

EXHIBIT U – Application for Site Certificate

PUBLIC SERVICES

OAR 345-021-0010(1)(u)

REVIEWER CHECKLIST

(u) Exhibit U. Information about significant potential adverse impacts of construction and operation of the proposed facility on the ability of public and private providers in the analysis area to provide the services listed in OAR 345-022-0110, providing evidence to support a finding by the Council as required by 345-022-0110. The applicant shall include:

Rule Sections	Section	✓
(A) The important assumptions the applicant used to evaluate potential impacts.	U.2	
(B) Identification of the public and private providers in the analysis area that would likely be affected.	U.3	
(C) A description of any likely adverse impact to the ability of the providers identified in (B) to provide the services listed in OAR 345-022-0110.	U.4	
(D) Evidence that adverse impacts described in (C) are not likely to be significant, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts.	U.5	
(E) The applicant's proposed monitoring program, if any, for impacts to the ability of the providers identified in (B) to provide the services listed in OAR 345-022-0110.	NA	

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TABLE OF CONTENTS

U.1	INTRODUCTION.....	U-1
U.2	ASSUMPTIONS FOR EVALUATING IMPACTS.....	U-1
U.2.1	Sewers and Sewage Treatment	U-3
U.2.2	Water.....	U-3
U.2.3	Stormwater Drainage	U-3
U.2.4	Solid Waste Management	U-4
U.2.5	Housing.....	U-4
U.2.6	Traffic Safety	U-5
U.2.7	Police and Fire Protection.....	U-6
U.2.8	Healthcare	U-7
U.2.9	Schools.....	U-7
U.3	PUBLIC AND PRIVATE PROVIDERS	U-7
U.4	IMPACTS ON SERVICE PROVIDERS.....	U-10
U.4.1	Sewers and Sewage Treatment	U-10
U.4.2	Water.....	U-11
U.4.3	Stormwater	U-11
U.4.4	Solid Waste Management	U-11
U.4.5	Housing.....	U-12
U.4.6	Traffic Safety	U-14
U.4.7	Police and Fire Protection.....	U-15

U.4.8 Healthcare U-18

U.4.9 Schools U-18

U.5 EVIDENCE OF NO SIGNIFICANT IMPACTS..... U-19

U.6 MONITORING PROGRAM..... U-19

U.7 REFERENCES..... U-19

TABLES

Table U-1 Public and Private Providers that Service the Analysis Area U-8

FIGURES

Figure U-1 Service Providers

APPENDICES

Appendix U-1 Traffic Assessment

Appendix U-2 Letters of Acknowledgement

U.1 INTRODUCTION

Obsidian Solar Center LLC (Applicant) proposes to construct the Obsidian Solar Center (Facility) in Lake County, Oregon, with an alternating current generating capacity of up to 400 megawatts. Please refer to Exhibit B for Facility layout information and Exhibit C for Facility location information.

Exhibit U addresses the potential impacts of the proposed Facility on public and private providers that provide service within the analysis area, including services related to sewers and sewage treatment, water, stormwater drainage, solid waste management, housing, traffic safety, police and fire protection, healthcare, and schools. The Project Order defines the analysis area for Exhibit U as the area within the site boundary (as defined in Exhibit B) and 15 miles from the site boundary. Figure U-1 depicts providers that provide services within the analysis area. This exhibit provides the information required by Oregon Administrative Rules (OAR) 345-021-0010(1)(u): *Information about significant potential adverse impacts of construction and operation of the proposed facility on the ability of public and private providers in the analysis area to provide the services listed in OAR 345-022-0110, providing evidence to support a finding by the Council as required by 345-022-0110.*

As described in Exhibit B, this Application for Site Certificate analyzes the potential impacts from two design scenarios: a stand-alone photovoltaic (PV) solar power generation build-out, and a PV solar power generation plus battery storage build-out. This exhibit analyzes the PV plus battery storage design scenario, which will likely have a greater potential impact on service providers than stand-alone PV, due to the larger footprint and inclusion of battery storage enclosures.

Executive Summary

The analysis provided in this exhibit describes how the design, construction, and operation of the Facility, taking into account mitigation, will not result in significant adverse impacts on the ability of public and private providers in the analysis area to provide the services.

Applicant does not propose any specific or unique conditions of approval pertaining to public and private service providers for the Site Certificate.

U.2 ASSUMPTIONS FOR EVALUATING IMPACTS

OAR 345-021-0010(1)(u)(A) *The important assumptions the applicant used to evaluate potential impacts.*

Response: The assumptions used to evaluate the potential impacts due to construction and operation of the Facility on public and private service providers are described in the following

subsections. The 15-mile analysis area is entirely within Lake County, Oregon (refer to Figure U-1).

Applicant proposes to begin construction by December 2019. Construction of the Facility is expected to take approximately two years, with crews typically working on 1 to 2 megawatts, approximately 60-acre, portions at a time. Facility operation is anticipated to commence in late 2021 or early 2022. The Facility is expected to be in operation for approximately 30 years.

During average, non-peak construction periods, the site will employ between 60 and 120 workers on site daily. During peak construction periods, the site will employ an average of up to 150 workers on site daily. Of these, 120 staff will primarily work on about 60-acre solar module areas at a time (finishing work in one area before moving on to the next), and about 30 staff will be dedicated to constructing the step-up substation and up to four collector substations. Although construction of the solar modules and related Facility components will be ongoing, the step-up substation in Facility Area D will be constructed over 12 months and up to four collector substations will be constructed over six weeks each in the spring, summer, or fall months of the second year of construction.

The crews will typically work 10-hour days, four days per week (typically Monday through Thursday). For purposes of this Site Certificate, Applicant is assuming approximately 250 construction days per year. Construction will be year-round, but there might be breaks in winter during periods of inclement weather (e.g., snow or ice storms).

Construction staff will be hired for site preparation and vegetation mowing; access road and foundation construction; substation, inverter pad, and electrical transmission line construction; solar module installation; electrical connection to the grid; materials transportation; and other related Facility construction activities. The majority of the construction workforce will consist of skilled electricians, followed by laborers, operators, truck drivers, management staff, and other support staff. Because the majority of workers will be skilled electricians, Applicant expects that most staff will originate from areas beyond the Christmas Valley area, including the Bend area, other parts of Oregon, or from out of state.

Due to the rural location of the Facility, Applicant expects that Facility personnel would use some public and private services located within the 15-mile analysis area, but also in farther away areas, including primarily in the La Pine and Bend areas, but also potentially in the Lakeview area.

The Facility will employ approximately 6 to 10 permanent maintenance personnel during operation. To the extent possible, operations and maintenance staff will be hired locally with the possible exception of positions that require previous experience at other solar power facilities. Specialized outside contractors might be hired for tasks that cannot be completed by onsite personnel.

U.2.1 Sewers and Sewage Treatment

During construction, portable toilets will be used and sewage treatment and handling will be provided by licensed haulers and disposal facilities. No publicly owned treatment works hookups are within the Facility site footprint. As such, the sewage services required by the site during construction will be related to the handling of sewage from contract portable toilets. During operation, operations and maintenance buildings will contain restroom facilities and an onsite sewer for operation personnel.

U.2.2 Water

During construction, Applicant estimates it will use up to 17,150,000 gallons of water over the entire two-year construction period under annual average conditions (approximately 53 acre-feet of water). Under worst-case conditions, Applicant estimates it will use up to 34,300,000 gallons of water over the two-year construction period. This equates to approximately 34,300 gallons of water per construction day under average working conditions (68,600 gallons per day under worst-case conditions). Water used during construction will primarily be used for dust control and, to a lesser extent, for washing of equipment and vehicles (i.e., washing concrete trucks after delivery of concrete). Water for construction will primarily be purchased from municipal sources, which already have the permits and water rights to the sources of water. In addition, water for construction may be supplied from one or two wells dug on site that each will provide up to 5,000 gallons of water per day.

During operation, Applicant expects to use approximately 326,000 gallons of water per year under average conditions, and 489,000 gallons per year under worst-case conditions. Water will primarily be used for solar panel washing activities and, to a lesser extent, for potable water in the operations and maintenance buildings. If Applicant decides to install a septic system, an additional estimated 875,000 gallons of water will be used annually. The primary sources of water will be one or two wells dug on site, which will each provide up to 5,000 gallons of water per day. If more water is needed, Applicant will purchase it from a private or municipal source that has the necessary permits. Refer to Exhibit O for more details about water use and sources for the Facility.

U.2.3 Stormwater Drainage

The Facility site is relatively flat and stormwater is expected to infiltrate the ground without the need for collection in stormwater swales or retention basins. During construction, stormwater best management practices will be implemented and maintained in accordance with a National Pollution Discharge Elimination System (NPDES) 1200-C Construction Stormwater Permit and associated Erosion and Sediment Control Plan. Refer to Exhibit I, Appendix I-1, for the NPDES 1200-C Construction Stormwater Permit application submitted to the Oregon Department of

Environmental Quality (DEQ). No community/public stormwater collection systems will be utilized for construction or operation of the Facility.

U.2.4 Solid Waste Management

Construction Waste

During construction, about 5 metric tons of solid waste will be generated per month, including domestic refuse, office waste, packing materials (e.g., corrugated cardboard packaging for new solar panels), steel cut-offs, and construction materials (e.g., concrete waste, wood, plastic, glass, erosion control materials). In addition, an average of 5 metric tons per month of corrugated cardboard is expected to be generated, and up to 15 metric tons per month during peak construction months. The waste generated may also include hazardous waste, such as oil rags, spent small appliance batteries (e.g., from flashlights or radios), and equipment and vehicle maintenance solvents and oils.

Operation Waste

During operation, Applicant anticipates that the Facility will generate 300 pounds or less of waste per month, and less than 220 pounds of hazardous waste (if any) per month, qualifying the Facility as a Conditionally Exempt Generator according to the rules of the DEQ.

Solid Waste Produced by Retirement

The retirement of the Facility will involve the reuse, recycling, or disposal of the solar panels, rack systems, and other components. Refer to Exhibit W for a detailed list of components and quantities of expected waste for retirement of the Facility.

U.2.5 Housing

As much as possible, Applicant will hire construction workers residing in local communities, such as Christmas Valley and Silver Lake, to support the local economy. However, Applicant expects that many construction workers will reside outside of the analysis area. Of the 150 workers expected during peak construction periods, Applicant expects approximately one-third (50) of workers to reside within the 15-mile analysis area in travel trailer/recreational vehicle (RV) parks, motels, hotels, or short-term rentals in nearby communities, such as Christmas Valley, Fort Rock, and Silver Lake. The remaining two-thirds (100) of workers will likely stay in similar accommodations in areas farther way, including La Pine and Bend and commute to the Facility site daily. Travel times to the Facility site from La Pine and Bend are about 1 hour and 1.5 hours, respectively. The commutable distance was selected on an assumed travel time of up to 1.5 hours.

