TRAFFIC STUDY

NEW YORK POWER AUTHORITY (NYPA)
MARCY SOUTH SERIES COMPENSATION PROJECT (MSSC)
Delhi, New York

Prepared for:
ABB Inc. & NYPA

Prepared by:

Stantec Consulting Services Inc.
61 Commercial Street, Suite 100
Rochester, NY 14614-1009

FEBRUARY 2015

Table of Contents

Exhibits

INTRODUCTION

ABB, on behalf of the New York Power Authority (NYPA) will construct a new Series Compensation facility consisting of two (2) compensation banks. The project is referred to as Marcy South Series Compensation project (MSSC), which is on a vacant section of land in the northern portion of property currently owned by NYSEG. The property is on Hamden Hill Spur Road off NY Route 10 in the Town of Delhi, NY. An existing NYSEG electric substation (Fraser Substation) currently occupies a portion of the overall parcel.

Stantec Consulting Services Inc., (Stantec) assessed the roadway network in the Project Study area for the proposed Marcy South Series Compensation Project. Stantec examined the road network that would likely be used to access the proposed MSSC site, as shown in **Figure 1**. Due to the remoteness and limited number of available primary roads to the site, Stantec evaluated only one (1) access route from the north and one (1) access route from the south utilizing State highways. The specific roadways that were evaluated include I-88 from the north and I-86/NY 17 from the south as follows:

Access Routes from the North:

- Interstate 88 – Exit 15
- NY Route 23 – East
- NY Route 28 – South
- NY Route 10 – South
- Hamden Hill Road
- Hamden Hill Spur Road

Access Routes from the South:

- NY Route 17/Interstate 86 – Exit 84
- NY Route 8 – North
- NY Route 10 – North
- Hamden Hill Road
- Hamden Hill Spur Road

The purpose of this study was to evaluate the likely access routes to and from the site in order to determine potential route restrictions/limitations for deliveries and material hauling. The scope of this study includes:

1. Identify road ownership;
2. Investigate and confirm federal, state and local roadway & bridge weight limits or other restrictions;
3. Evaluate geometry of critical intersections and identify height and width restrictions;
4. Investigate Town/Village Ordinances (noise) and travel/route restrictions;
5. Recommend routes to access the site for various loads;
6. Identify any required hauling permits/traffic controls;
7. Identify limitations on number or rate of concrete or equipment deliveries.

