CORDELIO POWER

FLAT CREEK SOLAR

Permit Application No. 23-00054

§ 1100-2.17 Exhibit 16

Effect on Transportation

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Acronym List

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ATVs	All-Terrain Vehicles
BDIS	Bridge Data Information System
CCSD	Canajoharie Central School District
CFR	Code of Federal Regulations
CR	County Road
CY	cubic yards
DDHV	Directional Design-Hour Volume
FAA	Federal Aviation Administration
FD	Follower Density (followers/mi/ln)
FHWA	Federal Highway Administration
FOIL	Freedom of Information Law
GSU	generator step-up unit
HCM	Highway Capacity Manual 6th edition
HCS	Highway Capacity Software
HDM	Highway Design Manual
hp	horsepower
lbs	pounds
LOD	United States Geological Survey
LOS	Levels Of Service
MOT	Maintenance of Traffic
NCHRP	National Cooperative Highway Research Program
NYSDOT	New York State Department of Transportation
MPH	miles per hour
O&M	Operation and Maintenance
ORES	Office of Renewable Energy Siting and Electric Transmission
POI	point of interconnection
RUAs	Road Use Agreements
SR	State Road
SSDs	Stopping Sight Distances

Glossary Terms

Applicant	Flat Creek Solar NY LLC, a subsidiary of Cordelio Power LP, the entity seeking a siting permit for the Facility from the Office of Renewable Energy Siting and Electric Transmission (ORES) under Article VIII of the New York State Public Service Law.
Facility	Flat Creek Solar, a 300 MW solar generating facility located in the Towns of Root and Canajoharie, NY. The proposed Facility components to be constructed for the generation, collection, and distribution of energy for Flat Creek Solar include solar panel modules, electrical collection system, collection substation, point of interconnection (POI) switchyard, access roads, laydown/staging areas, and other ancillary facilities.
Facility Site	The participating parcels encompassing Facility components, which totals approximately 3,794 acres in the Towns of Canajoharie and Root, Montgomery County, New York (Figure 2-1).
Study Area	The Study Area for the Facility includes a radius of five miles around the Facility Site boundary, unless otherwise noted for a specific resource study or Exhibit. The 5-mile Study Area encompasses approximately 108,667 acres, inclusive of the approximately 3,794-acre Facility Site.
Limit of Disturbance (LOD)	The area to which temporary construction impacts will occur, totaling approximately 1,637 acres.

Exhibit 16: Effect on Transportation

This Exhibit provides information required in accordance with the requirements of §1100-2.17 of the Article VIII Regulations.

16(a) Conceptual Facility Site Plan

Proposed Facility components include utility-scale solar arrays, access roads, inverters, buried collection lines, a collection substation, and point of interconnection (POI) switchyard, fencing, and laydown areas. The Facility Site encompasses approximately 3,794 acres of primarily agricultural land use, south of Interstate (I)-90, southwest of State Road (SR) 162, north of County Road (CR 92), and west of SR 10.

A Facility Site plan depicting the Facility Site, including access road horizontal and vertical geometry, the number of approach lanes, the lane widths, shoulder widths, traffic control devices by approaches, sight distances, and roadway intersections, is included in Appendix 5-1: *Design Drawings* of Exhibit 5 of this Application. These plans will be updated upon final design prior to Facility construction in accordance with Section 1100-10.2 This Exhibit discusses the potential traffic impact to the following roadway segments, which are the components of the proposed routes for construction vehicles, equipment deliveries and workers from nearby limited access facilities to the Facility Site. These roadway segments define the Study Area for purposes of this Exhibit.

(1) Horizontal and Vertical Geometry, Approach Lanes, Lane Widths, Shoulder Widths, Traffic Control Devices, and Sight Distances

Existing Geometry

The Facility Site access road horizontal and vertical geometry, number of approach lanes, lane widths and shoulder widths are included in Appendix 5-1: *Design Drawings* of Exhibit 5 of this Application. The Facility Site access roads will be side street stop control, where the existing roadway will remain free flow to minimize disruption to the existing users. The local roads are typically 10-foot lanes with no shoulders or 1-2-foot unpaved shoulders. The State Roads are 12-foot lanes with paved shoulders.

Sight Distance

The horizontal sight distance is based on the Facility Site plan located in tangent roadway sections and are expected to be sufficient. The Facility Site distance vertical clearance will be evaluated by the contractor before they are used and a flagger with Maintenance of Traffic (MOT) signing will be used as needed.

The New York State Department of Transportation (NYSDOT) Highway Design Manual (HDM) (Chapter 5, Appendix 5C, Table 5C-3 and Table 5C-4) provides recommended sight distances for left-turning vehicles and for right-turning vehicles for passenger cars and for combination trucks based upon the Design Speed of the road (Appendix 16-1). The Design Speed is the speed a road is designed for. Recommended sight distances are significantly less at lower speeds than at higher speeds. These tables are in Appendix 16-1.

