		39.0	6.0		64.4			52.3		17.2	17.2	
Level of Service		D	A		E			D		B	B	
Approach Delay (s)		22.4			64.4			52.3			17.2	
Approach LOS		C			E			D			B	

Intersection Summary			
HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	37	0	81	0	0	0	0	650	164	198	191	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	11	11	11	12	11	12
Total Lost time (s)		6.0	6.0					6.0			6.0	
Lane Util. Factor		0.95	0.95					0.95			0.95	
Frpb, ped/bikes		0.99	0.97					0.99			1.00	
Flpb, ped/bikes		1.00	1.00					1.00			1.00	
Frt		0.94	0.85					0.97			1.00	
Flt Protected		0.97	1.00					1.00			0.98	
Satd. Flow (prot)		1612	1454					3309			3334	
Flt Permitted		0.97	1.00					1.00			0.52	
Satd. Flow (perm)		1612	1454					3309			1768	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.77	0.77	0.77	0.98	0.98	0.98
Adj. Flow (vph)	39	0	86	0	0	0	0	844	213	202	195	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	65	60	0	0	0	0	1041	0	0	397	0
Confl. Peds. (#/hr)			10						10	10		
Confl. Bikes (#/hr)			5						5			
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	1%	2%	1%	3%	0%
Turn Type	Perm		Perm							pm+pt		
Protected Phases		11						4 6 8		5	4 5 6 8	
Permitted Phases	11		11							4 5 6 8		
Actuated Green, G (s)		22.3	22.3					60.1			73.7	
Effective Green, g (s)		22.3	22.3					60.1			73.7	
Actuated g/C Ratio		0.19	0.19					0.50			0.61	
Clearance Time (s)		6.0	6.0									
Vehicle Extension (s)		3.0	3.0									
Lane Grp Cap (vph)		300	270					1657			1263	
v/s Ratio Prot								c0.31			c0.04	
v/s Ratio Perm		0.04	c0.04								0.16	
v/c Ratio		0.22	0.22					0.63			0.31	
Uniform Delay, d1		41.4	41.5					21.8			11.1	
Progression Factor		1.00	1.00					0.94			0.96	
Incremental Delay, d2		0.4	0.4					0.6			0.1	
Delay (s)		41.8	41.9					21.1			10.7	
Level of Service		D	D					C			B	
Approach Delay (s)		41.9			0.0			21.1			10.7	
Approach LOS		D			A			C			B	

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	102	309	411	276	52	287
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	15	12	11	12	12	11
Total Lost time (s)	6.0		6.0			6.0
Lane Util. Factor	1.00		0.95			0.95
Frpb, ped/bikes	1.00		0.98			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.90		0.94			1.00
Flt Protected	0.99		1.00			0.99
Satd. Flow (prot)	1823		3205			3427
Flt Permitted	0.99		1.00			0.66
Satd. Flow (perm)	1823		3205			2271
Peak-hour factor, PHF	0.84	0.84	0.77	0.77	0.95	0.95
Adj. Flow (vph)	121	368	534	358	55	302
RTOR Reduction (vph)	0	0	94	0	0	0
Lane Group Flow (vph)	489	0	798	0	0	357
Confl. Peds. (#/hr)				10	10	
Confl. Bikes (#/hr)				5		
Heavy Vehicles (%)	4%	1%	1%	0%	1%	1%
Turn Type					Perm	
Protected Phases	4 8 16		2 5			5 6
Permitted Phases					5 6	
Actuated Green, G (s)	57.6		50.4			50.4
Effective Green, g (s)	57.6		50.4			50.4
Actuated g/C Ratio	0.48		0.42			0.42
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)	875		1346			954
v/s Ratio Prot	c0.27		c0.25			
v/s Ratio Perm						0.16
v/c Ratio	0.56		0.59			0.37
Uniform Delay, d1	22.2		26.9			23.9
Progression Factor	1.00		0.82			0.39
Incremental Delay, d2	0.8		0.6			0.2
Delay (s)	23.0		22.6			9.5
Level of Service	C		C			A
Approach Delay (s)	23.0		22.6			9.5
Approach LOS	C		C			A

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	101	145	194	135	500	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.97	
Frpb, ped/bikes	1.00	0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	
Frt	1.00	0.85		1.00	0.95	
Flt Protected	1.00	1.00		0.97	0.97	
Satd. Flow (prot)	1773	1481		3217	3180	
Flt Permitted	1.00	1.00		0.72	0.97	
Satd. Flow (perm)	1773	1481		2389	3180	
Peak-hour factor, PHF	0.78	0.78	0.86	0.86	0.85	0.85
Adj. Flow (vph)	129	186	226	157	588	258
RTOR Reduction (vph)	0	0	0	0	29	0
Lane Group Flow (vph)	129	186	0	383	817	0
Confl. Peds. (#/hr)		10	10			10
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	0%	1%	1%	1%	2%	1%
Turn Type		pm+ov	Perm			
Protected Phases	6	4		2	4	
Permitted Phases		6	2		4	
Actuated Green, G (s)	25.7	108.0		25.7	82.3	
Effective Green, g (s)	25.7	108.0		25.7	82.3	
Actuated g/C Ratio	0.21	0.90		0.21	0.69	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	380	1481		512	2181	
v/s Ratio Prot	0.07	0.09			c0.26	
v/s Ratio Perm		0.04		c0.16		
v/c Ratio	0.34	0.13		0.95dl	0.37	
Uniform Delay, d1	40.0	0.7		44.1	8.0	
Progression Factor	0.65	1.88		1.00	0.65	
Incremental Delay, d2	0.7	0.1		6.3	0.4	
Delay (s)	26.5	1.3		50.4	5.6	
Level of Service	C	A		D	A	
Approach Delay (s)	11.6			50.4	5.6	
Approach LOS	B			D	A	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	18	144	8	8	409	218	12	10	12	89	8	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	16	16	16	16	16	16
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	0.98		0.99			0.99	
Flpb, ped/bikes		1.00			1.00	1.00		0.99			0.99	
Frt		0.99			1.00	0.85		0.95			0.97	
Flt Protected		0.99			1.00	1.00		0.98			0.96	
Satd. Flow (prot)		1735			1754	1459		1919			1955	
Flt Permitted		0.94			0.99	1.00		0.88			0.75	
Satd. Flow (perm)		1631			1746	1459		1717			1527	
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.71	0.71	0.71	0.73	0.73	0.73
Adj. Flow (vph)	21	169	9	9	460	245	17	14	17	122	11	34
RTOR Reduction (vph)	0	1	0	0	0	61	0	14	0	0	9	0
Lane Group Flow (vph)	0	198	0	0	469	184	0	34	0	0	158	0
Confl. Peds. (#/hr)			10	10			10		10	10		10
Confl. Bikes (#/hr)			5			5			5			5
Heavy Vehicles (%)	0%	1%	0%	0%	1%	1%	0%	10%	0%	1%	0%	0%
Parking (#/hr)			0									
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2		2	4			8		
Actuated Green, G (s)		90.3			90.3	90.3		17.7			17.7	
Effective Green, g (s)		90.3			90.3	90.3		17.7			17.7	
Actuated g/C Ratio		0.75			0.75	0.75		0.15			0.15	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		1227			1314	1098		253			225	
v/s Ratio Prot												
v/s Ratio Perm		0.12			c0.27	0.13		0.02			c0.10	
v/c Ratio		0.16			0.36	0.17		0.13			0.70	
Uniform Delay, d1		4.2			5.0	4.2		44.5			48.6	
Progression Factor		1.00			0.87	0.62		1.00			1.00	
Incremental Delay, d2		0.3			0.7	0.3		0.2			9.4	
Delay (s)		4.5			5.1	2.9		44.7			58.1	
Level of Service		A			A	A		D			E	
Approach Delay (s)		4.5			4.3			44.7			58.1	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Attachment C-5
Collision Diagrams

Attachment C-6
Signal Warrant Analysis

TRAFFIC SIGNAL WARRANT SUMMARY

AM & NON-PEAK PERIOD ANALYSIS

Analyst: CJL
Project : **Croton-On-Hudson Parking Facility & Bicycle Enhancements** Date: January 25, 2012
Location: **Croton Point Ave & Veterans Plaza** Checked By:
Village of Croton-On-Hudson, N\` CHA Project No. 22961-2010-36000

Intersection: **Croton Point Ave & Veterans Plaza**

Major Street: Croton Point Avenue eastbound and westbound — Number of Approach Lanes: **2**
Minor Street: Veterans Plaza northbound — Number of Approach Lanes: **1**

Critical Approach Speed: **30** mph — Number of Intersection Approaches: **4**

Volume Level Criteria

1. Is the critical speed of major street traffic > 40 mph ? ___ Yes x No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ___ Yes x No

Population: **7,600**

If Question 1 or 2 above is answered "Yes", then use "70%" volume level — Use: 100 %

Traffic Volume Input

Analysis Condition: Existing Condition (2011)

Data Source: Intersection Turning Movement Counts - July 19-21, 2011 and September 13, 2011

	Hourly Volumes												
	6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	680	1,415	708	310	262	288	285	249	275	339	328	209	589
Minor Street (Highest Approach)	108	235	183	77	76	70	66	77	104	207	320	421	522

Notes:

Croton Point Avenue at this intersection consists of 2 westbound lanes and 1 eastbound lane. Veteran's Plaza consists of a single lane in each direction and a center lane that operates as a reversible lane during the AM and PM peaks. During the AM, there are 2 southbound (entering) lanes and 1 northbound (exiting) lanes. During the PM peak period, there is 1 southbound (entering) lane and 2 northbound (exiting) lanes. During the non-peak hours, Veteran's Lane operates with 1 southbound and 1 northbound lane. See additional sheets for PM period signal warrant analysis.

WARRANT 1- EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied.
Warrant is also satisfied if both Condition A and Condition B are "80%" satisfied. Should be applied only after adequate trial of other alternatives that would cause less delay and inconvenience to traffic has failed to solve the traffic problem.

Condition A - Minimum Vehicular Volume

Number of lines for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1 ……….	1 ……….	500	400	350	280	150	120	105	84
2 or more	1 ……….	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1 ……….	2 or more	500	400	350	280	200	160	140	112

source: *Table 4C-1, USMUTCD, 2009*

	Minimum Volume Requirements *(based on input criteria)*	Hourly Volumes												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**600**	680	1,415	708	310	262	288	285	249	275	339	328	209	589
Minor Street (Highest Approach)	**150**	108	235	183	77	76	70	66	77	104	207	320	421	522
	satisfied?		☑	☑										

Warrant Criteria Satisfied for Condition A ? **NO** Number of Hours Satisfied: **2**

Condition B - Interruption of Continuous Traffic

Number of lines for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1 ……….	1 ……….	750	600	525	420	75	60	53	42
2 or more	1 ……….	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1 ……….	2 or more	750	600	525	420	100	80	70	56

source: *Table 4C-1, USMUTCD, 2009*

	Minimum Volume Requirements *(based on input criteria)*	Hourly Volumes												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**900**	680	1,415	708	310	262	288	285	249	275	339	328	209	589
Minor Street (Highest Approach)	**75**	108	235	183	77	76	70	66	77	104	207	320	421	522
	satisfied?		☑											

Warrant Criteria Satisfied for Condition B ? **NO** Number of Hours Satisfied: **1**

WARRANT 1- EIGHT-HOUR VEHICULAR VOLUME (Con't)

Combination of Conditions A & B

Condition A

	Minimum Volume Requirements *(based on input criteria)*	**Hourly Volumes**												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**480**	680	1,415	708	310	262	288	285	249	275	339	328	209	589
Minor Street (Highest Approach)	**120**	108	235	183	77	76	70	66	77	104	207	320	421	522
	satisfied?		☑	☑										☑

Warrant Criteria 80% Satisfied for Condition A ? **NO** Number of Hours Satisfied: **3**

Condition B

	Minimum Volume Requirements *(based on input criteria)*	**Hourly Volumes**												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**720**	680	1,415	708	310	262	288	285	249	275	339	328	209	589
Minor Street (Highest Approach)	**60**	108	235	183	77	76	70	66	77	104	207	320	421	522
	satisfied?		☑											

Warrant Criteria 80% Satisfied for Condition A ? **NO** Number of Hours Satisfied: **1**

Warrant Criteria 80% Satisfied for Conditions A and B? **NO** Number of Hours Satisfied: **1**

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

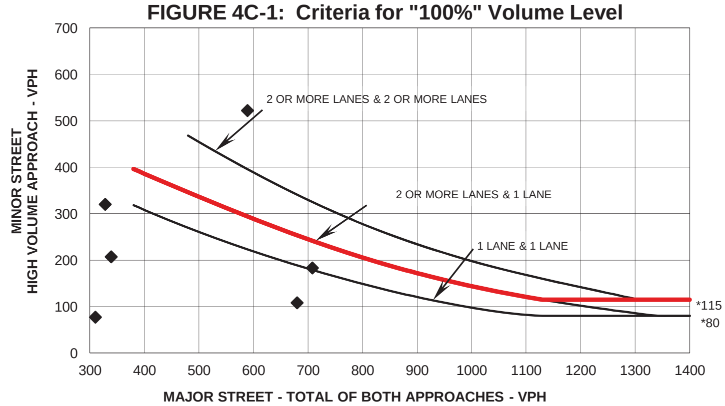
Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Speed on mainline is 40 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Volumes		
Hour	Major Street	Minor Street
6-7 am	680	108
7-8 am	**1,415**	**235**
8-9 am	708	183
9-10am	310	77
10-11am	262	76
11-12pm	288	70
12-1pm	285	66
1-2pm	249	77
2-3pm	275	104
3-4pm	339	207
4-5pm	328	320
5-6pm	209	421
6-7pm	589	522

Plot four volume combinations on the applicable figure below.

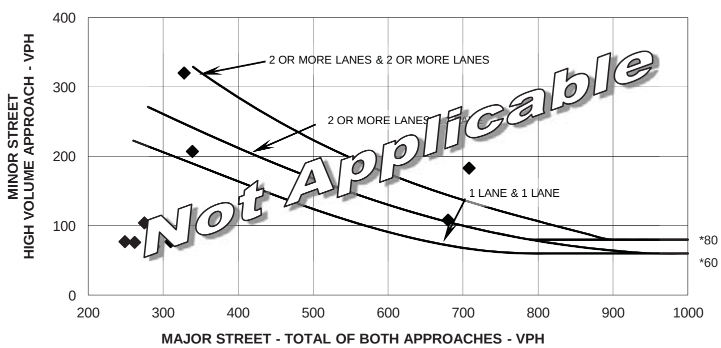
FIGURE 4C-1: Criteria for "100%" Volume Level



** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes & 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 40mph (70 km/hr) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes & 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: USMUTCD, 2009

WARRANT 3 - PEAK HOUR VEHICULAR VOLUME

Applicable: ☒ Yes ☐ No
Satisfied: ☒ Yes ☐ No

CONDITION A

Criteria

1. **Total Stopped Time Delay on Minor Approach**

Average Delay per vehicle (sec): AM/PM
Peak Hour Volume:
Total 1-hour stopped delay *(veh-hrs):*

N/A - AM and PM period controlled by traffic control officer

Criteria: 4 veh-hrs for 1-lane approach; or
5 veh-hrs for 2-lane approach

2. **Minor-Street Approach Volume**

Minor Street Volume: 235
Number of Approach Lanes: 1
Volume Criteria: 100

Criteria: 100 vph for 1 lane; 150 vph for 2 lanes

3. **Intersection Peak-Hour Volume**

Total Entering Volume: 1,650
Number of Approaches: 800

Criteria: 650 vph for 3 approaches; or
800 vph for 4 or more approaches

Criteria 1 Satisfied? ☐ Yes ☐ No
Criteria 2 Satisfied? ☒ Yes ☐ No
Criteria 3 Satisfied? ☒ Yes ☐ No

Note: All 3 criteria need to be satified for Condition A to be met

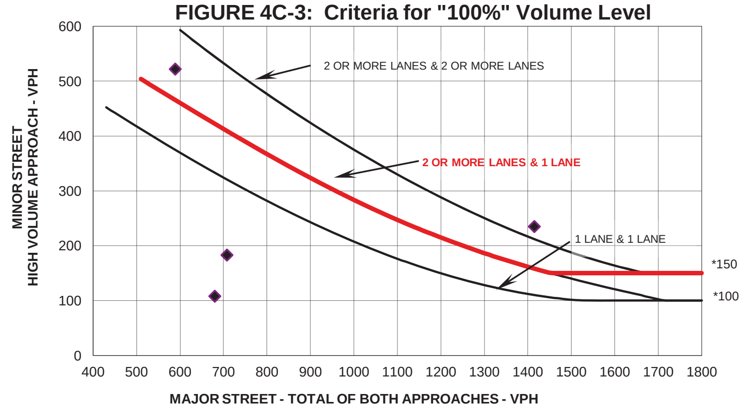
CONDITION B

Speed on mainline is 40 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Hour	Volumes Major Street	Volumes Minor Street
6-7 am	*680*	*108*
7-8 am	***1,415***	***235***
8-9 am	*708*	*183*
9-10am	*310*	*77*
10-11am	*262*	*76*
11-12pm	*288*	*70*
12-1pm	*285*	*66*
1-2pm	*249*	*77*
2-3pm	*275*	*104*
3-4pm	*339*	*207*
4-5pm	*328*	*320*
5-6pm	*209*	*421*
6-7pm	*589*	*522*

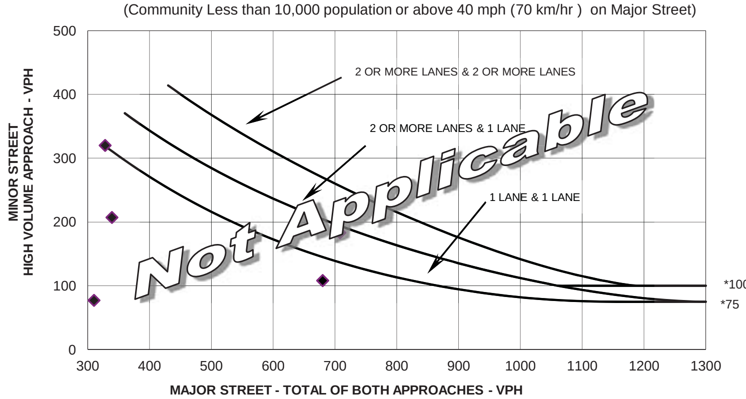
Plot volume combination on the applicable figure below.

FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 40 mph (70 km/hr) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: USMUTCD, 2009

WARRANT 4 - PEDESTRIAN VOLUME

Warrant 4 is satisfied if Condition A or Condition B is satisfied.