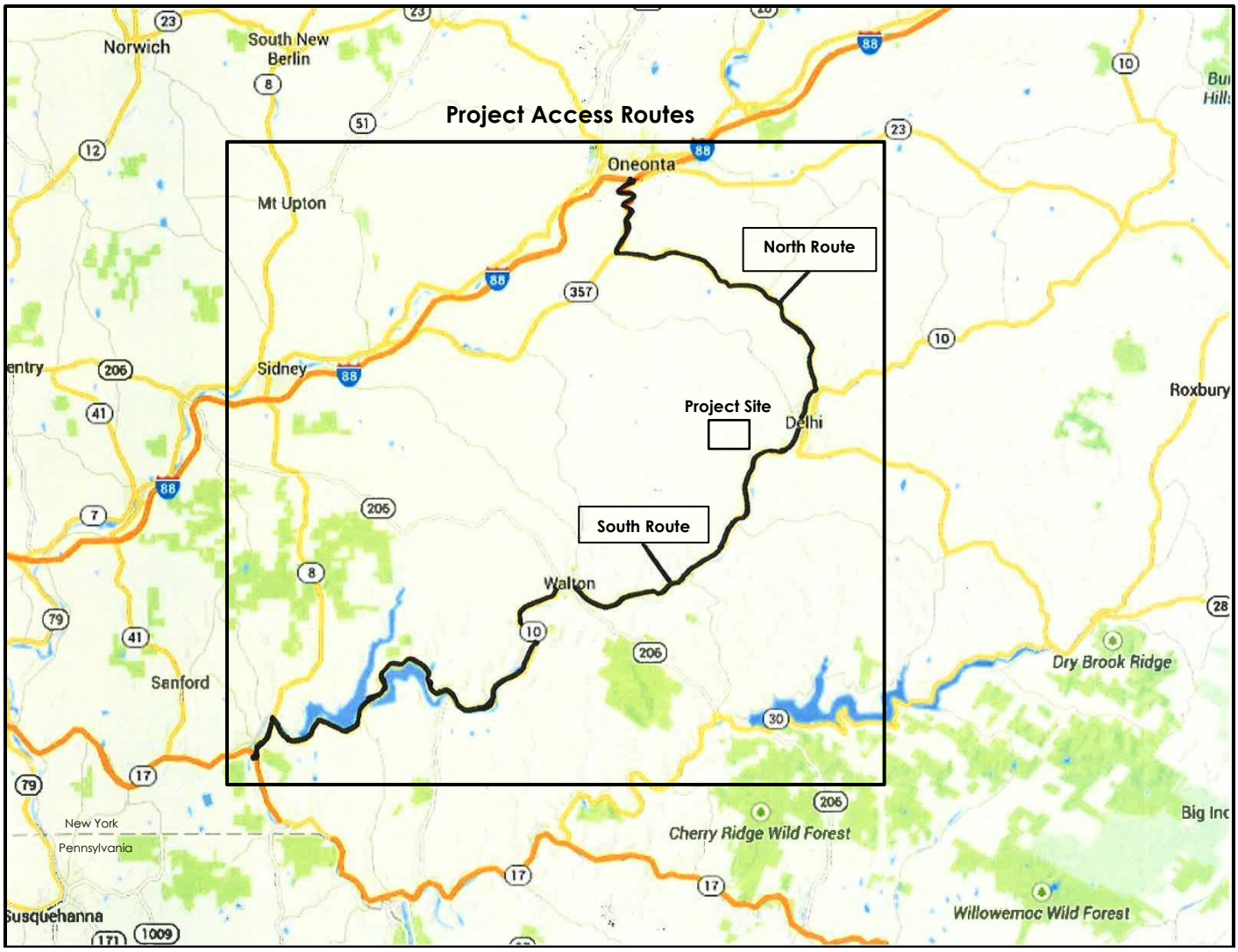


Figure 1 – MSSC Project Access Routes

This report is organized as follows:

1. Introduction
2. Description of the Roadway Network
3. Access Routes Considered
4. Identification of Use Restrictions
5. Feasible Access Routes
6. Areas of Potential Concern/Recommendations/Coordination

DESCRIPTION OF THE ROADWAY NETWORK CLASSIFICATIONS

The various State and local roadways within the Project Study area are shown in **Figure 2** below and are as follows:

Functional Classification of State owned and maintained highways are as follows:

- Interstate 88 – (01) Principal Arterial Interstate, National Highway System (NHS)
- NY State Route 17/Interstate 86 – (02) Principal Arterial Expressway (west of Deposit), NHS
- NY State Route 17 – (04) Principal Arterial Other (east of Deposit), NHS
- NY State Route 28 – (04) Principal Arterial Other, NHS
- NY State Route 8 – (04) Principal Arterial Other, NHS
- NY State Route 10 – (07) Major Collector
- NY State Route 10 / Route 206 Overlap – (06) Minor Arterial

Maintenance and Jurisdiction of County owned highways are as follows:

