



TECHNICAL MEMORANDUM

TO: Ben Alworth, Project Manager
Wheeler Ridge, LLC

FROM: George Smith, Senior Transportation Planner

DATE: September 28, 2018

PROJECT #: 2512.01 Phase 10

SUBJECT: Wheeler Ridge Orchard Expansion - Trip Generation Analysis and Traffic Impact Review

INTRODUCTION

Wheeler Ridge, LLC is proposing development of a 250-acre expansion of the existing orchard operations on Stemilt Hill. The proposed expansion will be located in Section 17, Chelan County, Washington. The project site is in an area with multiple operating orchards and groves. Wheeler Ridge currently operates cherry orchards in Section 9, northeast of the proposed development. The current operation yields approximately 3,600 tons of cherries per year.

The purpose of this report is to estimate the vehicular traffic generation of the proposed expansion to identify potential impacts to the local transportation network. **Figure 1** (following page) shows the site vicinity.

PROPOSED DEVELOPMENT

Development of the proposed expansion will include planting approximately 250 acres of late-harvest cherries on currently undeveloped property. Preparing the site will include some logging and clearing, constructing internal access aisles, irrigation and other infrastructure. The operation will share facilities with the existing Wheeler Ridge properties such as offices, maintenance, processing and packing and seasonal worker housing.

Late-harvest cherries ripen later than the other produce grown by Wheeler Ridge, LLC. This allows an efficient use of the existing facilities, staff and machinery already employed on Stemilt Hill. The harvest season for the current orchards typically ends by the middle of August which is when the harvest is anticipated to begin for the orchards in the proposed expansion area. It is anticipated that the expansion area will yield approximately 2,500 tons of cherries per year.



Figure 1. Site Vicinity



Existing and Proposed Processing

Wheeler Ridge, LLC and affiliated companies in the vicinity currently collect cherries in the orchard and delivers them by straddle truck to the Forest Loading Dock located on Stemilt Loop Road approximately ¼-mile south of the intersection with Upper Wheeler Road. The cherries are processed and shipped by semi-truck from the Forest Loading Dock to town. The cherries from the expansion area will be processed and shipped in the same fashion.

Anticipated Employment

The proposed orchard expansion will require a few additional employees and will require retaining seasonal employees for two weeks further into the harvest season. **Table 1** shows the number of employees anticipated for the project.

Table 1. Existing and Projected Employment

	Wheeler Ridge Expansion in Section 17		
	Existing Employees (Wheeler Ridge)	New Employees	Extended Harvest Employees
Year-Round	6	2	N/A
Growing Season	40	24	N/A
Harvest	±1,100	0	±900

Project Access

The current site is accessed via Upper Wheeler Road. The route from Wenatchee is Squilchuck Road to Wenatchee Heights Road to Stemilt Loop Road to Upper Wheeler Road. The proposed expansion area is located on Upper Wheeler Road and will be accessed by the same route.

EXISTING CONDITIONS

Existing Roadways

The following is a description of the primary roadways serving the existing Wheeler Ridge orchards and the proposed expansion area.

Squilchuck Road

Squilchuck Road is a two-lane paved county roadway that runs north-south from Wenatchee to the Mission Ridge Ski and Board Resort. For approximately 1.5 miles south of Wenatchee it is designated a minor arterial. For the next approximately three miles (to Wenatchee Heights Road) it is designated a major collector. The remainder of the road is a minor collector. The roadway provides direct driveway access to residences and agricultural businesses as well as providing connection to local access roadways.



Wenatchee Heights Road

Wenatchee Heights Road is a two-lane paved county road that extends generally east-west from Squilchuck Road to Edgemont Drive. It is designated a minor collector. The roadway provides direct access to residential driveways and local access roads. Many orchards use Wenatchee Heights Road as a haul route to Squilchuck Road.

Stemilt Loop Road

Stemilt Loop Road is a two-lane paved county roadway that extends from Edgemont Drive to Stemilt Hill Road. The roadway is designated a minor collector. Several orchards access directly onto Stemilt Loop Road.

Upper Wheeler Road

Upper Wheeler Road is an unpaved county roadway that begins at Stemilt Loop Road near Kyle Mathison Amigos Road and ends approximately 3.5 miles southwest at a reservoir owned by the Wenatchee Heights Reclamation District. The first approximately half-mile of the road is 20-25 feet wide and well-maintained. The remainder of the road is primitive and less well maintained with width varying between 12 to 15 feet. Upper Wheeler Road is designated a local access roadway.