Additional sight distance tables from the American Association of State Highway and Transportation Officials (AASHTO) – A Policy on Geometric Design of Highways and Streets, Seventh Edition, 2018, form the basis for the NYSDOT sight distances referenced above are contained in Appendix 16-1. The AASHTO tables show the Stopping Sight Distances (SSDs), which are the minimum sight distances and are the required sight distances. The sight distances for the Study Area were determined based upon photos and publicly available aerial imagery. The standard SSD as per AASHTO for level roadways with a design speed of 30 miles per hour (MPH) is 200 feet, for both construction vehicles and passenger cars. At existing intersections sight distance was assumed to meet standards, at the proposed access the contractor is responsible to field verify sight distance and use a flagger if needed. The following are the standard SSDs as per AASHTO for level roadways.

Design Speed: 30 mph	SSD Design: 200 feet
Design Speed: 35 mph	SSD Design: 250 feet
Design Speed: 40 mph	SSD Design: 305 feet
Design Speed: 45 mph	SSD Design: 360 feet
Design Speed: 50 mph	SSD Design: 425 feet
Design Speed: 55 mph	SSD Design: 495 feet

In addition, because of the height of the seated truck driver and the height of the trucks, truck drivers can generally see a farther distance and trucks can generally be seen at a farther distance, thus further increasing the available sight distance. If the driver pulls up closer to the intersection when exiting a Facility driveway, the sight distance is generally improved. The addition of signage or shifting of driveway locations for better visibility may be considered if deemed necessary. Each driveway location will be field checked prior to/during construction to review signage, vegetation, and specific location details. Facility Site driveway locations are shown on Figure 16-1.

(2) Access Road Locations and Widths and Road Intersection Suitability for Wind Facilities

According to the requirements of the Article VIII Regulations, characterization of public road intersection suitability is required for wind facilities. The proposed Facility is a solar facility; therefore, characterization of the public road intersection suitability outside of the Facility Site is not applicable.

16(b) Description of the Pre-construction Characteristics of Roads in the Study Area

A description of the pre-construction characteristics of the public roadways in the vicinity of the Facility Site, as required pursuant to § 1100-1.3(a), is provided in the following subsections. Pre-application public meetings and specific input received are discussed in detail in Exhibit 2. *Overview and Public Involvement*.

(1) Traffic Volumes and Accident Data

Existing traffic volume data along the proposed approach and departure routes for the Facility was obtained from the NYSDOT Traffic Data Viewer and NYSDOT Highway Data Services Bureau, where historical traffic count data is available online. Average annual daily traffic (AADT) is the total number of vehicle trips, in all lanes, in a typical 24-hour day. AADT data is not available on every roadway that has an access road access, but the locations that have data available are representative of typical traffic volume in the area.

The highest volume roads in the Study Area carry 3,450 vehicles per day, which is equivalent to about 250 vehicles per hour in the peak hour of the day. The local county roads have less than 50 vehicle trips per hour. A single lane can carry around 1,000 vehicles per hour and provide acceptable traffic flow conditions. Existing traffic volume data shown in Table 16-1 below was obtained from the NYSDOT with additional information provided in Appendix 16-2.

Table16-1. Existing AADT (Year 2024)

Roadway	AADT
SR 5S	3,450
SR 162	1,665
Flat Creek Road	309
Carlisle Road	306
Cunningham Road	71
NOTES: Source NYSDOT	

Crash Data

TRC submitted a Freedom of Information Law (FOIL) request to NYSDOT for the most recent three-year period (2021, 2022, 2023) crash data on SR 5S and SR 162 in the Study Area.

Along SR 5S (Main Street), from I-90 Exit 29 to Sprakers Road, there were a total of 15 crashes in the most recent three-year period including seven crashes in 2021, four in 2022 and four in 2023. Three of these crashes involved an injury and one crash involved a serious injury. Only one collision was with another vehicle, all the other collisions were run off road, striking guardrail, or other single vehicle crashes.

Along SR 162, from SR 5S to CR 98/Flat Creek Road, there were three crashes in the most recent three-year period (2021, 2022, 2023) including two collisions in 2022 and one collision in 2023. One collision was with another vehicle and involved an injury. The other two crashes were guardrail collisions and involved property damaged but no injuries.

(2) Transit Facilities and School Bus Routes

There is no public transit service in the Study Area.

