EAST POINT ENERGY CENTER

Case No. 17-F-0599

1001.25 Exhibit 25

Effect on Transportation

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Exhibit 25: Effect on Transportation

This Exhibit will track the requirements of proposed Stipulation 25, dated August 20, 2019, and therefore, the requirements of 16 NYCRR § 1001.25.

25(a) Conceptual Site Plan

Preliminary Design Drawings for the Project are included in Appendix 11-1. These plans identify the proposed solar panel locations, access road locations and widths, and other related Project plans and details.

Details specific to Project access roads and intersections showing horizontal and vertical geometry, number of approach lanes, lane widths, shoulder widths, and traffic control devices are included in Appendix 11-1. Intersection sight distances at the proposed access roads are also included in Appendix 25-2. According to the requirements of 16 NYCRR § 1001.25(2), characterization of public road intersection suitability is required for Projects which include wind turbines. Due to the nature of the Project, expected size of the material, and lack of wind turbines, characterization of the public road intersection suitability outside of the Project Area is not applicable.

All bridges identified within the vicinity of the Project Area appear to have sufficient width- and load-bearing capabilities to accommodate haul routes needed for the construction of the Project, with the exception of a single bridge (BIN – 1007880), located approximately 1.7 miles north of U.S. 20 (42°48’17.3” N, 74°36’39.0” W). The bridge has been identified as an R-posted bridge, requiring a waiver from the owner if the weight of the vehicle exceeds the legal weight pursuant to New York State law. Oversize/overweight vehicles will be used during the construction of the Project. The New York State Department of Transportation (NYSDOT) will review and approve all bridges proposed to be used for the Special Hauling Permit application process, and one of the alternate routes for delivery may be considered to avoid this bridge.

Sight distance diagrams were developed for the proposed access roads at the entrance/exit gates for Areas 1 through 6. The recommended setback for the decision point is 14.5 feet from the edge of the roadway plus half the distance to the required travel lane. For all roadways without a posted speed limit on the roadway it is to be assumed that the legal speed limit is 55 mph according to the NYSDOT Highway Design Manual (HDM), which according to the NYSDOT HDM Chapter 5 Appendix 5C Table 5C-3 and Table 5C-4, has a required sight distance of 930 feet for left turning

vehicles and 850 feet for right turning vehicles. These tables are shown below. It was determined that the sight distance requirement should come from the Combination Truck column for a design speed of 55 mph.

Table 25-1. Design Intersection Sight Distance for Left Turning Vehicles

Table 5C-3 Design Intersection Sight Distance (in feet) - Case B1 - Left Turn From Stop

Design speed (mph)	Passenger Car Lanes Crossed			Single-Unit Truck Lanes Crossed			Combination Truck Lanes Crossed		
	1	2	3	1	2	3	1	2	3
15	170	180	190	210	225	245	255	270	285
20	225	240	250	280	300	325	340	360	380
25	280	295	315	350	375	405	425	450	475
30	335	355	375	420	450	485	510	540	570
35	390	415	440	490	525	565	595	630	665
40	445	475	500	560	600	645	680	720	760
45	500	530	565	630	675	725	765	810	855
50	555	590	625	700	750	805	850	900	950
55	610	650	690	770	825	885	930	990	1045
60	665	710	750	840	900	965	1015	1080	1140
65	720	765	815	910	975	1045	1100	1170	1235
70	775	825	875	980	1050	1125	1185	1260	1330

Table 25-2. Design Intersection Sight Distance for Right Turning Vehicles

Table 5C-4 Design Intersection Sight Distance (in feet) - Case B2 - Right Turn From Stop and - Case B3 - Crossing Maneuver

Design Speed (mph)	Passenger Car Case B2-- Lane Entered Case B3 – Lanes Crossed			Single-Unit Truck Case B2-- Lane Entered Case B3 – Lanes Crossed			Combination Truck Case B2-- Lane Entered Case B3 – Lanes Crossed		
	1	2	3	1	2	3	1	2	3
15	145	155	170	190	205	220	235	250	265
20	195	210	225	250	275	295	310	330	350
25	240	260	280	315	340	365	390	415	440
30	290	310	335	375	410	440	465	495	525
35	335	365	390	440	475	510	545	580	615
40	385	415	445	500	545	585	620	660	700
45	430	465	500	565	610	655	695	745	790
50	480	515	555	625	680	730	775	825	875
55	530	570	610	690	745	805	850	910	965
60	575	620	665	750	815	875	930	990	1050
65	625	670	720	815	880	950	1005	1075	1140
70	670	725	775	875	950	1020	1085	1155	1225

Locations where the minimum sight distance could not be met occurred at:

- Area 1 Access Road & Empire Road (Right Turn Vehicles)
- Area 2 Access Road & Empire Road (Left Turn Vehicles)

For both locations, the sight distance is impacted by the end of the roadway that forms the intersection of Empire Road and Gilberts Corners Road. It should also be noted that for the Area 1 access road the right turning vehicles could also potentially have the sight distance impacted

by a tree located adjacent to the roadway. Trimming trees and other vegetation near the access roads may improve the intersection sight distance at the proposed access locations.

