



PLANNING COMMISSION WORK SESSION AGENDA

Monday, August 22, 2022 - 6:00 PM

City Hall, Council Chambers, 169 SW Coast Hwy, Newport, OR 97365

All public meetings of the City of Newport will be held in the City Council Chambers of the Newport City Hall, 169 SW Coast Highway, Newport. The meeting location is accessible to persons with disabilities. A request for an interpreter, or for other accommodations, should be made at least 48 hours in advance of the meeting to Peggy Hawker, City Recorder at 541.574.0613, or p.hawker@newportoregon.gov.

All meetings are live-streamed at <https://newportoregon.gov>, and broadcast on Charter Channel 190. Anyone wishing to provide written public comment should send the comment to publiccomment@newportoregon.gov. Public comment must be received four hours prior to a scheduled meeting. For example, if a meeting is to be held at 3:00 P.M., the deadline to submit written comment is 11:00 A.M. If a meeting is scheduled to occur before noon, the written comment must be submitted by 5:00 P.M. the previous day. To provide virtual public comment during a city meeting, a request must be made to the meeting staff at least 24 hours prior to the start of the meeting. This provision applies only to public comment and presenters outside the area and/or unable to physically attend an in person meeting.

The agenda may be amended during the meeting to add or delete items, change the order of agenda items, or discuss any other business deemed necessary at the time of the meeting.

1. CALL TO ORDER

Jim Patrick, Bill Branigan, Bob Berman, Jim Hanselman, Gary East, Braulio Escobar, John Updike, Dustin Capri, and Greg Sutton.

2. UNFINISHED BUSINESS

2.A Revised Camping Ordinance (carried over from August 8, 2022 work session).
[Memorandum](#)
[Revised Draft Camping Ordinance](#)

2.B Draft Housing Study Residential Land Needs Assessment.
[Memorandum](#)
[Draft PowerPoint for Housing Committee Meeting No. 4](#)

2.C Review Final Draft of Yaquina Head Traffic Study.
[Memorandum](#)
[Yaquina Head Traffic Study- Final Draft, dated 6/30/22](#)
[Appendix A: Public Involvement](#)
[Appendix B: Existing and Projected Conditions Memo](#)
[Appendix C: Alternatives Analysis](#)
[Appendix D: Cost Estimates](#)

3. NEW BUSINESS

3.A Citizen Advisory Board Position.
[Gail \(Annie\) McGreenery Email 8-16-2022](#)

4. ADJOURNMENT

Memorandum

To: Planning Commission/Commission Advisory Committee

From: Derrick I. Tokos, AICP, Community Development Director

Date: August 18, 2022

Re: Revised Camping Ordinance (carried over from August 8, 2022 work session)

Attached is a revised draft of the new camping ordinance, which should be easier for you to work through than the draft that was presented at your July 11, 2022 work session. There are still a few edits that need to be made, including cross-references to the City's zoning ordinance (NMC Chapter 14). We might also want to address the zoning pieces separately so that the core elements of the camping ordinance can be adopted soon.

Please take a moment to look over the document and let me know if you have any comments.

Attachments

Revised Draft Camping Ordinance

REVISED DRAFT OF CAMPING ORDINANCE

9.50.000 Title and Purpose

The title of this section shall be known as the "Newport Camping Regulations." The purpose of this section is to protect the safety of citizens and regulate the use of publicly-owned property by establishing time, manner, and place guidelines.

9.50.010 Definitions

The following definitions apply in this chapter.

- A. "Camp" or "camping" means to pitch, erect, create, use, or occupy camp facilities for the purposes of habitation, as evidenced by the use of camp paraphernalia.
- B. "Camp facilities" include, but are not limited to, tents, huts, temporary shelters, or vehicles.
- C. "Camp paraphernalia" includes, but is not limited to, tarpaulins, cots, beds, sleeping bags, blankets, mattresses, hammocks, or outdoor cooking devices or utensils and similar equipment.
- D. "Campsite" means any place where one or more persons have established temporary sleeping accommodations by use of camp facilities and/or camp paraphernalia. A campsite set up for a minimum of 48 hours shall be considered an established campsite.
- E. "City manager" means the Newport city manager, or the city manager's designee.
- F. "Dwelling" A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.
- G. "Motor vehicle" has the meaning given that term in ORS 801.360.
- H. "Park areas" has the meaning set forth NMC 9.75.
- I. "Parking lot" means a developed location that is designated for parking motor vehicles, whether developed with asphalt, concrete, gravel, or other material.
- J. "Prohibited campsite" means any campsite Not authorized under the Newport Municipal Code (NMC).
- K. "Public owned property" means any real property or structures owned, leased, or managed by the city or other government agency including public rights-of-way.
- L. "Public rights of way" means all property dedicated to the public for transportation purposes and administered by the city, including streets, roads, bridges, alleys, sidewalks, trails, paths, and all other public ways and areas managed by the city. "Right-of-way" also includes public utility easements to the extent that the easement

allows use by the permittee planning to use or using the public utility easement. "Right-of-way" includes the subsurface under and airspace over these areas. "Right-of-way" does not include the airwaves for purposes of CMRS, broadcast television, DBS and other wireless providers, or easements or other property interests owned by a single utility or entity.

- M. "Recreational fire" means a fire for the cooking of food, warmth, fellowship or ceremonial purposes.
- N. "Recreational vehicle" has the meaning given that term in ORS 174.101.
- O. "Solid waste" means any garbage, trash, debris, yard waste, food waste, or other discarded materials.
- P. "Solid waste disposal services" means contracted solid waste collection service for a campsite with the city's exclusive franchisee for the collection of solid waste.
- Q. "Store" or "storage" means to put aside or accumulate for use when needed, to put for safekeeping, to place or leave in a location.
- R. "Street" means any highway, lane, road, street, right-of-way, alley, and every way or place in the city of Newport that is publicly-owned or maintained for public vehicular travel.

9.50.015 Permitted Camping

- A. The prohibitions in Section 9.50.020 shall not apply to the following circumstances:
 - 1. The property involved is appropriately zoned and has all necessary approvals for the proposed camping use, in a vehicle or otherwise, as provided in Title XIV of the Newport Municipal Code; or
 - 2. Camping is occurring in accordance with a duly executed emergency declaration made pursuant to Section 1.70.030; or
 - 3. A special events permit has been issued in accordance with Chapter 9.80 authorizing camping; or
 - 4. The owner of a commercial or industrial property, a public entity, or a religious institution/place of worship may offer overnight vehicle camping space to homeless persons living in vehicles, provided:
 - a. such accommodations are made free of charge; and
 - b. occupancy is limited to three or fewer vehicles at the same time; and
 - c. vehicles are located within an on-premise parking lot, and are spaced at least 10 feet apart; and
 - d. all items and materials are stored in vehicles or in a separate storage area

that is screened from view from adjacent properties and public rights-of-way;
and

- e. campers are provided access to sanitary facilities, including a toilet, hand washing and trash disposal facilities, with such facilities being at least 20-feet from the property line of a residential use if not fully contained within a building; and an inspection is performed by the City to confirm that sanitary facilities are in place, required setbacks are met, and any storage areas are screened, before overnight vehicle camping is commenced.

B. With written authorization of the private property owner of the property:

1. Up to three total motor vehicles or tents, in any combination, may be used for camping in any parking lot on the following types of property:
 - a. Real property developed and owned by a religious institution, place of worship, regardless of the zoning designation of the property;
 - b. Real property developed with one or more buildings occupied and used by any organization or business primarily for nonprofit, commercial or industrial purposes;
 - c. Vacant or unoccupied commercial or industrial real property, after the property owner has registered the temporary camping location with the city. The city may require the site to be part of a supervised program operated by the city or its agent.

C. A property owner who authorizes any person to camp on a property pursuant to subsection "A" of this section must:

1. Provide or make available sanitary facilities;
2. Provide garbage disposal services so that there is no accumulation of solid waste on the site;
3. Provide a storage area for campers to store any personal items so the items are not visible from any public street;
4. Not require or accept the payment of any monetary charge nor performance of any valuable service in exchange for providing the authorization to camp on the property; provided, however, that nothing in this section will prohibit the property owner from requiring campers to perform services necessary to maintain safe, sanitary, and habitable conditions at the campsite.

D. A property owner who permits camping pursuant to subsection "A" of this section may revoke that permission at any time and for any reason.

E. Notwithstanding any other provision of this chapter, the city manager or their designee may:

1. Revoke the right of any person(s) to authorize camping on property described in subsection "A" of this section upon finding that the person(s) has violated any applicable law, ordinance, rule, guideline or agreement, or that any activity occurring on that property by a camper(s) is incompatible with the use of the property or adjacent properties.
 2. Revoke permission for a person(s) to camping overnight on city-owned property upon finding that the person(s) has violated any applicable law, ordinance, rule, guideline or agreement, or that any activity occurring on that property by a camper(s) is incompatible with the use of the property or adjacent properties.
- F. Any person whose authorization to camp on property has been revoked pursuant to subsections "C" and "D" of this section must vacate and remove all belongings from the property within four hours of receiving such notice.
- G. All persons participating in the temporary camping program described in this section do so at their own risk, and nothing in this code creates or establishes any duty or liability for the city or its officers, employees or agents, with respect to any loss related to bodily injury (including death) or property damage.

9.50.020 Camping Prohibited in Certain Places

Except as expressly authorized by the Newport Municipal Code, at all times it is unlawful for any persons to establish or occupy a campsite as designated by City Council Resolution.

- A. All City of Newport park areas,
1. All publicly owned or maintained parking lots unless identified as "car camping lots"; and
 2. Rights of way in front of dwellings as defined 9.50.010(F)
 3. Streets that are more heavily trafficked, or that are in areas with industrial activities, camping shall be prohibited as specifically designated by City Council Resolution
 - a. SW Bay Blvd. from SW Bay St. to S. Pine St.
 - b. Bay Blvd. from S. Pine St. to SE Niemi Ct.
 - c. SW Elizabeth St. from SW Government St. to W. Olive St.
 - d. SW Coast St. from SW 2nd St. to W. Olive St.
 - e. NW Coast St. from W. Olive St. to NW 11th St.
 - f. NW Spring St. from NW 8th St. to NW 12th St.
 - g. NW Oceanview Dr. from NW 12th St. to N. Coast Hwy
 - h. NW Rocky Way
 - i. NW Gilbert Way
 - j. 50 ft. adjacent to Hwy 101
 - k. 50 ft. adjacent to Hwy 20
- B. Except as expressly authorized by the Newport Municipal Code, it shall be unlawful

for any person to store personal property on a public right of way.

- C. Except as expressly authorized by the Newport Municipal Code or Special Event Permit, it shall be unlawful have a recreational fire on public property.
- D. A person or persons camping in a vehicle or recreational vehicle must adhere to parking regulations, NMC 6.05 - 6.35.
- E. Notwithstanding the provisions of this section, the City Manager or designee may temporarily authorize camping or storage of personal property on public property by written order that specifies the period of time and location:
 - 1. In the event of emergency circumstances;
 - 2. In conjunction with a special event permit; or
 - 3. Upon finding it to be in the public interest and consistent with Council goals and policies.
- F. The City Manager may adopt administrative rules to implement any of the provisions of this section.

9.50.030 Scheduling and Notice of Campsite Cleanup

- A. Cleanup of illegal campsites will be scheduled on an as-needed basis by the Chief of Police or designee.
- B. Permanent signs may be posted advising that camping is prohibited. Whether or not a permanent sign is posted, a specific dated and timed notice will be posted and distributed in the area of a scheduled cleanup at least 72 hours before the cleanup.
- C. Notwithstanding subsections A. and B., cleanup of campsites may occur immediately and without notice if the chief of police or designee determine that either of the following conditions exist:
 - 1. An exceptional emergency such as possible site contamination by hazardous materials or where there is an immediate danger to human life or safety;
 - 2. Illegal activity other than camping.
- D. At the time of the cleanup, written notice will be posted and distributed announcing the telephone number where information on picking up the stored property can be obtained during normal business hours.
- E. Written notices, including permanent signs, will be in both English and Spanish.
- F. Copies of all notices shall be provided to the State of Oregon Department of Human Services and/or to the Lincoln County Human Services Department.

9.50.040 Removal, Storage and Retrieval of Personal Property

- A. Personal property will be separated during cleanups from junk. Junk will be immediately discarded. Items of personal property will be turned over to the police department and stored. The personal property shall be stored for no less than 30 days, during which time it will be reasonably available to persons claiming ownership of the personal property.
- B. The police department shall arrange in advance for a location to store personal property. The storage facility should be reasonably secure. The location should be reasonably accessible to the cleanup area and preferably served by public transportation.
- C. Any personal property that remains unclaimed for 30 days after the cleanup may be disposed of, sold, donated, used, or transferred as abandoned personal property, but no waiting period beyond the 30 days is required prior to the disposal, sale, donation, use or transfer.
- D. Weapons, drug paraphernalia, and items which reasonably appear to be either stolen or evidence of a crime may be retained by the police department.

9.50.060 Violation

Violation of this chapter is civil infraction as defined in NMC 1.5.10.


9.50.070 Nonexclusive Remedy

The remedies described in this chapter shall not be the exclusive remedies of the city for violations of this section.

9.50.080 Interpretation

This section is to be interpreted to be consistent with applicable state statutes and providing the protections required by state statutes.

Memorandum

To: Planning Commission/Commission Advisory Committee
From: Derrick I. Tokos, AICP, Community Development Director 
Date: August 18, 2022
Re: Draft Housing Study Residential Land Needs Assessment

Attached is a draft PowerPoint presentation prepared by consultant ECONorthwest that outline the City's projected housing needs over the next 20-years. It also includes a refined set of buildable lands assumptions. These materials will be reviewed by the Housing Study Advisory Committee at its August 25, 2022 meeting, and is being brought forward at this work session to keep the Commission informed on how the study is progressing. I may have some information on the housing constructability component of the work on Monday. ECONorthwest is still pulling that together, as it has been a challenge getting infrastructure cost assumptions dialed in accurately.

Please take a moment to review the presentation and I look forward to your comments or questions.

Attachments

Draft PowerPoint for Housing Committee Meeting No. 4



Newport Housing Capacity Analysis

Project Advisory Committee Meeting #4

August 25, 2022

PAC Meeting Dates and Topics

HAC	Date	Topic(s)
PAC 4	Aug 25	Constructability assessment and residential land needs
PAC 5	Oct 13	Housing measures and introduce the Housing Production Strategy
PAC 6	Jan 12	Identify additional potential housing strategies
PAC 7	Feb 16	Refine and narrow housing strategies
PAC 8	Mar 30	Finalize housing strategies



Newport Housing Conversation Guide

ECONorthwest

ECONOMICS • FINANCE • PLANNING

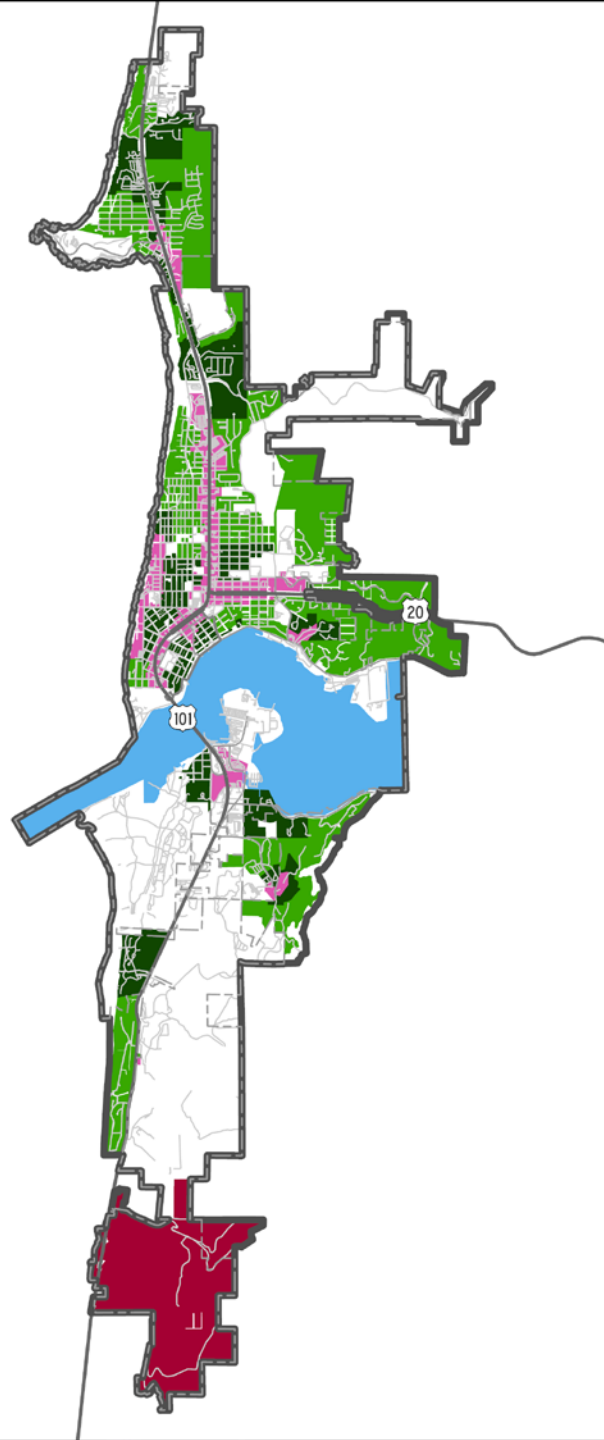
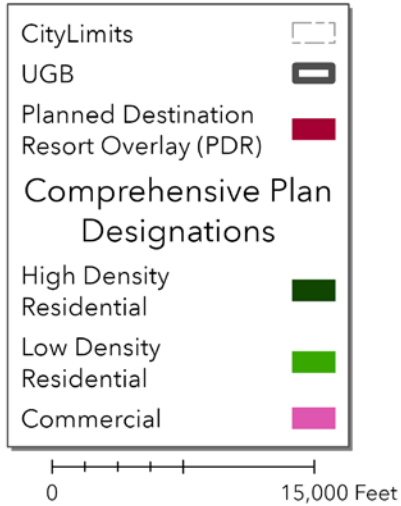


Revised Buildable Lands Inventory

1. Gather and Assemble Data
2. Classify Land
3. Identify and Remove Constraints
4. Verification
5. Summarize Results
6. Constructability Analysis
 - Identify land with services where development could reasonably happen in the next 20 years
 - Pro forma analysis of financially feasible development, considering construction and infrastructure costs

Newport Buildable Lands Inventory

Comprehensive Plan
Designation



Newport Comprehensive
Plan Designations
where housing is
allowed with clear and
objective standards

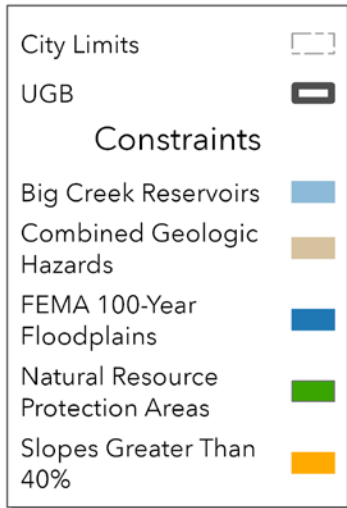
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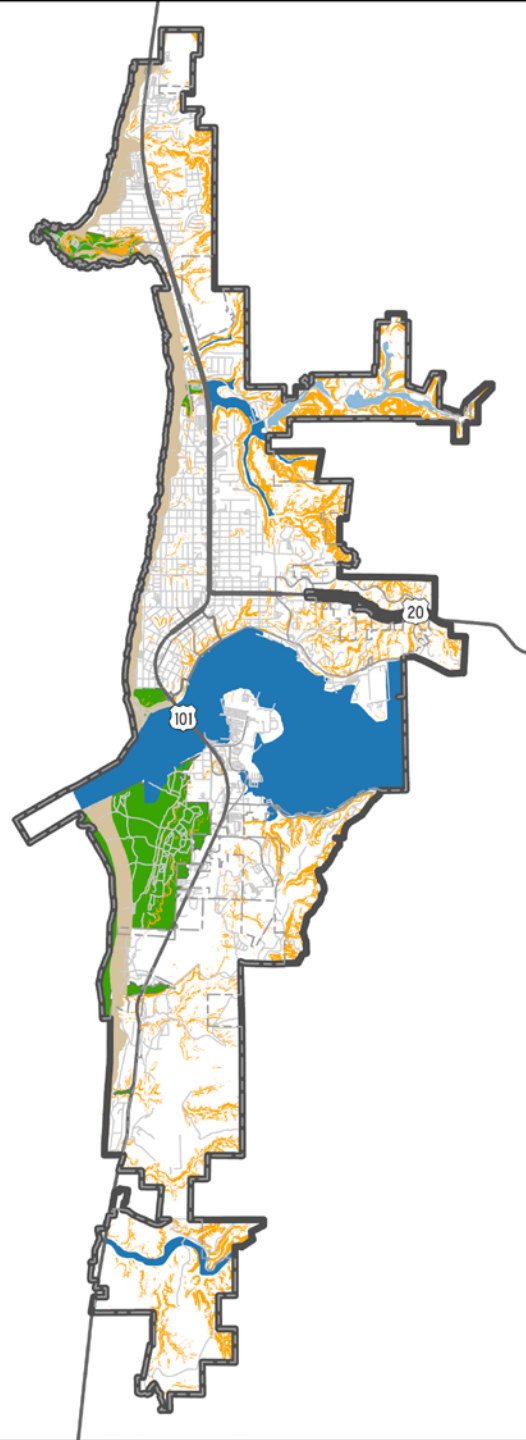
Date: June 5, 2022
Source: ECONorthwest;
City of Newport;
Lincoln County

Newport Buildable Lands Inventory

Constraints



0 15,000 Feet



Constrained Land

- Combined Geologic Hazards
- FEMA 100-Year Floodplain
- Natural Resource Protection Areas
- Slopes greater than 40%

Removed:

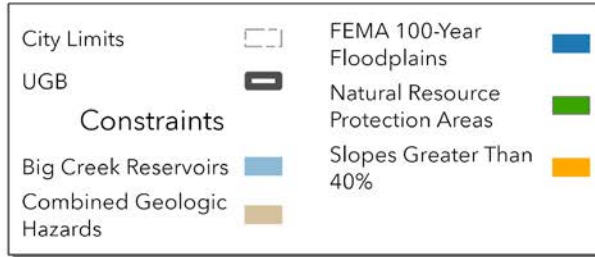
- Riparian Corridors
- Tsunami Inundation zone
- Local Wetlands Inventory
- Landslide Susceptibility
- Shoreland Protection Area

DRAFT

Date: July 19, 2022
Source: ECONorthwest;
City of Newport;
Lincoln County

Newport Buildable Lands Inventory

Constraints



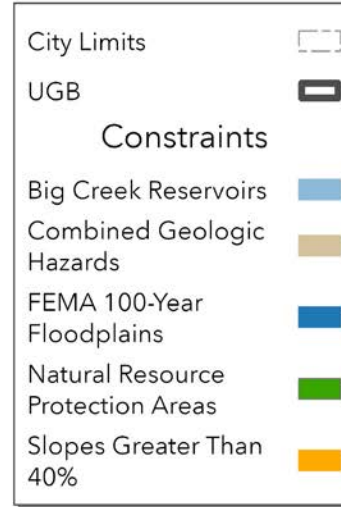
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Date: July 19, 2022
Source:
ECONorthwest;
City of Newport;
Lincoln County