The homes around the Facility Site are served by Canajoharie Central School District (CCSD) and school bus routes could be on the same roadways used by workers or delivery traffic. A printout of the CCSD transportation page is included in Appendix 16.1. The Applicant coordinated directly with the CCSD, which stated school buses operate from 6:15 am - 7:50 am and 2:45 pm - 4:00 pm for the school year on a 180-day schedule with breaks for the holiday, winter, and

spring. Two buses operate for summer school from just after 4th of July to the first week of August.

There may be some delay caused by additional construction traffic, but no impact to the bus routes. The contractor will adjust shift start and finish times if needed to accommodate school traffic.

Workers will arrive to and depart from the Facility Site during peak hours, which would likely coincide with the morning school bus pickup. The selected contractor will coordinate with CCSD to minimize interference with the morning school bus pickup. The contractor will also coordinate with CCSD to minimize impact and add signage to inform construction traffic that children may be present, if requested. Construction of the Facility is not expected to impact school bus stop locations.

(3) Emergency Services Approach and Departure Routes

In case of emergency first dial 911.

Nearby fire department and ambulance services provided by:

Ames Volunteer Fire Department
Chief Shawn Bowerman
595 Latimer Hill Road, Ames, NY 13317
(518) 673-3044

Canajoharie Police Department
Chief Raymond Renzi
75 Erie Boulevard, Canajoharie, NY 13317
(518) 673-3111

Canajoharie Volunteer Fire Department
Chief Frank Nestle
75 Erie Boulevard, P.O. Box 28, Canajoharie, NY 13317
(518) 673-3812

Charleston Fire Department

Chief Randy Hulbert

1412 East Lykers Road, Sprakers, NY 12166

518-922-6706

Lake Valley EMS

Director of Operations Thomas Pasquarelli

P.O. Box 11, Amsterdam, NY 12010

Admin: (518) 843-1150

Dispatch: (518) 842-1777

Montgomery County Sheriff's Office

Sheriff Jeffery T. Smith

200 Clark Drive, P.O. Box 432, Fultonville, NY 12072

(518) 853-5500; (518) 673-2554; (518) 736-1850

Montgomery County Emergency Management Office

Director Jeffrey R Kaczor

200 Clark Drive, P.O. Box 338, Fultonville, NY 12072

(518) 853-4011

After Hours Emergency: (518) 853-5500

New York State Police

Troop G, Zone 3

Cobleskill Station – 950 Mineral Springs Rd., Cobleskill, NY 12043

Fonda Station – 3003 State Highway 5S, Fultonville, NY 12072-9703

(518) 630-1700

Rural Grove Volunteer Fire Department

Chief Kyle Kamp

1192 NY-162, Sprakers, NY 12166

ruralgrovevfd@yahoo.com

No impact is expected to emergency services as no traffic is expected to queue or otherwise block roadways.

In the event of an emergency, local emergency service providers will take the most direct/fastest available route to the Facility Site, depending upon current conditions and their starting location. The Applicant has communicated with pertinent local emergency service providers and shared copies of the Facility Site Security Plan and Facility Site Safety Response Plan for their review and comment (see Exhibit 6).

The Applicant will coordinate with the local emergency service providers throughout the development and construction process, so that service providers are aware of Facility Site construction shift start and end times and equipment delivery schedules that may impact their routing decisions. No road closures are required for construction or operation of the Facility; however, if any brief closures are required for deliveries or road repair work the Applicant will obtain the required permits and submit MOT plans, as requested. Local emergency service providers will also be kept informed of expected Facility Site work and number of workers so they can plan accordingly. During the operation of the Project, access roads will be maintained appropriately, including clearing access roads during/after a winter storm event to ensure safe winter access for emergency responders.

(4) Load Bearing Structural Rating Information

Bridges

TRC reviewed the NYSDOT Posted Bridges website (https://www.dot.ny.gov/postedbridges#:~:text=RPosted%20Bridge%3A%20A%20bridge%2C%20which%20based%20on%20design,with%20signage%20stating%20%22No%20Trucks%20with%20R%20Permits.%22) which states: The data is displayed on this site is from the NYSDOT Bridge Data Information System (BDIS). It is the most up to date and accurate information available for bridges owned by NYSDOT and its Partners. Every effort is made to be as accurate and complete with the information on bridges owned and maintained by local government entities, but it is not presented with the same level of confidence. According to the NYSDOT there are no load restricted (R-posted) bridges identified along proposed haul routes. The blue circle on the inserted map shows the R-posted bridges and culverts within 5 miles of the Facility Site (see also Appendix 16-3).

R-posted Bridges and Culverts

Bin #	R-posted?	Posted Load	Location	Crossing
3309860	No	18 tons	1.5 miles southeast of SR I87/5S	Flat Creek

As per NYSDOT, an R-Posted Bridge is a bridge, based on design or condition that does not have the reserve capacity to accommodate most vehicles over legal weights, but still can safely carry legal weights. A Load Posted Bridge is a bridge or elevated structure which has a specific weight limit in tons posted on a sign. All vehicles exceeding the specified weights are prohibited, including those with overweight permits.