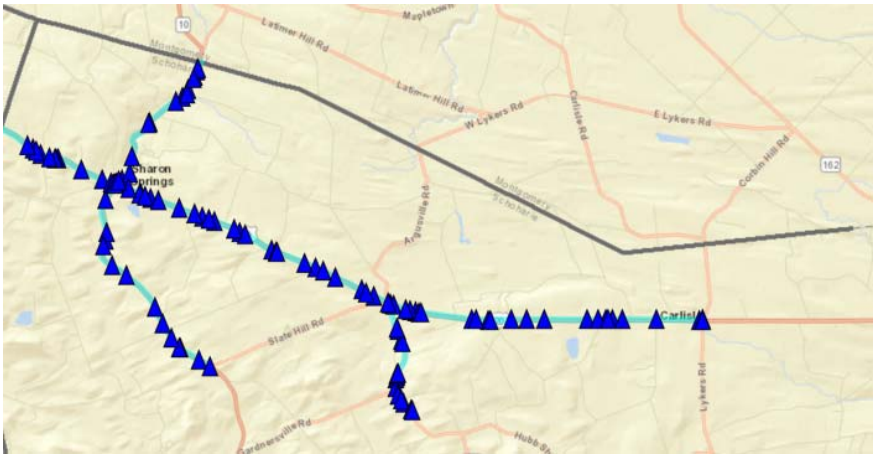
25(b) Description of Pre-construction Characteristics of Roads in the Vicinity of the Project

(1) Traffic Volumes and Accident Data

Existing traffic volume data was obtained from the NYSDOT Traffic Viewer and NYSDOT Highway Data Services Bureau, where historical traffic count data is available for downloading. Average Annual Daily Traffic (AADT) volumes for roads within the Project Area are provided by route in Appendix 25-3.

Existing accident data for the Study Area was obtained from NYSDOT through a Freedom of Information Law (FOIL) Request. Accident data was obtained for segments of U.S. Route 20 and NYS Routes 10 and 145 in proximity to the Project Area (see Figure 25-1) for a three- year period from 2016 – 2018 and is summarized in Appendix 25-4 by case number. During that three-year period, there were a total of 140 accidents, with 72 of the 140 (51%) accidents occurring with a deer or other animal that was not stated. Of the remaining 68 accidents, there were 28 fixed object accidents, 11 right angle accidents, 8 rear end accidents, 3 left turn accidents, 1 overtaking accident, 1 head on accident, and 16 listed as other accident types. Of the 140 accidents, 91 (65%) accidents were listed as property damage only, 25 (18%) accidents involved some type of injury or fatality, and 24 (17%) accidents were non-reportable. There was one accident listed as a fatality that occurred on U.S. 20, approximately 235 meters east of Lynk Road. Of the 140 total accidents, there were 55 (39%) accidents that occurred during the morning hours and the remaining 85 (61%) accidents occurred in the afternoon hours. The breakdown by year for the three-year period is as follows: 46 accidents in 2016, 52 accidents in 2017, and 42 accidents in 2018.

Figure 25-1. Project Area Accident Map



Source: NYSDOT 2019

(2) Transit Facilities and School Bus Routes

The Applicant reached out to the Sharon Springs Central School District on August 12, 2019 to coordinate school bus routing and stops; however, no response regarding school bus routes has been received as of the filing of this Application. Though no road closures are anticipated, should any local roadways need to be temporarily closed during construction for a short period of time, the contractor (or Applicant) will contact the appropriate local agencies to provide notifications. Construction of the East Point Energy Center is not expected to impact school bus stop locations, but in the event that stops are impacted, the contractor (or Applicant) will provide safe accessible waiting areas.

(3) Emergency Service Approach and Departure Routes

The Applicant has made several attempts to obtain information on emergency service routes to and from the Project Area; however, no response from the emergency service providers has been received as of the filling of this Application. In the event of an emergency, it is assumed that the local emergency service providers will take the most direct available route to the Project Area, as their origin points may change due to other emergencies. The Applicant will continue to reach out and coordinate with the local emergency service providers throughout the development and construction process, so that they are aware of any periodic road closures (if necessary) that may impact their routing decisions. They will also be kept informed of expected site work and number of workers so they can plan accordingly.

(4) Load Bearing Structural Rating Information

In addition to the bridge identified above in Section 25(a), the NYSDOT may issue weight and speed restrictions when weather conditions dictate.

(5) Urbanized Areas Traffic Volume Summary

The Project is not within a congested urbanized area, therefore 24-hour traffic volume counts and peak turning movement counts for typical weekday morning, weekday afternoon, and Saturday peaks, at representative critical intersections are not applicable and are not included in this Application.

