



**Exhibit 16: Effect on
Transportation**

Cider Solar Farm
Towns of Oakfield and Elba
Genesee County, New York

Matter No. 21-1108

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

Table of Contents

Abbreviations	ii
Glossary of Terms.....	iii
a) Conceptual Site Plan	1
1) Geometry, Approach, and Traffic Control.....	1
2) Access Roads for Wind Facilities	1
b) Pre-Construction Characteristics of Roadways	1
1) Existing Vehicle Traffic, Use Level, and Accidents.....	1
2) Transit Facilities and Routes	2
3) Potential Approach and Departure for Emergency Vehicles	3
4) Load Bearing and Structural Rating for Expected Project Traffic Routes	5
c) Estimate of Trip Generation Characteristics.....	5
1) Construction and Operation Number and Frequency of Trips.....	5
2) Cut and Fill Number and Frequency of Trips.....	6
3) Departure Routes	6
d) Traffic and Transportation Impacts of Project.....	7
1) Project Future Traffic Conditions for Wind Facilities.....	7
2) Adequacy of Road System to Accommodate Projected Traffic.....	7
3) Adequacy of Road System to Accommodate Over-size Load Deliveries	8
4) Traffic and Transportation Mitigation Measures	8
e) Impacts of Project on Mass Transit Systems	8
f) Notice of Proposed Construction.....	9
1) Statement of Department of Defense Review	9
2) Statement of Consultation on the Construction or Alteration of Wind Facility	9
3) Consultation Responses.....	9
References	10

List of Tables

Table 16-1: Estimated Construction and Operation Traffic Impacts within the Two-mile Study Area	5
Table 16-2: Equipment Deliveries.....	6

List of Appendices

Appendix 16-A: Traffic Evaluation, Cider Solar Farm

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

Abbreviations

AADT	Average Annual Daily Traffic
I-90	Interstate-90
NY	New York
NYS	New York State
NYSDOT	New York State Department of Transportation
vpd	vehicles per day

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

Glossary of Terms

Applicant	Hecate Energy Cider Solar LLC
Project	Refers to the proposed Cider Solar Farm, an up to 500-megawatt utility scale solar project that will be comprised of photovoltaic panels, inverters, access driveways, electrical collection lines, point of interconnection/substation, construction staging areas, fencing and plantings, located on private land in the towns of Elba and Oakfield, Genesee County, New York.
Project Area	Refers to the Project Site and surrounding/adjacent land totaling approximately 7,518 acres.
Project Footprint	Refers to the limit of temporary and permanent disturbance within the Project Site caused by the construction and operation of all components of the Project totaling approximately 2,452 acres.
Project Site	Refers to those privately owned parcels under option to lease, purchase, easement or other real property interests with the Applicant in which all Project components will be sited totaling approximately 4,650 acres.
Study Area	Refers to the area evaluated for specific resource identification and/or resource impact assessment. The size of this area is appropriate for the target resource and takes into account the project setting, the significance of resource or impact being identified or evaluated, and the specific survey distances included in Chapter XVIII, Title 19 of NYCRR Part 900. As appropriate, the Study Area for each type of survey or resource impact assessment is provided in the respective sections within the Application.

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

The content of Exhibit 16 is provided in conformance with Chapter XVIII, Title 19 of the New York (NY) Codes, Rules, and Regulations § 900-2.17, as follows.

a) Conceptual Site Plan

The Design Drawings for the Project (Exhibit 5: *Design Drawings* and Appendix 5-A: *Civil Design Drawings* of this Application) depict all facility site driveway and roadway intersections, as well as the location of solar panels, access corridors, road widths, and other related Project plans and details. Specific to public road intersections, the Design Drawings rely primarily upon an analysis of delivery routes and public roads to identify constraints along the proposed access routes. As shown in Appendix 16-A: *Traffic Evaluation, Cider Solar Farm* of this Application, the primary access to the approximately 4,650 acres on which the Project is proposed (the Project Site), which is roughly located between Albion Road and Arnold Road, will be from the south, off of NY Route 98. An engineering assessment was conducted to identify proposed access routes for Project construction. The assessment (Appendix 16-A) identified one proposed access route. As shown in Appendix 16-A, delivery vehicles and construction workers will likely travel to the Project Site primarily via the New York State (NYS) Thruway, also known as Interstate-90 (I-90). The proposed access routes are depicted in Image 16-1 (see Section (b)(3) of this Exhibit) and the location of existing features along these access routes are identified in the supplemental Traffic Evaluation Form, Cider Solar in Appendix 16-A. From the south, delivery vehicles will exit at Exit 48 and take NY Route 98 approximately 6 miles north to the Project Site. It is noted that there are 26 proposed driveways throughout the study area to access the site; however, the main entrance will be approximately 2.5 miles west of NY Route 98 on Lockport Road. This route includes one bridge along NY Route 98, where it traverses I-90. Major intersections along this route include Mechanic Street/Chapel Street, County Route 262, and Ford Road.