Culverts

The NYSDOT maintains an inventory of bridges and large culverts. The NYSDOT only posts the load for bridges and large culverts that have a span greater than 20 feet.

The following are the Bridge and Large Culvert Inspection Ratings Scales as per the NYSDOT Bridge and Large Culvert Inventory Manual and the NYSDOT Culvert Inventory and Inspection Manual/Culvert Field Instruction Guide:

- Inspection Rating Scale for Individual Culvert Items

  9 - Condition and/or existence unknown.

  8 - Not applicable. Used to rate an item the culvert does not have.

  7 - New condition. No deterioration.

  6 - Used to shade between ratings of 5 and 7.

  5 - Minor deterioration but functioning as originally designed.

  4 - Used to shade between ratings of 3 and 5. Functioning as originally designed.

  3 - Serious deterioration or not functioning as originally designed.

  2 - Used to shade between ratings of 1 and 3.

  1 - Totally deteriorated or in failed condition. Potentially hazardous.

- Inspection Rating Scale for Entire Culvert Structure

  7 - Like new condition. No repairs required.

  6 - May require very minor repairs to pavement, guiderail, shoulders, etc.

  5 - May require minor repairs to the headwalls or wingwalls. May require removal of light vegetation growth around culvert openings.

  4 - Pavement may require replacement with the addition of backfill material to correct minor roadway settlement problems, yet the structure shows no signs of deformation or settlement. Wingwalls and headwalls may require significant repair work. Some minor work to the channel may be required.

  3 - Significant repairs to the pavement are required due to settlement. Slight deformation and settlement of the structure exists. Significant deterioration of wingwalls and/or headwalls exists. Extensive work on the culvert is required. Replacement could be considered a better long-term option.

  2 - Replacement of the structure is necessary due to serious deformation and settlement of the structure. Short-term, remedial action such as pavement replacement or installation of additional backfill material is required. Temporary shoring may be needed or already exist. A vehicle load restriction is probably posted. Replacement of wingwalls and/or headwalls is required. Alignment of waterway is such that significant, measurable and progressive, general and/or localized scour is occurring. Constriction or obstruction of the culvert opening greatly restricts water flow.

  1 - Pavement has settled as a result of significant structure deformation or settlement. Structure has collapsed or collapse is likely. Culvert opening is closed or nearly closed due to embankment soil failure, structure deformation, channel sedimentation, debris accumulation, or vegetation growth. Roadway should have traffic restrictions or be closed to traffic entirely.

There are no R-posted culverts identified along the proposed haul routes, there are no R-posted culverts in the nearby the Facility Site. See map in Appendix 16-3.

Large Culverts In the Vicinity of the Project Site

Bin #	R-posted?	Condition Rating	Location	Crossing
C250035	No	5.33	SR 5S between Sprakers Road and Sloansville Road	Unknown
C250036	No	6.67	SR 5S between Sprakers Road and Sloansville Road	Unknown
C250037	No	4.67	SR 5S between Sprakers Road and Sloansville Road	Unknown
C250039	No	7.00	SR 5S between Sprakers Road and Sloansville Road	Unknown

16(c) Facility Site Trip Generation

Construction of the Facility Site is expected to have a peak workforce of 88 construction workers during the estimated 24-month construction period. This Exhibit assumes all workers drive separately, arrive and depart during the peak hour of the adjacent street, and no deliveries occur during the peak hours.

(1) Number, Frequency and Timing of Vehicle Trips

To better understand how the construction of the Facility Site will potentially impact the adjacent roadway system, the peak workforce provided by Cordelio Power were used and construction equipment deliveries are estimated based on material quantities.

Trip Estimates

The peak daily construction workforce for the proposed Facility Site is expected to be 88 workers, which will generate 88 peak hour trips using a conservative assumption that all workers will travel separately, and all workers have the same start time. Based on the stated assumptions there are 88 inbound trips in the AM and 88 outbound trips in the PM. These trips are all assumed to be privately owned cars and light trucks workers drive from home to the Facility Site. These trips do not include large vehicles or equipment and delivery vehicles which are assumed to occur during the non-peak hours and have a different trip distribution. Equipment and delivery vehicle trips are discussed further below.

The construction workforce trips are assumed to occur during both the AM and PM peak hours of the adjacent street, which are the hours of a typical day when the highest volume of traffic occurs. Worker trips are Federal Highway Administration (FHWA) Vehicle Classification 1, 2 and 3 vehicles. Traffic engineering professionals have established that this usually occurs between 7:00 to 9:00 AM and 4:00 to 6:00 PM (Peak Hours). For this study, roadways within the Study Area are assumed to have similar peak traffic hours.

