FHWA Office of Federal Lands Highway

Rogue-Umpqua Bicycle & Pedestrian Corridor Plan

Demand Management Analysis (Memo 3a)

Mott Bridge, North Umpqua River

Date: January 26th, 2024
Subject: Demand Management Analysis (Memo 3a)
To: Project Management Team
From: Cole Grisham, AICP

Table of Contents

Acronyms

AADT	Annual Average Daily Traffic
BLM	Bureau of Land Management
FHWA	Federal Highway Administration
NPS	National Park Service
ODOT	Oregon Department of Transportation
PDDM	Project Delivery and Design Manual
USACE	US Army Corps of Engineers
USFS	US Forest Service
VPD	Vehicles per Day

Introduction

The Rogue-Umpqua Bicycle and Pedestrian Corridor Master Plan (RUCMP) is being developed by the Federal Highway Administration (FHWA) Western Federal Lands – Highway Division (WFLHD), in partnership with the United States Forest Service (USFS) and the Oregon Department of Transportation (ODOT). The purpose of the RUCMP is to identify ways to better meet the needs of the recreational users accessing recreation sites along the Rogue-Umpqua National Scenic Byway between Roseburg and Gold Hill, Oregon. The corridor includes OR 138 from Roseburg to Diamond Lake, OR 230 to OR 62 from Diamond Lake to approximately Eagle Point, and OR 234 from Eagle Point to Gold Hill as shown in Figure 1 below.

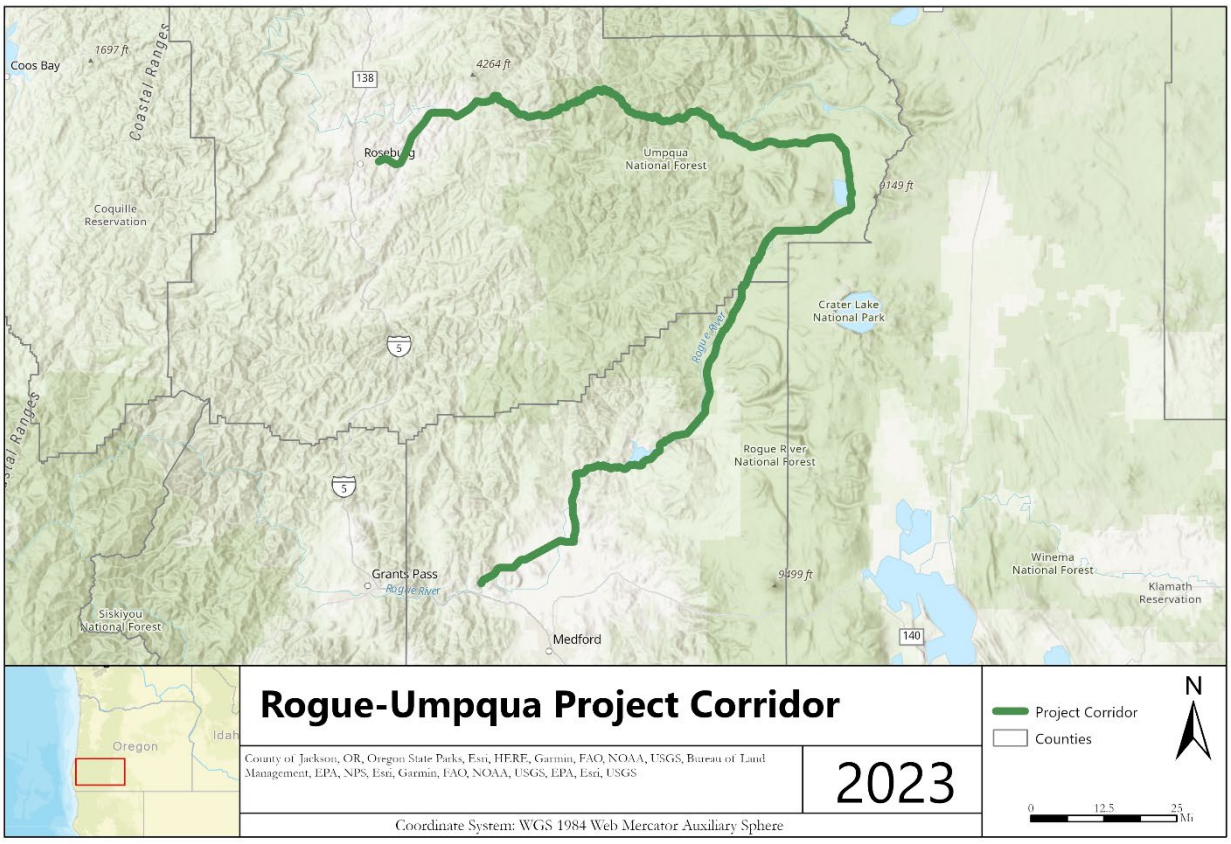

Figure 1. Rogue-Umpqua project corridor.

This memorandum provides the results of data collected at multiple locations along the Rogue-Umpqua Corridor to provide an overview of traffic and use in the project area. Data include metrics of significance with respect to demand on the corridor's access points, such as vehicle count and seasonal fluctuations.

The findings from the data collection, coupled with public and stakeholder comments received during the public open houses and stakeholder focus groups, will be used to prepare a list of possible improvements in the corridor as part of Memorandum 3b: Recommended Strategies. The expected strategies include a list of possible improvements throughout the corridor for

further analysis by the project team, partners, and the general public. These improvements will likely include roadway, trail, recreation facility, signage and wayfinding, and other types of improvements for consideration.

Approach

This analysis addresses two types of data for the corridor. The first is transportation data relevant to OR 138, OR 230, OR 62, and OR 234. These data include overall traffic volume for the corridor as available through ODOT data and count data collected in the Summer of 2023 by FHWA for specific sites along the corridor. The second type of data are traffic and recreation use data available from project partners for recreation sites along the corridor. Recreation data are provided by USFS Umpqua National Forest, USFS Rogue River-Siskiyou National Forest, USACE Rogue River Basin, and NPS Crater Lake National Park.

The locations of traffic counts are shown in Figure 2 below, along with the approximate areas of recreation use data collected.

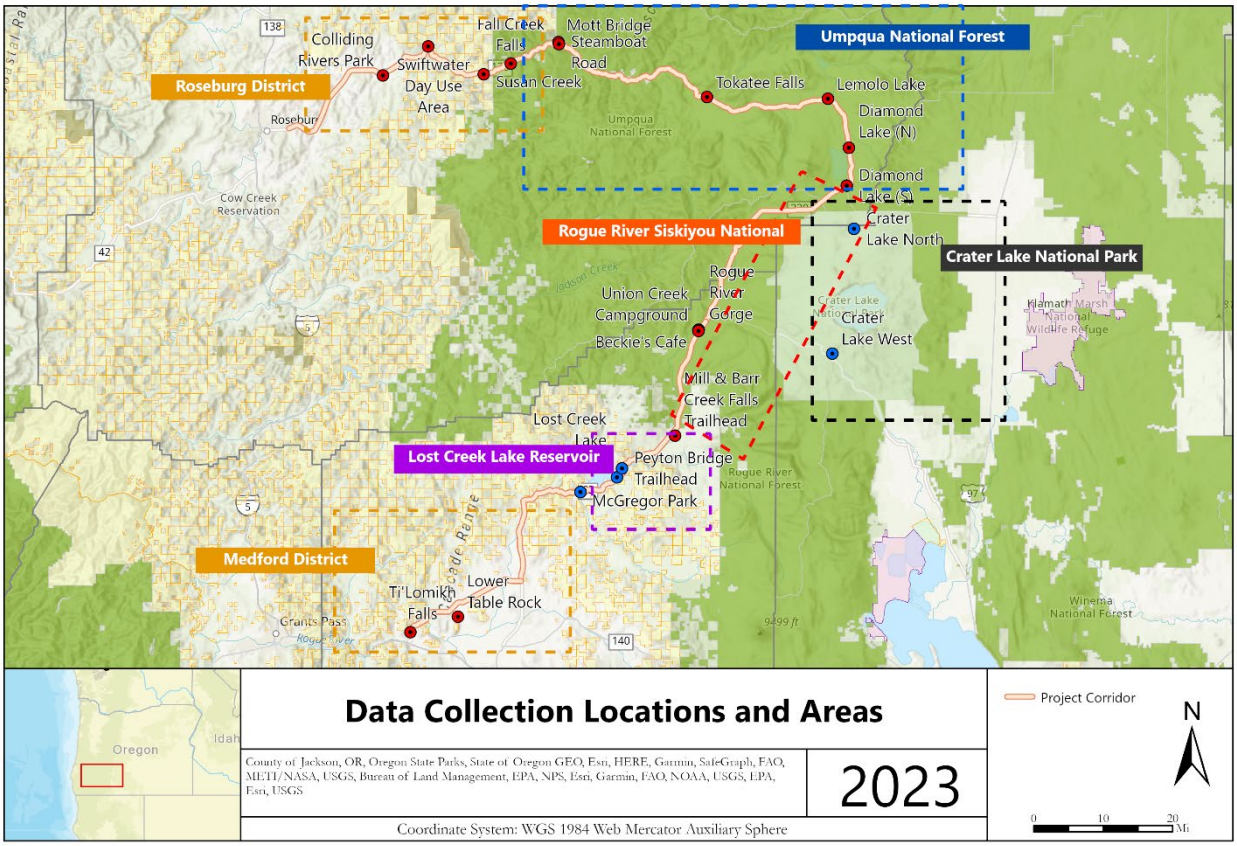

Figure 2. Data collection locations and areas.

Summary of Findings and Strategies

The project team finds the following themes through this document's analysis:

1. **Traffic**
    a. Crater Lake National Park's outsized influence on the corridor dwarfs all other sites combined, with 18,000 - 24,000 vehicles entering the park per day in the summer peak season
    b. Diamond Lake locations are a distant second place to Crater Lake but a major hub, with nearly 1,000 vehicles per day in the summer peak season
    c. Most other locations average 100 - 300 vehicles per day in the summer peak season. Figure 3 shows the vehicle counts for some of these sites[1]

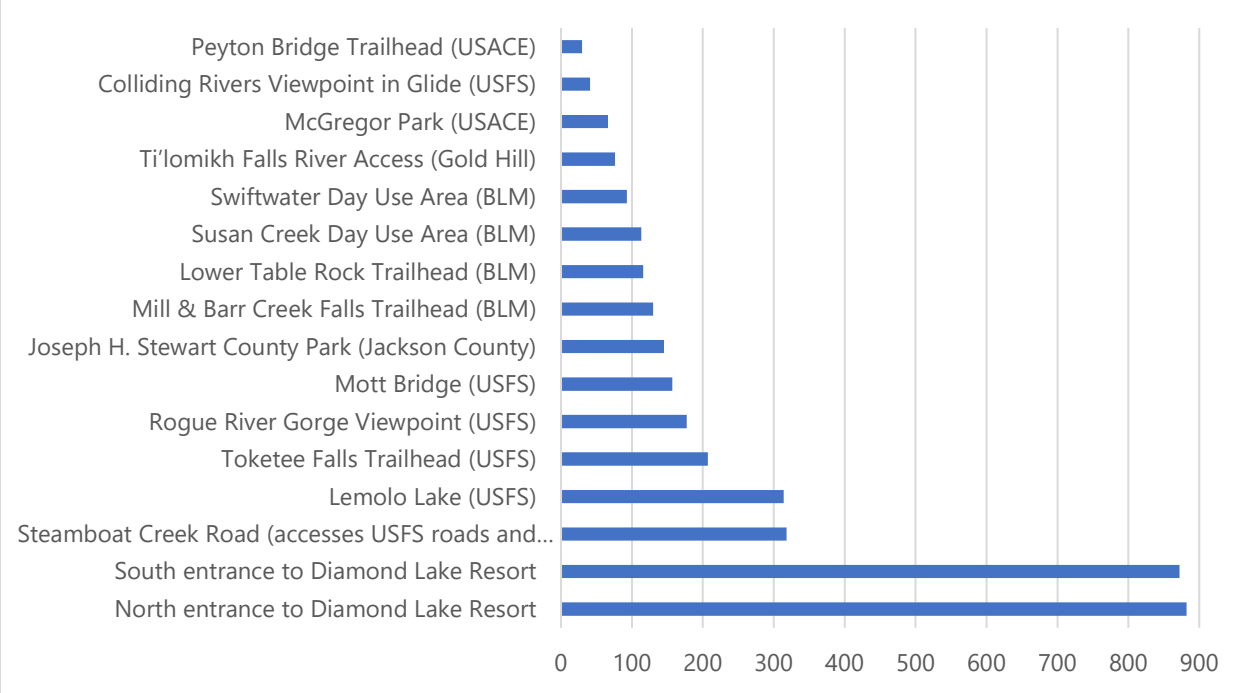

Figure 3. Summary of vehicles per day for FHWA- and partner- collected traffic locations.

