

Attachment K: Traffic Impact Analysis

WALLULA GAP SOLAR

Benton County, WA

TRIP GENERATION ASSESSMENT

Updated: December 19, 2023



HEATH&ASSOCIATES
Transportation Planning & Engineering

WALLULA GAP SOLAR TRIP GENERATION ASSESSMENT

Prepared for:

Mr. Tanner Gillespie
Manger, Project Development
OneEnergy Renewables

Prepared by:

Heath & Associates
PO Box 397
Puyallup, WA 98371
(253) 770 1401
Heathtraffic.com



Date: December 19, 2023

To: Jacob Prilucik
WSDOT

From: Aaron Van Aken, P.E., PTOE
Heath & Associates

Subject: Wallula Gap Solar – Trip Generation Assessment

INTRODUCTION

Heath & Associates has been retained to conduct a traffic assessment report for the proposed Wallula Gap Solar project. This report will review the existing street system and provide trip generation estimates for the proposed project.

PROJECT DESCRIPTION

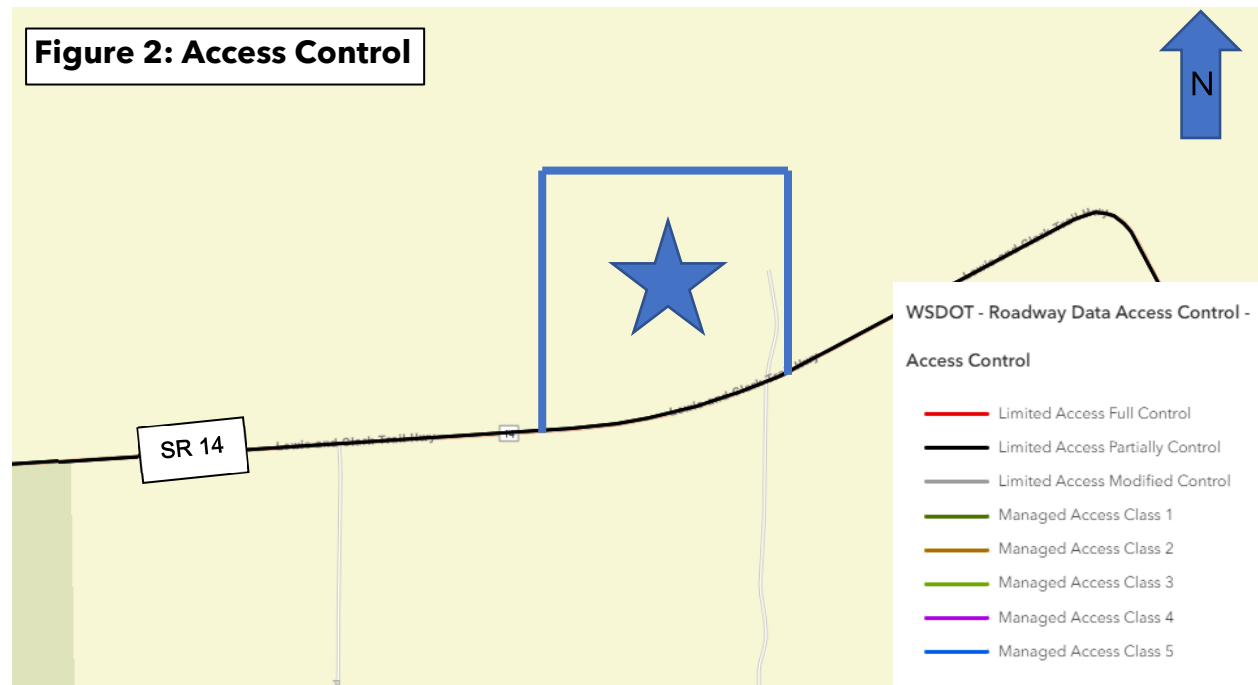
Wallula Gap Solar is a proposed 60 megawatt (MW) solar facility located within Benton County. The subject site is located just north of SR 14 on a portion of tax parcel #'s: 133671000001000, 104571000001000 & 104571000002000, comprising ~437-acres. Access to and from the site is proposed via an existing roadway extending north from SR 14. A vicinity map is provided below in Figure 1 with the subject site highlighted in blue.