- None considered

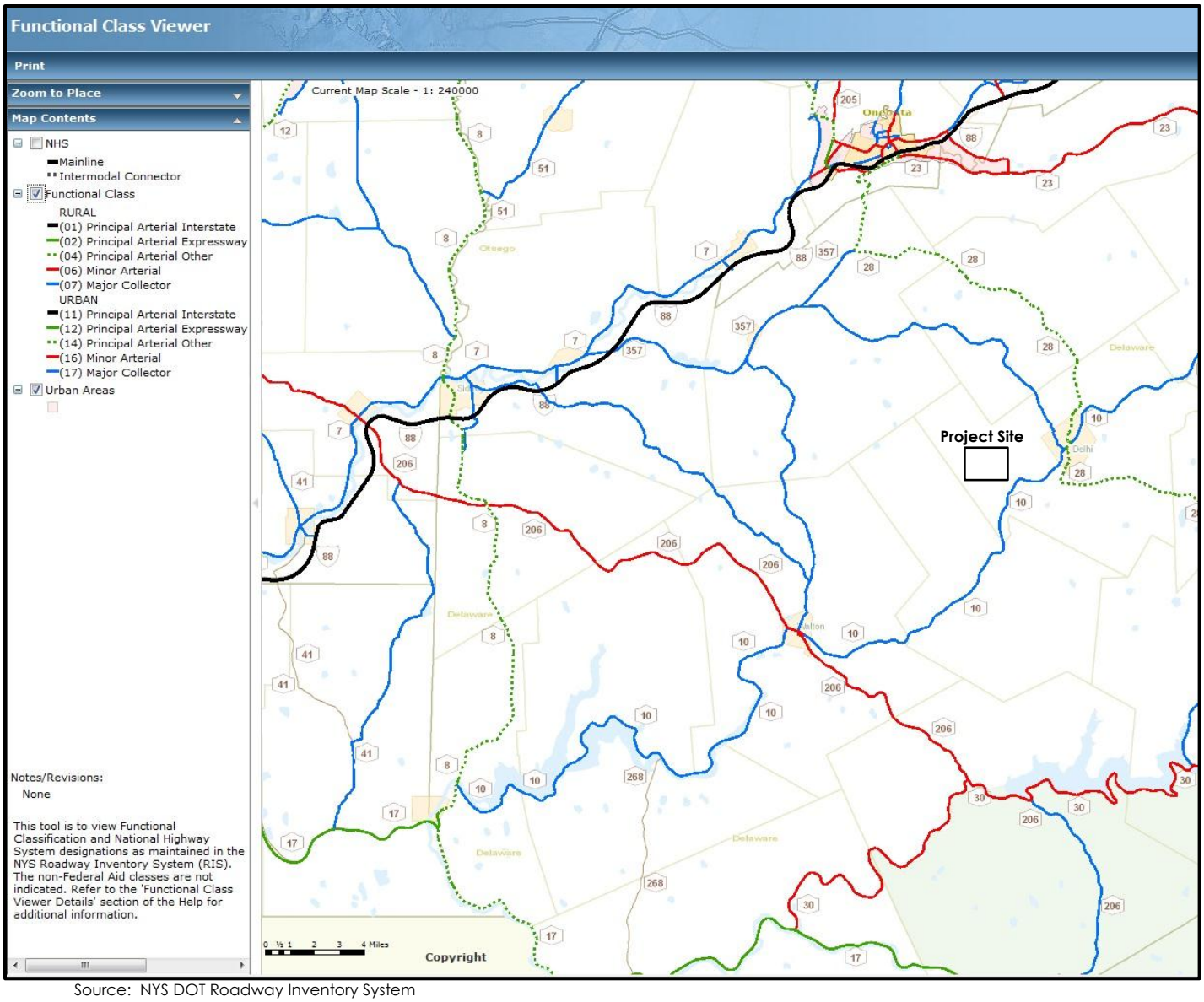
Local Roadways evaluated herein include the following:

- Hamden Hill Road – Local Road (Town owned/maintained)
- Hamden Hill Spur Road – Local Road (Town owned/maintained)

There were no County-owned roadways evaluated as part of this study.

Most of the roads that were evaluated are predominantly (2) lanes wide including shoulders. However, wider sections exist with additional lanes in Town/Village settings and major interchanges to accommodate the left/right movements. The two (2) main routes considered from the north are NY Route 28 and NY Route 10 and both provide two (2) travel lanes with shoulders and are in fairly good condition. The two (2) main routes considered from the south are NY Route 8 and NY Route 10, which also provide two (2) travel lanes with shoulders and are in fairly good condition.

Hamden Hill Road/Hamden Hill Spur Road is the only gravel surface road on the two (2) studied access routes. All other roadways are paved, including shoulders.



Source: NYS DOT Roadway Inventory System

Figure 2 – Functional Classifications for State Highways

ACCESS ROUTES INVESTIGATED

As previously stated, this report evaluated two (2) likely access routes to and from the site; one route from the north and the second route from the south. The North access route exits Interstate 88 (Exit 15) onto NY Route 23 East, then to Route 28 South and then onto Route 10 South before connecting to Hamden Hill Road. The South access route exits NY Route 17 (Exit 84) onto NY Route 8 North and then onto Route 10 North before connecting to Hamden Hill Road. See below for interchange ramps and NY Route 10/Hamden Hill Road intersection images.