2. **Recreation Use**
    a. Traffic counts provide a possible proxy indicator for recreation use for the same locations, but imperfectly[2]
    b. Direct collection of recreation use data is limited by what land management agencies collect and whether the data are available

[1] Crater Lake locations are not included in the Figure, as the difference in values would be too great to allow for comparison between non-Crater Lake locations. The values are Crater Lake – Annie Springs / Mazama Village (24,271) and Crater Lake - North Entrance (18,445).

[2] For example, some locations like Steamboat Road are measuring two-way traffic that may or may not fully correspond to the respective recreation site. These sites are noted in the sections that follow and are a minority of locations.

3. **Demand.** Using the 20-year projections of traffic for the entire corridor, we can estimate the possible change in summer peak traffic for each of these locations and, therefore, the change in demand.[3] Figure 4 below provides possible 2042 projected traffic for the locations in Figure 3. By this estimate, traffic increases slightly in all locations but not by a considerable margin.

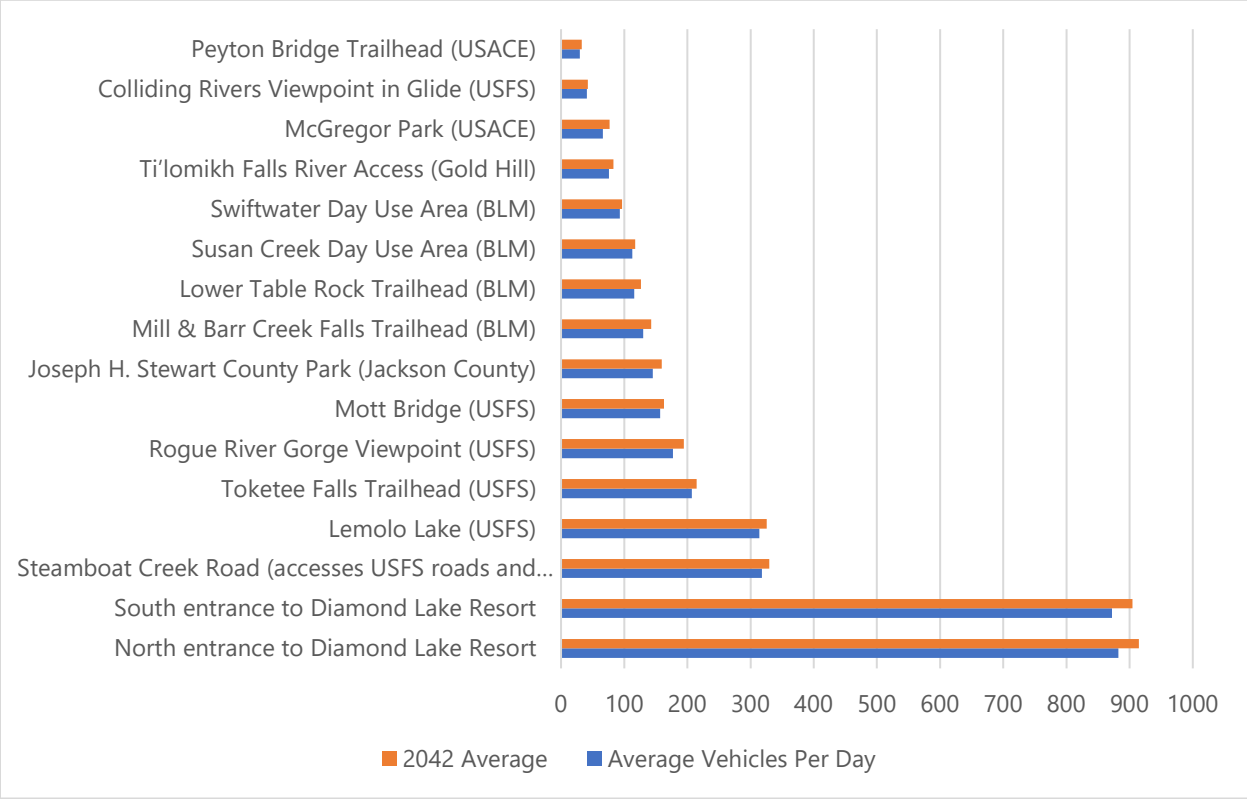

Figure 4. Current and projected traffic counts for summer peak, 2022-3 and 2042.

4. **Strategies.** Based on the data collected here and best practices from FHWA and related program guidance, the conclusion of this document highlights the following approaches for future demand management and responding to bicycle and pedestrian needs:
    a. Active Traffic Management – Congestion and volume options for high-volume sites
    b. Active Demand Management – Technology-based options for redirecting demand
    c. Active Parking Management – Technology-based and static information to direct parking

[3] Percent increase is calculated using the percent change in demand shown by corridor segment in Table 16 of this document. The calculation for each location in Figure 3 is therefore: (2022 count)*(percent change). For example, the North entrance to Diamond Lake Resort is 882*1.0372= 971.81.

d. Bicycle and Pedestrian Infrastructure – Safety countermeasures for bicycle users and pedestrians travelling through the project corridor, between sites, and crossing the roadway

Methods

The project team collected data for this analysis through conducting traffic counts at selected locations along the corridor and by pulling data from partner-collected systems. This section outlines both methods and considerations.

Traffic Count Data

Traffic counts were completed with use of the Jamar Technologies, Inc. Trax Apollyon Plus II and Trax Pinnacle automatic data recorders.[4] Traffic counts were automatically processed with the complementary Jamar Technologies, Inc. STARnext software.[5] The traffic counters are capable of collecting data on traffic volumes, classifications, speeds, and other information. The traffic counters used are tubes that detect pressure as vehicles and other objects cross over.

13 traffic counters were available for the study and were placed at 13 locations to provide a snapshot of summer peak travel for different recreation destinations. The traffic counters were placed in late June 2023 and collected in August 2023. Data collected were then analyzed by FHWA WFLHD Safety Engineers to develop the information in the following sections. Traffic count data are supplemented by corridor-wide traffic volume data available through ODOT systems.

Partner-Provided Use Data

The project team only had 13 counters available for data collection and therefore required additional data from partners, both for traffic counts (where available) as well as recreation use data. These data were collected by making requests to the respective Federal Land Management Agency (FLMA) units for:

1. Any vehicle, bicycle, and pedestrian count data available for the summer peak use period
2. Recreation use data for their respective unit, including fee collection, reservations made, and similar use as available

The project team found that available data form FLMAs varied considerably. Therefore, the related section on recreation use data from partners should be read only as applicable to that unit and not necessarily in comparison with data from the other FLMAs in this analysis. Where possible, we include gaps and related considerations for readers.

The partner-collected data include the following:

- NPS Crater Lake National Park traffic counts through 2023
- USACE Lost Creek Lake Reservoir traffic counts

[4] See: Jamar Technologies, Inc. Trax Apollyon Plus II and Trax Pinnacle for more information on the specific counters used.
[5] See Jamar Technologies, Inc. STARnext software for more information on the software used.

- USFS Rogue River-Siskiyou National Forest recreation fee data

Traffic Count Data Summary

The primary source of data for this document comes in the form of traffic flow data collected at 13 sites along the length of the Rogue-Umpqua project corridor during the summer of 2023. Traffic counts were performed near attractions for which there is no other existing data to identify traffic and congestion conditions. At campgrounds, for example, registration fees can be used to understand campground parking area capacity and use. Without such sources of data, traffic counting equipment can help inform current demand for some sites.

Thirteen traffic counters were placed at the following locations along the Rogue-Umpqua corridor. The entity that manages each location is included in parentheses. Figure 5 shows the locations of these sites in red dots, along with partner-collected locations shown in blue dots.

- Colliding Rivers Viewpoint in Glide (USFS)
- Swiftwater Day Use Area (BLM)
- Susan Creek Day Use Area (BLM)
- Steamboat Creek Road (accesses USFS roads and features)
- Mott Bridge (USFS)
- Toketee Falls Trailhead (USFS)
- Lemolo Lake Recreation Area (USFS; Birds Point Road)
- North entrance to Diamond Lake Resort
- South entrance to Diamond Lake Resort
- Rogue River Gorge Viewpoint (USFS)
- Mill & Barr Creek Falls Trailhead (BLM)
- Ti'lomikh Falls River Access (City of Gold Hill; accesses bike path)
- Lower Table Rock Trailhead (BLM)

Additionally, the project team collected partner traffic counts for the following areas:

- Lost Creek Lake Reservoir (USACE and Jackson County)
- Crater Lake National Park - Mazama Village (NPS)
- Crater Lake National Park - North Entrance (NPS)

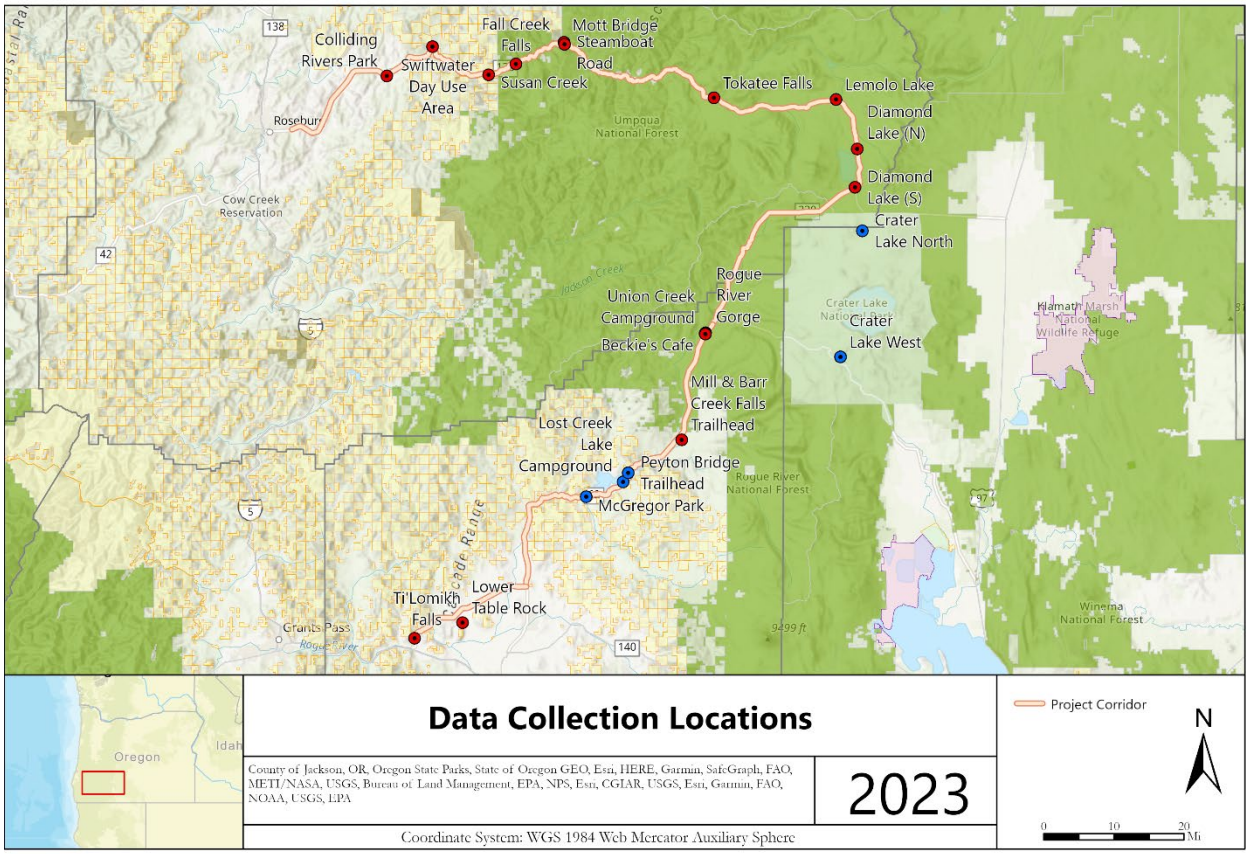

Figure 5. Data collection locations. Red points indicate project team traffic counts, and blue points indicate partner-collected data from the most recent years and months that were available.