During construction, Applicant expects approximately 50 percent of workers to bring personal travel trailers and stay in travel trailer/RV parks, while others would stay in hotels and motels. If

the workers are local residents, it is expected that they may commute daily from their homes in communities as far away as La Pine or Bend.

Based on the assumption that the average household size during construction will be 2.0 persons (because it is likely many workers will not be accompanied by families or others), up to 300 temporary new residents may be associated with Facility construction. Actual numbers of in-migrants will be lower, however, because some workers will be local hires.

Fewer new permanent residents are expected during Facility operation. It is assumed that 6 to 10 permanent employees will be hired as part of the operations and maintenance staff, and some of this staff may already be local residents. If all operation phase workers are in-migrants, 6 to 10 additional permanent residences will be required. It is assumed that some operation staff will reside within the Christmas Valley area (i.e., within the 15-mile analysis area), but others, including personnel with specific skills, may reside in nearby areas, such as La Pine and Bend, and commute to the Facility.

U.2.6 Traffic Safety

During construction, a number of transportation routes will be used to access the site. These routes will be used to deliver site components, equipment and materials, water, and workers to and from the Facility site, and federal, state, county, and private roadways will be used (refer to Figure U-1). Primary and alternative transportation routes and Facility access points are described in detail in Appendix U-1. The following describes the expected transportation routes, truck traffic, and points of origin.

The primary transportation routes to the site will be from areas to the west of the analysis area, including La Pine, Bend, and Klamath Falls, using US-97 and State Route 31 to reach the Christmas Valley area (refer to Figure U-1). Possible alternative routes to the Christmas Valley area include US-395 from the east, via US-20 to Bend. Because approximately two-thirds (100) of the workers are expected to commute from areas such as La Pine and Bend, an increase in workers commuting from outside the analysis area would have the potential to increase traffic on the roads within the analysis area.

There are three main areas that are part of the Facility: Areas A, C, and D, as well as a generation tie transmission line to connect these three areas. Access to Area A will primarily occur from Oil Dri Road (County Road 5-14G) on the east side of Area A, via County Road 5-12 to the north or Area A, and Fort Rock Road. Access to Area C will primarily occur from Christmas Valley Road (County Road 5-10). Access to Area D will occur from Connley Lane (County Road 5-10C), via Fort Rock Road. Refer to Appendix U-1 for additional description of Facility access routes.

Traffic in the analysis area will temporarily increase during construction of the Facility due to material deliveries and personnel accessing the Facility site. Based on 60 to 120 workers accessing the site during non-peak construction periods and a carpool factor of 1.25 persons per

vehicle, up to 96 two-way passenger vehicle trips could be made to and from the site per day, totaling 192 one-way vehicle trips per workday. During peak construction periods, when there could be up to 150 workers on site, as many as 120 two-way vehicle trips may be made to and from the site per day, totaling 240 one-way vehicle trips per workday. In addition, 20 to 40 truckloads per day are expected for delivery of materials, such as solar panels, racks, and posts for panels during construction. Based on a 10-hour work day, this will result in two to four deliveries (both ways) per hour throughout the day, primarily using US-97 from the Bend and Klamath Falls areas, and State Route 31 from La Pine. On average, this will result in 60 one-way delivery truck trips per day (30 in and 30 out of the Facility).

During operation, there will be approximately 6 to 10 full-time or part-time workers, which will result in up to 6 to 10 one-way passenger vehicle or light truck trips to and from the site per day, totaling 12 to 20 one-way vehicle trips per workday. Truck deliveries will occur infrequently during operation, on an as-needed basis, for delivery of equipment or materials to the site.

U.2.7 Police and Fire Protection

Based on the Facility's location in northern Lake County, Applicant expects to rely primarily on law enforcement, fire protection, and emergency medical services based in northern Lake County. The Facility will adhere to all federal, state, and local requirements for fire safety, including Oregon Fire Code sections 605.12.1 through 605.12.3 and National Fire Protection Association Standard 70 (the National Electric Code). Any small or incipient state fires are expected to be controlled and monitored by trained Facility staff. If needed, additional fire control measures/assistance will be coordinated with local fire protection services.

Applicant has coordinated with representatives from the Christmas Valley Rural Fire Protection District, who have indicated that the Facility lies outside of its service area (refer to Appendix U-2). However, the fire district may respond to fires on a voluntary basis. The fire district has indicated that Applicant may apply for the Facility to be annexed into the district. Applicant does not plan to apply for annexation at this time.

Applicant has also coordinated with representatives from the Rangeland Fire Protection Association (RFPA) for this area, which has indicated that the Facility lies within its service area (refer to Appendix U-2). The RFPA is a non-profit, volunteer organization that is governed and directed by its members and managed by a board of directors. Using grant funds, member fees, and donations, the RFPA obtains equipment through the Federal Excess Personal Property Program for the prevention and suppression of rural and wildland fires and prescribed burning. If Applicant obtains membership and makes an appropriate donation, the RFPA will work with Applicant to locate fire suppression equipment at the Facility site. This equipment, along with nearby equipment owned by other RFPA members, would be available for quick response to fires. RFPA members agree to respond to fires, as needed, in the service territory.

Law enforcement services will be required primarily from the Lake County Sheriff's Office, with secondary service provided by the Oregon State Police, as needed.

U.2.8 Healthcare

During construction, Applicant will retain emergency medical technicians on site and will arrange for medical transport during medical emergencies that occur at the Facility. Patients with minor injuries will be treated on site or transported by vehicle to La Pine Community Health Center in the community of Christmas Valley. Patients with moderate injuries will be transported by vehicle to St. Charles Medical Center in Bend. For severe injuries, Applicant may use the services of the Air Ambulance to transport patients to Bend.

Accidents that occur on public roads will require use of services from the North Lake County Emergency Medical Service in the community of Christmas Valley, which transports patients to Bend by ambulance; additionally, services from Air Ambulance, which also transports patients to Bend, may be used for accidents on public roads.

During operation, emergency medical technicians will not be retained onsite. Applicant will rely on services from the North Lake County Emergency Medical Service and from Air Ambulance.

U.2.9 Schools

Applicant expects up to 15 percent of the non-peak construction workforce of 120 workers to bring families with at least one school-aged child (up to 18 children). Although some of these children would be home-schooled, some may attend school in the Christmas Valley area at the North Lake County School or in La Pine. In addition, some children may attend the private Solid Rock Christian School in the community of Christmas Valley, which in 2018 supported under 50 students (Waldron 2018).

During construction, Applicant expects that up to 23 school-aged children may require public schooling, one-third (eight children) in the Christmas Valley area and two-thirds (15 children) in the La Pine/Bend areas. During operation, this number will be lower.

U.3 PUBLIC AND PRIVATE PROVIDERS

ORAR 345-021-0010(1)(u)(B) *Identification of the public and private providers in the analysis area that would likely be affected.*

Response: The public and private providers that service the Facility are identified in Table U-1 and in the following subsections. As mentioned, some of these services do not fall within the 15-mile analysis area but are included for discussion in this exhibit.

Table U-1 Public and Private Providers that Service the Analysis Area

Service	Service Provider Detail	Location
Sewage and Sewage Treatment	Lakeview Sanitation Inc. – During construction, Applicant will contract a site sanitation service to provide and service portable toilets, with licensed off-site disposal. Several private services exist in Lake and Deschutes Counties, with the most likely service provider being Lakeview Sanitation Inc. During operation, personnel will use restrooms in the operations and maintenance buildings, which will be built during construction of the Facility and will discharge to an approved and permitted onsite septic field.	Lakeview, Oregon
Water	One or two wells will be dug on site, each of which will provide up to 5,000 gallons of water per day during construction and operation. In addition, water will be purchased from municipal sources, including the Christmas Valley Domestic Water Supply District, which has agreed to provide water for construction and operation of the Facility, as their system demands allow.	On-site wells and municipal sources, including Christmas Valley Domestic Water Supply District
Storm Water Drainage	No service is required. All stormwater run-off for the Facility will be allowed to evaporate or infiltrate the surface.	On-site drainage and infiltration
Solid Waste Management	Lakeview Sanitation, Inc. – Provides residential pickup, commercial container services, recycling depot, drop box services, portable toilets, and septic pumping service.	Lakeview, Oregon
	Lake County Landfill – accepts non-hazardous commercial waste, small quantities of corrugated cardboard, and household waste. Lakeview Sanitation, Inc. is able to provide pickup and delivery service for this waste. Lake County Landfill cannot accept the large volumes of corrugated cardboard expected for construction of the Facility.	Lakeview, Oregon
	Mid Oregon Recycling – Accepts large volumes of corrugated cardboard for recycling. Alternatively, Knott Landfill Recycling and Transfer Facility is able to accept the expected volumes of corrugated cardboard expected from construction of the Facility, as well as most types of waste, if needed. Cardboard will be recycled, if possible, or deposited in the landfill. Lakeview Sanitation, Inc. is able to provide pickup and delivery of this waste.	Bend, Oregon

Table U-1 Public and Private Providers that Service the Analysis Area

Service	Service Provider Detail	Location
	Hazardous Waste Facility at Knott Landfill – Accepts residential and commercial hazardous waste. Lakeview Sanitation, Inc. is able to provide pickup and delivery of hazardous waste, including, but not limited to, batteries, herbicides, and soils contaminated with oil or fuel.	Bend, Oregon
Housing	Hotels and Motels	Locations vary, but multiple providers exist both within the analysis area and beyond it. Refer to Section U.4.5, for more information.
	Travel Trailer/Recreational Vehicle Parks	
Police and Fire Protection	Lake County Sheriff’s Office – Primary law enforcement provider for the analysis area. Full law enforcement services that operate a 24-hour 911 dispatch center for fire, police, and medical emergencies (refer to Appendix U-2).	Lakeview, Oregon (Main office); Silver Lake, Oregon (Field office); and Christmas Valley, Oregon (annex)
	Oregon State Police – Secondary law enforcement provider for the Facility location.	Lakeview and Lapine, Oregon
	Christmas Valley Rural Fire Protection District (refer to Appendix U-2)	Christmas Valley, Oregon
Health Care	La Pine Community Health Center – No urgent care available at this facility	Christmas Valley, Oregon (16 miles from Facility)
	St. Charles Health System Hospital – Level II Trauma Center ^a	Bend, Oregon (83 miles from Facility)
	Lake District Hospital – Level IV Trauma Center ¹	Lakeview, Oregon (105 miles from Facility)
	Oregon Health and Science University – Level I Trauma Center ¹	Portland, Oregon (258 miles from Facility)
	North Lake County Emergency Medical Services – Ambulance service to St. Charles Health System Hospital	Christmas Valley, Oregon (11 miles from Facility)
	Air Ambulance – Applicant will contract with Air Ambulance for emergency helicopter medical transport. The Air Ambulance is able to utilize the Christmas Valley Airport (Baxter 2018).	Lands at Christmas Valley Airport (Baxter 2018)

Table U-1 Public and Private Providers that Service the Analysis Area

Service	Service Provider Detail	Location
Schools	North Lake School District – Single K-12 school building serving towns of Silver Lake, Christmas Valley, and Fort Rock. Total enrollment for the last three years averaged 218.67 students (Oregon Department of Education 2018).	Silver Lake, Oregon
	Solid Rock Christian School – Private K-12 school with under 50 students in 2018 (Waldron 2018)	Christmas Valley, Oregon

Notes:

^a Trauma level refers to a hospital’s ability to provide emergency medical response, patient triage, patient transport, hospital transfers, and trauma team activation, as determined in Oregon by the Oregon Health Authority (Oregon Revised Statute 431A.050-100). Trauma levels are defined as:

- **Trauma Level I:** provides the highest level of definitive, comprehensive care for the severely injured patient with complex, multi-system trauma.
- **Trauma Level II:** provides definitive care for severely injured patient with complex trauma.
- **Trauma Level III:** provides initial evaluation and stabilization, including surgical intervention, of a severely injured patient.
- **Trauma Level IV:** provides resuscitation and stabilization of the severely injured patient prior to transferring the patient to a higher level trauma system hospital. (Oregon Health Authority 2018)

U.4 IMPACTS ON SERVICE PROVIDERS

ORAR 345-021-0010(1)(u)(C) *A description of any likely adverse impact to the ability of the providers identified in (B) to provide the services listed in ORAR 345-022-0110.*

Response: The anticipated changes in the demand to services due to construction and operation of the Facility are described in Section U.2. The following subsections describe any likely adverse impacts on the ability of the service providers identified.