Newport Buildable Lands Inventory

Constraints



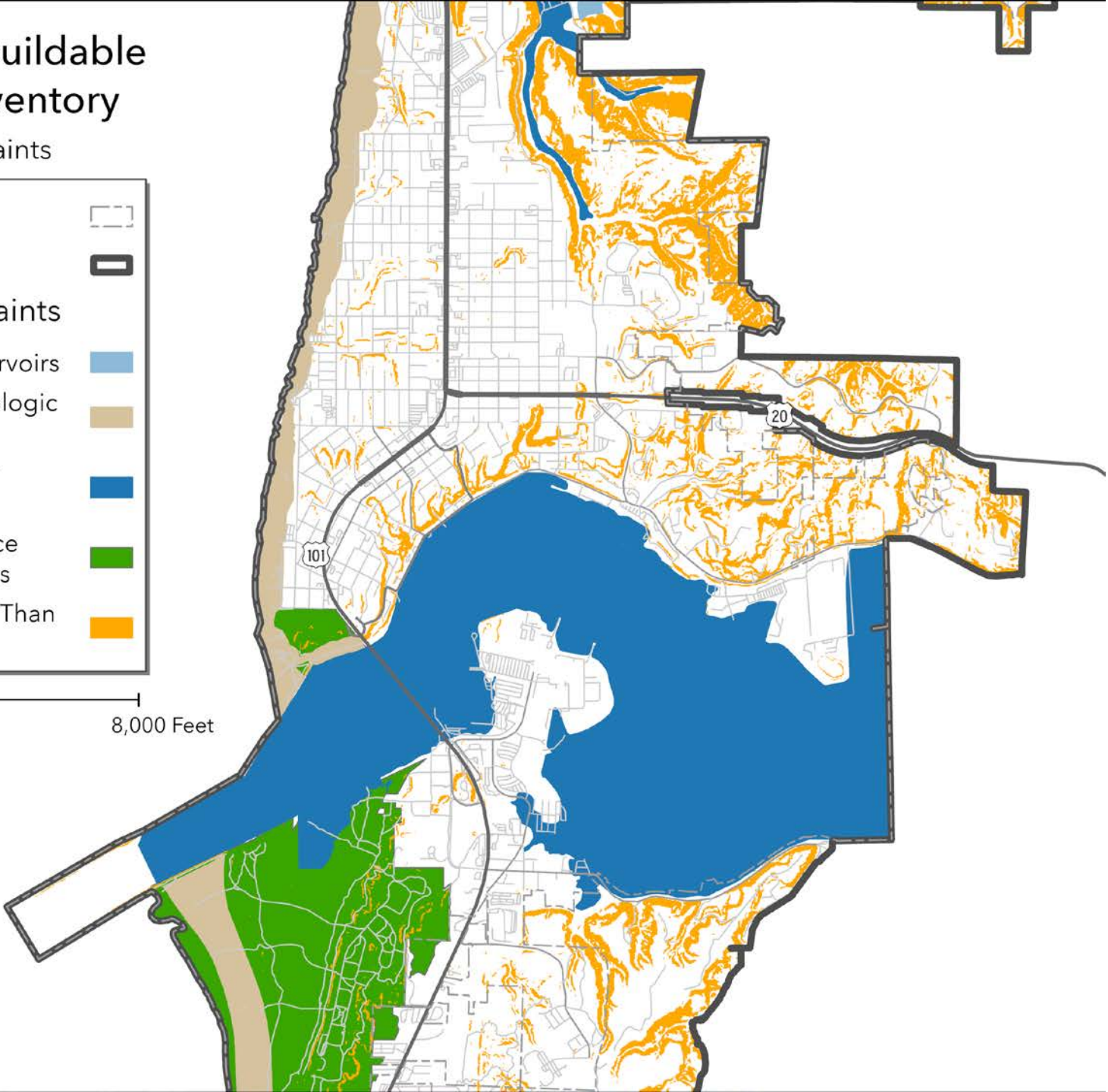
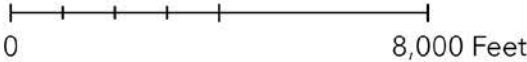
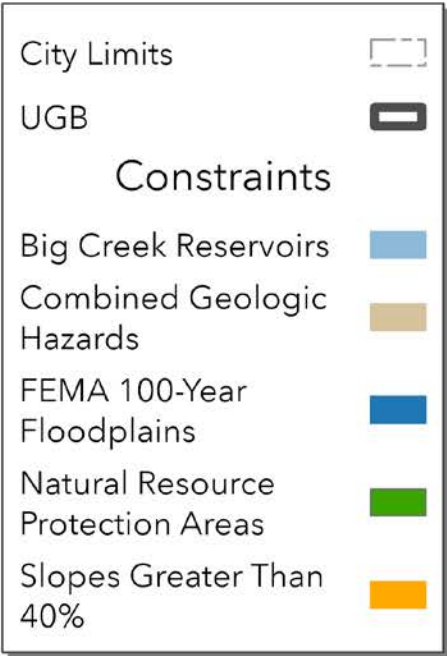
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City of Newport;
Lincoln County

Newport Buildable Lands Inventory

Constraints

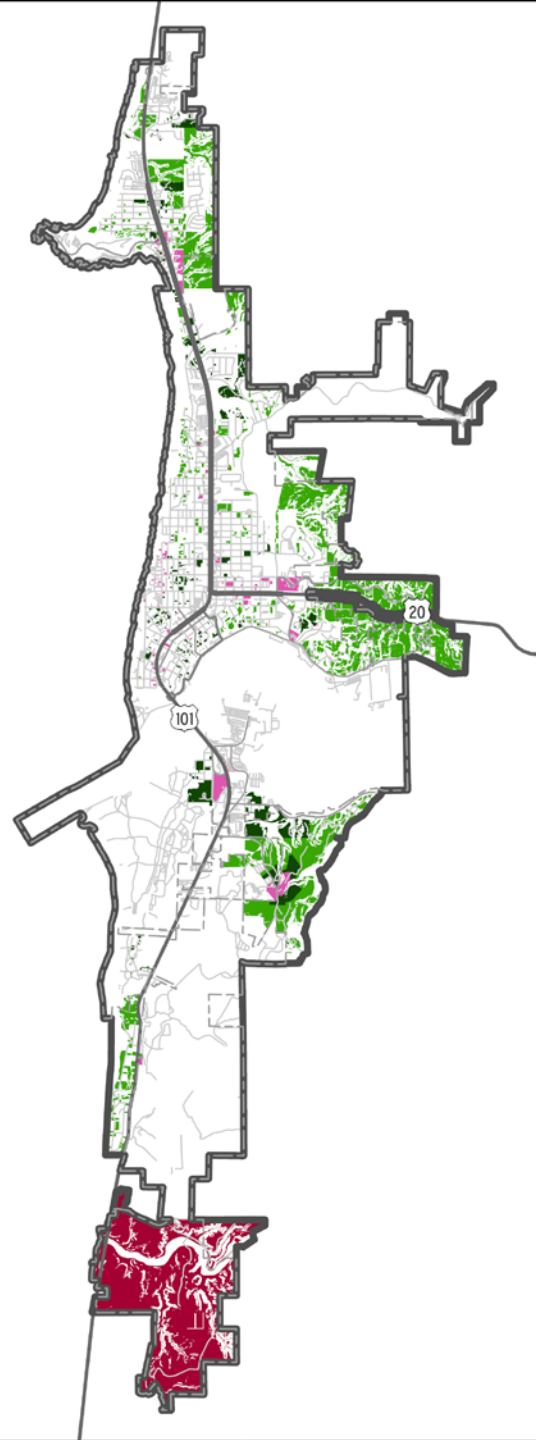
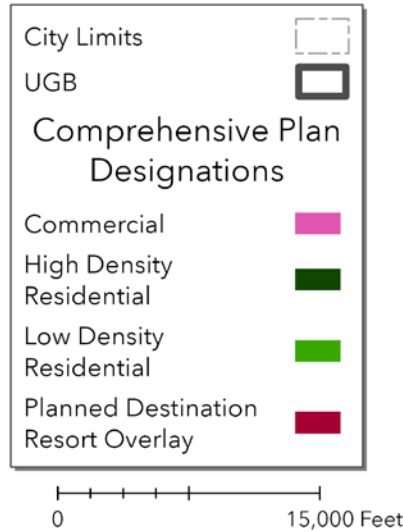


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Date: July 19, 2022
Source: ECONorthwest;
City of Newport;
Lincoln County

Newport Buildable Lands Inventory

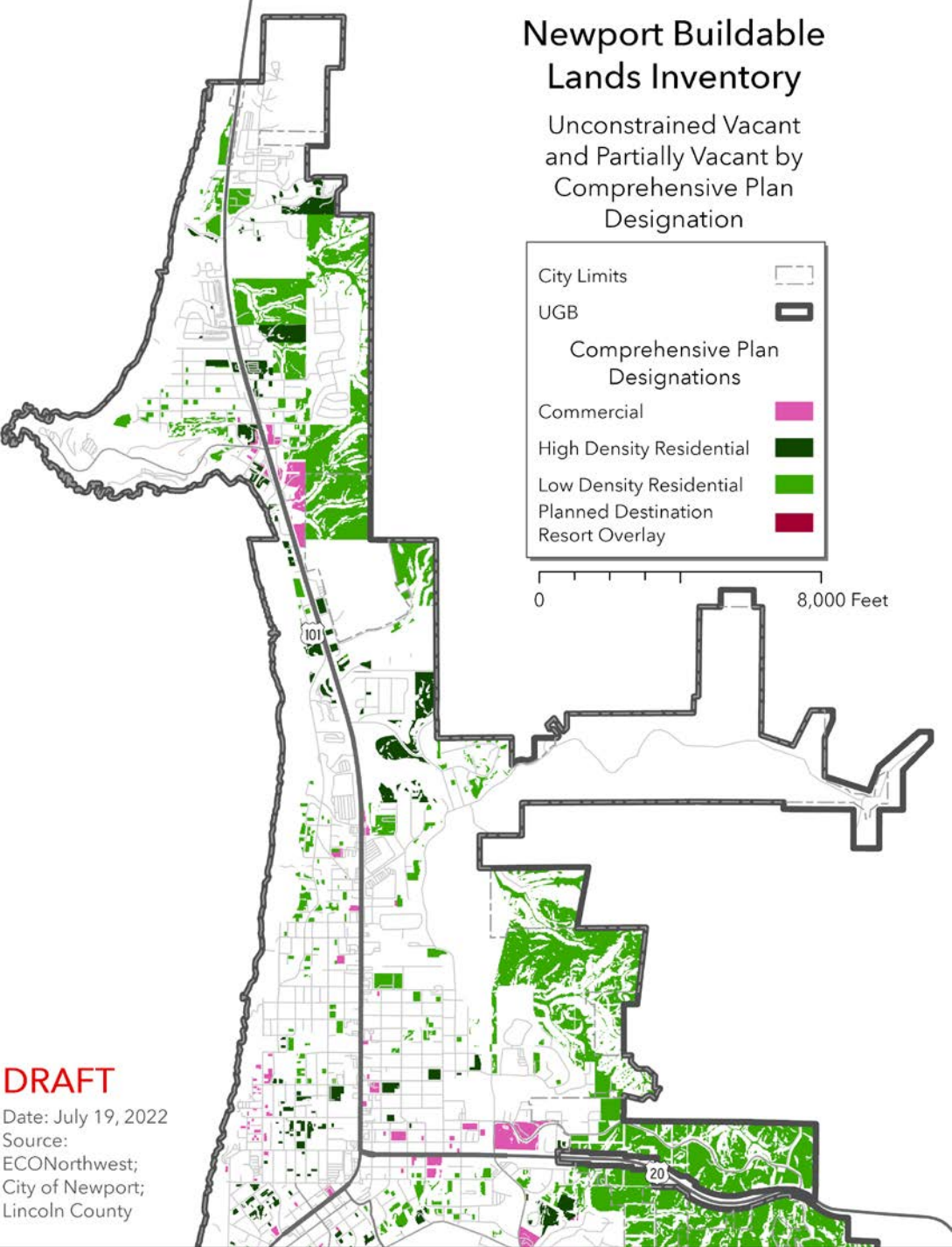
Unconstrained Vacant and
Partially Vacant by
Comprehensive Plan
Designation



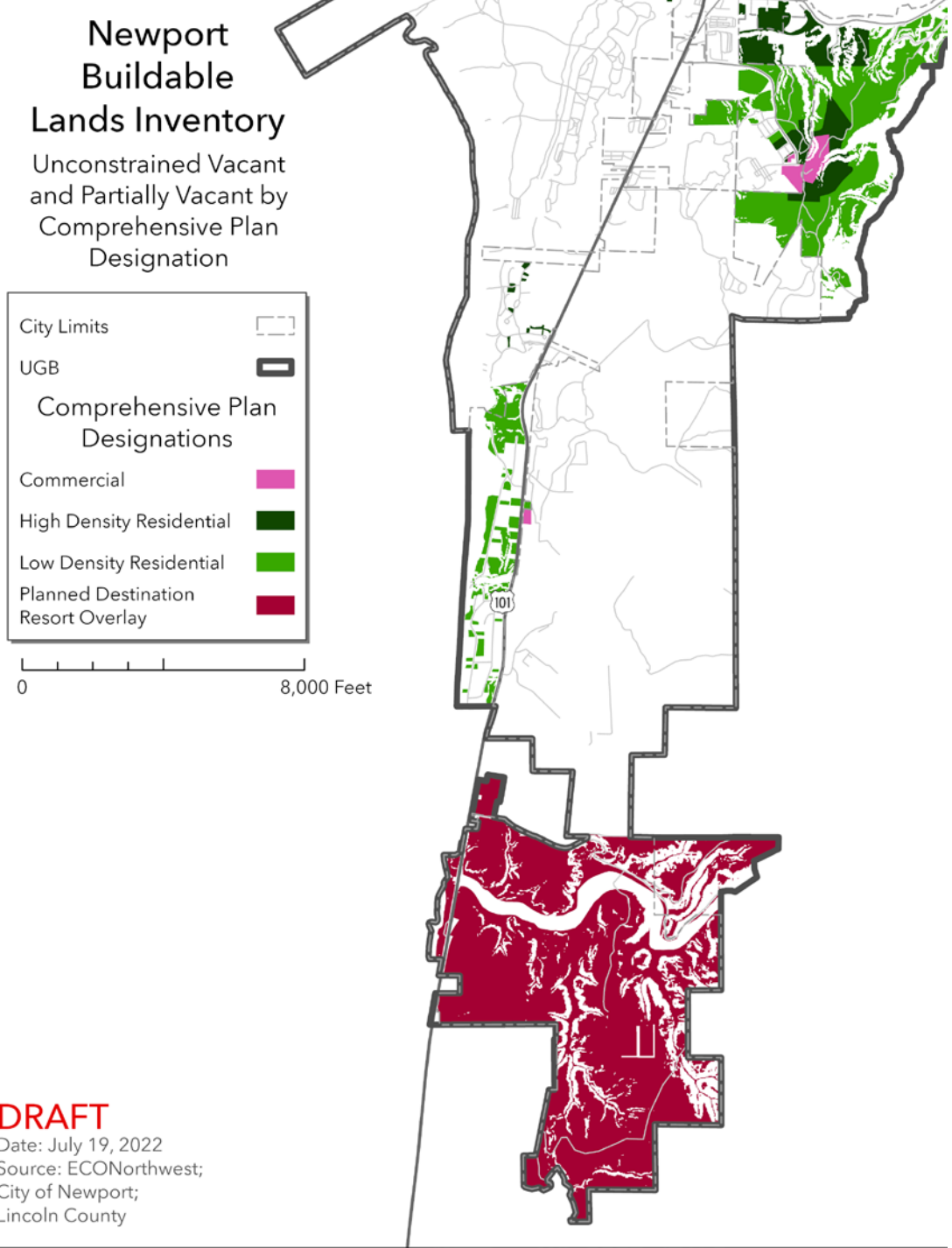
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Date: July 19, 2022
Source: ECONorthwest;
City of Newport;
Lincoln County

Revised
Unconstrained Vacant
and Partially Vacant
Residential Lands
By Comprehensive Plan
Designation



DRAFT
 Date: July 19, 2022
 Source: ECONorthwest;
 City of Newport;
 Lincoln County



DRAFT
 Date: July 19, 2022
 Source: ECONorthwest;
 City of Newport;
 Lincoln County

Newport Buildable Lands Inventory

Unconstrained Vacant
and Partially Vacant by
Comprehensive Plan
Designation

City Limits

UGB

Comprehensive Plan Designations

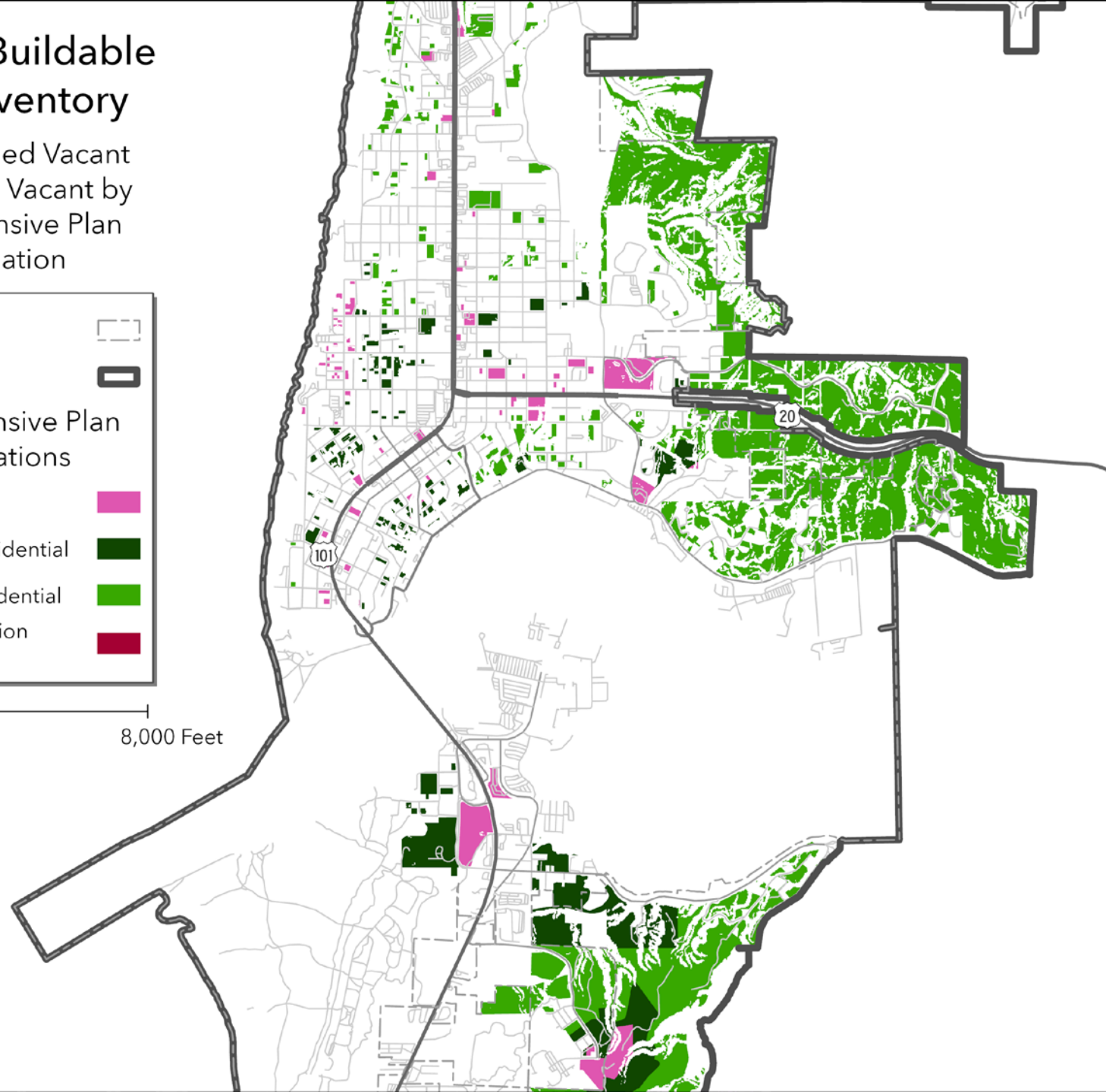
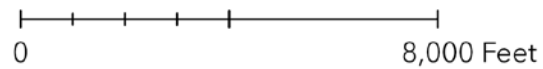
Commercial

High Density Residential

Low Density Residential

Planned Destination

Resort Overlay



DRAFT

Date: July 19, 2022
Source: ECONorthwest;
City of Newport;
Lincoln County

Unconstrained Vacant & Partially Vacant Lands

Total Unconstrained Buildable Acres: 1,443

48% of buildable land is in the Low Density Residential and 11% is High Density Residential (excluding the Resort Overlay)

Plan Designation	Total Buildable acres	Buildable acres on vacant lots	Buildable acres on partially vacant lots
High Density Residential	155	97	58
Planned Destination Resort Overlay	539	486	53
Low Density Residential	690	523	167
Commercial	59	42	18
Total	1,443	1,148	295

Note: This does not include 17 acres of land with partially vacant areas, with existing plats. Those will be added into the analysis at the next step, through the analysis of capacity.



Constructability Assessment

We will add information here before the 8/25 meeting

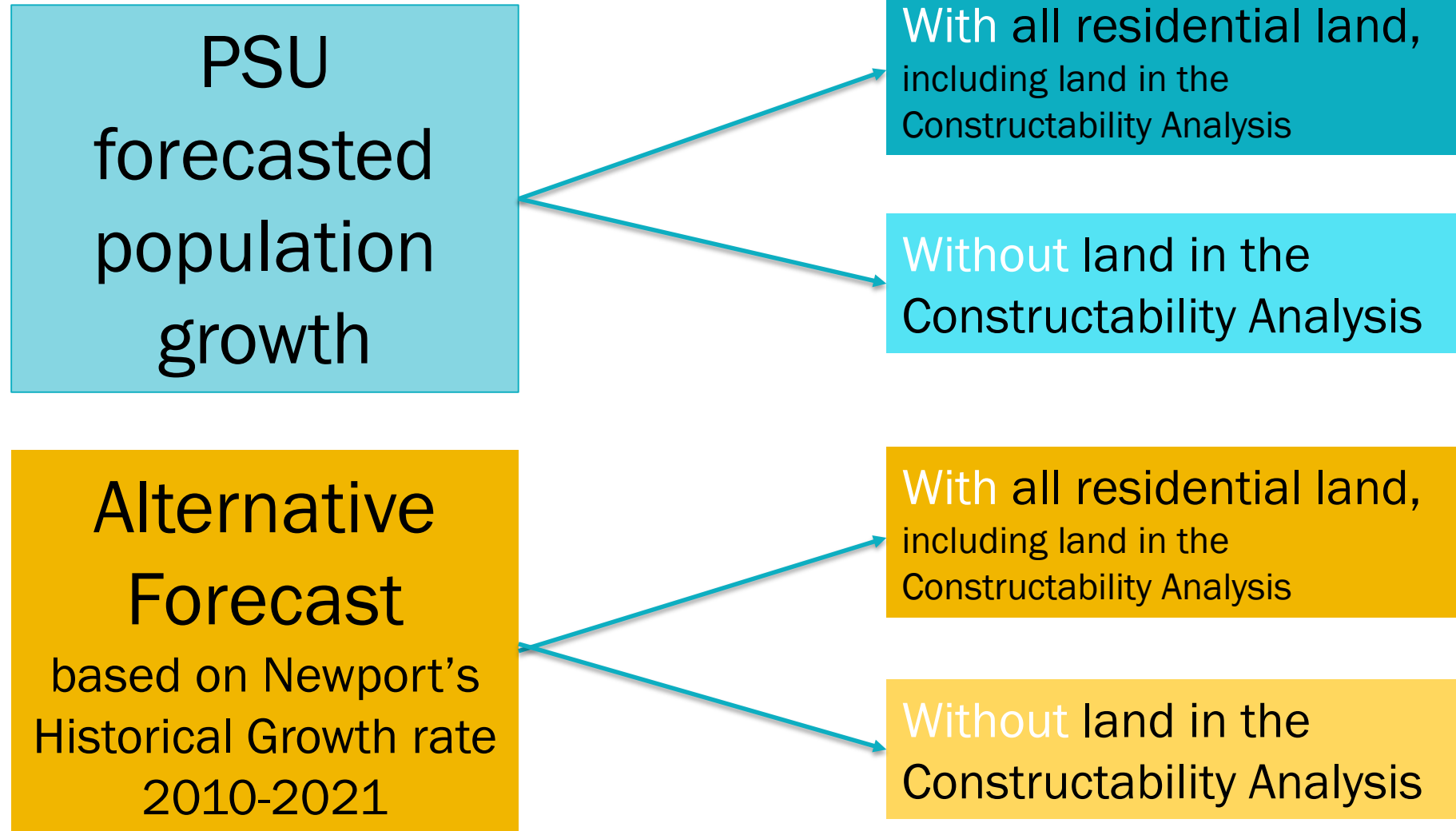


Land Sufficiency

Land Sufficiency Scenarios

2 Forecasts of Housing Growth

4 Scenarios



In all instances, land in the Planned Destination Resort Overlay is excluded

Recap: Housing Forecast, Newport UGB, 2022 to 2042

Portland State University Population Forecast

Number: 248 residents
AAGR: 0.10%

Variable	New Dwelling Units (2022-2042)
Change in persons	248
Average household size	2.21
New occupied DU	112
<i>times</i> Vacancy rate	2.6%
<i>equals</i> Vacant dwelling units	3
Total new dwelling units	115
Annual average of new dwelling units	6

Alternative Growth Forecast: Newport's Historic Growth Rate 2010-2021

Number: 1,348 residents
AAGR: 0.53%

Variable	New Dwelling Units (2022-2042)
Change in persons	1,348
Average household size	2.21
New occupied DU	610
<i>times</i> Vacancy rate	2.6%
<i>equals</i> Vacant dwelling units	16
Total new dwelling units	626
Annual average of new dwelling units	31

Forecast by Housing Type, Newport UGB, 2022-2042

Variable	PSU Population Forecast	Alternative Forecast
Needed new dwelling units (2022-2042)	115	626
Dwelling units by structure type		
Single-family detached		
Percent single-family detached DU	50%	50%
Total new single-family detached DU	58	313
Single-family attached		
Percent single-family attached DU	10%	10%
Total new single-family attached DU	12	63
Duplex, Triplex, Quadplex		
Percent duplex, triplex, quadplex	15%	15%
Total new duplex, triplex, quadplex	17	94
Multifamily (5+ units)		
Percent multifamily (5+ units)	25%	25%
Total new multifamily (5+ units)	29	157
Total new dwelling units (2022-2042)	115	626

Housing Density Assumptions

Future planned residential densities vary by plan designation.

Future Density for Housing Built in the Newport UGB, 2022-2042

Plan Designation	Avg. Net Density (DU/net acre)	% for Rights-of-Way	Avg. Gross Density (DU/gross acre)
Low Density Residential	7.0	20%	5.6
High Density Residential	20.0	21%	15.8
Commercial	30.0	15%	25.6

Note: Average net densities and net to gross calculations based on empirical analysis.