The access routes were evaluated using a maximum load length based on a pole length of 53' and a maximum truck/vehicle length of approximately 70'. Each access route was evaluated using standard design vehicles to accommodate both the pole size delivered on a flatbed stretch trailer (refer to **Exhibit V-1)** and the maximum truck length based on an All-terrain crane and/or Tractor/Lowboy length (**Exhibit V-2).**

I-88 Exit 15
@ NY Route 23 East

NY Route 17, Exit 84
@ NY Route 8 North

NY Route 10
@ Hamden Hill Road

North Access Route (Geometry)

I-88 to NY 23 East to NY 28 South to NY 10 South to Hamden Hill Road

Based on a windshield survey, all of the intersections appear to have sufficient pavement area to allow trucks to make the required turning movements. Trucks may need to utilize portions of other lanes to complete the turns. The most geometrically constrained movement for this access route is the intersection of NY Route 28 and NY Route 10. This intersection may require the use of an escort vehicle and/or flaggers to control traffic while the trucks are navigating the intersection. This route does not have

any **truck restrictions** on it and was investigated utilizing truck turning templates on scaled geo-mapping.

South Access Route (Geometry)

NY Route 17 to NY 8 North to NY 10 North to Hamden Hill Road

Also based on a windshield survey, all of the intersections appear to have sufficient pavement area to allow trucks to make the required turning movements. Trucks may need to utilize portions of other lanes and shoulder area to complete the turns (e.g. NY Route 8 right turn onto NY Route 10). The most geometrically constrained movement for this access route would be the intersection of NY Route 17 and NY Route 8. Trucks at this intersection will need to use the entire available pavement area to make the turn. Due to the restricted width, escort vehicles and/or flaggers may need to stop approaching traffic on NY Route 8 to allow the truck to initiate and complete the turn. This route does not have any **truck restrictions** on it and was investigated utilizing truck turning templates on scaled geo-mapping.

IDENTIFICATION OF USE RESTRICTIONS

In general, all roads leading to the site traverse through predominantly rural areas. The access route from the north traverses through the City of Oneonta and the Towns of Franklin, Meredith and the Town/Village of Delhi. From the south, the access route traverses through the Town/Village of Deposit, Town of Tompkins, Town/Village of Walton and Towns of Hamden and Delhi. The entire Project Study area is classified as rural and the project site is generally surrounded by farmland with a two lane gravel road/spur connection from NY Route 10 to the site (Hamden Hill Road Spur).

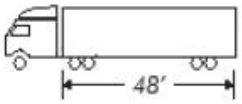
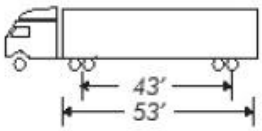
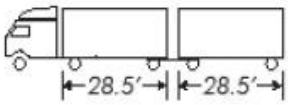
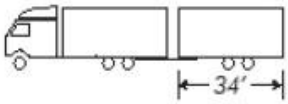
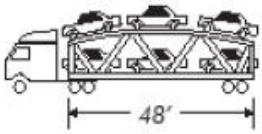
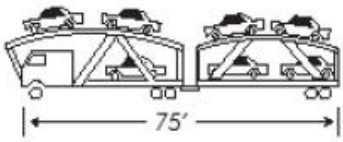
Qualifying and Access Highways are designated for use by special dimension vehicles in New York. These vehicles or combination vehicles were initially authorized by the 1982 Federal Surface Transportation Assistance Act (STAA) and are shown in **Figure 3** below. They do not include longer combination vehicles (LCV's) such as triple 28 foot and twin 48 foot trailer combinations. Unless otherwise specified, Special Dimension Vehicles may use all Qualifying Highways (National Network) and all highways within one road mile of Qualifying Highways using the most reasonable and practicable route available.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
TRUCK ACCESS ON NEW YORK HIGHWAYS

ALLOWABLE WIDTHS

102" ALL QUALIFYING AND ACCESS HIGHWAYS; OTHER HIGHWAYS WITH 10FT. LANES. (EXCLUDES NYC)
96" HIGHWAYS WITH LESS THAN 10FT. LANES; WHERE SPECIFICALLY DESIGNATED; NYC