U.4.1 Sewers and Sewage Treatment

Applicant will contract with a site sanitation service to provide and service portable toilets for construction personnel. It was confirmed by Lakeview Sanitation, Inc. that this service provider is able to provide adequate numbers of portable toilets for the expected workforce during Facility construction (Sterba 2018).

During operation, the operations and maintenance buildings will have restroom facilities that discharge to a permitted on-site septic field. No municipal sewer service or septic tank service will be required during operation. Therefore, Applicant does not expect significant impacts on public and private sewer and sewage treatment providers during construction and operation of the Facility.

U.4.2 Water

During construction and operation, Applicant will use one or two on-site wells and will purchase additional water from municipal sources. During operation, Applicant will primarily use water from the onsite wells, but will purchase additional water from municipal sources, as needed. Applicant has coordinated with the Christmas Valley Domestic Water Supply District, which has agreed to provide water for construction and operation of the Facility, as their system demand allows (refer to the correspondence and copy of water rights in Exhibit O, Appendix O-1). During both the construction and operation phases, well withdrawals not exceeding 5,000 gallons per day are exempt from the need for a permit (Mayer 2018). In all cases, water use will be authorized and comply with state and local water licensing requirements. Therefore, the Facility will not have adverse impacts to community water systems, or other providers. Exhibit O includes additional details on anticipated water use during construction and operation.

U.4.3 Stormwater

During construction and operation, stormwater will not reach community stormwater systems. Due to the relatively flat topography in the Facility site boundary, stormwater will fall to the ground and infiltrate the soil or evaporate without leaving the Facility site. Construction will be conducted in compliance with the NPDES 1200-C Construction Stormwater Permit. This permit will include an Erosion and Sediment Control Plan with measures designed to avoid or reduce erosion. Therefore, Facility construction and operation will not have adverse impacts on any community stormwater systems. Refer to Exhibit I, Appendix I-1, for the NPDES 1200-C Construction Stormwater Permit application, submitted to DEQ. This permit will be obtained prior to Facility construction.

U.4.4 Solid Waste Management

Applicant will contract with a solid waste pickup and removal service (most likely Lakeview Sanitation, Inc.) to handle transport of solid construction waste and recycling during construction of the Facility. The most likely end recipient of non-hazardous solid waste from construction will be the Lake County Landfill in Lakeview (Hock 2018; Sterba 2018), with the exception of large volumes of corrugated cardboard. Based on correspondence with the landfill manager, Lake County Landfill has adequate capacity to accept the expected volumes of solid waste from construction (Hock 2018).

Due to the large volumes of corrugated cardboard expected from construction of the Facility, cardboard will likely be delivered to Mid Oregon Recycling in Bend. Based on correspondence with a representative of this facility, there is adequate capacity to accept the expected volumes of 5 to 15 metric tons of recycling per month (Eanford 2018). Cardboard can also be delivered to the Knott Landfill Recycling and Transfer Station near Bend, but only for disposal in the landfill.

Based on correspondence with a representative of this facility, there is adequate capacity to accept the expected volumes of cardboard, or if needed, other solid waste, from construction (Centola 2018). Lakeview Sanitation, Inc. is able to provide pickup and delivery service to both the Lake County Landfill in Lakeview and the facilities in Bend (Sterba 2018). The Hazardous Waste Facility at Knott Landfill in Bend accepts both household and commercial hazardous waste. Lakeview Sanitation, Inc. is able to provide pickup and delivery of hazardous materials to the Hazardous Waste Facility at Knott Landfill in Bend (Sterba 2018).

During operation, Applicant anticipates that the Facility will be classified by DEQ as a Conditionally Exempt Generator; this is based on the anticipated amount of waste expected to be produced during operation of the Facility (i.e., less than 220 pounds of hazardous waste per month and less than 300 pounds of non-hazardous waste per month). Applicant will self-transport or will contract Lakeview Sanitation, Inc. to transport hazardous waste produced during operation, including, but not limited to, batteries, herbicides, or soils contaminated with oil or fuel, to the facility at Knott Landfill. Overall, construction and operation of the Facility will not have adverse impacts on solid waste management service providers because the expected volumes of waste will be within the handling capacities of the providers.

U.4.5 Housing

During construction, it is likely that construction personnel will use temporary or short-term housing options, such as a motels, hotels, and travel trailer/RV parks. A few workers may opt to rent apartments or houses. Of the 150 workers expected during peak construction periods, approximately 50 percent (or 75 workers) are expected to stay in travel trailer/RV parks. Applicant expects approximately one-third (50) of workers to reside within the 15-mile analysis area in travel trailer/RV parks, motels, hotels, or short-term rentals in nearby communities, such as Christmas Valley, Fort Rock, and Silver Lake. The remaining two-thirds (100) of workers will likely stay in similar accommodations in areas farther way, including La Pine and Bend, and commute to the Facility site daily.

As stated in Section U.2.5, Applicant expects approximately 50 percent of workers to stay in travel trailers at RV parks. If workers are local, it is expected that they may commute daily from as far away as Bend. In Lake County, Oregon Housing and Community Services (2017) reports that vacancy rates between 2011 and 2015 were 7.1 percent for rental units in Lake County. The United States Census Bureau notes that there were a total of 4,519 housing units in Lake County in 2017 (United States Census Bureau 2018).

In addition to houses and apartments for rent, there are hotels/motels and travel trailer/RV parks available in the analysis area and in areas within a 1-hour (50 to 60 miles) commute of the Facility. Based on searches conducted on two popular internet hotel search websites, there are at least nine non-luxury, traveler hotel/motel options with approximately 150 rooms available within a 1-hour drive of the Facility site (Expedia.com 2018; TripAdvisor 2018). In addition,

there are at least 25 traveler hotel/motel options with approximately over 500 rooms available within 10 miles of the Bend area, which is about a 1.5-hour drive from the Facility site. There are also at least 13 travel trailer/RV parks with approximately 385 trailer sites within a 1-hour driving distance of the Facility site, according to popular internet search websites (RVparkfinder.com 2018; Rvparkreviews.com 2018). Within the 15-mile analysis area, there are approximately 34 hotel rooms (in the town of Christmas Valley and Silver Lake), and approximately 64 travel trailer/RV park sites (in the towns of Christmas Valley, Silver Lake, and Fort Rock).

Hotels/Motels

Hotels/motels within a 1-hour driving distance of the Facility site are listed below, sorted by location and approximate distance (road miles) to the Facility.

Christmas Valley, Oregon:

- Christmas Valley Desert Inn (16 rooms): 13 miles southeast.
- Christmas Valley Lakeside Terrace Motel (10 rooms, two 6-person cabins): 13 miles southeast.

Silver Lake, Oregon:

- Silver Lake Mercantile and Motel (6 rooms): 25 miles southwest.

Summer Lake, Oregon:

- The Lodge at Summer Lake (7 rooms, 5 cabins): 30 miles south
- Summer Lake Hot Springs Resort (7 cabins): 52 miles south.

La Pine, Oregon:

- Highlander Motel and RV Park (9 rooms, 1 cabin): 52 miles northwest.
- Best Western Newberry Station (60 rooms): 53 miles northwest.
- Timbercrest Inn (25 rooms): 55 miles northwest.

Paisley, Oregon:

- Paisley Sage Rooms (4 rooms): 58 miles south.

Travel Trailer/RV Parks

Travel trailer/RV parks within a 1-hour driving distance of the Facility site are listed below, sorted by location and approximate distance (road miles) to the Facility.

Christmas Valley, Oregon:

- Christmas Valley Lakeside Terrace (20 sites): 13 miles east.
- R&R Mobile Home Park (10+ sites): 13 miles east.

Fort Rock, Oregon:

- The Waterin' Hole Tavern and RV Park (4+ sites): 15 miles northwest.
- Rockhorse Park at Horse Ranch (17 sites): 22 miles west.

Silver Lake, Oregon:

- Elaine's RV Park (13 sites): 26 miles southwest.

Summer Lake, Oregon:

- Ana Reservoir RV Park (24 sites): 27 miles south.
- Summer Lake Hot Springs (30 sites): 52 miles southeast.

La Pine, Oregon:

- Roundup Travel Trailer Park (20+ sites): 52 miles northwest.
- Highlander Motel and RV Park (30+ sites): 52 miles northwest.
- Whispering Pines RV Park (25+ sites): 52 northwest.
- Hidden Pines RV Park (19 sites): 52 miles northwest.
- Newberry RV Park (50 sites): 56 miles northwest.
- River View Trailer Park (20 sites): 58 miles northwest.
- Cascade Meadows RV Park (110 sites): 58 miles northwest.

Applicant expects the available lodging in the Christmas Valley area and other areas within a 1-hour commute to be sufficient for Facility needs. Applicant expects up to 50 construction workers (one-third of the 150 workers during peak construction) to stay within the 15-mile analysis area, which includes the areas near the towns of Christmas Valley, Silver Lake, and Fort Rock. Based on the available lodging within the analysis area (i.e., approximately 34 hotel/motel rooms and 64 travel trailer/RV sites), no substantial adverse impacts on temporary housing in the analysis area are expected. During operation, 6 to 10 maintenance personnel will require permanent housing in the analysis area or within a 1-hour commute. Based on the available housing options in the Christmas Valley area and in the La Pine area, no substantial adverse impacts on housing in the analysis area are expected.