25(c) Facility Trip Generation

(1) Number, Frequency and Timing of Vehicle Trips

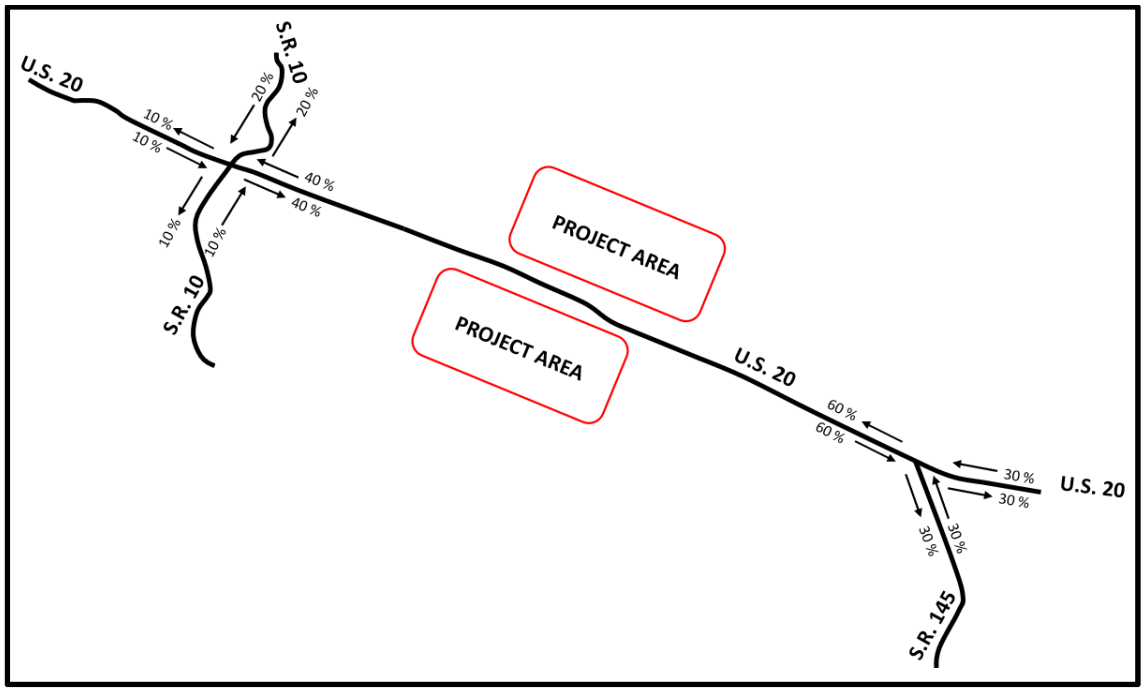
To better understand how the construction of the East Point Energy Center will potentially impact the adjacent roadway system, trips were generated for the Project Area based on the peak construction workforce and construction equipment deliveries. Typically, these trips would be calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, where data from similar sites has been collected and aggregated to provide estimates for peak hour and daily site traffic volumes. However, there are no published trip generation rates for solar farm construction or similar type construction. The peak construction workforce for this Project is expected to be approximately 100 workers which was distributed to/from the Project Area, assuming one worker per vehicle. In addition to construction workforce trips, construction equipment delivery trips were included in the traffic analysis for the peak construction period. Table 25-3 provides a detailed summary of the expected construction and Project material delivery vehicles with a brief overview in the subsequent section. Load trips for the “Equipment and Installation” phase (69 trips) were added to the peak construction workforce to simulate the worst-case traffic operation scenario during the construction period. Figure 25-2 shows the estimated distribution percentages used in calculating construction worker trips and construction equipment deliveries to and from the Project Area.

During the operational phase of the Project, two employees will be on-site periodically for vegetation management and routine Project Component maintenance. Heavy vehicles/equipment will not be traveling to and from the site regularly. This workforce will not affect traffic around the Project Area and will have no impacts on adjacent roadways. Details on frequency of employee

visits to the Project for operations and maintenance can be found in Appendix 5-3, Preliminary Operations and Maintenance Plan.

Construction of the East Point Energy Center will comply with the substantive requirements of the Town of Sharon and Schoharie County local laws and ordinances as they relate to transportation and construction vehicle deliveries. Refer to Exhibit 31 for further analysis.

Figure 25-2. Project Area Site Distribution Percentages



Site Preparation and Grading Equipment

Graders – There will be two graders used for the site preparation and grading of the Project. Each grader will have a 174-horsepower engine and have an approximate weight of 43,000 lbs per vehicle.

Rubber Tired Loaders – It is expected that there will be two rubber-tired loaders in use. Each loader will have a bucket capacity of approximately 2.1 to 5.0 cubic meters and a maximum horsepower of 164. The weight of the rubber-tired loader is approximately 31,000 lbs.

Scrapers – It is anticipated that there will be two scrapers used with approximately 313 horsepower each. The approximate operating weight is 80,000 lbs for each scraper.

Water Trucks – There will be two water trucks in use at the Project Area. Each truck will be equipped with a 189-horsepower engine. Depending on the size of the tank the average weight can be 50,000 lbs to 75,000 lbs. For every 2,500 gallons of liquid the average approximate weight will be an additional 25,000 lbs over the weight of the vehicle carrying the tank which can range from 17,000 lbs to 25,000 lbs.

Generator Sets – Two generator sets will be delivered and used for the construction of the Project.

Trenching and Road Construction Equipment

Excavators – Three excavators will be delivered and used for the construction of the Project. It is approximated that each excavator will weigh roughly 50,000 lbs. The net power for the excavator will be approximately 168 horsepower.

Trencher – There will be two trenchers used at the Project Area. These trenchers will have an operating power of approximately 63 horsepower.

Equipment Installation

Crane – It is expected that a Lattice Crawler Crane will be used to construct the Project. Typical transportation of these cranes requires disassembly and placement on a trailer. It is expected that each crane set up will require approximately seven trailer loads with the main transport load weighing approximately 80,000 lbs.

Forklifts – Eight forklifts will be in operation during construction of the Project. The weight of each forklift is approximately 25,000 lbs. The horsepower of each forklift is approximately 145 horsepower.