ALLOWABLE LENGTHS

	QUALIFYING	ACCESS	OTHER	
SEMI-TRAILER WITH CAB	48′ *	48′ *	48′ 65′	
SEMI-TRAILER WITH 43′ KINGPIN WITH CAB	53′(A) *	53′ *	NA NA	
TANDEM TRAILER WITH CAB	28.5′ *	28.5′ *	28.5′ 65′(C)	
MAXI-CUBE	65′	65′	65′	
TRIPLE SADDLE MOUNT	*	*	97′	
AUTO CARRIER CONVENTIONAL	*(B)	*(B)	65′(B)	
STINGER-STEERED	75′(B)	75′(B)	65′(B)	

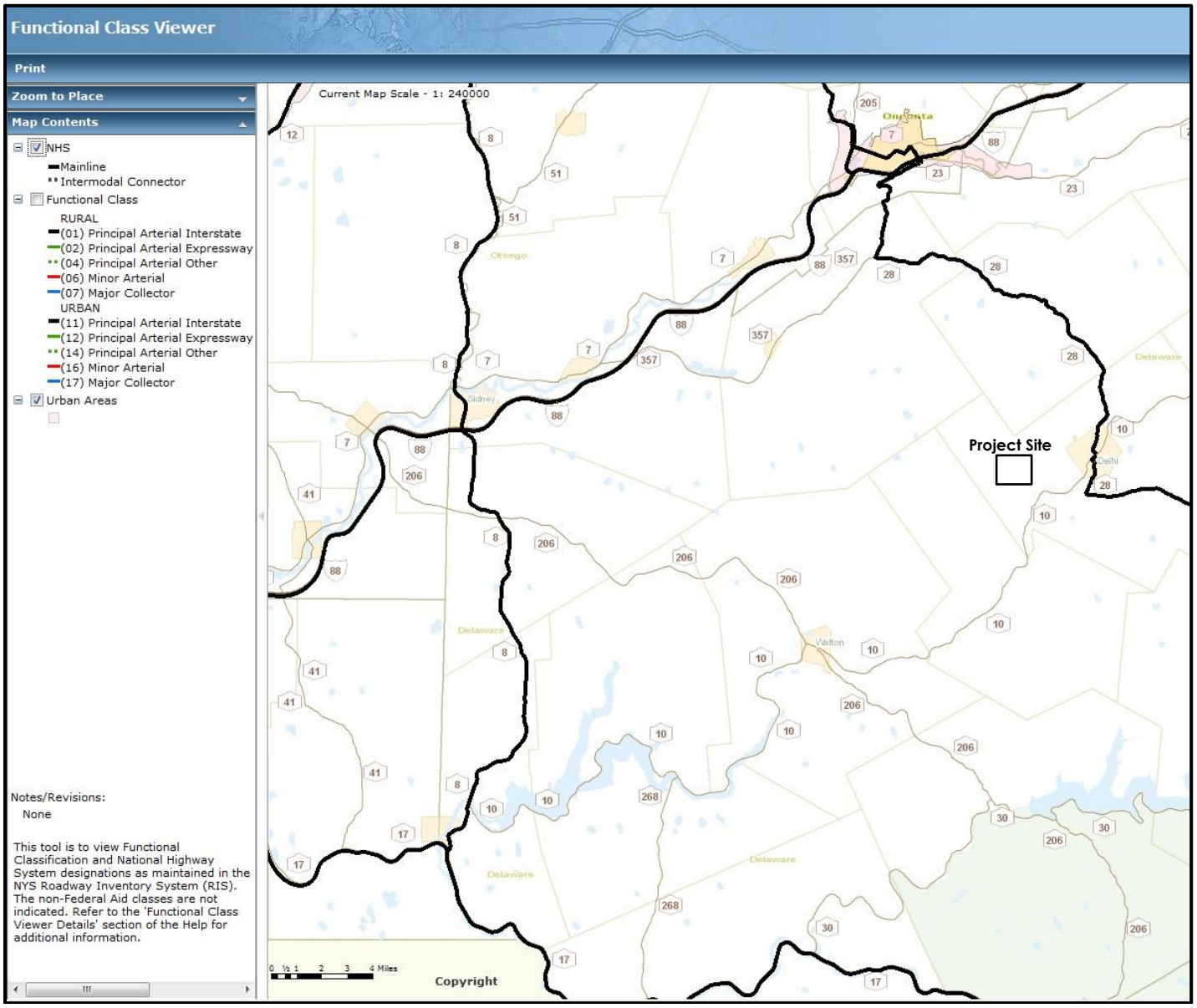
*- UNLIMITED LENGTH NA - NOT ALLOWED
NOTE: (A) IN NYC, PERMITTED ONLY ON SPECIFICALLY DESIGNATED INTERSTATES
(B) EXCLUDING PERMITTED OVERHANG 3′ FRONT AND 4′ REAR
(C) EXCLUDING NEW YORK CITY, NASSAU COUNTY, AND SUFFOLK COUNTY