Across the 13 sites, daily averages are shown as either average (vehicle) entries or two-way seasonal traffic. Average entries per day apply to sites where visitors park and enter, and include Colliding Rivers Viewpoint in Glide, Swiftwater Day Use Area, Susan Creek Day Use Area, Toketee Falls Trailhead, Rogue River Gorge Viewpoint, Mill & Barr Creek Falls Trailhead, Ti'lomikh Falls River Access, and Lower Table Rock Trailhead. The average daily entries range from 41 to 207 vehicles across these sites during the study time frame.

The two-way seasonal traffic daily averages apply to roads that vehicles travel across; these include Steamboat Creek Road, Mott Bridge, Birds Point Road, Diamond Lake Resort North Entrance, and Diamond Lake Resort South Entrance. The averages range from 157 to 882 vehicles across these sites.

Among the ten sites that include a breakdown by vehicle type, passenger cars and trucks made up the majority of traffic (60% or above in all cases, and as high as 83%). Variable information is included, as available, about other vehicle types at each site such as motorcycles, recreation vehicles, and two- and three- axle trucks, as well as error recordings and unclassified vehicles.

Colliding Rivers Viewpoint

The traffic counter for this site was in place from June 20th through August 8th, 2023, with summary data shown in Table 1 below.

Table 1. Colliding Rivers Viewpoint traffic data summary.

	Quantity	Unit	Notes
Average entries per day	41	vehicles	-
Highest number of entries	92	vehicles	7/22/2023
30th highest value of daily entries	31	vehicles	Two occurrences
Percentage passenger cars and trucks	60.7	%	Approximate
Percentage motorcycles	28.9	%	Approximate
Percentage larger vehicles or error recordings	10.4	%	Approximate
Average entry speed	4.5	MPH	Approximate

The Colliding Rivers Viewpoint parking area has two minor intersections with Glide Loop Drive, which can be accessed from OR 138. As identified by signage and pavement markings, the northern intersection is entrance-only, and the southbound intersection is exit-only. There are no associated turn lanes or acceleration lanes on Glide Loop Drive.

The parking area includes one accessible parking stall and eight other stalls. All stalls are marked for perpendicular parking, and there is a narrow through-lane that loops from the entrance to the exit around a grassed median. There are no stalls marked for RV or other large vehicle parking; visitors to the viewpoint with an RV likely must park elsewhere in Glide and walk to the attraction, or they may attempt to parallel park across multiple passenger vehicle stalls.

The traffic counter was placed at the entrance to the parking area since it was easier to secure than the outbound location, and since placement at a stop sign can cause data collection issues. Vehicles from the accessible stall or the adjacent stall must back into the entrance intersection in order to move towards the exit, so there is some distortion of the traffic count data through these types of double counts (i.e., some vehicles were counted twice: when entering, and after backing out to leave). The counter was set up to collect bi-directional data. Any vehicle traveling outbound at the entrance intersection, including those vehicles that were backing up, was filtered from the data to help avoid double-counting the parking area use.

The vehicle classification reporting also needed some correction due to the same issue. It appears the vehicles marked as “unclassified” are a mix of Class 2 and Class 3 vehicles

(passenger cars and trucks, including any small trailers). Due to very low entry speeds, the above data likely underrepresents the percentage of passenger cars and trucks and overrepresents the percentage of motorcycles. For future demand needs, it may be more appropriate to use the vehicle classification percentages at other locations to estimate vehicle classifications at Colliding Rivers Viewpoint.

Swiftwater Creek Day Use Area

The traffic counter was in place from June 20th through August 8th, 2023, with summary data shown in Table 2 below.

Table 2. Swiftwater Creek Day Use Area traffic data summary.

	Quantity	Unit	Notes
Average entries per day	93	vehicles	-
Highest number of entries	143	vehicles	7/2/2023
30th highest value of daily entries	88	vehicles	Two occurrences
Percentage passenger cars and trucks	75.6	%	Approximate
Percentage motorcycles	13.0	%	Approximate
Percentage larger vehicles or error recordings	11.4	%	Approximate
Average entry speed	7.7	MPH	Approximate

The Swiftwater Creek Day Use Area is accessed directly from OR 138. The parking area is one way in, one way out. There are no associated turn lanes or acceleration lanes on OR 138. The parking area includes three marked, accessible stalls and approximately 12 other stalls, including one for RVs or other large-sized vehicles. There is a large unpaved area that appears to be used for spillover parking or by drivers that prefer to park nearer to a tributary of the North Umpqua River.

There is a separate entrance road to the associated trailhead, over a large bridge, that did not receive traffic counts. Anecdotally, from several site visits, this road appears to attract significantly less use than the Day Use parking lot. This may be due to easily observable burn damage and potentially inaccessible features.

The traffic counter was placed at the stop sign and collected both entering and exiting vehicle traffic. The entrance vehicle data is more reliable to understand the number of entries per day and vehicle classifications. The exit vehicle data was gathered to understand if there was a wide

variance in peak entry times and peak exit times (potentially indicating that visitors stay at the Day Use area for a longer duration).

The results on visit duration are inconclusive, likely because of the small number of daily visits. On some days, the difference between AM and PM peak entries (within a 15-minute time span) was within 15 to 30 minutes of each other. On other days, the spread was several hours.

Susan Creek Day Use Area

The traffic counter for this site was in place from June 20th through August 8th, 2023, with summary data shown in Table 3 below.

Table 3. Susan Creek Day Use Area traffic data summary.

	Quantity	Unit	Notes
Average entries per day	113	vehicles	-
Highest number of entries	175	vehicles	7/2/2023
30th highest value of daily entries	106	vehicles	Occurrence
Percentage passenger cars and trucks	71.3	%	Approximate
Percentage motorcycles	18.4	%	Approximate
Percentage larger vehicles or error recordings	10.3	%	Approximate
Average entry speed	6.4	MPH	Approximate

The Susan Creek Day Use Area is accessed directly from OR 138. The parking area is one way in, one way out. There are no associated turn lanes or acceleration lanes on OR 138.

There is an associated trailhead parking lot directly across OR 138 that was closed during the 2022 site visit for this planning study. The trailhead parking lot was open at the time of the traffic counting. No traffic counter was planned or installed at the trailhead parking lot. Based on observations from approximately six site visits in 2023, there were often one to three vehicles parked in the trailhead parking lot. It appeared that a number of visitors preferred or chose to park in the Day Use parking area and cross OR 138, even though there are no available pedestrian safety countermeasures.

The Day Use parking area includes two marked, perpendicular, accessible stalls and approximately 31 other stalls for passenger vehicles and trucks. There are no parking stalls signed or marked for RVs and larger vehicles; however, RVs were observed parallel parking in the parking area across several passenger vehicle stalls. There is no turnaround for larger

vehicles, and it appeared that drivers must use low-radius turns and backups to be able to leave the parking area once parked.

Steamboat Creek Road

The traffic counter for this site was in place from June 20th through August 8th, 2023, with summary data shown in Table 4 below.

Table 4. Steamboat Creek Road traffic data summary.

	Quantity	Unit	Notes
Two-Way Seasonal Average Daily Traffic	318	VPD	-
Northbound Seasonal Average Daily Traffic	156	VPD	7/2/2023
Southbound Seasonal Average Daily Traffic	162	VPD	Two occurrences
Percentage passenger cars and trucks	67.8	%	Approximate
Percentage motorcycles	4.5	%	Approximate
Percentage recreation vehicles or buses	1.4	%	Approximate
Percentage two-axle trucks	11.0	%	Approximate
Percentage trucks with three or more axles	8.2	%	Approximate
Percentage unknown classification	7.1	%	Approximate
Average speed approaching intersection	23.8	MPH	-
AM Design Hour Volume (Approaching Intersection)	7	vehicles	-
PM Design Hour Volume (Approaching Intersection)	17	vehicles	-
AM Design Hour Volume (Leaving Intersection)	6	vehicles	-
PM Design Hour Volume (Leaving Intersection)	18	vehicles	-

Steamboat Creek Road is accessed directly from OR 138. There is a dedicated left turn lane for westbound traffic turning from OR 138 onto Steamboat Creek Road. There is a paved, at-grade median on Steamboat Creek Road separating traffic that is turning onto or off OR 138 from the eastbound and westbound directions.

The traffic counter was placed near the terminal of the curved-radius guardrail along Steamboat Creek Road, just before the unpaved pullout / parking on the north side of the road. The design hour volumes[6] shown correspond to the 30th highest hours of recorded data for the study period, reflecting design criteria listed in Chapter 8 of the FHWA Project Development and Design Manual (PDDM). The table formatting is altered from that of the other tables since the gathered data is applicable to road design criteria.

Mott Bridge

The traffic counter for this site was in place from June 20th through August 8th, 2023, with summary data shown in Table 5 below.

Table 5. Mott Bridge traffic data summary.

	Quantity	Unit	Notes
Two-Way Seasonal Average Daily Traffic	157	VPD	-
Northbound Seasonal Average Daily Traffic	79	VPD	7/2/2023
Southbound Seasonal Average Daily Traffic	78	VPD	Two occurrences
Percentage passenger cars and trucks	79.1	%	Approximate
Percentage motorcycles	3.4	%	Approximate
Percentage recreation vehicles or buses	1.0	%	Approximate
Percentage two-axle trucks	8.6	%	Approximate
Percentage trucks with three or more axles	1.3	%	Approximate
Percentage unknown classification	6.6	%	Approximate
AM Design Hour Volume (Approaching Intersection)	5	vehicles	-
PM Design Hour Volume (Approaching Intersection)	11	vehicles	-
AM Design Hour Volume (Leaving Intersection)	6	vehicles	-
PM Design Hour Volume (Leaving Intersection)	11	vehicles	-

[6] Design hour volume refers to the daily peak-hour traffic for the roadway. See: FHWA Project Development and Design Manual, Chapter 9.3 (Geometric Design) (https://flh.fhwa.dot.gov/resources/design/pddm/Chapter_09.pdf).

The Mott Bridge is primarily accessed directly from OR 138. The bridge, and the associated trailhead and USFS road, can be accessed from the south without turning from OR 138. However, the USFS road (NF 4712) appears to be very low volume; visitors accessing the area who do not arrive directly from OR 138 appear to be a very low percentage of the total. There is a dedicated left turn lane for vehicles turning onto Mott Bridge from OR 138.

The traffic counter was placed at the northern end of the bridge, just off the bridge deck. The counter was set up to capture bi-directional traffic data for the single-lane bridge.

In the above data, there may be some inaccuracy in the classifications due to the placement of the traffic counter almost immediately adjacent to a stop sign. For example, the bridge would seem to be an undesirable point of access for the larger trucks, and the 1.3% shown may be an overestimate. The design hour volumes shown correspond to the 30th highest hours of recorded data for the study period, reflecting design criteria listed in Chapter 8 of the FHWA PDDM.

Toketee Falls Trailhead

The traffic counter for this site was in place from June 20th through August 8th, 2023, with summary data shown in Table 6 below.

Table 6. Toketee Falls Trailhead traffic data summary.

	Quantity	Unit	Notes
Average entries per day	207	vehicles	-
Highest number of entries	704	vehicles	7/2/2023
30th highest value of daily entries	376	vehicles	One occurrence
Percentage passenger cars and trucks	78.6	%	Approximate
Percentage motorcycles	8.3	%	Approximate
Percentage larger vehicles or error recordings	13.1	%	Approximate
Average entry speed	8.7	MPH	-

The Toketee Falls Trailhead parking area is accessed from Toketee-Rigdon Road, approximately one quarter-mile north of a main intersection with OR 138. The trailhead parking area is one way in, one way out. The traffic counter was secured to a tree near the parking area entrance. It appeared that there was not sufficient width for vehicles to park on top of the traffic counter vehicle detection tube, though the parking area did have a fair number of vehicles in it on each site visit and limited available parking. It is possible that at certain times, overflow traffic may

have parked on the road near or on the tubes, which could have interfered with some of the data gathering.