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street

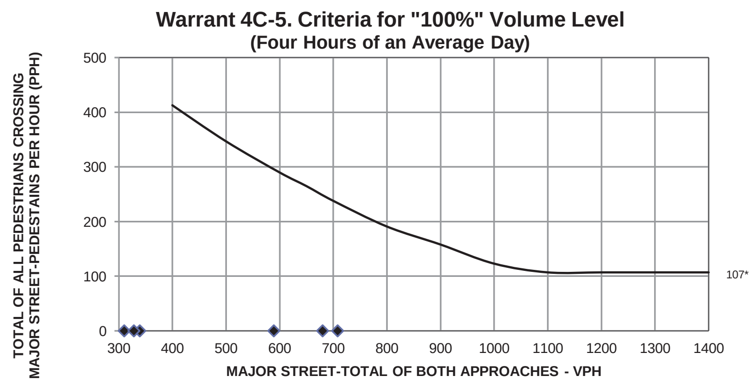
**The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.*

CONDITION A

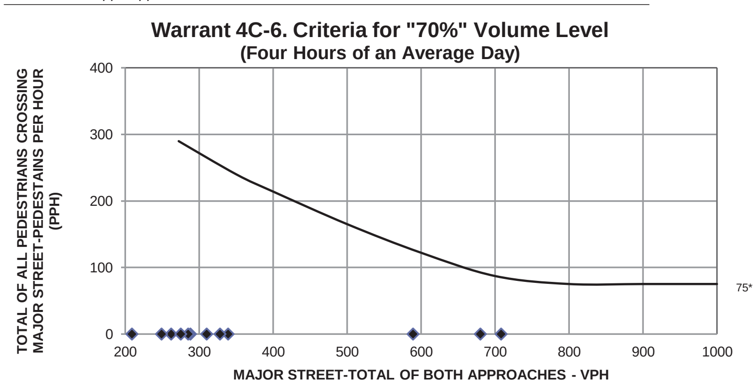
If any four points lie above the appropriate line, then the warrant is satisfied.

Speed on mainline is 35 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Hour	Volumes: Major Street	Volumes: Pedestrian volume
6-7 am	680	0
7-8 am	1,415	0
8-9 am	708	0
9-10am	310	0
10-11am	262	0
11-12pm	288	0
12-1pm	285	0
1-2pm	249	0
2-3pm	275	0
3-4pm	339	0
4-5pm	328	0
5-6pm	209	0
6-7pm	589	0



** Note: 107 pph applies as the lower threshold volume*



** Note: 75 pph applies as the lower threshold volume*

Standard	Fulfilled? Yes	Fulfilled? No
Condition A satisfied?	☐	☒

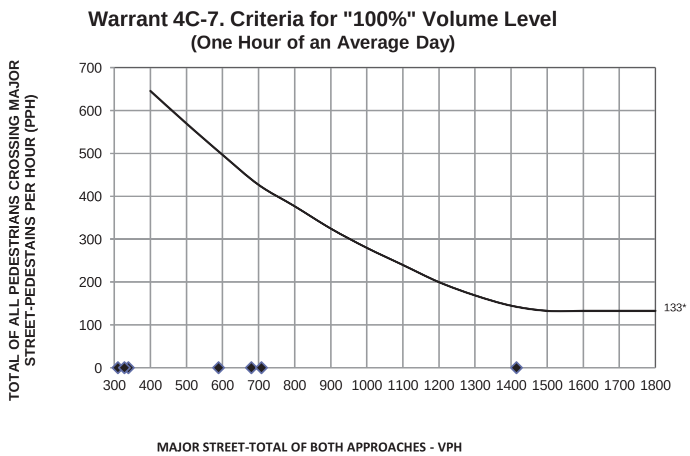
Source: USMUTCD, 2009

WARRANT 4 - PEDESTRIAN VOLUME (Con't)

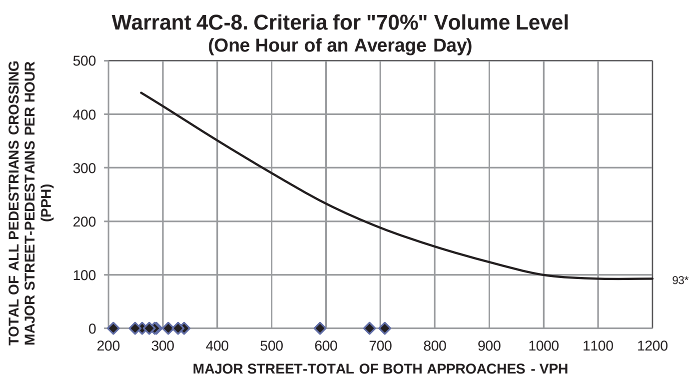
CONDITION B

If any one points lies above the appropriate line, then the warrant is satisfied.

Speed on mainline is 35 mph or less & community larger than 10,000 - Use criteria for 100% Volume level



** Note: 133 pph applies as the lower threshold*



** Note: 93 pph applies as the lower threshold*

Standard	Fulfilled?	
	Yes	No
Condition B satisfied?	☐	☒

Source: USMUTCD, 2009

WARRANT 7 - CRASH EXPERIENCE

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Criteria		Hour	Volume	Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)	see Warrant 1 worksheet			☑		☒
	Warrant 1, Condition B (80% satisfied)				☑		
	Warrant 4, Pedestrian Volume at 80% of volume requirements: 80 ped/hr for four (4) hours or 152 ped/hr for one (1) hour				☒		
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:					☒
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-mo. period.		Number of crashes per 12 months:					☐

WARRANT 8 - ROADWAY NETWORK

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☐ No

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the characteristics listed.

Criteria						Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.	Entering Volume:				☒			
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.	Warrant:	1	2	3	☒			
		Satisfied?:	☐	☐	☒				
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)	Weekend volumes were not recorded					← Hour			
						← Volume			

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:				
	Minor Street:				
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:				
	Minor Street:				
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

Source: USMUTCD, 2009

TRAFFIC SIGNAL WARRANT SUMMARY

AM & NON-PEAK PERIOD ANALYSIS

		Analyst:	CJL
Project :	**Croton-On-Hudson Parking Facility & Bicycle Enhancements**	Date:	January 25, 2012
Location:	**Croton Point Ave & Veterans Pl**	Checked By:	
	Village of Croton-On-Hudson, NY	CHA Project No.	22961-2010-36000

Intersection: **Croton Point Ave & Veterans Plaza**

Major Street: Croton Point Avenue eastbound and westbound

Minor Street: Veterans Plaza northbound

CONCLUSIONS

	1	2	3	4	5	6	7	8	9
Warrants Satisfied:	☐	☐	☒	☐	☐	☐	☐	☐	☐

Remarks: Warrant 3 has met the warrant criteria for a traffic signal. Warrants 5, 6 and 9 are not applicable for the intersection.

Traffic Signal control is recommended for this intersection.

Source: USMUTCD, 2009

TRAFFIC SIGNAL WARRANT SUMMARY

PM PEAK PERIOD ANALYSIS

Analyst: CJL
Project : **Croton-On-Hudson Parking Facility & Bicycle Enhancements** Date: January 25, 2012
Location: **Croton Point Ave & Veterans Plaza** Checked By:
Village of Croton-On-Hudson, NY CHA Project No. 22961-2010-36000

Intersection: **Croton Point Ave & Veterans Plaza**

Major Street: Croton Point Avenue eastbound and westbound Number of Approach Lanes: **2**
Minor Street: Veterans Plaza northbound Number of Approach Lanes: **2**

Critical Approach Speed: **30** mph Number of Intersection Approaches: **4**

Volume Level Criteria

1. Is the critical speed of major street traffic > 40 mph ? ___ Yes x No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ___ Yes x No

Population: **7,600**

If Question 1 or 2 above is answered "Yes", then use "70%" volume level Use: 100 %

Traffic Volume Input

Analysis Condition: Existing Condition (2011)

Data Source: Intersection Turning Movement Counts - July 19-21, 2011 and September 13, 2011

	Hourly Volumes												
	6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)											328	209	589
Minor Street (Highest Approach)											320	421	522

Notes:

Croton Point Avenue at this intersection consists of 2 westbound lanes and 1 eastbound lane. Veteran's Plaza consists of a single lane in each direction and a center lane that operates as a reversible lane during the AM and PM peaks. During the AM, there are 2 southbound (entering) lanes and 1 northbound (exiting) lanes. During the PM peak period, there is 1 southbound (entering) lane and 2 northbound (exiting) lanes. During the non-peak hours, Veteran's Plaza operates with 1 southbound and 1 northbound lane. See additional sheets for PM period signal warrant analysis.

WARRANT 1- EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied.
Warrant is also satisfied if both Condition A and Condition B are "80%" satisfied. Should be applied only after adequate trial of other alternatives that would cause less delay and inconvenience to traffic has failed to solve the traffic problem.

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1 ……….	1 ……….	500	400	350	280	150	120	105	84
2 or more	1 ……….	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1 ……….	2 or more	500	400	350	280	200	160	140	112

source: Table 4C-1, USMUTCD, 2009

	Minimum Volume Requirements *(based on input criteria)*	Hourly Volumes												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**600**	0	0	0	0	0	0	0	0	0	0	328	209	589
Minor Street (Highest Approach)	**200**	0	0	0	0	0	0	0	0	0	0	320	421	522
	satisfied?													

Warrant Criteria Satisfied for Condition A ? **NO** Number of Hours Satisfied: **0**

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1 ……….	1 ……….	750	600	525	420	75	60	53	42
2 or more	1 ……….	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1 ……….	2 or more	750	600	525	420	100	80	70	56

source: Table 4C-1, USMUTCD, 2009

	Minimum Volume Requirements *(based on input criteria)*	Hourly Volumes												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**900**	0	0	0	0	0	0	0	0	0	0	328	209	589
Minor Street (Highest Approach)	**100**	0	0	0	0	0	0	0	0	0	0	320	421	522
	satisfied?													

Warrant Criteria Satisfied for Condition B ? **NO** Number of Hours Satisfied: **0**

WARRANT 1- EIGHT-HOUR VEHICULAR VOLUME (Con't)

Combination of Conditions A & B

Condition A

	Minimum Volume Requirements *(based on input criteria)*	**Hourly Volumes**												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**480**	0	0	0	0	0	0	0	0	0	0	328	209	589
Minor Street (Highest Approach)	**160**	0	0	0	0	0	0	0	0	0	0	320	421	522
	satisfied?													☑

Warrant Criteria 80% Satisfied for Condition A ? **NO** Number of Hours Satisfied: **1**

Condition B

	Minimum Volume Requirements *(based on input criteria)*	**Hourly Volumes**												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**720**	0	0	0	0	0	0	0	0	0	0	328	209	589
Minor Street (Highest Approach)	**80**	0	0	0	0	0	0	0	0	0	0	320	421	522
	satisfied?													

Warrant Criteria 80% Satisfied for Condition A ? **NO** Number of Hours Satisfied: **0**

Warrant Criteria 80% Satisfied for Conditions A and B? **NO** Number of Hours Satisfied: **0**

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

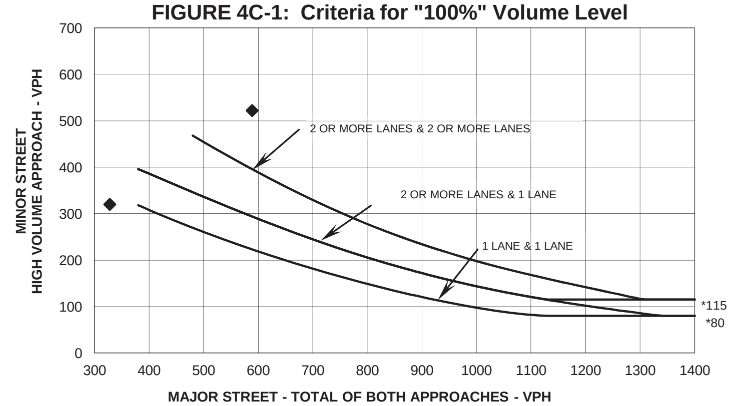
Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Speed on mainline is 40 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Volumes		
Hour	**Major Street**	**Minor Street**
6-7 am	*0*	*0*
7-8 am	*0*	*0*
8-9 am	*0*	*0*
9-10am	*0*	*0*
10-11am	*0*	*0*
11-12pm	*0*	*0*
12-1pm	*0*	*0*
1-2pm	*0*	*0*
2-3pm	*0*	*0*
3-4pm	*0*	*0*
4-5pm	*328*	*320*
5-6pm	*209*	*421*
6-7pm	***589***	***522***

Plot four volume combinations on the applicable figure below.

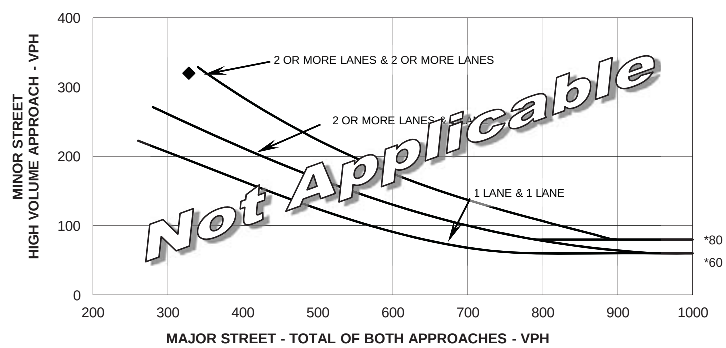
FIGURE 4C-1: Criteria for "100%" Volume Level



** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes & 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 40mph (70 km/hr) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes & 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: USMUTCD, 2009

WARRANT 3 - PEAK HOUR VEHICULAR VOLUME

Applicable: ☒ Yes ☐ No
Satisfied: ☒ Yes ☐ No

CONDITION A

Criteria

1. **Total Stopped Time Delay on Minor Approach**

	AM/PM
Average Delay per vehicle (sec):	N/A - AM and PM peak period controlled by Traffic Control officer
Peak Hour Volume:	
Total 1-hour stopped delay *(veh-hrs):*	

Criteria: 4 veh-hrs for 1-lane approach; or
5 veh-hrs for 2-lane approach

2. **Minor-Street Approach Volume**

Minor Street Volume:	522
Number of Approach Lanes:	2
Volume Criteria:	150

Criteria: 100 vph for 1 lane; 150 vph for 2 lanes

3. **Intersection Peak-Hour Volume**

Total Entering Volume:	1,111
Number of Approaches:	800

Criteria: *650 vph for 3 approaches; or*
800 vph for 4 or more approaches

Criteria 1 Satisfied? ☐ Yes ☐ No
Criteria 2 Satisfied? ☒ Yes ☐ No
Criteria 3 Satisfied? ☒ Yes ☐ No

Note: All 3 criteria need to be satified for Condition A to be met

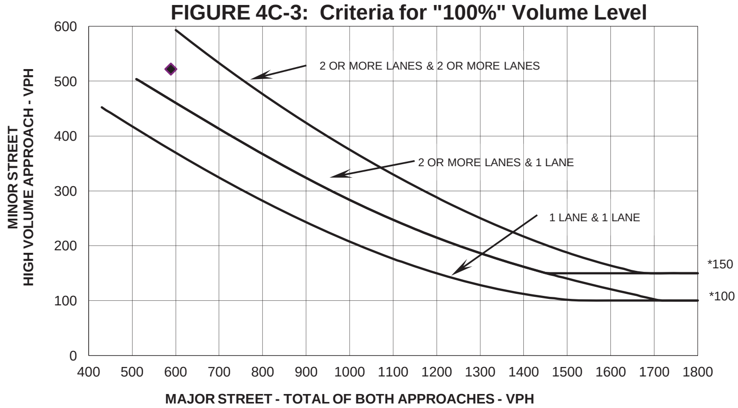
CONDITION B

Speed on mainline is 40 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Hour	Volumes: Major Street	Volumes: Minor Street
6-7 am	*0*	*0*
7-8 am	*0*	*0*
8-9 am	*0*	*0*
9-10am	*0*	*0*
10-11am	*0*	*0*
11-12pm	*0*	*0*
12-1pm	*0*	*0*
1-2pm	*0*	*0*
2-3pm	*0*	*0*
3-4pm	*0*	*0*
4-5pm	*328*	*320*
5-6pm	*209*	*421*
6-7pm	***589***	***522***

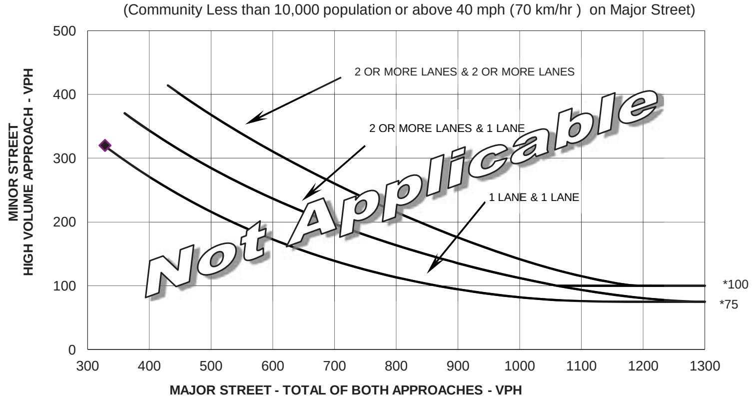
Plot volume combination on the applicable figure below.

FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 40 mph (70 km/hr) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: USMUTCD, 2009

WARRANT 4 - PEDESTRIAN VOLUME

Warrant 4 is satisfied if Condition A or Condition B is satisfied.

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street

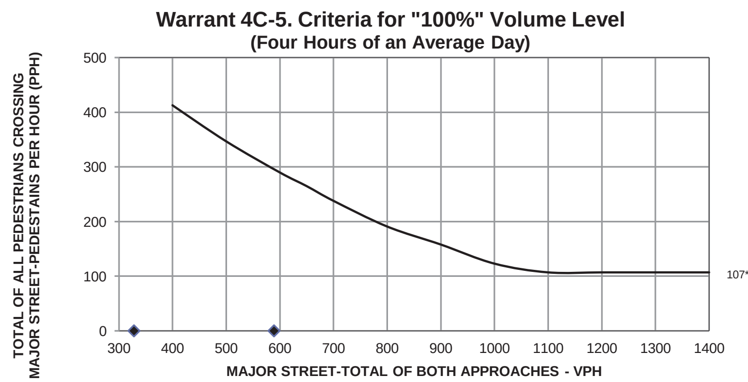
**The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.*

CONDITION A

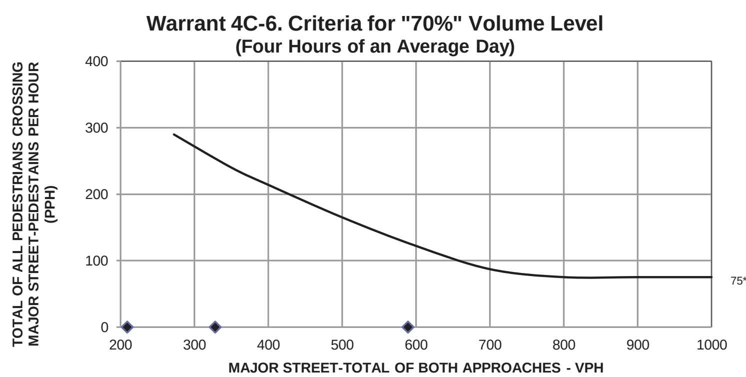
If any four points lie above the appropriate line, then the warrant is satisfied.

