

May 31, 2019

Town of Farmington
1000 County Road 8
Farmington, New York 14425
Attn: Mr. Peter Ingalsbe

RE: Solar Farm Development, Fox & Yellow Mills Road, Town of Farmington, NY
Trip Generation Letter/Intersection Crash Analysis Letter

Dear Mr. Ingalsbe:

The purpose of this Technical Letter is to provide a trip generation assessment and crash analysis for the proposed Solar Farm Development in the Town of Farmington, NY, as outlined in the attached site materials. This letter details projected trip generation volume estimates, existing roadway conditions, crash history, and discusses the thresholds for completing a Traffic Impact Study (TIS). The following outlines the results of the assessment.

EXISTING HIGHWAY SYSTEM

A. Existing Traffic Volume Data

Figure 2 illustrates the lane geometry at the study intersection and the Average Daily Traffic (ADT) volumes on the study roadways. The following information outlined in **Table I** provides a description of the existing roadway network within the project study area.

TABLE I: EXISTING HIGHWAY SYSTEM

ROADWAY	ROUTE ¹	FUNC. CLASS ²	JURIS. ³	SPEED LIMIT ⁴	# OF TRAVEL LANES ⁵	TRAVEL PATTERN/DIRECTION	EST. AADT ⁶	AADT SOURCE ⁷
Fox Road	-	Local	OCDPW	Not Posted	2	Two-way/ East-West	1,517	OCDPW (2019)
Yellow Mills Road	-	Local	OCDPW	Not Posted	2	Two-way/ North-South	933	OCDPW (2019)

Notes:

1. "NYS Rte" = New York State Route
2. State Functional Classification of Roadway: All are Rural.
3. Jurisdiction: "OCDPW" = Ontario County Department of Public Works.
4. Posted or Statewide Limit in Miles per Hour (MPH).
5. Excludes turning/auxiliary lanes developed at intersections.
6. Estimated Annual Average Daily Traffic (AADT) in Vehicles per Day (vpd).
7. Source (Year). Obtained volumes represent the most recent available data.

Detailed ADT counts collected along both Fox Road and Yellow Mills Road on April 6, 2019 were provided by OCDPW. Based upon these volumes, the peak hours for the intersection were determined to be 7:00-8:00AM and 4:00-5:00PM. The existing peak hour volumes are shown in **Figure 3**.

B. Existing Crash Investigation

A crash investigation was completed to assess the safety history at the existing study intersection of Fox Road and Yellow Mills Road. Crash data was compiled during the five (5) year period from January 2014 through April 2019. This data was provided by the Ontario County Department of Public Works (OCDPW).

The purpose of this crash analysis is to identify safety issues by studying and quantifying crashes at the study intersections and identifying abnormal patterns and clusters. A crash cluster is defined as an abnormal occurrence of similar crash types occurring at approximately the same location or involving the same geometric features. The severity of the crashes should also be considered. A history of crashes is an indication that further analysis is required to determine the cause(s) of the crash(es) and to identify what actions, if any, could be taken to mitigate the crashes.

A total of 7 crashes were documented at the study intersection during the five-year investigation period. The severity of the documented crashes is as follows:

- 3 – Reportable – Injury
- 3 – Reportable – Non-Injury
- 1 – Non-Reportable/Unknown

Reportable (non-injury, injury, and fatal injury) type crashes are defined as damage to one person's property in the amount of \$1,001 or more. The Non-Reportable type crashes result in property damage of \$1,000 or less.

Crash rates were computed for the project study intersection and compared with the NYSDOT average accident rates for similar intersections, as summarized in the following table. Intersection rates are listed as accidents per million entering vehicles (Acc/MEV).