1) Geometry, Approach, and Traffic Control

Horizontal and vertical geometry, number of approach lanes, traffic control devices by approaches, and sight distance triangles are included in the detailed traffic memorandum in Appendix 16-A.

2) Access Roads for Wind Facilities

The requirements of this section do not apply to the Project.

b) Pre-Construction Characteristics of Roadways

1) Existing Vehicle Traffic, Use Level, and Accidents

Existing traffic volume data was obtained from the NYS Department of Transportation (NYSDOT) Traffic Data Viewer (NYSDOT 2021). Average Annual Daily Traffic (AADT) volumes from were provided for a majority of the County and State Routes in the immediate vicinity of the Project Site. As shown in Appendix 16-A, NY Route 98 has the highest use of any roadways in the area, with a 2019 AADT of 6,665 vehicles per day (vpd). Other roadways for which traffic use data was available from NYSDOT include Lockport Road, North Byron Road, Weatherwax Road, Albion Road, Fisher Road, and Oak Orchard Road. In general, all the other county and local roadways with available traffic data carry less than 1,000 vpd. Measured daily traffic volumes are included in the Traffic Evaluation for these various

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

roadways. Local roadways would have similar or lesser volumes than those reported on the major state and county roads.

Existing accident data for the Study Area was obtained from NYSDOT through a Freedom of Information Law request. Accident data was obtained for a 3-year period ranging from October 2017 to October 2020 and is summarized in Appendix 16-A by case number. During that 3-year period, there were approximately 108 reported accidents within the 2-mile Study Area. Of the 108 reported accidents, 50 accidents involved a deer or other animal (45%). Most non-animal related crashes occurred due to driver error such as failure to yield to the right-of-way (16), unsafe speed (10), and unsafe lane change (5). The remaining crashes occurred due to alcohol involvement (3), backing unsafely (1), driver inattention (3), fatigued/drowsy (1), following too closely (1), obstruction/debris (2), oversized vehicle (1), passenger distraction (1), passing or improper lane usage (2), slippery pavement (3), pedestrian error (1), traffic control devices disregarded (2), turning improperly (2), view obstructed/limited (1), failure to keep right (2), and the remaining crash (1) did not list an apparent factor. It is noted that the one crash due to pedestrian error involved a motorist striking a bicyclist on a dark, unlit roadway.

Of the 108 reported crashes, 76 of them resulted in property damage only (70%), while 24 resulted in an injury (22%), 7 resulted in a non-reportable collision (7%), and 1 crash was listed as a fatality. The fatal accident was a right-angle crash with two motor vehicles with an apparent factor listed as failure to yield to the right-of-way. The collision resulted in two fatalities and occurred at the intersection of Quaker Hill Road and Lockport Road.

2) Transit Facilities and Routes

According to the Oakfield-Alabama Comprehensive Plan's Final Generic Environmental Impact Statement (Wendel Duchscherer Architects and Engineers 2005), the Batavia Bus Service (B-Line) provides a "curb to curb" service to/from the towns of Alabama and Oakfield to/from the Town of Batavia. To use this service, the rider must call 24-hours in advance and pay \$3.00 for adults and \$1.50 for senior citizens. There are no public transportation services within the Town of Elba.

Discussions with the Coordinator of Transportation for the Elba Central School District showed that approximately four school buses from Elba Central School District will pass through the Study Area to pick students up from their homes and bring them to school from approximately 6:45 AM to 7:00 AM. Similarly, four school buses will utilize the same routes to drop students off from school to their homes from approximately 2:30 PM to 4:00 PM.