Stemilt Creek Road

Stemilt Creek Road is a two-lane county roadway that travels north-south from Malaga Road to Stemilt Loop Road. The northern portion from Malaga Road to Stemilt Hill Road is paved and striped and is designated a minor collector. South of Stemilt Hill Road the roadway continues as an unpaved local access road.

Existing Land Use

The subject property is vacant and zoned Rural Residential/Resource 20. To the south the area is mostly wooded vacant land. North of the property is developed with orchards and residential of varying density.

PROJECT TRAFFIC CHARACTERISTICS

Wheeler Ridge, LLC currently operates orchards on Upper Wheeler Road. The traffic characteristics are generally exhibited as off season (October to May) and growing season (May through September) with a peak occurring during harvest (generally in August). The seven-month off-season generates almost no traffic and is not included in this analysis. We have estimated existing and future traffic levels with the expansion for the growing season and the peak conditions during harvest.

Traffic generated by the project primarily falls under four categories: Passenger vehicle traffic of employees, bus/van traffic transporting seasonal employees, straddle trucks hauling produce to the docks and semi-truck traffic hauling produce off the hill.

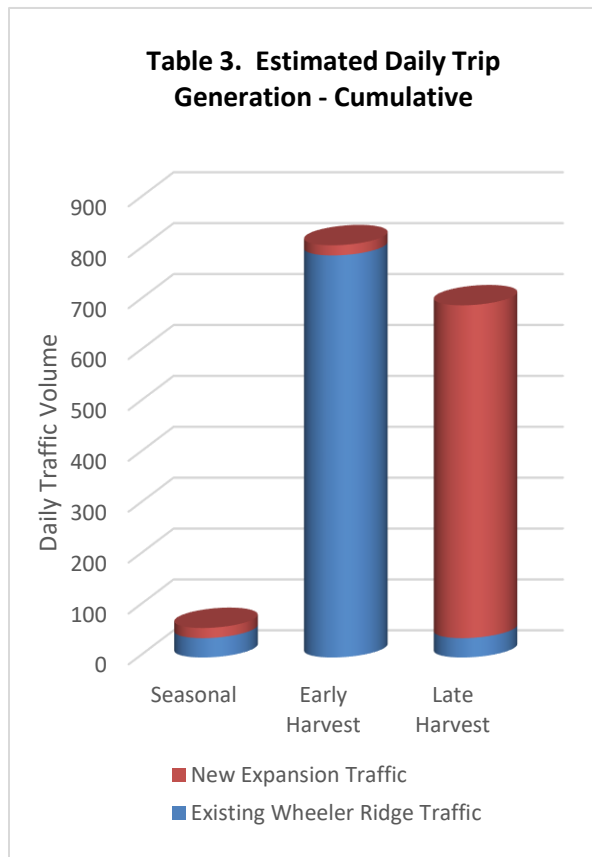
We have estimated the daily traffic for the existing facility and proposed expansion based on the number of employees and the amount of cherries harvested. The calculations are shown on the



attached trip generation worksheet. **Table 2** shows the estimated daily traffic generation for existing and future conditions.

Table 2. Existing and Projected Daily Trip Generation

Vehicle Type	Seasonal (May to September)			Harvest (Early August)	Harvest (Late August)
	Existing Operation	Proposed Expansion	Total After Expansion	Existing Operation	Proposed Expansion
Passenger Vehicles	38	20	58	698	580
Vans	0	0	0	8	6
Semi-Trucks	0	0	0	26	20
Straddle Buggies	0	0	0	58	48
Totals	38	20	58	790	654



As shown in Table 2, the proposed expansion will add approximately 20 trips per day throughout the growing season increasing the daily traffic from 38 daily trips to 58 daily trips.

Because the harvest periods do not overlap, the expansion project will only add 20 daily trips (regular growing season traffic) to the area road network during the existing harvest period. The expansion area harvest will follow later than the current harvest and will generate approximately 136 daily trips less than the existing harvest period. The cumulative traffic levels with existing Wheeler Ridge traffic, and proposed expansion traffic are shown on **Table 3**.



Traffic Distribution and Assignment

For purposes of this analysis we are considering “on-site” and “off-site” traffic with on-site traffic defined as traffic that occurs on private roads internal to the Wheeler Ridge Orchards and/or Upper Wheeler Road. Off-site traffic is all traffic that uses Stemilt Loop Road whether to go elsewhere on Stemilt Hill or to take Squilchuck Road into Wenatchee.