Construction equipment delivery trips were not included in the peak traffic analysis for the construction period, since it is assumed that these trips will occur outside the peak hours. Table 16-2 provides a detailed summary of the expected construction and material delivery vehicle trips. The trips shown in Table 16-2 represent FHWA Vehicle Classification 4 - larger vehicles (see FHWA Vehicle Classification Scheme F Report, Appendix 16-1).

Table16-2. Expected Number of Total Construction Vehicle Trips

Equipment/Activity	Construction Equipment	Trips
Facility Site Preparation and Grading	Graders (174 hp)	16
	Rubber Tired Loaders (164 hp)	16
	Scrapers (313 hp)	16
	Water Trucks (189 hp)	16
	Generator Sets	16
	Compactors	16
Trenching and Road Construction	Excavators (168 hp)	16
	Graders (174 hp)	16
	Water Trucks (189 hp)	16
	Trenchers (63 hp)	16
	Rubber Tired Loaders (164 hp)	16
	Generator Sets	16
Equipment and Installation	Truck-Mounted Crane (399 hp)	8
	Lattice Crawler Crane (165 hp)	8
	Forklifts (145 hp)	60

Table16-2. Expected Number of Total Construction Vehicle Trips

Equipment/Activity	Construction Equipment	Trips
	Pile Drivers	76
	Pickup Trucks/ATVs	338
	Water Trucks (189 hp)	16
	Generator Sets	16
Other Construction Equipment	Semi-Trailers	38
	Aggregate Trucks (22 yd^3)	5,228
	Concrete Trucks (8 yd^3)	216
TOTAL		**6,180**

During the operational phase of the Facility, employees on site for vegetation management and routine Facility component maintenance will park within the fenced areas. Heavy vehicles/equipment will not be traveling to and from the Facility Site regularly during the operational phase of the Facility. The operational phase workforce will not affect traffic around the Facility Site and is not anticipated to have an added impact on adjacent roadways. The Applicant anticipates Road Use Agreements (RUAs) with the towns and counties and will restore roadways to their existing condition once the project is complete.

A description of the type of vehicles used during major phases of construction is given below.

Facility Site Preparation and Grading Equipment

Most of the equipment described below will stay on the Facility Site for the days needed, and thus would not be going back and forth to the Facility Site each day. Of the Heavy Construction Equipment listed in Table 16-2, only pickup trucks, dump trucks, cable trailers, aggregate trucks, semi-trailers, water trucks and concrete trucks will be on the public roads. The other equipment will be brought by heavy duty flatbed trailer or tractor trailer.

Equipment used for Facility Site preparation and land grading will include up to 8 each of the following pieces of equipment:

Graders – with an approximate weight of 43,000 pounds (lbs) and 174 horsepower (hp) each.

Rubber-Tired Loaders – with an approximate weight of 31,000 lbs, a bucket capacity of 2.1 to 5.0 cubic meters, and 164 hp each.

Scrapers – with an approximate weight of 80,000 lbs and 313 hp each.

Water Trucks- with a 189 hp engine. Depending on the size of the tank, the average weight can be 50,000 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 to 25,000 lbs.

Generator Sets – will be delivered vehicles that require oversize and overweight permit.

Compactors – with an approximate weight of 26,000 lbs and 133 hp each.

Trenching and Road Construction Equipment

Equipment used for trenching and road construction for this Facility Site will include up to 8 each of the following:

Excavators – with an approximate weight of 50,000 lbs and 168 hp each.

Trencher – with an approximate weight of 8,000 lbs and 63 hp each.

Solar Panel Installation Equipment

Equipment used for solar panel installation for this Facility Site will include up to 4 cranes, 20 forklifts, 12 piledrivers and 20 pickup trucks :

Crane – it is expected that a Lattice Crawler Crane (165 hp) and a Truck-Mounted Crane (399 hp) will be used to construct the Facility Site. 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 – with an approximate weight of 25,000 lbs and 145 hp each.

Pile Drivers – with an approximate weight of 30,000 lbs.

Pickup Trucks/All-Terrain Vehicles (ATVs) – pickup trucks with an approximate weight of 3,000 lbs each and ATVs with an approximate weight of 700 lbs each.

Other Construction Activities Equipment

Equipment used for other construction activities for this Facility Site will include up to 20 each of the following types of trucks:

Aggregate Trucks – Temporary and permanent access roads will be constructed at the Facility Site to provide access from the existing roadways. The Facility Site access roads will be constructed of approximately 37,095 cubic yards (CY) gravel aggregate material. An additional 1,685 CY gravel aggregate material will be used for the inverter pads and 18,710 CY for collection substation and POI switchyard. Large aggregate trucks with an approximate carrying capacity of 22 CY and a weight of 80,000 lbs will be used to deliver the materials to the Facility Site.