Speed on mainline is 35 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Hour	Volumes Major Street	 Pedestrian volume
6-7 am	0	0
7-8 am	0	0
8-9 am	0	0
9-10am	0	0
10-11am	0	0
11-12pm	0	0
12-1pm	0	0
1-2pm	0	0
2-3pm	0	0
3-4pm	0	0
4-5pm	328	0
5-6pm	209	0
6-7pm	589	0



* Note: 107 pph applies as the lower threshold volume



* Note: 75 pph applies as the lower threshold volume

Standard	Fulfilled? Yes	No
Condition A satisfied?	☐	☒

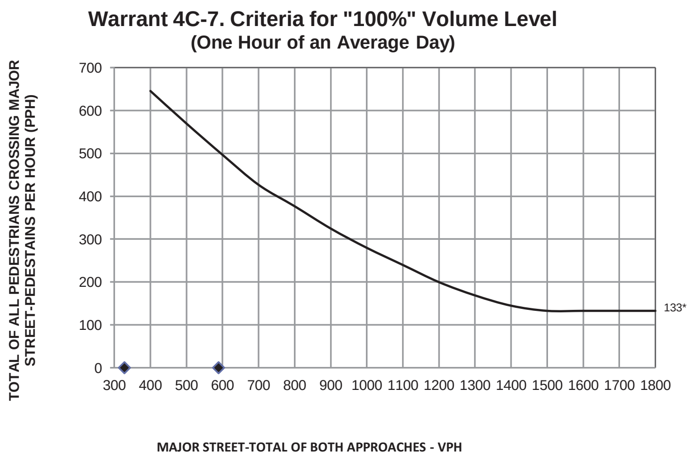
Source: USMUTCD, 2009

WARRANT 4 - PEDESTRIAN VOLUME (Con't)

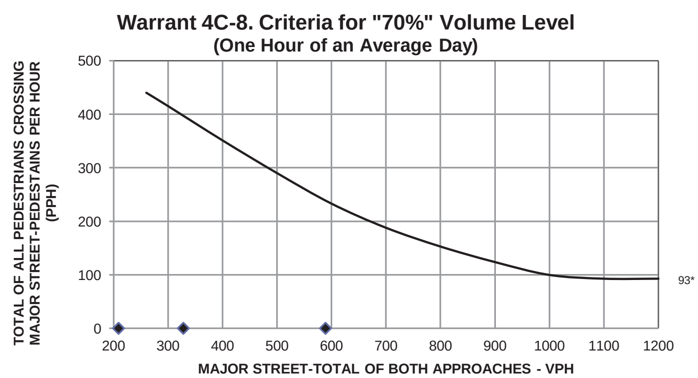
CONDITION B

If any one points lies above the appropriate line, then the warrant is satisfied.

Speed on mainline is 35 mph or less & community larger than 10,000 - Use criteria for 100% Volume level



** Note: 133 pph applies as the lower threshold*



** Note: 93 pph applies as the lower threshold*

Standard	Fulfilled?	
	Yes	No
Condition B satisfied?	☐	☒

Source: USMUTCD, 2009

WARRANT 7 - CRASH EXPERIENCE

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Criteria		Hour	Volume	Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)	see Warrant 1 worksheet		☐	☑		☒
	Warrant 1, Condition B (80% satisfied)				☑		
	Warrant 4, Pedestrian Volume at 80% of volume requirements: 80 ped/hr for four (4) hours or 152 ped/hr for one (1) hour				☒		
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:					☒
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-mo. period.		Number of crashes per 12 months:					☐

WARRANT 8 - ROADWAY NETWORK

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the characteristics listed.

Criteria			Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.	Entering Volume:	☒		☒	
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.	Warrant: 1 / 2 / 3; Satisfied?: ☐ / ☐ / ☒	☒			
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)	Weekend volumes were not recorded		← Hour / ← Volume			

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:				
	Minor Street:				
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:				
	Minor Street:				
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

Source: USMUTCD, 2009

TRAFFIC SIGNAL WARRANT SUMMARY

PM PEAK PERIOD ANALYSIS

Analyst: CJL

Project : **Croton-On-Hudson Parking Facility & Bicycle Enhancements** Date: January 25, 2012

Location: **Croton Point Ave & Veterans Pl** Checked By:

Village of Croton-On-Hudson, NY CHA Project No. 22961-2010-36000

Intersection: **Croton Point Ave & Veterans Plaza**

Major Street: Croton Point Avenue eastbound and westbound

Minor Street: Veterans Plaza northbound

CONCLUSIONS

	1	2	3	4	5	6	7	8	9
Warrants Satisfied:	☐	☐	☒	☐	☐	☐	☐	☐	☐

Remarks: Warrant 3 (See also Veterans Plaza AM worksheet) has met the warrant criteria for a traffic signal. Warrants 5, 6 and 9 are not applicable for the intersection.

Traffic Signal control is recommended for this intersection.

Source: USMUTCD, 2009

TRAFFIC SIGNAL WARRANT SUMMARY

Analyst: CJL
Project : **Croton-On-Hudson Parking Facility & Bicycle Enhancements** Date: January 25, 2012
Location: **Croton Point Ave & US Route 9 southbound on/off ramps** Checked By:
Village of Croton-On-Hudson, NY CHA Project No. 22961-2010-36000

Intersection: **Croton Point Ave & US Route 9 southbound on/off ramps**

Major Street: Croton Point Avenue eastbound and westbound — Number of Approach Lanes: **2**
Minor Street: US Route 9 southbound off ramp — Number of Approach Lanes: **1**

Critical Approach Speed: **30** mph — Number of Intersection Approaches: **3**

Volume Level Criteria

1. Is the critical speed of major street traffic > 40 mph ? ___ Yes x No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ___ Yes x No

Population: **7,600**

If Question 1 or 2 above is answered "Yes", then use "70%" volume level Use: 100 %

Traffic Volume Input

Analysis Condition: Existing Condition (2011)

Data Source: Intersection Turning Movement Counts - July 19-21, 2011

	Hourly Volumes												
	6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	563	1,316	860	493	465	518	504	476	525	666	783	765	1,217
Minor Street (Highest Approach)	337	541	301	148	122	102	104	98	108	113	118	117	120

Notes:

WARRANT 1- EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied.
Warrant is also satisfied if both Condition A and Condition B are "80%" satisfied. Should be applied only after adequate trial of other alternatives that would cause less delay and inconvenience to traffic has failed to solve the traffic problem.

Condition A - Minimum Vehicular Volume

Number of lines for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1 ……….	1 ……….	500	400	350	280	150	120	105	84
2 or more	1 ……….	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1 ……….	2 or more	500	400	350	280	200	160	140	112

source: Table 4C-1, USMUTCD, 2009

	Minimum Volume Requirements *(based on input criteria)*	Hourly Volumes												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**600**	563	1,316	860	493	465	518	504	476	525	666	783	765	1,217
Minor Street (Highest Approach)	**150**	337	541	301	148	122	102	104	98	108	113	118	117	120
	satisfied?		☑	☑										

Warrant Criteria Satisfied for Condition A ? **NO** Number of Hours Satisfied: **2**

Condition B - Interruption of Continuous Traffic

Number of lines for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1 ……….	1 ……….	750	600	525	420	75	60	53	42
2 or more	1 ……….	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1 ……….	2 or more	750	600	525	420	100	80	70	56

source: Table 4C-1, USMUTCD, 2009

	Minimum Volume Requirements *(based on input criteria)*	Hourly Volumes												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**900**	563	1,316	860	493	465	518	504	476	525	666	783	765	1,217
Minor Street (Highest Approach)	**75**	337	541	301	148	122	102	104	98	108	113	118	117	120
	satisfied?		☑											☑

Warrant Criteria Satisfied for Condition B ? **NO** Number of Hours Satisfied: **2**

WARRANT 1- EIGHT-HOUR VEHICULAR VOLUME (Con't)

Combination of Conditions A & B

Condition A

	Minimum Volume Requirements *(based on input criteria)*	**Hourly Volumes**												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**480**	563	1,316	860	493	465	518	504	476	525	666	783	765	1,217
Minor Street (Highest Approach)	**120**	337	541	301	148	122	102	104	98	108	113	118	117	120
	satisfied?	☑	☑	☑	☑									☑

Warrant Criteria 80% Satisfied for Condition A ? **NO** Number of Hours Satisfied: **5**

Condition B

	Minimum Volume Requirements *(based on input criteria)*	**Hourly Volumes**												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**720**	563	1,316	860	493	465	518	504	476	525	666	783	765	1,217
Minor Street (Highest Approach)	**60**	337	541	301	148	122	102	104	98	108	113	118	117	120
	satisfied?		☑	☑								☑	☑	☑

Warrant Criteria 80% Satisfied for Condition A ? **NO** Number of Hours Satisfied: **5**

Warrant Criteria 80% Satisfied for Conditions A and B? **NO** Number of Hours Satisfied: **5**

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

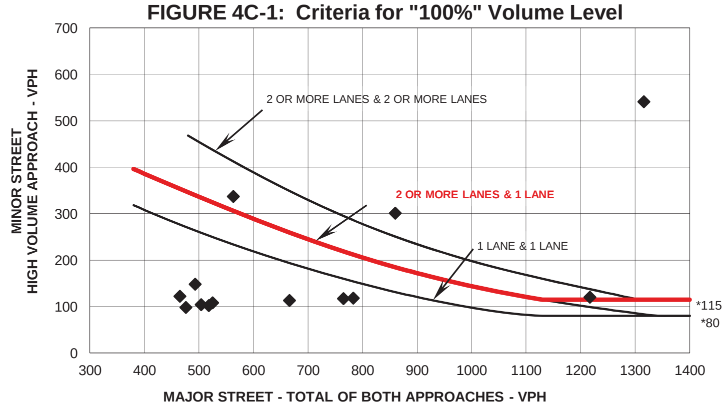
Applicable: ☒ Yes ☐ No
Satisfied: ☒ Yes ☐ No

Speed on mainline is 40 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Volumes		
Hour	**Major Street**	**Minor Street**
6-7 am	***563***	***337***
7-8 am	***1,316***	***541***
8-9 am	***860***	***301***
9-10am	*493*	*148*
10-11am	*465*	*122*
11-12pm	*518*	*102*
12-1pm	*504*	*104*
1-2pm	*476*	*98*
2-3pm	*525*	*108*
3-4pm	*666*	*113*
4-5pm	*783*	*118*
5-6pm	*765*	*117*
6-7pm	***1,217***	***120***

Plot four volume combinations on the applicable figure below.

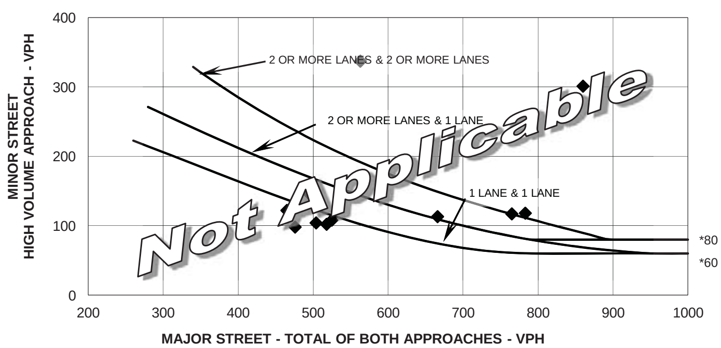
FIGURE 4C-1: Criteria for "100%" Volume Level



** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes & 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 40mph (70 km/hr) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes & 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: USMUTCD, 2009

WARRANT 3 - PEAK HOUR VEHICULAR VOLUME

Applicable: ☒ Yes ☐ No
Satisfied: ☒ Yes ☐ No

CONDITION A

Criteria

1. **Total Stopped Time Delay on Minor Approach**

	AM	PM
Average Delay per vehicle (sec):	N/A - AM period controlled by crossing guard	20.3
Peak Hour Volume:		134
Total 1-hour stopped delay *(veh-hrs):*		0.8

Criteria: 4 veh-hrs for 1-lane approach; or 5 veh-hrs for 2-lane approach

2. **Minor-Street Approach Volume**

Minor Street Volume:	541
Number of Approach Lanes:	1
Volume Criteria:	100

Criteria: 100 vph for 1 lane; 150 vph for 2 lanes

3. **Intersection Peak-Hour Volume**

Total Entering Volume:	1,857
Number of Approaches:	3

Criteria: 650 vph for 3 approaches; or 800 vph for 4 or more approaches

Criteria 1 Satisfied? ☐ Yes ☒ No
Criteria 2 Satisfied? ☒ Yes ☐ No
Criteria 3 Satisfied? ☒ Yes ☐ No

Note: All 3 criteria need to be satified for Condition A to be met

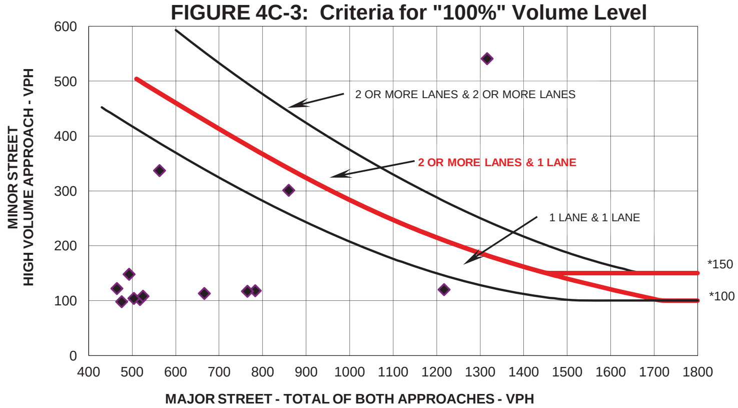
CONDITION B

Speed on mainline is 40 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Hour	Major Street	Minor Street
	Volumes	
6-7 am	*563*	*337*
7-8 am	***1,316***	***541***
8-9 am	*860*	*301*
9-10am	*493*	*148*
10-11am	*465*	*122*
11-12pm	*518*	*102*
12-1pm	*504*	*104*
1-2pm	*476*	*98*
2-3pm	*525*	*108*
3-4pm	*666*	*113*
4-5pm	*783*	*118*
5-6pm	*765*	*117*
6-7pm	*1,217*	*120*

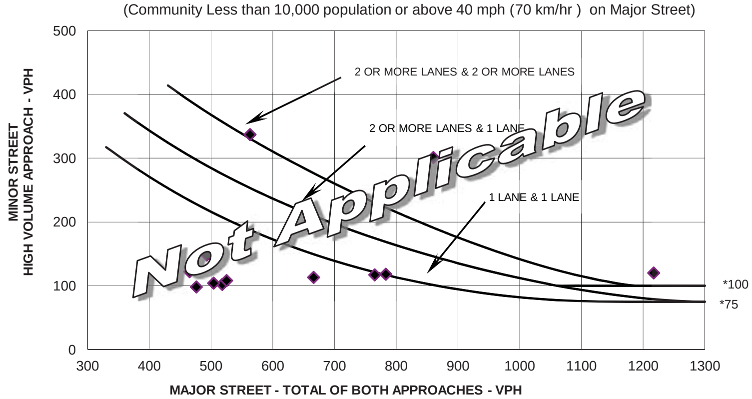
Plot volume combination on the applicable figure below.

FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 40 mph (70 km/hr) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: USMUTCD, 2009

WARRANT 4 - PEDESTRIAN VOLUME

Warrant 4 is satisfied if Condition A or Condition B is satisfied.

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street

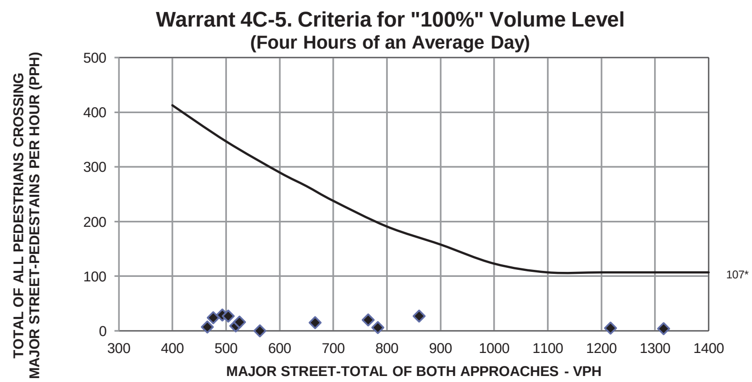
**The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.*

CONDITION A

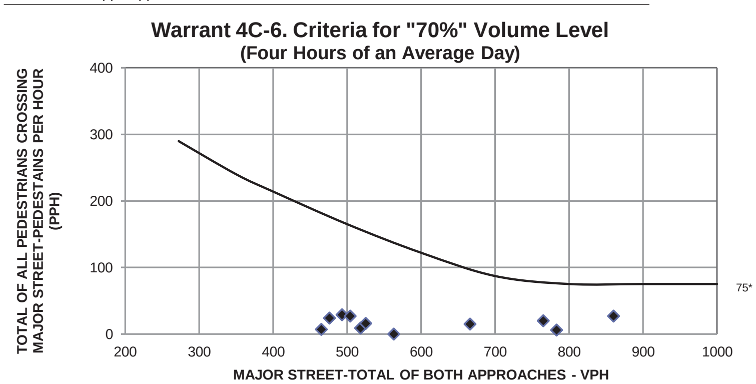
If any four points lie above the appropriate line, then the warrant is satisfied.

Speed on mainline is 35 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Hour	Volumes: Major Street	Volumes: Pedestrian volume
6-7 am	563	0
7-8 am	1,316	4
8-9 am	860	27
9-10am	493	29
10-11am	465	7
11-12pm	518	9
12-1pm	504	27
1-2pm	476	24
2-3pm	525	16
3-4pm	666	15
4-5pm	783	6
5-6pm	765	20
6-7pm	1,217	5



** Note: 107 pph applies as the lower threshold volume*



** Note: 75 pph applies as the lower threshold volume*

Standard	Fulfilled? Yes	Fulfilled? No
Condition A satisfied?	☐	☒

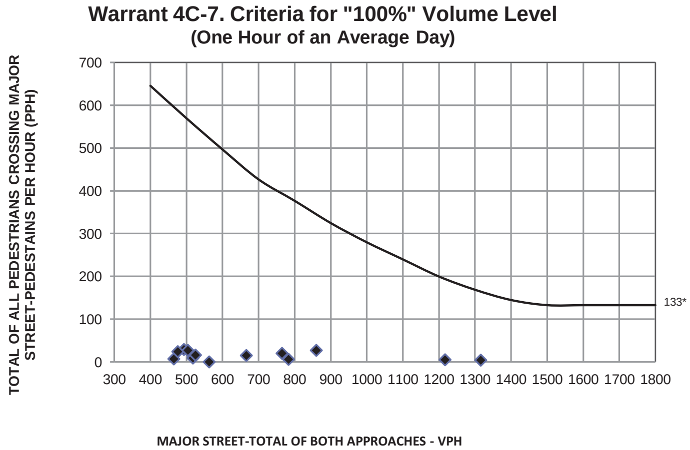
Source: USMUTCD, 2009

WARRANT 4 - PEDESTRIAN VOLUME (Con't)

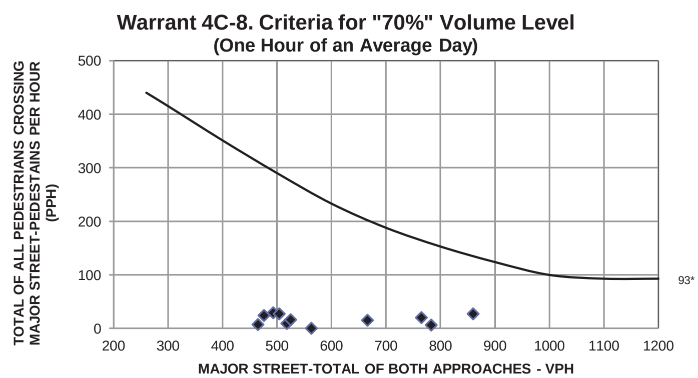
CONDITION B

If any one points lies above the appropriate line, then the warrant is satisfied.