TABLE II: INTERSECTION CRASH RATES

INTERSECTION	NUMBER OF CRASHES	ACTUAL PROJECT RATE	STATEWIDE AVERAGE RATE
Fox Road/Yellow Mills Road	7	1.52	0.15

As shown in **Table II**, the intersection had a crash rate over ten times greater than the statewide average. The accident types that occurred over the investigation period were right angle (3 – northbound, 2 – southbound), left turn (1 – southbound), and other (1 – northbound). It is noted that all crashes occurred in the northbound and southbound directions. Upon further investigation there is a pattern of northbound and southbound drivers failing to yield the right of way to eastbound and westbound drivers. However, the number of collisions occurring during the five-year investigation period does not warrant corrective action. STOP Ahead signs (MUTCD W3-1) are located along Yellow Mills Road approximately 825' in advance of both the northbound and southbound stop signs. Additionally, Intersection Warning signs with 45 MPH advisory speed plaques are located along Fox

Road in both the eastbound and westbound directions approximately 825' in advance of the Yellow Mills Road intersection. If the number and/or severity of collisions increases, OCDPW may consider additional warning measures.

The solar farm site should not have any equipment or plantings within the sight lines of the Fox Road/Yellow Mills Road intersection.

PROPOSED DEVELOPMENT

The proposed project will construct a 35-acre solar panel facility. Access is provided via a new full access driveway along Fox Road about 835' west of Yellow Mills Road.

Trip generation for this site was developed based upon its expected operation and maintenance plans. The Solar Facility will operate 7 days per week, generating electricity during the daylight hours. Preventative maintenance activities will occur during normal working hours generally twice per year with the occasional need to conduct corrective maintenance to certain equipment or facilities during non-scheduled or weekend hours. **Table III** summarizes the volume of projected site trips during the weekday AM and PM peak hours.

TABLE III: SITE GENERATED TRIPS

DESCRIPTION	SIZE/ UNITS	AM PEAK HOUR		PM PEAK HOUR	
		ENTER	EXIT	ENTER	EXIT
Solar Panel Facility	35 acres	1	0	0	1

The trip generation above assumes that the maintenance crew will be traveling in a single maintenance vehicle entering the site during the AM Peak (7:00-8:00AM) and exiting during the PM Peak (4:00-5:00PM). This trip generation is *only* projected for the two maintenance days per year that is anticipated for the proposed project.

THRESHOLDS FOR THE REQUIREMENT OF A TRAFFIC IMPACT STUDY

Reviewing agencies, including the New York State Department of Transportation (NYSDOT), use a guideline in determining whether a project warrants the preparation of a TIS. The applicable guideline is that if a proposed project is projected to add 100 site generated vehicles per hour (vph) on any one intersection approach, then that intersection should be studied for potential traffic impacts. The guideline was developed as a tool to identify locations where the magnitude of traffic generated has the potential to impact operations at off-site intersections and screen locations from requiring detailed analysis as they are unlikely to result in the need for mitigation.

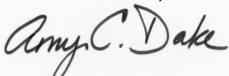
Given that the proposed project is anticipated to generate an increase of one (1) vph or fewer entering and exiting the project site during the peak hours of study for any one approach, two times per year, the adjacent intersections and surrounding roadway network are very unlikely to experience any significant adverse traffic impacts and will not warrant a TIS.

CONCLUSIONS & RECOMMENDATIONS

Given the low volume of projected site generated traffic one (1) VPH or fewer entering and exiting the project site during the peak hours of study for any one approach) and the low ADT volumes of the existing roadways, it is our firm's professional opinion that the proposed project will not have any potentially significant adverse impact on traffic operations within the greater study area. The solar farm site should not have any equipment or plantings within the sight lines of the Fox Road/Yellow Mills Road intersection. No further study is warranted or recommended.

If you have any questions or require additional information, please do not hesitate to contact our office.

Very truly yours,
SRF Associates, D.P.C.