Concrete Trucks – Concrete will be necessary for perimeter fencing, inverters, and substation foundation associated with the Facility Site, and will be used during all phases of construction. Approximately 863 CY of concrete will be needed for fencing, equipment pads, and the substation foundation. Trucks with an approximate capacity of eight CY and a weight of 70,000 lbs will be used to deliver the material to the Facility Site. These vehicles will be of legal size and weight, not exceeding 80,000 lbs load limits.

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

Special equipment components including substation control rooms, substation poles, generator step-up unit (GSU), inverters, etc. will exceed the legal weight and/or size up to 200,000 lbs. If necessary, required hauling permits will be obtained prior to delivery.

Based on the expected transportation methods and proposed construction work, Table 16-2, summarizes the expected number of loaded trips generated entering the Facility Site during construction.

Construction vehicle trips are expected to occur throughout the 12-month construction period over 250 working days, resulting in an average of approximately 25 delivery trips per day. These trips will occur randomly throughout the day and are not expected to occur during the peak hour of the adjacent street when workers are arriving.

(2) Cut and Fill Activity

Estimates using the Design Drawings (Appendix 5-1) indicate that no imported soil fill will be required, and all needed soil will be sourced on the Facility Site. The fill is derived from excavations associated with Facility Site 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. Approximately 57,490 cubic yards of gravel aggregate material will be imported to the Facility Site for access roads, inverter pads, and substation pads.

The hours of construction are anticipated to be approximately 7:00 AM to 8:00 PM Monday through Saturday. The routes are anticipated to be those described in Section 16(c)(3). Trucks carrying any cut/fill would handle 22 CY of material and weigh 80,000 lbs. To deliver all of the planned 57,490 cubic yards of gravel material will require 2,614 full loads which will be a total of 5,228 trips (2,614 inbound trips and 2,614 outbound trips).

(3) Construction Workers Conceptual Approach and Departure Routes

It is assumed that ninety percent of construction workers will arrive via I-90. From I-90 they will take Exit 29 to Main Street. At Main Street 60% will turn right and head west to Michelle Street, to left on Montogomery Street then follow Montgomery Street to Cunningham Street to various Facility Site access roads. The other 40% will turn left onto Sprakers Road and continue to Facility Site access roads along Carlisle Road, Mapletown Road and Conway Road. The 10% that do not use I-90 local access roads south and west of the Facility Site,

The construction workers trip distribution is shown graphically in Appendix 16-1.

16(d) Traffic and Transportation Impacts

An analysis and evaluation of the traffic and transportation impacts to the Study Area is detailed below, including the information in the following sections.

(1) Analysis of Future Traffic Conditions for Wind Facilities

The proposed Facility is a solar facility. Therefore, this section is not applicable.

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

Any potential traffic impacts to the roadways within the Study Area will be short-term and will be primarily due to the temporary influx of personnel and deliveries during construction. Potential long-term effects to maintain and operate the solar Facility are anticipated to be minimal. As mentioned previously in Section 16(c)(1), two employees will be on Facility Site periodically for various management/maintenance work, which is significantly fewer trips than the peak construction period; therefore, no impacts on future traffic conditions are anticipated as a result of the operation of the Facility. Details on frequency of employee visits to the Facility Site for operation and maintenance will be included in the Operation & Maintenance (O&M) Plan which will be submitted as Compliance Filing prior to construction.

Existing Traffic Data

Existing traffic volume on the Study Area is discussed in Section 16(a)1 and is summarized in Table 16-3. AADT data was obtained from the NYSDOT Traffic Data Viewer.

Table 16-3. Existing AADT Data

Road Name	Segment	AADT	Count Year
SR 5S	Cunningham Road to Sprakers Road	3450	2023

Roadway Characteristics

Existing roadways in the Study Area fall into the following functional classifications as defined by NYSDOT Office of Technical Services and FHWA.

Principal Arterial Interstate (I)- I-90

Principal Arterial Other- None nearby.

Minor Arterial-SR 5 (West Grand Street), SR 10 (Reed Street)

Major Collector (FC-7) – SR 5S is a major collector roadway. It is a 2-lane road with 12-foot lanes and 5-foot paved shoulders. SR 5S has a posted speed limit of 55 MPH.

Minor Collector (FC-8) – Carlisle Road/CR 93 is a minor collector roadway. It is a 2-lane road with 10-foot lanes and 2-foot paved shoulders. Carlisle Road/CR93 has a posted speed limit of 55 MPH.