The parking area included a turnaround and appeared to have space for seven to 10 angled parking spots and eight to 10 parallel parking spots for passenger vehicles or trucks (less if a recreation vehicle were to visit).

The Toketee Falls Trailhead was a more popular attraction than many others in the study area. While there is not a true "design hour" equivalent for a parking area as there is a road, there are some interesting findings. From the study period, the hour with the highest number of entries in any morning included 18 vehicles (the 30th highest value for this was eight vehicles). The hour with the highest number of entries in any afternoon or evening included 55 vehicles on July 3, 2023 (the 30th highest value for this was 33 vehicles).

Birds Point Road (Lemolo Lake Recreation Area Access)

The traffic counter for this site was in place from June 20th through August 8th, 2023, with summary data shown in Table 7 below. The design hour volumes correspond to the 30th highest hours of recorded data for the study period, per the design criteria listed in Chapter 8 of the FHWA PDDM.

Table 7. Birds Point Road traffic data summary.

	Quantity	Unit	Notes
Two-Way Seasonal Average Daily Traffic	314	VPD	-
Northbound Seasonal Average Daily Traffic	156	VPD	7/2/2023
Southbound Seasonal Average Daily Traffic	158	VPD	Two occurrences
Percentage passenger cars and trucks	61.1	%	Approximate
Percentage motorcycles	1.2	%	Approximate
Percentage recreation vehicles or other large vehicles	12.5	%	Approximate
Percentage trucks	24.7	%	Likely RVs
Percentage unknown classification	0.5	%	Approximate
85th Percentile Speed	53.0	MPH	-
AM Design Hour Volume (Northbound)	6	vehicles	-
PM Design Hour Volume (Northbound)	21	vehicles	-
AM Design Hour Volume (Southbound)	6	vehicles	-

PM Design Hour Volume (Southbound)	23	vehicles	-

Birds Point Road is accessed directly from OR 138. There are no dedicated turn lanes from OR 138 onto Birds Point Road, although there is a very wide shoulder for eastbound traffic that may be used as a makeshift right turn lane at times. The recreation area is one way in, one way out.

The traffic counter was secured to a "Stop Ahead" warning sign approximately 500 to 1,000 feet north of the OR 138 intersection. The counter was far enough away from the intersection that the data was largely unaffected by vehicles being at or near a stopped condition.

The highest bi-directional peak hour traffic (7/30/23) was 78 vehicles from 2:40 - 3:40 PM. The highest recorded bi-directional daily traffic was 506 vehicles (7/2/23). During approximately six site visits, no vehicles larger than recreation vehicles were observed on this road. It is possible, if not probable, that the classified trucks as shown below should actually be classified as recreation vehicles that were misclassified due to either an unfamiliar wheelbase or a misinterpretation of vehicle weight distribution.

North Entrance to Diamond Lake Resort

The traffic counter for this site was in place from June 20th through August 8th, 2023, with summary data shown in Table 8 below. The design hour volumes shown correspond to the 30th highest hours of recorded data for the study period, per the design criteria listed in Chapter 8 of the FHWA PDDM.

Table 8. North entrance to Diamond Lake Resort traffic data summary.

	Quantity	Unit	Notes
Two-Way Seasonal Average Daily Traffic	882	VPD	-
Northbound Seasonal Average Daily Traffic	422	VPD	7/2/2023
Southbound Seasonal Average Daily Traffic	460	VPD	Two occurrences
Percentage passenger cars and trucks	71.8	%	Approximate
Percentage motorcycles	2.4	%	Approximate
Percentage recreation vehicles or buses	6.9	%	Approximate
Percentage trucks	18.6	%	Likely RVs
Percentage unknown classification	0.3	%	Approximate
85th Percentile Speed	41.0	MPH	
AM Design Hour Volume (Northbound)	13	vehicles	

PM Design Hour Volume (Northbound)	50	vehicles
AM Design Hour Volume (Southbound)	21	vehicles
PM Design Hour Volume (Southbound)	48	vehicles

The north entrance to Diamond Lake Resort is accessed directly from OR 138. There are dedicated right turn lanes from both the northbound and southbound approaches along OR 138 onto the north entrance road.

The traffic counter was installed away from the intersection, and recorded traffic data was not influenced by vehicles potentially being in a stopped condition. Like the Birds Point Road data set, the classifications note many trucks on this road. None were observed on any site visit. There are delivery and fuel truck vehicles servicing the resort, but those vehicles would make up a relatively low percentage of the total vehicles entering the area.

The highest bi-directional peak hour traffic (7/30/23) was 176 vehicles from 4:40 - 5:40 PM. The highest recorded bi-directional daily traffic was 1,440 vehicles (7/2/23).

South Entrance to Diamond Lake Resort

The traffic counter for this site was in place from June 20th through August 8th, 2023, with summary data shown in Table 9 below. The design hour volumes shown correspond to the 30th highest hours of recorded data for the study period, per the design criteria listed in Chapter 8 of the FHWA PDDM.

Table 9. South entrance to Diamond Lake Resort traffic data summary.

	Quantity	Unit	Notes
Two-Way Seasonal Average Daily Traffic	872	VPD	-
Northbound Seasonal Average Daily Traffic	444	VPD	7/2/2023
Southbound Seasonal Average Daily Traffic	428	VPD	Two occurrences
Percentage passenger cars and trucks	73.1	%	Approximate
Percentage motorcycles	4.8	%	Approximate
Percentage recreation vehicles or buses	16.3	%	Approximate
Percentage trucks	4.6	%	Likely overestimate
Percentage unknown classification	1.2	%	Approximate
85th Percentile Speed	29	MPH	-

AM Design Hour Volume (Northbound)	29	vehicles	-
PM Design Hour Volume (Northbound)	61	vehicles	-
AM Design Hour Volume (Southbound)	10	vehicles	-
PM Design Hour Volume (Southbound)	54	vehicles	-

The south entrance to Diamond Lake Resort is accessed directly from OR 230. There is a dedicated right turn lane for southbound OR 230 traffic onto the south entrance road. The traffic counter was installed away from the intersection, and recorded traffic data was not influenced by vehicles potentially being in a stopped condition. The same caveat that applies to the vehicle classifications at the north entrance road also applies here. While there are trucks on this road, they are likely a very low percentage of the total traffic. The highest bi-directional peak hour traffic (6/24/23) was 183 vehicles from 6:00 - 7:00 PM. The highest recorded bi-directional daily traffic was 1,183 vehicles (7/16/23).

Rogue River Gorge Viewpoint

The traffic counter for this site was in place from July 3rd through August 8th, 2023, with summary data shown in Table 10 below.

Table 10. Rogue River Gorge Viewpoint traffic data summary.

	Quantity	Unit	Notes
Average entries per day	177	vehicles	-
Highest number of entries	299	vehicles	7/2/2023
30th highest value of daily entries	158	vehicles	One occurrence
Percentage passenger cars and trucks	83.5	%	Approximate
Percentage motorcycles	3.1	%	Approximate
Percentage larger vehicles or error recordings	13.4	%	Approximate
Average entry speed	16.0	MPH	

The Rogue River Gorge Viewpoint parking area is accessed directly from OR 62. There is a dedicated left turn lane for northbound traffic from OR 62 to the parking area. The parking area is one way in, one way out. The traffic counter was installed away from the intersection, and recorded traffic data was not influenced by vehicles potentially being in a stopped condition.

The parking area includes a circulating through-lane, two accessible stalls, approximately 18 other stalls for passenger vehicles, and approximately five spaces for larger vehicles.

Mill and Barr Creek Falls Trailhead

The traffic counter for this site was in place from July 3rd through August 9th, 2023, with summary data shown in Table 11 below.

Table 11. Mill and Barr Creek Trailhead traffic data summary.

	Quantity	Unit	Notes
Average entries per day	130	vehicles	-
Highest number of entries	207	vehicles	7/2/2023
30th highest value of daily entries	108	vehicles	One occurrence

The Rogue River Gorge Viewpoint parking area is accessed from Mill Creek Drive, a minor road off OR 62. The parking area is one way in, one way out. The traffic counter was installed at the intersection, and recorded traffic data was influenced by vehicles potentially being in a stopped condition. Minor post-collection adjustments were made to the data to account for this. The parking area includes space for approximately 20 passenger vehicles. No spaces for large vehicles were observed.

The recorded vehicle classification data appears to be inaccurate to the point that it cannot be adjusted into usable figures. Due to the parking lot layout, there was no way to secure the traffic counting device and lay the tubes perpendicular to the entry without the risk of the tube length being too long to capture lighter vehicles.

Ti'lomikh Falls River Access

The traffic counter for this site was in place from June 20th through August 9th, 2023, with summary data shown in Table 12 below.

Table 12. Ti'lomikh Falls River Access traffic data summary.

	Quantity	Unit	Notes
Average entries per day	76	vehicles	-
Highest number of entries	110	vehicles	7/2/2023
30th highest value of daily entries	57	vehicles	One occurrence
Average entry speed	5.5	MPH	

The Ti'lomikh Falls River Access parking area is accessed directly from OR 234. The parking area is one way in, one way out. There are no associated turn lanes or acceleration lanes on OR 234. The traffic counter was installed at the access gate. Minor adjustments to the collected data were made to account for the slow vehicle speeds passing over the tubes (there is a 90-degree bend in the road immediately adjacent to the bend, and the driveway is at a grade near the intersection).

The parking area is unpaved. From a rough estimate of the area using aerial imagery, it appears that the parking area can hold at least 20 passenger vehicles if visitors park with optimal spacing. There were similar issues with the recorded vehicle classifications as identified at the Mill and Barr Creek Falls Trailhead site. The tubes were installed perpendicular to the center of the road, but the 90-degree bend created a turning movement and the front and / or rear vehicle tires may not have always passed evenly over the tubes as a vehicle navigated the curve.

Lower Table Rock

The traffic counter for this site was in place from July 3rd through August 9th, 2023, with summary data shown in Table 13 below.

Table 13. Lower Table Rock traffic data summary.

	Quantity	Unit	Notes
Average entries per day	116	vehicles	-
Highest number of entries	209	vehicles	7/24/2023
30th highest value of daily entries	65	vehicles	One occurrence

The Lower Table Rock parking area is accessed from Wheeler Road, approximately 1.5 miles off OR 234. The parking area is one way in, one way out. The traffic counter was placed at the Bureau of Land Management (BLM) entry sign. The parking area includes one accessible passenger stall, and one larger accessible stall that appears to be sized for either one recreation vehicle or two passenger vehicles. There are 39 other available perpendicular parking stalls and unmarked room for other parallel parking. There are two turnarounds, including one that appears to be intended for recreational vehicles.

The traffic counter used at this site was repaired from previous damage; due to the placement of the counter near a stop sign and the need to use an alternate tube layout to avoid using the previously damaged parts, the classification data collected at this site is not usable.