Pile Drivers – It is estimated that ten pile drivers will be in use at the Project Area. Each pile driver will have an approximate weight of 30,000 lbs.

Pickup Trucks/ATVs – There will be approximately 45 pickup trucks and ATVs entering the Project Area during construction.

Construction Equipment and Materials

Aggregate Trucks – Temporary and permanent access road will be constructed at the Project Area to provide access from the existing roadways. The access roads will be constructed of 16,175 cubic yards gravel aggregate material. A total of 735 large dump trucks with an

approximate carrying capacity of 22 cubic yards and a weight of 80,000 lbs will be used to deliver the materials to the Project Area. Construction is expected to occur during the first three months, which equates to approximately 12 truck trips per day.

Based on the preliminary cut and fill calculations performed in Exhibit 21, no soil is expected to be removed during construction. There will be an excess of approximately 6,737 cubic yards of topsoil which will be distributed throughout the site.

Concrete Trucks – Concrete will be necessary for perimeter fencing associated with the Project. Approximately 2,700 cubic yards of concrete will be needed for the construction. Trucks with an approximate capacity of 8 cubic yards and a weight of 70,000 lbs will be used to deliver the material to the Project Area. These vehicles will be of legal size and weight, not exceeding 80,000 lb load limits. Construction is expected to occur during the last couple months of construction, which equates to approximately 9 truck trips per day.

Conventional Semi-Trailers– Semi-Trailers will be used to transport the solar array Components and construction equipment to the Project Area. These vehicles will be of legal size and weight, not exceeding 80,000 lb load limits.

Based on the expected transportation methods and proposed construction work, Table 25-3, below, summarizes the expected number of loaded trips generated entering the Project Area.

Table 25-3. Expected Number of Loaded Trips

Equipment/Activity	Construction Equipment	Trips
Site Preparation and Grading	Graders (174 hp)	2
	Rubber Tired Loaders (164 hp)	2
	Scrapers (313 hp)	2
	Water Trucks (189 hp)	2
	Generator Sets	2
Trenching and Road Construction	Excavators (168 hp)	3
	Graders (174 hp)	2

Table 25-3. Expected Number of Loaded Trips

Equipment/Activity	Construction Equipment	Trips
	Water Trucks (189 hp)	2
	Trencher (63 hp)	2
	Rubber Tired Loader (164 hp)	2
	Generator Sets	2
Equipment and Installation	Crane (399 hp)	1
	Crane (165 hp)	1
	Forklifts (145 hp)	8
	Pile Drivers	10
	Pickup Trucks/ATVs	45
	Water Trucks (189 hp)	2
	Generator Sets	2
Commissioning	Pickup Trucks/ATVs	5
Access Roads	Dump Trucks (22 yd^3)	735
Fencing	Concrete Trucks (8 yd^3)	340
Total		1,037

Earthwork activity, construction of access roads, and fencing installation will not occur at the same time as the peak workforce and equipment installation construction period. Added trips for these activities are expected to be approximately 12 trips per day during the first three months and 9 trips per day during the final two months, which does not exceed the peak workforce of 100 trips per day and equipment an installation phase of 69 trips. Therefore, dump trucks for earthwork/access roads and concrete trucks for fencing was not factored into the traffic analysis, which only analyzed the peak construction traffic volumes.

(2) Approach and Departure Routes for Trucks Carrying Water, Fuels, or Chemicals

During Project construction, all trucks carrying water, fuels, or chemicals will utilize the same delivery routes used by other construction vehicles/component delivery haulers. Section 4 below provides detailed routes to the Project Area from every direction which applies to the haul routes as well as construction worker commuter trips.

(3) Cut and Fill Activity

Estimates using the Preliminary Design Drawings (Appendix 11-1) indicate approximately 123,920 cubic yards of material will be excavated during the facility construction. In addition, approximately 146,377 cubic yards of fill will be placed, of which approximately 13,275 cubic yards is gravel fill which will be imported to the Project Area. The remainder of the fill is derived from excavations associated with Project construction. Excess material from excavations will be distributed across the disturbed areas and blended into existing topography to return each area to its approximate original condition. Please see Appendix 11-1 for the Preliminary Design Drawings and Exhibit 21 for additional information on cut and fill activity.

(4) Construction Workers and Employee Approach and Departure Routes

To East Point Energy Center – Two major east-west interstates run along the north and south sides of the Project Area. Interstate 90 is north of the East Point Energy Center and Interstate 88 runs along the south side. Both routes have an exit that will lead directly to U.S. 20 near the East Point Energy Center.

From North: Eastbound and westbound traffic can take Exit 29 on I.R. 90 and exit onto E. Main Street (S.R. 5S) and make a right turn towards Church Street (S.R. 10). At Church Street make a left turn and head southbound on S.R. 10. Follow S.R. 10 southbound until the intersection of S.R. 10 and U.S. 20.

From South using S.R. 10: Eastbound and westbound traffic can take Exit 21 on I.R. 88 and exit onto Hite Road and turn northbound. Make a right at S.R. 7, continue S.R 7 until the intersection with N. Grand Street and make a left turn. At the intersection of N. Grand Street and Elm Street (S.R. 10) make a left turn. Stay on S.R. 10 towards the intersection with U.S. 20.