EXISTING CONDITIONS

SR 14

SR 14 in the vicinity of the site is a two-lane, rural minor arterial highway that runs east and west along the Washington/Oregon border. Per WSDOT classification, SR 14 is considered a Limited Access Partially Control highway.



Road Cross Section

SR 14 accommodates one travel lane in each direction across the property frontage. Each lane is approximately 11-to-12-feet wide and transitions to paved shoulders approximately 6-9-feet in width. Non-motorist infrastructure is not available in the subject area. The posted speed limit is 65-mph.



Traffic Volumes

SR 14 AADT (Annual Average Daily Traffic) were reviewed using WSDOT's historic database. Table 1 below summarizes the yearly reported values at the nearby station at milepost 167.26 (project is located near milepost 175.43).

Table 1: SR 14 (MP: 167.26) Average Annual Daily Traffic

Year	AADT	YOY Growth
2022	2,900	-3.3%
2021	3,000	+11.1%
2020	2,700	-12.9%
2019	3,100	-11.4%
2018	3,500	0%
2017	3,500	0%
2016	3,500	+23.3%
2015	2,848	+3.0%
2014	2,764	--

As shown above, AADT along SR 14 in the area has remained relatively stable dating back to 2014.

The vehicle composition is approximately 64% passenger vehicles and 36% trucks/heavy vehicles.

Improvement Projects

According to WSDOT's most recent Statewide Transportation Improvement Program (STIP) (2023-2026), there are no planned improvements along SR 14 in the vicinity of the project (under one mile).

Collision History

A list of the recorded collision history from the beginning of 2018 through 2022 for three nearby intersections (including the access) was requested from WSDOT. See Table 4 on the following page for crash summary by year.