Partner-Provided Traffic Counts

Crater Lake National Park. Crater Lake National Park is the only national park in Oregon and one of the largest recreation destinations in the state. While not technically within the project

corridor, the park and its entrances are primary destinations for travellers in the project corridor, and its outsiszed influence on recreation and travel deserve analysis within this document. NPS use data for Crater Lake National Park were collected through NPS public websites to develop this section.[7] Figure 6 below shows the annual park visitation by year (2000 - 2022), which dwarfs all other recreation destinations examined in this document.[8]

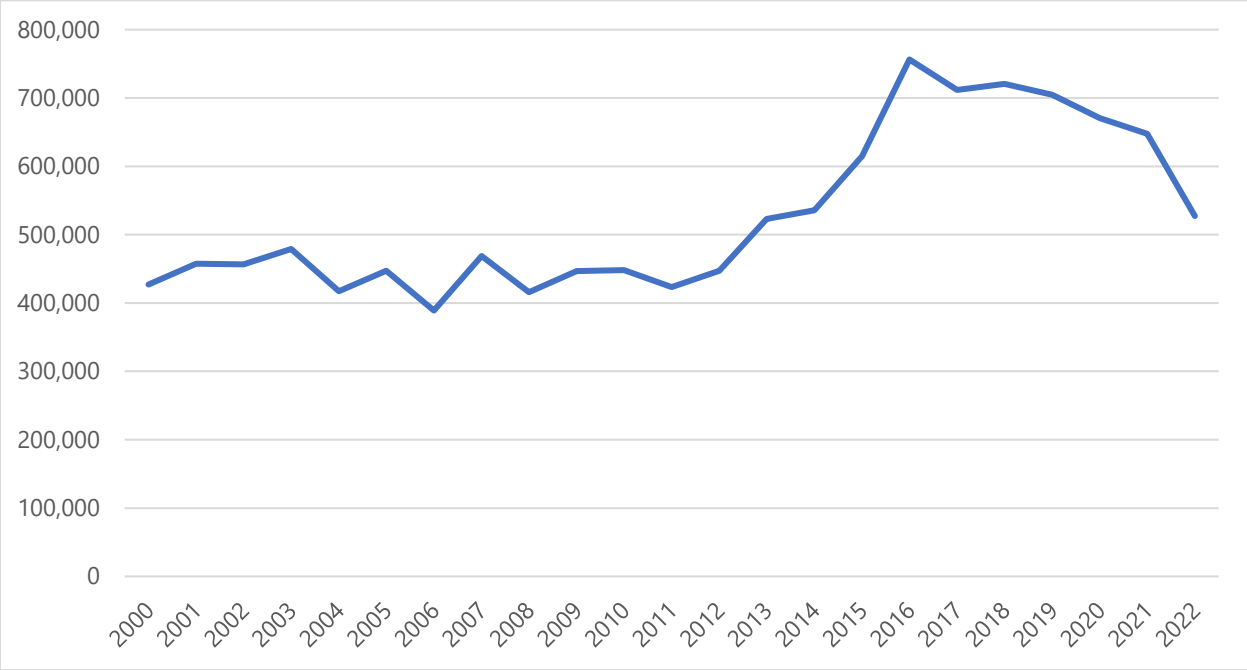

Figure 6. Annual park recreation visitation, 2000-2022.

By month, Crater Lake National Park typically sees the greatest visitation in the summer months of June through August. Figure 7 below shows the same visitation data as before, divided into monthly totals.

[7] Visitor counts are measured using an inductive loop counter for vehicles entering either park entrance and then modified based on a variety of factors, such as a people-per-vehicle estimate and other variables. For a detailed explanation and methodology for NPS data collection procedures for Crater Lake National Park, see: https://irma.nps.gov/Stats/FileDownload/33069.

[8] NPS. *Annual Park Recreation Visitation*. 2022. Retrieved November 2023 from: https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=CRLA.

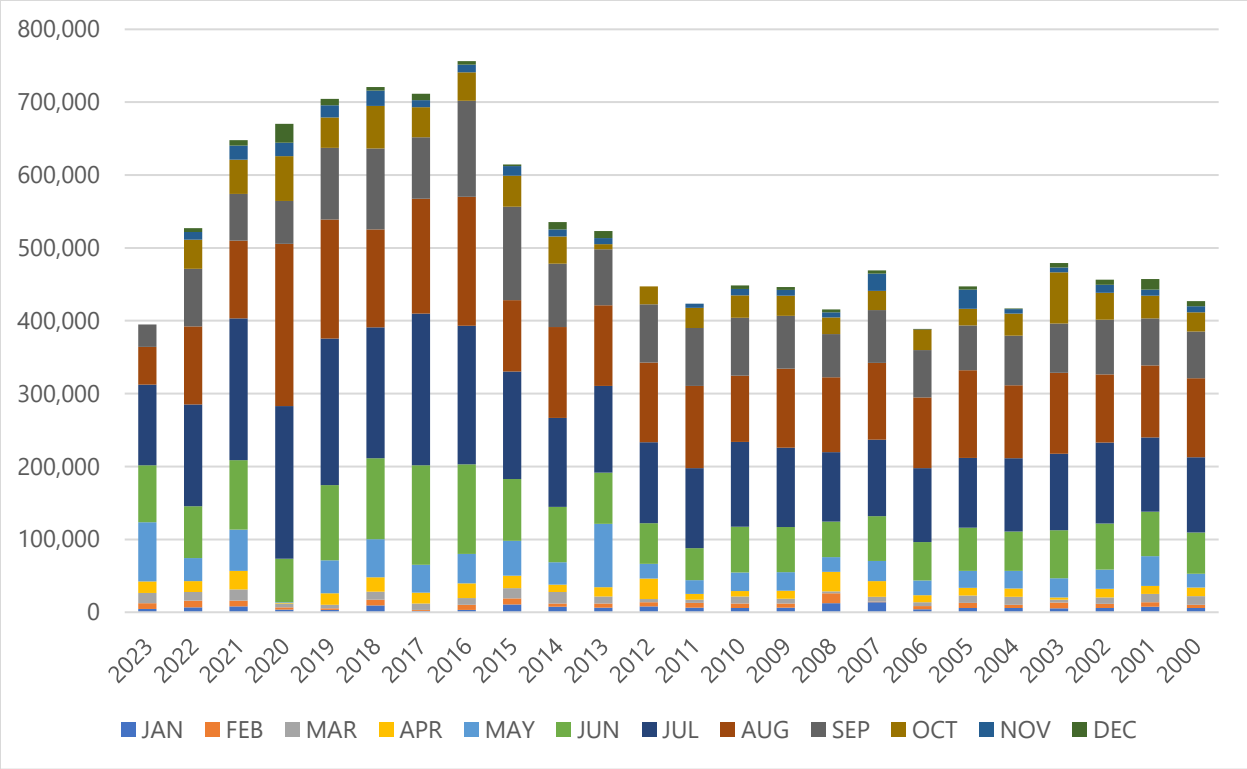

Figure 7. Annual park recreation visitation by month, 2000-2023.

Crater Lake has two public entrances for vehicles: Annie Springs (Mazama Village) in the Southwest of the park, and the North Entrance. The Annie Springs entrance is open year-round, providing access to Rim Village, Crater Lake Lodge, and other locations. The North Entrance is closed in winter months due to snowfall. Figures 8 and 9 below show the monthly and annual traffic counts for the Annie Springs (Mazama Village) and North Entrance locations.[9] [10] The data show that, even in the summer periods when both entrances are open, the Annie Springs entrance sees far greater usage than the North Entrance.

[9] NPS. *Traffic Counts*. 2023. Retrieved November 2023 from: https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Traffic%20Counts?Park=CRLA

[10] NPS. *Traffic Counts*. 2023. Retrieved November 2023 from: https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Traffic%20Counts?Park=CRLA

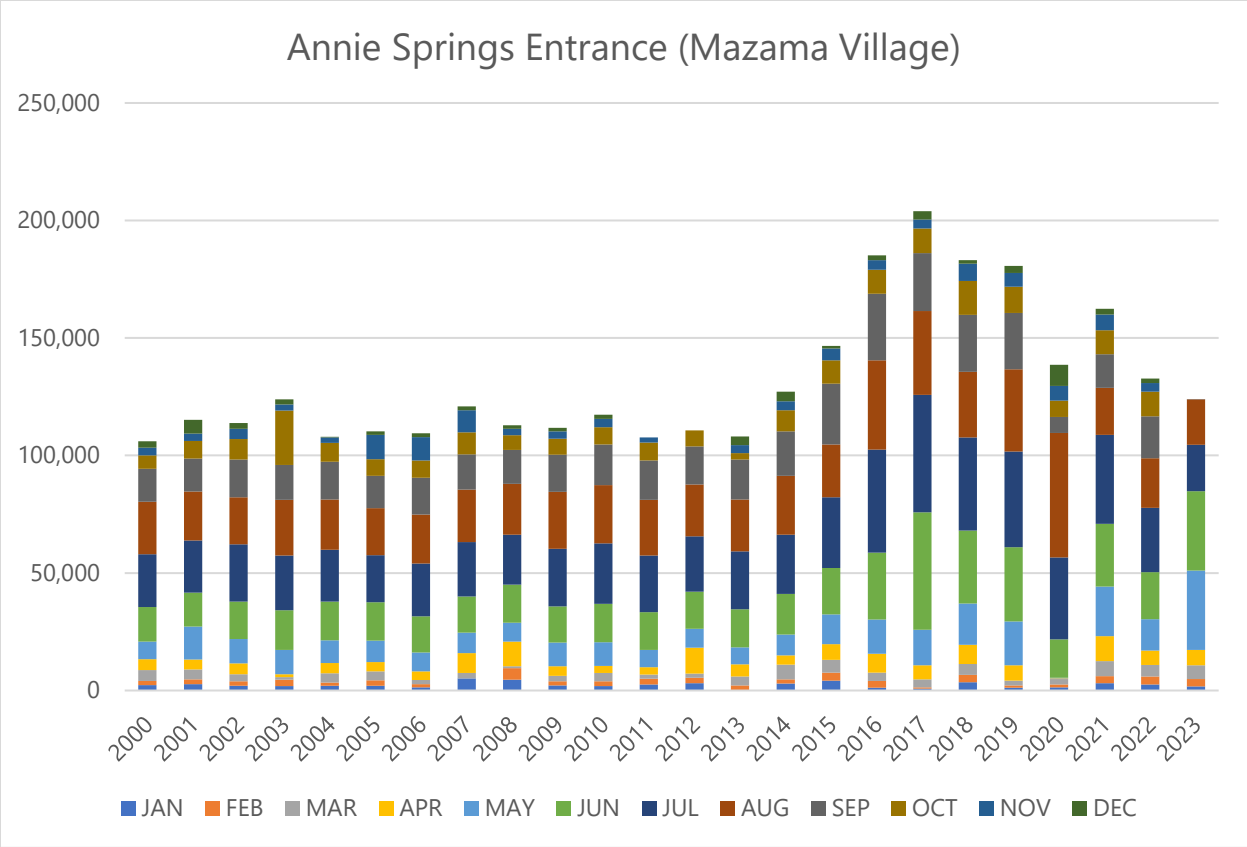

Figure 8. Traffic counts by month at the Annie Springs Entrance (Mazama Village), 2000-2023.

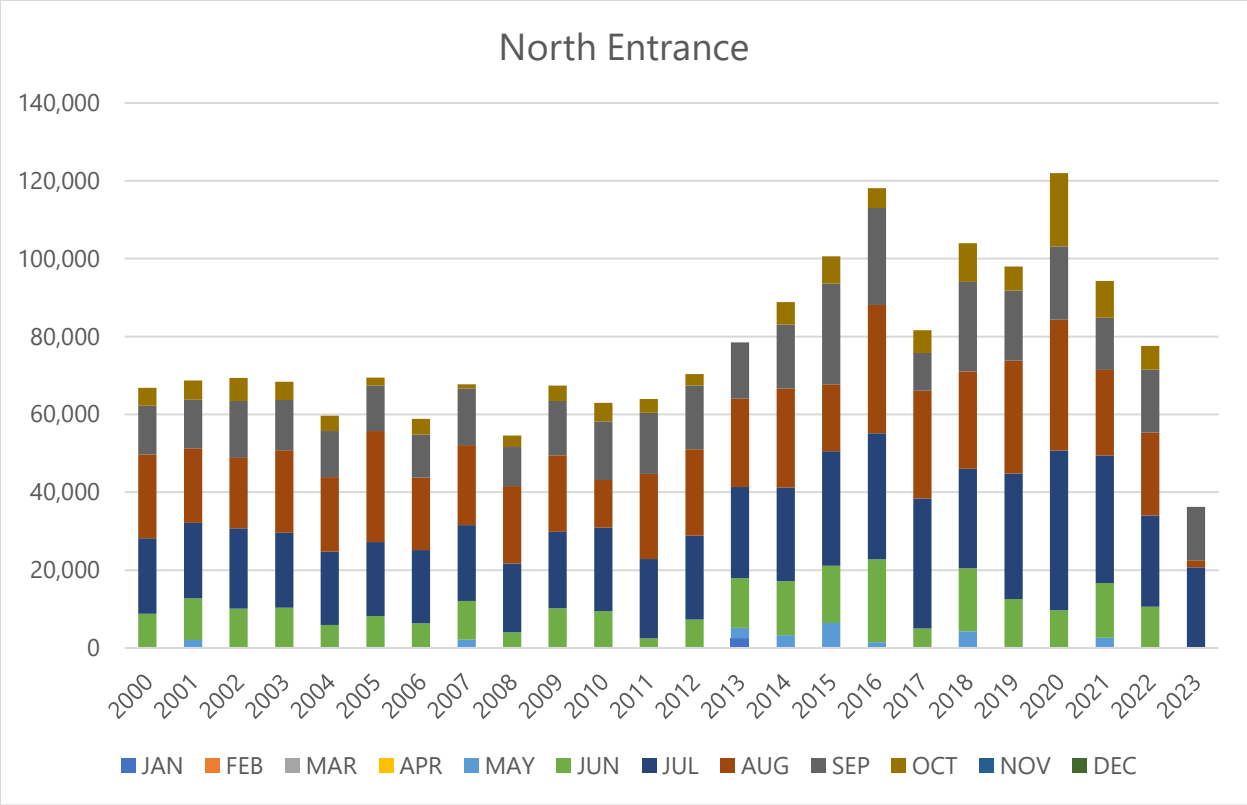

Figure 9. Traffic counts by month at the North Entrance (Mazama Village), 2000-2023 The North Entrance is typically closed to vehicle traffic late fall through late spring due to snow.