Discussions with the Coordinator of Transportation for the Oakfield-Alabama Central School District showed that approximately two school buses from Oakfield-Alabama Central School District will pass through the Study Area to pick students up from their homes and bring them to school from approximately 6:50 AM to 7:50 AM. Similarly, two school buses will utilize the same routes to drop students off from school to their homes from approximately 3:00 PM to 4:00 PM.

Though road closures are not anticipated, should any local roadways need to be temporarily closed during construction for a short period of time, the Applicant will contact the appropriate local agencies to provide notifications, including notification to both Elba Central School District and Oakfield-Alabama

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

Central School District. Construction of the project is not expected to impact school bus stop locations, but if stops are impacted, the Applicant will provide safe and accessible waiting areas.

3) Potential Approach and Departure for Emergency Vehicles

Though road closures are not anticipated, should any local roadways need to be temporarily closed during construction for a short period of time, the contractor will contact the following agencies:

- Genesee County Emergency Management – 7690 State Street Road, Batavia, NY
- NYS Police Troop A Headquarters – 4525 West Saile Drive, Batavia, NY
- Genesee County Sheriff's office – 14 West Main Street, Batavia, NY
- Oakfield Volunteer Fire Department – 20 Albert Street, Oakfield, NY
- Elba Volunteer Fire Department – 4 South Main Street, Elba, NY

In the event of an emergency, the abovementioned first responders will take the fastest route to the location of the emergency within the site as depicted in Image16-1. The Elba Volunteer Fire Department is located approximately 1-mile south of the Study Area and is anticipated to be the primary service to the Project in the event of an emergency. It is noted that the Oakfield Fire Department is located approximately 3-miles southwest and will be available for backup. The Genesee County Sheriff's Department is located approximately 6-miles to the south of the Project and will provide a police presence in the event of an emergency.