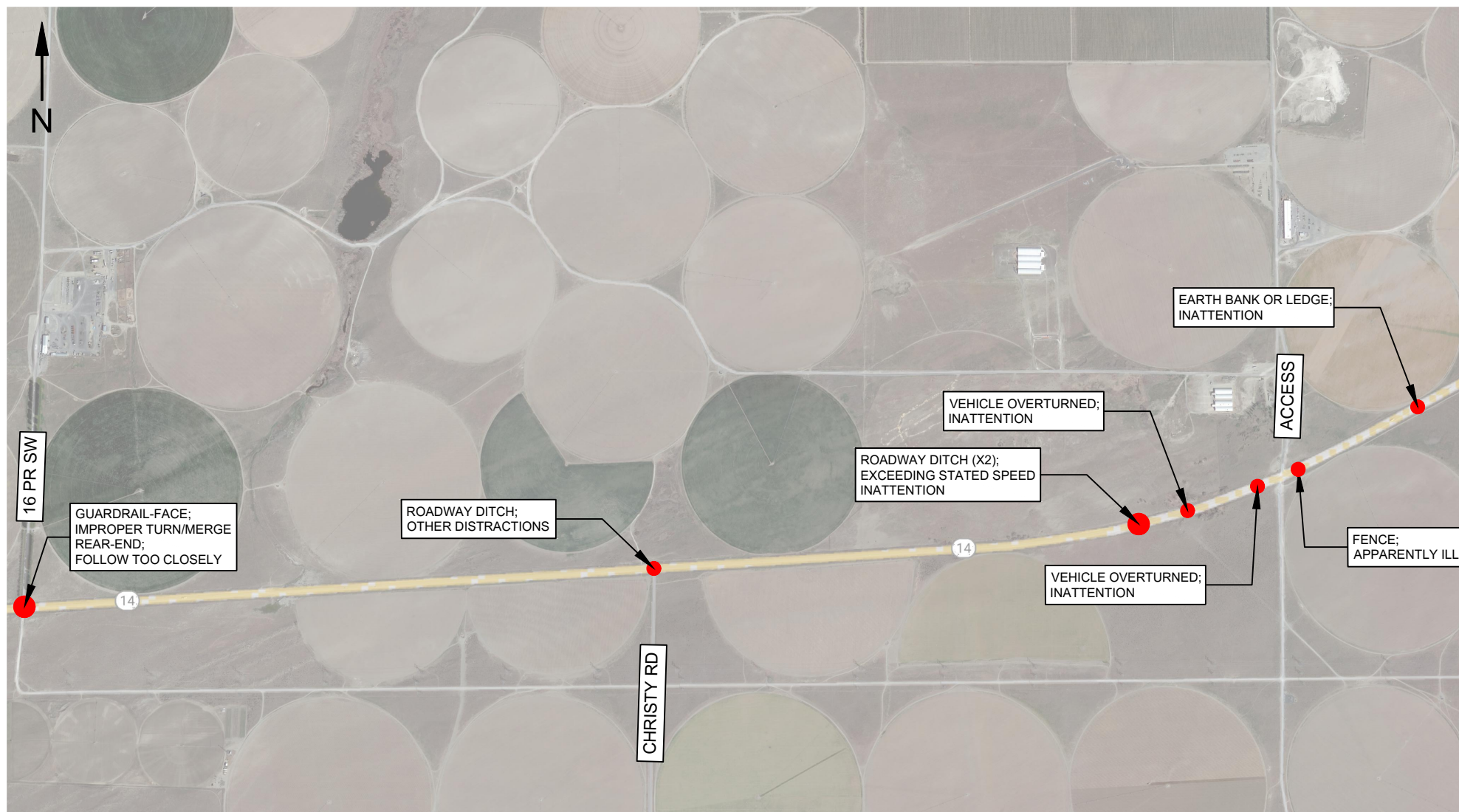
Table 4: Collision History

Intersection/Corridor	2018	2019	2020	2021	2022	Avg/Yr
SR 14 & 16 PR SW	0	1	1	0	0	0.4
SR 14 & Christy Rd	0	0	0	0	1	0.2
SR 14 Between Christy & Access	2	1	0	0	0	0.6
SR 14 & Access	1	1	0	0	0	0.4
SR 14 & ~500' East of Access	1	0	0	0	0	0.2

A total of nine collisions were recorded in the past 5 years in the study area - with one reported injury and no fatalities.

Eight of the nine reported collisions involved a single vehicle either striking a stationary object (guardrail/fence/ditch/earth bank) or a vehicle overturn. It is important to note that six of the nine collisions occurred along the horizontal curve via SR 14. Refer to Figure 3 on the following page for the collision history map.





FORECAST TRAFFIC DEMAND

Project Trip Generation

Once fully constructed and operable, the site will have no regular day-to-day activity and no on-site employees. The site will be infrequently visited primarily for maintenance with perhaps 1-2 visits a month.

Temporary Construction Activity

Construction is estimated to span between 12-18 months. Construction activity is variable and subject to demands, market conditions, etc. However, it is estimated that up to 105 personnel would be needed during peak activity with an average employee count at 59. Trucks are estimated with 15-75 per day. The information is based on similar solar facilities in the State of Washington.

Additional operational information provided by the applicant:

"During the first 30 to 60 days, work on-site would consist primarily of clearing and grubbing activities and limited grading for access roads. Construction personnel would be limited to less than approximately 20 to 40 workers during this period. Once the Facility construction begins, the on-site head count would increase, peaking at approximately 105 workers during periods of high activity. During the final 30-day period, the electrical work would be completed, and the headcount would begin dropping back to approximately 20 to 40 workers. After construction, there would be some additional on-site work for plant start-up and testing that would involve utility company personnel."

Assuming peak conditions, construction trip generation is as follows:

105 personal / 1.2 occupants per vehicle¹ = 88 daily vehicles or 176 trips accounting for inbound and outbound movements.

Trucks 75 / day x 2 trips = up to 150 trucks during peak conditions.

In total, 326 additional daily trips could be added to SR 14 on a temporary basis. The most current AADT (2022) is 2,900 vehicles. Adding the project's construction activity (326) yields 3,226 daily trips which is within the historic ranges and indicates the highway should have sufficient capacity to support the traffic.

¹ Projections from the team indicate 2 occupants per vehicle but 1.2 was applied to be conservative.



Hauling Routes

Truck activity is primarily anticipated to originate from I-82—approximately five miles to the east of the subject site. Some activity may also travel to and from SR 221 to the west. With a high composition of existing truck traffic (~36%), no significant impact or changes to the local conditions is anticipated.