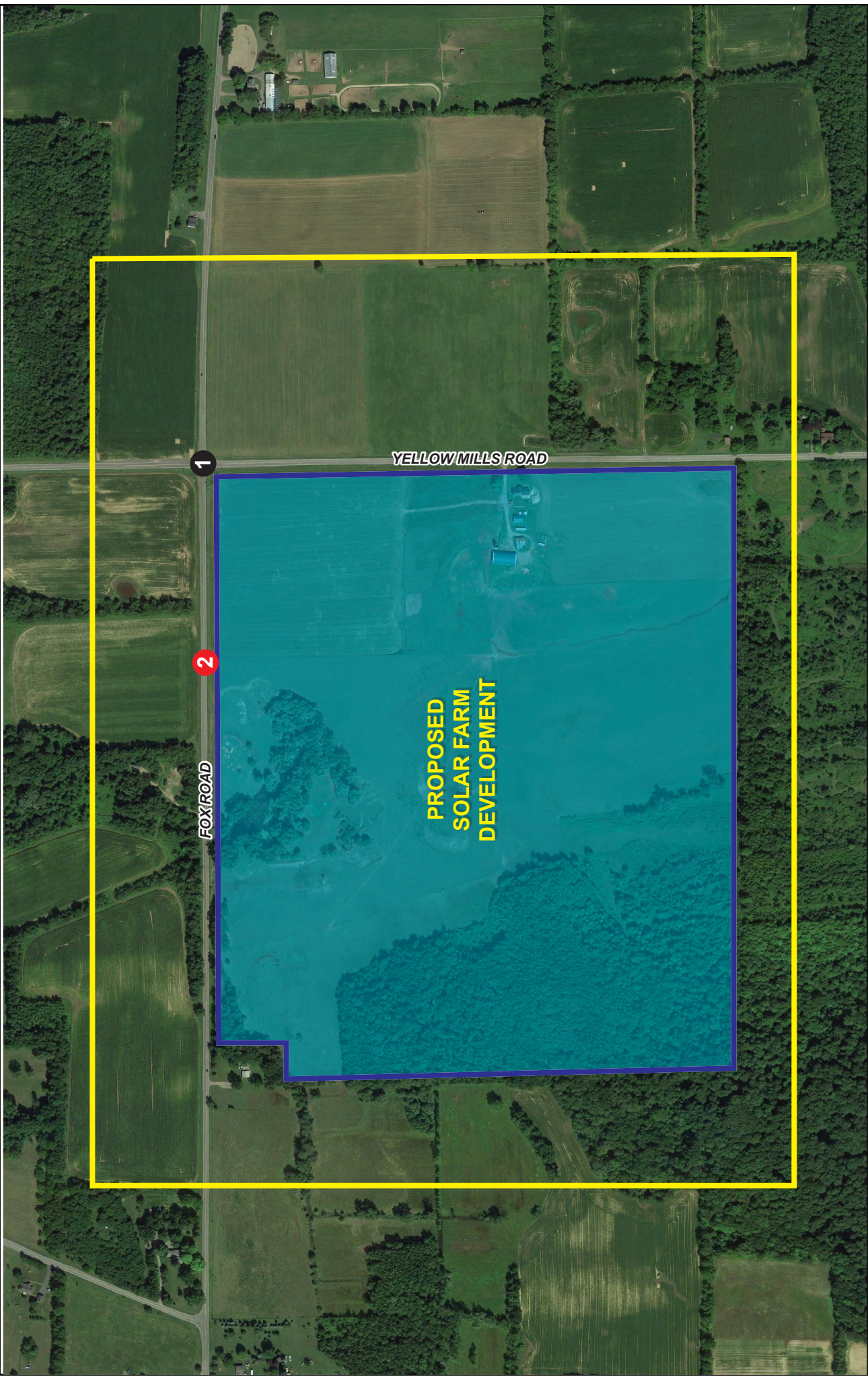
Amy C. Dake P.E., PTOE
Senior Managing Traffic Engineer

Attachments: Figures
 Overall Site Plan
 Trip Generation Estimates
 Crash History Analysis

AD/pv

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FIGURE 1 - SITE LOCATION AND STUDY AREA