Speed on mainline is 35 mph or less & community larger than 10,000 - Use criteria for 100% Volume level



** Note: 133 pph applies as the lower threshold*



** Note: 93 pph applies as the lower threshold*

Standard	Fulfilled?	
	Yes	No
Condition B satisfied?	☐	☒

Source: USMUTCD, 2009

WARRANT 7 - CRASH EXPERIENCE

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Criteria		Hour	Volume	Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)	see Warrant 1 worksheet			☒		☒
	Warrant 1, Condition B (80% satisfied)				☒		
	Warrant 4, Pedestrian Volume at 80% of volume requirements: 80 ped/hr for four (4) hours or 152 ped/hr for one (1) hour				☒		
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:					☒
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-mo. period.		Number of crashes per 12 months:					☐

WARRANT 8 - ROADWAY NETWORK

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the characteristics listed.

Criteria			Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.	Entering Volume: 1857 vph (7-8 am)	☒		☒	
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.	Warrant: 1 / 2 / 3; Satisfied?: ☐ / ☒ / ☒	☒			
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)	Weekend volumes were not recorded	← Hour / ← Volume				☒

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:	☒		☒	
	Minor Street:	☒			
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:		☒		
	Minor Street:		☒		
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

Source: USMUTCD, 2009

TRAFFIC SIGNAL WARRANT SUMMARY

Project :	**Croton-On-Hudson Parking Facility & Bicycle Enhancements**	Analyst:	CJL
Location:	**Croton Point Ave & US Route 9 southbound on/off ramps**	Date:	January 25, 2012
	Village of Croton-On-Hudson, NY	Checked By:	
		CHA Project No.	22961-2010-36000

Intersection: **Croton Point Ave & US Route 9 southbound on/off ramps**

Major Street: Croton Point Avenue eastbound and westbound
Minor Street: US Route 9 southbound off ramp

CONCLUSIONS

	1	2	3	4	5	6	7	8	9
Warrants Satisfied:	☐	☒	☒	☐	☐	☐	☐	☐	☐

Remarks: Warrants 2 and 3 have met the warrant criteria for a traffic signal. Warrants 5, 6 and 9 are not applicable for the intersection.
Traffic Signal control is recommended for this intersection.

Source: USMUTCD, 2009

TRAFFIC SIGNAL WARRANT SUMMARY

Project :	**Croton-On-Hudson Parking Facility & Bicycle Enhancements**	Analyst:	CJL
Location:	**Croton Point Ave & US Route 9 northbound on/off ramps**	Date:	January 25, 2012
	Village of Croton-On-Hudson, NY	Checked By:	
		CHA Project No.	22961-2010-36000

Intersection: **Croton Point Ave & US Route 9 northbound on/off ramps**

Major Street:	Croton Point Avenue eastbound and westbound	Number of Approach Lanes:	**2**
Minor Street:	US Route 9 northbound off ramp	Number of Approach Lanes:	**1**
Critical Approach Speed:	**30** mph	Number of Intersection Approaches:	**3**

Volume Level Criteria

1. Is the critical speed of major street traffic > 40 mph ? ___ Yes x No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ___ Yes x No

Population: **7,600**

If Question 1 or 2 above is answered "Yes", then use "70%" volume level Use: 100 %

Traffic Volume Input

Analysis Condition: Existing Condition (2011)

Data Source: Intersection Turning Movement Counts - July 19-21, 2011

	Hourly Volumes												
	6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	421	949	688	456	445	513	492	466	501	607	711	689	1,043
Minor Street (Highest Approach)	167	394	282	258	252	255	277	261	290	354	375	448	418

Notes:

WARRANT 1- EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied.
Warrant is also satisfied if both Condition A and Condition B are "80%" satisfied. Should be applied only after adequate trial of other alternatives that would cause less delay and inconvenience to traffic has failed to solve the traffic problem.

Condition A - Minimum Vehicular Volume

Number of lines for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1 ……….	1 ……….	500	400	350	280	150	120	105	84
2 or more	1 ……….	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1 ……….	2 or more	500	400	350	280	200	160	140	112

source: *Table 4C-1, USMUTCD, 2009*

	Minimum Volume Requirements *(based on input criteria)*	Hourly Volumes												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**600**	421	949	688	456	445	513	492	466	501	607	711	689	1,043
Minor Street (Highest Approach)	**150**	167	394	282	258	252	255	277	261	290	354	375	448	418
	satisfied?		☑	☑							☑	☑	☑	☑

Warrant Criteria Satisfied for Condition A ? **NO** Number of Hours Satisfied: **6**

Condition B - Interruption of Continuous Traffic

Number of lines for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1 ……….	1 ……….	750	600	525	420	75	60	53	42
2 or more	1 ……….	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1 ……….	2 or more	750	600	525	420	100	80	70	56

source: *Table 4C-1, USMUTCD, 2009*

	Minimum Volume Requirements *(based on input criteria)*	Hourly Volumes												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**900**	421	949	688	456	445	513	492	466	501	607	711	689	1,043
Minor Street (Highest Approach)	**75**	167	394	282	258	252	255	277	261	290	354	375	448	418
	satisfied?		☑											☑

Warrant Criteria Satisfied for Condition B ? **NO** Number of Hours Satisfied: **2**

WARRANT 1- EIGHT-HOUR VEHICULAR VOLUME (Con't)

Combination of Conditions A & B

Condition A

	Minimum Volume Requirements *(based on input criteria)*	**Hourly Volumes**												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**480**	421	949	688	456	445	513	492	466	501	607	711	689	1,043
Minor Street (Highest Approach)	**120**	167	394	282	258	252	255	277	261	290	354	375	448	418
	satisfied?		☑	☑			☑	☑		☑	☑	☑	☑	☑

Warrant Criteria 80% Satisfied for Condition A ? **YES** Number of Hours Satisfied: **9**

Condition B

	Minimum Volume Requirements *(based on input criteria)*	**Hourly Volumes**												
		6-7 am	7-8 am	8-9 am	9-10am	10-11am	11-12pm	12-1pm	1-2pm	2-3pm	3-4pm	4-5pm	5-6pm	6-7pm
Major Street (Both Approaches)	**720**	421	949	688	456	445	513	492	466	501	607	711	689	1,043
Minor Street (Highest Approach)	**60**	167	394	282	258	252	255	277	261	290	354	375	448	418
	satisfied?		☑											☑

Warrant Criteria 80% Satisfied for Condition A ? **NO** Number of Hours Satisfied: **2**

Warrant Criteria 80% Satisfied for Conditions A and B? **NO** Number of Hours Satisfied: **2**

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

If all four points lie above the appropriate line, then the warrant is satisfied.

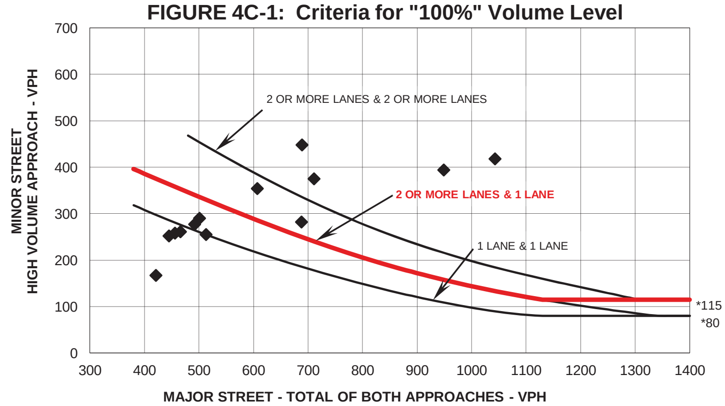
Applicable: ☒ Yes ☐ No
Satisfied: ☒ Yes ☐ No

Speed on mainline is 40 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Volumes		
Hour	**Major Street**	**Minor Street**
6-7 am	*421*	*167*
7-8 am	***949***	***394***
8-9 am	***688***	***282***
9-10am	*456*	*258*
10-11am	*445*	*252*
11-12pm	*513*	*255*
12-1pm	*492*	*277*
1-2pm	*466*	*261*
2-3pm	*501*	*290*
3-4pm	***607***	***354***
4-5pm	***711***	***375***
5-6pm	***689***	***448***
6-7pm	***1,043***	***418***

Plot four volume combinations on the applicable figure below.

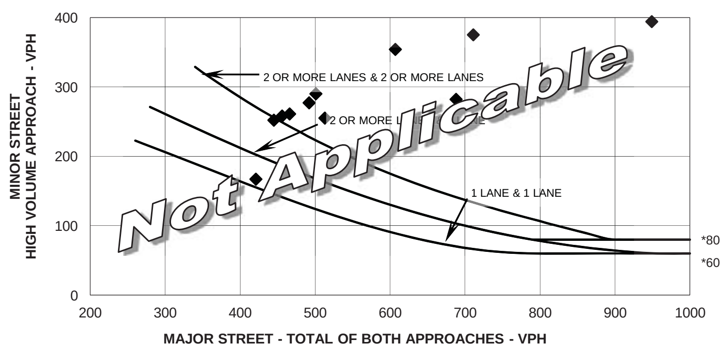
FIGURE 4C-1: Criteria for "100%" Volume Level



** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes & 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 40mph (70 km/hr) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes & 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: USMUTCD, 2009

WARRANT 3 - PEAK HOUR VEHICULAR VOLUME

Applicable: ☒ Yes ☐ No
Satisfied: ☒ Yes ☐ No

CONDITION A

Criteria

1. **Total Stopped Time Delay on Minor Approach**

		AM	PM
Average Delay per vehicle (sec):		59.6	72.1
Peak Hour Volume:		453	450
Total 1-hour stopped delay *(veh-hrs)*:		7.5	9.0

Criteria: 4 veh-hrs for 1-lane approach; or 5 veh-hrs for 2-lane approach

2. **Minor-Street Approach Volume**

Minor Street Volume: 418
Number of Approach Lanes: 1
Volume Criteria: 100

Criteria: 100 vph for 1 lane; 150 vph for 2 lanes

3. **Intersection Peak-Hour Volume**

Total Entering Volume: 1,461
Number of Approaches: 3

Criteria: *650 vph for 3 approaches; or 800 vph for 4 or more approaches*

Criteria 1 Satisfied? ☒ Yes ☐ No
Criteria 2 Satisfied? ☒ Yes ☐ No
Criteria 3 Satisfied? ☒ Yes ☐ No

Note: All 3 criteria need to be satified for Condition A to be met

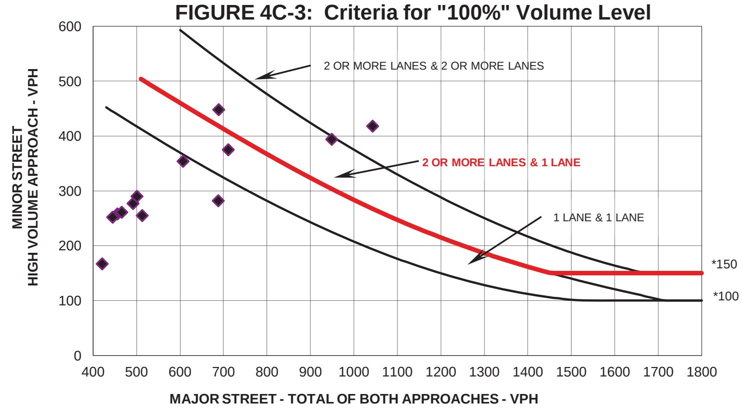
CONDITION B

Speed on mainline is 40 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Volumes		
Hour	**Major Street**	**Minor Street**
6-7 am	*421*	*167*
7-8 am	***949***	***394***
8-9 am	*688*	*282*
9-10am	*456*	*258*
10-11am	*445*	*252*
11-12pm	*513*	*255*
12-1pm	*492*	*277*
1-2pm	*466*	*261*
2-3pm	*501*	*290*
3-4pm	*607*	*354*
4-5pm	*711*	*375*
5-6pm	***689***	***448***
6-7pm	***1,043***	***418***

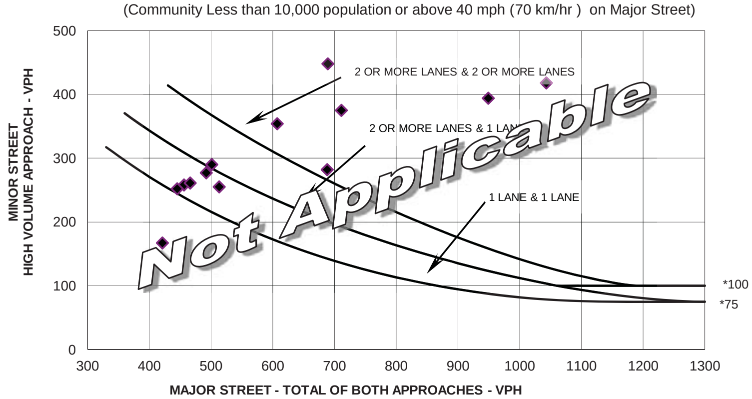
Plot volume combination on the applicable figure below.

FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 40 mph (70 km/hr) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: USMUTCD, 2009

WARRANT 4 - PEDESTRIAN VOLUME

Warrant 4 is satisfied if Condition A or Condition B is satisfied.

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street

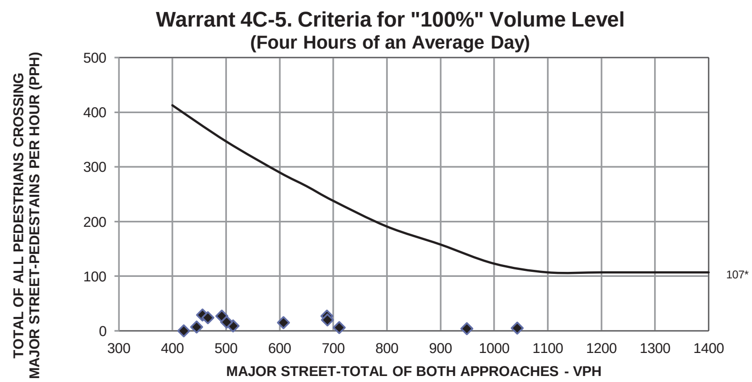
**The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.*

CONDITION A

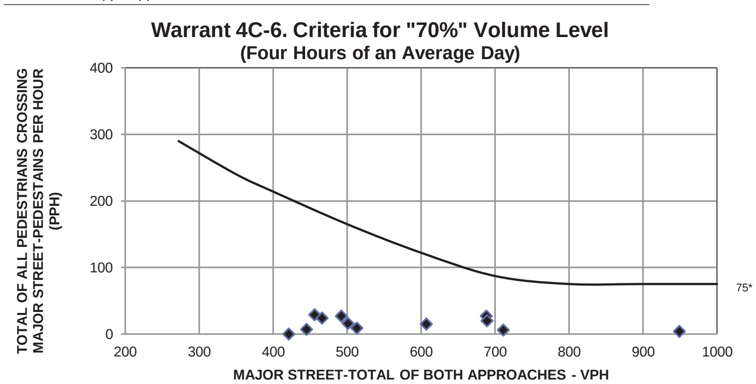
If any four points lie above the appropriate line, then the warrant is satisfied.

Speed on mainline is 35 mph or less & community larger than 10,000 - Use criteria for 100% Volume level

Hour	Volumes Major Street	Pedestrian volume
6-7 am	421	0
7-8 am	949	4
8-9 am	688	27
9-10am	456	29
10-11am	445	7
11-12pm	513	9
12-1pm	492	27
1-2pm	466	24
2-3pm	501	16
3-4pm	607	15
4-5pm	711	6
5-6pm	689	20
6-7pm	1,043	5



** Note: 107 pph applies as the lower threshold volume*



** Note: 75 pph applies as the lower threshold volume*

Standard	Fulfilled? Yes	Fulfilled? No
Condition A satisfied?	☐	☒

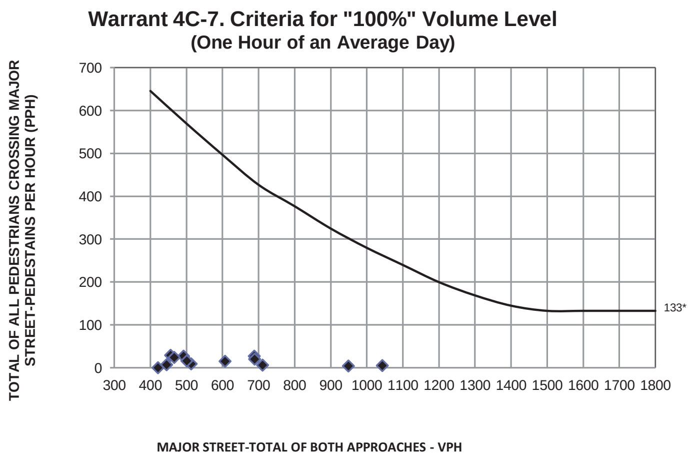
Source: USMUTCD, 2009

WARRANT 4 - PEDESTRIAN VOLUME (Con't)

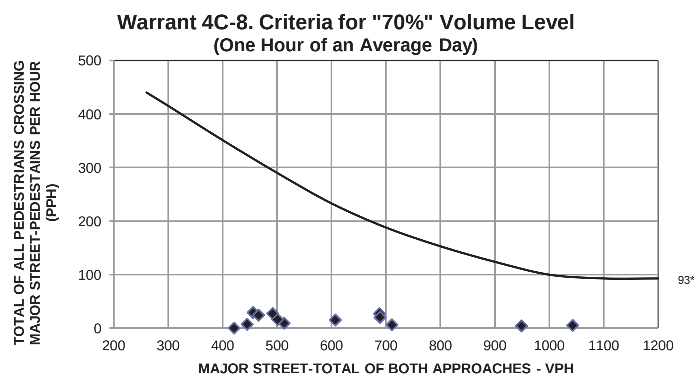
CONDITION B

If any one points lies above the appropriate line, then the warrant is satisfied.

Speed on mainline is 35 mph or less & community larger than 10,000 - Use criteria for 100% Volume level



** Note: 133 pph applies as the lower threshold*



** Note: 93 pph applies as the lower threshold*

Standard	Fulfilled?	
	Yes	No
Condition B satisfied?	☐	☒

Source: USMUTCD, 2009

WARRANT 7 - CRASH EXPERIENCE

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Criteria		Hour	Volume	Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)	see Warrant 1 worksheet		☒		☒	
	Warrant 1, Condition B (80% satisfied)				☒		
	Warrant 4, Pedestrian Volume at 80% of volume requirements: 80 ped/hr for four (4) hours or 152 ped/hr for one (1) hour				☒		
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried:					☒
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-mo. period.		Number of crashes per 12 months:					☐

WARRANT 8 - ROADWAY NETWORK

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the characteristics listed.

Criteria			Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.	Entering Volume: 1343 (7-8 AM)	☒			
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.	Warrant: 1 ☐ / 2 ☒ / 3 ☒ (Satisfied?)	☒			
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)	Weekend volumes were not recorded	← Hour / ← Volume				

Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:	☒			
	Minor Street:	☒			
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:		☒		
	Minor Street:		☒		
3. Appears as a major route on an official plan.	Major Street:				
	Minor Street:				

Source: USMUTCD, 2009

TRAFFIC SIGNAL WARRANT SUMMARY

Project :	**Croton-On-Hudson Parking Facility & Bicycle Enhancements**	Analyst:	CJL
Location:	**Croton Point Ave & US Route 9 northbound on/off ramps**	Date:	January 25, 2012
	Village of Croton-On-Hudson, NY	Checked By:	
		CHA Project No.	22961-2010-36000

Intersection: **Croton Point Ave & US Route 9 northbound on/off ramps**

Major Street: Croton Point Avenue eastbound and westbound
Minor Street: US Route 9 northbound off ramp

CONCLUSIONS

	1	2	3	4	5	6	7	8	9
Warrants Satisfied:	☐	☒	☒	☐	☐	☐	☐	☐	☐

Remarks: Warrants 2 and 3 have met the warrant criteria for a traffic signal. Warrants 5, 6 and 9 are not applicable for the intersection.
Traffic Signal control is recommended for this intersection.