Local Streets/Roads – The rest of the roadways in the vicinity of the Facility Site are identified as Local Streets/Roads. Local Roads include all roads that are not identified with another Roadway Classification. They are shown on the map in Appendix 2 Functional Classification Map. These Local Streets/Roads are intended for local access that primarily facilitate direct access to adjacent property and have many access roads and access points.

Most of the roadways in the Study Area are generally rural in nature and provide one travel lane in each direction with limited shoulder and roadside treatments. Most of the existing intersections are stop-controlled.

Nearby signalized intersections include:

- SR 5 (East Grand Street) at Bridge Street/Church Street
- Church Street at East Main Street
- Church Street at Empire State/Montgomery Street

Performance Methodology

Based on the functional classifications of the roadways in the Facility Site Facility Site, roadway performance was analyzed by methods described in Chapter 15 of the Highway Capacity Manual 6th edition (HCM). 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 more than two miles from the nearest signalized intersection.

Two-lane highway Levels of Service (LOS) calculations were recently updated within Highway Capacity Software (HCS) 7 based on new studies performed by the National Cooperative Highway Research Program (NCHRP) and published in the Improved Analysis of Two-Lane Highway Capacity and Operational Performance (2018).

LOS is a quality measure describing operational conditions within a traffic stream. Six (6) LOS are defined for each type of roadway that has analysis procedures available. Letters designate

each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst.

The definitions of each category of LOS include:

A: Free flow, with low volumes and high speeds.

B: Reasonably free flow, but speeds beginning to be restricted by traffic conditions.

C: Stable flow, but most drivers are restricted in the freedom to select their own speeds.

D: Approaching unstable flow; drivers have little freedom to select their own speeds.

E: Unstable flow; may be short stoppages.

F: Forced or breakdown flow; unacceptable congestion; stop-and-go.

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 is illustrated below in Graphic 16-1. Once the FD is determined using the formula, the LOS can be selected from Table 16-4 below based on the FD value.

Graphic 16-1. 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).

Source: HCHRP 2018

Table 16-4. 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

Source: HCHRP 2018

Existing Level of Service

Based on the existing traffic volumes and existing roadway characteristics, the existing LOS was calculated. Existing roadways operate at LOS A which indicates that there are no capacity problems.

Existing LOS

Roadway Segment	LOS
SR 5S (between Cunningham Road and Sprakers Road)	A

Construction Level of Service

To evaluate the impacts that the construction of the proposed Facility Site would have on the roadway system, roadways within the Study Area were evaluated with the additional traffic from the construction workforce. The previously developed 88 peak hour construction worker trips were added to the existing directional design hour traffic (DDHV) volumes. The peak construction trips were combined with the roadway peak hour volumes for analysis purposes to be conservative. The calculations show that the portions of SR 5S in the Study Area currently operate at LOS A.

During construction, if all workers left the same time and 88 directional trips were added to the roadway, the result would be LOS B or better within the vicinity of the Facility Site Area during the peak hour during the peak construction period (see Appendix 16-4). As such, no mitigation measures are required for construction of this project. The 2 workers that will be permanently on

the Facility Site will have no impact on the roadway LOS. 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 significantly 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 B or better at each segment analyzed, future operations will function with less traffic impacts than the construction period.

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

The proposed route or "haul route" for construction vehicles are defined below and are shown graphically in Figure 16-2 and Appendix 16-1. Construction vehicles are defined as vehicles Class 4 or larger, as shown in the FHWA Scheme F Report in Appendix 16-1.

All equipment delivery via heavy vehicles to the Facility Site are expected to use the following haul route from I-90:

1. Construction vehicles will exit I-90 at Exit 29, and travel east on SR 5S (Main Street).

2. Construction vehicles will turn right at Hilltop Road/County Road 96, Rappa Road, or Flat Creek Road/County Road 98 and disperse throughout the Facility Site.

As mentioned at the beginning of this Exhibit, no R-Posted bridges were identified in the Study Area. Haul route roadways can accommodate construction vehicles without improvements. Thus, no roadway improvements are anticipated and no mitigation measures for impacts associated with roadway improvements are necessary. RUAs will be sought with the appropriate agencies, as necessary, to use local roadways.

(4) Measures to Avoid or Minimize for Impacts to Traffic and Transportation and Road Use and Restoration Agreements

An identification and evaluation of practicable mitigation measures regarding traffic and transportation impacts, including time restrictions, the use of alternative technologies, the construction of physical roadway improvements, the installation of new traffic control devices, and the repair of local roads or other features due to damage by heavy equipment or construction activities during construction or operation of the Facility was performed and is summarized below.

Transit and School Busing – The Applicant has and will continue to coordinate with CCSD to avoid impacts and delays to bus routes throughout the construction period. The CCSD will be advised in advance of any road closures so that alternative routes can be developed. It is expected that overall impacts to the CCSD busing program will be minimal and no mitigation measures exceeding ongoing coordination is recommended. Similar coordination will be performed with the pertinent public transportation bus providers, if requested, although there are none near the Facility Site.