Off-site traffic generated by the proposed development will travel between points on Stemilt Hill, and some traffic will come and go from the hill. The following is a description of the primary origins/destinations of traffic from the existing Wheeler Ridge orchards and expansion:

- Employees to/from town (via Squilchuck Road)
- Employees to/from worker housing (Mathison Cherry Camp Road)
- Employees to/from worker housing (6025 Stemilt Road)
- Straddle Buggies to/from Forest Loading Dock
- Semi-trucks to/from town (via Squilchuck Road)

The projected traffic from the expansion area for the late-harvest cherry harvest period is shown on **Figure 2**.

The proposed development will generate additional traffic activity on-site on private orchard access roadways and aisles, and on Upper Wheeler Road within Sections 9, 16 and 17. This traffic will include some passenger vehicle activity and four-wheeler service rigs.

POTENTIAL TRAFFIC IMPACTS

The proposed expansion development will generate essentially no traffic during the offseason, and very little traffic throughout the entire year (approximately 20 daily trips). However, for two weeks per year in late August it will generate approximately 650 trips per day.

Collector Roadways

During the harvest period the Squilchuck Road/Wenatchee Heights Road/Stemilt Loop Road/Upper Wheeler Road route to and from the site will attract approximately 294 daily trips. Approximately 266 trips per day will use Stemilt Loop Road and Stemilt Hill Road to access worker housing. Each of these roads except for Upper Wheeler Road are paved county roadways of a collector or higher designation per the Chelan County April 2017 Draft Transportation Element. Collector roadways are intended to provide a link between local access roads and major collectors and arterials. As shown on Table 3, the Wheeler Ridge expansion project traffic is forecasted to be less than the existing harvest traffic. The proposed expansion is specifically planned to grow a late-harvest cherry to not overlap with the existing harvest in early August. The short burst of activity may create brief periods of localized congestion during the harvest periods, but the roadways can accommodate the traffic loads.



Local Access Roadways

Upper Wheeler Road will experience an increase of approximately 634 daily trips from the proposed expansion area during the late harvest period. This will be new traffic on this portion of roadway, as it is not used for the existing orchard area. Upper Wheeler Road is currently not equipped for this level of traffic and would suffer significant degradation. To accommodate the proposed development, Upper Wheeler Road will require widening to accommodate two 10 to 12-foot travel lanes and improving the road bed and top course. The roadway improvements would be required from the currently improved section of Upper Wheeler Road through Section 9, Section 16 and Section 17.

SUMMARY AND CONCLUSION

Wheeler Ridge, LLC operates a cherry orchard on Upper Wheeler Road in the Stemilt Hill area. The developer proposes expanding the operation to include an additional 250 acres that would be planted with late-harvest cherries. The proposed expansion would generate very little traffic throughout the year but would extend peak traffic conditions of the harvest season for an additional two weeks. Most the existing roadways in the area are designated as freight routes and collector roadways and are intended to accommodate the traffic loading associated with the orchard expansion. However, Upper Wheeler Road will require upgrades to accommodate the traffic associated with the project.

Figure 2:

Wheeler Ridge Orchard Expansion Trip Generation Analysis and Traffic Impact Review - Projected Late Harvest Project Trip Generation