Source: USMUTCD, 2009

APPENDIX D

Non-Standard Features Justification

NON-STANDARD FEATURE JUSTIFICATION
(in accordance with HDM §2.8)

PIN:	8780.41	NHS (Y/N):	Yes
Route No. & Name:	US Route 9 NB on Ramp	Functional Class:	Urban Minor Arterial
Project Type:	Reconstruction	Design Class:	Urban Arterial
% Trucks:	3%	Terrain:	Level
ADT:	ETC +10	Truck Access/Qualifying Hwy.	Neither

a. - Description of Non-Standard Feature

Type of Feature (e.g., horizontal curve radius):	Superelevation		
Location:	US Route 9 northbound on ramp		
Standard Value:	4.0% (max)	Design Speed:	30 mph (posted)
Existing Value:	6.0%	Recommended Speed:	
Proposed Value:	6.0%	Recommended Speed:	

b. - Accident Analysis

Current Accident Rate:	N/A
Statewide Rate:	N/A
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	The proposed project is not anticipated to affect the existing accident rates.

c. - Cost Estimates

Cost to Fully Meet Standards:	$ 250,000
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

None identified.

e. - Compatibility with Adjacent Segments & Future Plans:

The proposed superelevation will match the existing superelevation at the US Route 9 northbound on ramp.

f. - Other Factors (e.g., Social, Economic & Environmental):

Modifying the superelevation would require the reconstruction of the US Route 9 northbound on ramp and would require extending the work limits for the project and would be beyond the scope of this project.

g. - Proposed Treatment (i.e., Recommendation):

The existing superelevaton will be retained. There is no accident history associated with the superelevation.

NON-STANDARD FEATURE JUSTIFICATION

(in accordance with HDM §2.8)

PIN:	8780.41	NHS (Y/N):	Yes
Route No. & Name:	US Route 9 NB on Ramp	Functional Class:	Urban Minor Arterial
Project Type:	Reconstruction	Design Class:	Urban Arterial
% Trucks:	3%	Terrain:	Level
ADT:	ETC +10	Truck Access/Qualifying Hwy.	Neither

a. - Description of Non-Standard Feature

Type of Feature (e.g., horizontal curve radius):	Stopping sight distance		
Location:	US Route 9 northbound on ramp		
Standard Value:	305 ft. @ 40 mph & 425 ft. @ 50 mph	Design Speed:	30 mph (posted)
Existing Value:	240 ft.	Recommended Speed:	
Proposed Value:	240 ft.	Recommended Speed:	

b. - Accident Analysis

Current Accident Rate:	N/A
Statewide Rate:	N/A
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	The proposed project is not anticipated to affect the existing accident rates.

c. - Cost Estimates

Cost to Fully Meet Standards:	$ 250,000
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

None identified.

e. - Compatibility with Adjacent Segments & Future Plans:

The proposed stopping sight distance will match the existing stopping sight distance at the US Route 9 northbound on ramp.

f. - Other Factors (e.g., Social, Economic & Environmental):

Modifying the stopping sight distance would require the reconstruction of the US Route 9 northbound on ramp and would require extending the work limits for the project which would be beyond the scope of this project.

g. - Proposed Treatment (i.e., Recommendation):

The existing stopping sight distance will be retained. There is no accident history associated with the stopping sight distance.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:	8780.41	NHS (Y/N):	No
Route No. & Name:	S. Riverside Avenue	Functional Class:	Urban Minor Arterial
Project Type:	Reconstruction	Design Class:	Urban Arterial
% Trucks:	3.0%	Terrain:	Level
ADT:	8,240 (ETC +10)	Truck Access/Qualifying Hwy.	Neither

a. - Description of Non-Standard Feature

Type of Feature (e.g., horizontal curve radius):	Travel Lane width		
Location:	S. Riverside Avenue		
Standard Value:	11 ft.	Design Speed:	30 mph (posted)
Existing Value:	10 ft.	Recommended Speed:	
Proposed Value:	10 ft.	Recommended Speed:	

b. - Accident Analysis

Current Accident Rate:	N/A
Statewide Rate:	N/A
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	The proposed project is not anticipated to affect the existing accident rates.

c. - Cost Estimates

Cost to Fully Meet Standards:	$ 350,000
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

None identified.

e. - Compatibility with Adjacent Segments & Future Plans:

The proposed travel lane width will match the existing travel lane width on S. Riverside Avenue.

f. - Other Factors (e.g., Social, Economic & Environmental):

Changing the travel lane widths to 11 feet would require the widening of pavement, replacement of curb and drainage and right-of-way to adjacent properties which is beyond the scope of this project.

g. - Proposed Treatment (i.e., Recommendation):

The existing travel lane width will be retained.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:	8780.41	NHS (Y/N):	No
Route No. & Name:	S. Riverside Avenue	Functional Class:	Urban Minor Arterial
Project Type:	Reconstruction	Design Class:	Urban Arterial
% Trucks:	3.0%	Terrain:	Level
ADT:	8,240 (ETC +10)	Truck Access/Qualifying Hwy.	Neither

a. - Description of Non-Standard Feature

Type of Feature (e.g., horizontal curve radius):	Sidewalk width		
Location:	S. Riverside Avenue		
Standard Value:	5 ft.	Design Speed:	30 mph (posted)
Existing Value:	4 ft.±	Recommended Speed:	
Proposed Value:	4 ft.±	Recommended Speed:	

b. - Accident Analysis

Current Accident Rate:	N/A
Statewide Rate:	N/A
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	The proposed project is not anticipated to affect the existing accident rates.

c. - Cost Estimates

Cost to Fully Meet Standards:	$ 150,000
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

None identified.

e. - Compatibility with Adjacent Segments & Future Plans:

The proposed sidewalk width will match the sidewalk width of the adjacent sections of S. Riverside Avenue.

f. - Other Factors (e.g., Social, Economic & Environmental):

Changing the sidewalk widths to 5 feet would require right-of-way to adjacent properties which is beyond the scope of this project.

g. - Proposed Treatment (i.e., Recommendation):

The existing sidewalk width will be retained.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:	8780.41	NHS (Y/N):	No
Route No. & Name:	Veterans Plaza	Functional Class:	Urban Local
Project Type:	Reconstruction	Design Class:	Local Urban Street
% Trucks:	3.6%	Terrain:	Level
ADT:	6,000 (ETC +10)	Truck Access/Qualifying Hwy.	Neither

a. - Description of Non-Standard Feature

Type of Feature (e.g., horizontal curve radius):	Maximum grade		
Location:	Veterans Plaza		
Standard Value:	8%	Design Speed:	30 mph (posted)
Existing Value:	12%	Recommended Speed:	
Proposed Value:	12%	Recommended Speed:	

b. - Accident Analysis

Current Accident Rate:	N/A
Statewide Rate:	N/A
Is the non-standard feature a contributing factor?	No
Anticipated Accident Rates, Severity, and Costs:	The proposed project is not anticipated to affect the existing accident rates.

c. - Cost Estimates

Cost to Fully Meet Standards:	$ 300,000
Cost(s) For Incremental Improvements:	N/A

d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):

None identified.

e. - Compatibility with Adjacent Segments & Future Plans:

The proposed grade will match the existing grade at Veterans Plaza.

f. - Other Factors (e.g., Social, Economic & Environmental):

Modifying the grade to meet the standard grade of 8% would require the reconstruction of Veterans Plaza and would have significant ROW impacts to the adjacent properties and is beyond the scope of this project.

g. - Proposed Treatment (i.e., Recommendation):

The existing grade will be retained. There is no accident history associated with the existing grade.

APPENDIX E

Public Involvement

A Meeting of the Board of Trustees of the Village of Croton-on-Hudson, NY was held on Tuesday, September 18, 2012 at the Municipal Building, Van Wyck Street, Croton-on-Hudson, NY 10520.

The following officials were present:

Mayor Wiegman	Trustee Schmidt
Village Manager Zambrano	Trustee Murtaugh
Village Attorney Staudt	Trustee Raskob
Village Treasurer Bullock	Trustee Gallelli

1. CALL TO ORDER:
   Mayor Wiegman called the meeting to order at 8:00pm. Everyone joined in the Pledge of Allegiance.

2. APPROVAL OF VOUCHERS:
   Trustee Murtaugh made a motion to approve the following Fiscal Year 2011-2012 vouchers. The motion was seconded by Trustee Raskob and approved with a vote of 5-0.

General Fund	$15.93

   Trustee Gallelli made a motion to approve the following Fiscal Year 2012-2013 vouchers. The motion was seconded by Trustee Raskob and approved with a vote of 5-0.

General Fund	$ 31,639.80
Water Fund	$ 2,219.37
Sewer Fund	$ 422.10
Capital Fund	$ 54,581.03
Total	$88,862.30

3. PRESENTATION:
   Mayor Wiegman advised that a presentation will be made this evening regarding the “Croton Point Avenue Traffic, Pedestrian and Bicycle Enhancement Project”. Mayor Wiegman said that when Route 9 was built decades ago the State did not consult with the Village and we have been living with an ill-placed, high volume highway for many years. Mayor Wiegman said that the main goal of this project is to help make those intersections safer for vehicles, pedestrians and cyclists. Mayor Wiegman stated that this project has been under development over the last several years and the Village has obtained significant Federal Funding for this project.

   Village Manager Zambrano explained to the audience that after the presentation there will be a twenty minute question and answer period. Mr. Zambrano said that the Engineering firm of CHA will be available after the question and answer period to continue the discussion with those who have any additional questions. Mr. Zambrano said that written comments can be sent to the Village and will be accepted until October 5st and will become part of the record as required by the Grant. Mr. Zambrano introduced Joe Cimino, Chris Lilholt, Jessica Sweeney and Scott Lewendon from the engineering firm of CHA. Trustee Schmidt commented that unfortunately because of this evening's weather a lot of people could not make it here tonight and it is unfortunate that we are continuing with the presentation this evening. Mayor Wiegman said that the meeting is available through web-streaming and television. Trustee Schmidt said that personal contact and people coming to the meeting are far more important.

Representatives from CHA presented the proposal as follows: the proposal includes construction of traffic, pedestrian and bicycle enhancements along Croton Point Avenue, at Veteran's Plaza, the Croton-Harmon Train Station to S. Riverside Avenue and North on South Riverside Avenue to the intersection with Benedict Blvd. The proposed work includes construction of a five foot bike lane and five foot concrete sidewalks on both sides of Croton Point Avenue; three new traffic signals to be installed along Croton Point Avenue at Veteran's Plaza, Route 9 southbound on/off ramps and Route 9 northbound on/off ramps; widening of a short section of Veterans Plaza at Croton Point Avenue to four lanes; construction of a right turn lane on the Route 9 southbound off ramp; narrowing of the Route 9 northbound on-ramp intersection with Croton Point Avenue, along with drainage improvements and an overlay of Croton Point Avenue and S. Riverside Avenue.

John Perillo, owner of property at 43 Croton Point Avenue, asked what means were used to measure vehicle, pedestrian and bicycle traffic. Ms. Lilholt stated they CHA collected some of their own data, they also used a study prepared by RBA and traffic volume provided by DOT; CHA recorded three days of traffic at the south and north on and off ramps; performed a cyclist survey at the Croton Harmon Train Station and through observation collected data with respect to pedestrian traffic. John Perillo said that he is concerned about the curb cuts and the expense of the project; will he be assessed for sidewalk improvements. Mr. Perillo said that he was able to video tape traffic patterns and that his count of the number of cyclists over a ninety-day period amounted to less than thirty. Mr. Perillo said that his main concern is that the Village will be taking away critical parking and this will impede several businesses. Mr. Perillo said that he is not clear of how many cyclists and pedestrians use Croton Point Avenue and the necessity for sidewalks on the north side. Mr. Perillo said that he is also concerned if the transfer station comes back this could have an impact on the amount of traffic. Mr. Cimino stated that sidewalk and curb improvement costs are part of the construction project.

Mark Aarons, 18 Georgia Lane, Croton-on-Hudson, asked how many bicycle accidents have taken place on Croton Point Avenue and is concerned that there might be more accidents when the traffic backs up due to the new traffic lights. Mr. Aarons does not understand why we are spending thousands of dollars on traffic lights and feels that just by removing the right turn arrow would help people in those intersections. Ms. Lilholt stated that over a three year period there were six bicycle and pedestrian accidents; two at Veteran's Plaza; two at the southbound ramps and two on South Riverside Avenue.

Steve DeName, 1 Croton Point Avenue, is concerned that with the new traffic lights he will not be able to get out of his driveway. Mr. DeName said that the business owners were never consulted; some of us will lose parking and he is concerned for his tenants. Ms. Lilholt said that it will be an actuated traffic light that will permit people to exit out of the driveway.

Mark Franzoso, 33 Croton Point Avenue, said that he felt this project will have an impact on his business and asked how was this design formulated; how many meetings were held on this topic; was there an initial survey of the businesses for their input; will DOT fund these traffic lights if parking remains; will easements be needed; how will cyclists and pedestrians maneuver around the bus stop if they remain; and how will street deliveries to businesses be made. Ms. Lilholt advised that these plans are consistent with the Village's Comprehensive Plan and Bicycling Plan; meetings and discussions with the Board, community and DOT are detailed in the time-line that is available to the public. Ms. Lilholt stated that DOT will not approve funds for traffic lights when parking is in travel lanes. Ms. Lilholt advised that temporary easements would be necessary during the construction project and property owners would be compensated. Ms. Lilholt addressed Mr. Franzoso's question regarding the bus stop and stated that they are working on this with Westchester County with the possibility that the bus stop being moved. Mr. Franzoso said that a much safer alternative would be one bicycle path and sidewalk on the south side with a concrete barrier protecting both pedestrians and cyclists forcing them to stop at either a stop sign or a traffic light. Mr. Franzoso said that there are also eight curb cuts in this plan and cyclists and pedestrians will be expected to traverse these curb cuts and this is not safe. Scott Lewendon from CHA stated that studies have shown that a two-way bike path on one side of the road increases the risk for bicyclist because the bicyclist is put into a position on the roadway when crossing an intersection motorists do not anticipate the cyclist and the risks increase dramatically.

Andrew Fischer, P.O. Box 241, Mohegan Lake, stated that this project affects more than just Croton residents; he has never seen a scenario where you would need this amount of bicycle lanes and cannot see why they just cannot share the space. Mr. Fischer said that the southbound exit ramp from Route 9 does not need to be widened just needs striping and better signage; overhead signals for the three lanes are also not needed; the only lane changing is the middle lane and the other two will stay in the dedicated direction. Mr. Fischer added that he did not see any improvement for street lighting in this project and that should be added as well.

Ms. Roseanne Schuyler, 41 Olcott Avenue, asked what pedestrian facilities are being planned on Benedict Blvd. and asked where the extra four feet on Croton Point Avenue is coming from. Ms. Lilholt said that Benedict Blvd. will have upgrades to the ramps at the four corners, pedestrian signals and additional crosswalks. Ms. Schuyler went over the calculations of the space across Croton Avenue and wanted to know where those extra four feet are coming from. Ms. Schuyler said that this is a very costly project and the costs concern her. Mr. Cimino said that the extra width for the sidewalk and bike lanes comes from a reduction of each of the four lanes by one foot and a reduction of the maintenance strip by about a foot and a half. Ms. Schuyler asked how this project will be financed. Village Manager Zambrano responded by saying that the Village is receiving a grant for 1.2 million dollars and the balance of the project will be funded through borrowing. Ms. Schuyler said that it is her understanding that various options were presented to the DOT to maintain parking on the north side and is it CHA's belief that it would not be approved. Ms. Lilholt said that they asked DOT if they would approve parking in a travel lane and they said they would not approve the project with parking in a travel lane. Trustee Schmidt said that we are hearing about the current situation where cars are parked on the northbound side and when DOT looked at this project with the bike lanes, the parking would be in the travel lane. Trustee Schmidt said that if we reduced the size of these lanes by four feet you could end up with parking on that side of the street and then vehicles would not be in the travel lane any longer. Trustee Schmidt said that CHA should be clearer when talking about the travel lane; are we talking about the existing situation or the situation that is being proposed to the DOT and these are two different issues. Trustee Schmidt said that people are parking there now and it works. Village Manager Zambrano said that currently the Village Ordinance calls for no parking on Croton Point Avenue. Ms. Schuyler asked if the Board looked at other alternatives that would not cost as much.

Mr. Bob Wintermeier, 43 Radnor Avenue, Croton-on-Hudson, asked how much has been invested so far in this project and if the project does not go through could the Village be reimbursed through the Grant for that money that was spent so far. Mr. Cimino said that the Village has spent approximately $150,000. Mr. Cimino said that there would have to be a justifiable reason not to go forward with the project; typically public opposition to a project would not be a reason for the DOT and Federal Government to reimburse the Village for these expenses.

Maria Cudequest, 84 Grand Street, Croton-on-Hudson said that if the transfer station were to be in operation again the Village would need to factor in this additional traffic.

Phyllis Morrow, 61 Nordica Avenue, Croton-on-Hudson, said that what she sees is a doubling of the debt for twenty bicycles; our drinking water is more important and the Village should be completing the Harmon Water Project.

Trustee Schmidt said that a study was mentioned this evening stating that "bike lanes going in both directions are very dangerous". Trustee Schmidt said that this new proposal has cyclists going from bike lanes to no bikes to bikes lanes and in his opinion this is an even more dangerous situation. Trustee Schmidt said that when he asked Mr. Lewendon about this he said "hopefully the cyclists will know what to do". Trustee Schmidt said we are just creating a greater hazard and a more dangerous situation than what we currently have. Trustee Schmidt said that if we just put in traffic lights it will make pedestrians and cyclists safer because there will be crosswalks and everyone will be moving in a pattern and a flow.

Robert Olsson, 5 Hamilton Avenue and member of the Croton-on-Hudson Bicycle Pedestrian Committee, said that he rides his bike to the train station every day; when he gets to the traffic light he rides on the sidewalk because cars in this area during the morning and evening hours are rabid and steadfast to get to the train station and to get home. Mr. Olsson said that he has had dozens of near misses. Mr. Olsson said that the issue of this project is about trying to share this roadway with very diverse traffic uses and we need to have some kind of traffic calming effort during certain times of the day.

4. CORRESPONDENCE:

a. Letter from Mark Duncan, Recreation Supervisor, requesting permission to close the Vassallo Parking lot and Old Post Road South from Maple Ave to Grand Street on Saturday September 22, 2012 from 3:0 pm to 7:00pm to hold the 2012 Fall Fun Day.