Note: DU is dwelling unit

Preliminary Land Sufficiency: PSU Forecast

Land sufficiency:

Including land in the Constructability Analysis

Plan Designation	Total Capacity (Dwelling Units)	Demand (Dwelling Units)	Capacity less Demand (Dwelling Units)
Low Density Residential	3,915	55	3,860
High Density Residential	2,468	52	2,416
Commercial	457	9	448
Total	6,840	116	6,724

Not including land in the Constructability Analysis

Plan Designation	Total Capacity (Dwelling Units)	Demand (Dwelling Units)	Capacity less Demand (Dwelling Units)
Low Density Residential	1,482	55	1,427
High Density Residential	1,457	52	1,405
Commercial	457	9	448
Total	3,396	116	3,280

Note: Does not include vacant land in the Plan Destination Resort Overlay

Preliminary Land Sufficiency: **Alternative Forecast**

Land sufficiency:

Including land in the Constructability Analysis

Plan Designation	Total Capacity (Dwelling Units)	Demand (Dwelling Units)	Capacity less Demand (Dwelling Units)
Low Density Residential	3,915	300	3,615
High Density Residential	2,468	275	2,193
Commercial	457	50	407
Total	6,840	625	6,215

Not including land in the Constructability Analysis

Plan Designation	Total Capacity (Dwelling Units)	Demand (Dwelling Units)	Capacity less Demand (Dwelling Units)
Low Density Residential	1,482	300	1,182
High Density Residential	1,457	275	1,182
Commercial	457	50	407
Total	3,396	625	2,771

Note: Does not include vacant land in the Plan Destination Resort Overlay

- Estimate Development Capacity
 - All buildable land
 - Selected buildable land based on the constructability analysis
- Housing Conversations – completed by 9/25/2022
- PAC Meeting #5: **October 13 @ 6 PM**



ECONorthwest

ECONOMICS • FINANCE • PLANNING



Los Angeles



Portland




Seattle



Boise

Memorandum

To: Planning Commission/Commission Advisory Committee
From: Derrick I. Tokos, AICP, Community Development Director 
Date: August 17, 2022
Re: Final Draft of the Yaquina Head Traffic Study

Enclosed is a final draft of the Yaquina Head Traffic Study. This Federal Highway Administration (FHWA) funded project evaluated the transportation facilities in, and adjacent to, the Yaquina Head Outstanding Natural Area (YHONA) to identify needed improvements. Work on the study was initiated in April of 2021 and completed at the end of June of this year. Planned transportation improvements were closely coordinated with those identified in the recently adopted Newport Transportation System Plan. This is particularly true with respect to the intersection at NW Lighthouse Drive and US 101, potential pathway connections to the south along US 101 (i.e. the Lighthouse to Lighthouse connection), and trail connections north into Agate Beach.

Please take a moment to review the Study and its appendices. The City of Newport and Bureau of Land Management (BLM) have a grant application under review with FHWA's Federal Lands Access Program (FLAP) to fund a portion of the Lighthouse to Lighthouse pathway connection and it might be advantageous to have the Yaquina Head Traffic Study officially acknowledged by the City before FHWA acts on the request. BLM and its consultants actively sought to engage stakeholders when identifying needed improvements, and that effort is documented in the Study and Appendix A.

The Yaquina Head Traffic Study must be adopted, by reference, into the Newport Comprehensive Plan in order for it to be officially acknowledged by the City. That process can be initiated by motion of the Planning Commission and there will be an opportunity for the Commission to make that motion at its regular meeting.

Attachments

Yaquina Head Traffic Study – Final Draft, dated 6/30/22
Appendix A: Public Involvement
Appendix B: Existing and Projected Conditions Memo
Appendix C: Alternatives Analysis
Appendix D: Cost Estimates

JUNE 30, 2022



YAQUINA HEAD Traffic Study



Prepared for:
**FHWA - WESTERN FEDERAL
LANDS HIGHWAY DIVISION**
Vancouver, WA



In coordination with:
BUREAU OF LAND MANAGEMENT
Newport, OR



Prepared by:
ROBERT PECCIA & ASSOCIATES
Helena, MT

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ABBREVIATIONS & ACRONYMS

ADA	Americans with Disabilities Act
AFM	Automated Fee Machine
BLM	Bureau of Land Management
CATEX	Categorical Exclusion
DOI	Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FAST	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FLAP	Federal Lands Access Program
FLTP	Federal Lands Transportation Program
FLMA	Federal Land Management Agency
FONSI	Finding of No Significant Impact
FOYL	Friends of Yaquina Lighthouses
IJA	Infrastructure Investment and Jobs Act
mph	miles per hour
MUTCD	Manual on Uniform Traffic Control Devices
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
OC	Oversight Committee
OCT	Oregon Coast Trail
ODOT	Oregon Department of Transportation
ONA	Outstanding Natural Area
PIP	Public Involvement Plan
RPA	Robert Peccia and Associates
SHPO	State Historic Preservation Officer
SUP	Shared Use Path
THPO	Tribal Historic Preservation Officer
TSP	Transportation System Plan
USC	United States Code
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
WFL	Western Federal Lands



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The following individuals provided guidance and support throughout the course of this study.

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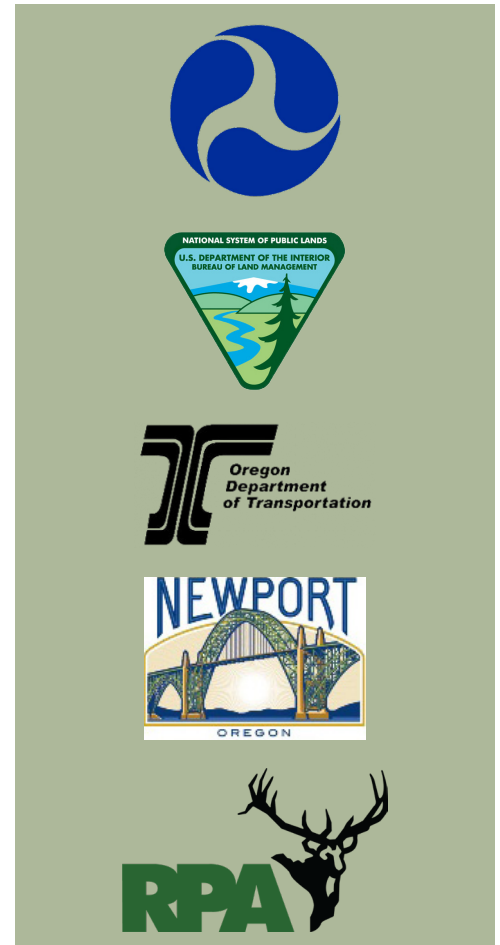
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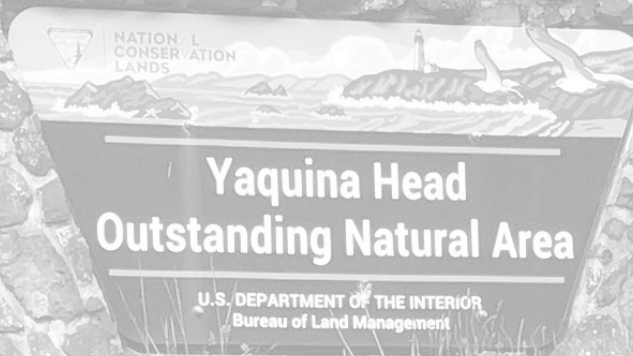
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YAQUINA HEAD

Traffic Study



Source: BLM

Chapter 1: Introduction

The Federal Highway Administration (FHWA) Western Federal Lands Highway Division (WFL) and the Bureau of Land Management (BLM) conducted the Yaquina Head Traffic Study to evaluate the Yaquina Head Outstanding Natural Area (ONA) and identify improvements to address site needs while considering public and stakeholder input, environmental constraints, constructibility challenges, and financial feasibility. Understanding the history and recreational opportunities at the site helps provide context for determining needs and potential improvements

1.1. STUDY AREA

Yaquina Head ONA is a 100-acre protected area managed by the BLM and officially designated by the United States Congress to provide for the conservation and development of the scenic, natural, and historic values of the area; the continued use of the area for education, scientific study, and public recreation; and protection of the wildlife habitat of the area.

Yaquina Head ONA is located on the central coast of Oregon at the north end of the City of Newport in Lincoln County. The ONA is located on a headland extending nearly one mile into the Pacific Ocean. At the point of the basalt headland is the Yaquina Head Lighthouse, Oregon's tallest lighthouse.

The ONA is accessible via Lighthouse Drive which is a one-mile-long, two-lane road that begins at the intersection with the Oregon Coast Highway (US Highway 101 [US 101]) at mile post 137.61. The ONA boundary begins about 0.2 mile west of the intersection. **Figure 1** presents the Yaquina Head ONA study area. The ONA site serves as the primary focus area for this study, although parking facilities and multimodal corridors outside the Yaquina Head ONA boundary are also considered in the context of connectivity and access for ONA visitors.

1.2. SITE HISTORY

The Yaquina Head Lighthouse (originally called the Cape Foulweather Light at Yaquina Point) was built in 1872. It is just one in a string of lighthouses strategically planned along the Pacific Coast by the US Lighthouse Service to allow mariners to sail the rocky coastline after dark.

In the early days, the area was wilderness with limited access to the lighthouse. The US Lighthouse Service extended a rough wagon road to bring supplies from the docks at Newport to the light station at Yaquina Head traveling partially along Agate Beach. Construction materials and supplies were mainly delivered to the small cove just south of the headland, where workers hauled them up the bluff, eventually using a tramway built in 1885 at present-day Cobble Beach. Along with the construction of the lighthouse and its associated oil house, a large dwelling for two keepers and their families was built east of the lighthouse tower. Other structures included a smaller keeper's dwelling, barn, water tank, cisterns, and a workshop. Keepers and their families raised livestock and tended a kitchen garden to supply herbs, fruits, and vegetables. As the wagon road gradually improved, early automobiles brought increasing numbers of visitors to the lighthouse and reduced the need for the keepers to tend a garden and raise livestock.



FIGURE 1: STUDY AREA

In 1966, a computer was installed at Yaquina Head Lighthouse and a resident keeper was no longer needed on the grounds. The unoccupied keeper's quarters eventually fell into disrepair and were eventually removed in 1984. Today, only the lighthouse, oil house, water tank, and garden remain at the site.¹

Between 1917 and 1983, quarrying activity removed huge amounts of basalt rock from Yaquina Head, carving out present-day Quarry Cove and the site of the Interpretive Center. Basalt rock from the quarries was crushed into gravel and used for various road construction projects, including US 101. In the 1970s, nearby residents expressed concerns about the impacts of the quarry activity, including the changing shape of the headland.² On March 5, 1980, US Congress designated about 100 acres of Yaquina Head as an Outstanding Natural Area to protect the unique scenic, scientific, educational, and recreational values of the lands. BLM now acts as caretaker for the site, conserving and protecting its natural values for all to enjoy. Ongoing efforts are focused on eliminating non-native vegetation and reintroducing native plants to improve habitat for wildlife and preserve the cultural landscape. Yaquina Head ONA also offers space to conduct research, collect data, and house monitoring equipment for many areas of science including geology, paleontology, biology, marine biology, archaeology, history, and social science.³

1.3. RECREATIONAL OPPORTUNITIES

Yaquina Head ONA provides multiple recreation opportunities including seal, sea bird, and wildlife viewing; whale watching; tide pooling; and numerous walking and biking trails. The offshore islands provide a year-round refuge for harbor seals and a spring-summer home for thousands of nesting seabirds. Gray whales can be spotted during their annual migrations to Mexico (during late fall-early winter) and Alaska (during late winter-early spring). During the summer months some gray whales feed in the shallow waters around the headland. Cobble Beach, named for the smooth, dark, rounded basalt stones that cover the beach, offers some of the best tidepool exploration in the area. When the tide is low, a vibrant ocean floor is revealed with pools of colorful animals including orange sea stars, purple sea urchins, and giant green anemones.



Source: Rudy W. Tschernich
This 1975 photo shows the upper level of the Yaquina Head quarry where the present day Interpretive Center is located.

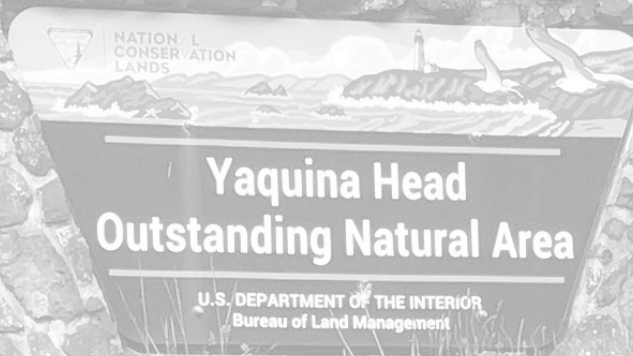
For a brief time, Quarry Cove provided access to the nation's only wheelchair-accessible tidepools. However, the ocean continually deposited sand in the pools, so the BLM decided to instead maintain Quarry Cove as an *Americans with Disabilities Act* (ADA)-accessible beach.

Many local residents regularly walk their dogs at the site. Leashed dogs are allowed on all trails and beaches but are not allowed inside the Interpretive Center or lighthouse. Walking, hiking, and biking are popular for both locals and out-of-area visitors to enjoy stunning views of the Oregon coast.

Other users visit Yaquina Head ONA to surf or hang/paraglide. Communications Hill Trail provides access to 2 hang/paragliding launch sites. Pilots are instructed to check in with ONA staff prior to flying as there is at least one closure or restriction in force at all times. There are also several good viewpoints to watch these recreationists.

Guests are encouraged to visit the Interpretive Center to view exhibits, presentations, and videos on seabirds and marine life as well as human history on the headland. The center also features the wheelhouse of an historic ship, a recreated rocky island and its inhabitants, and a full-scale replica of the lighthouse lantern. For many years, peregrine falcons have built nests on the cliffs above the Interpretive Center. Visitors often congregate in the Interpretive Center parking lot to watch the falcons.

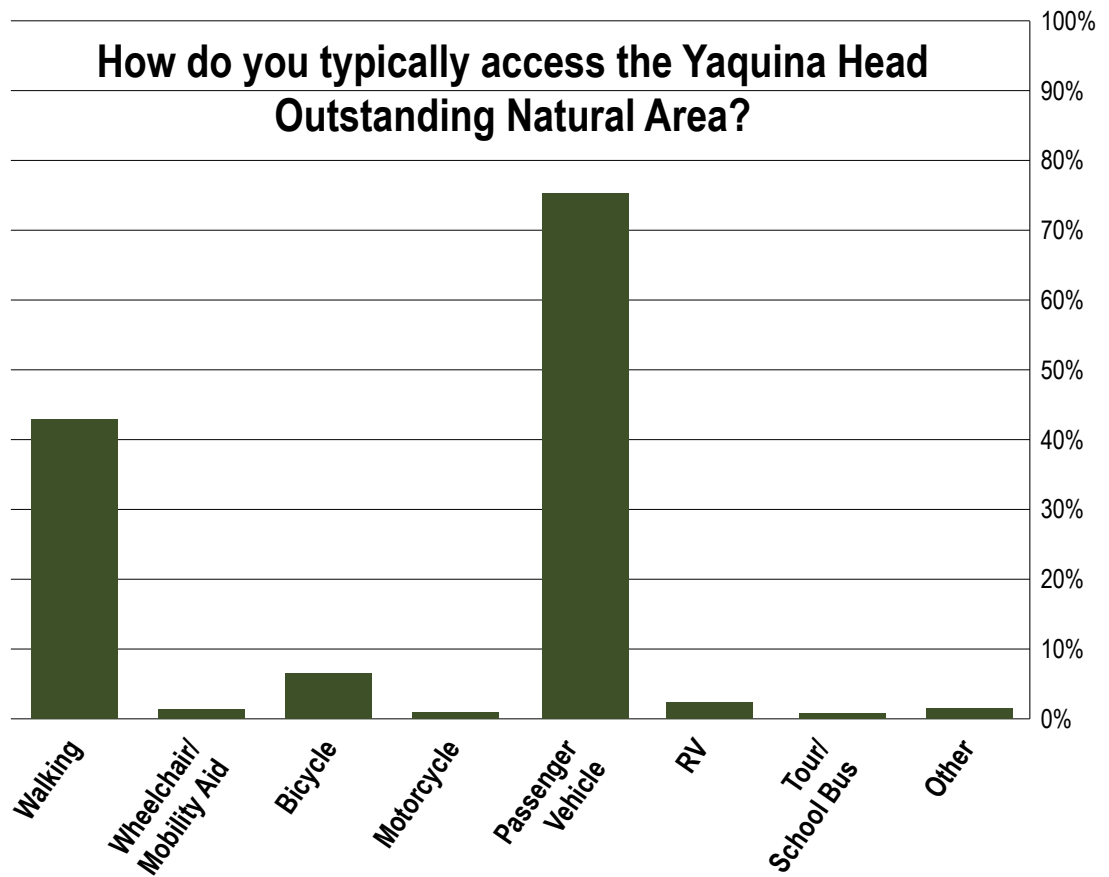
BLM staff and volunteers are available for visitors to ask questions. When weather and staffing conditions permit, ranger-led lighthouse tours are also offered.



YAQUINA HEAD

Traffic Study

How do you typically access the Yaquina Head Outstanding Natural Area?



Yaquina Head Traffic Study Survey - Summer 2021

Chapter 2: Outreach and Public Involvement

Education and public outreach are essential parts of fulfilling the responsibility to inform the public about the study process. Public involvement is critical to ensure the study reflects visitor and local community needs, issues, and values. Comments from the public foster cooperation and help BLM staff and local officials make informed decisions.

2.1. PUBLIC INVOLVEMENT PLAN

A *Public Involvement Plan* (PIP) was developed early in the study process to guide public participant opportunities throughout the study. The PIP outlined key audiences and proposed public participation strategies and opportunities for engagement with members of the public and stakeholders. The goal of the PIP was to facilitate ongoing public engagement throughout the study process to ensure the needs and concerns of all Yaquina Head ONA site users were appropriately identified and addressed. Using the PIP as a starting point, engagement activities were tailored over the course of the study in response to site, staffing, participant, and health and safety considerations. Specific public outreach activities that were conducted are noted in this chapter. Materials, such as press releases, advertisements, informational sheets, flyers, newsletters, and the survey summary are provided in **Appendix A**.

2.2. ONGOING PUBLIC ENGAGEMENT

Multiple involvement opportunities enabled participants to engage in the study process at their convenience. Key audiences included state and local officials, stakeholder organizations, and the public.

EMAIL CONTACT LIST

The study email contact list included individuals, organizations, or other groups with knowledge and interest in the study area as well as individuals who attended public meetings or signed up for the email list. Emails were sent to notify study contacts of key milestones during study development.

STUDY WEBSITE

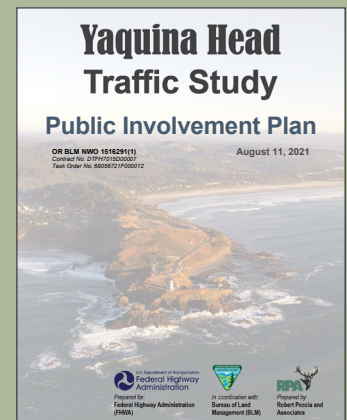
A website (<https://www.yaquinalights.org/yaquina-head-traffic-study/>) was developed to encourage public interaction and to provide information. The website was hosted by Friends of Yaquina Lighthouses (FOYL) and contained contact information, an overview of the study purpose, study announcements, newsletters, maps, and study documents. The planning team updated the website throughout the study process as new information and materials became available.

2.3. TARGETED OUTREACH

Targeted outreach activities were scheduled to share important study information, obtain meaningful input and dialogue about the study process, and to identify important considerations for potential improvements. The following outreach activities were conducted to interact with the study oversight committee (OC), stakeholders, and the public.

2.3.1. Oversight Committee (OC)

A study OC was established with representatives from FHWA, BLM, Oregon Department of Transportation (ODOT), and the City of Newport. The OC met throughout the course of the study to discuss progress, review materials, and provide feedback. The committee provided guidance to the consulting team and reviewed study documentation before publication.



Yaquina Head Traffic Study
Public Involvement Plan Cover



Yaquina Head Traffic Study
website homepage



2.3.2. Public Outreach

Public outreach activities were conducted at key points during the planning study. The first outreach effort occurred during the initial evaluation of existing and projected conditions. The second outreach coincided with the release of the *Existing and Projected Conditions Memorandum*, and the third outreach event was conducted in tandem with release of the draft *Yaquina Head Traffic Study*.

PUBLIC OUTREACH #1 – SUMMER 2021

The first public outreach effort took place between August 13 and September 10, 2021, and consisted of a public survey and launch of the study website. The purpose of this initial outreach effort was to explain the study process and gather information from the public and stakeholders to identify issues and concerns relating to the site. The effort allowed members of the public to learn about the study and provide feedback about transportation-related issues and concerns.

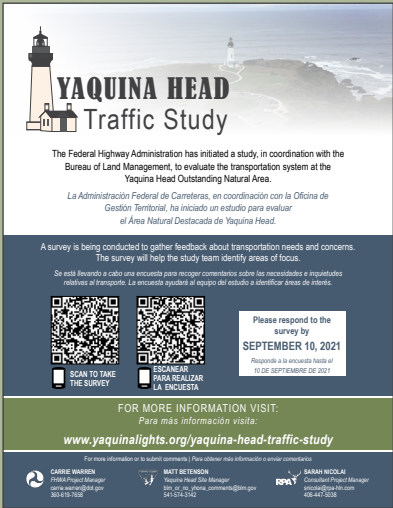
Members of the consultant team, BLM, and FHWA were onsite at the ONA to kick off the outreach effort and boost participation in the survey. Team members set up a booth at the ONA on August 13th with tablets available for the public to take the survey. The team was also available to answer questions about the study. Before the site opened in the morning, the team was stationed at the entrance station to catch neighborhood residents walking into the site outside of normal operating hours. In the late morning/early afternoon, the team was stationed at the lighthouse.

Several methods, including print and electronic formats developed in both English and Spanish, were used to notify the public and stakeholders of the survey and website and to promote overall engagement. The website contained links to the survey in both English and Spanish, a brief video explaining the study process, and the study newsletter. An email update was sent to the study contact list announcing the study, survey, and website. Flyers were posted around the site and handed out to public venues in Newport (including the library, post office, recreation center, and local businesses). Newsletters explaining the study process and announcing the survey were available at the Interpretive Center gift shop. Small handouts with a QR code directing visitors to the survey were given to BLM staff to provide to visitors throughout the survey duration. A news release was also shared with local media outlets.

The survey was an opportunity for visitors to share concerns and ideas regarding transportation at Yaquina Head ONA to help the team identify areas of focus for the study. A total of 251 respondents participated in the survey.

PUBLIC OUTREACH #2 – WINTER 2022

The second public outreach effort occurred in February 2022 corresponding with release of the *Existing and Projected Conditions Memorandum*. Outreach activities included updated website content, posts on the FOYL social media accounts, and an email to the study contact list announcing availability of the report. A summary of key findings from the analyses contained in the report was also provided.



YAQUINA HEAD Traffic Study

The Federal Highway Administration has initiated a study, in coordination with the Bureau of Land Management, to evaluate the transportation system at the Yaquina Head Outstanding Natural Area.




La Administración Federal de Carreteras, en coordinación con la Oficina de Gestión Territorial, ha iniciado un estudio para evaluar el Área Natural Destacada de Yaquina Head.

A survey is being conducted to gather feedback about transportation needs and concerns. The survey will help the study team identify areas of focus.

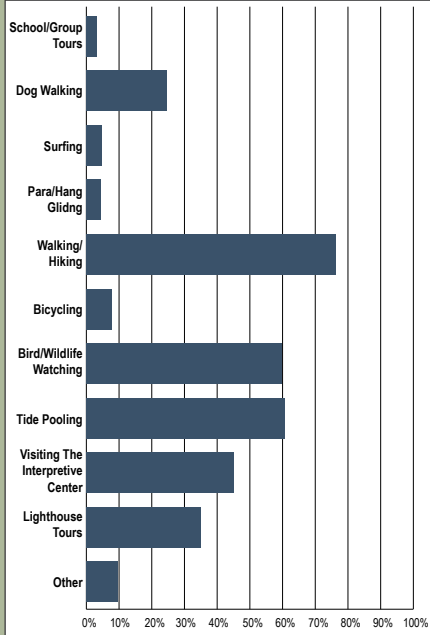
Se está llevando a cabo una encuesta para recoger comentarios sobre las necesidades e inquietudes relativas al transporte. La encuesta ayudará al equipo del estudio a identificar áreas de interés.

Please respond to the survey by **SEPTEMBER 10, 2021**
Responde a la encuesta antes el **10 DE SEPTIEMBRE DE 2021**

FOR MORE INFORMATION VISIT:
Para más información visita:
www.yaquinahlights.org/yaquina-head-traffic-study


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Flyer for public outreach #1 posted at the site and around Newport



Activity	Percentage
School/Group Tours	~5%
Dog Walking	~25%
Surfing	~5%
Para/Hang Gliding	~5%
Walking/Hiking	~75%
Bicycling	~10%
Bird/Wildlife Watching	~55%
Tide Pooling	~55%
Visiting The Interpretive Center	~45%
Lighthouse Tours	~35%
Other	~10%

Survey results from August 2021: Which activities have you participated in during visits to the ONA?



Friends of Yaquina Lighthouses
March 3 at 12:05 PM · 🌐

The Existing and Projected Conditions Report for Yaquina Head Outstanding Natural Area is now available! The report analyzes transportation and environmental conditions and identifies areas of concern within the study area. The analysis will influence the development of potential improvement options to address the identified areas of concern.

To review the report, please visit the study website: <https://www.yaquinahlights.org/yaquina-head-traffic-study/>

YAQUINAHEADS.ORG
Yaquina Head Traffic Study | Friends of Yaquina Lighthouses
Yaquina Head Traffic Study Announcement: The Existing and Projected Conditions Report is available for review! The Existing and Projected Conditions Report is now complete. The report analyzes transportation and...

11 Likes · 2 Shares

Social media post on FOYL Facebook page

YAQUINA HEAD Traffic Study

PUBLIC OUTREACH #3 – SPRING 2022

A third public outreach effort was conducted from May 16 to June 17, 2022, corresponding with release of the draft *Yaquina Head Traffic Study*. Outreach activities included updated website content and a postcard and email to the study contact list announcing availability of the report. A total of five written public comments were received. A list of the comments and responses are provided in **Appendix A**.



Postcard mailers were sent to the properties neighboring Yaquina Head ONA to announce the release of the draft traffic study and opportunity for public and stakeholder comment.

2.4. PUBLIC AND STAKEHOLDER FEEDBACK

Public and stakeholder comments were collected and considered throughout the study process. A public survey was conducted to understand public priorities, needs, and visiting characteristics. Common themes relating to primary topics of interest are summarized in this section. A summary of comments received over the course of the study is provided in **Appendix A**.