U.4.6 Traffic Safety

The transportation network in the surrounding area of the Facility site and in the analysis area mostly consists of county-owned and paved roads, although some are maintained as gravel roads (e.g., County Road 5-12, which will be used as the primary access route to Area A). Based on a site visit conducted on June 15, 2018, to assess traffic patterns, vehicle traffic in the vicinity of the Facility site was sparse and little to no bicycle or pedestrian traffic was observed. In addition, the Lake County Transportation System Plan (Kittelson and Associates, Inc. 2016) does not identify any operational constraints on county roadway segments or intersections through 2035.

Therefore, it was determined that the existing roadways have adequate capacity to handle the anticipated traffic levels during construction and operation of the Facility.

Applicant has identified and described a potential measure that could increase traffic safety at one intersection: install permanent new traffic signs at the intersection of Fort Rock Road and County Road 5-12 to improve traffic safety during construction and operation. Refer to Appendix U-1, for more details of this potential measure. Applicant will coordinate with the county regarding the need for this proposed measure. In addition, Applicant will reduce the risk of accidents by posting signs for low-speed zones near Facility access route intersections and pull-outs.

With implementation of the above-mentioned measure, Applicant does not expect substantial adverse impacts on traffic safety or on the law enforcement agencies' (Lake County Sheriff's Office and Oregon State Police) ability to ensure traffic safety.

U.4.7 Police and Fire Protection

Construction of the Facility will require an average of 120 workers onsite daily, with a peak of approximately 150 workers, in addition to delivery personnel. The increase in personnel living locally (i.e., within the analysis area) or traveling to the Facility site (locally or from the La Pine area) may increase the demands on local law enforcement and fire agencies. Applicant consulted with the Lake County Sheriff's Office and the Christmas Valley Rural Fire Protection District to address the Facility's potential impacts on law enforcement and fire protection services. As a result, Applicant received letters of acknowledgement from both entities stating that Applicant is coordinating with them to address and reduce potential impacts on their abilities to provide services (refer to Appendix U-2).

Law Enforcement

The Lake County Sheriff's Office has an office in Silver Lake and an annex in the town of Christmas Valley, and the Oregon State Police have offices in La Pine and Lakeview. Both the Lake County Sheriff Office and the Oregon State Police provide traffic safety and law enforcement services in the analysis area. Applicant expects up to two-thirds of Facility construction workers to stay in and commute daily from areas outside of the analysis area (primarily from the La Pine area). Applicant expects only about one-third (50) of workers to stay in communities within the analysis area. Therefore, most of the potential increase in the need for services will be on the commuting route from La Pine (State Route 31 and Fort Rock Road), and in the La Pine area itself. La Pine is much larger than any of the communities in the analysis area and able to provide the necessary services to the expected increase in personnel and traffic. Likewise, the smaller increase in personnel expected to stay in the analysis area is within the service capabilities of the Lake County Sheriff Office and the Oregon State Police. Therefore,

substantial adverse impacts on the ability of law enforcement to provide services are not expected.

Fire Protection

During Facility construction, there could be some risk of accidental grass/shrub fires on the Facility site, primarily due to fires caused by running vehicles and equipment. During Facility operation, Applicant does not expect activities will pose a significant fire concern; however, there will be a small potential for electrical fires and fires started by maintenance vehicles.

To reduce the risk of fire during construction and operation, personnel will be trained in proper fire prevention and control procedures. Personnel will be instructed to not leave vehicles and equipment running when not in use (i.e., no idling), to reduce the risk of grass/brush fires. Vegetation-free perimeter road and buffer zone (30 feet wide) and inter-array access roads (12 feet wide) will be installed and maintained to act as fire breaks and help prevent the spread of potential fires to and from neighboring areas. Facility electrical equipment will meet all applicable National Electric Code and Institute of Electrical and Electronics Engineers standards to reduce potential fire risk. The Facility will be accessible via existing paved roads and well-maintained gravel/dirt roads. The perimeter road will be at least 20 feet wide and the inter-array access roads will be at least 12 feet wide, to allow for access by emergency vehicles. However, any potential incipient fires during construction or operation will be controlled by trained Facility staff. In most cases, Applicant expects to contain fires (but not extinguish) and let them burn out. If needed, additional fire prevention measures will be coordinated with the local service providers.

The risk of fire posed by the Facility during operation is low and can be mitigated by employing common safety measures, such as training and increased electronic monitoring. Swinerton Renewable Energy, the chosen operator for the Facility, currently manages 4.5 gigawatts at 314 solar facilities in North America. In the past eight years, there have been only two facility fires: one caused by a neighboring farmer welding a metal fence, and one the result of possible arcing connectors likely caused by a sheep chewing through cables.

For commercial-scale, ground-mounted PV, there are three common types of direct current (dc) arc faults, which can result in fire:

1. A series arc occurs when a connection is broken while the PV is providing current. Any intermittent connection in the dc circuit has the potential for producing a dc arc fault. These connections may include soldered joints within the module, compression type wire connections, connectors used on the wire leads attached to PV modules, connections in dc isolators, connections in the inverter, any dc circuitry in the inverter, or any of the dc cabling in the string circuit.

2. Parallel arcs occur when there is a breakdown in the insulation system and current flows between positive and negative. Two conductors of opposite polarity in the same dc circuit are often run in close proximity to each other. The insulation between the two wires can become ineffective due to animals chewing on them, UV breakdown, embrittlement, cracking, moisture ingress, and mechanical damage. Parallel arc faults can continue along the conductors towards the array, burning materials along the way.
3. A ground fault only requires the failure of one insulation system to ground. This can be the solar module frame, the solar array racking, or a grounded surface.

The difficulties for firefighters are the ability to identify the location of system disconnects, location of electrical conduit, and the ability to isolate and shutdown electrical power coming from the PV array. The Facility will have signage that includes safety information at all entrances to the Facility for emergency responders. In addition, the Facility operator is immediately notified by alerts generated by the monitoring platform when any equipment goes off-line for any reason. This enables immediate safety responses to be initiated in the event the equipment functionality is compromised by fire.

During operations, the system operator will periodically offer training to area firefighters on the system operation and safety practices.

As discussed in Section U.2.7, the Facility lies outside of the service area of the Christmas Valley Rural Fire Protection District (refer to Appendix U-2). As such, the Facility will not have significant adverse impacts on the Christmas Valley Rural Fire Protection District. However, the fire protection district may respond to fires at or near the Facility on a voluntary basis. The fire district has indicated that Applicant may apply for the Facility to be annexed into the district; however, at this time Applicant does not plan to apply for annexation.

Applicant plans to apply for membership in the RFPA for this area, which does service the areas of the Facility (refer to Appendix U-2). As discussed in Section U.2.7, the RFPA is a non-profit, volunteer organization that is governed and directed by its members (mostly local landowners) and managed by a board of directors. The RFPA has indicated that it will work with Applicant to locate fire suppression equipment at the Facility site. Construction or operation of the Facility will not have significant adverse impacts on the RFPA.

For the reasons stated in this section, construction or operation of the Facility will not have a significant adverse impact on the ability of the Lake County sheriff's office, the Christmas Valley Rural Fire Protection District, or the local RFPA to provide services in the analysis area.

U.4.8 Healthcare

Applicant does not expect the construction of the Facility to have adverse impacts on local and regional emergency health service providers, hospitals, or health clinics, considering the number of personnel that will be needed for the construction (150 or fewer personnel) and operation (6 to 10 personnel) of the Facility. As stated previously, Applicant expects up to two-thirds of Facility construction workers to stay in and commute daily from areas outside of the analysis area (primarily the La Pine area). Applicant expects only about one-third (50) of workers to stay in communities within the analysis area. Therefore, much of the potential increase in the need for healthcare services will be in the La Pine area itself. La Pine is much larger than any of the communities in the analysis area, and able to provide the necessary services to the larger expected increase in personnel and traffic. In addition, La Pine is located only 30 miles south of Bend, which has the largest regional hospital (St. Charles Health System Hospital – Level II Trauma Center).

There will be trained emergency medical technicians on-site during construction. For accidents that occur on the Facility site, or on the routes to the Facility, patients would be transported to the type and size of facility that is best able to handle their type of injury, as shown in Table U-1 and Figure U-1. Correspondence from the Christmas Valley/North Lake Chamber of Commerce) indicated that the North Lake County Emergency Medical Services (ambulance service) and the Air Ambulance will provide primary emergency medical transport service for the Facility (Baxter 2018).

U.4.9 Schools

The influx of construction workers for the proposed Facility could result in some workers bringing families with school-aged children. Applicant expects up to 15 percent of the non-peak construction workforce (of 120 workers) to bring families with at least one school-aged child (up to 18 children). Of these, it is expected that one-third (6 students) would require schooling within the analysis area, and two-thirds (12 students) in the La Pine area.

Based on a conversation with a representative at the North Lake School District, the anticipated number of additional students attending school due to construction of the Facility (approximately 6 students) will not exceed the school's capabilities (Waldron 2018). A school representative indicated that in the 2017 to 2018 school year, the school had 216 students enrolled, and the school has enrolled up to 260 students in the past (Waldron 2018). In addition, there is a private school in the town of Christmas Valley, Solid Rock Christian School, and the representative from the North Lake School District also mentioned online schooling options (Waldron 2018). Based on this information, Applicant does not anticipate adverse impacts on schools in the analysis area. La Pine is a larger community than those in the analysis area, and the expected increase in students there will be within the capacities of schools there. For these reasons, Applicant does not expect that construction of the Facility will have adverse impacts on schools.

During operation, the Facility will employ approximately 6 to 10 permanent maintenance personnel. Some of these personnel may reside within the analysis area, in towns such as Christmas Valley, Fort Rock, and Silver Lake, but others will likely reside in the La Pine area or even Bend. Even if all operation personnel has school-aged children, the increase in the number of school-aged children will likely be similar to or smaller than during construction. Due to the small number of expected school-aged children, adverse impacts on the schools are not expected.

U.5 EVIDENCE OF NO SIGNIFICANT IMPACTS

OAR 345-021-0010(1)(u)(D) *Evidence that adverse impacts described in (C) are not likely to be significant, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts.*

Response: No significant adverse impacts on providers that service the analysis area are anticipated, taking into account the impacts avoidance and reduction measures proposed by Applicant (measures are described in Sections U.4.1 through U.4.9, as appropriate). Further evidence of this determination is provided in Appendix U-2, which includes records of correspondence with emergency service providers. Applicant will continue to communicate and coordinate with the service providers identified (refer to Table U-1) to keep them informed of major developments at the Facility that could potentially affect the public and private services in nearby communities in the analysis area.

U.6 MONITORING PROGRAM

OAR 345-021-0010(1)(u)(E) *The applicant's proposed monitoring program, if any, for impacts to the ability of the providers identified in (B) to provide the services listed in OAR 345-022-0110.*

Response: Applicant does not anticipate that the construction and operation of the Facility will have significant adverse impacts on the ability of service providers to provide services. Therefore, Applicant does not plan to implement a monitoring program.

