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Memorandum

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Ink:Built Architecture

From: Nick Mesler, EIT
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Date: August 5, 2021

Subject: Green Ridge Solar (20737 SW Olds Place)
Trip Generation Analysis

Introduction

This memorandum reports and evaluates the transportation impacts related to the proposed Green Ridge Solar warehouse building, to be located at 20737 SW Olds Place in Sherwood, Oregon. The proposed development will include the construction of an approximate 17,000-18,000 square foot building, where approximately 3,000 square feet will be utilized as office space while the remaining 15,000 square feet will be utilized as warehousing.

The purpose of this memorandum is to examine the projected trip generation of the proposed development for the morning peak hour, evening peak hour, and average weekday. Based on the trip generation projections, the City of Sherwood's impact thresholds for requiring a full transportation impact study will be evaluated.

Location Description

Project Site Description

The subject site is located north of SW Arrow Street, west of SW Olds Place, and south/east of other commercial and industrial properties. The site is currently undeveloped and consists of tax lot 2S129A Lot 1900 which encompass an approximately total of 0.92 acres. The proposed development will take access via driveways located along SW Arrow Street and SW Olds Place.

Vicinity Roadways

The proposed development is expected to impact three (3) nearby vicinity roadways. Table 1 provides a description of each of these vicinity roadways.

Table 1: Vicinity Roadway Descriptions

Street Name	Jurisdiction	Functional Classification	Speed (MPH)	Curbs & Sidewalks	On-Street Parking	Bicycle Facilities
SW Arrow Street	City of Sherwood	Collector	25 mph	Both Sides	Both Sides	None
SW Olds Place	City of Sherwood	Local	25 mph	Both Sides	Both Sides	None
SW Tualatin-Sherwood Road	Washington County	Arterial	35/45 mph	Both Sides	Not Permitted	Class II Buffered Bike Lanes

Figure 1 below presents an aerial image of the nearby vicinity with the project site outlined in yellow and the City of Sherwood City Limits outlined in red.

Figure 1: Aerial Photo of Site Vicinity (Image from Google Earth)

Trip Generation

The proposed office building will include the construction of an approximate 18,000 square foot building, where approximately 3,000 square feet will be utilized as office space while the remaining 15,000 square feet will be used as warehousing. To estimate the number of trips that will be generated by the proposed use, trip rates from the *Trip Generation Manual*[1] were used.

To estimate the trip generation of the 3,000 square feet of office space, data from land use code 710, *General Office Building*, is based on the square-footage of the gross building floor area. To estimate the trip generation of the 15,000 square feet of warehousing space, data from land use code 150, *Warehousing*, is based on the square-footage of the gross building floor area.

Based on the number of trips generated by each land use, it was determined that the site is anticipated to generate 6 new morning peak hour trips, 6 new evening peak hour trips, and 56 new average daily weekday trips. Table 2 provides a summary of the trip generation of the two project uses.

Table 2: Trip Generation Summary

Land Use	ITE Code	Size	Morning Peak Hour			Evening Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Warehousing	150	15,000 SF	2	1	3	1	2	3	26
General Office	710	3,000 SF	3	0	3	0	3	3	30
Total		18,000 SF	5	1	6	1	5	6	56

To estimate the truck trip generation of the 3,000 square feet of office space, data from land use code 710, *General Office Building*, is based on the square-footage of the gross building floor area. To estimate the truck trip generation of the 15,000 square feet of warehousing space, data from land use code 150, *Warehousing*, is based on the square-footage of the gross building floor area.

Based on the number of truck trips generated by each land use, it was determined that the site is anticipated to generate no new morning or evening peak hour trips, and 9 new average daily weekday trips. Table 2 provides a summary of the trip generation of the two project uses.

Table 3: Truck Trip Generation Summary

Land Use	ITE Code	Size	Morning Peak Hour			Evening Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
Warehousing	150	15,000 SF	0	0	0	0	0	0	9
General Office	710	3,000 SF	0	0	0	0	0	0	0
Total		18,000 SF	0	0	0	0	0	0	9

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 10th Edition, 2017.