From South using S.R. 145: Eastbound and westbound traffic can take Exit 22 on I.R. 88 and exit onto S.R. 145 and turn northbound towards S.R. 7. Make a left turn on S.R. 7 and continue westbound to N. Grand Street. Make a right turn on N. Grand Street and continue northbound onto S.R. 145. At the intersection of S.R. 145 and C.R. 29 make a right turn. Veer left on S.R. 145 near the intersection of S.R. 145 and Miles Road/Town Line Road. Stay on S.R. 145 until the intersection with U.S. 20.

Area 1, Area 2, Area 3, Area 6 from North: Make a left turn on U.S. 20 and continue eastbound to Gilberts Corners Road. Make a left turn on Gilberts Corners Road and continue northbound. Make a right turn at the Kilts Road/Gilberts Corners Road. Area 1, Area 2, and Area 3 will be accessible from the site entrance gate on the right-hand side of Gilberts Corners Road while Area 6 will be accessible from the site entrance gate on the left-hand side of Gilberts Corners Road.

Area 1, Area 2, Area 3, Area 6 from South using S.R. 10: Make a right on U.S. 20 and continue eastbound to the intersection of Gilberts Corners Road. Make a left turn on Gilberts Corners Road and continue northbound. Make a right turn at the Kilts Road/Gilberts Corners Road. Area 1, Area 2, and Area 3 will be accessible from the site entrance gate on the right-hand side of Gilberts Corners Road while Area 6 will be accessible from the site entrance gate on the left-hand side of Gilberts Corners Road.

Area 1, Area 2, Area 3, Area 6 from South using S.R. 145: Make a left on U.S. 20 and continue westbound to the intersection of Gilberts Corners Road. Make a right turn on Gilberts Corners Road and continue northbound. Make a right turn at the Kilts Road/Gilberts Corners Road. Area 1, Area 2, and Area 3 will be accessible from the site entrance gate on the right-hand side of Gilberts Corners Road while Area 6 will be accessible from the site entrance gate on the left-hand side of Gilberts Corners Road.

Area 4 from North: Make a left turn on U.S. 20 and continue past the intersection of Beech Road. Area 4 will be accessible on the left-hand side of U.S. 20.

Area 4 from South using S.R. 10: Make a right on U.S. 20 and continue eastbound past the intersection of Beech Road. Area 4 will be accessible on the left-hand side of U.S. 20.

Area 4 from South using S.R. 145: Make a left on U.S. 20 and continue westbound, the site entrance gate will be located on the right-hand side of U.S. 20 prior to the intersection with Beech Road.

Area 5 from North: Continue southbound on S.R. 10 through the U.S. 20 intersection. Make a left on Sakon Road, the site entrance gate will be located on the left-hand side of Sakon Road.

Area 5 from South using S.R. 10: Make a right on Sakon Road, the site entrance gate will be located on the left-hand side of Sakon Road.

25(d) Traffic and Transportation Impacts

(1) Analysis of Future Traffic Conditions

The majority of traffic impacts will be short-term and primarily due to the temporary influx of personnel and investment during construction. Long-term effects to maintain and operate the solar farm are anticipated to be minimal. As mentioned previously in section 25(c)(1), two employees will be on-site periodically for various management/maintenance work, which is significantly fewer trips than the peak construction period of 169 additional trips; therefore, no there will be no impact to future traffic conditions as a result of the operation of the Project. Refer to Appendix 5-3, Preliminary Operations and Maintenance Plan, for details on frequency of employee visits to the Project for operations and maintenance.

(2) Evaluation of the Road System to Accommodate the Projected Traffic

With additional trips generated by the construction of the solar farm, the construction level of service (LOS) will be evaluated for both the existing traffic volumes and construction level traffic volumes to express the performance of the existing roadway facilities.

Existing Traffic Data

Existing traffic volume data was obtained from the NYSDOT Traffic Viewer and NYSDOT Highway Data Services Bureau, where historical traffic count data is available for downloading. AADT volumes are provided by route for a majority of the County and State Routes in the area. Traffic count data was sporadically available for many of the local roads within the Project Area. The table below summarizes the available traffic data within the Project Area:

Table 25-4. Available Traffic Data within the Project Area

Site No.	Route/ Road Name	From	To	AADT Volume	Count Station	Count Year
A	U.S. 20	Leesville Cross Road	S.R. 10	2465	95_0189	2016
B	U.S. 20	S.R. 145	S.R. 10	3299	95_0005	2016
C	S.R. 10	S.R. 165	U.S. 20	1567	95_0041	2016
D	S.R. 10	Sharon Springs Corp. Line	U.S. 20	1474	95_0018	2016
E	U.S. 20	S.R. 10	S.R. 145	3299	95_0005	2016
F	S.R. 145	Lawyersville Road (S.R. 29)	U.S. 20	1601	95_0191	2016
G	U.S. 20	Crommie Road (S.R. 7)	S.R. 145	2388	95_0032	2016

Roadway Characteristics

Existing roadways within the Project Area fall into four functional classifications as defined by NYSDOT Office of Technical Services and FHWA.

Principal Arterial Expressway – The only Principal Arterial Expressway found within the Project Area is U.S. 20. Principal Arterials in a rural area are roadways that can range from two-lane to multilane divided, controlled-access facilities. This type of roadway is primarily high-speed for travel between major points.