U.7 REFERENCES

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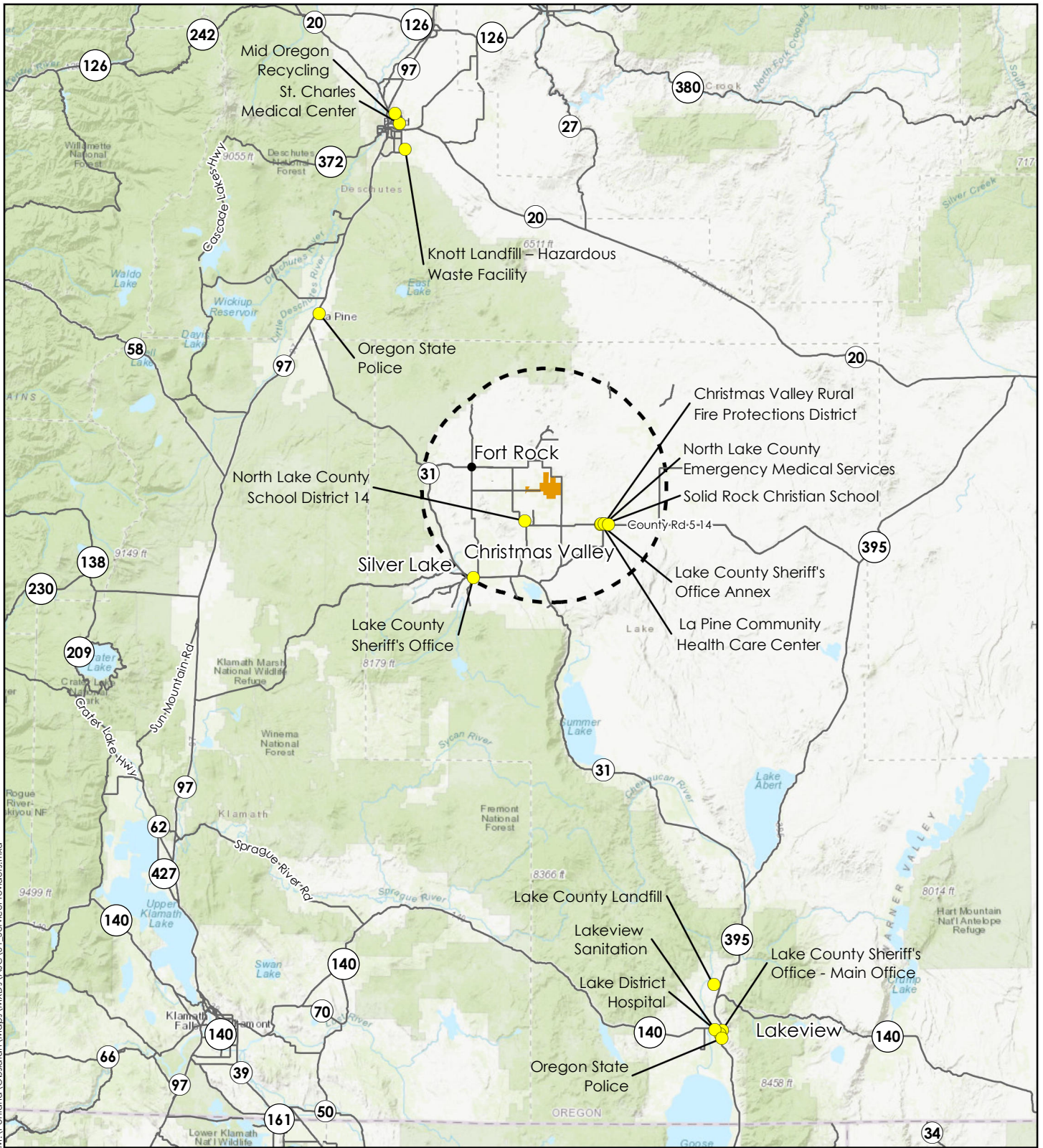
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- Service Providers
- Site Boundary
- Towns
- 15-Mile Analysis Area
- Highways/Roads

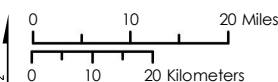


Figure U-1
Service Providers

Obsidian Solar Center

October 2019

Obsidian Solar Center LLC

Appendix U-1

Traffic Memorandum

MEMORANDUM

Date: August 9 2018

Project #: 22328

To: Ilja Nieuwenhuizen, Ecology and Environment, Inc.

From: Matt Kittelson, PE & Jacki Gulczynski

Project: Obsidian Solar Center

Subject: Trip Assignment and Site Access Letter

Oregon Administrative Rule (OAR) 345-022 documents the standard applied for siting of certain energy facilities within the state. As required by OAR 345-022-0110, the Energy Facility Siting Council must be able to find that

“the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to the ability of public and private providers within the analysis area described in the project order to provide: sewers and sewage treatment, water, storm water drainage, solid waste management, housing, traffic safety, policy and fire protection, health care and schools.”

Per this standard, this memorandum assesses the potential transportation impacts and recommended mitigation measures associated with the proposed Obsidian Solar Center, and up to 4,365-acre solar generation facility in Lake County, Oregon (Facility). The information contained in this memorandum will inform the *Application for Site Certificate* to the Oregon Energy Facility Siting Council (EFSC). The analysis area for traffic safety covered in memorandum includes the Facility site boundary, areas near the proposed site access locations, as well as a high-level review of the transportation network within 15 miles of the facility.

The key findings of this memorandum related to transportation system safety are summarized below.

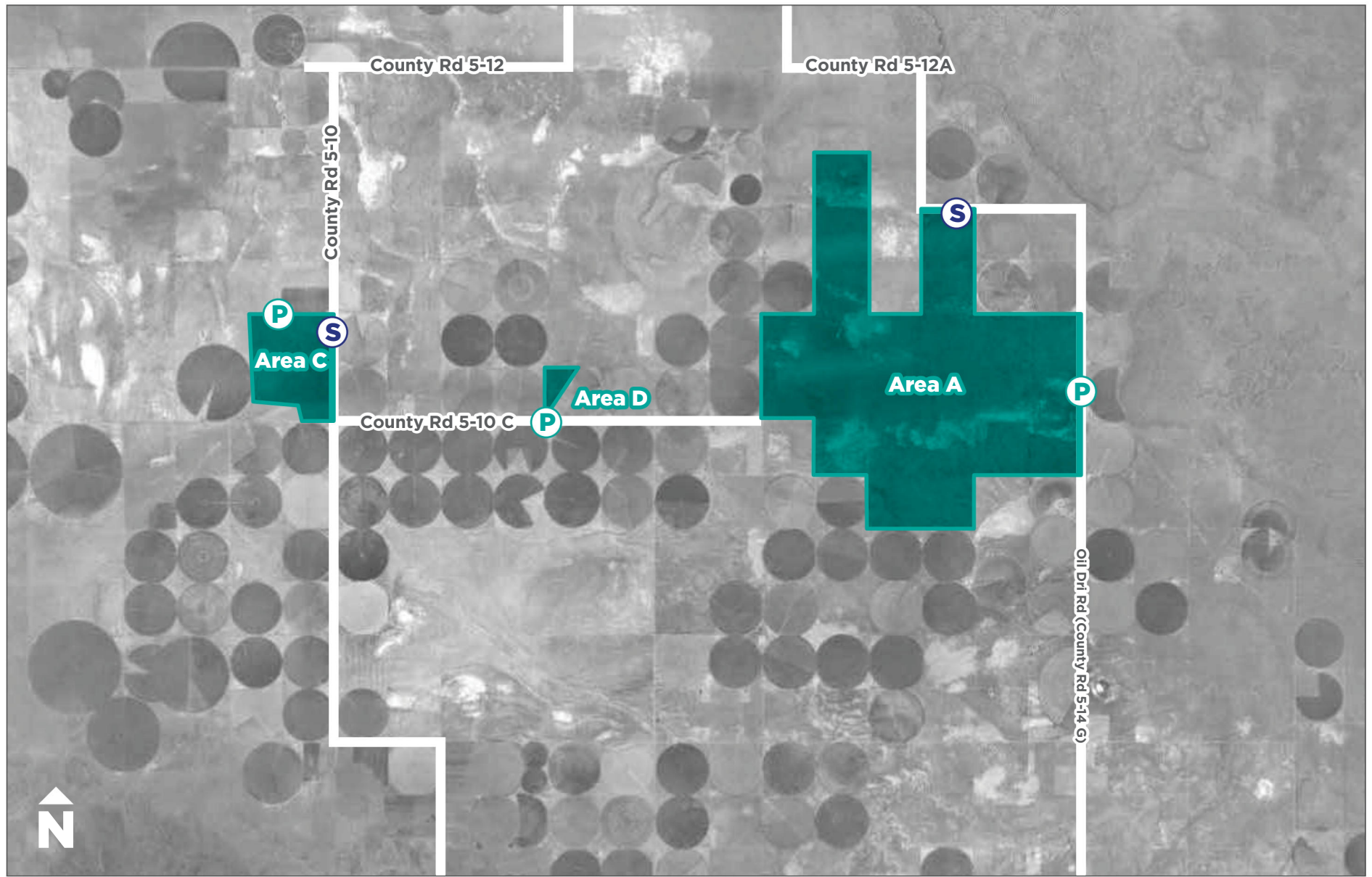
- Construction traffic is anticipated to average 252 vehicle trips per workday over a 2-year period.
- After construction is completed, the facility is anticipated to average ten or fewer vehicle trips per day.
- The anticipated traffic levels associated with both construction and operations of the Facility are within the capacity of the existing roadways within the analysis area. Per the Lake County Transportation System Plan (TSP dated 2016), there are no documented operational or capacity constraints at any roadway segments or intersections in the analysis area through 2035. We conducted a site visit in June 2018 and confirmed this finding related to existing and future capacity.

- Adequate sight lines can be provided at the proposed primary and secondary access points to the Facility. Sight distance and access design should be considered and verified when preparing the final design of the Facility layout.
- The Lake County TSP does not document any safety-related deficiencies at roadways or intersections in the vicinity of proposed site access locations. Per information obtained by the Oregon Department of Transportation (ODOT), no crashes were reported within 300 feet of the proposed site access locations (primary or secondary) over the last five years.
- The intersection of County Road 5-10 (Fort Rock Road)/County Road 5-12 is located on an existing horizontal curve (approximately 2.3 miles north of facility Area C). Three crashes have been reported at this location over the last five years. The Lake County TSP notes the need for further safety investigations along the Fort Rock Road “S” turns. Attachment A includes recommendations for measures to minimize potential impacts associated with the Facility construction traffic at this intersection.
- Larger construction delivery vehicles to Area A should be routed along the secondary access route to limit crossing movements at the County Road 5-10 (Fort Rock Road)/County Road 5-12 intersection.