USACE Lost Creek Lake Reservoir. The US Army Corps of Engineers (USACE) provided 36 months of vehicle counts across various Lost Creek Lake recreation locations, from 2020 to 2023. Taking the average of June - August 2022 data (the latest year with complete data), we estimate an average daily vehicle count for three of the primary entrances in the reservoir recreation area (Joseph Stewart County Park, McGregor Park, and Peyton Bridge Trailhead) as shown in Figure 10 below.[11] While winter vehicle counts were lower across the board compared to summer counts (see Table 14), the difference was not always dramatic; hundreds of vehicle-based visitors were still represented across almost all locations during the three winter seasons shown.

[11] USACE data does not distinguish whether its counts for Joseph Stewart County Park includes the campground entrance, marina, and boat ramp entrance, or both. The project team assumes the counts reflect counts for the entire county park.

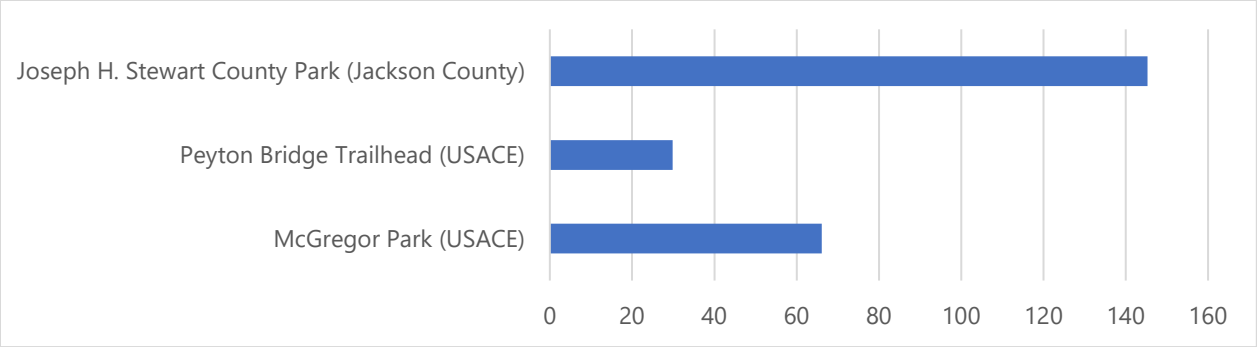

Figure 10. Estimated vehicles per day at three entrances to the Lost Creek Lake Recreation Area, June - August 2022.

Table 14. Vehicle count averages per month during summer (June - August) and winter (December - February) seasons, 2020-2023.

Recreation Site	2020 Summer	2021 Summer	2022 Summer	2020-21 Winter	2021-22 Winter	2022-23 Winter
Big Butte Creek / Viewpoint Mike trailhead	1173	1099	1107	309	259	238
Bridge Hole fishing access	327	251	216	106	82	48
Catfish Cove picnic area	661	552	758	210	120	93
Dam viewpoint	1273	1006	1139	679	658	444
Lost Creek trailhead	169	87	116	59	59	23
McGregor Park	1850	1697	2027	839	852	826
McGregor Park boat ramp	3024	1954	1263	361	264	272
McGregor Park fishing access	962	913	163	518	475	17
Medco A fishing access	853	462	572	189	172	104
Peyton Bridge trailhead	1274	914	915	493	486	257
Riversedge fishing access	927	280	394	248	377	179
Riversedge Park	826	842	765	371	367	368
Spillway fishing access	1355	913	1061	179	170	171
Joseph Stewart County Park	823	2904	4359	620	446	825
Takelma Recreation Area	3936	4497	4750	289	1660	211
William Jess Dam recreation area	791	1028	873	853	536	384

Several locations contain missing data across the dataset. Joseph Stewart County Park is missing data for both summer and winter from 2020 - 2022, and thus its vehicle counts may not be representative of demand for these time periods. Additionally, while the data as a whole is

longitudinal, it also represents a specific time frame during and immediately after the COVID-19 pandemic. Visitor use of these sites, and outdoor recreation more broadly, may have shifted in response to pandemic restrictions and may not be straightforwardly representative of future demand.

It is also unclear from the dataset what volume of users may have accessed the sites via bicycle or on foot. Given the relative proximity of many of the locations surrounding Lost Creek Lake, it is also possible that some users may have parked in one location but visited several in a single trip. Thus, the trends in vehicle counts may be more representative of parking availability for vehicle-based users rather than intrinsic popularity.

The Lost Creek portion of the Rogue-Umpqua corridor also contains 16 sites with traffic counters, whose data is regularly collected by the USACE. Figure 11 shows the location of the sites. They are clustered around Lost Creek Lake in the southern portion of the corridor, between Crater Lake and Gold Hill. USACE maintains monthly undifferentiated vehicle counts, from which summer and winter demand can be inferred across the years. Since these counts are undifferentiated, however, it is not possible to know the means by which visitors access the sites (i.e., by car, bicycle, etc.), or how many discrete individuals are doing so. Longitudinal data can still offer a snapshot of broad trends in visitor use when comparing seasons across several years. The data provided in this report ranges from June 2020 to May 2023, offering three consecutive years each of winter and summer seasonal use. Since this time frame includes the COVID-19 Pandemic, which altered outdoor recreation trends, future predictions based on this data may be inexact.

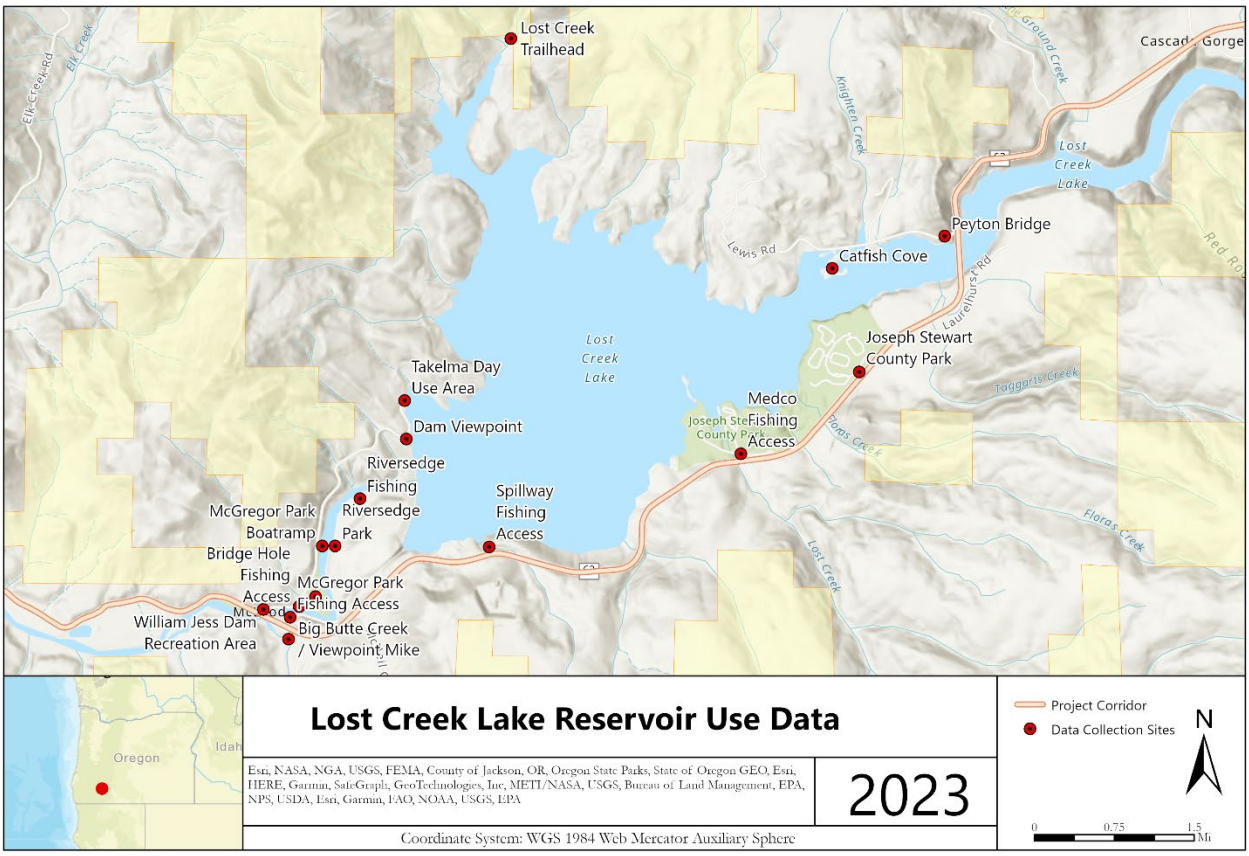

Figure 11. Location of traffic counters at Lost Creek Lake Reservoir.

Additional Considerations from Traffic Counts

Traffic counter data is particularly useful for the sites above that do not generate many other sources of data showing user demand. As has been demonstrated, however, traffic counting equipment can suffer damage that invalidates the readings, or physical conditions may not be conducive to obtaining accurate vehicle information. When attempting to gauge not only the level but also the type of demand at a site, the capacity to differentiate between cars, delivery trucks, motorcycles, and bicycles is a meaningful one. Additionally, since FHWA's 2023 traffic count data were collected at a point in time consisting of several weeks during the summer, the values obtained in this study cannot be inferred for winter or longitudinally.

Traffic at day use sites and other areas along the corridor that were not part of the traffic collection study can be estimated from other sources. For example, campground visitation can be estimated by reservations. Day use areas between any two of the sites discussed in this report can be approximated based on the collection volumes and adjusted based on available parking spaces and a subjective valuation of the associated attraction.

Corridor-Wide Traffic

Information from traffic counters is complemented by a second source of corridor-wide traffic data: the average annual daily traffic (AADT) count for 2022 (See Table 15 below). These averages are based on data collected within ODOT's TransGIS portal and include a 20-year traffic projection. The AADT is broken down by segment along the length of the corridor, depicting traffic volume as a total of all modalities and showing trucks as a percentage of the total. Because these averages span the entire year, differences between summer and winter demand cannot be established. Additionally, data on bicycle travel or other non-automobile modalities cannot be determined from this dataset.

Table 15. Average Annual Daily Traffic (AADT) for the Rogue-Umpqua corridor (current and projected), 2022.