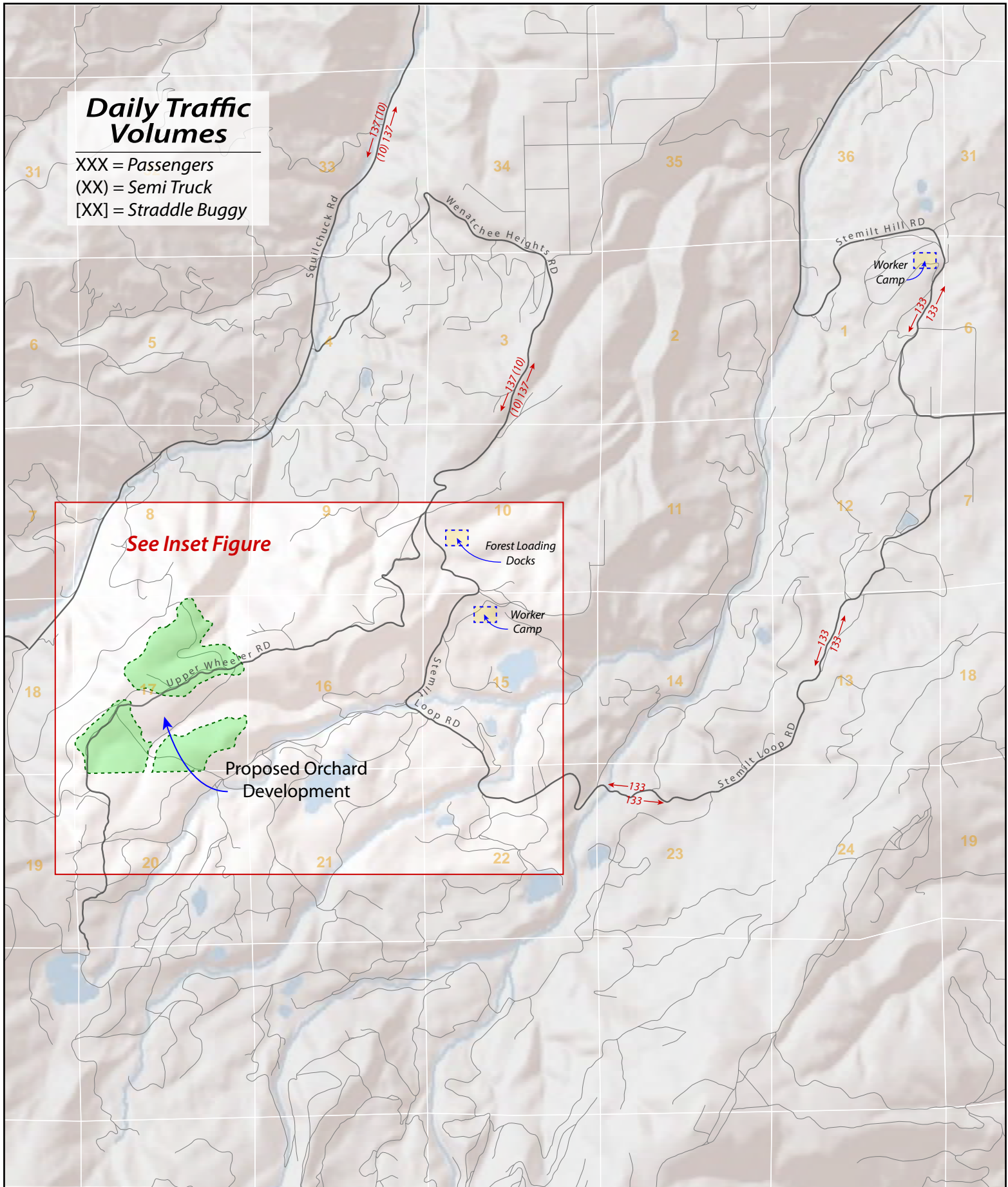
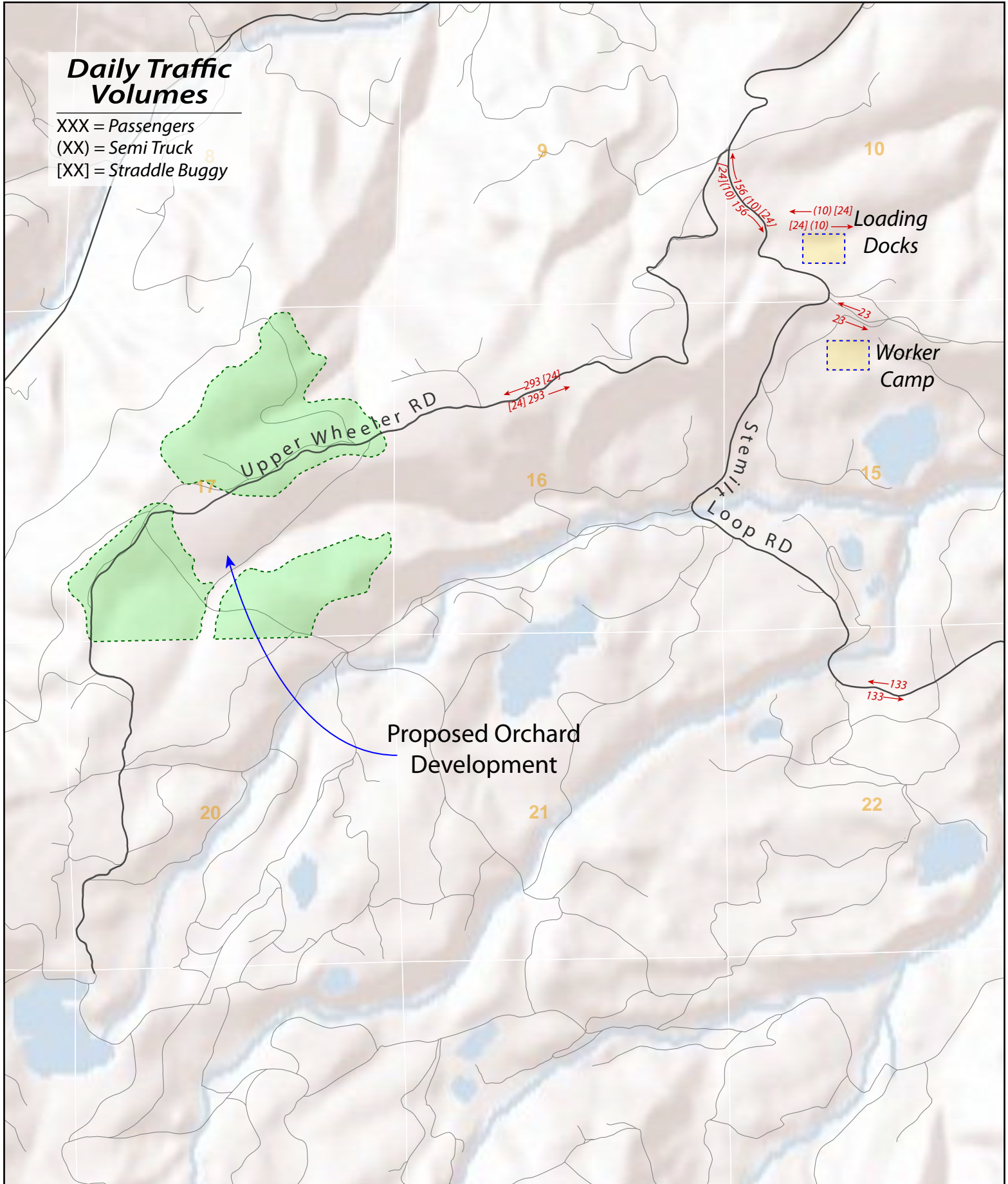