ENTRANCE STATION



Visitors and staff are frustrated with the congestion at the entrance. To help alleviate congestion during peak periods, staff stand in traffic to conduct “line busting” which involves standing in live

traffic between traffic cones and directing pass holders to proceed to the left side of the booth through one of the lanes typically used for outbound traffic. An extra lane would be helpful to allow pass users, deliveries, and staff to bypass visitor lines or expedite visitor processing time. A reservation system, especially during peak periods, could also be helpful. Hours and fees should be posted near the US 101 intersection, and a turn-around opportunity should be provided before the fee booth.



PARKING (GENERAL)

The use of RV/bus and ADA parking spaces should be better enforced, and more of each type of parking stall is desired. Additional offsite parking may be beneficial to encourage walking/biking into the site. Electric vehicle/bicycle charging stations could also be helpful. Parking by Communications Hill is useful for hang/paragliders.

VEHICLES



Minimizing vehicle access is desirable to some visitors. Consideration of noise and pollution impacts of vehicles is a concern. Improvements should be sensitive to traffic fluctuations throughout the year, not just addressing peak periods.

PEDESTRIANS



Better accessibility for disabled individuals is desired. Sidewalks or separated paths along Lighthouse Drive (from US 101 intersection and ONA entrance) are also desired. Improved visibility

at crosswalks would be beneficial, especially near the Keeper's Garden. Providing walking distances on maps may help promote walking.

SAFETY



Speed enforcement is desirable and speed bumps were suggested to help slow vehicles. Lowering the speed limit through the site and providing speed feedback signs may also help reduce speeds. Providing physical separation of vehicles from pedestrians and bicyclists may help increase user comfort and safety. There are active landslides within the site, especially near the entrance station. Visitor safety is a concern in a landslide event.

LIGHTHOUSE PARKING AVAILABILITY



Visitors expressed frustrations regarding the cones forcing vehicles into the Interpretive Center lot, especially when the lighthouse lot was not full. A display of the number of open spots at the lighthouse could

be helpful, or at least a sign indicating that the lighthouse lot is full. Better indication of distances/walking options at the Interpretive Center would help promote more walking to the lighthouse. Consider potentially limiting parking/driving to the lighthouse to disabled individuals and tour groups.

MULTIMODAL OPTIONS



A shuttle is desired by some to limit vehicle use at the site. BLM could consider coordinating with other Oregon Coast recreation sites. Additional trails are also desired. Bike access from US 101 is perceived as unsafe. Improving public transportation to the site is desirable.

EMERGENCY RESPONSE



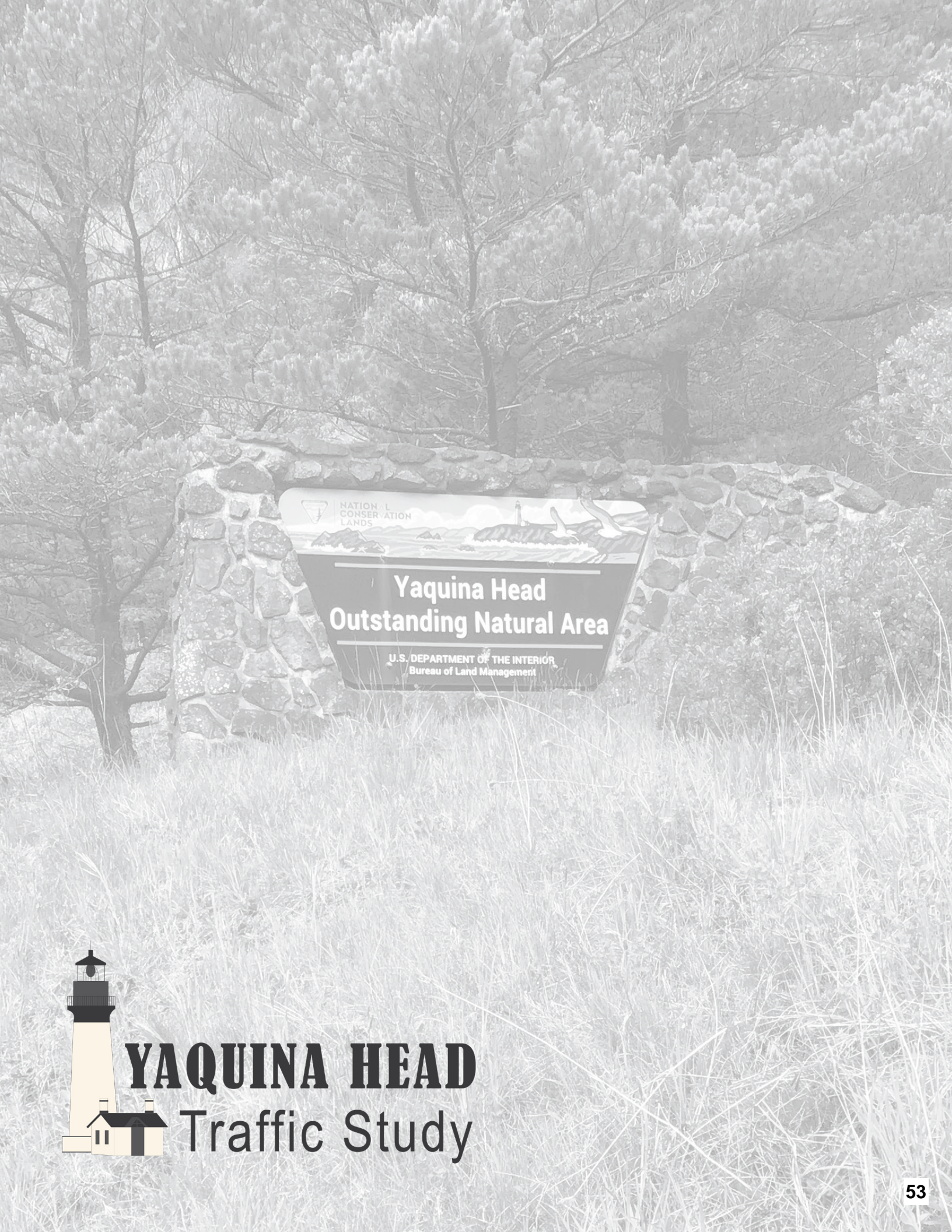
Consideration of how improvements would function during emergencies is important. Improvements should address emergency transportation issues both for small-scale and large-scale emergencies, such as fire, earthquake, or tsunami. A threshold of maximum capacity should be considered to allow safe evacuation in the event of an emergency.

OTHER



Other general comments that were received throughout the planning process are summarized below.

- Access for hang gliders and paragliders is very appreciated.
- The rangers are extremely helpful and friendly, and communicating with them enhances the visitor experience.
- Drone use at the site is not desirable.
- Road improvements/maintenance on Lighthouse Drive are needed.
- Closing at sunset makes it difficult for visitors to obtain sunset photos.
- Protecting the environment is important to visitors.
- Moving the gates before the fee station could help with management of the site during off hours.
- Theft has occurred in the past and increased security of the site is desirable.



YAQUINA HEAD

Traffic Study



Chapter 3: Transportation System

*The study evaluated the existing transportation system to establish the current traffic conditions and to identify areas of concern. The following analysis of transportation conditions includes an examination of existing traffic data, vehicle crash history, field observations, pavement conditions, aerial imagery, and geographic information system data. Existing data were provided by ODOT, and additional traffic data were collected by RPA in 2021. The available information supplemented with the collected data were used to establish the existing transportation characteristics and conditions. **Appendix B** provides additional details about existing and projected transportation conditions within the study area*

3.1. PHYSICAL FEATURES AND OPERATIONAL CHARACTERISTICS

Lighthouse Drive serves multiple residential and commercial areas and provides access to Yaquina Head ONA. The following sections discuss physical features and operational characteristics of the roadway and adjacent parking areas and multimodal corridors.

3.1.1. Roadway Surface and Width

The entirety of Lighthouse Drive is paved from the US 101 intersection to the lighthouse parking lot. From the US 101/Lighthouse Drive intersection to the Yaquina Head ONA entrance gate, the widths on Lighthouse Drive are generally 21 feet with minimal shoulders. Past the entrance gate, the widths on Lighthouse Drive vary from 24 feet to 35.5 feet in width with 1.5-foot to 6-foot shoulders. The widest stretch of roadway occurs just beyond the entrance gate. The narrowest section of roadway within Yaquina Head ONA is 12 feet and occurs on the Quarry Cove access road beyond the upper parking lot.

3.1.2. Intersecting Facilities and Traffic Control

Based on field review and aerial photography, 10 intersecting vehicular facilities occur along Lighthouse Drive, including a variety of public roadways, private approaches, recreational accesses, and parking areas. Outside the Yaquina Head ONA, existing traffic control on Lighthouse Drive consists of a traffic signal at the US 101/Lighthouse Drive intersection and stop signs on some approach roadways including NW Agate Way, the Hill Buffet and Grill driveway, and NW Rocky Way to the north. Within the Yaquina Head ONA, stop signs are placed on the Quarry Cove and Interpretive Center access roadways.



Source: Google Earth

The US 101/Lighthouse Drive intersection is signalized; all other intersecting roadways are stop controlled.

3.1.3. Traffic Circulation and Parking

Within the Yaquina Head ONA, vehicular traffic uses Lighthouse Drive to enter the site and to reach key destinations. Additionally, the Quarry Cove roadway provides access to the upper and lower parking areas at Quarry Cove. Several parking opportunities are available both within the site and the surrounding area to serve visitors. The total number of parking stalls provided in each lot is summarized in **Table 1** at the end of this section. **Figure 2** provides a map showing the locations of the available parking areas. Stakeholders have noted a desire for additional large vehicle and ADA parking stalls within the Yaquina Head ONA.

ENTRANCE STATION CIRCULATION

After entering the Yaquina Head ONA site, visitors proceed to the entrance station where they are greeted by a ranger and either pay an entrance fee or present a valid pass. For credit card purchases, visitors are directed to an automated fee machine (AFM) kiosk located just to the west of the main booth.

During peak visitation periods, a traffic queue extends along Lighthouse Drive and sometimes reaches back to the US 101 intersection, according to BLM staff.⁴ To expedite visitor processing during these times, BLM staff conduct what is called “line busting” which involves standing in live traffic between traffic cones and directing pass holders to proceed to the left side of the booth through one of the lanes typically used for outbound traffic. This can create a conflict with pedestrians walking from the AFM kiosk back to the booth to pick up a pass from the ranger.

Occasionally, drivers decide not to proceed into Yaquina Head ONA and attempt to turn around before the entrance station. These maneuvers are generally not safely accommodated by the existing traffic control and entrance configuration.



During periods of peak visitation, traffic queues at the entrance station have extended to the US 101 intersection.

QUARRY COVE CIRCULATION AND PARKING

The Quarry Cove access road is a single-lane, one-way couplet serving vehicles entering and existing the Quarry Cove recreational area. A pullout is provided on the south side of the couplet that is used for parking. In addition, 2 separate paved parking lots are available for visitor use off the Quarry Cove access road. The northern parking lot, referred to as the upper lot, consists of 12 angled parking stalls, 3 perpendicular parking stalls, 2 ADA-compliant stalls, and 3 large vehicle parking stalls. Restroom facilities are provided as well as dedicated crosswalks with access to and from the upper and lower Quarry Cove Trails. The configuration of this lot is confusing and lacks clear direction for vehicle circulation. One-way signs appear to point in opposing directions, and some personal vehicles were observed circulating through areas striped as large vehicle parking stalls. Additionally, BLM staff have reported that visitors sometimes cross the solid yellow line into the oncoming lane to reach the gated ADA access roadway.

An additional lot, referred to as the lower lot, is located on the southern side of the Quarry Cove access road. This lot contains 31 perpendicular parking stalls and 2 ADA parking spots. A small turnaround area is provided at the eastern end of the lot. This lot generally does not accommodate large vehicles due to its narrow configuration.



The Quarry Cove parking lot consists of two levels; upper (pictured) and lower. The circulation pattern of the lot can be confusing to visitors.

INTERPRETIVE CENTER CIRCULATION AND PARKING

The Interpretive Center parking lot is a popular parking area for visitors. It offers 126 perpendicular parking stalls, 4 of which are designated for Official Vehicles Only. The lot also provides 6 angled stalls and 8 ADA stalls. A lane designated for large vehicle parking is provided parallel to the parking lot entrance lane, and some drivers confuse the parking lane for a circulation route. The lane provides space for approximately 3 large vehicles. BLM staff have indicated that RVs sometimes park in the angled stalls near the maintenance building as well as in undesignated areas along the perimeter of the lot during busy times.

When the Interpretive Center is open, BLM uses traffic cones to channel westbound vehicles from Lighthouse Drive into the Interpretive Center parking lot. This configuration is used to circulate visitors through the Interpretive Center lot in the hope that visitors will park and walk down to the lighthouse rather than driving. Once inside the Interpretive Center lot, the intended circulation pattern directs visitors around the outside edge of the lot in the counterclockwise direction. Visitors often express frustration with the cones and sometimes perform unsafe maneuvers to avoid circulating or parking in the Interpretive Center lot. Some drivers have been observed swerving around the cones to continue on Lighthouse Drive, while other drivers enter the parking lot and immediately make a U-turn in order to leave the lot and continue west on Lighthouse drive. These maneuvers result in increased potential for user conflicts within the parking area and on Lighthouse Drive.



When the Interpretive Center is open, BLM staff set out cones forcing visitors into the Interpretive Center parking lot. The cones are sometimes bypassed and can be confusing to visitors.

A small pet relief area is provided northeast of the parking lot with a short loop trail/mowed corridor. Pedestrian access to the lighthouse is provided from this lot via the Lighthouse Trail which wraps around the Interpretive Center, crosses under Lighthouse Drive, and continues along the south edge of Lighthouse Drive. Some visitors were observed walking from the parking lot to the intersection with Lighthouse Drive and then continuing west along Lighthouse Drive, despite the lack of dedicated pedestrian facilities on this route.

LIGHTHOUSE CIRCLE CIRCULATION AND PARKING

The lighthouse parking area is a one-way loop with angled parking around the outside edge. Access to the Yaquina Head lighthouse and Cobble Beach are provided on the western edge of this lot. A small area with additional parking is also provided off the east side of the parking lot, providing direct access to Salal Hill Trail, restroom facilities, and a small maintenance building.

In total, the lot provides 26 angled parking stalls, 11 perpendicular stalls, 3 designated ADA stalls, 2 stalls for Official Vehicles Only, and 3 stalls designated for large vehicle parking. Sidewalk is provided along the outside edge of the parking lot, however, pedestrians are often observed walking across the center island and within the vehicle travel lanes as a shortcut to reach their desired destination.



The RV stalls in the lighthouse parking lot are sometimes occupied by personal vehicles.

ERNEST BLOCH MEMORIAL WAYSIDE PARKING

The Ernest Bloch Memorial Wayside parking area is located adjacent to US 101 and is accessed from NW Gilbert Way. The lot offers 65 perpendicular parking stalls, 3 large vehicle stalls, and 3 designated ADA stalls. A crosswalk is provided across NW Gilbert Way allowing access from adjoining sidewalks next to the parking area. Some visitors choose to park in this area and walk into the Yaquina Head ONA, despite the lack of designated pedestrian facilities between US 101 and the Yaquina Head ONA site.

INFORMAL PARKING

Several informal parking areas are located within the site, including along the Quarry Cove access road and on Lighthouse Drive. A small parking area exists approximately 130 feet west of the US 101/Lighthouse Drive intersection that offers 11 parking stalls and allows visitors to walk down to the beach or to Yaquina Head ONA. The pullouts on Lighthouse Drive within the ONA are often used by visitors for parking, although BLM staff indicated these pullouts are provided as short-term viewpoints and are not intended for long-term parking purposes. Staff also noted concerns about visitors attempting to park in these pullouts with the end of their vehicles partially in the roadway. Some visitors, especially hang/paragliders, also park in the widened area at the base of Communications Hill.



The Ernest Bloch Memorial Wayside parking lot is located approximately in the southwest quadrant of the US 101/Lighthouse Drive intersection.



A few small pullouts are located on Lighthouse Drive. The pullouts are intended to be for short-term photo opportunities but are often used for longer-term parking.

TABLE 1: AVAILABLE PARKING

Parking Lot	Perpendicular Stalls	Angled Stalls	ADA Stalls	Large Vehicle Stalls	Official Vehicles Only Stalls	Total Stalls
Quarry Cove (Upper)	12	3	2	3	--	20
Quarry Cove (Lower)	31	--	2	--	--	33
Interpretive Center	122	6	8	~3	4	143
Lighthouse Circle	11	26	3	2	3	45
Ernest Bloch Memorial Wayside	65	--	3	3	--	71
Informal Parking*	--	11	--	--	--	11
Total Stalls	241	46	18	11	7	323

**Only marked parking stalls are included.*

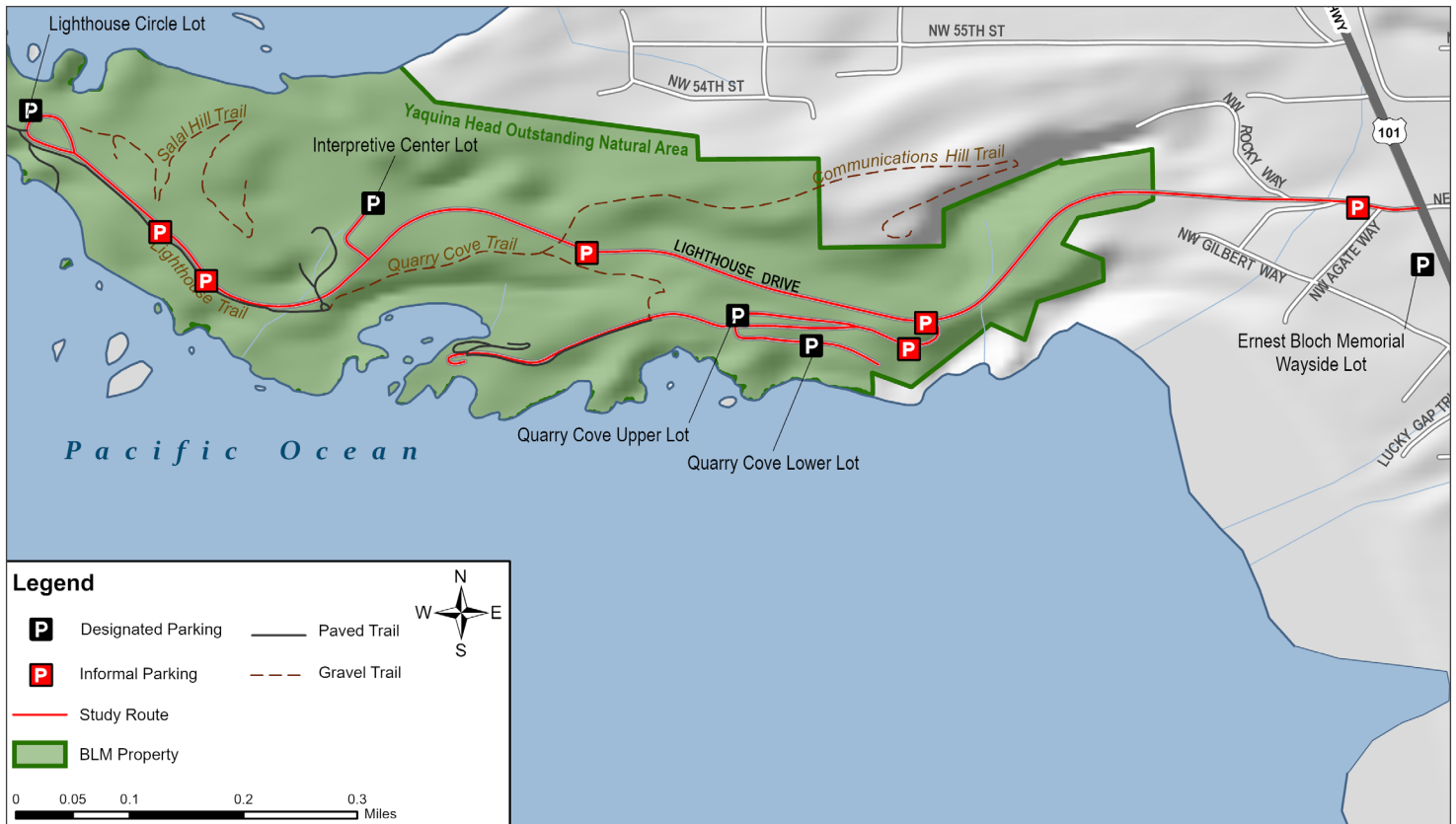


FIGURE 2: PARKING

3.1.4. Utilities

Several utilities are located within the Lighthouse Drive corridor including underground telephone, gas, power, water, and sanitary sewer. The utilities are generally located along the roadway centerline with meters located sporadically along the corridor on both sides of the roadway. Overhead power and telephone lines also cross Lighthouse Drive about 400 feet west of the US 101/ Lighthouse Drive intersection.

The US Coast Guard maintains the facilities at the top of Communications Hill. The site includes communications equipment for aircraft, a cell phone tower, and research equipment for Oregon State University. Vehicular access to Communications Hill will need to be maintained so these facilities can be properly serviced.

An AFM is located at the entrance gate outside of the fee booth and is used to collect credit card payments. Electrical utilities including a high voltage switch pad, telephone utilities, and a meter are located at the entrance station. Additionally, the entrance booth includes a staff restroom served by water and sanitary sewer utilities.

3.1.5. Bridges and Culverts

Three intermittent unnamed streams cross Lighthouse Drive. The first stream crosses Lighthouse Drive approximately 250 feet west of the US 101 intersection. The second stream crosses Lighthouse Drive at the entrance station. The third stream crosses Lighthouse Drive near the Interpretive Center. No drainage features for these streams were identified based on available as-builts and field survey.



Utilities are provided near the entrance station for the AFM.

One culvert was identified on Lighthouse Drive during field investigations. The culvert was located approximately 200 feet west of the Quarry Cove entrance roadway. A few drainage culverts are also located near the Interpretive Center in the vicinity of Lighthouse Trail. Supplemental review of available as-built drawings confirms no other hydraulic features within the Yaquina Head ONA boundary.

3.1.6. Right-of-Way

BLM recently performed a boundary retracement to confirm their property boundary. The BLM right-of-way boundary occurs approximately 0.2 mile west of the US 101/Lighthouse Drive intersection. As seen in **Figure 3**, the BLM right-of-way is fairly wide with the exception of a pinch point just before the entrance station, where there is approximately 15 feet between the BLM boundary and the edge of the existing pavement. The northern BLM boundary borders the adjacent subdivisions. A city-owned water tank is also located just north of the BLM boundary and there has been discussion from the city about possibly moving the water tank or replacing it with a pump.

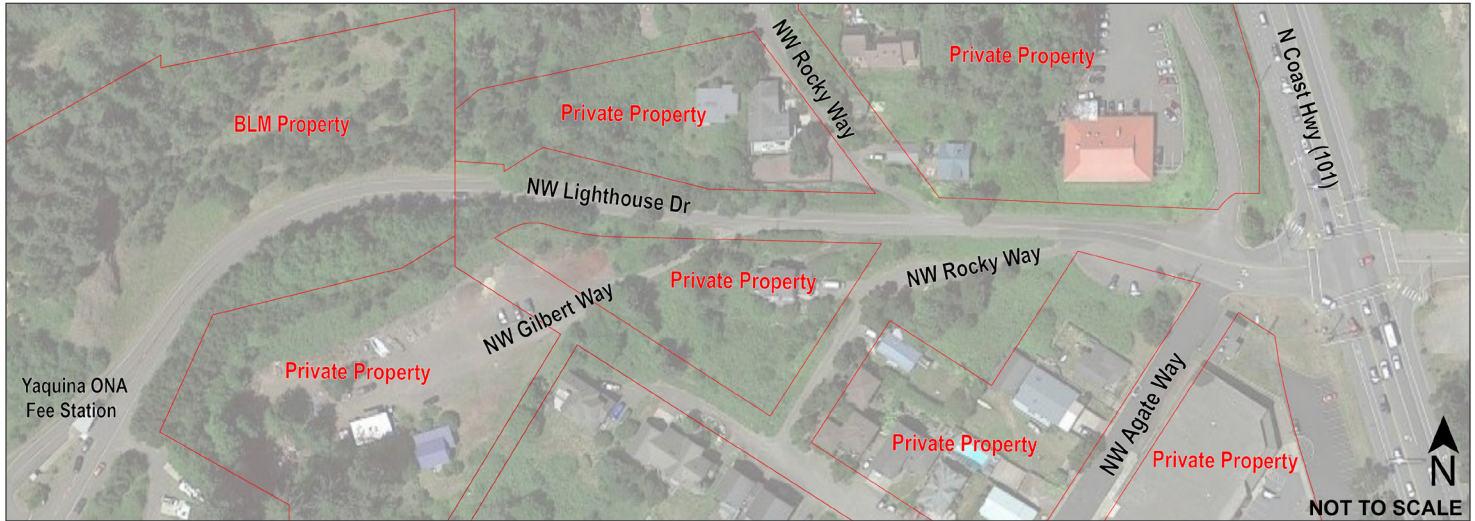


FIGURE 3: RIGHT-OF-WAY MAP

3.1.7. Maintenance Responsibility, Activities, and Vulnerabilities

ODOT is responsible for maintenance of US 101 and the Ernest Bloch Memorial Wayside parking area. The City of Newport is responsible for maintenance of Lighthouse Drive west of the US 101 intersection to the Yaquina Head ONA boundary. BLM is responsible for maintenance of Lighthouse Drive beginning at the Yaquina Head ONA boundary as well as all trails, parking areas, and buildings within the Yaquina Head ONA boundary.



BLM uses crack sealing techniques to repair cracks in the pavement at the ONA.

Historical asphalt maintenance records were provided by Yaquina Head ONA staff. The records include contract work dating back to 1998 and more recent maintenance work completed internally by BLM facilities staff. Records show that BLM staff conducts periodic maintenance including application of slurry seal, striping, and crack sealing.