Minor Arterial – The only Minor Arterial found within the Project Area is S.R. 10. Minor Arterials are often moderate length and usually provide a connection to a higher-level roadway, such as a Principal Arterial. In rural areas, such as the Project Area, Minor Arterials provide high travel speeds with minimal disruption to the through traveling vehicles.

Major Collector – The only Major Collector found within the Project Area is S.R. 145. Major Collectors generally have few driveways and also allow for minimal disruption to the through traveling vehicles. Major Collectors can be shorter in length and have fewer daily traffic than Minor Arterials.

In addition to the classifications, roadways in the Project Area are rural in nature and generally provide one travel lane in each direction with limited shoulder and roadside treatments. A majority of the existing intersections are stop-controlled.

Performance Methodology

Based on the functional classifications of the roadways in the Project Area, roadway performance was analyzed by methods described in Chapter 12 and Chapter 15 of the Highway Capacity Manual 6th edition (HCM). Chapter 12 covers the guidance necessary for determining the performance of Multilane Highways, defined as highways with two (2) or more lanes of travel in one direction. Chapter 15 of the HCM provides guidance for determining the performance of Two-Lane Highways, defined as roadways where passing maneuvers take place in the opposing lane of traffic and where segments are in excess of two miles from the nearest signalized intersection. Chapter 15 was recently amended by the National Cooperative Highway Research Program (NCHRP) and calculations for the LOS of two-lane highways were performed using the methodology from their findings.

Chapter 12 of the HCM states that multilane highways can be characterized by three performance measures. Each of the three measures are indicators of how well traffic is being accommodated by the multilane highway segment. The three measures are listed below.

- Density in passenger car per mile per lane
- Space mean speed in miles per hour
- Ratio of demand flow rate to capacity (v/c)

Exhibit 12-15 from the HCM visually depicts the ranges of the density of the multilane highway that determines the level of service. This can be seen below.

Table 25-5. LOS Criteria for Multilane Highway Segments

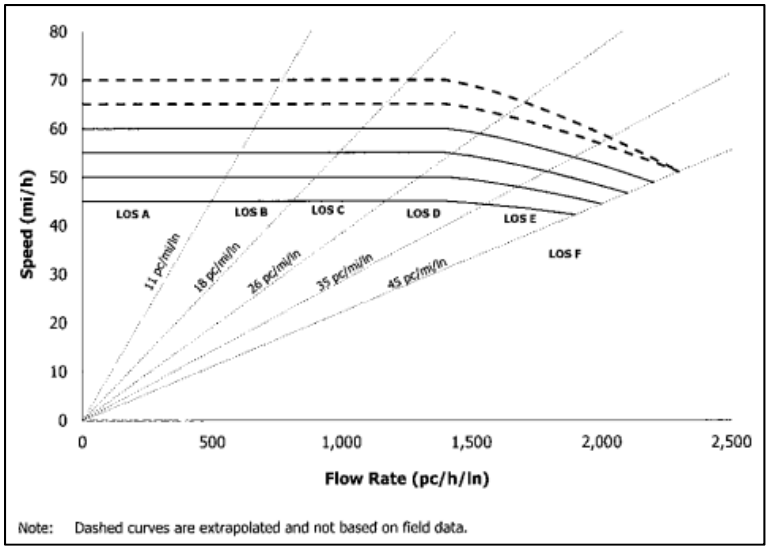
[Taken from Chapter 12 of the Highway Capacity Manual 6th Edition (HCM)]

LOS	Density (pc/mi/ln)
A	≤11
B	>11–18
C	>18–26
D	>26–35
E	>35–45
F	Demand exceeds capacity OR density > 45

Exhibit 12-17 from the HCM graphically represents the speed of the passenger car verses flow rate of the multilane highway segment. This figure can be seen below.

Figure 25-3. LOS Criteria and Speed-Flow Curves for Multilane Highway Segments

[Taken from Chapter 12 of the Highway Capacity Manual 6th Edition (HCM)]



Two-lane highway LOS calculations were recently updated within Highway Capacity Software (HCS) 7 based on new studies performed by the NCHRP and published in the *"Improved Analysis of Two-Lane Highway Capacity and Operational Performance (2018)"*. Calculating the LOS for a two-lane highway includes the analysis of the "Follower Density" (FD). FD is calculated by examining the percent follower in the analysis direction and multiplied by the ratio of the flow rate vs. average speed in the analysis direction. This formula can be seen below in Figure 25-4. When calculated, the LOS can be determined by comparing the FD value received to the range of values for the LOS as seen in Table 25-6 below.

Figure 25-4. Follower Density Equation

[Taken from "Improved Analysis of Two-Lane Highway Capacity and Operational Performance (2018)"]

Follower density, for use with Table F-35 is calculated as follows.

$$FD = \frac{PF}{100} \times \frac{v_d}{S} \quad \text{(F-25)}$$

where:

FD = follower density in the analysis direction (followers/mi),
PF = percent follower in the analysis direction,
v_d = flow rate in the analysis direction (veh/h), and
S = average speed in the analysis direction (mi/h).