Approval Criteria

Per the City of Sherwood's Development Code, Sections 16.106.080.B as well as 16.106.040.K, the preparation of a Traffic Impact Analysis (TIA) is required if the proposed development generates 50 or more evening peak hour trip impacts on OR-99W, 100 or more evening peak hour trip impacts on the local transportation system, or generates 400 average daily trips impacts to the transportation system. The proposed project is anticipated to generate a total of six (6) peak hour trips and 56 average daily trips. Thus, less than 50 peak hour trips and less than 400 average daily trips will access any public roadway facilities.

Per City Municipal Code Section 16.106.080.B.4. "*An increase in use of any adjacent street or direct property approach road to Highway 99W by ten (10) vehicles or more per day that exceed the twenty thousand-pound gross vehicle weight.*" The proposed project is anticipated to generate a total of nine (9) truck trips, equating to *five (5) truck vehicles*. Thus, less than ten (10) truck vehicles per day will access any public roadway facilities.

Based on the trip generation of the proposed development, none of the aforementioned trip impact thresholds for requiring a TIA are projected to be met.

Conclusions

The proposed development of the approximate 18,000 square foot office/warehousing building is not projected to trigger the City of Sherwood's trip impact thresholds requiring the need for additional traffic impact analyses. Therefore, the construction and occupancy of the proposed building is not expected to create significant impacts to the transportation system, whereby this trip generation analysis is sufficient to capture the trip impacts of the proposed development.

If you have any questions or concerns regarding this analysis or need further assistance, please don't hesitate to contact us.

TRIP GENERATION CALCULATIONS

Land Use: Warehousing
Land Use Code: 150
Variable: 1,000 Square Feet
Variable Quantity: 15
Vehicle Type: All Vehicles

AM PEAK HOUR

Trip Rate: 0.17

	Enter	Exit	Total
Directional Distribution	79%	21%	
Trip Ends	**2**	**1**	**3**

PM PEAK HOUR

Trip Rate: 0.19

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	**1**	**2**	**3**

WEEKDAY

Trip Rate: 1.74

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**13**	**13**	**26**

Source: TRIP GENERATION, Tenth Edition

TRIP GENERATION CALCULATIONS

Land Use: Warehousing
Land Use Code: 150
Variable: 1,000 Square Feet
Variable Quantity: 15
Vehicle Type: Trucks

AM PEAK HOUR

Trip Rate: 0.02

	Enter	Exit	Total
Directional Distribution	52%	48%	
Trip Ends	**0**	**0**	**0**

PM PEAK HOUR

Trip Rate: 0.03

	Enter	Exit	Total
Directional Distribution	52%	48%	
Trip Ends	**0**	**0**	**0**

WEEKDAY

Trip Rate: 0.6

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**5**	**5**	**10**

Source: TRIP GENERATION, Tenth Edition

TRIP GENERATION CALCULATIONS

Land Use: General Office Building
Land Use Code: 710
Setting/Location General Urban/Suburban
Variable: 1000 Sq Ft Gross Floor Area
Variable Value: 3.0
Vehicle Type All Vehicles

AM PEAK HOUR

Trip Rate: 1.16

	Enter	Exit	Total
Directional Distribution	86%	14%	
Trip Ends	**3**	**0**	**3**

PM PEAK HOUR

Trip Rate: 1.15

	Enter	Exit	Total
Directional Distribution	16%	84%	
Trip Ends	**0**	**3**	**3**

WEEKDAY

Trip Rate: 9.74

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**15**	**15**	**30**

Source: TRIP GENERATION, Tenth Edition

TRIP GENERATION CALCULATIONS

Land Use: General Office Building
Land Use Code: 710
Setting/Location General Urban/Suburban
Variable: 1000 Sq Ft Gross Floor Area
Variable Value: 3.0
Vehicle Type Trucks

AM PEAK HOUR

Trip Rate: 0.05

	Enter	Exit	Total
Directional Distribution	86%	14%	
Trip Ends	**0**	**0**	**0**

PM PEAK HOUR

Trip Rate: 0

	Enter	Exit	Total
Directional Distribution	16%	84%	
Trip Ends	**0**	**0**	**0**

WEEKDAY

Trip Rate: 0.12

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**0**	**0**	**0**

Source: TRIP GENERATION, Tenth Edition