Several locations along the Lighthouse Drive corridor have experienced pavement failures including transverse and longitudinal cracking and sloughing. The cause of these failures is typically a weakened or deteriorating subgrade. This distress on the pavement can be caused by a variety of factors including poor drainage, erosion, frost heave, lack of compaction, or weak materials. BLM staff noted an ongoing issue with sloughing on the Quarry Cove access road, which was previously filled and patched but continues to deteriorate.

3.1.8. Alternative Transportation Facilities and Services

PEDESTRIAN AND BICYCLES

Multiple pedestrian and bicycle opportunities are provided at Yaquina Head ONA. Visitors entering the site on foot or by bike do not have to pay amenity fees. Once inside the ONA, pedestrian trails range in difficulty and surface type. Bicycles are only allowed on paved areas of the site and on the Communications Hill Trail. **Table 2** summarizes trails at Yaquina Head ONA, and **Figure 4** displays them graphically.

TABLE 2: YAQUINA HEAD ONA PEDESTRIAN AND BICYCLE TRAILS

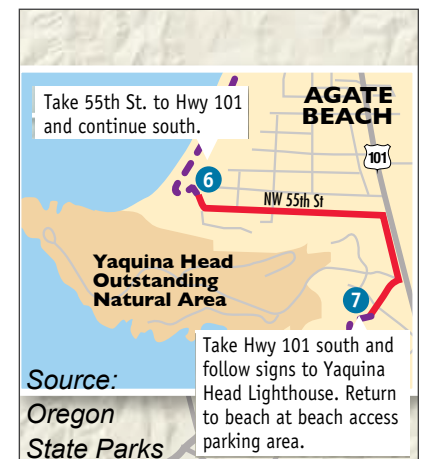
Trail Name	Rating	Walking Time	Steepest Grade	Surface Type	Bicycles Allowed?	Wheelchair Accessible?	Notes
Quarry Cove Trail (Lower)	--	--	--	Paved	--	Yes	<ul style="list-style-type: none"> Access to Quarry Cove ADA Beach Disabled users can drive down to beach
Quarry Cove Trail (Upper)	Most Difficult	10 minutes each way (to Interpretive Center)	33%	Gravel	No	No	<ul style="list-style-type: none"> Steep concrete stairs Connection to Communications Hill and Lighthouse Trails
Lighthouse Trail	Most Difficult	10 minutes each way (to Interpretive Center)	8%	Asphalt	No	Yes	<ul style="list-style-type: none"> Paved path on south side of Lighthouse Drive separated from the roadway by guardrail Access to Cobble Beach via steep wooden stairs
Salal Hill Trail	Moderate	25-30 minutes round trip	36%	Unimproved	--	No	<ul style="list-style-type: none"> Accessed from lighthouse parking lot behind the keeper's garden leading to a point above the Interpretive Center
Communications Hill Trail	Most Difficult	15 minutes each way	15%	Gravel Road	Yes	No	<ul style="list-style-type: none"> Trailhead to hang/paragliding launch sites Primitive trail to water tank and Agate Beach neighborhood
Lighthouse Access	--	--	--	Sidewalk	--	Yes	<ul style="list-style-type: none"> Recently reconstructed sidewalks from lighthouse parking lot to lighthouse and observation decks

-- Not stated on trail signs.

Source: Bureau of Land Management, Trail Wayfinding signs, viewed on site in May 2021.

Other designated trails or pedestrian/bicycle routes in the vicinity of the study area are listed as follows.

- **Lighthouse to Lighthouse Trail:** Lighthouse Drive is featured as part of the 10-mile trail on Newport's published bike maps. The route connects the Yaquina Bay and Yaquina Head Lighthouses traveling mainly on city streets and US 101.
- **Oregon Coast Bike Route:** US 101 between the northern and southern Lincoln County lines is a designated bike route on the Lincoln County Bicycle Route Map. Bike lanes are provided on US 101 through the study area.
- **Oregon Coast Trail (OCT):** A 362-mile hiking trail follows the Oregon coastline along beaches, state parks, public lands, US 101, city streets, and some easements on private property. Some sections called "gap sections" are identified in areas that are disconnected, inconvenient, unsafe, or inaccessible during certain seasons. The Agate Beach gap section instructs trail users to take 55th Street to US 101 and continue south following signs to Yaquina Head Lighthouse then returning to the beach at the Agate Beach access/parking area.



The Yaquina Head area is identified as a gap section in the OCT because the area lacks connectivity along the coastline.

YAQUINA HEAD Traffic Study

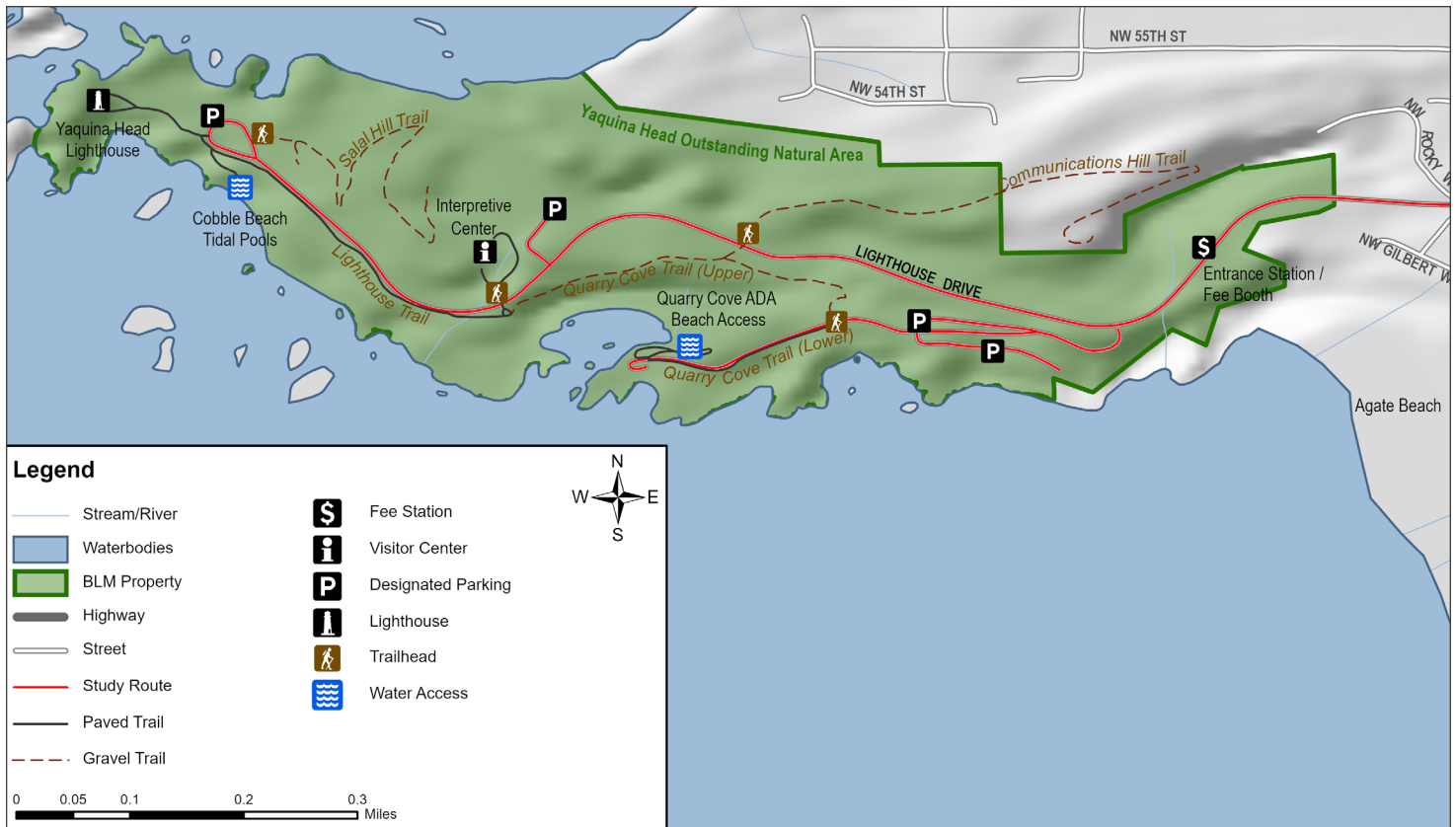


FIGURE 4: YAQUINA HEAD ONA TRAILS

TRANSIT

Lincoln County Transit provides transit services to the Newport area via a city loop and inter-city routes between Lincoln City, Siletz, Yachats, Corvallis, and Albany.

- The **Newport City Loop** completes a full loop through Newport 6 times each day, 7 days a week. Buses are wheelchair accessible with bicycle racks. The closest transit stop to Yaquina Head ONA is Bloch Wayside/52nd Street and is provided by request only.
- The **Transit Intercity – North County** route provides daily service along the coast in Lincoln County north of Nye Beach. Monday through Saturday, the bus completes 5 loops and stops at the US 101/NE 52nd Street intersection by request in the northbound direction only. On Sundays, the bus completes 4 loops and stops at the US 101/NE 52nd Street intersection on the first loop of the day and by request on the other 3 loops in the northbound direction only.
- The **Coast to Valley Express** is a service provided through a partnership between Lincoln County Transit and Benton County Transportation. The bus operates 7 days a week with 4 daily runs between Albany, Corvallis, and Newport with optional connections to Portland, the Portland International Airport, and other destinations on the coast. The Newport stop is located at Newport City Hall.
- A **Dial-A-Ride** service is also provided within the City of Newport. The buses operate from 8:00AM to 3:30PM Monday through Friday by reservation.



3.2. GEOMETRIC CONDITIONS

Existing roadway geometrics for Lighthouse Drive were evaluated and compared to current standards. As-built drawings from 1995 were available for the segment of Lighthouse Drive extending from the entrance station to the lighthouse parking lot. Field review and aerial photography were used to document existing roadway geometrics in this segment.

The collected traffic volumes classify Lighthouse Drive as a very low volume local road. Based on nationally accepted design standards, Lighthouse Drive generally meets all minimum design requirements regarding roadway widths, horizontal and vertical alignment, sight distance, and clear zone widths. The following deficiencies were identified:

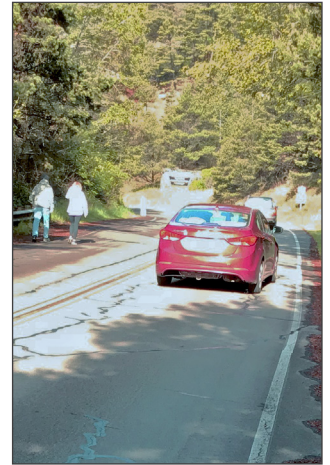
- A narrow portion of the Quarry Cove access road does not meet the minimum roadway width.
- The curves on the Quarry Cove access road do not meet the minimum radii standards. This portion of the study area is signed at 15 miles per hour (mph), and none of the horizontal curves are considered to be potential areas of concern.
- The two curves to the east of Communications Hill were identified as providing limited sight distance due to the density of trees adjacent to the roadway.
- It is not always feasible to provide wide clear zone distances or side slopes due to the existing context of the roadway, including steep embankments or dense tree growth. Guardrail is in place along Lighthouse Drive in areas without sufficient side slopes.



A few locations at the Yaquina Head ONA do not meet minimum geometric design requirements.

3.3. SAFETY

Concerns for pedestrian and bicycle safety have been noted and observed within Yaquina Head ONA and the surrounding area. In general, there is a lack of a continuous, dedicated facility for pedestrians on Lighthouse Drive. As a result, visitors entering the ONA on foot are often observed walking along the roadway shoulder and sometimes in the travel lanes. BLM staff and the public have noted potential conflicts between vehicles and pedestrians, especially in the section of Lighthouse Drive between the US 101 intersection and the entrance station.



Due to a lack of dedicated pedestrian facility on Lighthouse Drive, many pedestrians walk in the roadway. Blind curves and high speeds further compound safety concerns.

The ONA tends to experience high traffic volumes during peak periods at the entrance station, Keeper's Garden, and Lighthouse Circle, all of which lack dedicated crosswalks. Pedestrian-vehicle conflicts create safety concerns at these locations, within parking areas, and at other key crossing locations on Lighthouse Drive. At the entrance station, conflicts have been observed between pedestrians and opposing traffic as well as vehicles performing unsafe turnaround maneuvers. Staff safety has also been noted as a potential concern, particularly when staff are conducting line busting activities in live traffic. At Lighthouse Circle, there are no dedicated crosswalks or paths through the center of the parking lot. Many visitors walk randomly throughout the parking lot creating concerns for potential conflicts, especially since the mound in the center island blocks drivers' views.

Several other areas within the Yaquina Head site also lack pedestrian facilities or provide poor visibility. While some sidewalk is provided on the Quarry Cove access road, there is a gap in the sidewalk between the pullout on the south side of the couplet and the lower parking lot. The crosswalk between Quarry Cove Trail and Communications Hill Trail is located after a set of s-curves. Drivers sometimes travel too fast around these curves and do not realize there is a crosswalk approaching.



A continuous, protected pedestrian facility along the length of Lighthouse Drive is desired to improve pedestrian safety. Enhanced wayfinding may be needed to direct pedestrians to the path and reduce the potential for pedestrians in the roadway.

BLM staff and regular visitors have noted concerns regarding vehicle speeding issues on Lighthouse Drive. Speeding is primarily a concern on the segment of Lighthouse Drive between US 101 and the entrance station. Aggressive and unsafe driving has also been observed at the Interpretive Center intersection, with some visitors swerving into the opposing lane of traffic to bypass the cones directing traffic into the Interpretive Center parking lot. Visitors often circle the lighthouse parking lot waiting for parking spaces to become available, which causes congestion and general safety concerns since there are often pedestrians walking in the roadway at this location. Some visitors park in undesignated areas which sometimes includes obstructing travel lanes.

3.4. TRAFFIC CONDITIONS

Lighthouse Drive serves a variety of access purposes including residential, commercial, and recreational. Heading west from the US 101 intersection, approximately the first 0.1 mile of roadway contains several approaches that provide access to residential areas and businesses. The remainder of Lighthouse Drive generally serves users who are intending to visit Yaquina Head ONA. Passenger cars, delivery trucks, buses, RVs, emergency vehicles, bicycles, and pedestrians are all common on the roadway.

3.4.1. Visitor Entry Data

The BLM staff at the Yaquina Head ONA entrance station collect visitor entry data each day during regular operating hours. The staff tracks entering users and classifies them based on payment type, transportation mode, and visitor type. To approximate the total number of visitors, BLM uses a generalized estimate of 3 visitors per vehicle. Upon entry, BLM classifies vehicles as either a recreational or a non-recreational vehicle. Non-recreational vehicles include BLM staff, delivery vehicles, utility and maintenance vehicles, contractors, and other non-visitor vehicles. Recreational vehicles include all other vehicles which are assumed to be occupied by visitors. Only recreational vehicles are included in the visitation count.

Monthly visitor entry data were provided for the years 2015 through 2019. Overall, visitor numbers exhibited a steady growth rate of 2.8 percent per year. The data show that approximately 2,500 people visit Yaquina Head ONA on a typical day during the peak season, with spikes in visitation occurring over the weekends of Memorial Day and July 4th and at the end of July. The number of visitors recorded per month at the site over the 5-year period from 2015 to 2019 is displayed in **Figure 5**. As shown in the figure, visitation generally begins to increase in May with peak visitation observed in July. Numbers begin to decrease in October, and low volumes are recorded throughout the winter season. A slight increase in visitation is observed in the month of March, potentially corresponding to spring break and the spring gray whale migration.

An analysis of visitor transportation mode was also performed. Of the data provided by BLM, an average of 39 pedestrians, 6 bicycles, and 803 recreational vehicles were observed each day. This translates to approximately 2,450 daily visitors. Note, these values are recorded during the hours that the site is open and staffed by BLM. Many residents enter the site by foot or by bicycle before and after hours.

Upon entry, vehicles either present their pass (week, annual, or lifetime) or pay a fee to be issued a pass. When visitors have their pass already in hand, processing time at the gate is typically expedited. While there is considerable variability each day, the average mix of passes in hand and passes issued is nearly equal (53 and 47 percent, respectively). At the highest, the percent of visitors with a pass already in hand was 67 percent and was lowest at 24 percent.

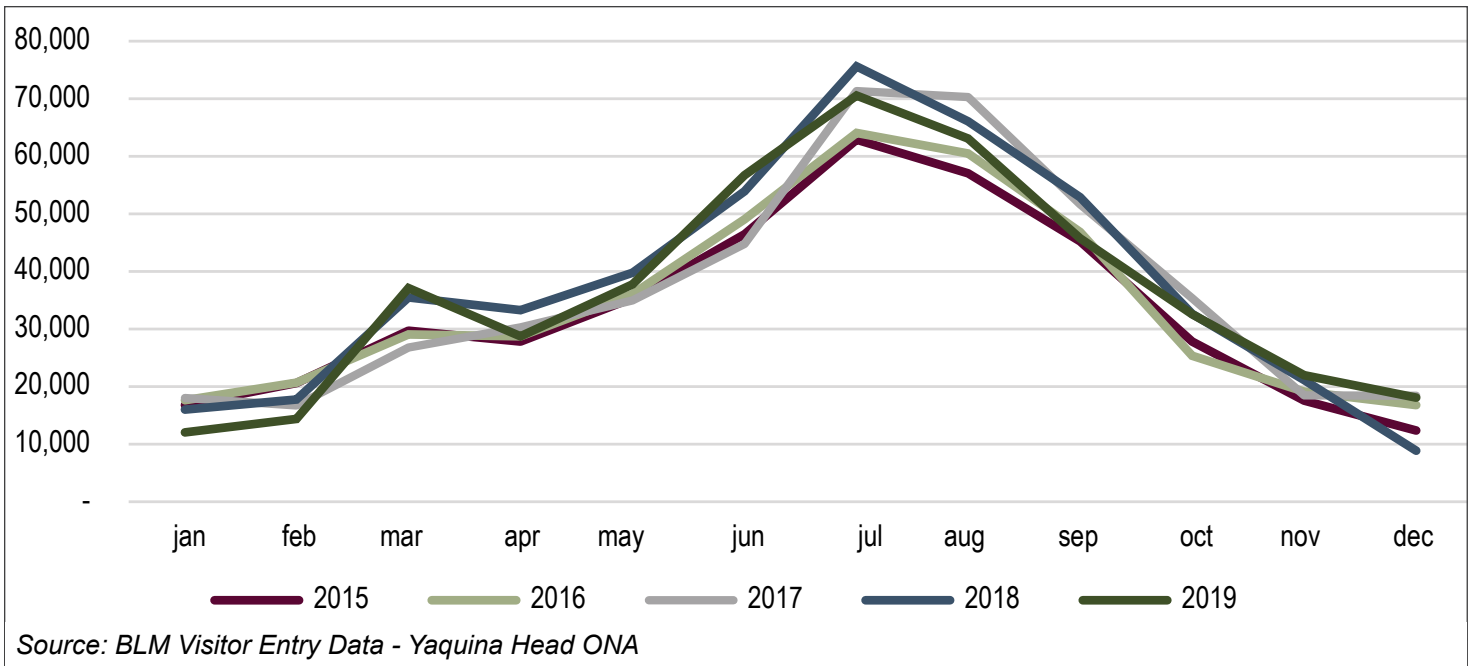


FIGURE 5: VISITORS PER MONTH

3.4.2. Traffic Volumes and Speeds

Traffic data were collected at Yaquina Head ONA in August 2021 including traffic volumes and speed information. Pneumatic road tubes were placed on Lighthouse Drive before and after the entrance station, on Lighthouse Drive between Quarry Cove and the Interpretive Center, on Lighthouse Drive near the Keeper's Garden, and along the access road for Quarry Cove to collect data. **Figure 6** presents a map of the locations where traffic data were collected along with the resulting volume data from the counts. See **Appendix B** for more information.

LIGHTHOUSE DRIVE TRAFFIC VOLUMES

Between 7:00 AM and 8:00 PM, a total of 586 and 694 vehicles entered the site on Friday and Saturday, respectively. A higher volume of traffic was observed on Saturday, which is expected given the recreational nature of Yaquina Head ONA. The entering and exiting patterns were found to be different between the two days, with a larger percentage of daily visitors arriving in the morning and leaving before noon on Friday. On Saturday, visitors appeared to arrive later and stay at the site longer with no defined peaks throughout the day. Based on a comparison of the number of vehicles counted at the sites both before and after the entrance, approximately 15 percent of vehicles on Lighthouse Drive reached the entrance and turned around without continuing into the site.

The parking lot at the end of Lighthouse Drive has 37 personal vehicle stalls, 3 large vehicle stalls, and 3 ADA accessible stalls. An additional 2 stalls are designated for official use only. Based on the collected traffic counts on Lighthouse Drive near the Keeper's Garden, this parking area reached or surpassed available capacity about 10 percent of the time on Friday and about 7 percent of the time on Saturday. On Friday, the lot was at capacity (45 cumulative vehicles or more) between 10:00 AM and 11:30 AM. The peaks on Saturday exceeded 45 vehicles for only one 15-minute interval at 10:30 AM. When the Interpretive Center is open, vehicles are directed into the Interpretive Center parking lot by cones placed at the intersection.

QUARRY COVE ACCESS ROAD TRAFFIC VOLUMES

Beyond the Yaquina Head ONA entrance, pneumatic road tubes were placed along the access road for Quarry Cove. The Quarry Cove parking lot has approximately 55 parking stalls. Based on the volume counts on the Quarry Cove access road, this parking lot never reached capacity on the days of observation. On Friday, two peaks occurred at 11:30 AM and 3:00 PM with approximately 16 vehicles each. On Saturday, 1 distinct peak occurred at 11:45 AM with 25 vehicles. Generally, 10 or more vehicles were counted in the Quarry Cove area for the majority of the day from 11:00 AM until 5:30 PM.

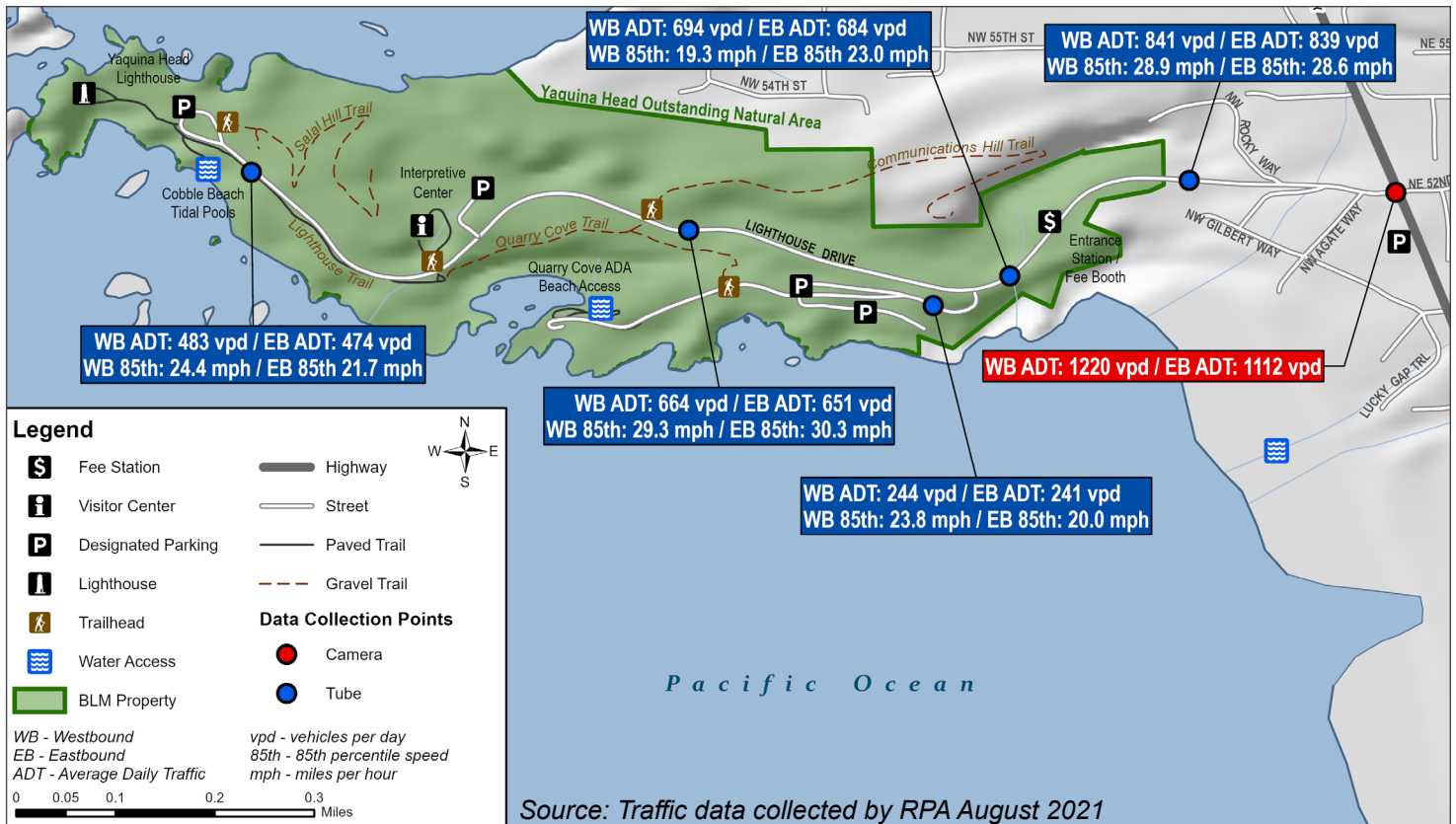


FIGURE 6: TRAFFIC VOLUME DATA

VEHICLE SPEEDS

Most of the site is signed at 25 mph, except the Quarry Cove access road and Lighthouse Drive in the eastbound direction only near the Keeper's Garden, which are signed at 15 mph. US 101 through the study area is signed at 45 mph. Input from BLM suggested that posted speed limits are not well respected within the Yaquina Head ONA boundaries, and vehicles often speed through the site, endangering non-motorists and motorists alike.