BACKGROUND & INTRODUCTION

Obsidian Solar Center, LLC (Applicant) proposes to develop the Obsidian Solar Center (Facility), which consists of three main Facility areas (Area A, Area C, and Area D), as shown on Figure 1. These areas collectively comprise approximately 4,365 acres between the communities of Fort Rock and Christmas Valley within Lake County, Oregon. Figure 1 also shows the location of proposed primary and secondary access routes to the various areas. The following provides a brief overview of each Facility area:

- Area A: Located between Country Road 5-10 C and County Road 5-14 G (Oil Dri Road); to contain solar panel arrays.
- Area C: Located west of County Rd 5-10 (Fort Rock Road) just north of County Road 5-10C; to contain solar panel arrays.
- Area D: Located north of Country Road 5-10 C; to contain substation.



Facility Area



Primary Access



Secondary Access

Facility Areas and Primary and Secondary Access Points

Figure
1

TRIP GENERATION AND TRIP DISTRIBUTION

Construction of the Facility is anticipated to be completed over a two-year time frame. Based on information supplied by Applicant, a range of 60 to 150 workers will be onsite during various stages of the construction process. Crews would work 10-hour days Monday through Thursday throughout the year. Typical conditions are expected to average 120 workers per day.

Based on their experience at other facilities, Applicant expects an average occupancy rate of 1.25 persons per vehicle for trips to and from the site during construction. Based on these assumptions, the following summarizes expected trips to and from the Facility site:

- **Workers:** During average construction levels, 120 construction employees will be onsite daily with an average vehicle occupancy of 1.25 people per car = 96 vehicle trips to and 96 trips from the site per day on average, for a total of 192 vehicle trips per day during average worker levels. During peak construction levels, 150 construction employees will be on site daily with an average vehicle occupancy of 1.25 people per car = 120 vehicle trip to and 120 trips from the site per day on average, for a total of 240 vehicle trips per day during peak worker levels.
- **Deliveries:** 20 to 40 truckloads to/from the site during the day, 2 to 4 of which are expected per hour throughout the 10-hour workday. On average, this results in 60 truck trips per day (30 in and 30 out of the Facility).

Based on this information, Table 1 summarizes expected average daily and peak hour trip generation to/from the site.

Table 1: Expected Trip Generation During Average Construction Levels

	Daily Trips	Trips During AM Commute Hours	Trips During PM Commute Hours
Worker Trips ¹	192	96	96
Delivery Trips ²	60	30	30
Total	252	126	126

Note: ¹We assume all worker trips would occur during the AM or PM peak commuting hour. However, more spreading may occur based on work schedules.

²Would result in approximately 6 trips per hour between 7 AM – 5 PM, on average.

Trip generation during typical operating conditions are expected to be average of ten or fewer passenger and light truck (pick-up truck) trips per day.

The construction employees are expected to commute to the site from the directions of the La Pine, Silver Lake, and Christmas Valley areas.

EXISTING TRANSPORTATION NETWORK

The transportation network in the vicinity of the Facility site generally consists of rural county-owned roads. Most are paved though some are maintained as gravel surfaces.

A site visit was conducted by a Kittelson and Associates traffic engineers on June 15, 2018. Vehicle traffic in the area was observed to be sparse. Little to no pedestrian and bicycle traffic was observed. These observations are consistent with the Lake Country TSP, which does not identify operational constraints at any intersections or roadway segments in the County through the 2035 horizon year, including those within 15 miles of the Facility site boundary. As such, the anticipated traffic levels associated with both construction and operation of the Facility are within the capacity of the existing roadways within the analysis area.

All roadways in the area are two-lane with minimal shoulder area, consistent with Lake County roadway standards. Table 2 summarizes characteristics of the key roadways in the area.

Table 2: Roadway Network Characteristics

Road	Functional Classification	Notes
County Road 5-10 (Fort Rock Road):	Major Collector	Provides main access to the communities of Fort Rock and Christmas Valley to/from OR 31
Country Road 5-12	Minor Collector	Provides access from La Pine/Fort Rock area to Area A.
County Road 5-12 A	Local Road	Gravel road. Area A would access this facility.
County Road 5-10 C (Connley Lane)	Local Road	Local access road for properties east of Country Road 5-10. Does not provide through connections to Area A.
County Road 5-14 (Christmas Valley Road)	Major Collector	Provides main access to, from and through Christmas Valley.
County Road 5-14 G (Oil Dri Road)	Local Road	Local access road in the vicinity of the Facility site. Provides connection between Christmas Valley Road and Country Road 5-12 A.

SITE ACCESS AND ACCESS ROUTE REVIEW

The general location of primary and secondary access locations to the three Facility areas are shown on Figure 1. Primary and secondary access routes to the areas are shown on Figure 2.

Available sight distance was reviewed at the proposed primary and secondary site access locations during the June 15, 2018 site visit. A summary of this review is provided below.

- Area A
 - Primary Site Access: No observed constraints
 - Secondary Site Access: Access should be located opposite existing unpaved driveway north of County Road 5-12A to create a four-way intersection and limit potential turning conflicts.
- Area C:
 - Primary Site Access: would be constructed off a new road along the northern frontage of the site. This access should be constructed at least 200 feet away (west) from County Road 5-10 (Fort Rock Road).
 - Secondary Site Access: Country Road 5-10 (Fort Rock Road) along the southern portion of the eastern site frontage is generally rolling with minor vertical curves. Because of this, access should be sited to the north to avoid sight constraints from one on the vertical curves. This access should be constructed at least 200 feet south of the new frontage road to be constructed for the Primary Access.
- Area D:
 - Primary Site Access: No observed constraints
 - Secondary Site Access: None proposed

Available sight distance should be documented in engineering plans when final site access location and design is determined.

As shown in Figure 2, the primary and secondary access routes to the Facility areas will generally following major Lake County travel routes. It is noted, however, that the primary access route to Area A for those traveling to/from La Pine would add turning movements to the County Road 5-10 (Fort Rock Road)/County Road 5-12 A intersection. The configuration of this intersection and the route to/from Area A is shown in Figure 3.

As shown on Figure 3, vehicles traveling to/from Area A would need to turn off County Road 5-10 (Fort Rock Road) at the start of a horizontal curve, in order to continue traveling east along County Road 5-12.

To reduce the potential for vehicle conflicts at this intersection during construction, the following are recommended:

- Applicant coordinate with Lake County to define stopping locations and establish clear right-of-way and turning movement priority
- Route larger delivery vehicles to Area A along the secondary access route, as much as possible, to limit turning movements at this location

TRAFFIC SAFETY CONSIDERATIONS

Lake County TSP

The Lake County TSP identifies the need to further investigate the Fort Rock Road “S” Curves south of the Facility. No specific improvements are identified in the TSP.

Crash Data Review

ODOT provided reported crash histories in the analysis area for the period between January 2011 and December 2015. Using the ODOT data, the type and severity of reported crashes in the area was summarized in Figure 4 and Figure 5, respectively. Per the ODOT crash data, no crashes were reported at the proposed primary or secondary access points to the Facility site boundary (refer to Figure 4).

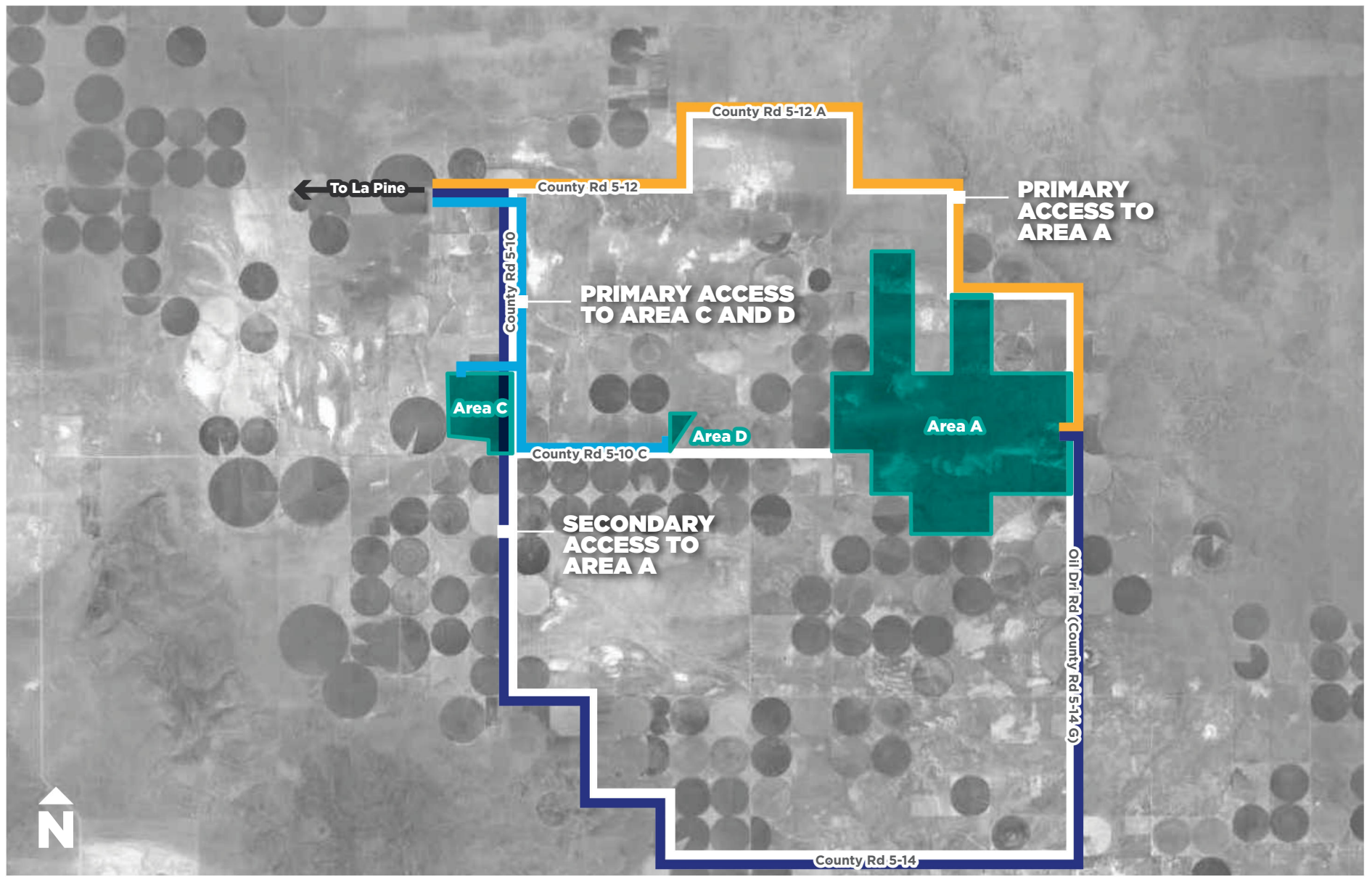
Review of the ODOT crash data identified three reported crashes at the County Road 5-10 (Fort Rock Road)/County Road 5-12 intersection, including two fixed object crashes and one head-on crash. The proposed Facility site boundary does not front or encompass the County Road 5-10 (Fort Rock Road)/County Road 5-12 intersection and no changes to the intersection geometry are proposed in conjunction with Facility development.