Road	Segment Begin	Segment End	Segment Description	Current AADT	20-Year AADT	Percent change	Truck %
OR138	1.1	2.8	Roseburg to Idleyld	11445	12200	6.60	8.9
OR138	2.8	3.3	Roseburg to Idleyld	9964	10400	4.38	8.9
OR138	3.3	5.7	Roseburg to Idleyld	9449	10100	6.89	8.9
OR138	5.7	13	Roseburg to Idleyld	5806	5900	1.62	35.4
OR138	13	15.5	Roseburg to Idleyld	5092	5200	2.12	35.4
OR138	15.5	16.3	Roseburg to Idleyld	4840	4900	1.24	35.4
OR138	16.3	17.8	Roseburg to Idleyld	4754	4900	3.07	35.4
OR138	17.8	22	Roseburg to Idleyld	1646	1700	3.28	35.4
OR138	22	27.2	Idleyld to Diamond Lake	1201	1300	8.24	35.3
OR138	27.2	34.8	Idleyld to Diamond Lake	1198	1300	8.51	27.6
OR138	34.8	38.9	Idleyld to Diamond Lake	785	800	1.91	35.3
OR138	38.9	60.1	Idleyld to Diamond Lake	563	570	1.24	35.4
OR138	60.1	73.7	Idleyld to Diamond Lake	606	620	2.31	35.3
OR138	73.7	78.8	Idleyld to Diamond Lake	503	510	1.39	27.4
OR230	23.4	23.8	Diamond Lake to Union Creek	1011	1100	8.80	31.7
OR230	1.8	23.4	Diamond Lake to Union Creek	848	860	1.42	31.5
OR230	0	1.8	Diamond Lake to Union Creek	862	870	0.93	31.6
OR62	13.6	14.1	Sams Valley to Lost Creek Lake	8288	9700	17.04	21.6
OR62	14.1	14.6	Sams Valley to Lost Creek Lake	8180	13100	60.15	21.6
OR62	14.6	17.2	Sams Valley to Lost Creek Lake	8687	9100	4.75	12.3
OR62	17.2	19.8	Sams Valley to Lost Creek Lake	6593	7700	16.79	21.6

OR62	19.8	20.1	Sams Valley to Lost Creek Lake	6910	8100	17.22	21.6
OR62	20.1	21	Sams Valley to Lost Creek Lake	6812	7600	11.57	21.6
OR62	21	21.7	Sams Valley to Lost Creek Lake	4502	5000	11.06	21.7
OR62	21.7	22.4	Sams Valley to Lost Creek Lake	3817	4300	12.65	21.6
OR62	22.4	24	Sams Valley to Lost Creek Lake	3260	3600	10.43	21.6
OR62	24	25.6	Sams Valley to Lost Creek Lake	2818	3100	10.01	21.6
OR62	25.6	35.6	Sams Valley to Lost Creek Lake	2283	2400	5.12	21.6
OR62	35.6	46.1	Lost Creek Lake to Union Creek	1344	1400	4.17	21.5
OR62	46.1	54.9	Lost Creek Lake to Union Creek	1296	1400	8.02	27.1
OR62	54.9	57.3	Lost Creek Lake to Union Creek	1198	1400	16.86	27.1
OR234	3	5.9	Sams Valley	2468	2600	5.35	19.9
OR234	5.9	7.3	Sams Valley	2325	2400	3.23	19.9
OR234	7.3	10.2	Sams Valley	2087	2300	10.21	19.8
OR234	10.2	10.7	Sams Valley	2919	3600	23.33	19.8
OR234	10.7	15.8	Sams Valley	2919	3000	2.77	19.8
OR234	15.8	17.5	Sams Valley	3740	4100	9.63	19.8

It is possible for these values and the 20-year projected change to be used as a proxy indicator for future demand in each corridor segment. For example, if we take the average percent change for each segment shown in Table 15, we get the following anticipated change in demand shown in Table 16 below. It is possible to use the values in Table 16 as anticipated demand factors for the sites along the corridor. The values shown in Table 16 below are therefore used to calculate future demand as shown in Figure 4 of the Introduction.

Table 16. Estimated change in demand between 2022-2042 by corridor segment.

Segment	**Change in Demand (%)**
Roseburg to Idleyld	3.77
Idleyld to Diamond Lake	3.72
Diamond Lake to Union Creek	3.72
Sams Valley to Lost Creek Lake	16.07
Lost Creek Lake to Union Creek	9.68
Sams Valley	9.09

Recreation Use Data Summary

In addition to traffic counts and AADT for the corridor, the project team also collected use data for recreation sites in the project area. The project team requested data on the number of users and mode of travel (if available) for recreation sites in the BLM Swiftwarer Field Office, USFS North Umpqua Ranger District, Diamond Lake Visitor Center, USFS High Cascades Ranger District, USACE Lost Creek Lake Reservoir, and BLM Medford District.

The information between each agency varied, based on availability of data from partner agencies and what data are typically collected. The Rogue River-Siskiyou Nation Forest provided fee data representing use for its respective sites, and the USFS North Umpqua Ranger District is developing the same data as of this document's writing. USACE collects data for traffic counters at key locations, which is addressed in the traffic count partner data section above. BLM Roseburg and Medford Districts and NPS Crater Lake National Park did not provide data, so the project team sought use data from Recreation.gov, which is not available as of this document's writing. The following section therefore shows Rogue-Siskiyou Nation Forest use data, followed by a discussion of use data gaps.

USFS High Cascades Ranger District

The Rogue River-Siskiyou National Forest represents part of the southern portion of the project corridor, spanning southwest of Crater Lake National Park down through the end of the corridor (in the Gold Hill region). The US Forest Service (USFS) performed customary field fee collections at 12 campsites and one adjacent day use area (13 sites total) within the Rogue River-Siskiyou National Forest throughout 2022.

The fees primarily represent camping registrations and, where relevant, voluntary donations. Fees were collected online, in-person, and over the phone from February 8 to November 30, 2022. The colder months typically see dramatically reduced campground availability, but the winter season remains unrepresented in this data. Because camping registrations are the primary fee type, the data also does not speak to day uses pertaining to most sites. Figure 12 shows the location of the various sites.

The summer season, which generates the highest revenue, is separated out by week. Since higher revenue correlates with higher use, this information can be used to make limited conclusions about the specific time frames during which demand is highest.

While many of the 13 sites are located close to the project corridor, others are located at a distance and may host visitors who arrive by other highway systems beyond the Rogue-Umpqua Scenic Byway. This consideration, alongside the lack of information on day visitors, makes the data an inexact representation of corridor use. Even so, use of these campsites overlaps with use of the project corridor and helps inform the overall picture of demand.

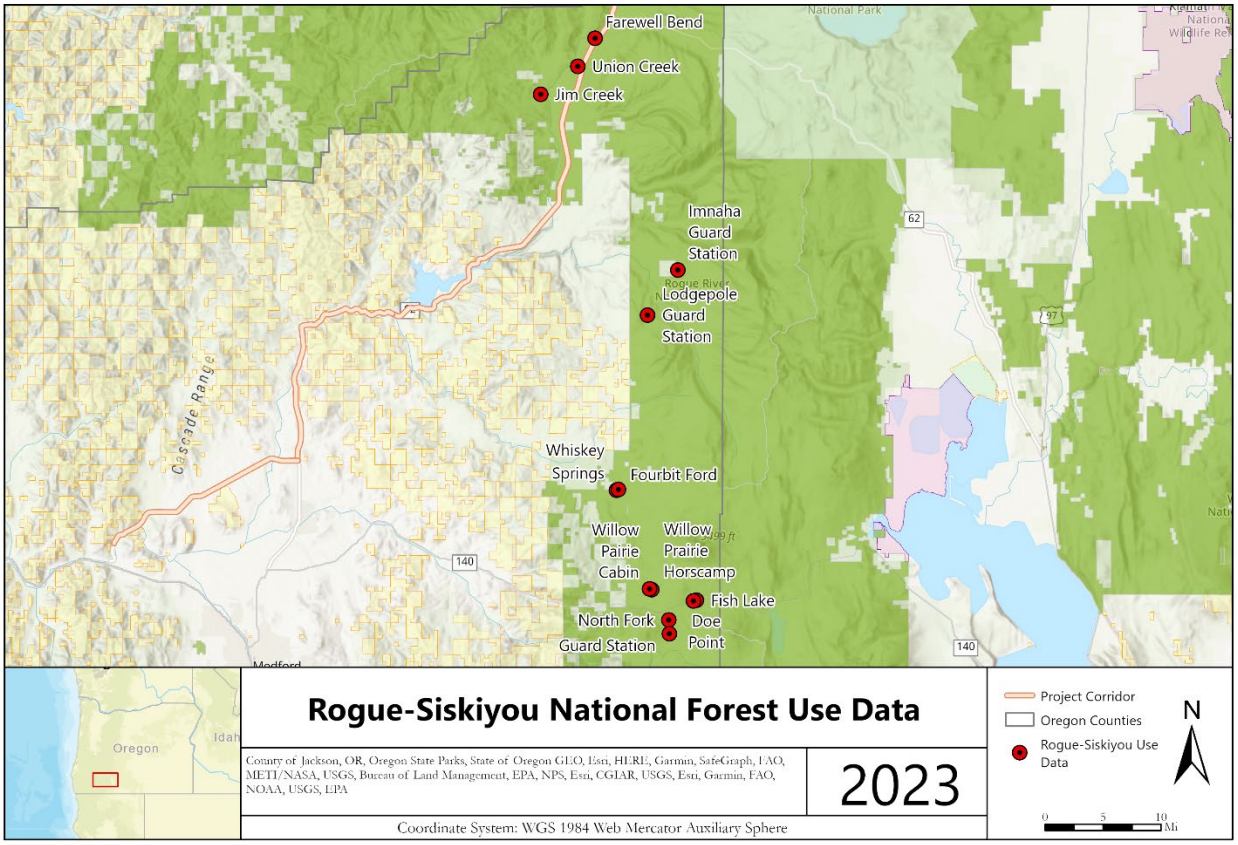

Figure 12. Site map depicting 13 USFS fee-collection recreation sites in relation to the Rogue-Umpqua Project Corridor.

The revenue in Figure 13 and Table 17 below represents online, in-person, and call center transactions associated with the 13 recreation sites within the Rogue-Siskiyou National Forest during the 2022 season (excluding winter). Quantity in Table 17 represents the number of transactions, while the grand total provides the dollar amount generated from those transactions.

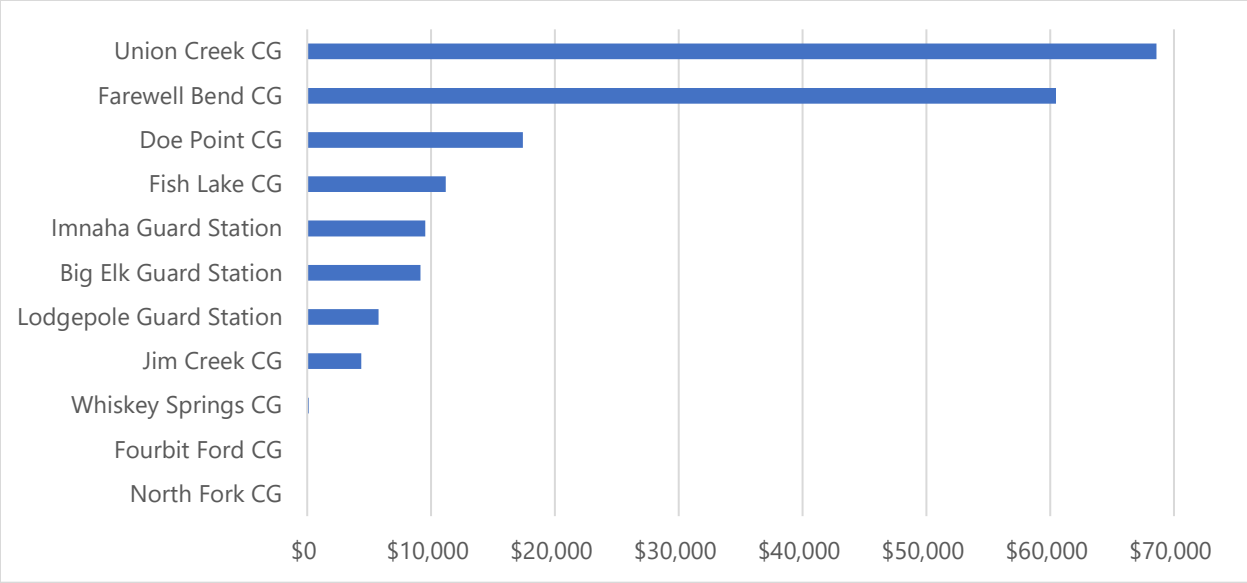

Figure 13. Camping fee revenue for the Rogue River-Siskiyou National Forest, 2022.

Table 17. Camping fee revenue at various sites within Rogue River-Siskiyou National Forest, February 8 – November 30, 2022.

Facility Name	Quantity	Total
Big Elk Guard Station	56	$9,153.00
Doe Point Campground	413	$17,424.75
Farewell Bend Campground	1392	$60,460.00
Fish Lake Campground - Rogue River	270	$11,200.25
Fourbit Ford Campground	8	$54.00
Imnaha Guard Station	59	$9,522.00
Jim Creek Group Campground	49	$4,372.00
Lodgepole Guard Station	43	$5,753.00
North Fork Campground (Or)	24	$48.00
Union Creek Campground - Rogue River	1610	$68,587.00
Whiskey Springs Campground	57	$133.00
Willow Prairie Cabin	49	$3,366.00
Willow Prairie Horsecamp	199	$7,977.50

While it is clear from the data which recreation sites generated the highest amounts of revenue during the 2022 season, further investigation is needed to clarify which amenities specifically contributed to this revenue, as well as what types of non-fee-based use might have been occuring alongside fee-based use. Since many recreation activities, such as hiking, biking, picnicking, and other day use activities, may occur near a campground but not require visitors to

pay fees, information on these potential uses is necessary for a more complete picture of demand.