Along with traffic volume information, the pneumatic tube counters were used to collect speed data. Using the collected data, the 85th percentile speed was determined for each count site. The 85th percentile speed is the speed at or below which 85 percent of vehicles are observed to travel. **Figure 6** presents the observed 85th percentile speeds. See **Appendix B** for more information.

Based on the 85th percentile speeds, all vehicles generally traveled below or within about 5 mph of the posted 25 mph speed limits. The most common spots at which speeding vehicles were noted were within the 15 mph zones. In the westbound direction on the Quarry Cove access road, 88 percent of vehicles were observed exceeding the speed

limit. Near Keeper's Garden, 20.2 percent of vehicles were observed exceeding the 15 mph speed limit. For all 25 mph zones combined, approximately 4.3 percent of vehicles were observed speeding. Comparatively, about 32.8 percent of vehicles were speeding within the combined 15 mph zones.

3.4.3. Projected Growth and Traffic Conditions

The *Newport Transportation System Plan*⁵ (TSP) forecasted future (2040) traffic conditions using the latest (2018) Newport Travel Demand Model developed and maintained by ODOT. The model predicted future traffic volumes based on an assumed 21 percent overall increase in households and 20 percent increase in the number of jobs in Newport.

Based on TSP assumptions, Lighthouse Drive could experience traffic volumes greater than 3,000 during the peak summer season within the next 20 years. During the spring season, upwards of 2,500 vehicles could be observed on Lighthouse Drive by 2042.



Chapter 4: Environmental Setting

The environmental setting includes naturally occurring features and populations as well as human influences and characteristics. These elements provide context for transportation projects and may serve as potential constraints or opportunities during the project development process. Summaries reflect available environmental information.

Appendix B *provides additional details about environmental conditions within the study area.*

4.1. PHYSICAL ENVIRONMENT

The physical environment includes natural elements such as soil and rock features, water sources, wetlands, floodplain areas, air quality, and human influences such as developed land areas, farmlands, hazardous materials sites, residences, and areas sensitive to noise impacts.

4.1.1. Land Ownership and Land Use

Lands surrounding Yaquina Head ONA are mostly privately held, although some bordering lands are owned by the City of Newport and Lincoln County. BLM owns the nearly 100 acres of Yaquina Head ONA including all roads. The right-of-way for Lighthouse Drive and US 101 is held in public interests. The City of Newport is responsible for Lighthouse Drive from the US 101 intersection extending about 850 feet west and ODOT is responsible for US 101. The small parking lot adjacent to Lighthouse Drive near the US 101 intersection is mostly within private right-of-way while the Ernest Bloch Memorial Wayside parking lot along US 101 south of Lighthouse Drive is within the US 101 right-of-way.

4.1.2. Soil Resources and Prime Farmland

Mapping developed by the US Department of Agriculture Natural Resource Conservation Service show that no prime farmland exists within the Lincoln County Area. About 11 percent of the lands are classified as farmland of statewide importance.

4.1.3. Geologic Hazards

The study area lies within the Siletz-Yaquina Watershed and is primarily composed of Quaternary sediments and Miocene volcanic and marine sedimentary rocks.⁶ Coastal erosion and landslides are extensive from Otter Rock southward to Yaquina Head. Large landslides occur on both the north and south sides of Yaquina Head. The majority of Yaquina Head ONA is considered to be at moderate to high risk for landslide occurrence. Additionally, seismic hazards are considered one of the major natural hazards in Oregon, with the strongest earthquake effects generally felt closer to the coastline. Tsunamis and coastal erosion are additional geologic hazards that could potentially affect the study area.⁷ Due to its elevation, almost the entire ONA is outside the hazard area for a tsunami resulting from an earthquake. However, the Quarry Cove ADA access road is within the hazard area for both a local and distant tsunami.

4.1.4. Surface Waters

The study area lies entirely within the Siletz-Yaquina and Moolack Creek Watersheds. Although no prominent surface water features cross or run parallel to Lighthouse Drive, 3 intermittent unnamed streams cross Lighthouse Drive. These streams, by definition, only hold water during wet portions of the year (October through April).

WATER QUALITY

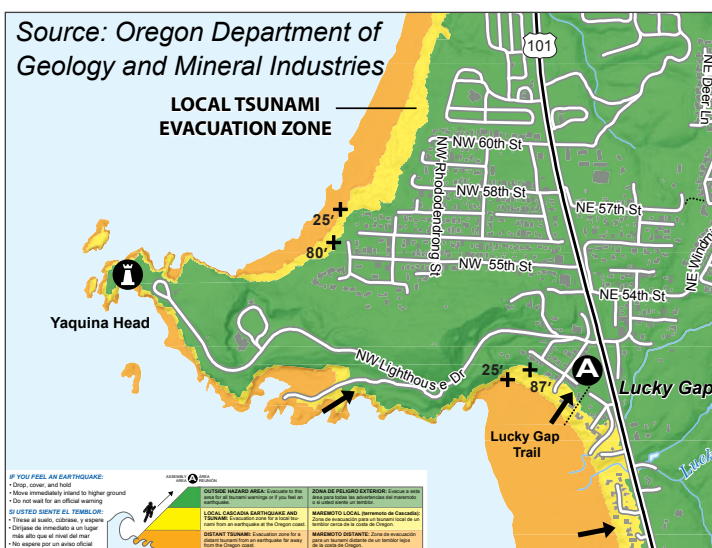
The Moolack Creek Watershed is rated as impaired for aquatic life. The impairment categories were identified as low oxygen levels in the water and impaired biota, meaning that the biological community within the water body is unhealthy or the population numbers are significantly lower than expected. The Yaquina Head area is also rated as impaired for fish and shellfish consumption.

4.1.5. Groundwater

There are 6 wells within the Yaquina Head ONA: 5 water wells and 1 geotechnical well. One water well is used for industrial purposes and one was used for water monitoring purposes. The intended use of the other wells is unknown.

4.1.6. Wetlands and Waters of the U.S.

National Wetland Inventory⁸ mapping for the study area shows primarily estuarine and marine wetlands, freshwater ponds, and various rivers and stream channels. Three unnamed, intermittent riverine features cross Lighthouse Drive at separate locations.



The majority of the Yaquina Head ONA is located outside the hazard zone for a tsunami caused by an earthquake.

4.1.7. Floodplains and Floodways

The entirety of Lighthouse Drive runs adjacent to the coastal floodplain, but the roadway itself lies outside of the floodplain boundary. A small area on the end of Quarry Cove Road lies within the coastal floodplain boundary. The Federal Emergency Management Agency categorizes the headland and inland portion of the study area as Zone X, meaning this is an area of minimal flood hazard. The Pacific Ocean along Quarry Cove and Cobble Beach is subject to flooding by the 1-percent-annual-chance flood event due to high velocity waves that are typically present during storms (Zone VE).

4.1.8. Hazardous Substances

The Yaquina Head Lighthouse is listed as a very small quantity generator in the US Environmental Protection Agency (EPA) Hazardous Waste Site database.

4.1.9. Air Quality

Lincoln County is considered an attainment area for all pollutants, and therefore proposed transportation projects would likely not be subject to conformity requirements.

4.1.10. Noise

Residences in the study area are sensitive noise receptors that could be affected by roadway improvements within Yaquina Head ONA. Sites within the study area protected under Section 4(f) of the *U.S. Department of Transportation Act* and Section 6(f) of the *Land and Water Conservation Fund Act* may also be considered sensitive noise receptors.

Construction activities associated with improvements resulting in substantial roadway changes within Yaquina Head ONA may result in localized and temporary noise impacts in the vicinity of residences. These impacts can be minimized by incorporating measures to control noise sources during construction.

4.2. BIOLOGICAL RESOURCES

The biological environment includes plants and animals known or likely to occur in the study area, including sensitive species protected by state and federal regulations.

4.2.1. Vegetation

Several vegetation types occur within the Yaquina Head ONA study area, including mixed hardwood and coniferous forest, coastal spruce, and western hemlock forest. The

majority of Yaquina Head ONA is classified as conifer, developed, or non-vegetated.

Invasive weeds are a growing concern in Lincoln County. Nine species of noxious weeds are known to occur within the study area. All are designated as 'List B' by the State of Oregon, meaning they are regionally abundant but may have limited distribution in some counties. Intensive control measures for these weeds are conducted at the state, county, or regional level and are determined on a case-by-case basis. The known noxious weeds within the study area are knotweed, herb Robert, ivy, giant knotweed, Armenian blackberry, field bindweed, bull thistle, Canada thistle, and St. Johnswort.

4.2.2. Fish and Wildlife

Bird observation is a common activity at Yaquina Head ONA. During the breeding season, typically from May to August, seabird breeding colonies can be observed within close range of Yaquina Head ONA facilities. According to the US Fish and Wildlife Service (USFWS), 5 species of seabird and 1 shorebird species breed on the coast at Yaquina Head ONA. Two varieties of cormorants can be observed: Brandt's and Pelagic. The Brandt's cormorants in the area typically nest on the rock tops along the coast, and the Pelagic cormorants nest among the cliff faces. Pigeon guillemots and western gulls are also observed along the cliff ledges. Black osytercatchers frequent the tides in search of food. The common murre, an abundant seabird in Oregon, is often observed on the nearshore sea stacks. Other birds that frequent or pass through Yaquina Head ONA include brown pelicans, bald eagles, harlequin ducks, surfbirds, and black turnstones.



Bird and wildlife viewing is a popular activity at Yaquina Head ONA.

Other wildlife that are commonly observed in the area are gray whales and harbor seals. Gray whales pass by Yaquina Head ONA just off the coast, and harbor seals can be observed with their young resting on the coastal rocks, which are managed by the USFWS as part of the Oregon Islands National Wildlife Refuge. They provide sanctuary for the harbor seals and seabirds and are closed to public access year-round.

4.2.3. Threatened and Endangered Species

There are 9 species federally listed as threatened or endangered that are known or believed to either reside within the study area or have the potential to be indirectly affected by project activities within the study area. The species include the pacific marten, marbled murrelet, northern spotted owl, western snowy plover, short-tailed albatross, leatherback sea turtle, loggerhead sea turtle, olive ridley sea turtle, and the Oregon silverspot butterfly. Species often move and habitats change, therefore the noted species are not guaranteed to be found within or near the study area at the time of a future project.

4.2.4. Other Species of Concern

Species of concern are native animals or plants that are at risk to declining population trends, threats to their habitats, and restricted distribution, among other factors. The red tree vole, a small rodent that inhabits treetops, is native to coniferous forests west of the crest of the Cascade Mountains in Oregon and northwestern California and generally are found at lower elevations. Within Oregon, the north coast area, which does not include Lincoln County, is the primary focus of species preservation and habitat management efforts. Given that they are primarily a tree-dwelling species, they are very vulnerable to activities such as development, recreation, and road construction, that could potentially cause tree reduction or disturbance.⁹

4.3. SOCIAL AND CULTURAL RESOURCES

The study evaluated the social and cultural environment within the study area, including characteristics of the human population, living and working conditions, recreation uses, culturally important sites, and visual character. These elements reflect human experiences and values.

Source: Erin Ross



The Yaquina Head ONA may be habitat for the endangered Oregon silverspot butterfly. Impacts to their habitat should be avoided or otherwise mitigated with any potential improvements.

4.3.1. Demographic Conditions

The City of Newport is slightly more diverse, racially and ethnically, than both Lincoln County and the state of Oregon. Persons identifying as White make up approximately 71 percent of the population in Newport, 83 percent of the population in Lincoln County, and 76 percent of the population in Oregon. The percentage of the population identifying as Hispanic or Latino is greater in Newport (20 percent) compared to Lincoln County (9 percent) and Oregon (13 percent). Persons identifying as Black or African American make up nearly 2 percent of the population in Oregon and Newport compared to 0.6 percent in Lincoln County. The percent of the statewide population identifying as Asian is about 4 percent in Oregon and approximately 2 percent and 1 percent in Newport and Lincoln County, respectively. For all other races, the city, county, and state have comparable population distributions.

ENVIRONMENTAL JUSTICE

To better meet responsibilities related to the protection of public health and the environment, the EPA has developed an environmental justice mapping and screening tool called EJSCREEN based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports. While the EJSCREEN report (**Appendix B**) indicates that most environmental and demographic indicator values for Yaquina Head ONA are below comparable values for the State of Oregon, EPA Region, and the nation, minority and/or low-income populations are present in the area.

4.3.2. Economic Characteristics

Median household incomes in Newport and Lincoln County are both below the state median values. The median income in Newport is approximately 22 percent lower than that of the statewide median, while that in Lincoln County is 24 percent lower than the statewide median. The poverty rates in Newport and Lincoln County are both above that of the overall poverty rate in Oregon. The statewide unemployment rate is also less than that of the city and county rates.

In 2019, the City of Newport employed approximately 4,467 people. The largest employing industry in the city was accommodation and food services (18 percent). Retail trade employed 13 percent and health care and social assistance employed 11 percent of the population in Newport. The highest paying industries were utilities (\$103,750), professional, scientific, and technical services (\$53,750), and public administration (\$52,708).

Historically, the tourism industry has thrived in Newport. Newport boasts a plenitude of tourist attractions including museums and city parks. Recreational opportunities are also in abundance including fishing, boating, biking, and various other activities. The national and state parks and historical sites in the area also continue to attract tourists.

4.3.3. Cultural and Historic Resources

The Yaquina Head Lighthouse is classified as being of natural historic significance, and it is denoted with a Lincoln County Historical Society marker. The site is also listed on the National Register of Historic Places (NRHP). The NRHP is an official list of historic places in the US that have been deemed worthy of preservation. Qualified historic locations may receive preservation assistance and incentives. According to the Tribal Directory Assessment Tool, three tribes with potential interest in Lincoln County include the Confederated Tribes of Siletz Indians of Oregon, Confederated Tribes of the Grand Ronde Community of Oregon, and the Confederated Tribes of the Warm Springs Reservation of Oregon.

4.3.4. Section 4(f) Resources

Section 4(f) of the *U.S. Department of Transportation Act* protects publicly owned public parks, recreation areas, wildlife/waterfowl refuges, and historic sites of national, state, or local significance on public or private land that

are potentially eligible for listing or are listed on the NRHP. The Yaquina Head Lighthouse is listed on the NRHP and impacts to the study area should be investigated and appropriately considered in accordance with Section 4(f) if improvement options are forwarded from this study.

4.3.5. Section 6(f) Resources

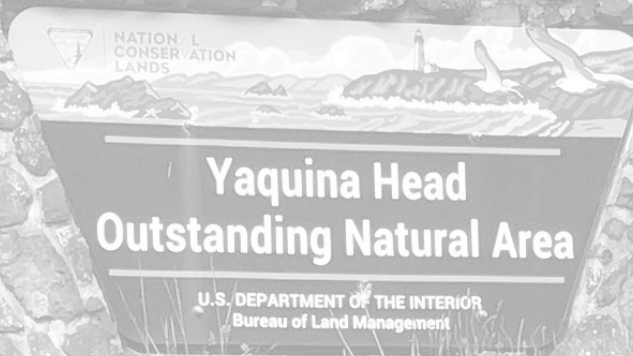
Section 6(f) protection applies to public recreational sites purchased or improved with *Land and Water Conservation Fund Act* funds. It does not appear that any projects funded under Section 6(f) of the are within the vicinity of the study area.

4.3.6. Visual Resources

The study area boasts a high level of scenic quality. Protruding approximately a mile into the Pacific Ocean, Yaquina Head ONA is comprised of lush vegetation, sandy beaches, and a dark basalt coast. The rocky areas of Cobble Beach provide excellent tidepool viewing opportunities. The *City of Newport Comprehensive Plan* expanded the Ocean Shorelands Boundary in 1991 to include Yaquina Head as a major visual resource of the Newport area due to the seaward exposure of the headland.



The Yaquina Head Lighthouse is listed on the NRHP and is subject to protections under Section 4(f).



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Chapter 5: Goals, Objectives, and Other Considerations

*Goals, objectives, and other considerations were identified based on a comprehensive review of existing information and input from the study team, stakeholders, and the public. A summary of the identified needs and concerns, limiting constraints, and other considerations that helped guide development of the goals and objectives is shown in **Figure 7**.*

Goals and objectives are important in explaining why a potential improvement option may be necessary, whereas other considerations serve as constraints that may limit potential improvements. The following statements reflect the existing social, environmental, and engineering conditions and recognize the local and regional use of Lighthouse Drive and the adjoining transportation system.

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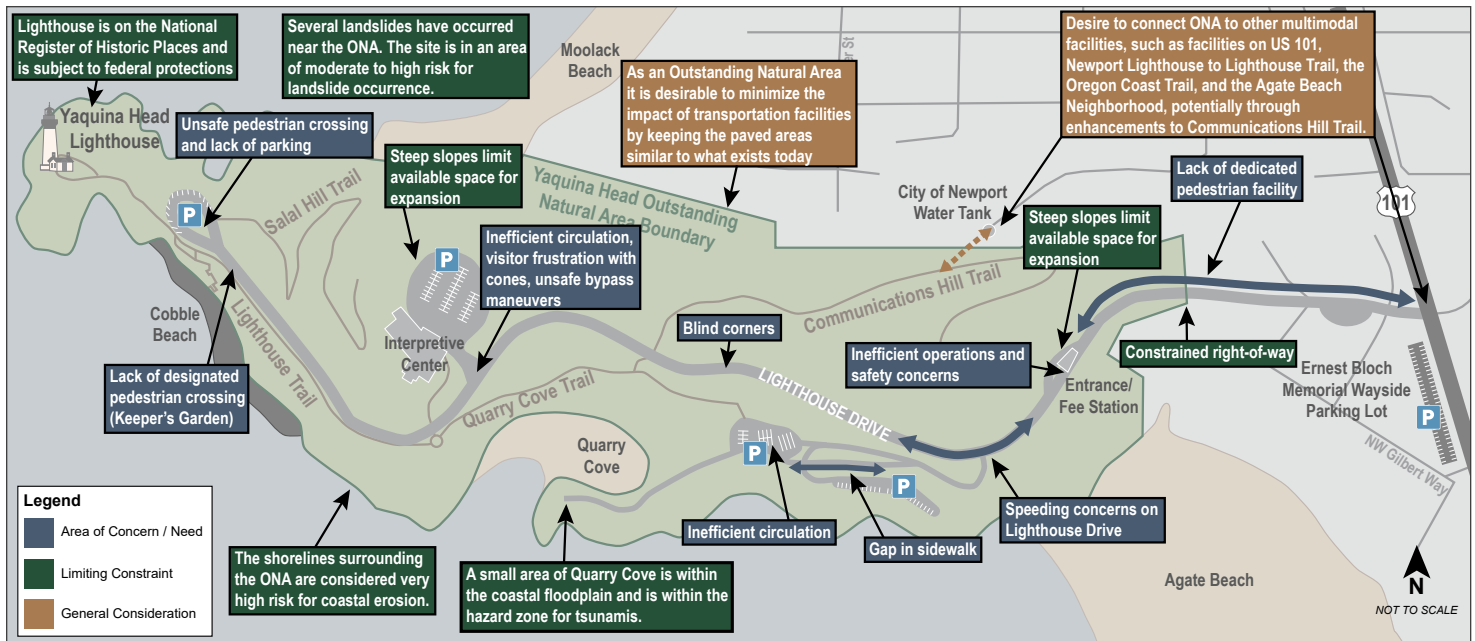


FIGURE 7: KEY FINDINGS SUMMARY



Goal 1: Improve operation of the roadway corridor, entrance station, and parking lots.

Yaquina Head ONA receives approximately 500,000 visitors each year. The number of visitors to the site is expected to continue growing due to increased recreational interest and opportunities. Consequently, Lighthouse Drive and other site transportation facilities are projected to experience increased traffic volumes. As the number of visitors continues to increase, it will be important to provide a transportation system that can efficiently accommodate increasing traffic volumes for many years to come.

Field observation and personal accounts from BLM staff and Yaquina Head ONA visitors indicate a need to improve the overall operability of the transportation system to accommodate visitor demand. With the current configuration of the entrance gate, vehicles often back up while waiting in the entrance line, occasionally extending all the way to US 101, causing visitor delay and frustration. Visitors and staff have also indicated a need for improved vehicle circulation throughout the site, especially in the Quarry Cove, Interpretive Center, and Lighthouse parking lots. Additional ADA and RV parking is also desirable.

OBJECTIVES:

- Reconfigure the entrance station to improve efficiency.
- Reconfigure parking lots to improve circulation and provide adequate ADA and RV parking opportunities.





Goal 2: Improve the safety of the transportation system for all roadway users.

Lighthouse Drive lacks dedicated non-motorized facilities between the US 101 intersection and the Interpretive Center, increasing the potential for vehicle-pedestrian conflicts on the roadway, especially on blind corners with limited sight distance. Additionally, non-motorists have indicated that the travel speeds of vehicles within the site contribute to poor safety and feelings of discomfort.

OBJECTIVES:

- Reduce potential for vehicle/non-motorist conflicts.
- Construct facilities that lower vehicle speeds.



Goal 3: Provide multimodal transportation facilities that connect to destinations within the site and to the regional transportation system.

Visitors, stakeholders, and staff have expressed a desire for improved multimodal transportation connections to destinations and recreational opportunities within the site, as well as to the larger regional transportation system. In addition to attractions within the Yaquina Head ONA, other prominent recreational trails in the vicinity of the ONA include the OCT, Lighthouse to Lighthouse Trail, and Oregon Coast Bike Route. Providing improved connectivity for pedestrians, bicycles, and vehicles between these attractions and the ONA will improve accessibility to the site and potentially increase visitation. Improving connectivity to the existing public transportation system in Newport, Lincoln County, and the broader state of Oregon, is also important to ensure equitable access to the site and offer mode choice.

OBJECTIVES:

- Facilitate multimodal transportation access to recreational opportunities within the Yaquina Head ONA and the broader region.
- Provide multimodal facilities consistent with local planning efforts and recreational needs.
- Integrate with regional public transportation travel options.



Goal 4: Extend the useful life of transportation facilities.

To keep the site's transportation facilities operating safely and efficiently for visitors, various upgrades, repairs, or maintenance activities may be necessary. If facilities are insufficiently maintained, roads can quickly deteriorate, impacting visitor travel and requiring costly repairs or replacements. Although ongoing maintenance is performed by BLM staff, the existing pavement on Lighthouse Drive is over 20 years old and is beginning to exhibit deteriorating condition in a number of locations, and a section of the Quarry Cove access road has continually experienced sloughing issues, despite repairs.

OBJECTIVES:

- Conduct appropriate preventive maintenance activities to extend the life of existing facilities.



Other Considerations

Yaquina Head ONA is a protected area designated by Congress to provide for the conservation and development of the scenic, natural, and historic values of the area; the continued use of the area for education, scientific study, and public recreation; and protection of the wildlife habitat of the area. The Yaquina Head Lighthouse, holds historical value and is a popular tourist destination. When proposing potential improvements to the ONA, potential impacts to the environment, cultural, scenic, and recreational aspects of the site and surrounding areas should be considered. Any adverse impacts should be avoided, minimized, or otherwise mitigated with positive impacts elsewhere within the site.

To preserve the ONA, it is important to BLM, stakeholders, and visitors to minimize the amount of new pavement and impermeable surfaces required for improvements and provide additional vegetation wherever feasible. Likewise, it is important to minimize temporary impacts from construction and be mindful of any barriers to construction feasibility due to geotechnical and other environmental constraints. New facilities should fit within existing right-of-way to minimize costs and impacts. To determine if facilities are financially feasible, the cost of construction and routine maintenance should be considered and eligibility for potential funding sources should be reviewed. Beyond the ONA boundary, it is important to ensure projects align with any ongoing and future local and regional planning efforts such as the Newport TSP and *Greater Newport Area Vision 2040*.

The following constraints and other factors should be taken into consideration when identifying potential improvement projects within the Yaquina Head ONA.

- Context, function, and use of the ONA
- Impacts to environmental resources
- Temporary construction impacts
- Construction feasibility and physical constraints
- Maintenance cost and responsibility
- Alignment with local and regional planning efforts
- Existing right-of-way
- Funding availability



Chapter 6: Improvement Options

Several concerns were identified that could be potentially mitigated through implementation of sitewide multimodal management strategies and site-specific improvements as summarized in the following sections.

6.1. SITEWIDE IMPROVEMENT STRATEGIES

Several concerns were identified that could be potentially mitigated through traffic calming, wayfinding, improved accommodations for pedestrians, bicyclists, and transit riders, and implementation of other sitewide strategies. Beneficial strategies that could be feasible to implement in the Yaquina Head ONA are described in the following sections. Varying levels of additional staffing may be required to implement the proposed strategies. If pursued, a determination of staffing availability and additional needs will be made by BLM prior to implementation. A summary of the proposed strategies is provided in **Table 3**.

6.1.1. Traffic Calming Strategies

Traffic calming has been shown to increase the quality of roadway user experience, particularly for non-motorized users. Traffic calming methods, depending on the technique, can be used to reduce vehicle speeds or volumes. Most of the roadways within the Yaquina Head ONA are signed at 25 mph, except the Quarry Cove access road in both directions and Lighthouse Drive in the eastbound direction near the Keeper's Garden, which are signed at 15 mph. Vehicles have been observed to travel above the posted speed limits at the site. Given the high presence of pedestrians on and adjacent to the roadway, especially along Lighthouse Drive, there is an increased potential for conflict between pedestrians and vehicles.

Implementation of traffic calming measures would be beneficial in helping to reduce vehicle speeds and increase the safety for non-motorized users. Several potential traffic calming techniques have been identified for possible implementation on roadways within Yaquina Head ONA. A summary of the advantages, disadvantages, and other considerations for each strategy is in the following sections.



Slower speeds are desired to protect non-motorized users on site.