Motion made by Trustee Murtaugh approving the request from the Recreation Supervisor to close the Vassallo Parking lot and Old Post Road South from Maple Ave to Grand Street on Saturday September 22, 2012 from 3:00pm to 7:00pm to hold the 2012 Fall Fun Day. Motion seconded by Trustee Raskob with a vote of 5-0.

b. Letter from Con Edison notifying the Village that their crews will be performing tree trimming operations within the Village. More information about the program can be obtained by visiting coned.com or calling 800-75-CONED.

c. Letter from Rev. Mary Ellen Summerville and Maribel Nazario, of Hospice Care in Westchester & Putnam requesting assistance in recruiting volunteers who can assist in caring for Hospice Care patients and families. For more information, please call 914-666-4228 or visit www.vnahv.org.

d. Letter from Joseph G. Whelan, Jr, Chairperson of the Westchester County Rent Guidelines Board notifying the Village of a public hearing on Wednesday September 19, 2012 at 7:00 pm at the NYS Division of Housing & Community Renewal, 75 South Broadway, White plains.

e. Letter from Robert Hock, of Cablevision advising that effective October 8, 2012, Cablevision will launch a new package called iO Economy. For more information visit www.optimum.com

5. CITIZEN PARTICIPATION-AGENDA ITEMS

Phyllis Morrow, 61 Nordica Avenue, Croton-on-Hudson said that she is still struggling on how we are going to come up with the money for the Community Garden Fence and why can't we come up with an I.D. Checker for Mayo's Landing.

Normal Sheer, 1 Croton Lake Road, Croton-on-Hudson and representative of the Croton Community Nursery School, encouraged the Board to accept the conveyance of the open space conservation parcel, the trail and the storm water easement on the agenda this evening.

Roseanne Schuyler, 41 Olcott Avenue, Croton-on-Hudson asked if there are any changes in the status of Metro Enviro. Village Attorney James Staudt said that he has not heard anything at this time; it would be extraordinary if the court did not notify us before making any decisions.

6. RESOLUTIONS:

a. On motion of TRUSTEE GALLELLI seconded by TRUSTEE RASKOB, the following resolution was adopted by the Board of Trustees of the Village of Croton-on-Hudson, New York with a vote of 5-0.

WHEREAS, the Planning Board has given final approval to the Croton Community Nursery School for subdivision of an 11-acre property into three building lots; and

WHEREAS, the subdivision approval consists of three building lots, six small parcels for conveyance to neighbors, and a 5-acre open space conservation parcel to be dedicated to the Village, subject to the approval of the New York State Attorney General's Office and the Westchester County Supreme Court; and

WHEREAS, the subdivision approval also consists of the dedication of a trail easement over subdivision Lot 1 for access to Lower North Highland Place, and a storm water easement to allow the Village to enter a residential lot for maintenance of storm water facilities if a homeowner fails to do so,

NOW, THEREFORE BE IT RESOLVED: that the Village Board of Trustees accepts the conveyance of the Open Space Conservation parcel, the trail easement, and the storm water easement, subject to approval of the Attorney General's Office, the Westchester County Supreme Court, and the Village Attorney as provided in the proposed Easement Agreement.

DISCUSSION:

Trustee Raskob and Trustee Gallelli said that they remember discussing this when their children were attending the school and they are very pleased that this is going through. Trustee Schmidt asked that the resolution indicate that the costs will be billed to the property owner if the homeowner fails to do the maintenance of the storm water facilities as indicted in the last whereas.Village Attorney James Staudt suggested adding the wording "as provided in the proposed Easement Agreement". Trustee Murtaugh said that this is a win-win situation for the nursery school and the Village. Trustee Murtaugh said that he was elected three years ago on the issue of re-zoning in the Harmon area which could had potentially delivered new school children to the school district. Mr. Murtaugh pointed out that this approval adds three large single family homes which could also deliver new students to the school district and it is both ironic and interesting to point out that there was not a single bit of opposition about the student population as a result of this. Trustee Schmidt said that this is fundamentally different; the Harmon development would have allowed eleven homes and increased the density of that area; this only adds three properties.Trustee Raskob said that this piece of property sort of adjoins his property; the part that is being deeded over is lovely and mostly unbuildable and the parts that are buildable will front on an avenue and will not impact the existing homeowners.Trustee Gallelli said that this is something that we will probably need to revisit; when we first discussed accepting this easement the Board talked about having Westchester Land Trust take over the subdivision of this property so that it does not become something we actively have to supervise. Mayor Wiegman said that when all the closing documents are circulated we will meet with the Westchester Land Trust.

b. On motion of TRUSTEE MURTAUGH, seconded by TRUSTEE GALLELLI, the following resolution was adopted by the Board of Trustees of the Village of Croton-on-Hudson, New York with a vote of 5-0

WHEREAS, the Village has a contract with Acocella Contracting for the High Street Infrastructure Improvement Project, and

WHEREAS, part of this project includes tying in the new water main to the existing water main on North Riverside Avenue, which is a state road, and

WHEREAS, the contractor and Village are co-applicants on the permit application to the New York State Department of Transportation (NYS DOT); and

WHEREAS, the NYS DOT is requiring a $50,000 bond before it will issue a work permit; and

WHEREAS, the contractor has requested that the Village provide the required bond; and,

WHEREAS, it is absolutely essential that this work gets completed; and

WHEREAS, if in the case that the NYS DOT withholds all or part of the bond, the Village will reduce this amount from the contracted amount owed to Acocella Contracting,

NOW, THEREFORE BE IT RESOLVED: that the Village Treasurer is authorized to issue a check in the amount of $50,000 payable to the NYS DOT as a cash bond.

DISCUSION:

Trustee Murtaugh said that it was his understanding from earlier discussions that this is just an insurance policy, we owe Acocella a lot more than $50,000 and we are merely facilitating this on their behalf. Village Manager Abe Zambrano explained that we are co-applicants with the State and both the Village and the contractor bear the burden of securing these bonds. Mr. Zambrano said that because of the DOT's delay in issuing the permits the contractor is unable at this particular time to secure the necessary money for these bonds. Mr. Zambrano said that by the Village providing for the Bond we are not only saving money but making sure that the project goes on schedule and the money will be returned to the Village from the Contractor. Trustee Gallelli said that if the State determines that the work was not done properly we will hold some of that money back and will be subtracted from Acocella's contract. Trustee Raskob said that he remains somewhat troubled that they are not bondable. Manager Zambrano said that they are bondable, this was not originally in the scope of the project; they would have to pay for the bond which is expensive and at this point in time they did not have the funds to do so. Mr. Zambrano said that instead of rebidding the project we determined that it would be in the best interest to secure the bond and be reimbursed by the contractor.

c. On motion of TRUSTEE MURTAUGH, seconded by TRUSTEE GALLELLI, the following resolution was adopted by the Board of Trustees of the Village of Croton-on-Hudson, New York with a vote of 5-0

WHEREAS, Zott Construction is a firm which provides various emergency and restoration services to municipalities; and

WHEREAS, the Village Manager and staff have met with representatives of Zott Construction to discuss these services; and

WHEREAS, Zott Construction has provided an agreement under which Zott will provide certain emergency and restoration services to the Village in the event that they are needed; and

WHEREAS, there is no cost to the Village until such services are required; and

NOW, THEREFORE BE IT RESOLVED: that the Village Manager is authorized to execute an agreement with Zott Construction whereby Zott Construction will provide various emergency and restoration services to the Village if and when such services are required.

DISCUSSION:

Trustee Murtaugh asked Manager Zambrano to give the Board a scenario of when we would need to use them. Village Manager Abe Zambrano said that after hurricane Irene there were many instances where the Village could have used additional equipment to assist in the clean-up. Mr. Zambrano said that this company will also assist the Village with insurance claims and FEMA reimbursements. Trustee Schmidt asked if this restricts us from using other companies. Manager Zambrano responded by saying no, the Village can still use other companies. Mayor Wiegman said that this firm specializes in municipal work and the benefit is that they will become familiar with the Village and our needs.

d. On motion of TRUSTEE GALLELLI seconded by TRUSTEE RASKOB, the following resolution was adopted by the Board of Trustees of the Village of Croton-on-Hudson, New York with a vote of 5-0

WHEREAS, the Treasurer has analyzed the 2011/12 year to date budget and recommends the following budget transfers as detailed below,

NOW THEREFORE be it resolved that the Village Treasurer is authorized to make the following amendments to the 2011/12 budget to reflect these changes:

WATER FUND

INCREASE		
Dept	**Item**	**Amount**
F8340	1000	63,198
F9060	8010	16,832
Total Increases		**$ 80,030**
DECREASE		
F1650	4400	74,335

F8320	4000	2,095
F8320	4300	1,350
F8340	4000	2,250
Total Decreases		**$ 80,030**

DISCUSSION:

The Board asked Village Treasurer Bullock to explain this Resolution. Village Treasurer Bullock explained that for purposes of balancing our Budget transfers were made between the Water Department and the Department of Public Works. Ms. Bullock said that DPW staff was assisting the Water Department and paid from the Water Fund and these funds needed to be moved from the DPW Fund to balance that Water Fund Account. Village Manager Abe Zambrano explained that New York State Finance Law allows you to reallocate money so that you have a balanced budget.

e. On motion of TRUSTEE RASKOB seconded by TRUSTEE GALLELLI, the following resolution was adopted by the Board of Trustees of the Village of Croton-on-Hudson, New York.

WHEREAS, the Treasurer has analyzed the 2011/12 year to date budget and requests a budget transfer of $14,000 from the general fund to cover payroll of department of public work employees who worked on and were charged against the water department general ledger account F8340.1000; and

WHEREAS, the salaries of the Department of Public Work employees are budgeted within the General Fund which created a short fall within the Water Fund,

NOW THEREFORE be it resolved that the Village Treasurer is authorized to make a transfer of $14,000 from the general fund to the water fund account F8340.1000 within the 2011/12 budget.

f. On motion of TRUSTEE RASKOB, seconded by TRUSTEE GALLELLI, the following resolution was adopted by the Board of Trustees of the Village of Croton-on-Hudson, New York:

WHEREAS, the Village Treasurer wishes to open both sides of the General Fund budget to record the receipt of insurance recoveries from the damage to the street sweeper and subsequent disbursement of these funds towards the purchase of a new street sweeper.

GENERAL REVENUE Increase A1000.2680 Insurance Recoveries $75,000

GENERAL EXPENSES Increase A9901.9030 Transfer to Capital $75,000

NOW THEREFORE BE IT RESOLVED, that the Village Treasurer is authorized to amend the 2012-2013 General Fund budget to reflect these changes.

7. CITIZEN PARTICPATION-NON AGENDA ITEMS

Andrew Fischer, P.O. Box 241, Mohegan Lake, stated that his daughter received a ticket while parking her car in the Post Office/CVS shopping center. Mr. Fischer felt that since this is private property the police should not have the jurisdiction to go on that property and issue tickets. Mr. Fischer additionally complained about the hours of operation of the Court Office.

Mark Franzoso, 43 Croton Point Avenue, continued to add some comments with respect to the presentation this evening. Mr. Franzoso said that two bike lanes are not necessary since the bike lanes start and end without a continuous connection to other parts of the Village. Mr. Franzoso suggested that there only be one bike/pedestrian lane on the south side with a concrete barrier for safety leading directly to the train station.

Bob Wintermeier, 43 Radnor Avenue, Croton on Hudson said he is concerned about the overall cost to the Village and the impact on the businesses along Croton Point Avenue. Mr. Wintermeier asked someone to clarify a program called “Agenda 21”; he noticed that Croton is on this list and asked if we are paying any money to this group.

John Perillo, 43 Croton Point Avenue, asked if delivery trucks will receive parking tickets when making deliveries to Croton Point Avenue businesses. Village Manager Abe Zambrano said that the Village understands that the properties of some of the businesses along Croton Point Avenue are not large enough and that delivery trucks will need to park on Croton Point Avenue while making deliveries. Mr. Zambrano said that delivery trucks will not be ticketed.

Phyllis Morrow, 61 Nordica Avenue, Croton-on-Hudson, said that the meeting should have been postponed because of the weather. Ms. Morrow asked that the Board pay attention to what the community wants and to put the various scenarios and costs on the Village web-site.

Andrew Fischer, P.O. Box 241, Mohegan Lake, said that he submitted a Freedom of Information Request for the copy of the agreement with Croton View Associates that would allow the Village to ticket cars on their property.

8. APPROVAL OF MINUTES

Trustee Raskob made a motion to approve the minutes of the Regular Meeting held on September 4, 2012. Trustee Schmidt seconded the motion. The Board approved with a vote of 4-0. Trustee Gallelli abstained.

Trustee Murtaugh made a motion to approve the minutes of the Executive Session held on September 4, 2012. Trustee Raskob seconded the motion. The Board approved with a vote of 4-0. Trustee Gallelli abstained.

9. REPORTS

Village Manager Zambrano responded to a question this evening regarding whether or not the Village has the right to enforce parking on private property. Mr. Zambrano stated that the Village has an agreement with the property owner for over ten years and does have the right to issue tickets. *Village Manager Zambrano* responded to a question this evening regarding repair of the fence on Riverside Avenue. Mr. Zambrano advised that this is DOT property and the Village cannot go on their property. Mr. Zambrano said that he contacted the Department of Transportation and they have advised that they do not have it on their schedule for repair at this time. Village Manager Zambrano advised that the Croton River Task Force will meet on September 27th at 6:30pm at Village Hall. *Village Manager Zambrano* advised that the Recreation Department brochure has been mailed and is now available on line.

Trustee Schmidt encouraged everyone to attend the Croton Rotary Club's Car Show on September 30th at the Croton Harmon Train Station. Trustee Schmidt said that there will be lots of activities for adults and children. *Trustee Schmidt* advised that the Village and Croton Business Council are sponsoring a Block Party on September 27th in the Upper Village. Trustee Schmidt encouraged everyone to attend. *Trustee Schmidt* advised that the Croton Conservation Advisory Council is holding a presentation this evening on the "Birds and Bees" that includes a demonstration and talk by local Bee Keepers. Trustee Schmidt said that the CAC is doing a great job coming up with interesting topics. Trustee Schmidt said that we had a very interesting and lively conversation about the proposed improvements on Croton Point Avenue. Trustee Schmidt said that you heard my comments about my concerns with certain aspects of this proposal. Trustee Schmidt said that the verbal agreement about not ticketing cars and trucks making deliveries represents an example of how this system is not going to work because all it is going to take is someone to be struck by a vehicle as they are travelling in the bike lane and we will have to then go to enforcement. Trustee Schmidt said that this is an unworkable situation; when talking about bicycle and pedestrian safety we have to do it properly and carefully and we must think it through. Trustee Schmidt said that in terms of bike safety, until we as a nation change how we get a driver's license the interaction between motor vehicles and cyclists is not going to change. Trustee Schmidt said that most drivers do not understand the simple fact that when you are a bicyclist you are a motor vehicle and must obey all the rules and regulations of the road. Trustee Schmidt said that it does not make sense that we are unable to fix a fence on State property but we are getting ready to spend 1.5 million dollars to fix the exit and entrance ramps that are on State property and do not belong to us as well. Trustee Schmidt said that the Village is being faced with a lot of financial issues; 3 million dollars for water improvements and millions of dollars for a new well along with other things that have to be done to protect our water system. Trustee Schmidt said that we need to control the traffic in that area and the biggest way to control the traffic is to put up the traffic lights. Trustee Schmidt said that he is also concerned that if we do not clean up those sidewalks immediately after a snow storm we are opening ourselves up to lawsuits and that creates a whole other level of maintenance at a time that we have to cut back and to try to manage things smarter.

Trustee Raskob addressed the question of when our Courts meet. Trustee Raskob said that Village Court meets from 8:30am to 4:00pm and it is unrealistic to expect someone to come after those hours. Trustee Raskob said that restrictions on private property are enforceable and while he feels for the gentlemen whose daughter received the ticket; we are trying to keep people from using properties throughout Village as a place to park a car free while they go to the train station. Trustee Raskob said that the Board deals with many different issues and today's discussion addresses an issue of competing uses. Trustee Raskob said that he was recently in Germany and standing in front of a train station he saw something like four thousand bicycles in front of the train station; this was quite an amazing site and we need to do something in this country to address our transportation issues. Trustee Raskob said that what we have is a competition between the auto user, pedestrian and bicyclists and we need some kind of traffic control. Trustee Raskob said that he is not sold on this and we need to look more at the plan. Trustee Raskob said that he understands that it has been the established practice to allow parking and when you upset the establishment it is legitimate to have concerns. Trustee Raskob said he is concerned with the proposed traffic signal on the on/off ramp at 9A; he does not know how that is going to work and is concerned that this might back vehicles up on 9A and this needs to be discussed with DOT. Trustee Raskob said that he is not un-sympathetic to the needs of our pedestrians and cyclists and we need to arrive at a way to make it safer for them. Trustee Raskob said that if it was possible for a ramp to be built from the train station directly to 9A southbound it would solve most of our problems.

Trustee Gallelli thanked everyone who came out and made their points known and assured everyone that the Board will be taking their comments under consideration and that this will be the topic of many more discussion. Trustee Gallelli said that the 9-11 Memorial was officially dedicated with well over 300 people in attendance. Trustee Gallelli welcomed the Black Cow in the upper Village and wished them lots of success. Trustee Gallelli advised that the Croton Council of Arts held their opening exhibit at Symphony Knoll and advised that fifty local artists displayed their work. Trustee Gallelli said that Symphony Knoll will be the new home for the Croton Council of the Arts. Trustee Gallelli said that if you missed the opening last Saturday the exhibit will be open on

Sundays from 4:00-6:00pm. Trustee Gallelli congratulated the Croton Fire Department on the celebration of their 120th anniversary. Trustee Gallelli advised that the Croton Community Coalition will be holding the 3rd "Drug Return Day" at the Croton Commons this Saturday between 10:00am and 2:00pm. Trustee Gallelli said that this is a safe way to get rid of unused and expired drugs that you may have in your medicine cabinet.

Trustee Murtaugh advised that Cleveland Drive has been repaved and asked Village Manager Zambrano to elaborate on the advantages of this older technique. Village Manager Zambrano explained that this process works best on streets that have not deteriorated drastically. Mr. Zambrano explained that the first process is to repair the cracks, then apply gravel and tar and within one week the final surface takes place. Mr. Zambrano stated that this is an old technique which avoids the need to mill the streets and saves fifty percent of the costs.

Mayor Wiegman responded to the question of "Agenda 21"- a UN Program" Mayor Wiegman said that for clarification purposes Croton is a member, along with hundreds of local governments, of a consortium called "Local Governments for Sustainability". Mayor Wiegman said that this gives local governments the ability to pool their resources and learn from one another about all kinds of infrastructure questions and ways to save money. Mayor Wiegman said that this is not only restricted to the United States but there are quite a number of members from around the world. Mayor Wiegman said that we pay a small amount of dues to be part of this Consortium and we have taken advantage of some templates and guidance that they provide. Mayor Wiegman said that this is a way for local governments to work together. Mayor Wiegman said that the 9-11 Memorial is stunning and is very thankful for all of the individuals and private contractors that donated material, labor, equipment and expertise to pull this off; this is clearly something that any one of us could not have done by ourselves but by pooling our resources together we were able to produce something quite remarkable and stunning. Mayor Wiegman additionally thanked Village staff who put in quite a lot of time behind the scenes. Mayor Wiegman said that the recent Tough-Man Race held this past weekend had approximately 1,300 participants and brought in thousands of people into Croton Park. Mayor Wiegman said that this race involved a lot of coordination with the County, race coordinators and Village staff. Mayor Wiegman advised that the Town of Cortlandt will be holding a "Swap Fair" for athletic equipment this Saturday from 9:00am to 1:00pm.