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

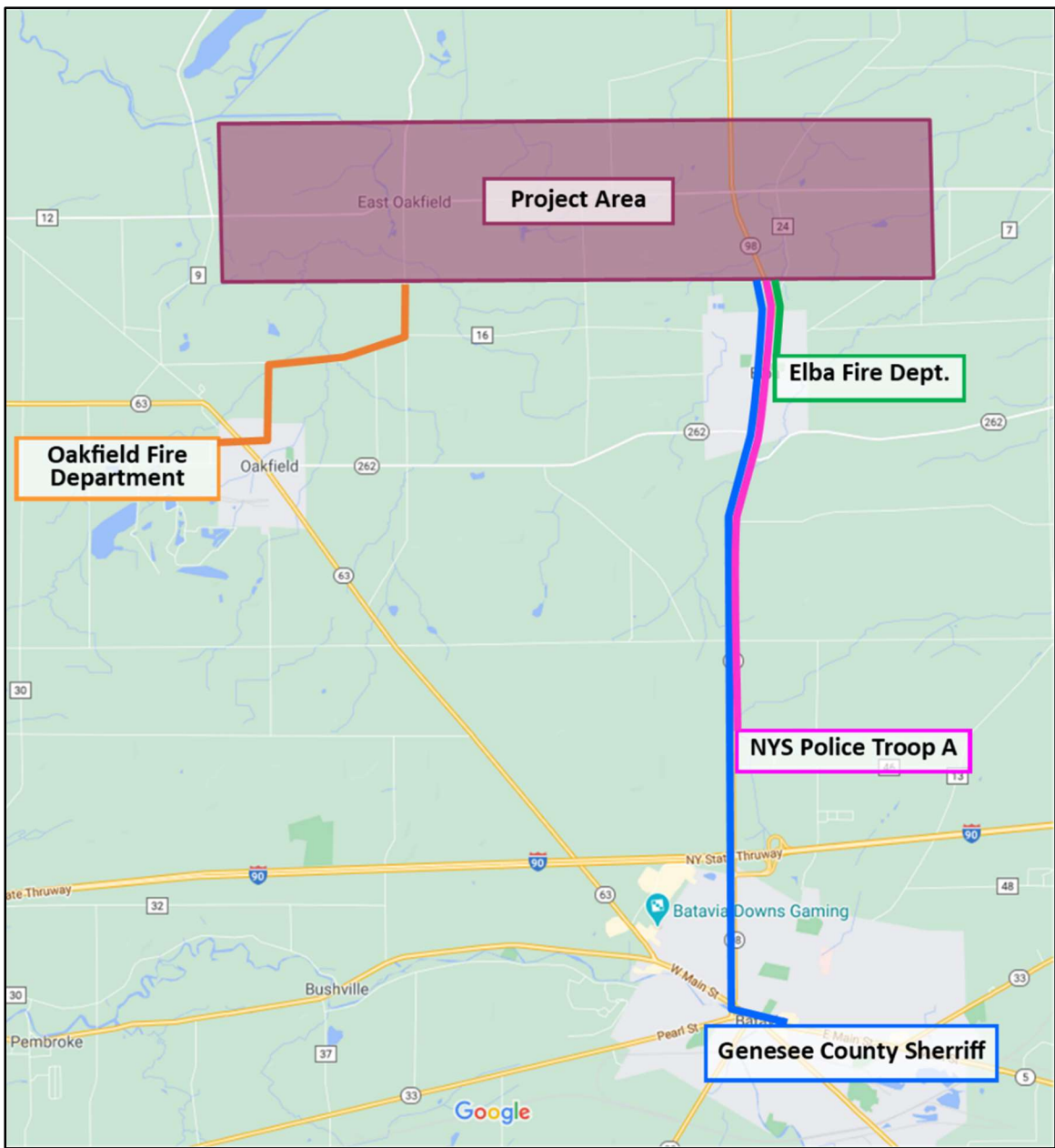


Image 16-1: Study Area

Several gravel access roads will extend throughout the Study Area. These roads will meet the International Fire Code requirements for access roads width and turnaround specifications according to the road length.

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

4) Load Bearing and Structural Rating for Expected Project Traffic Routes

A review of the NYS R-Posted Bridges¹ did not reveal any restricted bridges along the proposed access routes. Further, the construction equipment haul route was also reviewed and did not show any restricted bridges. It is noted that NY Route 98 includes one bridge crossing I-90 and one culvert located approximately 0.5 miles north of the NYS Thruway. Discussions with the Genesee County and towns of Elba and Oakfield Highway Departments also confirmed that there are no locally owned load-restricted facilities along the proposed access routes.

Existing pavement conditions and culvert locations within the Study Area have been documented and are shown in Appendix 16-A.

c) Estimate of Trip Generation Characteristics

1) Construction and Operation Number and Frequency of Trips

Construction vehicles will take the same route as delivery vehicles, as described in Exhibit 25: *Other Permits and Approvals* of this Applications. Table 16-1: *Estimated Construction and Operation Traffic Impacts within the Two-mile Study Area* outlines the estimated traffic impacts for construction and operation of the Project, including the number and frequency of vehicle trips by size, weight, and type of vehicle.

Table 16-1: Estimated Construction and Operation Traffic Impacts within the Two-mile Study Area

Phase of Work	Vehicle Type	Approximate Vehicle Weight (pounds)	Approximate Vehicle Size (feet)	Estimated Total Vehicle Trips
Grading and Trenching	Small Bulldozer	17,000 to 25,000	--	20
Craft Workers	Passenger Vehicle (P)	6,000	19	81,000
Fencing	Medium Duty Pickup Truck (SU)	20,000	20	187
Roadway Gravel	Dump Truck (SU-30)	70,000	30	1,500
Earthwork	Dump Truck (SU-30)	70,000	30	11,500
Trenching Sand	Dump Truck (SU-30)	70,000	30	500
Trackers	Trackers Truck Trailer (WB-67)	70,000	75	2,590
PV Modules	Trackers Truck Trailer (WB-67)	70,000	75	2,300
Cabling	Trackers Truck Trailer (WB-67)	70,000	75	300
Inverter Skids	Trackers Truck Trailer (WB-67)	70,000	75	550

¹ An "R-Posted Bridge" is a bridge that, based on design or condition, does not have the reserve capacity to accommodate most vehicles over legal weights but can still safely carry legal weights. These bridges are identified with signage stating, "No Trucks with R Permits." By law, no vehicle operating over 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 pursuant to specific permit types at weights up to 102,000 pounds.