LOWER POSTED SPEED LIMIT

The *Manual on Uniform Traffic Control Devices*¹⁰ (MUTCD) generally recommends that the posted speed limit should be within 5 mph of the 85th percentile speed of free-flowing traffic, which is the speed that 85 percent of vehicles travel at or below. The 85th percentile speed is typically considered to be the speed at which drivers are comfortable driving on a road and is a good indicator of a reasonable speed limit. However, the MUTCD also specifies other characteristics that may be considered, such as roadside development, parking presence, and pedestrian activity.

While the MUTCD does not provide guidance on how to incorporate these factors into the process of setting a speed limit, the *Methods and Practices for Setting Speed Limits*¹¹ prepared by FHWA and the Institute of Transportation Engineers describes several methods for altering speed limits. One method, referred to as the engineering approach, entails first determining a speed within 5 mph of the 85th percentile speed and then adjusting it accordingly after reviewing the roadside environment and characteristics.

Based on speed data collected at multiple locations within the ONA in August 2021, the 85th percentile speeds were all generally below or within 5 mph of the posted 25 mph speed limits. Recorded 85th percentile speeds ranged from 19.3 mph (Lighthouse Drive west of the entrance) to 30.3 (Lighthouse Drive between Quarry Cove and the Interpretive Center). Most of the speeding vehicles were observed in the 15 mph zones. Approximately 4.3 percent of vehicles were speeding within the combined 25 mph zones, while 32.8 percent of vehicles were speeding within the combined 15 mph zones.

Given the high pedestrian activity on Lighthouse Drive and the roadway context within the ONA, engineering judgment may be used to lower the posted speed limit below the 85th percentile speed. A sitewide speed limit of 15 mph may be appropriate to lower travel speeds and reduce confusion over changing speed limits at the site. It is however important to note that lowering the speed limit does not guarantee that vehicles will travel at the posted speed limit since the 85th percentile speed is generally a representation of typical driver behavior. Additionally, enforcement is needed to ensure vehicles travel at the posted speed.



A sitewide speed limit of 15 mph may be desirable at Yaquina Head ONA.

SPEED FEEDBACK SIGNS

Dynamic speed feedback sign systems are traffic control devices that are programmed to provide a message to drivers exceeding a certain speed threshold. These systems are typically installed in conjunction with a speed limit sign and usually include a speed-measuring device such as a loop detector or radar to measure vehicle speeds. When vehicles exceed a predetermined speed threshold, the feedback signs display messages such as “YOUR SPEED XX MPH,” “SLOW DOWN,” or similar messaging to alert drivers traveling above the posted speed limit.

When appropriately complemented with enforcement, speed feedback signs can be an effective method for reducing speeds at a desired location. Without enforcement, drivers who pass the sign regularly may become accustomed to its presence and may begin to disregard its messages. This may not be a substantial concern at Yaquina Head, since the site attracts more irregular visitors than frequent users.

WARNING SIGNS

The MUTCD provides guidance for additional warning signs that may be effective in reducing vehicle speeds. Warning signs such as a pedestrian warning sign (W11-2) or a share the road (W16-1P) plaque may alert drivers to the potential for pedestrians and bicyclists on or near the roadway and may result in slower vehicular travel speeds. MUTCD guidance for the installation of signs of this type recommends using engineering judgment to determine the need for additional warning signs on the roadway. At the ONA, pedestrian warning signs are already used near pedestrian crossings. If bicycle use increases, share the road signage may be useful. However, signs should be used sparingly to avoid causing information overload for users and/or detract from the natural setting of the ONA.

SPEED BUMPS, HUMPS, AND TABLES

Speed bumps, humps, and tables are vertical obstacles commonly used in traffic management to reduce vehicle travel speeds. All 3 devices are vertical structures in the road that jolt the occupants of a vehicle moving too quickly over them. They can be made from asphalt, concrete, plastic, rubber, or metal.

Speed bumps are the most aggressive traffic calming device and are most useful in parking lots and driveways. A speed bump generally slows traffic to 2–10 mph, giving both people and cars time to react safely to one another. Speed bumps are rarely used on public roadways because they require vehicles to slow to a near stop to pass over them and can cause damage to cars moving at posted speeds. Speed bumps are typically 2 to 4 inches high and between 6 inches to 2 feet long measured in the direction of vehicular travel.

Speed humps are raised areas of pavement that are often installed across low-volume, low-speed roadways to slow traffic speeds. Speed humps are typically 3 to 4 inches in height and 12 to 14 feet in length. Speed humps can reduce travel speeds to 15 to 20 mph. Speed humps are most often placed in a series to maintain speed reduction through a long corridor.



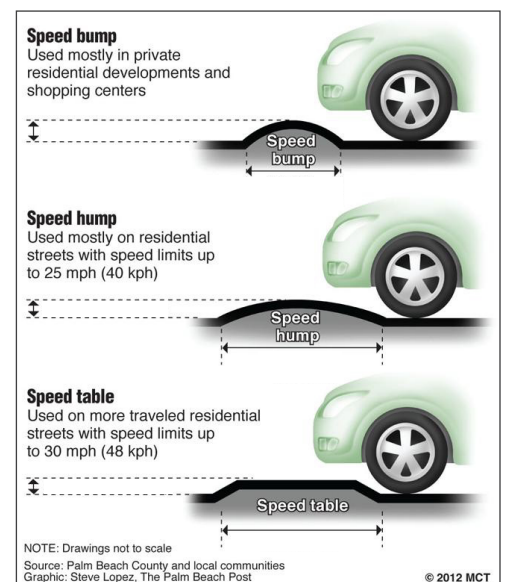
Source: City of Fort Walton Beach

Speed feedback signs display a message when drivers are exceeding the posted speed limit.



Source: MUTCD

Pedestrian warning signs are already used at some locations on site.



NOTE: Drawings not to scale
Source: Palm Beach County and local communities
Graphic: Steve Lopez, The Palm Beach Post

© 2012 MCT

Speed bumps, humps, and tables vary in width and height and serve different transportation purposes.

Speed tables are midblock traffic calming devices that raise the entire wheelbase of a vehicle to reduce its traffic speed. Speed tables are longer than speed humps and have a flat top, typically with a height of 3 to 3.5 inches and a length of 22 feet. Where a speed table coincides with a pedestrian crossing, it should be designed as a raised crosswalk. Speed tables are often designed using pavement markings, colored pavers, or other distinctive materials to help make the speed table visible for all roadway users.

On roadways within the Yaquina Head ONA, speed humps or speed tables installed at pedestrian crossings would be the most appropriate tool for reducing vehicle speeds. While these devices have mostly positive impacts and are typically successful in reducing average vehicle speeds, they may impact the ease of emergency-vehicle travel on the roadways where they are installed. As a result, speed humps are not recommended for installation on major roadways or emergency routes. This is particularly troublesome at the ONA since Lighthouse Drive is the only ingress and egress route for the site. Additionally, since speed humps interrupt the free flow of traffic, they may be frustrating to visitors and staff and prompt a negative response from their implementation.



Source: National Association of City Transportation Officials

Providing gaps in speed management devices can help with emergency vehicle access.

NARROW TRAVEL LANES

Travel lanes are striped to define the intended travel path for vehicles within a corridor. Historically, wider travel lanes (11 to 13 feet) have been used to provide a more forgiving buffer to drivers, especially in high-speed environments. Conversely, narrower lanes may feel more uncomfortable to drivers, naturally encouraging them to slow down to navigate the roadway. In addition to managing speeds, narrower lanes also reduce exposure and crossing distances for pedestrians at crossings.

The travel lanes at the Yaquina Head ONA vary but are generally 11 feet in width. Generally, travel lane widths of 10 feet are considered appropriate to provide adequate vehicle safety while still discouraging speeding. However, additional width may be necessary for routes carrying high volumes of heavy trucks or buses and at locations with tight curves. Narrowed lane widths can easily be achieved by restriping the existing pavement for minimal cost. The space gained could then be used to accommodate non-motorized users such as a pedestrian pathway or bike lanes.

LATERAL SHIFTS AND CHICANES

A lateral shift is a realignment of an otherwise straight roadway that causes travel lanes to shift direction in an effort to reduce vehicle speeds. Typically, lateral shifts separate opposing traffic with the aid of a raised median. Without the median, a motorist could easily cross the centerline in order to drive the straightest path possible or veer into the path of opposing traffic, reducing the effectiveness of the device.

A chicane is a series of alternating curves or lane shifts that are positioned in a way that forces motorists to steer back and forth out of a straight travel path. The curvilinear path is intended to reduce the speed at which a motorist is comfortable traveling through the feature.

Lateral shifts can be applied on roadways with all levels of traffic volumes, while chicanes are most appropriate on low-volume roads. Both devices are most effective on roadways with speed limits of 35 mph or lower. Both devices can be used along a primary emergency vehicle route, provided traffic volumes are low enough to allow an emergency vehicle to straddle the roadway centerline and where medians are designed to be easily mounted or straddled by emergency vehicles if needed.



Source: FHWA | Google Earth Source: Scott Wainwright

Lateral shifts [left] and chicanes [right] help reduce vehicle travel speeds by forcing motorists to steer in non-linear paths. Chicanes are typically more effective at reducing speeds, but lateral shifts are typically more efficient for emergency vehicles.

Both lateral shifts and chicanes can slow traffic by encouraging drivers to moderate their speed using horizontal deflection. However, the effectiveness of the devices is dependent on the length of the alignment shift, as well as the volume and distribution of traffic. The devices are less effective in situations where traffic volumes are significantly higher in one direction than the other, or where volumes are so low that the likelihood of encountering an opposing vehicle within the lateral shift/chicane zone is low. Chicanes typically achieve a greater speed reduction than lateral shifts.

6.1.2. Pedestrian Accommodation Strategies

Multiple pedestrian opportunities are provided at Yaquina Head ONA and in the surrounding area. Visitors entering the site on foot do not have to pay entrance fees. Once inside the ONA, several pedestrian trails ranging in difficulty and surface type are provided. A common concern at the Yaquina Head ONA is the lack of a continuous, dedicated facility for pedestrians on Lighthouse Drive between US 101 and the lighthouse. As a result, visitors entering the ONA on foot often walk on the roadway, and near-miss conflicts between vehicles and pedestrians have been observed, especially in areas with limited sight lines. Pedestrians using Lighthouse Drive consist primarily of

local residents, OCT users, and visitors who park at Ernest Block Memorial Wayside and walk to the site to avoid paying vehicle entrance fees.

Another challenge is the general lack of connectivity between multimodal facilities surrounding the ONA, such as the Lucky Gap Trail providing access to Agate Beach, a small trail off NW Gilbert Way providing access to Ernest Bloch Memorial Wayside, and the Oregon Coast Bike Route on Oceanview Drive. The TSP outlines several locations in Newport that are in critical need of improvements to pedestrian facilities including the Yaquina Bay area, the OCT, and crossings on US 101. There is a need to address existing gaps in pedestrian facilities, poor connections, vehicle speeds, and safety issues in order to complete the pedestrian system and help make walking a more attractive and efficient travel option in the area. Specific recommendations for pedestrian and bicycle facilities were identified in the TSP and the projects occurring near the Yaquina Head ONA are provided in **Table 3**. Completing these important connections would help expand transportation and recreational opportunities in the area, fill a gap in the existing OCT, and enhance connectivity between Yaquina Head ONA and Yaquina Bay. Currently, the OCT terminates at the beach just north of Yaquina Head ONA and begins again on Agate Beach.

TABLE 3: RECOMMENDED PROJECTS FOR AGATE BEACH AREA (NEWPORT TSP)

ID	Location	Description
TR2	US 101 (North) <i>NW Oceanview Dr to North UGB</i>	Construct a shared use path (SUP) on the east side of US 101. Sidewalk infill will also be completed on the west side south of NW 60th Street. SUP project should be consistent with previous planning efforts (e.g., Agate Beach Historic Bicycle/Pedestrian Path, Lighthouse to Lighthouse Path).
TR3	US 101 <i>NW Lighthouse Dr to NW Oceanview Dr</i>	Construct a SUP on the west side of US 101, with sidewalk infill on the east side. SUP project should be consistent with previous planning efforts (e.g., Agate Beach Historic Bicycle/Pedestrian Path, Lighthouse to Lighthouse Path).
TR5	NW Lighthouse Drive <i>US 101 to End</i>	Construct a SUP on one side only and other improvements as identified by the BLM/FHWA. Note: pedestrian/bicycle crossing improvements may be needed at the intersection of US 101/NW Lighthouse Drive.
TR7	New Connection <i>NW Biggs Drive to Yaquina Head ONA</i>	Construct new SUP connection, which will likely occur where existing easement provides access to a City water storage facility known as the Smith Tank.
TR8	NW Lighthouse Drive <i>US 101 to terminus</i>	Construct a SUP on one side and other improvements as identified by BLM/FHWA.
CR3	NW 55th Street/US 101	Install an enhanced pedestrian and bike crossing to connect to the SUP on the east side of US 101
BR16	NW 55th Street <i>NW Gladly St to NW Piney St</i>	Install signing and striping as needed to designate a bike route.
SW24	NW 55th Street <i>NW Gladly St to NW Piney St</i>	Complete existing sidewalk gaps.

Source: City of Newport, Draft Transportation System Plan, February 2022; personal communication from City of Newport Community Development Director, June 2022.

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Between the Interpretive Center and the lighthouse, a separated pedestrian path is located on the south side of Lighthouse Drive. The path width varies in some sections but the usable walking surface is generally 8 feet wide with a guardrail barrier separating the path from the roadway. BLM, the City of Newport, and ODOT would like to provide a continuous separated pedestrian facility between US 101 and the lighthouse, similar to the path that exists today. The path would parallel Lighthouse Drive along its entire length, with additional connections between existing trails to provide a continuous and connected route. Coordination with the City of Newport will be required to complete the path between US 101 and the Yaquina Head ONA boundary.

SHARED USE PATH DEVELOPMENT

One of the primary considerations for developing a separated pedestrian facility will be to determine which side of Lighthouse Drive the path should follow, either the north side or the south side. Due to space constraints, it will be difficult to accommodate a path on both sides of the roadway in most locations. A summary of the constraints and other factors that should be considered when designing and developing the path is provided in **Figure 8**.

There are many factors that may determine which side of the roadway is most appropriate, including available space for roadway widening, existing utilities, connections to other pedestrian facilities and attractions, desirable views from the path, and geotechnical hazards. In some locations, the existing roadway width may be sufficient to accommodate a path with only minor modifications. However, in other locations, significant excavation and installation of retaining structures may be required. Additionally, there may be locations where it may not be feasible or cost-effective to construct an 8-foot-wide path with a barrier as recommended. These constrained locations are shown in **Figure 8**. The most appropriate design of the path, including width, location, and separation type would need to be determined during future design phases.

Without more detailed investigation and design, the cost difference between placing the path on the north versus south side of Lighthouse Drive is unknown. However, construction of a paved 8-foot wide path along Lighthouse Drive from the BLM property boundary to the Interpretive Center is estimated to cost approximately \$600,000. A separated path from the US 101 intersection to the BLM property boundary would be under the jurisdiction of the City of Newport and would be funded separately.

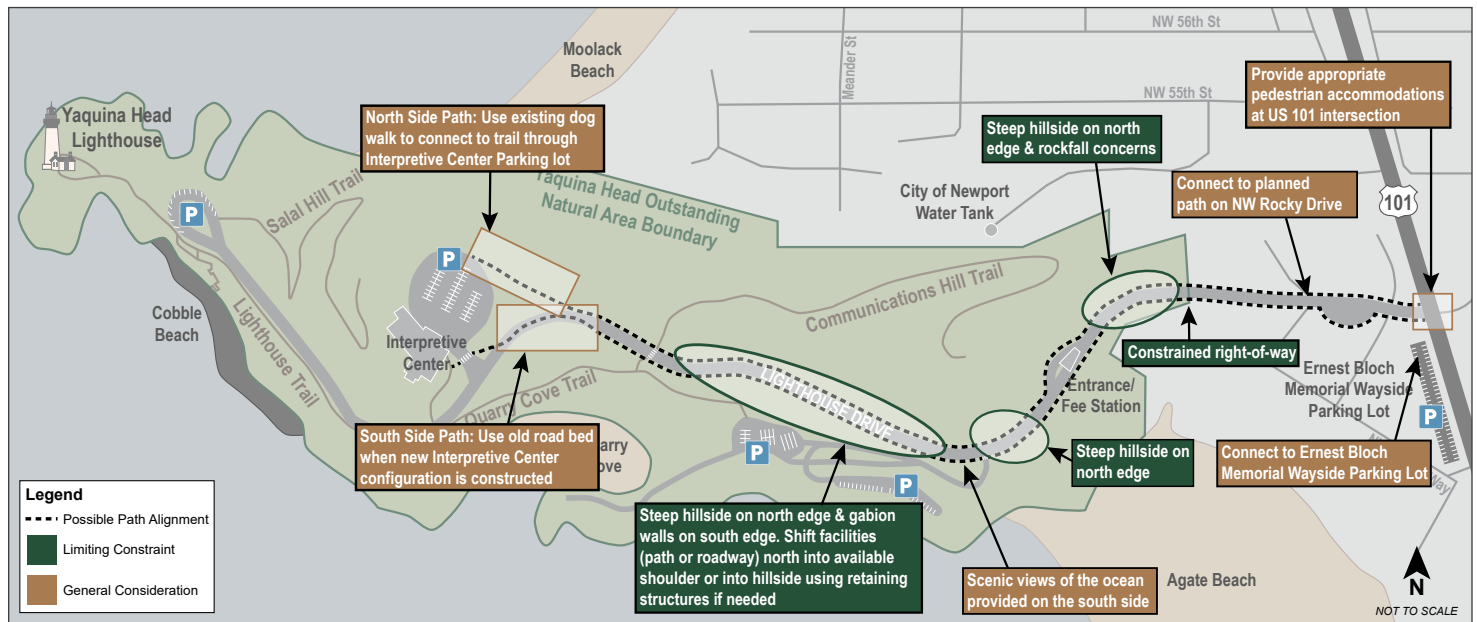


FIGURE 8: SHARED USE PATH CONSTRAINTS AND OTHER CONSIDERATIONS

NORTH SIDE OF LIGHTHOUSE DRIVE

Placing the separated pedestrian path on the north side of Lighthouse Drive is generally more feasible in the segment between US 101 and the Yaquina Head entrance station. More space is available for the path without having to considerably shift the roadway alignment. West of the entrance station, the roadway would have to be realigned or the path would have to shift to the south side of the Lighthouse Drive due to a pinch point created by steep side slopes and rocky cliffs. Keeping the path on the north side of the roadway around the perimeter of the entrance station may be a user safety concern due to a history of landslides and rockfall events occurring on the slopes surrounding the north side of the entrance station.

West of the entrance station above the Quarry Cove parking lot, a steep hillside is located on the north side of Lighthouse Drive and a steep drop off is supported by gabion walls on the south side. In this segment, approximately 8 feet of useable shoulder could be reclaimed for a path. Limited space is available for roadway expansion. If expansion is necessary to accommodate the path, the facilities would have to shift into the northern hillside to avoid impacts to the gabion on the south side. Additional retaining structures may be required to maintain structural stability of the hillside.

The path is generally feasible to construct on the north side of Lighthouse Drive for the remainder of the segment to the Interpretive Center, although the alignment may vary based on the improvement option selected for the Interpretive Center parking lot. At the Interpretive Center, the path would shift to its existing location on the south side of the roadway using the pedestrian tunnel under Lighthouse Drive at the Interpretive Center.

A path located on the north side of Lighthouse Drive would lend itself well to complete connections to Communications Hill Trail and to the proposed path on NW Rocky Way from the Newport TSP. However, a crossing at or near the US 101 intersection would be required to facilitate a connection for the Oregon Coast Trail and to other existing and proposed trails leading south of the study area.

SOUTH SIDE OF LIGHTHOUSE DRIVE

Placing the pedestrian path on the south side of Lighthouse Drive would be more technically challenging in the segment between US 101 and the entrance station due to space limitations. The alignment of Lighthouse Drive would likely have to shift to accommodate the path, however, if a second entry lane is added to the entrance station, this realignment would occur anyway. The path would likely be feasible to construct on the south side of Lighthouse Drive for the remaining segment between the entrance station and the Interpretive Center, with the road being shifted north into the hillside in some locations, as discussed previously.

Crossings would occur at the entrance to the host site and at Quarry Cove. The south side alignment would provide direct connections to the Ernest Bloch Memorial Wayside parking lot, Quarry Cove, and existing trails on the south side of Lighthouse Drive without requiring pedestrians to cross the roadway. Additionally, the ocean is on the south side of Lighthouse Drive, so the views from the path would be less obstructed if the path were to be constructed on the south edge of the roadway.



It is envisioned that a shared use path on Lighthouse Drive would be constructed similarly to the existing Lighthouse Trail with a barrier separating pedestrians from vehicle traffic.

SEPARATION TYPES

The existing Lighthouse Trail is separated from Lighthouse Drive using guardrail. This type of barrier provides physical separation between pedestrians and vehicles, thereby increasing safety and providing a comfortable walking environment. However, it takes up a significant amount of space that could potentially be used to provide a wider pedestrian path. Several other types of separation could be considered instead that can provide an even greater degree of protection, minimize maintenance needs, or maximize the amount of available space for pedestrians.



Guardrail: This is the existing barrier in use to separate the pathway. It consists of wood posts mounted in the roadbed with steel sheeting attached to the front of the posts. Installed, guardrail is approximately 1 foot wide and 2 feet tall. The steel sheeting is susceptible to rusting due to environmental elements. Guardrail is typically installed along roadways where hazards exist to protect vehicles. When used as a pedestrian barrier, guardrail provides a significant degree of protection between users.



Cable Rail: This type of barrier is already in use at the site, primarily as a barrier between walkways and protected natural areas. The cable rails at Yaquina Head consist of steel posts connected by tension cables. Shapes and sizes of cable rail varies, however, the cable rails already used onsite are approximately 4 feet tall and 2 inches wide. The steel used for the posts and cables can be susceptible to rusting. Depending on the materials used, installation method, and intended use, cable rails may not be designed to withstand impact from vehicles during a crash. Proper deflection distances behind the rails would be necessary.



Source: Lighthouse Bollards & Caps

Bollards: Bollards are vertical posts that are often used to control traffic or prevent vehicles from colliding with pedestrians and structures. Bollards can come in many different shapes, sizes, and materials including metal, stone, concrete, or plastic. They can be permanently mounted in the ground or be temporary and portable, such as the bollards used to guide vehicles into the Interpretive Center during peak hours. Flexible, surface-mounted, plastic bollards are presently used at the entrance station to divide opposing lanes of traffic. Standard bollard sizes range from 3 to 6.5 inches wide and are typically 3 feet tall. Bollards should be spaced about 3 to 5 feet apart to allow for pedestrian and wheelchair access but deter the entrance of a vehicle. Concrete or stone bollards are the most sturdy and may require less maintenance over time.



Source: NYCDOT

Jersey Barrier: Jersey barriers can be made of either plastic or concrete and are typically 24 inches wide and 32 inches tall. Concrete jersey barriers provide the maximum amount of pedestrian protection but require the most lateral space. Plastic jersey barriers are filled with water to provide crash protection but can be penetrated by fast moving vehicles. Both types are movable with appropriate equipment. Compared to plastic water-filled barriers, concrete jersey barriers are less susceptible to environmental elements and may require less maintenance over time.



Source: Google Earth

Grade Separation/Curbing: This type of separation consists of installing the pedestrian path at a specified height above the roadway, typically 4 to 6 inches, much like a sidewalk with curb and gutter. Grade separation maximizes the amount of available space for pedestrians because there is no physical barrier that takes up space laterally. However, this configuration provides the least amount of protection in a crash since there is no physical barrier to absorb impact from a crash.

6.1.3. Strategies to Encourage Alternative Transportation

Yaquina Head ONA is most often visited by personal vehicle or by foot. Some visitors also enter the ONA by bus for educational school tours. Few visitors enter by bicycle, and transit options directly to the ONA are limited. The current configuration of the site caters to personal vehicles and offers limited opportunities and accommodations for other modes. In addition to pedestrian treatments discussed in the previous section, several strategies are proposed to encourage the use of alternative transportation modes, such as bicycling, transit, and other environmentally friendly modes. Implementation of these strategies could help alleviate parking capacity concerns, reduce vehicular conflicts, and support BLM's desire to have visitors enjoy the site outside of a vehicle.

REGULAR TRANSIT SERVICE



Lincoln County Transit provides transit services to the Newport area via a city loop and inter-city routes between Lincoln City, Siletz, Yachats, Corvallis, and Albany.

The Newport City Loop completes a full loop through Newport each day. City loop buses are wheelchair accessible and are equipped with bicycle racks. At the time of writing, the closest transit stop to Yaquina Head ONA was Bloch Wayside/52nd Street and was provided by request only.

To encourage increased transit ridership and visitation to the site, BLM could consider coordinating with local transit services to provide regular service to the ONA. Consideration should be given to potential pick up and drop off locations and general logistics if buses intend to travel onsite. Potential undesirable delays could be incurred if buses are required to wait in lines at the entrance station during peak visitation hours. Similarly, it may be undesirable to position a bus stop at Lighthouse Drive/US 101 without having dedicated pedestrian facilities to allow transit riders to safely complete the last leg of the journey to the site.

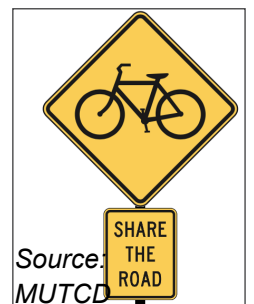
BLM is planning to prepare an updated business plan for the Yaquina Head ONA, in which the site's fee structure will be assessed and potentially modified. If desired, BLM could consider allowing city buses to pick up and drop off riders on site and allow these visitors to access the site without having to pay entrance fees.