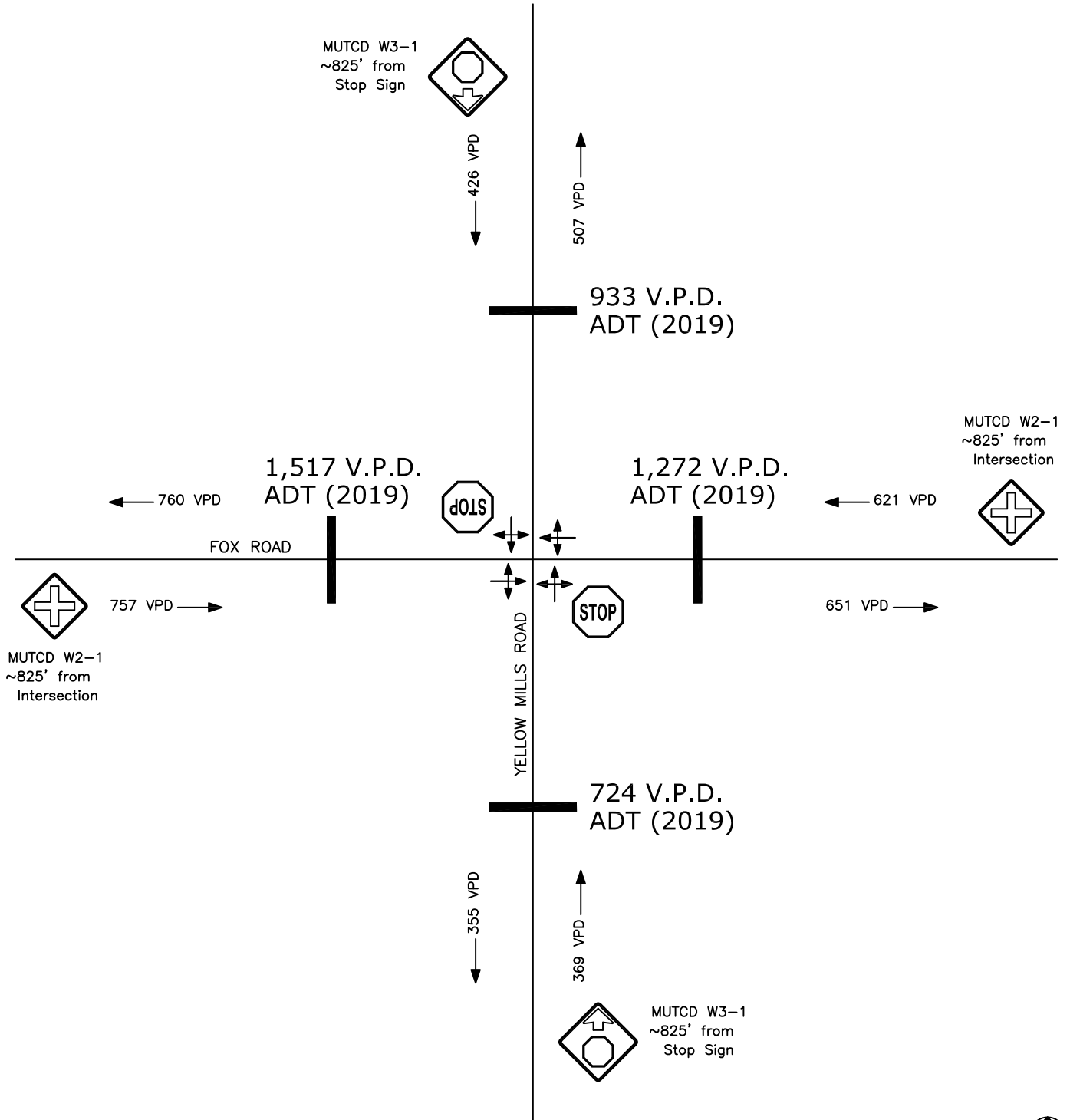
PROPOSED SOLAR FARM DEVELOPMENT
TOWN OF FARMINGTON, NY


- Study Intersection
- Proposed Intersection
- Site Location
- Study Area

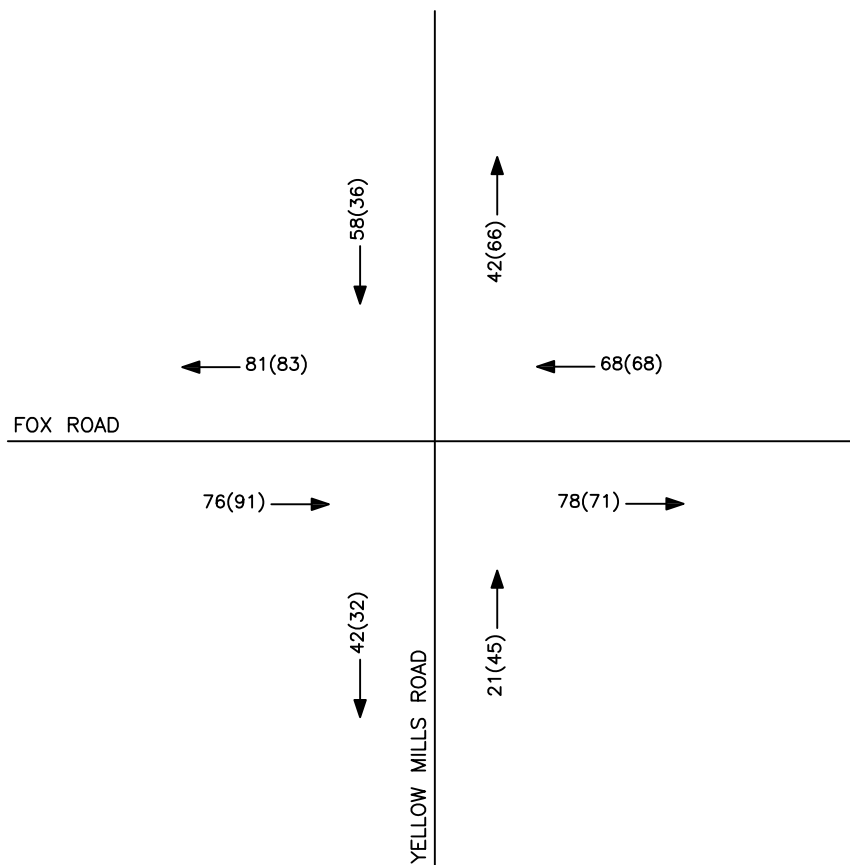


Notes:

1. All counts provided by Ontario County Department of Public Works (OCDPW).
2. V.P.D. = Vehicles per Day



KEY	FIGURE 2		 Transportation Planning / Engineering / Design www.srfa.net / (585) 272-4660
	LANE GEOMETRY & AVERAGE DAILY TRAFFIC		
	PROPOSED SOLAR FARM DEVELOPMENT TOWN OF FARMINGTON, N.Y.		
PROJECT NO: 39036			



AM PEAK: 7:00-8:00AM
PM PEAK: 4:00-5:00PM



KEY		FIGURE 3	
00(00) = AM(PM)		PEAK HOUR VOLUMES 2019 EXISTING CONDITIONS	
		PROPOSED SOLAR FARM DEVELOPMENT TOWN OF FARMINGTON, N.Y.	
PROJECT NO: 39036			

SRF

ASSOCIATES

Transportation Planning / Engineering / Design
www.srfa.net / (585) 272-4660

2.9. Operation and Maintenance

During operation, maintenance activities will focus on the scheduled preventive maintenance and repairs of the solar generating equipment. The maintenance and repair of Project components is expected to be coordinated through monitoring, on-site inspections and technical support from the various warranty services of the original equipment manufacturers.

The Solar Facility will operate 7 days per week, generating electricity during the daylight hours. Preventive maintenance activities will occur during normal working hours generally twice per year with the occasional need to conduct corrective maintenance to certain equipment or facilities during non-scheduled or weekend hours.

The solar generating equipment will be continuously monitored and controlled from the central control room during normal working hours with 24 hour monitoring from a remote source. The generation units, auxiliary systems and balance of the Solar Facility will be connected to the SCADA system.

Standard maintenance for the Solar Facility will be as follows:

- **Modules Cleaning:** Module cleaning will be performed during preventive maintenance hours or extraordinary snow storms.
- **Scheduled Project Maintenance:** There will be the need to periodically inspect the modules (removal snow, ice, grass, vegetation) and make necessary alignment adjustments (i.e. tighten fasteners) or replace damaged modules to prevent breakdowns and production losses. Project components will go through maintenance checklist once or twice per year.

The checklist shall include such items as:

- Checking wire connections
- Testing voltage/current at any part
- Inspecting components for moisture
- Confirming settings on the inverter
- Transformer maintenance
- Resealing of system components

- **Corrective Maintenance:** Corrective maintenance will occasionally be required due to uncontrollable circumstances such as severe weather or premature failure of components. These unscheduled repairs will be undertaken in a manner to minimize impacts to the continued operation of the Solar Facility.
- **Monitoring Management:** uses real-time data to oversee Project parameters.