Source: NYS DOT Official Description of Designated Qualifying and Access Highways in NYS

Figure 3 – Special Dimension Vehicles allowed on the Designated System

The National Network (or National Truck Network) is a network of approved state highways and interstates for commercial trucks that supports interstate commerce by regulating the size of trucks. Large trucks should utilize the National Network for all travel except to access terminals or to reach food, fuel, rest or repair facilities.

Based on the NYS Department of Transporation Functional Class inventory the highways considered for access that are part of the designated National Highway System (NHS) are Interstate 88, NY Route 17, NY Route 28 and NY Route 8, illustrated by a black line in **Figure 4** below.



Source: NYS DOT Roadway Inventory System

Figure 4 – National Highway System Designation

In general any vehicle or combination of vehicles that exceeds 16 ft in width; or 16 feet in height; or 60 feet in length; or 200,000 pounds in gross weight will require the application for the movement of a Superload thus requiring a Type 1S Permit from the Central Permit office in Albany. Due to the extreme size and weight of these vehicles, the Type 1S permit requires a more extensive roadway investigation process, additional

documentation and bonding. Based on the anticipated equipment and material deliveries a Superload Permit is not anticipated at this time.

Special Hauling Permits are required to move vehicles and/or loads on New York State Highways if the vehicle and/or loads exceed the legal dimensions or weights specified in Section 385 of the New York State Vehicle and Traffic Law (Figure 5, below) . Based on the anticipated equipment and material deliveries a Special Hauling Permit will be required for some deliveries for this project.

LEGAL LIMITS

GVW	80,000	
o (steer)	22,400	Man. Tire Rating
o	22,400	
oo	36,000	
ooo	42,000 *	(Greater than 8' in spacings)

*Axles less than 46" apart, measured from axle centers, are considered one axle. Allowed weight based on Federal Bridge Formula.

TOLERANCE: Not applicable

*** Except in NYC. 8'6" on hwys with minimum pavement width of 10'

**** Except in NYC. Distance from Kingpin to center of rear axle group limited to 41'

WIDTH:	8' ***	(pavement lane width of less than 10')
	8'	(Holland Tunnel) (NY/NJ Port Authority
	8'6"	(designated highways & lane width of 10' or greater)
HEIGHT:	13'6"	
	12'6"	(Holland Tunnel)
	13'0"	(Lincoln Tunnel) (Both NY/NJ P.A.)
LENGTH:	40'	single unit
	48'	semitrailer
	53' ****	semitrailer**
	28'6"	doubles
	65'	Stinger steered autotransporter + 3' front & 4' rear overhang
	75'	autotransporters** + 3' front & 4' rear overhang
	65'	overall length
		No overall length**
OVERHANG:		no limit rear, within overall length*
		Front max 15'

*Flag or light over 4'
**On designated and access hwys

PERMIT LIMITS

o	depends on	WIDTH:	16'*
oo	routes, axle	HEIGHT:	15'-11"*
ooo	spacings and	LENGTH:	159-11"*
oooo	vehicle configuration	WEIGHT:	199,999*

Over 140,000 lbs. must have bridge review
*Above these limits are Superloads that require supplemental paperwork have additional restrictions and Bonding. Allow 2 weeks for approval.

Source: NYS DOT Perm 87 Guidelines for Special Hauling Permit Requirements

Figure 5 – Legal Dimensions, Weights & Gross Weights for New York

There are no R-Posted bridges, which based on design or condition, do not have the reserve capacity to accommodate most vehicles over legal weights, but can still safely carry legal weights. By law, no vehicle operating over the legal weight pursuant to a Divisible Load Overweight Permit is allowed to cross any R-Posted Bridge, unless granted a waiver by the owning authority. Such waivers are granted only to those vehicles operating under specific permit types at weights up to 102,000 pounds. Based on review of the roadway network restrictions there are no posted weight restrictions preventing trucks from accessing the site.