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

Phase of Work	Vehicle Type	Approximate Vehicle Weight (pounds)	Approximate Vehicle Size (feet)	Estimated Total Vehicle Trips
Substation Equipment	Trackers Truck Trailer (WB-67)	70,000	75	10
Substation Transformer	Trackers Truck Trailer (WB-67)	70,000	75	3
Miscellaneous Deliveries	Trackers Truck Trailer (WB-67)	70,000	75	380

*Estimate assumes all on-site roads will be stone-capped.

Availability and delivery times for key equipment may vary slightly depending on desired equipment features, manufacturer activity, inventory, infrastructure project activity, and market conditions. The Applicant will maintain contact with suppliers and engage in early discussions in preparation for purchase orders to support the implementation schedule. The delivery of key major equipment will likely occur over the durations identified in Table 16-2: *Equipment Deliveries*.

Table 16-2: Equipment Deliveries

Equipment	Timing of Delivery (following receipt of order)
PV Modules	6–16 weeks
Trackers	12–16 weeks
Inverters	14–20 weeks
Substation Equipment	14–22 weeks
Substation Transformers	16–25 weeks

Most deliveries will arrive daily at the Project Site between 7:00 AM and 9:00 AM local time, with departures occurring between 4:00 and 6:00 PM local time. The equipment delivery schedule will be confirmed during the final engineering and planning stage of the Project prior to construction. Some adjustments to equipment deliveries may be made after starting Project construction.

2) Cut and Fill Number and Frequency of Trips

Traffic impacts for major cut and fill activities were analyzed throughout the Study Area. It was found that approximately 11,500 dump-truck loads will be generated between two areas of the Project Site during earthwork activities. As detailed in the Traffic Evaluation, it is anticipated that cut/fill activity throughout the Project Site will account for 24 PM peak hour trips (12 entering, 12 exiting). It is noted that the afternoon peak hour generally occurs throughout the study area from 5:00 PM to 6:00 PM.

Timing of daily deliveries will be in line with the estimated delivery schedule presented in Section (c)(1) of this Exhibit. For the traffic analysis, it was assumed that all cut/fill activity travel along Lockport Road and North Byron Road to provide for a conservative analysis.

3) Departure Routes

During the operational phase of the Project, two employees will be on the Project Site periodically for vegetation management and routine project component maintenance. Heavy vehicles/equipment will not

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

be traveling to and from the Project Site regularly. This workforce will not affect traffic around the Study Area and will have no impact on the adjacent roadways.

It is anticipated that the hours of construction will occur from 7:00 AM to 7:00 PM Monday through Friday, but the peak construction trips were combined with the roadway peak hours to provide a conservative analysis and will occur between 5:00 PM and 6:00 PM. Additionally, trips were assumed to be traveling to/from one driveway location off Lockport Road. This provided for a very conservative analysis since 26 driveways are being proposed. The analysis showed that there will be no level of service changes along the Project roadways. The detailed analysis showed that on NY Route 98, the level of service will increase by approximately one follower/mile. The detailed trip distribution, assignment, and level of service analysis is included in Appendix 16-A.

d) Traffic and Transportation Impacts of Project

1) Project Future Traffic Conditions for Wind Facilities

The requirements of this section do not apply to the Project.

2) Adequacy of Road System to Accommodate Projected Traffic

During Project construction, NY Route 98 will be used as the primary traffic way in and out of the Project Site from the NYS Thruway Exit 48. Along NY Route 98, significant traffic impacts may be recognized by the few residences and commercial buildings (less than 100 parcels) within the Town of Elba, and the Elba Fire Department along with the NYS Police and Genesee County Sheriff who will primarily use NY Route 98 to access the Study Area in the event of emergencies. Traffic impacts will be limited to construction vehicles and commuter vehicles, which will travel along NY Route 98 to park within the Project Site. Following Project construction, there will be no full-time employees based at the Project Site and maintenance visits are anticipated to occur on a monthly basis, resulting in no permanent net increases in traffic to NY Route 98 and the surrounding highway network.