There being no further business to come before the Board, Trustee Raskob made a motion to adjourn the meeting. Trustee Schmidt seconded the motion; approved 5-0. The meeting was adjourned at 11:30pm

Respectfully submitted
Judy Weintraub, Board Secretary

____
Village Clerk

From: "Bryan Dailey" <bwdailey@gmail.com> Fri, Oct 05, 2012 3:37:20 PM

Subject: RE: Croton-on-Hudson: subsequent project information meeting inquiry

To: '"Lilholt, Christine'" <CLilholt@chacompanies.co... **Janine King**

Cc: '"Scott Lewendon'" <jslewendon@verizon.net>
'"Cimino, Joe'" <JCimino@chacompanies.co...
azambrano@crotononhudson-ny.gov doconnor@crotononhudson-ny.gov
mgennarelli@crotononhudson-ny.gov
'"Sweeney, Jessica'" <JSweeney@chacompanies.com>

Attachments: Attach0.html / Uploaded File 11K

Chris,

I haven't heard back from you about the references, unfortunately, and today is the final day of the public comment period. The decision not to use combined lanes is significant, and a mistake in my opinion, so I hope it was based on research more relevant, current, and substantial than what has been indicated so far. The link provided after the public session was an outdated document about allowing bikes to ride on sidewalks, not on parallel bicycle and pedestrian lanes that are separate and designated. Lisa Aultman's research seems to address the same thing, but I don't know which publications you were referring to. Again, without more information, there's no way to follow up on "a Swedish study" or "another study that was done in Finland". I called and emailed Lois last week, but haven't gotten a reply. The lack of supporting information is disconcerting.

Combined BP lanes are the best way to improve BP safety in a cost efficient and politically acceptable way. There are plenty of examples of it working well, and the Brooklyn Bridge is one of many good examples with higher volume and less space than we have. As a regular bicyclist and occasional pedestrian and motor vehicle driver, I think the CPA project as currently planned doesn't improve bicycle and pedestrian safety enough to justify the cost.

Janine, could you please include this as a public comment?

Bryan

From: Lilholt, Christine [mailto:CLilholt@chacompanies.com]
Sent: Friday, September 28, 2012 11:45 AM
To: bwdailey@gmail.com
Cc: Scott Lewendon; Cimino, Joe; Janine King (jking@crotononhudson-ny.gov); Abraham J. Zambrano (azambrano@crotononhudson-ny.gov); Daniel O'Connor P.E. (doconnor@crotononhudson-ny.gov);

mgennarelli@crotononhudson-ny.gov; Sweeney, Jessica
Subject: Croton-on-Hudson: subsequent project information meeting inquiry

Good morning Mr. Dailey,

This is in response to your recent inquiry to me.

When Scott was the manager of DOT's bicycle and pedestrian safety program in the mid-1980's, he worked with 4H Cooperative Extension to develop a statewide bicycle safety program. Lois Chaplin worked at the time for 4H, and they prepared a train-the-trainer course and traveled around New York teaching 4H staff, police officers and others about bicycle safety programs. Lois Chaplin moved over to Cornell Local Roads, which is part of Cornell (as the land grant college in NY, Cornell is responsible for providing advice and education to NY municipalities). While there she prepared a FAQ or summary of the issues related to sidewalk bicycling and cited 2 studies – The Moritz study and the Wachtel/Lewis study. The other two studies that Scott was referring to are by Lisa Aultman and a Swedish study. There is actually another study that was done in Finland.

You may want to visit John Allen's web site. John Allen has been active in bicycle safety issues as long as Scott has and has been a major contributor to Bicycling Magazine in the past. He lives and bicycles in Boston and serves as an expert witness in numerous bicycle/motorists accidents. Here is a link to John's commentary on sidewalk bicycling.

http://www.bikexprt.com/bikepol/facil/sidepath/sidecrash.htm

I believe all these studies are available on line. If Mr. Dailey has any problems finding them, Scott would be happy to forward copies.

Thank you,

Chris

Christine Lilholt, PE, PTOE

Senior Engineer

CHA ~ *design/construction solutions*

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clilholt@chacompanies.com

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From: Jeremy Goldsmith <jeremytabby@gmail.com> Fri, Oct 05, 2012 12:10:30 PM

Subject: BPC / CPA letter comments

To: **Janine King**

Attachments: BPC_CPA_comments_Final.doc / Uploaded File 2.1M

Hi Janine,

For the comment period ending today regarding the Croton Point Ave project, the village Bike/Ped Committee decided to weigh in as a group. Please see attached, and feel free to share with all involved. We'd be happy to further discuss any and all aspects of the plan and our comments.

Thanks!

Jeremy Goldsmith, chairman
Croton on Hudson Bicycle/Pedestrian Planning Committee

Croton on Hudson
Bicycle and Pedestrian Planning Committee

October 4, 2012 **Committee comments about Croton Point Avenue Improvement Project Plan, presented by Village Board September 16, 2012**

The Croton-on-Hudson Bicycle/Pedestrian Committee supports the Croton Point Avenue Improvement Project, as it is consistent with the village's goal of creating and promoting safe ways for automobile, bicycle and pedestrian traffic to co-exist on our thoroughfares. Further, the project is clearly directly aligned with many items from this committee's Bicycle/Pedestrian Master Plan, adopted by the Village Board in 2009, and embodies this committee's motto, "greater connectivity through safe access."

We believe the cost of the project is justified in the long run, for two reasons. First, clearly marked bicycle lanes and designated pedestrian routes are necessary to ensure safety for current bikers and walkers, and will encourage more people to take advantage of these opportunities. And second, long-needed modern traffic control measures and improvements on this increasingly busy thoroughfare will help everyone - motor traffic, bikers and walkers - get where they are going safely and more quickly.

We offer the following comments on the current plan, which was presented at the Village Board meeting September 18, 2012:

1. We believe that the planned bicycle lane on the north side of Croton Point Avenue should now be eliminated, in favor of certain spans of on-street motor vehicle parking necessary for existing local businesses. Width dimensions of all the lanes would need to be re-engineered from the current plan to accommodate this, but here is what we propose, south to north, looking west:

<<--------------------South side North Side----------------------->>

SHARED BIKE PED	Eastbound R	Eastbound L	Westbound L	Westbound R	Parking/delivery	Sidewalk

2. We believe that the above elimination of the north side bike lane will reduce traffic congestion at the entrance to the train station parking lot, provided the following can be accomplished.

   a. The proposed bike/ped lane on the south side of CPA should be directly connected to the existing "Crossining" bike path.
   b. A bikable/walkable connection should be established from the Crossining path directly into the daily parking area of the train station lot, with necessary demarcation in the parking area allowing for safe conduct of bikers/walkers. (Please see next page for illustration of approx. location)

3. We would like to see adequate lighting provided under the Rt. 9 overpass and have all the street lamps/fixtures along CPA have their bulbs upgraded to be at least as bright as the ones currently at the intersection of Veterans Plaza and CPA. Cyclists riding in the opposite direction to the traffic flow highly necessitates proper visibility. Bright lighting in this area is a visual "cue" to alert motorists that they should be attentive to their surroundings, slow down, and look out for bike/peds and other congested car traffic. For reasons of safety at the Rt.9 underpass bus stop, we think Westchester County should pay for the costs for the lighting that area properly.

4. We would like to see ultra high reflective striping provided for the bicycle and traffic lanes. Multi usage dotted bike lane striping with directional arrows and cyclist icons should be added to both sides

of South Riverside Ave between CPA and Benedict Blvd to show connectivity routing to the southern CPA bi-directional bike lanes and to alert motorists to the cyclists' presence.

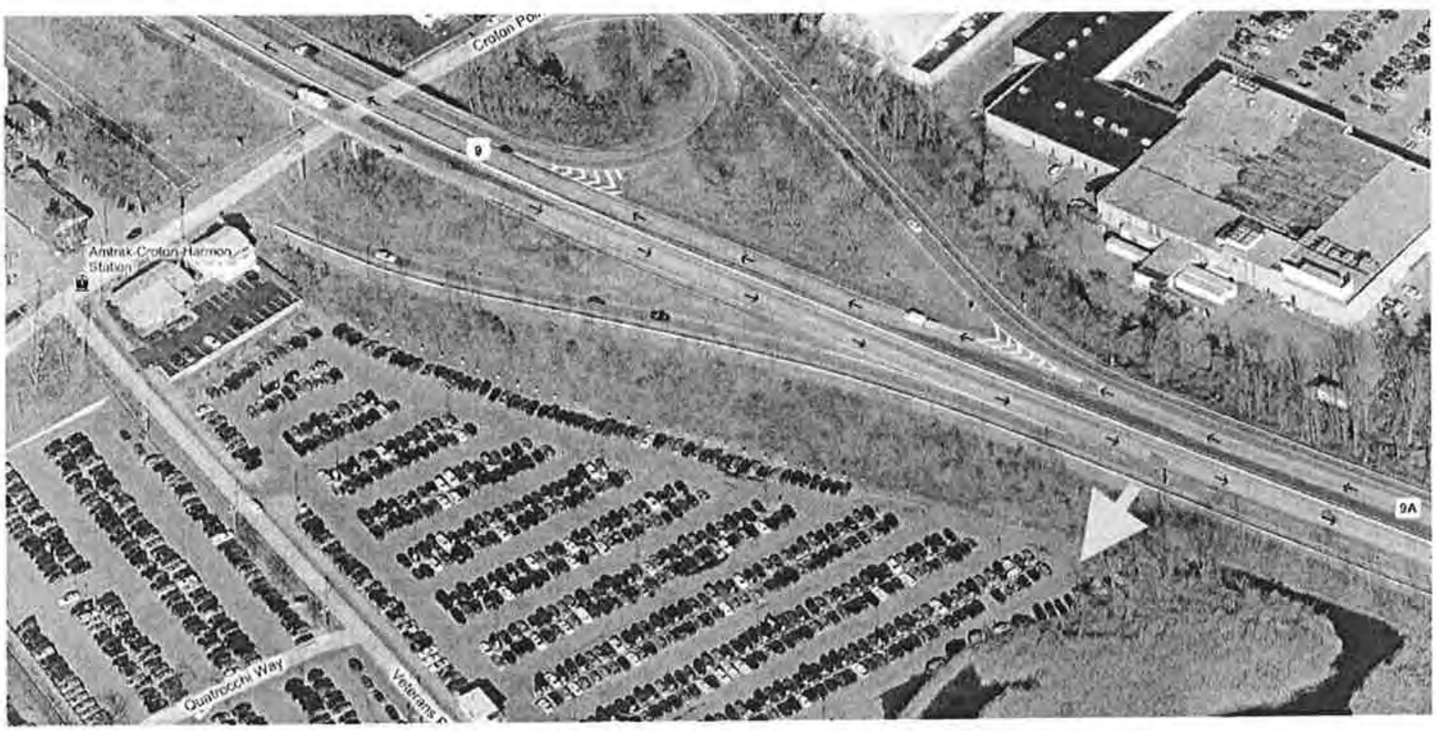
Please contact Jeremy Goldsmith at jeremytabby@gmail.com, or 914-260-9012, for clarification or further comment.

Sincerely,

Croton on Hudson Bicycle/Pedestrian Committee

Joe Biber
Justin Casson
Jeremy Goldsmith
Karen Moy
Rob Olsson
Ty West

Proposed "Crossining" access to Train Station Parking Lot:



From: "Voss, German" <german.voss@bbvany.com> Thu, Oct 04, 2012 4:40:52 PM

Subject: Comments to "Croton on Hudson Traffic, Pedestrian and Bicycle Enhancements"

To: **Janine King**

Cc: lwiegman@crotononhudson-ny.gov

Attachments: 20121004160139615.pdf / Uploaded File 131K

Dear Janine / Leo,

Please find attached my comments to the above mentioned project.
Please do not hesitate to contact me if you have any questions.

Best regards,

Juan German Voss.

Croton on Hudson, October 4th 2012.

Mayor Leo Weigman &
Boar of Trustees
Village of Croton on Hudson

Ref.; Public Information Meeting, Croton-on-Hudson Traffic, Pedestrian and Bicycle Enhancements Village of Croton-on-Hudson, Westchester County, New York.

Dear Mayor and Board of Trustees,

My name is Juan German Voss, resident of 52 Truesdale Dr, Croton on Hudson. I would like to comment of the above reference matter as I believe that the majority of the planned work is not necessary. Please take into consideration that the project as it is currently planned would require a significant contribution of the village and that would negatively affect the Village's finances.

- **Bike Lanes:** Why is necessary to have two bike lanes that does not connect to any other place than the Croton Harmon Station?

  Comment: The Eastbount bike lane crosses 2 ramps and does not connect to any part of the village. In theory it would take you directly to Shoprite, but there aren't any bike lanes there either. So all the "Eastbound bike traffic" would need to cross again to the Westbound at the corner of Riverside and Croton Point Ave to get to their homes. Also there aren't any bike lanes on Riverside.

- **Bike Traffic**: How many much more "bike traffic" do you expect from these enhancements?

  Comment: My observation is that there are only 5 bike parking spaces at the Croton Harmon Parking Lot and most of them are empty. Let's assume that there are many more bikers that take their bikes on the train. Let's assume 30 people a day bike through the proposed route (and I am sure that I am overstating), do you expect that these enhancements will double or triple the number of bikers? Assuming that a 200% increase in bike traffic, that represents 90 bikers a day, does it justify a $2.8 million expense to be financed by the residents? Please consider that the majority of the bikers do it in the Spring to fall, not winter.

  Also, take into consideration the slope of the terrain. It is very steep from Riverside going on Croton Point Ave. **Even if you consider that the bike path usage will increase on weekends, please remember that will only be true for VERY FIT BIKERS.** A family with small children will not use that particular bike path because of the slope on Croton Point Ave. They will bring the bikes to the Croton Point Park by Car. Again the benefits of the bike lane at this particular place are very limited.

- **Pedestrian Lane:** Do we really need a Bike Path and a Pedestrian Lane?

  Comment: Pedestrians and bikers can both share the lane. This is how it is across the Croton Landing Park, or even Central Park in Manhattan.

- **Eastbound Pedestrian Lane:** Is the pedestrian Eastbound Lane necessary?

  Comment: I am an avid walker and I walk from the train station to my home on 52 Truesdale (1 mile). I walk during the morning and at night. The Eastbound is not necessary; it crosses 2 ramps and does not take you anywhere but Shoprite. Pedestrians will need to cross Croton Point ave in order to go to their homes. This could be done (it is what I normally do) at the Exiting path of the train station.

- **ADA compliant amenities:** Are they necessary?

Comment: Given the slope of the terrain, not a single person with disabilities will walk to the train station!!! Please let me know when or who you have seen walking there. Any person with a temporary or permanent disability would either you stay home, or you take a taxi to the train station. There aren't any other motives to use the pedestrian lane other than to go to the train station.

- **Permanent Easment on Westbound side:** Is it necessary?

  Comment: Please check my comment on bike lanes. This easement is only necessary to accommodate the bike lane.

- **Widening of Veteran Plaza:** Is it necessary?

  Comment: It is not necessary. Any traffic specialist will tell that the traffic at that intersection is not symmetric. There are rush hours with inbound / outbound traffic. What you would need is the traffic light determining the use of the middle lane, not a divider that could cause more delays are and accidents, since all the traffic would need to yield from 2 lanes into 1 only a few feet away.

- **Project Cost & Financing**: The total cost of the project is $2.8 million of which $1.8 million will be provided by Federal Government funding and the remaining $1 million to be provided by the Village (either through taxes, a bond financing, or a combination of both).

  Comment: Given the large amount of financing that is being contemplated, and the fact that there aren't any quantifiable benefits to the residents of the village, I ask that you please reconsider either stopping this project completely or bring it to a significant lower cost. This project does not create additional revenues for the village and it only creates an additional financial burden as well as increases the future maintenance expenses to the village residents. AGAIN PLEASE RECONSIDER THE PLANS FOR THIS PROJECT.

What is required?

- The expansion of the 8 feet shoulder from the off-ramp on 9 southbound
- Better lighting under the bridge to walk at night.
- Improvements to the existing side walk on Croton point Ave.
- Better crossing signals stating that drivers SHOULD yield to pedestrians.

If you need any clarifications or you have any questions, please do not hesitate to contact me.

Sincerely,

Juan Voss

Juan German Voss
52 Truesdale Dr, Croton on Hudson.
(914) 862-4647
jgvoss@yahoo.com

From: Northridge Josh <jnort1976@yahoo.com>
Northridge Josh <jnort1976@yahoo.com>

Tue, Oct 02, 2012 12:40:17 PM

Subject: Traffic, Pedestrian, and Bicycle Enhancements

To: **Janine King**

Attachments: Attach0.html / Uploaded File 4K

October 2, 2012

Josh Northridge
52 Lexington Dr.
Croton on Hudson, NY 10520
JNort1976@yahoo.com
917 539 0969

Re: Croton on Hudson Traffic, Pedestrian, and Bicycle Enhancements
Village of Croton on Hudson

Ms. King,
Please allow me to make a few comments regarding the above Enhancements. I have significant concerns and they boil down to this: We don't need it and it costs too much money.

I drive to and from the train station every day during peak hours. Most of the time there is a traffic officer there directing traffic, and on some infrequent occasions there is not. But there never seems to be too much of an issue either way. Whether it be from traffic turning onto Croton Park Avenue locally from the village, or off of one of the Route 9 north or south bound ramps, it all moves pretty well. I personally do not see any commuting issues.

On the weekends, I jog down Croton Point Avenue, and never have an issue there either. There are cross walks near the train station and there is a sidewalk too. I never feel in any danger and have never thought to myself "they really need another area besides this sidewalk." As for bicyclists, they ride all over Croton and Route 129 with no designated area or bike lane, and I just do not see the need for one on Croton Point Ave.

And as for it costing more than double what the federal government is allocating for this project, that is just insane. Taxes in Croton are already so high, squeezing us residents as it is. Station parking is very expensive for both residents and non-residents. I assume one or the other (or both... yikes!) will go up to fund the other $1.6 million. If taxes are going to go up, the funds should be used to continue to attract small business to the village and/or to improve the school district.

The proposed enhancements are excessive in scope and cost, they are not needed, and I certainly hope our local officials choose an alternate plan.

Best,

Josh Northridge

From: "Bryan Dailey" <bwdailey@gmail.com> Fri, Sep 28, 2012 1:43:01 PM

Subject: RE: Croton-on-Hudson: subsequent project information meeting inquiry

To: "'Lilholt, Christine'" <CLilholt@chacompanies.com>

Cc: "'Scott Lewendon'" <jslewendon@verizon.net>
"'Cimino, Joe'" <JCimino@chacompanies.co... **Janine King**
azambrano@crotononhudson-ny.gov doconnor@crotononhudson-ny.gov
mgennarelli@crotononhudson-ny.gov
"'Sweeney, Jessica'" <JSweeney@chacompanies.com>

Attachments: Attach0.html / Uploaded File 9K

Ms. Lilholt,

Thanks for your reply. Can you please send me the citations for the studies?