Based on input from the team, approximately 35 percent of the workers commuting are assumed to arrive from the west via I-82 and SR 241 (Yakima area). The other 65 percent are assumed to come from the east via I-82 (Tri-Cities or surrounding areas).

Left-Turn Warrants

WSDOT's Design Manual *Exhibit 1310-9 Left-Turn Storage Guidelines: Two-Lane, Unsignalized*, was used in assessing whether the temporary construction activity would warrant a turn lane along SR 14. First, the design hourly volumes (DHV) are needed.

SR 14 has an ADT of 2,900 as of 2022. Assuming a K-factor of 8%, or assuming 8% of the ADT occurs during the AM peak hour (typically 10-12% is applied in the PM) which is when the site will experience the highest arrival pattern yields 235 DHV.

Next, assuming 90% of the 105 personnel arrive within the same hour and 10% of the daily truck trips simultaneously arrive yields 94 additional DHV.

$$(.9 \times 105 \text{ personnel}) / 1.2 \text{ person/veh} + (.10 \times 150 \text{ truck}) = 94 \text{ trips}$$

Assume 35% as entering via left turn = 33 left turns

$$\text{Total DHV} = 235 + 94 = \mathbf{329}$$

$$\text{Total LT \%} = 33 / 329 = \mathbf{10.0\%}$$

WSDOT Left Turn Warranted: YES / **NO**



Site Access

Access is proposed along SR 14 at an existing approach shown in Figure 4 below (location: MP 175.43). The roadway provides access to agriculture uses to the north and appears to primarily be a service road.



Intersection Spacing

In accordance with WSDOT standards² and the minor arterial classification of SR 14, intersection spacing needs to meet or exceed 0.5-miles in each direction (crossroad ADT less than 2,000 vehicles).

In review of the existing access intersection, there are no other intersections either east or west within a half mile. No intersection spacing deficiencies are identified.

Sight Distance

According to WSDOT sight distance standards³, and adjusting for heavy vehicles (i.e., construction activity), intersection sight lines need to meet or exceed 1,100 feet in both west and east directions for drivers to enter SR 14. Refer to sight distance figures below.

² Washington State Department of Transportation (WSDOT) Design Manual Chapter 530 - (530.04(3)(b)(ii) Minor Arterial).

³ WSDOT Design Manual Chapter 1310.04.



Figure 5: Sight Triangle Looking West



Figure 6: Sight View Looking West



Source: Google Street View



Figure 7: Sight Triangle Looking East



Figure 8: Sight View Looking East



Source: Google Street View

Sight distance at the proposed access intersection is shown to meet WSDOT sight distance requirements.



CONCLUSION

Wallula Gap Solar is a planned solar facility situated in Benton County. The proposed site is expected to cover approximately 437 acres for the construction of a 60-megawatt AC solar photovoltaic project. The intended access to and from the site is through an existing roadway that extends north from SR 14. Annual Average Daily Traffic (AADT) along SR 14 historically varied between a high of 3,500 vehicles to a low of 2,700 vehicles. The vehicle composition is approximately 64% passenger vehicles and 36% trucks and heavy vehicles.

In the day-to-day operations, the site will have minimal trip generation to and from the site since there won't be any on-site employees. Trip activities will primarily involve maintenance and periodic check-ins, which are estimated to occur approximately 1-2 times per month. However, during the construction phase, there will be a notable increase in vehicular activity. Peak construction activities are projected to generate an additional 326 daily trips. It's important to emphasize that construction is temporary and expected to last between 12 to 18 months. While a max of 105 personnel is projected for peak activity, an average of 59 personnel is estimated.

Considering the 2022 Average Daily Traffic (ADT) of 2,900, the additional traffic generated during construction will keep the total ADT within historical normal ranges. Furthermore, the intersection spacing and sight distance at the site meet the standards set by WSDOT and a left-turn lane was not warranted under a peak construction activity scenario.

Please feel free to contact me should you have any questions.
Aaron Van Aken, P.E., PTOE



WALLULA GAP SOLAR

TRIP GENERATION ASSESSMENT

APPENDIX



Exhibit 1310-7a Left-Turn Storage Guidelines: Two-Lane, Unsignalized