As shown in the Traffic Evaluation, NY Route 98 has an AADT ranging from 4,000 to 6,600 vpd while all other Study Area roadways have an AADT of 1,000 vpd or less. It is noted that North Byron Road has an AADT of approximately 1,050 vpd according to a NYSDOT Automatic Traffic Recorder placed in July 2019 (NYSDOT 2021). Surrounding county and town roads generally carry less traffic than NY Route 98. NY Route 98 is considered part of the Qualifying and Access Highway System, meaning that the use of 53-foot trailer combinations is permitted on this roadway.

As stated in Section c) of this Exhibit, the Applicant estimates that, during the peak weeks, construction-related trips to all sites within the Study Area could reach approximately 750 total trips per day. Peak hour trips were assigned based on the conservative assumption that the bulk of construction related traffic will occur at the same time when actually, operations will not likely overlap. Construction traffic will primarily be along NY Route 98 to Lockport Road. These roadways are already well-equipped to handle large vehicles and fluctuations in daily traffic volumes.

During Project construction, the increased truck traffic from workers, construction vehicles, and delivery vehicles could present the opportunity for traffic interferences. Construction workers are anticipated to

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

represent between 225 and 315 round trips daily. Construction workers will likely arrive by 7 AM and leave around 7 PM, although departure times may vary seasonally, depending on daylight hours. This timing for worker departures should prevent the peak of construction worker traffic to avoid impacting typical peak rush hour traffic on nearby roadways. To minimize the risk of accidents, the Applicant will require contractors to drive at safe speeds and install a warning sign for oncoming traffic at the entrance to the Project Site off NY Route 98 and Lockport Road.

The estimated total number of trips as shown in Table 16-2 was broken down to estimate the peak hour trips generated during the peak construction timeframe. To provide for a conservative analysis, it was found that an additional 334 trips (39 entering and 295 exiting) will be added to the Study Area roadways during the peak construction PM timeframe. It is noted that the internal earthwork operations will add 24 total trips (12 entering, 12 exiting) during the PM peak as well.

3) Adequacy of Road System to Accommodate Over-size Load Deliveries

Over-size deliveries are not anticipated on this solar project. The largest construction delivery vehicles will be limited to dump trucks (SU-30) and tractor trailers (WB-67), which will be accommodated on all Study Area roadways.

4) Traffic and Transportation Mitigation Measures

The Applicant will check roadways before and after construction to verify that the roadways are in a condition no worse than what existed immediately prior to Project construction and are consistent with the pavement conditions documented in Appendix 16-A. The Applicant will repair or resurface roads that are shown to have been damaged by Project construction. Although not anticipated at this time, if any affected municipalities within the Study Area require it, the Applicant will enter into road use agreements with them. The Applicant estimates that traffic from Project operation (post construction) would not increase daily traffic counts on any of the roadways surrounding the Project Site.

As shown in Appendix 16-A, there are eight driveway locations that do not meet the American Association of State Highway and Transportation Officials standards for intersection sight distances for combination trucks. As a mitigation measure, the Applicant proposes to install temporary intersection warning signs at these locations.

e) Impacts of Project on Mass Transit Systems

There are no subway systems in the Study Area that might be affected by the Project. The railroad line located approximately 4 miles southeast of the Study Area is not expected to be impacted by the construction or operational activities of the Project. No delays are anticipated because of Project-related traffic or deliveries since there is no public transit service within the proposed haul routes in the Study Area. Due to the low residential density associated with the Study Area, minor impacts to local traffic are expected.

There are no public or private air navigation facilities within 2 miles of the Study Area, and no component of the Project will exceed the height of existing natural and manmade features already in the immediate

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

vicinity. The Project is not considered to be a hazard to air navigation nor will it interfere with other operations overseen by the Federal Aviation Administration.

f) Notice of Proposed Construction

1) Statement of Department of Defense Review

The requirements of this section do not apply to the Project.

2) Statement of Consultation on the Construction or Alteration of Wind Facility

The requirements of this section do not apply to the Project.

3) Consultation Responses

The requirements of this section do not apply to the Project.

EXHIBIT 16: EFFECT ON TRANSPORTATION

Matter No. 21-1108

References

New York State Department of Transportation. 2021. NYSDOT Traffic Data Viewer. Available at: <https://gisportalny.dot.ny.gov/portalny/apps/webappviewer/index.html?id=28537cbc8b5941e19cf8e959b16797b4>. Accessed May 19, 2021.

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