Bryan

From: Lilholt, Christine [mailto:CLilholt@chacompanies.com]
Sent: Friday, September 28, 2012 11:45 AM
To: bwdailey@gmail.com
Cc: Scott Lewendon; Cimino, Joe; Janine King (jking@crotononhudson-ny.gov); Abraham J. Zambrano (azambrano@crotononhudson-ny.gov); Daniel O'Connor P.E. (doconnor@crotononhudson-ny.gov); mgennarelli@crotononhudson-ny.gov; Sweeney, Jessica
Subject: Croton-on-Hudson: subsequent project information meeting inquiry

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Thank you,

Chris

Christine Lilholt, PE, PTOE

Senior Engineer

CHA ~ *design/construction solutions*

518.453.8773

clilholt@chacompanies.com

www.chacompanies.com

From: "Robert Dublin" <rob.dublin@verizon.net> CrotonHudsonNY_CommentsArchive — Mon, Sep 24, 2012 9:50:43 PM

Subject: Other

To: **Janine King** CrotonHudsonNY_CommentsArchive

Attachments: Attach0.html / Uploaded File — 2K

Request From: Robert Dublin
Email: rob.dublin@verizon.net
Source IP: 71.183.59.7

Address: 15 Piney Point Ave
City:
State:
Zip:
Phone: 271-1324
Organization:

To the mayor and Board of Trustees. I was at the planning meeting tonight, 9/24, which was well attended because of concerns re the proposed water main project. I think the biggest problem was that most of us had no idea what was being planned and needed to be better informed. My suggestion is that the web site include a list of all major projects that are being considered and implemented, with an executive summary indication what the project is, why it is being undertaken, estimated time frames and costs, and a current status. A well-implemented facility will I think help move things along in a much smoother manner.

From: **Abe Zambrano** Friday, September 21, 2012 3:31:54 PM

Subject: Re: Croton Point Avenue Project

To: Joel Gingold <joje@optonline.net>

Cc: BOARD **Janine King** **Paula DiSanto**

Joel.
Thank you for writing to the BOT about your concerns on the Croton Point Ave improvement project. I will forward to the BOT and will included as part of the submitted written comments. If you have any questions, please let me know.
Regards,
Abe

Joel Gingold <joje@optonline.net> writes:

Abe,

I originally tried to send this note to Janine using the link on the announcement about the meeting. It bounced. Said it was an illegal host/domain name.

To the Village Board:

I was unable to attend Tuesday's information session, but did manage to see most of the meeting on television. I commuted from the Croton-Harmon railroad station for about twenty-five years and, on the great majority of the days I rode the train, I walked to and from the station. So I believe I have a better understanding than most on the conditions that exist on Croton Point Avenue and whether and how they should be improved.

Based upon the information presented at the meeting and other reports about the project, I strongly urge the Village Board to terminate these plans immediately, before any more public funds are expended.

In a world in which there is a lot of money available for a wide variety of public works projects, this might be considered to be a reasonable expenditure. If executed, it will provide some benefits to a few. However, in today's environment, when funding is scarce and there are many other demands on the Village for capital projects, this effort cannot be justified on a cost-benefit basis.

1. The stated purpose of the project is to improve safety for bicyclists and pedestrians. Although no specific numbers for people walking or bicycling to and from the station were given by CHA at the meeting, it was clear that relatively few Village residents either ride bicycles or walk.

2. For pedestrians, there are currently traffic lights at the corners of Benedict Blvd. and South Riverside Ave. and at South Riverside and Croton Point Ave. to permit safe crossing of these streets and access to the sidewalk on the north side of Croton Point Ave. The traffic control officer at Veteran's Plaza allows safe access to the footpath leading down to the station. I estimate that I personally took this route in one direction or the other about 12,000 times without incident or witnessing any other problems. I never had very much company, pedestrian or bicycle, during my walks either way. If some people insist on walking along the south side of Croton Point Avenue rather than using the existing sidewalk across the street, I don't believe that it is the Village's responsibility to install a sidewalk for them, at significant expense, because they're too lazy to cross the street or too foolish to take reasonable precautions for their own safety.

3. It was made clear at the meeting that, while the bicycle lanes along Croton Point Avenue would provide some benefit to the few bicyclists who currently ride to the station, the absence of such lanes in the surrounding area and the potential problems in traversing Veteran's Plaza and coming down the road to the station will continue to present a potential hazard to bicyclists.

4. It was stated that there were a few auto-bicycle accidents in the area over the past several years, but none was serious. The nature of these accidents was not discussed nor was it indicated whether the bicyclists or the drivers of the cars were responsible. There were apparently no auto-pedestrian or bicycle-pedestrian accidents.

5. A number of business owners along Croton Point Avenue stated that the proposed modifications would impact negatively on their businesses. They further indicated that neither Village officials nor CHA had contacted them to get their input before the current plan was devised.

6. As I understand the financing of the project, it is currently estimated at $2.8 million with $1.2 million being supplied by the federal government and $1.6 million by the Village. The Village would be responsible for all costs above the current estimate.

7. There is no way of knowing how accurate the current estimate is and what the final cost will be. Such projects are notorious for costing far more than originally estimated and often run well above even the originally contracted price. Look at the I-287 modifications. Thus, the cost to the Village is likely to be well above the currently contemplated amount. While I'm far from an expert on this type of project, it's hard to envision why the cost of the proposed modifications should even be this high.

8. It is my understanding that this project was originally estimated at $1.5 million and that was the basis for the federal contribution of $1.2 million (80% federal contribution). If a better job had been done at the time. the Village would be facing a far lower cost than at present. Why should we believe that the current estimate is valid? We won't know this until the bids are received.

9. At the meeting, a few speakers suggested a few very low cost improvements and modifications that would enhance pedestrian and bicycle safety. If practical, these can and should be implemented.

So, on balance, and based on the facts noted above, , I do not believe that there is adequate justification to spend $1.6 million plus of taxpayers' money to provide limited benefits to a relatively few Village residents to solve a problem that may not really exist.

Sincerely,

Joel E. Gingold
55 Nordica Drive
Croton-on-Hudson, NY

Abraham J. Zambrano
Village Manager
Village of Croton on Hudson
1 Van Wyck Street
Croton on Hudson, NY 10520
Phone (914) 271-4848

Fax (914) 271-2836
azambrano@crotononhudson-ny.gov

From: "Henley, Charles" <chenley@mtahq.org> Thu, Sep 20, 2012 1:40:59 PM

Subject: Comments for Croton Avenue Project

To: **Janine King**

Attachments: Attach0.html / Uploaded File 13K

I am writing to submit my public comments prior to the October deadline. Background. First of all, I am a Croton resident, pedestrian commuter to the station and have walked to/from the station from my home on Hudson Street nearly every M-F for the last 4 years. I have also biked to the station and have occasionally gotten a ride. I am very much a walker though.

- Very few people bike to work and hardly anyone does when it is rainy or during the Winter. Of the bikers, not all come via Croton Point Avenue, many come along 9A from Ossining. Dedicated bike lanes along Croton Point Ave are a waste of money. Bikes can and should use automobile traffic lanes.

- The southbound exit ramp from 9A to Croton Point Avenue is a very dangerous place for pedestrians during rush hour. Whether there is a stop sign or a red light the cars are in a hurry and run the intersection. The crossing guard (Andy) is a great asset. What would also be a great asset would be some speed bumps that force cars to come to a stop. I have nearly bit hit a number of times at this intersection.

- Can police cameras that put a check on those who run the stop sign be included in this project at the proposed traffic light intersection at Croton Point Ave and the southbound 9A? This might also get drivers to come to a stop and look both ways while providing the Village with a revenue source to offset the cost of the project.

- The intersection at Bennedict and Riverside is fine as it is and does not need additional investment. Please cut this from the scope to save taxpayers money. It smells strongly of scope creep from the proposed Harmon rezoning scheme that leadership of the Village still seems to want to push.

- At the southbound 9A exit ramp's base there is a problem with driver visibility on their right hand side. They do not see pedestrians walking East on this north side sidewalk. Can visibility issues be addressed here?

- The "pavement overlay" on Riverside is not important to making Croton Point Ave safer. This should be another project and should be deferred. The road may be a bit choppy, but it is still usable.

- I am uncertain what the ADA component is to this project. The disabled do not use this area to commute by bike or foot due to hills and distance. If there is an ADA component to this project that costs money it should be removed unless there is a case that can be made to the public.

- Finally, the cost estimate of $2.8M is a lot to handle. I realize there is some DOT money available, but that is still taxpayer money. All effort should be made to reduce scope and cost to the bare minimum needed to enhance pedestrian and auto safety while improving traffic flow.

- I like the idea of removing parking between the gas station and the contractor's building. They are an impediment to traffic flow regardless of whether there is a bike lane or not.

- Finally, regarding bike access. Why does the bike approach have to run on Croton Point Ave to Veterans Blvd.? There is an existing bike path along 9A's southbound entrance (the bike path that goes to Ossining). A bike access could be put down the slope from the existing bike path to the NorthEast corner of the Croton Parking lot. This could be cheaper, safer and better for bikers and avoid the confusion at the Veteran's Blvd/Croton Point intersection. Can this design alternative be explored please.

Finally, I think a more robust effort to get public comments should be made. I think the Village put minimal effort into soliciting comments and even less effort into describing the need and proposed investment to the public.

Thank you,

Charles Henley

7 Hudson Street

Croton on Hudson

From: ssyates@verizon.net Saturday, September 15, 2012 9:17:08 PM
Susan Yates <ssyates@verizon.net>

Subject: Re: Croton Point Avenue Public Meeting

To: **Janine King**

Attachments: Attach0.html / Uploaded File 16K

To the Mayor and Board of Trustees:

Thank you for the notice regarding propsed improvements to Croton Point Avenue, We are out of town and will not be able to attend, and the concept plans attached to your e-mail seem to be in a file which "is injured and cannot be repaired." Consequently, I cannot view them.

This Village has a history of making capital improvements, suggested and partially funded by the State and County, but the grants are never enough to cover the project and always exceed their estimates, leaving the Village in debt for much more than they expected. I have no reason this ill-advised project will be any different. We have entered into a contract with the consultants CHA so we are now indebted to them whether or not the project goes ahead.

Croton Point Avenue does not appear to be so wide that it could lose 10 feet and still be a viable 4-lane road. If 5-foot sidewalks and bike lanes are needed, then the "taking from the abutting properties" would need to be more than "a narrow strip." Are sidewalks needed on both side of the avenue?

Widening the driveway into/out of the train station (Veteran's Plaza) would not remove the existing bottleneck, it would merely relocate. The traffic light at South Riverside and the proposed one at Veteran's Plaza should take care of pedestrian crossings.

Speaking of traffic lights, four of them in a stretch of road less than l/2 mile in length -- at Croton Point Avenue, Rte 9 off-on south ramp, Rte 9 on-off north ramp, and Veteran's Plaza -- seems a bit ridiculous. An article in The Gazette mentioned that these lights would relieve the Police Department of the overtime costs generated by the need for traffic officers during rush hours.

Compare those overtime costs with the costs of this project, and see if you think this is a prudent solution.

Susan Yates
62 Cleveland Drive
Croton-on-Hudson

From: Jeanne Harrington-Schiermbock <harringtonj@optonline.net> 9/13/2012 3:17:34 ...

Subject: NO to the Croton Point Enhancement Proposal!

To: **Janine King**

Cc: Chris Schiermbock <cschiermbock@cerberusre.com>

Attachments: Attach0.html / Uploaded File 4K

Dear Mrs. King -

RE: Pedestrian and bicycle enhancements along Croton Point Avenue.

I am writing to expres my oppostion to the proposed project to improve traffic flow and make pedestrian and bicycle enhancements along Croton Point Avenue.

After a review of the facts, any reasonable person would conclude that the project's objectives simply do NOT warrant the expense, which currently have **Croton Taxpayers responsible for $1.6 million** of the project! Considering that when the original project was proposed, Croton taxpayers were only responsible for $300,000 of the improvement. The increasing cost to the tax payer is very worrisome for my husband and I. I urge our Village representative to vote NO to this current proposal!

Sincerely,
Jeanne Harrington and Chris A. Schiermbock

Jeanne Harrington
3 Oreilly Court
Croton on Hudson, NY 10520
914-271-4080
Harringtonj@optonline.net

From: "Gad, Dolores" <dolores.paolicelli-gad@warburgpincus.com> 9/12/2012 1:06:47...

Subject: Project

To: **Janine King**

Attachments: Attach0.html / Uploaded File 3K

Hi Janine,

I hope you are well.

Unfortunately, I cannot make the public meeting on the 18th.

While I'm all for safety, I can't help but wonder what impact this will have on our monthly parking rates...can anyone guesstimate that yet?

Thanks very much in advance.

Dolores Paolicelli-Gad

From: Dan Theodore <dan.theodore@gmail.com> Tue, Sep 11, 2012 5:50:30 PM

Subject: Bike Lane Upgrade - Comments

To: **Janine King**

Attachments: Attach0.html / Uploaded File 3K

I am a non-resident from Cortlandt who parks at Croton-Harmon every morning. When I received the previous proposal, I did send several comments and I believe that this plan offers some improvements over the original:

- The directional lights on the road into the parking lot will reduce confusion and conflict in the center lane.

- The new plan leaves two lanes each way on Croton Point Road instead of allocating half the road to bicycles.

However, I still have some questions and concerns about this plan:

1. Given that this plan makes it easier to walk or bike to the station, are their plans in place to prevent people from parking all over the South side of Croton and save themselves the daily parking fee?

2. Does the plan include additional bicycle racks?

3. Will the new traffic lights improve traffic flow or create bigger bottlenecks at rish hour?

4. In NYC, the increased number of bike lanes have seemed to only increase the amount of conflict between bikes with pedestrians and cars. Does encouraging additional bikers, even with dedicated lanes potentially lead to more accidents and injuries, possibly with risk of financial liability to the village?

Finally, this raises the bigger question: Who are the target users of the new paths? To me, it appears to be a big expenditure intended to serve only a relatively small number of residents on the South Side of Croton who may have to deal with many more parked cars while the village could lose revenues from the daily parking lot.

-Sincerely,

Dan Theodore
46 Lakeview Ave West
Cortlandt Manor, NY 10567

On 09/11/12, Public Notices<crotonhudsonny_board@mm.windigicert.com> wrote:

Village of Croton-on-Hudson E-Notice

The Village will be holding a public information session on Tuesday, September 18, 2012 regarding a proposed project to improve traffic flow and make pedestrian and bicycle enhancements along Croton Point Avenue. The Village's consultant for this project, Clough Harbor Associates, will make a presentation at the beginning of the regularly scheduled September 18th Board of Trustees Meeting. The meeting will be held on the second floor in the meeting room of the Stanley H. Kellerhouse Municipal Building located at 1 Van Wyck Street, Croton on Hudson, NY 10520. The public is encouraged to attend this meeting, or view it live on the Government Cable Channel 78 or on the Village's web stream.

See below for a brief summary of the project.

Croton-on-Hudson Traffic, Pedestrian and Bicycle Enhancements

PROJECT OVERVIEW
The current proposal includes the construction of traffic, pedestrian and bicycle enhancements along Croton Point Avenue from Veteran's Plaza, at the Croton-Harmon Train Station, to S. Riverside Ave, and then North on S. Riverside Ave to the intersection with Benedict Blvd. Click here to view the concept plans for the proposed project.

The proposed work includes:

- Construction of 5 ft. bike lane and 5 ft. concrete sidewalks on both sides of Croton Point Avenue.
- three (3) new traffic signal installations along Croton Point Avenue at
  - Veteran's Plaza
  - US Route 9 southbound on/off ramps
  - US Route 9 northbound on/off ramps
- Widening a short section of Veterans Plaza at Croton Point Ave to 4-lanes-2 entering and 2 exiting
- construction of a right turn lane on the US Route 9 southbound off ramp.
- narrowing of the Route 9 northbound on- ramp intersection with Croton Point Avenue.
- drainage improvements.
- overlay of Croton Point Avenue and S. Riverside Avenue.

PROJECT COST ESTIMATE
Approximately $2,800,000 for Engineering, ROW and Construction, funded by federal and Village of Croton-on-Hudson dollars.

PROJECT OBJECTIVES

- Provide safer pedestrian and bicycling facilities along the project corridor.

- Improve and upgrade pedestrian accommodations and amenities to be fully American with Disabilities Act (ADA) compliant.
- Improve intersection operations by geometrically upgrading key intersection and adding traffic signals.
- Improve traffic flow
- Minimize impacts to the area residences and businesses.

PROJECT EFFECTS

Construction of this project will disturb land adjacent to the road and will require narrow "strip" Right-of-Way (ROW) acquisitions of property in two locations. Temporary construction easements will be required at one property. All parties impacted by ROW acquisitions will be reimbursed current Fair Market Value as prescribed by State and Federal Laws.

PROJECT SCHEDULE

- Public Meeting September 18, 2012
- Design Approval Spring 2013
- Detailed Design Summer 2013
- ROW Acquisition Fall 2013
- Construction Spring - Fall 2014

COMMENT PERIOD

If you are interested in commenting on the proposed project please email Janine King at jking@crotononhudson-ny.gov by October 5, 2012.

From: Christine O'Connor <crotonchris@yahoo.com> Wed, Sep 12, 2012 8:27:13 PM

Subject: Comment on traffic control

To: **Janine King**

Attachments: Attach0.html / Uploaded File 9K

I have lived in Croton for 16 years. I do not have an interest in seeing the train area roads changed. HOWEVER, I strongly feel that traffic control near PVC is needed. the lack of sidewalks for students at PVC is practically criminal. It is amazing that kids have not been injured or worse walking to school. In addition, there really should be a traffic light at Olcott and Maple by PVC. School car traffic is crazy in the morning - getting across Maple is dangerous.

Any money spent on roads/sidewalks/lights should MOST benefit children.

sincerely
Christine O'Connor
64 grand st.

Sent from my iPad

From:	Bryan Dailey <bwd2@cornell.edu>	Friday, May 11, 2012 9:27:39 AM
Subject:	Re: Croton Point Avenue Project	
To:	**Janine King** azambrano@crotononhudson-ny.gov	
Cc:	doconnor@crotononhudson-ny.gov	
Attachments:	Attach0.html / Uploaded File	8K

I am resending this because I realized I made a mistake in pasting Ms. King's email address the first time.
Bryan

On 11 May 2012, at 08:36, "Bryan Dailey" <bwd2@cornell.edu> wrote:

Dear Mr. Zambrano and Ms. King:

I am writing to request a brief meeting with you about the Croton Point Avenue project to improve safety and traffic. As a member of the Bicycle/Pedestrian Planning Committee, I attended the engineering firm's presentation at the Municipal Building, but conflicting schedules of members have kept us from discussing this as a committee. So I am writing as a resident of Croton On Hudson who regularly walks and rides to the train station.

I think a modified plan could do a better job of improving safety, facilitating traffic flow, and reducing the financial cost. I visited the site with Dan O'Connor and we have spoken about it on several occasions. There are three components to the alternative I would propose, including: moving all bike and pedestrian lanes to the north side of Croton Point Ave, extending the B-P lanes up to Benedict Blvd, and extending the B-P lanes down through the train station parking lot.

I think these changes would significantly improve the safety of pedestrians and bicyclists by keeping B-P lanes separate from motor vehicles for a longer distance and moving the lane interchanges to a safer area. The changes would also allow the town to avoid the costly traffic light installation and ramp re-engineering at the Rt. 9A North interchange, and may also help address concerns of residents and the DOT.

I would like to present these modifications to you more thoroughly in person, and I ask that we schedule a time to meet at your earliest convenience.

Sincerely,

Bryan Dailey

220 Grand Street

Croton On Hudson, NY 10520

bwd2@cornell.edu

802-664-4148