CONCLUSION

OAR 345-022-0110 does not define a significance threshold that requires implementation of the potential intersection modifications identified in Figures A-1 and A-2 of Attachment A as part of Facility construction. It is recommended that Applicant and Lake County coordinate on the potential need for the specific improvements recommended as part of this application.

REFERENCES

Lake County Transportation System Plan, 2016



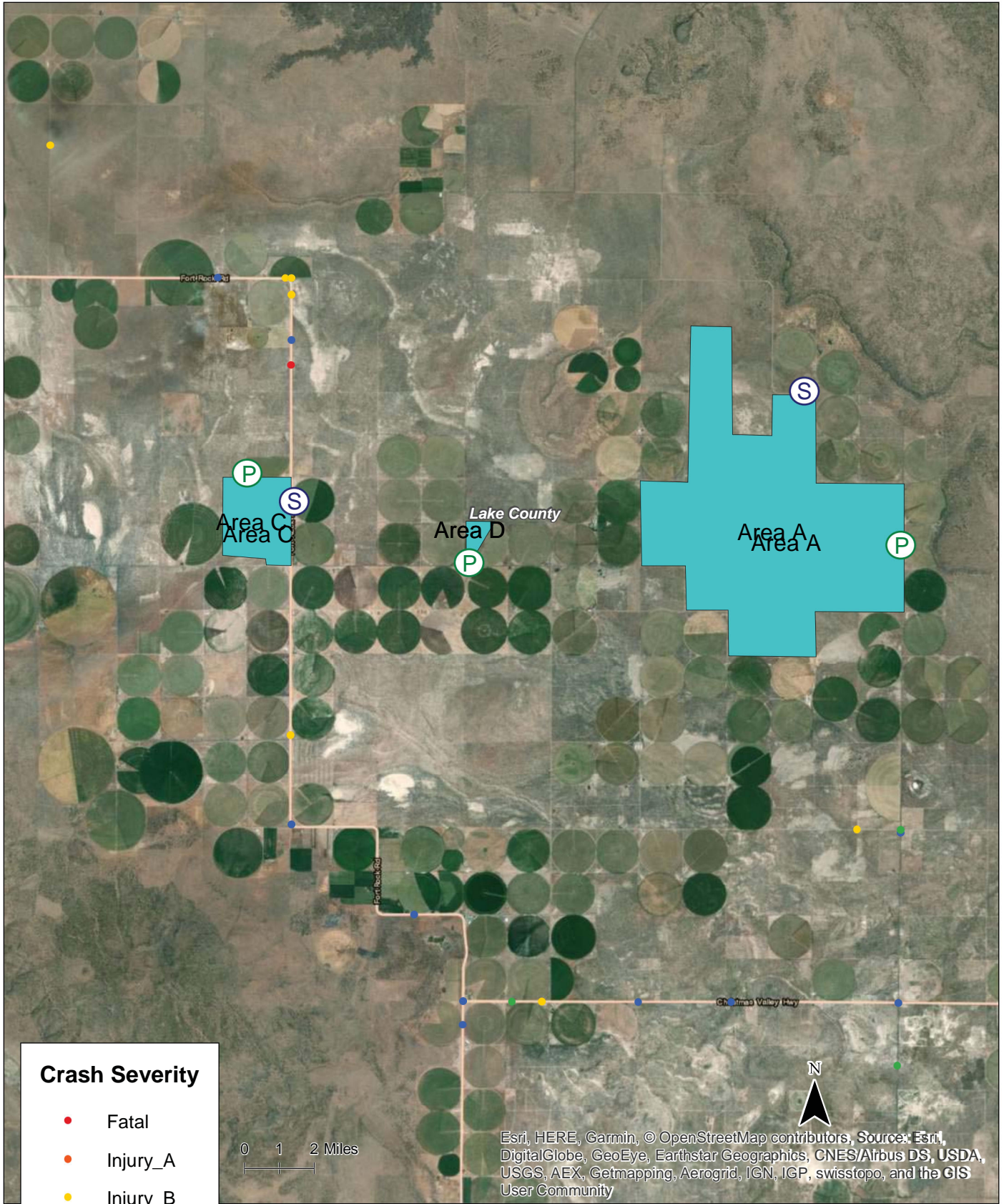
 Facility Area

Access Routes from La Pine

Figure
2



Figure 3: County Road 5-10 (Fort Rock Road)/County Road 5-12 intersection



Crash Severity

- Fatal
- Injury_A
- Injury_B
- Injury_C
- PDO

0 1 2 Miles

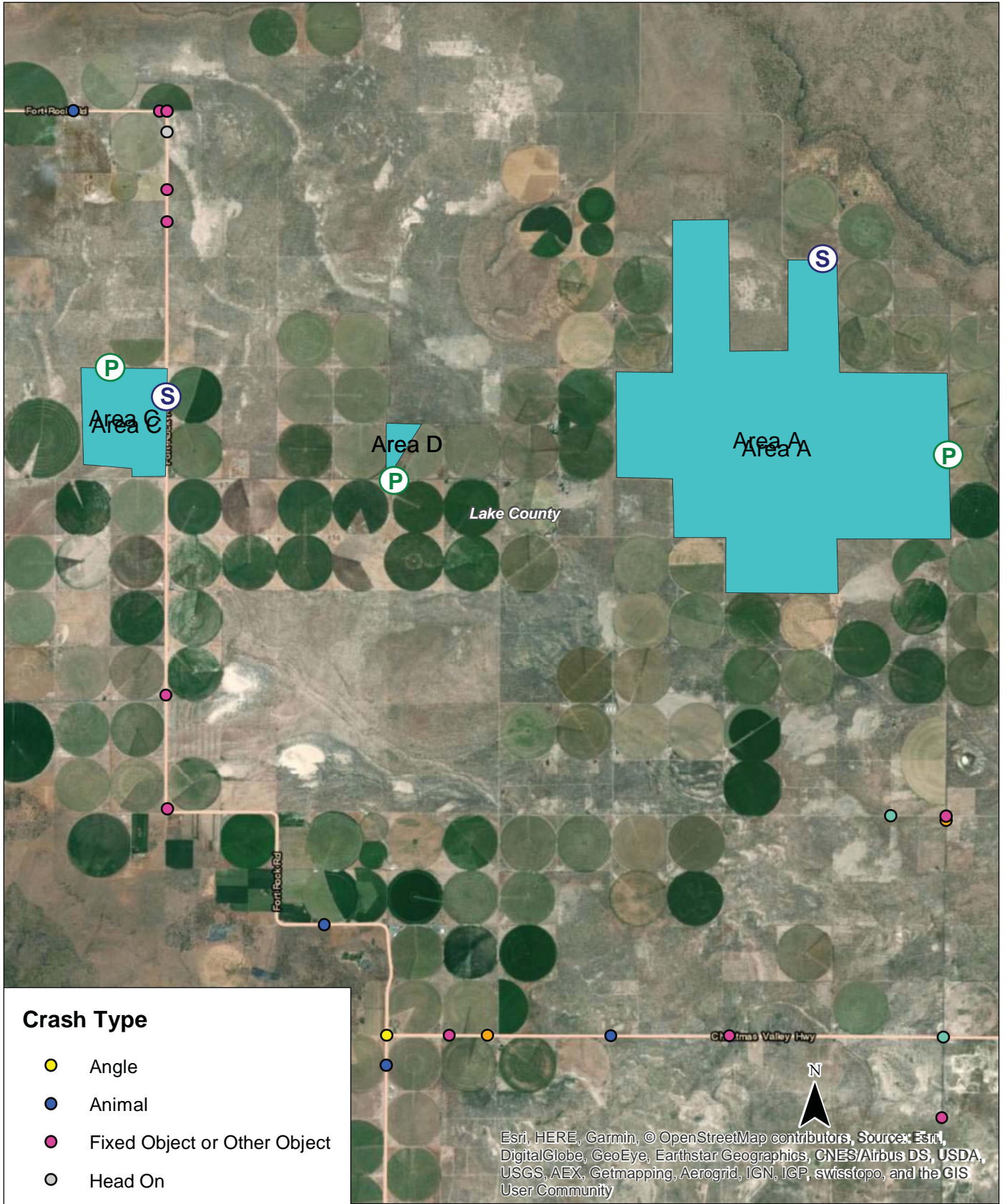
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(P) Primary Access
(S) Secondary Access

**Crash Severity
Lake County**

**Figure
4**

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Crash Type

- Angle
- Animal
- Fixed Object or Other Object
- Head On
- Rear-End
- Turning Movement