Emergency Response – The Applicant has and will continue to coordinate with local emergency service providers throughout the construction period, 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 of expected Facility Site work and number of workers so that emergency response can be planned far 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 – The analyses show that the Study Area State Routes operate at LOS B or better. The results of the traffic analysis indicate that no new traffic control devices (such as road signage) are required. The contractor will assign workers shifts (e.g. some start at 6:00 AM, 7:00 AM and 8:00 AM) to reduce traffic on Study Area roadways during peak hours; thus, varying shift start times will mitigate potential traffic impacts due to the influx of construction works on Study Area roadways.

Road Use and Restoration Agreements – A copy of all road use and restoration agreements, if any, between the Applicant and the Town and County regarding repair of local roads damaged by heavy equipment, construction, or maintenance activities during construction and operation of the Facility will be provided as part of Traffic Control Plan submitted as a compliance filing.

The Applicant anticipates that the large dimension and weight of several components (control rooms, substation poles, GSU, etc.) will require special hauling permits and/or RUAs along the Facility Site haul routes. NYSDOT requires a permit for oversized/overweight vehicles which are defined as those exceeding the dimensions provided in Table 16-5 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 super load permit. The application/permit process can be done online through the

NYSDOT web Facility Site. The fee structure for the super load permit is also published online and is cumulative based on load configuration and weight.

Table 16-5. 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
D.	Length of a combination of vehicles inclusive of load and bumpers	65 feet	Unlimited
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 Applicant is requesting in this Application that ORES delegate authority to NYSDOT for any required NYSDOT highway work/use/hauling permits. It is anticipated that RUAs will be negotiated with the towns and county, as applicable.

Prior to construction, a survey of the local roadways used to access the Facility Site will be carried out by qualified engineers (and NYSDOT, County Highway, and Town Highway Departments as applicable) to assess and document existing road conditions. Any extraordinary damage or over-run caused by vehicles during the construction period will be documented and repaired. The Applicant will repair damage to roads affected by heavy equipment or construction activities 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 and operation.

Minor upgrades of seasonal roads may be necessary to facilitate site access. Damage to local roads by heavy equipment or construction activities during construction of the Facility Site are not anticipated; however, if damage occurs, it will be documented and repaired. To mitigate potential

impacts with oversized/overweight vehicles, the contractor will enforce delivery of components and materials during off-peak times to avoid deliveries during the highest traffic hours of the day, 7:00-9:00 AM and 4:00-6:00 PM.

16(e) Public Transportation, School Bus Route, Aeronautical and Military Operations

The Facility is designed to avoid and mitigate impacts to mass transit and aeronautical and military operations. The Facility Site is not anticipated to have traffic impacts on airstrips, airports, or railways in the vicinity of the Study Area.

The homes around the Facility Site are served by CCSD and school bus routes could be on the same roadways used by workers or delivery traffic. The impact is expected to be minimal.

Workers will arrive to and depart from the Facility Site during peak hours, which would likely coincide with the morning school bus pickup. The selected contractor will coordinate with the School District to minimize interference with the morning school bus pickup and add signage to inform construction traffic that children may be present, if requested. In addition, project representatives will coordinate with the local Amish community to minimize or avoid potential impacts to children attending the local Amish school.

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 Code of Federal Regulations [CFR] Section 77.9(a-e)). The nearest airports are the Russel Airport located approximately 4,000 feet to the northwest, the Ranch Airport located approximately 3.6 miles to the southeast, and the Sharon Airport located approximately 5.5 miles to the southwest. There are no military airports near the Facility Site.

16(f) FAA Notice of Proposed Construction

No construction or alteration is proposed that requires a Notice of Proposed Construction to be submitted to the administrator of the FAA in accordance with 14 CFR, Part 77 pursuant to 49 United States Code, Section 44718.

The Applicant ran the FAA Notice Criteria Tool to determine if the construction of the Facility Site and its associated components trigger consultation with the FAA. Several locations throughout the Facility Site were analyzed for solar panels, transmission structures, and construction

equipment; results yielded the Facility Site ‘does not exceed Notice Criteria.’ The FAA Notice Criteria Tool results for the Facility Site are included in Appendix 16-5.

(1) Statement of Department of Defense Review

The requirements of this section do not apply to the Facility Site.

(2) Statement of Construction on the Construction of Alteration of a Wind Facility Site

The proposed Facility is a solar facility. Therefore, the requirements of this section do not apply.

(3) Response to FAA Facility Site Operator Reviews and Construction

The requirements of this section do not apply to the Facility Site.

References

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