Based on a review of the applicable Town codes there are no known Noise Ordinances adopted by the Town Boards with restrictions on any construction or heavy equipment or decibel restrictions on the loading and unloading of equipment during certain hours of the day. Furthermore, there are no stated limitations on the number or rate of concrete or equipment deliveries in the aforementioned Towns.

Summary of Use / Restrictions:

- 'No Truck" signs present
  - None
- Part of Designated National Highway System (NHS) or a designated Truck Route
  - Interstate 88, NY Route 17, NY Route 23, NY Route 28 and NY Route 8
- Posted Weight Restrictions
  - None
- Height Restrictions
  - NY Route 23 under I-88 – BIN 1095239, permitted vertical clearance under 14'-3"
  - NY Route 10 under NY Route 17 – BIN's 1007632 & BIN1007631, permitted vertical clearance under 14'-2" & 20'-4", respectively
- Width Restrictions
  - NY Route 28 – from Otsego County Line to SR 30, 10'-0" maximum width, front escort required if greater than 10' load width
  - Various other bridge width restrictions, but all greater than 10'-0" in width
- Noise Local Law
  - No known construction, heavy equipment or decibel restrictions

FEASIBLE ACCESS ROUTES

As previously mentioned the following trucks have been assumed for the material/equipment delivery analysis:

- WB-67 – 53' modular steel poles (equivalent to a Flatbed Stretch trailer)
- C55 Gooseneck - assumed for rubber tired crane (Lowboy)

After investigating all of the use restrictions and evaluating the critical intersection truck turning movements, our investigations for the north and south access verified that they would accommodate both design vehicles (**Exhibits N-1 to N-5** and **Exhibits S-1 to S-4)**. Based on the existing highway infrastructure our recommendation would be to use the **North Access Route** as the primary route and the South Access Route only as an alternate route depending on the truck and trailer combinations used to deliver project materials and/or equipment.

The North Route will most likely make it easier for the trucks to complete the required turns with minimal disruption to other motorist within the travel corridor. Interstate 88, NY Route 23 & NY Route 28 are part of the designated National Highway System (NHS), which better accommodates Interstate trucks. As mentioned previously, an escort vehicle and/or flaggers may be required at the major intersection turns, especially for larger loads.

CONCLUSION – RECOMMENDATIONS & COORDINATION

Stantec has the following recommendations for the New York Power Authority's consideration:

1. Any delivery that may exceed the Legal Dimensions, Weights for New York State as set forth in the report will have to be revisited for additional Special Hauling Permit requirements.

2. Coordinate with the seven (7) Towns that are being traversed to ensure there are no additional Municipal requirements above the States Special Hauling Permits Requirements. None are anticipated at this time.

3. As mentioned previously, if long length flatbed trucks (i.e. greater than 53' in length) are used to deliver equipment, we recommend posting "Flagman Ahead" warning signs and the use of flagman to control traffic when these Oversize loads/vehicles are turning and/or accessing the site entrance from the north or south.

4. On the approach to the site driveway on NY Route 10, "Construction Entrance Ahead" signs should be posted.

5. Underground and overhead utilities exist throughout the project access routes. Caution should be taken when crossing under any overhead utility crossings.

6. After evaluating the two (2) feasible routes it has been determined that both can accommodate material/equipment deliveries; however we recommend the north access Route as the most feasible route to the site for both the 53' pole sections and the All-terrain crane and/or the 70' road tractor-trailer.

EXHIBITS

Exhibit V1 – Transport Vehicle WB-67 (53' modular steel poles)

Exhibit V2 – Transport Vehicle Gooseneck (CR-55 Lowboy for Crane)

Exhibit N1
A series: Modular Steel Pole Truck Access / Overhead Crane
Interstate 88 - Routes NY 23 East/NY 28 South/NY 10 South

Exhibit S1
A series: Modular Steel Pole Truck Access / Overhead Crane
NY Route 17 - Routes NY 8 North/ NY 10 North