Table 25-6. Follower Density Thresholds

[Taken from "Improved Analysis of Two-Lane Highway Capacity and Operational Performance (2018)"]

Table F-35. Follower Density Thresholds

LOS	Follower Density (followers/mi/ln)	
	High-Speed Highways Posted Speed Limit ≥ 50 mi/h	Low-Speed Highways Posted Speed Limit < 50 mi/h
A	≤ 2.0	≤ 2.5
B	> 2.0 – 4.0	> 2.5 – 5.0
C	> 4.0 – 8.0	> 5.0 – 10.0
D	> 8.0 – 12.0	> 10.0 – 15.0
E	> 12.0	> 15.0

Existing Level of Service

Based on the existing traffic volumes and existing roadway characteristics, existing LOS was calculated. It was assumed that the design hour of the roadway accounts for 10% of the AADT and that the directional distribution is 60%/40%.

As shown in Table 25-7 and Table 25-8 below, under base conditions all roadways within the Project Area are currently operating as LOS A during the design hour for both the multilane and two-lane highways.

Table 25-7. Existing Traffic Volumes & Characteristics for Multilane Highways

Site No.	Route/Road Name	Direction	Design Hour Volume (PC/H)	Average Speed (MI/HR)	Density (PC/MI/LN)	LOS
A	U.S. 20	Eastbound	148	58.4	1.7	A
	U.S. 20	Westbound	99	58.4	1.1	A
B	U.S. 20	Eastbound	198	58.4	2.2	A
	U.S. 20	Westbound	132	58.4	1.5	A
E	U.S. 20	Eastbound	198	58.4	2.2	A
	U.S. 20	Westbound	132	58.4	1.5	A
G	U.S. 20	Eastbound	143	58.4	1.7	A
	U.S. 20	Westbound	96	58.4	1.1	A

Table 25-8. Existing Traffic Volumes & Characteristics for Two-Lane Highways

Site No.	Route/Road Name	Speed Limit (MI/HR)	Design Hour Volume (V/H)	Opposing Direction Volume (V/H)	Follower Density (FOLLOWERS/MI/LN)	LOS
C	France St. (S.R. 10)	30	94	63	0.6	A
D	Main St. (S.R. 10)	30	88	59	0.5	A
F	S.R. 145	55	96	64	0.3	A

Construction Level of Service

To evaluate the impacts that the construction of the solar farm will have on the roadway system, roadways within the Project Area were evaluated with the additional construction traffic, which can then be compared to the existing roadway traffic capacity analysis. The previously developed 100 peak hour construction worker trips and 69 equipment delivery trips were added to the existing design hour traffic volumes to develop the total traffic volumes during construction. Table

25-9 and Table 25-10 below summarizes the HCS outputs for both multilane and two-lane highways.

Table 25-9. Traffic Volumes & Characteristics for Multilane Highways During Construction

Site No.	Route/Road Name	Direction	Design Hour Volume (PC/H)	Free Flow Speed (MI/HR)	Density (PC/MI/LN)	LOS
A	U.S. 20	Eastbound	158	56.9	1.9	A
	U.S. 20	Westbound	106	56.9	1.3	A
B	U.S. 20	Eastbound	238	56.9	3.0	A
	U.S. 20	Westbound	160	56.9	2.0	A
E	U.S. 20	Eastbound	259	57.6	3.3	A
	U.S. 20	Westbound	172	57.6	2.2	A
G	U.S. 20	Eastbound	174	57.6	2.2	A
	U.S. 20	Westbound	116	57.6	1.5	A

Table 25-10. Traffic Volumes & Characteristics for Two-Lane Highways During Construction

Site No.	Route/Road Name	Speed Limit (MI/HR)	Design Hour Volume (V/H)	Opposing Direction Volume (V/H)	Follower Density (FOLLOWERS/MI/LN)	LOS
C	France St. (S.R. 10)	30	104	70	0.7	A
D	Main St. (S.R. 10)	30	108	73	0.7	A
F	S.R. 145	55	126	84	0.4	A

It is expected that all roadways will operate at LOS A within the Project Area for both the multilane and the two-lane highways during the construction period. Additional construction related vehicles traveling the roadways will have little impact on the roadways due to the minimal existing demand.

Future traffic analysis for the operating condition was not performed since that period is expected to have fewer daily trips than the construction period. The construction period represents the absolute worst case in terms of total traffic volumes. Given that the construction period is not expected to have any traffic impacts, with LOS A at each segment analyzed, the future operations will also function at LOS A, with equal or less traffic operational impacts.

(3) Route Evaluation - Over-Size Load Deliveries and Roadway Restrictions

As mentioned at the beginning of this Exhibit, one of the bridges located on S.R. 10 north of the Project Area is R-posted, requiring a waiver from the owner if the weight of the vehicle exceeds the legal weight pursuant to New York State law. Attempts to avoid the bridge using routing from south of the Project Area will be considered in preparation of the Compliance Filing. If the proposed oversize/overweight detour route is not feasible, then the condition and load rating of the bridge will be checked during the haul route evaluation. Should the review find reason for concern, the bridge structure will be temporarily reinforced for the oversize/overweight component delivery. No other improvements are necessary to accommodate oversize/overweight vehicles that will be used.

(4) Measures to Mitigate for Impacts to Traffic and Transportation

Transit and School Busing – The Applicant will coordinate with local school districts to avoid impacts and delays to bus routes throughout the construction process. Local school districts will be advised in advance of any road closures so that alternatives routes can be developed. It is expected that overall impacts to the local school districts busing program will be minimal and no significant mitigation exceeding ongoing coordination is recommended.