The USFS data can be further broken down by week for select sites during peak months of June through September. Figure 14 and Table 18 below summarize which months generated the most revenue for each of the nine campsites, one day use site, and three donation sites listed. While August was generally the most lucrative month, individual weeks both earlier and later in the summer were often responsible for the single most profitable weeks of the season.

As with the previous set of data, this revenue breakdown offers a limited perspective on visitor demand that is predicated on activities that require fees. It is further limited by representing a particular point in time: the 2022 summer season. Longitudinal data extending both before and beyond 2022 would be helpful in tracking visitor use trends as they pertain to fee-based recreation.

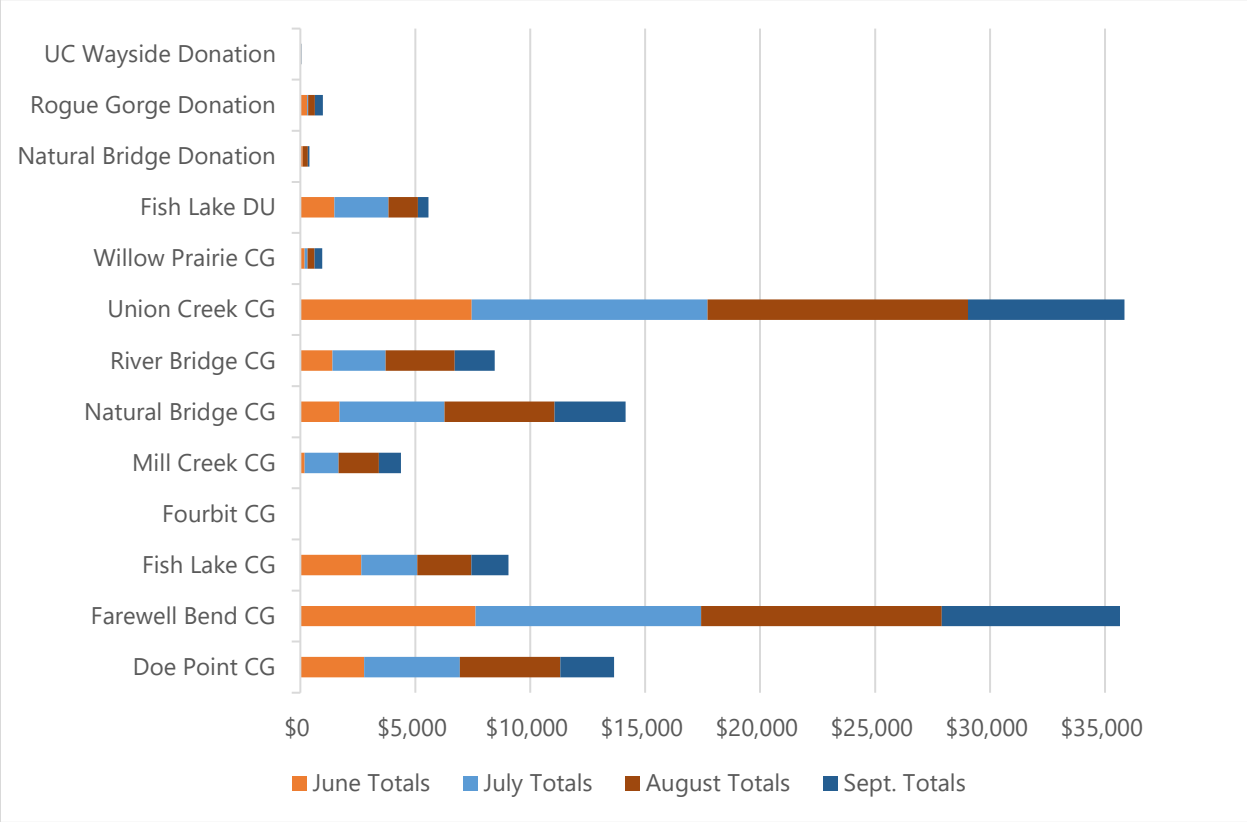

Figure 14. Monthly total revenue collected by site, 2022.

Table 18. Complete revenue collection data by site, 2022.

	6/30	June Totals	7/5	7/25	July Totals	8/5	8/8	August Totals	9/5	9/12	Sept. Totals
Doe Point CG	$1,339	**$2,777**	$1,323	$802	**$4,164**	$1,053	$782	**$4,362**	$40	$1,565	**$2,349**
Farewell Bend CG	$1,636	**$7,624**	$3,372	$2,223	**$9,809**	$2,621	$1,747	**$10,467**	$2,538	$1,745	**$7,746**
Fish Lake CG	$1,668	**$2,652**	$941	$603	**$2,429**	$565	$332	**$2,359**	$328	$881	**$1,607**
Fourbit CG		**$0**			**$0**			**$0**			**$0**
Mill Creek CG	$191	**$191**	$275	$549	**$1,468**	$275	$220	**$1,751**	$595	$38	**$970**
Natural Bridge CG	$1,608	**$1,704**	$1,281	$1,558	**$4,568**	$1,038	$1,247	**$4,784**	$1,030	$791	**$3,090**
River Bridge CG	$578	**$1,395**	$696	$524	**$2,318**	$472	$669	**$3,008**	$809	$422	**$1,729**
Union Creek CG	$2,856	**$7,457**	$2,869	$2,481	**$10,254**	$2,292	$2,252	**$11,325**	$2,713	$1,525	**$6,807**
Willow Prairie CG	$157	**$193**	$60		**$115**	$179		**$308**		$54	**$331**
Fish Lake DU	$681	**$1,477**	$526	$762	**$2,351**	$198	$420	**$1,289**	$10	$280	**$459**
Natural Bridge Donation	$103	**$103**			**$0**		$178	**$218**	$4	$5	**$69**
Rogue Gorge Donation	$297	**$297**			**$49**		$236	**$292**	$33	$93	**$336**
UC Wayside Donation	$5	**$5**			**$0**		$24	**$25**		$12	**$22**
Monthly Totals		**$25,874**			**$37,524**			**$40,187**			

Gaps and Limitations

The project did not have access to recreation use data for the following areas as of the writing of this document:

- BLM Medford District. These sites include Upper Table Rock (Lower Table Rock captured in traffic counts), Gold Nugget Wayside, and Yellowrock and Flounce Rock Trailheads (both near Lost Creek Lake Reservoir).
- BLM Swiftwater Field Office. Outside of the sites listed in the traffic counts section above, the project team would like to know more about the use of the remaining BLM sites on the North Umpqua River. This may not be necessary, however, as BLM has a parallel planning initiative in progress for these sites.
- USFS North Umpqua Ranger District. The USFS is completing data collection and synthesis for its recreation sites along the project corridor, which will be incorporated into this document when complete.
    - Diamond Lake Resort Area. The project team is especially interested in recreation use data for the Diamond Lake Resort Area, as it is a natural hub of activity for

the North Umpqua corridor and has a close connection to Crater Lake National Park use.

- Crater Lake National Park. The traffic counts above provide one measure of park attendance but may not capture all use. Indeed, there are a number of trails outside of the two entrances that users can access the park from that are not included in the traffic count data. These data would provide a more comprehensive picture of park use.

Conclusion and Next Steps

The preceding data and analysis provide a snapshot of traffic and use in the project corridor. It is meant to show how the corridor is used based on available quantitative data, although gaps in traffic and use remain. These data are meant to complement information gathered through public and stakeholder engagement (Memo 1) and existing conditions (Memo 2). Together, these documents provide a more complete picture of corridor use, needs, and opportunities. In addition to the themes outlined in the Introduction, FHWA Offices of Operations and Planning provides the following strategies that can address demand management in the Rogue-Umpqua corridor.

Active Traffic Management

Active traffic management (ATM) is the ability to dynamically manage recurrent and non-recurrent congestion based on prevailing and predicted traffic conditions.[12] ATM is meant to improve operations by focsuing on traffic movement and congestion. In the Rogue-Umpqua Corridor, congestion is only a known issue in the summer peak period for Crater Lake National Park and its adjoining areas. The possible interventions include:

- Dynamic lane use control - Opening and closing lanes depending in volume
- Dynamic speed control - Adjusting roadway speeds based in traffic volume, weather, and other conditions[13]
- Part time shoulder controls – Opening and closing shoulders for traffic
- Queue warning – providing travelers estimates of wait times for destinations throughout the corridor

Possible Applications: Crater Lake National Park, Diamond Lake, Union Creek, Lost Creek Lake.

Active Demand Management

Active demand management uses information and technology to dynamically manage demand, which could include redistributing travel to less congested times of day or routes, or reducing overall vehicle trips by influencing a mode choice.[14] In addition to traffic and congestion management, these tools can be used to alert travellers of capacity at recreatons sites along the corridor. Possible interventions include:

- Dynamic routing – Providing realtime information to travellers on routes to specific destinations, including wait times
- Dynamic transit – Adjusting transit schedules, trip requests, pricing, and scheduling based on congestion, volume, and capacity

[12] FHWA. *Active Traffic Management*. 2023. Retrieved December 2023 from: https://ops.fhwa.dot.gov/atdm/approaches/atm.htm
[13] Implementing this strategy requires amending Oregon Administration Rule 734-020-0019 (Locations and Criteria of Variable Interstate Speed Limits). See: https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=279793
[14] FHWA. *Active Demand Management*. 2023. Retrieved December 2023 from: https://ops.fhwa.dot.gov/atdm/approaches/adm.htm

- Dynamic destination capacity – Providing travellers realtime capacity at recreation sites, allowing for clearer alternatives between destinations

Possible Applications: Corridor gateways (Roseburg, Glide, Gold Hill), Crater Lake National Park, Diamond Lake, Union Creek, Lost Creek Lake.

Active Parking Management

Active parking management is the dynamic management of parking facilities in a region to optimize performance and utilization of those facilities while influencing travel behavior at various stages along the trip making process.[15] These approaches are most applicable at trailheads, visitor centers, and major reacreations hubs. Possible approaches include the following:

- Dynamic parking and overflow parking – Providing realtime informaiton on where parking is available, not available, and by what types (car, RV, etc.)
- Dynamic parking wayfinding – Providing travellers realtime information on where parking is available within various lots
- Parking types and rules – Providing travellers information on what types of parking is available throughout the corridor, for what purposes, and any restrictions on use

Possible Applications: Corridor gateways (Roseburg, Glide, Gold Hill), Crater Lake National Park, Diamond Lake, Union Creek, Lost Creek Lake. Major trailheads possible application for static wayfinding information.

Bicycle and Pedestrian Infrastructure

The data in this document suggest a primarily automobile-oriented corridor, with additional bicycle, pedestrian, and transit presence. To support these non-auto modes, the project team can examine the following strategies for improving bicycle and pedestrian connections.

- Provide separated bike paths, bike lanes, or shared lanes for bicycles where traffic speed and volumes allow[16]
- Assess feasibility of parrallel bicycle paths to roadway
- Assess pedestrian safety countermeasures at high speed, high volume, and / or frequently crossed roadways for recreation facilities and communities in the project corridor[17]
- Enhance bicycle and pedestrian trails and other connections between recreation facilities that separate motorized and non-motorized travellers (i.e., repairing sections of the North Umpqua Trail that connect multiple recreation sites)

[15] FHWA. *Active Parking Management*. 2023. Retrieved December 2023 from: https://ops.fhwa.dot.gov/atdm/approaches/apm.htm
[16] See FHWA Bikeway Selection Guide (2019), Figure 9 "Preferred Bikeway Type for Urban, Urban Core, Suburban and Rural Town Contexts." (https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-07/fhwasa18077.pdf)
[17] See FHWA Safe Transportation for Every Pedestrian (STEP) (2021) for complete list of pedestrian safety countermeasures. (https://highways.dot.gov/safety/pedestrian-bicyclist/step)

Possible Applications: Glide, Shady Cove, Gold Hill and Prospect communities; trailheads on North Umpqua and wider Union Creek areas; likely others.