Figure 2a:

Wheeler Ridge Orchard Expansion Trip Generation Analysis and Traffic Impact Review - Projected Late Harvest Project Trip Generation



**Wheeler Ridge Orchard Expansion
Daily Project Traffic Generation**

Seasonal (May-September)								
Passenger Vehicles	Existing Operation Traffic				New Expansion Traffic			
	Employees	Emp/Vehicle	Vehicles	Trips (1)	Employees	Emp/Vehicle	Vehicles	Trips (1)
Year Round Employees (to/from town)	6	1	6	12	2	1	2	4
Seasonal (to/from town)	0	3	0	0	0	3	0	0
Seasonal (to/from housing)	40	3	13	26	24	3	8	16
Seasonal (Shuttle van to/from housing)	0	12	0	0	0	12	0	0
<i>Employee Totals</i>	46				26			
Passenger Vehicle Totals			19	38			10	20
Trucks	Tons/Day	Tons/Vehicle	Vehicles		Tons/Day	Tons/Vehicle	Vehicles	Trips
Semi-Trucks (to/from town)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Straddle Buggy (to/from Docks)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Truck Totals				0				0
Total Daily Trips				38				20

Harvest								
Passenger Vehicles	Existing Operation (Early August)				New Expansion (Late August)			
	Employees	Emp/Vehicle	Vehicles	Trips (1)	Employees	Emp/Vehicle	Vehicles	Trips (1)
Year Round Employees (to/from town)	6	1	6	12	2	1	2	4
Pickers (to/from town)	450	3	150	300	350	3	117	234
Pickers (to/from housing)	450	3	150	300	400	3	133	266
Support staff (to/from town)	60	3	20	40	54	3	18	36
Support staff (to/from housing)	70	3	23	46	60	3	20	40
Pickers and support (Shuttle van to/from housing)	48	12	4	8	36	12	3	6
<i>Employee Totals</i>	1084				902			
Passenger Vehicle Totals			353	706			293	586
Trucks	Tons/Day	Tons/Vehicle	Vehicles	Trips	Tons/Day	Tons/Vehicle	Vehicles	Trips
Semi-Trucks (to/from town)	250	20	13	26	200	20	10	20
Straddle Buggy (to/from Docks)	250	8.5	29	58	200	8.5	24	48
Truck Totals			42	84			34	68
Total Daily Trips			395	790			327	654

(1) Daily vehicles represent a round trip (one inbound and one outbound trip).