Emergency Response – The Applicant will coordinate with local emergency service providers throughout the construction process, so that they are aware of any sporadic road closures that may impact their routing decisions during the duration of the closure. They will also be kept informed on expected site work and number of workers so that emergency response can be planned for in advance. It is expected that overall impacts to the local emergency service providers will be minimal and no significant mitigation exceeding ongoing coordination is recommended.

Traffic Impacts – It is expected that all roadways will operate at LOS A within the Project Area during the peak hour of the day. The results of the traffic analysis indicate that no new traffic

control devices are required and that there will be minimal impacts to the traveling public during the peak construction period and virtually no impact to the traveling public during off-peak periods. No capacity improvements or roadway upgrades are required to accommodate the construction of the proposed facilities.

(5) Road Use and Restoration Agreements

The Applicant has met with local officials in the Project Area. During these meetings the Applicant has briefed the town and county representatives about the Project, construction operations, the application process, and discussed road use agreements/permits. No major road projects or future plans were identified by any of the representatives.

The Applicant anticipates that the large dimension and weight of several Components (switchyard control rooms, substation poles, GSU, etc.) will require special hauling permits, and/or road use agreements along the Project haul routes. The types of NYSDOT permits required depend on the characteristics of the vehicle and its cargo, number of trips, distance traveled, and duration. NYSDOT defines oversize/overweight vehicles as those exceeding the dimensions provided in Table 25-11 below (e.g., overall, inclusive of load, bumpers, etc.).

Any vehicle exceeding 16 feet wide, 160 feet long, 15 feet 11 inches high or 199,999 lbs will require a NYSDOT superload permit. The application/permit process can be done on-line through the NYSDOT website. The fee structure for the superload permit is also published on-line and are cumulative based on load configuration and weight.

Table 25-11. NYSDOT Over-size/Over-weight Vehicle Dimensions

		State Highway	Qualifying or Access Highway
A.	Width of Vehicle, inclusive of load	8 feet	8 feet 6 inches
B.	Height of vehicle from underside of tire to top of vehicle, inclusive of load	13 feet 6 inches	13 feet 6 inches
C.	Length of single vehicle inclusive of load and bumpers	40 feet	40 feet

Table 25-11. NYSDOT Over-size/Over-weight Vehicle Dimensions

		State Highway	Qualifying or Access Highway
D.	Length of a combination of vehicles inclusive of load and bumpers	65 feet	Unlimited[2]
E.	Length of a single trailer	48 feet	53 feet
F.	Length of a single twin trailer	28 feet 6 inches	28 feet 6 inches

Prior to construction, the Applicant and/or contractor will obtain all necessary permits from the NYSDOT. The final transportation plan will be provided in the Compliance Filing prior to construction, and will specify the local, County, and State roads to be used as delivery routes (both within and outside of the Project Area) by construction/transportation vehicles.

Additionally, Road Use Agreements with the Town of Sharon, Schoharie County and NYSDOT will be negotiated, as required. The Applicant is requesting that the Department of Public Service Staff not supplant the procedural requirements for any required NYSDOT, Schoharie County or municipal highway work permits and instead authorize these entities, to approve the required road or highway work permits. The Applicant plans to enter into easements or any other required approval from the Town of Sharon for the installation of collection lines along Empie and Beech Roads, both of which are Town of Sharon public roads. Exhibit 31 provides a further discussion of these approvals.

In accordance with the anticipated Road Use Agreements, directly prior to construction, a survey of the agreed delivery route will be carried out by appropriately qualified engineers (and NYSDOT, County Highway, and Town Highway Departments as available) to assess and document current existing road conditions. Any extraordinary damage or over-run caused by vehicles during the construction period is to be repaired to agreeable standards under a Road Use Agreement with the relevant authority (State, County, or Town). The Applicant will repair damage done to roads affected by construction thereby restoring the affected roads to a condition equal to or better than documented by the pre-construction survey. Roads will also be maintained in good working order during construction. The Project Sponsor will establish a road use reparation fund or purchase a

reparation bond as financial assurance that the roads damaged by the activities of the Project's construction will be repaired to the standards required by the Road Use Agreement.

25(e) Public Transportation, School Bus Routes, Aeronautical and Military Operations

The Project is designed to avoid and mitigate impacts to mass transit, and aeronautical and military operations. As noted above, the Applicant will coordinate with local school districts to avoid impacts and delays to bus routes throughout the construction process. The Federal Aviation Administration (FAA) evaluates potential impacts on air navigation for proposed structures that exceed certain criteria, such as heights greater than 200 feet above ground level and in close proximity to public use and military airports (14 CFR §77.9(a-e)). The proposed facility will not trigger notification to the FAA. Airports and heliports have not been identified within the Project Study Area.

25(f) Federal Aviation Administration Review

As part of the construction of the East Point Energy Center, no construction or alteration is proposed that requires a Notice of Proposed Construction to be submitted to the administrator of the Federal Aviation Administration (FAA) in accordance with 14 Code of Federal Regulations, Part 77 pursuant to 49 U.S.C., Section 44718.

References

National Academics of Sciences, Engineering, and Medicine (2018). *Improved Analysis of Two-Lane Highway Capacity and Operational Performance.* Washington, D.C.: The National Academies Press. https://doi.org/10.17226/25179

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