- P Primary Access
- S Secondary Access

**Crash Type
Lake County**

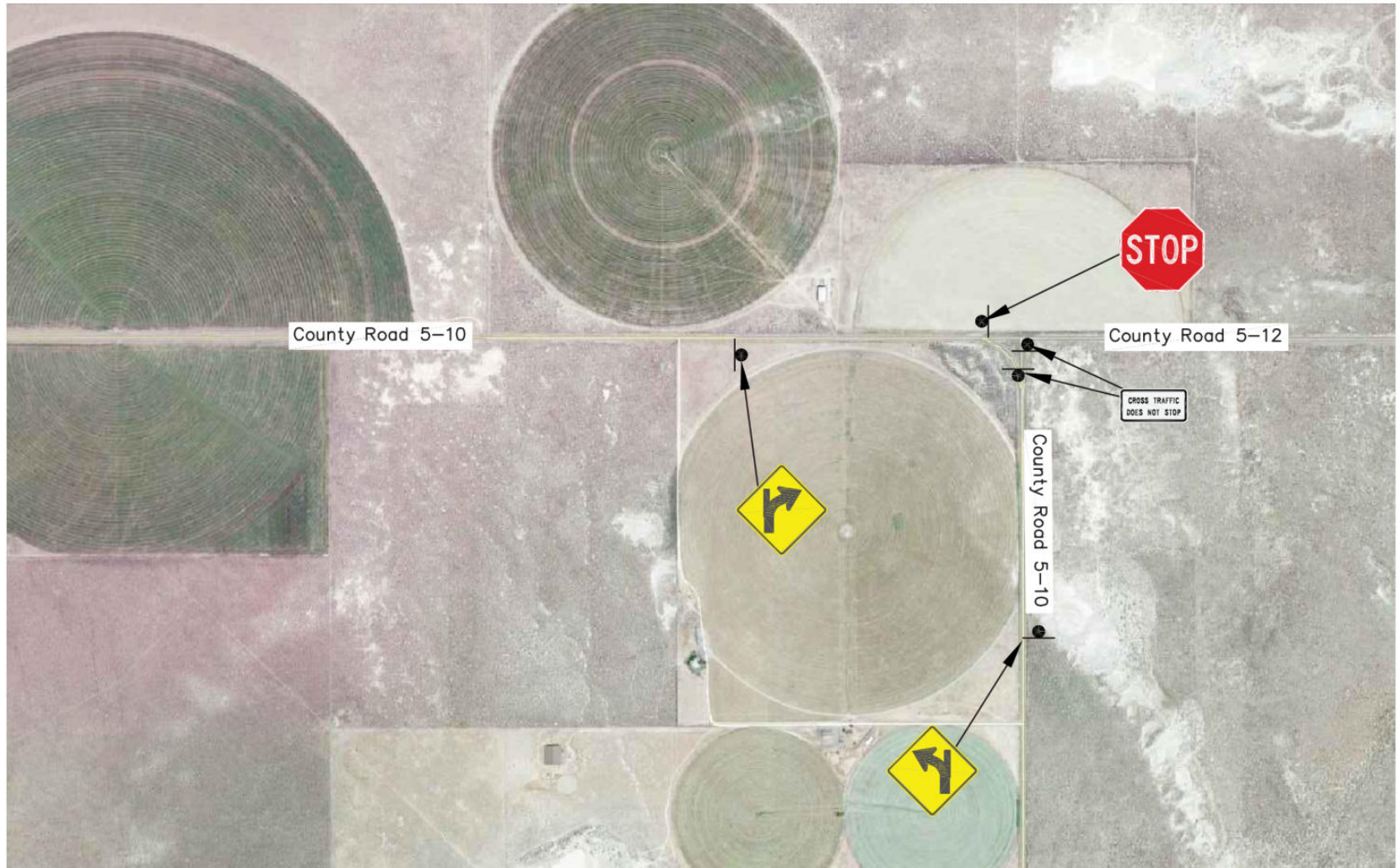
**Figure
5**

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Attachment A
Recommended Improvements

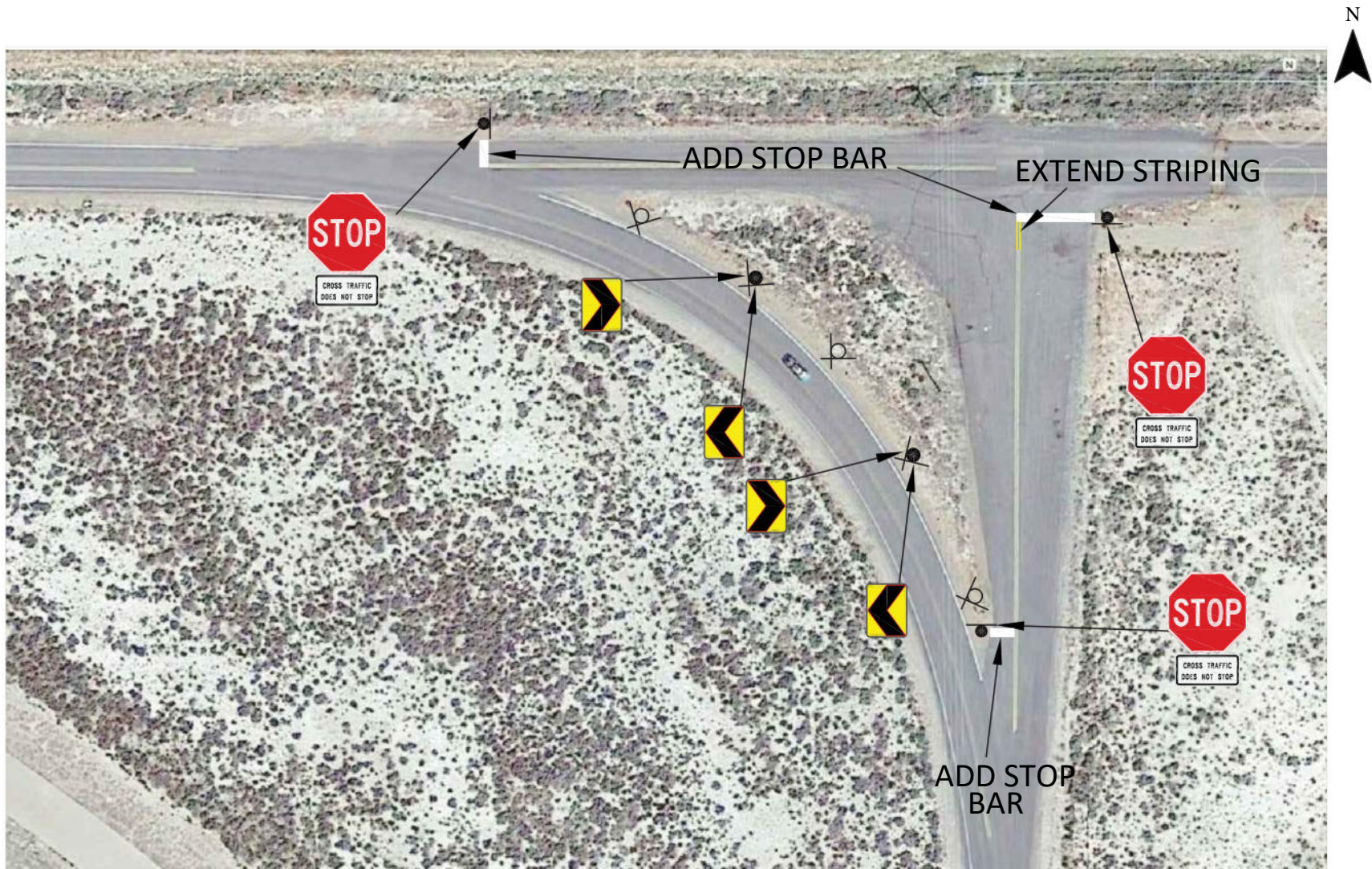
H:\222\22328 - Obsidian Solar Farm Facility\design\Exhibits\22328_Solar Farm Signage.dwg Aug 01, 2018 - 2:29pm - jgulezynski Layout Title: Fort Rock Rd



● RECOMMENDED SIGNS

Recommended Signs
Lake County, OR

Figure
A1



 RECOMMENDED SIGNS
 EXISTING CHEVRON SIGNS

Recommended Signs
Lake County, OR

Figure
A2

Appendix U-2

Letters of Acknowledgement



Lake County Sheriff's Office

Lake County Sheriff's Office
Lake County Courthouse
513 Center Street
Lakeview, OR 97630
(541) 947-6027

Michael Taylor, Sheriff

June 28, 2018

Michelle Slater
Project Manager
Obsidian Solar Center, LLC
5 Centerpointe Drive, Suite 210
Lake Oswego, Oregon 97035

Proposed Solar Facility Site: Obsidian Solar Center

The Lake County Sheriff's Office is the primary criminal law enforcement agency for Lake County, working with other law enforcement agencies based in Lake County including the Oregon State Police, Lakeview Police, Bureau of Land Management Rangers, and Forest Service Law Enforcement. The Lake County Sheriff's Office provides full law enforcement services in the vicinity of the proposed solar power facility. You may forward a copy of this letter to the Oregon Department of Energy to verify that the Lake County Sheriff's Office does in fact provide primary law enforcement services in Fort Rock near the proposed solar site, which is (generally) between Fort Rock Road (to the west), Oil Dri Road N. (to the east), Derricks Cave Road (to the north), and Salt Flat Lane (to the south).

As your project moves forward, the Sheriff's Office would very much be interested in determining the size, location, personnel and possible service needs you might expect from the Sheriff's Office should your permit be issued and the facility built.

Michael Taylor

Michael Taylor
Sheriff, Lake County

Christmas Valley Rural Fire Protection District
PO Box 75
Christmas Valley, OR 97641

August 6, 2018

To: Michelle Slater
Obsidian Renewables

RE: Fire Protection for Proposed Solar Facility Site: Obsidian Solar Center

We have reviewed the information provided by Obsidian Solar Center LLC regarding its proposed solar Facility in North Lake County (Fort Rock) and I am writing to confirm that the current boundaries of the Christmas Valley Rural Fire Protection District (CVRFPD) do not include the Facility site. Because it does not have jurisdiction over the area that includes the Facility location, the CVRFPD will suffer no significant impact from development and operation of the Facility.

That said, were there a structural fire at the Facility location the CVRFPD may respond on a voluntary basis because it is the closest fire district in the vicinity. To ensure response, Obsidian would need to request that the Facility location be annexed into the CVRFPD.

In the event of a brush or wildland fire, the Bureau of Land Management and the North Lake County Rangeland Fire Protection Association would be the most likely to respond, *with CVRFPD,*

The CVRFPD has scheduled a department wide training for fighting solar panel fires, which should be helpful in the event you decide on annexation.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Wade", written over a horizontal line.

Chris Wade, Fire Chief

From: Kevin <k_leehmann@hotmail.com>
Sent: Thursday, August 9, 2018 1:20 PM
To: Michelle Slater <m Slater@obsidianrenewables.com>
Subject: Re: High Desert RFPA

Michelle,

The information in your email looks correct. Thank you for reaching out to us. I am available any time if you have questions.

Kevin Leehmann

Sent from my Verizon Motorola Droid

On Aug 9, 2018 1:14 PM, Michelle Slater <m Slater@obsidianrenewables.com> wrote:

Good afternoon,

I understand you have spoken with my colleague, Todd Gregory, about Obsidian Solar Center LLC becoming a member of the High Desert RFPA.

As I understand it, a Rangeland Fire Protection Association is a non-profit, volunteer organization that is governed and directed by its members and managed by a board of directors. It

It provides services to suppress range fires in the high desert area, including North Lake County near Ft Rock.

Funding for the RFPA comes from membership fees and grant funds administered by the Oregon Department of Forestry. Given the size of our land ownership in connection with the solar project, I see on the web site that our fee to join would be \$200. Using grant funds, member fees and donations, the RFPA obtains equipment through the Federal Excess Personal Property program for the prevention and suppression of rural & wildland fires and prescribed burning. After we obtain membership and make an appropriate donation, the RFPA would work with us to locate fire suppression equipment at our solar facility site and it, along with other equipment strategically located by our Board of Directors throughout the area, would be available for quick response to fires. In addition, members are offered training at no cost to them or the association by the Oregon Department of Forestry and OSU.

We are currently in the process of obtaining land use approval for the solar project through the Oregon Energy Facility Siting Council. As part of that application we are required to demonstrate our plan to address fire risk and/or impact on local services. Given that the project site is not within an established fire district, we believe participation in the RFPA is a great option. We hope to begin construction on the facility in the Fall of 2019, and will want to get equipment in place at that time.

In the meantime, if you wouldn't mind could you please respond to this email with confirmation that the information I have summarized is correct, that Obsidian Solar Center is eligible to become a member of the RFPA and, once it does (including payment of its membership fee and donation), there will be equipment available for placement on the facility site during construction and operation of the facility? If you need any additional information before providing this confirmation please do not hesitate to contact me,

Thank you.

Michelle