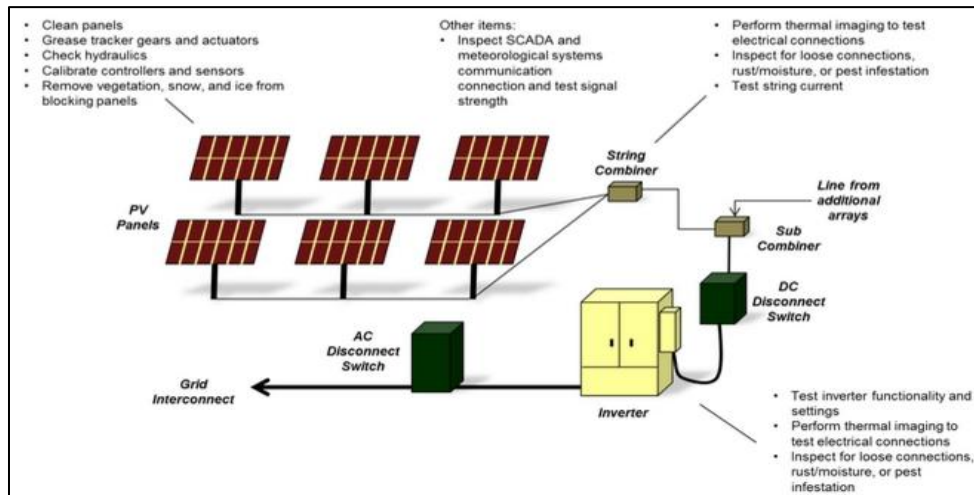


Figure 11. Highlights of the Solar Facility Maintenance

Typical equipment required to support operation and maintenance of the Solar Facility includes:

- Cleaning systems
- Standard electrical tools
- Building support systems
- Transport vehicles (pick-up truck, ATV, etc.)
- Standard machinist tools

2.10. Site Security

Limiting access to the Project Site to non-authorized personnel is necessary both to ensure the safety of the public and to protect equipment from potential theft and vandalism. Both, Project Owner and operator can be reached on a 24-hour basis. Phone numbers will appear on a sign placed at the entrance of the Solar Facility.

Some or all of the perimeter of the overall Solar Facility may be fenced with an approximately eight-foot-high chain-link fence to facilitate Project and equipment security. Surveillance methods such as security cameras or motion detector may be installed at locations along the Project Site

INTERSECTION CRASH RATE CALCULATIONS

$$\text{Rate per MEV} = \frac{\# \text{ of Crashes} \times 1,000,000}{\text{Total No. of Entering Vehicles}} =$$

$$\text{Rate} = \frac{\# \text{ of Crashes} \times 1,000,000}{\text{Veh./Day} \times \text{Duration of Study}} =$$

Crashes per million entering vehicles (Crash / MEV)

1 Fox Road/Yellow Mills Road

ADT = Peak hour entering volume / k factor

$$\text{ADT} = \boxed{240} \text{ VPH} / 0.10 = 2526 \text{ VPD}$$

$$\text{Rate} = \frac{7 \text{ Acc.} \times 1,000,000}{2526.3 \text{ VPD} \times 365 \text{ Days} \times 5.000 \text{ Yrs.}} = 1.52 \text{ Crash / MEV}$$

0.28 NYSDOT

Int #

1 Fox Road/Yellow Mills Road

Left turn	Rear-end	Overtaking	Right Angle	Right Turn	Head On	Side-swipe	Fixed Object	Backing	Other	Animal	Bike/Ped	Total	Injury	Non Injury	Non-Repo	Sum
1			5						1			7	3	3	1	7
TOTALS	1	0	5	0	0	0	0	0	1	0	0		3	3	1	

1. Fox Road/Yellow Mills Road

	Northbound	Southbound	Eastbound	Westbound	Unknown	Totals
Left turn	1					1
Rear-end						0
Overtaking						0
Right Angle	3	2				5
Right Turn						0
Head On						0
Side-swipe						0
Fixed Object						0
Backing						0
Other	1					1
Bike/Ped						0
Animal						0
Totals	4	3	0	0	0	7