BICYCLE ACCOMMODATIONS

Bicycles are currently only allowed on paved areas of the site and on the Communications Hill Trail. To support increased use of bicycles at the ONA, additional dedicated bicycle facilities could be provided, including bike racks, bike lockers, and shared-lane markings and signage.

Due to its location on the OCT, Yaquina Head is a popular attraction for trail riders. Providing bike racks at key destinations across the site could help encourage riders to park their bikes and tour the site for longer periods of time. Many of these riders are traveling long distances, so they are often carrying cargo on their bikes and may be hesitant to leave their belongings out of sight for long periods of time. For this reason, it may be desirable to provide several bike racks at all destinations (Quarry Cove, Interpretive Center, lighthouse), or provide bike lockers in a convenient location where riders could drop their gear in a locked box for safe storage.

For riders who are less confident riding with traffic, shared-lane markings (or sharrows) and signage on Lighthouse Drive may also be beneficial for promoting ridership. Shared-lane markings help increase awareness of bicyclists in the roadway by indicating a shared roadway environment for bicycles and vehicles. These markings help encourage bicyclists to position themselves safely in lanes too narrow to comfortably fit a vehicle and bicycle traveling side by side. To further alert drivers to the potential presence of bicyclists, MUTCD bicycle warning signs (W11-1) with share the road supplemental plaques (W16-1) could be used.



Bicycle warning signs (top) and sharrows (bottom) can help increase awareness of bicycles in the roadway.

Electric bicycles or electric-assist bicycles, often called e-bikes, are becoming increasingly popular because they can make biking easier or more comfortable for users. The State of Oregon defines e-bikes as a bicycle with 2 or 3 fully functional pedals equipped with a motor that does not exceed 1000 watts and is designed with a maximum speed of 20 mph. E-bikes are considered a bicycle by the Oregon Vehicle Code and are allowed on any roadway, bike lane, or path that is approved for bicycles but are prohibited from sidewalks. In October 2019, the Department of the Interior

(DOI) announced Secretary's Order 3376, *Increasing Recreational Opportunities Through the Use of Electric Bikes*, which will allow the use of low-speed electric bicycles on DOI-managed public lands, such as Yaquina Head ONA, where traditional biking occurs. Supporting the use of e-bikes may help increase bike ridership and decrease reliance on personal vehicles at the site.

BIKE SHARE PROGRAM/ONSITE BIKE RENTALS

Some visitors may want to tour the Yaquina Head ONA by bicycle but, due to travel and other constraints, may not have a bike to ride on site. To accommodate these users and reduce vehicular traffic on site, it may be beneficial to develop a bike share program offering short-term bike rentals. A bike share program typically has a station with a payment kiosk where rentals can be paid for and picked up. Each station has several docks (anywhere from 10 to 100+, depending on local traffic volumes) used to store and lock the bikes, although dockless bike share programs are being used in some cities. The system is automated and does not require daily management. Payment systems vary, but can be based on membership structures, hourly usage, or both. The bikes themselves can be branded with recognizable colors or the logos of sponsors.

At Yaquina Head ONA, the bike share program could be internal to the site, with bikes only being available for pick up/drop off at the ONA. However, consideration could be given to coordinating with the City of Newport to provide other bike share stations across the city to expand biking options and encourage fewer vehicular trips. This may be especially beneficial for promoting the Lighthouse to Lighthouse Trail, Oregon Coast Bike Route, and other bicycle activities and attractions. Usually, users don't have to return a particular bike to a specific station. However, this requires program employees to move bikes between stations by truck or trailer to maintain an even distribution of bikes across the system.



A bike share program could help expand bike ridership on site and across Newport if coordinated with the city.

Bike-share programs, particularly those run by municipalities or nonprofits, may not be entirely user-funded. Some programs tap private individuals or local companies to become station sponsors responsible for maintenance, upkeep, and repairs. Programs might also receive grants from local transportation authorities, municipal governments, or private companies.

ONSITE SHUTTLE BUS

The prospect of a shuttle bus that transports passengers to different locations within the ONA has been proposed in previous conversations with BLM. The concept is intended to reduce vehicular trips at the site, while still allowing passengers to travel by vehicle to primary destinations within the ONA, such as Quarry Cove, the Interpretive Center, and the lighthouse. This would allow visitors to park in the large parking lots at Quarry Cove and/or the Interpretive Center and ride the shuttle to their other destinations. This is beneficial for groups with young children or persons with limited mobility who can't physically walk between destinations. A shuttle system could also help reduce parking needs in constrained locations, such as at the lighthouse.

Several variables should be considered with this scenario. BLM would have to determine whether this service would be provided by BLM staff or an outside company. BLM would also have to consider how the service would be paid for including any user fees associated with the service, the frequency of service, and specific routes.

GUIDED TOUR BUS

As an alternative to an onsite shuttle, BLM could provide a guided tour bus with commentary on the site's history, natural and cultural features, and other important information. If desired, BLM could also coordinate with the Oregon Parks and Recreation Department, Friends of Yaquina Lighthouses, City of Newport, and other organizations/agencies to expand the tour service to other destinations in Newport or on the Oregon Coast. Considerations for a guided tour bus would be similar to those for the onsite shuttle bus.



A shuttle bus could be used to decrease personal vehicle trips on site. The bus could also offer guided tours at other Oregon Coast destinations.

ELECTRIC VEHICLE ACCOMMODATIONS

Oregon is home to one of the largest and most robust networks of electric vehicle fast charging stations in the US. The West Coast Electric Highway is a network of fast charging stations located every 25-50 miles along I-5, Highway 99, and other major roadways in the Pacific Northwest. Travel Oregon is helping develop itineraries on Oregon's Electric Byways that pass by environmentally friendly businesses and key landmarks across the state. Travel Oregon has also partnered with Forth, a non-profit organization dedicated to expanding equitable access to electric transportation, to offer rebates for tourism-related businesses in Oregon that successfully install charging stations.

BLM could consider providing electric vehicle charging stations at the ONA to help boost tourism, encourage environmentally friendly travel practices, and support the adoption of electric vehicle infrastructure across the state. Providing charging stations at the Interpretive Center may also encourage visitors to park and charge their vehicles while they tour the rest of the site on foot.



Source: Seaside, Oregon

Oregon is making great strides in expansion of electric vehicle accommodations across the state. BLM could support this effort by providing a charging station at Yaquina Head ONA while also potentially boosting tourism at the site.

6.1.4. Wayfinding Strategies

Wayfinding refers to information systems that guide people through a physical environment and enhance their understanding and experience of the space. Wayfinding is particularly important in complex and high-stress built environments, such as transportation facilities, and can be developed for both pedestrians and motorists, who each have unique challenges navigating roadway corridors. Comprehensive wayfinding systems often combine signage, maps, symbols, colors, and other communication techniques to help guide visitors to their destinations and reduce confusion.

There are 4 types of wayfinding signs: identification, directional, informational, and regulatory. At Yaquina Head ONA, wayfinding is needed to communicate a variety of information including fee requirements and turnaround options in advance of the entrance station, which lane to get in at the entrance station, directions to key destinations within the site, parking availability at the lighthouse, and walking and biking directions. Signs sharing this type of information already exist at the site, but many of these signs are small, temporary placards requiring staff time to set out and pick up each day. Installing larger permanent signs would reduce staff time and be more prominent to visitors. Wayfinding signs also offer an opportunity to provide signage on site that is cohesive and consistent with BLM/Yaquina Head ONA branding and messaging.

Increasingly, wayfinding systems are integrating with mobile applications, digital displays, and other wireless technologies to communicate with broader audiences. These types of systems could be beneficial to install where dynamic information is valuable, such as at the Interpretive Center to indicate parking availability at the lighthouse. Intelligent transportation systems can be used to detect the number of vehicles entering and exiting the lighthouse circle in order to calculate how many parking spaces are available at a given time. This information could be displayed as vehicles approach the Interpretive Center to encourage visitors to park in the Interpretive Center lot and walk down to the lighthouse, reducing the number of circulating trips at the lighthouse. This would be helpful in communicating to visitors why they are directed into the Interpretive Center lot rather than directly to the lighthouse.



Source: Signal-Tech

BLM uses temporary wayfinding signs (left) for various purposes already; permanent signs with dynamic information displays (right) could help reduce staffing needs.

6.1.5. Pavement Preservation and Maintenance Strategies

Maintenance of transportation facilities accessing Yaquina Head ONA is shared between ODOT, the City of Newport, and BLM. ODOT is responsible for US 101 and Ernest Bloch Memorial Wayside, the City of Newport is responsible for Lighthouse Drive between US 101 and the ONA boundary, and BLM is responsible for all facilities within the ONA boundary. Within the site, the most recent roadway maintenance work, including application of slurry seal, striping, and crack sealing, has been completed by BLM facilities staff. Contracted asphalt work has also been completed in past years. Several roadways within the ONA have experienced continuing pavement failures including transverse and longitudinal cracking and sloughing.

Roadway preservation is a long-term strategy for enhancing functional roadway performance by using integrated, cost-effective maintenance practices that extend roadway life, improve safety and motorist satisfaction, and achieve sustainable roadway conditions. The following sections discuss pavement preservation strategies and maintenance practices that could be implemented at Yaquina Head ONA.

OPTIMAL TIMING

Traditionally, federal, state, and local agencies have allowed roadways to deteriorate to “fair” or “poor” condition before steps were implemented to rehabilitate the road. However, recent findings show that this management strategy is both costly and time consuming. Agencies have realized that regularly implementing a series of low-cost preventive maintenance treatments is the most cost-effective way to manage and preserve roadways while also avoiding continual rehabilitation. The most effective roadway preservation strategy consists of implementing planned roadway treatments at the optimum time to address minor deficiencies before they become major failures.

Figure 9 illustrates this roadway preservation concept with an emphasis on optimal timing. The example compares 2 paved roadways starting at the same condition. One scenario is managed under the traditional approach of rehabilitating the roadway and allowing it to deteriorate to a state of failure. Failure occurs when the road is in fair to poor condition shown by the rehabilitation trigger line. At this line, irreversible structural damage has occurred, resulting in the need for costly rehabilitation of the entire roadway.

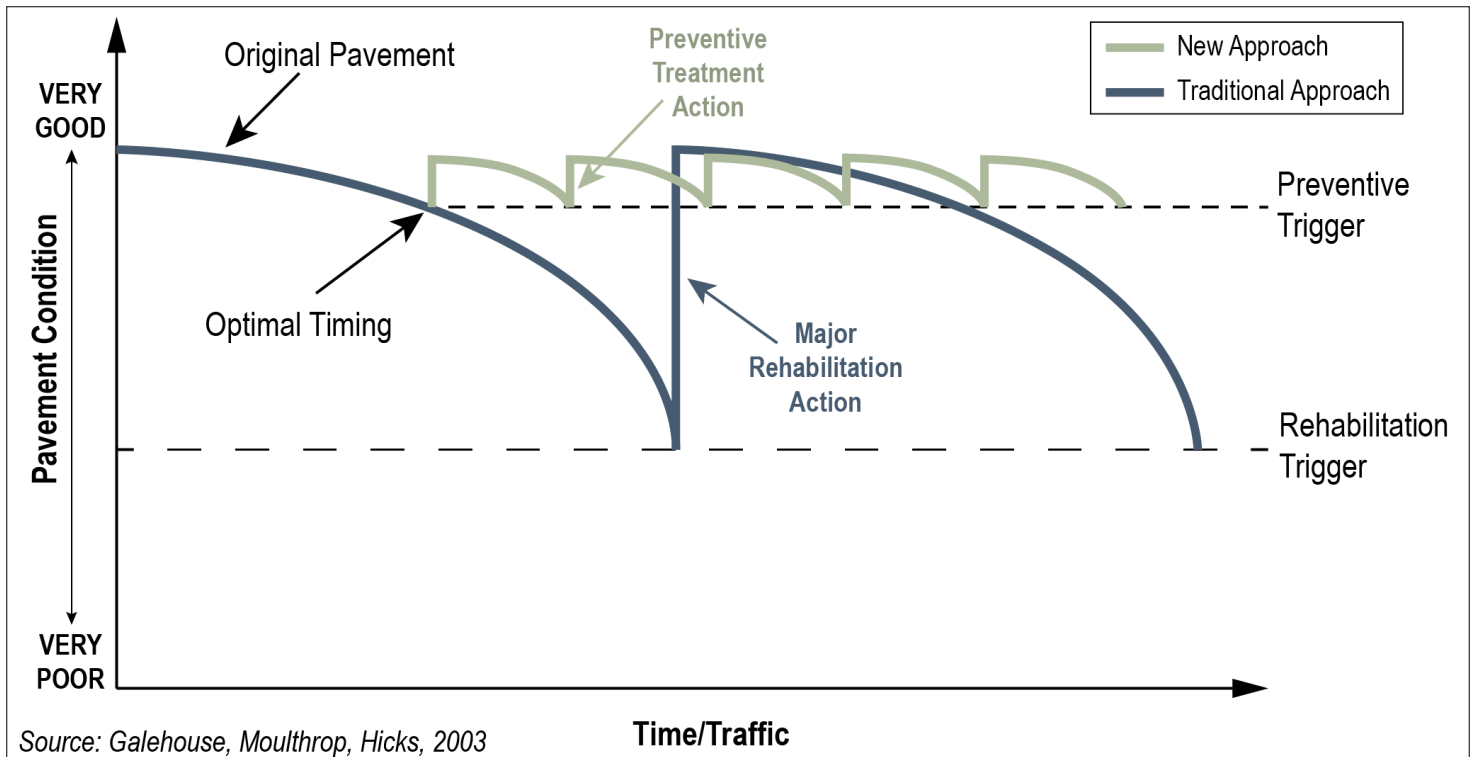
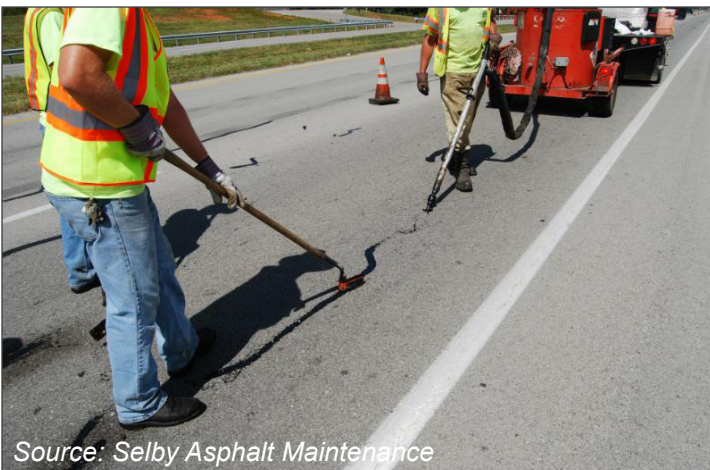


FIGURE 9: OPTIMAL TIMING PAVEMENT PRESERVATION CONCEPT¹²

As shown in **Figure 9**, the new approach scenario implements regular pavement preservation techniques, which are low-cost preventive maintenance treatments implemented when the roadway reaches a predetermined level. The timing of treatment implementation is crucial for the success of the preservation plan. If the treatments are implemented after the optimal time, the roadway will be deteriorating at a rate from which it cannot recover and the investment in maintenance will be wasted. However, if the preventive maintenance is implemented at the optimal time, the roadway will be restored to near original condition, and if routine maintenance continues it will result in much greater intervals between roadway rehabilitations.

PREVENTIVE ASPHALT MAINTENANCE ACTIVITIES

Preventive measures typically include crack sealing, fog seals, chip seals, and/or hot-mix asphalt thin overlays (non-structural). Each of these treatments are most effective when implemented at the optimal time. The optimal application time for each treatment should be established in accordance with the roadway's condition rating and field verification. The expected life of each treatment is dependent on traffic volumes and environmental conditions; however, non-structural overlays typically last the longest, followed by chip seals and crack seals. Chip sealing is the most commonly used treatment in the Pacific Northwest. Microsurfacing, ultrathin bonded wearing course, cape sealing, and cold in-place recycling are other asphalt pavement preservation treatments that have been used by agencies in the region. However, most of the agencies do not regularly use these treatments based on previous performance, costs, and existing roadway conditions.¹³



Source: Selby Asphalt Maintenance

BLM typically performs crack sealing treatments to preserve the pavement at Yaquina Head ONA. Several other methods are used across the state with chip sealing being the most commonly used.

DRAINAGE IMPROVEMENTS

Inadequate drainage is a primary factor in pavement failures. Proper drainage is vital to remove water from roads and maintain a healthy roadway network. A proper drainage system includes the traveled way, shoulders, ditches, and culverts. These elements work together to prevent water from penetrating the road surface. The crown and cross slope of the roadway and shoulder help move water to the roadside so ditches and culverts can carry it away. When water stands on the road it can seep into the road base which saturates and weakens the road strata, causing cracking, rutting, and potholes. It is important to closely monitor roadway drainage and fix any problems immediately.

Maintaining vegetation in ditches is also desirable to provide adequate drainage and prevent erosion. Mowing vegetation and cutting brush is necessary to keep water flowing smoothly. Keeping culverts and other drainage structures free of sediment and debris also helps avoiding road deterioration and flooding.

ROUTINE MAINTENANCE ACTIVITIES

In addition to preventive maintenance activities, non-preventive (or routine) maintenance is also needed to keep the roadway in proper working order. This includes trimming vegetation to maintain driver sight lines, maintenance of road signs and striping, road sweeping and debris removal, litter cleanup, noxious weed control, snow removal, and spot repairs.

EMERGENCY MAINTENANCE ACTIVITIES

Emergency maintenance is typically conducted following an emergency condition such as a landslide or flood event or in response to road failures needing urgent repair. Coastal erosion and landslides are extensive in the area surrounding Yaquina Head. The majority of the ONA is considered to be at moderate to high risk for landslide occurrence. The ONA is also located in a region that is expected to experience very strong to severe shaking in the instance of an earthquake. Landslide and rockfall events have occurred at the site, most recently near the entrance station. The steep rocky cliffs resulting from past quarrying activity at the site and the general geologic composition of the area have made several of the slopes unstable. Landslides, rockfall events, and erosion can cause significant impacts to transportation within the site including blocking travel routes, causing roadway damage, or causing bodily harm to visitors and staff. In the event



In the past, landslides have occurred on this hillside near the entrance station, blocking traffic and staff exit from the fee booth.

of one of these occurrences, immediate debris removal should be conducted and the need for slope stabilization should be investigated. As a precautionary measure, retaining structures, rockfall barriers, and catchments can be installed to prevent substantial damage should an event occur.

Lighthouse Drive runs adjacent to the coastal floodplain, but the roadway itself lies outside of the floodplain boundary. Some areas of the ONA, including part of Quarry Cove Road, lies within the coastal floodplain boundary. Depending on the severity of a flood event, road washouts and other severe damage could occur. However, the primary impact of flooding is saturation of the road surface which can weaken the asphalt, cause deterioration, and make the asphalt more susceptible to damage such as cracks, deformations, and potholes in the long term. Installing proper drainage and repairing surface deformations when they occur can help minimize the impacts of a flood event and prevent severe damage.

6.1.6. Strategies to Accommodate Oversize and Accessible Parking

The Yaquina Head ONA strives to accommodate a range of user abilities and vehicle types as part of its purpose to support education, scientific study, and public recreation. In addition to standard passenger vehicle parking spaces, each designated parking area at the site provides oversized vehicle parking and accessible parking in compliance with applicable regulations. Considerations relating to parking configurations are discussed in the following sections.

ACCESSIBLE PARKING

Government entities must provide accessible parking spaces in parking lots in accordance with the 2010 *Americans with Disabilities Act Standards for Accessible Design*.¹⁴ In addition, facilities that provide goods or services to the public have a continuing obligation to remove barriers to accessibility in existing parking facilities.

The required number of accessible parking spaces must be calculated separately for each parking facility, not calculated based on the total number of parking spaces provided at a site. At least 1 in 6 accessible parking spaces (always at least 1) must be designed to be van accessible. Based on the ADA guidelines, summarized in **Table 2** below, all parking lots at Yaquina Head ONA meet or exceed the minimum requirements for ADA parking spaces. Note, small parking lots of 4 or fewer spaces must have accessible spaces, but those spaces do not need to be signed and anyone, regardless of disability status, can park in the accessible space.

TABLE 4: MINIMUM REQUIRED ACCESSIBLE PARKING SPACES

Total Number of Parking Spaces Provided in Parking Facility	Minimum Number of Accessible Parking Spaces (Car and Van)	Minimum Number of Van-Accessible Parking Spaces (1 in 6 Accessible Spaces)
1 to 25	1	1
26 to 50	2	1
51 to 75	3	1
76 to 100	4	1
101 to 150	5	1
151 to 200	6	1

Source: 2010 ADA Standards for Accessible Design



ADA-accessible parking stalls are provided in all parking lots at Yaquina Head ONA; an increased number of ADA stalls is desired.

Accessible parking spaces must be located on the shortest accessible travel route to an accessible entrance. Where buildings have multiple accessible entrances, the accessible parking spaces must be dispersed and located closest to the accessible entrances. An accessible route, without curbs or stairs and at least 3 feet wide, must always be provided from the accessible parking to the accessible entrance.

Accessible parking spaces are 8 feet wide while van-accessible spaces are 11 feet wide. Access aisles provide room for individuals to deploy vehicle-mounted wheelchair lifts and/or unload and use mobility devices such as wheelchairs or walkers. Aisles should be provided on both sides of an accessible space and should be 5 feet wide for both standard and van-accessible spaces. It is permissible for the aisles to be shared between 2 adjacent spaces. Access aisles must be marked (e.g., painted with hatch marks) to discourage parking in them. An alternate design allows a van-accessible space to be 8 feet wide if the adjacent access aisle is also 8 feet wide. Minimum stall lengths are not provided in the 2010 ADA Standards, but BLM guidance suggests a standard length of 20 feet.¹⁵

Accessible parking spaces must also be identified by signs that include the International Symbol of Accessibility. Signs at van-accessible spaces must include the additional phrase “van-accessible.” Signs should be mounted so that the lower edge of the sign is at least 5 feet above the ground to ensure visibility by both drivers and local enforcement officials.

ADA Standards do not prohibit front-in only, back-in only, or angled accessible parking spaces. However, where van-accessible spaces are angled, the standards require the access aisle to be located on the passenger side

(where vehicle ramps and lifts are typically deployed). Since users pull in or back in depending on which side the access aisle is needed, it is advisable to design both standard and van-accessible spaces so that they can be entered in either direction. Otherwise, consider providing 1 access aisle at each regular accessible space instead of allowing 2 adjacent spaces to share an aisle so that access is available on both sides.

RV PARKING

RV sizes vary considerably but typically range between 20 and 50 feet in length. RV parking spaces are also variable depending on the type and purpose of the parking space. For example, RV parking spaces in campgrounds are often much longer and wider to accommodate the activities that accompany camping, such as picnicking and grilling. RV stalls in RV parks are similar but must be at least 20 feet wide to comply with fire codes. When parking lots provide designated RV parking, stalls are often large enough to accommodate most RV sizes. Most RV parking spaces are a minimum of 20 feet wide and 40 feet long while a standard vehicle parking space is generally 9 feet by 18 feet long. Where designated RV parking is not provided, some RVs will be able to fit in a standard parking space, while larger models will need to take up multiple spaces.

The number of RV parking spaces needed in a parking lot varies based on site and facility needs. There are no requirements or standard guidance available. Input from BLM staff suggests that on the busiest day at the site, 7 to 8 RV stalls are needed in the Interpretive Center parking lot to accommodate demand. There are currently only 3 RV stalls in the Interpretive Center parking lot. On busy days, RVs have been observed parking on the outer edge of the parking lot partially blocking through traffic.



Angled RV parking stalls are provided at lighthouse circle. An irregularly shaped RV/Bus lane is also provided. Both are often occupied by personal vehicles during peak visitation times.

Spaces designed for RVs and trailers are not exempt from accessibility coverage, but the 2010 ADA standards do not include technical provisions specific to these spaces. Accessible RV or trailer spaces may be located among other RV or trailer spaces so long as they are on the shortest accessible route to nearby facility entrances. Access aisles serving accessible spaces must be as long as the vehicle space they serve.

The *Architectural Barriers Act Standards*¹⁶ apply to facilities designed, built, altered, or leased with federal funds. Yaquina Head ONA is subject to compliance with these standards. The standards include provisions for RV parking and pull-up spaces at outdoor developed areas on federal lands such as camping and picnic facilities. The standards specify that parking spaces and pull-up spaces for recreational vehicles shall be a minimum of 20 feet wide except where 2 adjacent RV parking spaces are provided, when 1 parking space may be a minimum of 16 feet wide.

6.1.7. Management Strategies

Yaquina Head ONA is managed by several BLM staff, including both year-round and seasonal workers, and volunteer site hosts. The staff manage the entrance station, educational tours, the Interpretive Center, and the general park operations. The site hosts provide support to BLM staff and work various shifts at the tidepools, lighthouse, and Interpretive Center or wherever needed. The following strategies are proposed to help manage the site efficiently during day-to-day operations, peak visitation periods, and emergency situations.

ENTRANCE STATION MANAGEMENT

The Yaquina Head entrance station is presently managed by BLM staff. Between 1 to 2 rangers are stationed in the fee booth during park hours to greet visitors, check and issue passes, manage ADA clickers for Quarry Cove, track visitor entry numbers, and collect cash payments. Visitors paying by credit card are directed to an AFM kiosk located just to the west of the main booth. During peak visitation periods, BLM staff conduct “line busting” which involves standing in live traffic between traffic cones and directing pass holders to proceed to the left side of the booth through 1 of the lanes typically used for outbound traffic.

To expedite visitor processing time, a second fee station with a second entry lane is recommended. It is envisioned that 1 or both of the new stations would be equipped with a credit card kiosk and a barrier gate with an automatic arm to allow the second station to operate automatically during

peak periods. At the time of writing, BLM staff were unable to collect and process credit card payments without a self-serve AFM. In the future, however, it is expected that BLM staff could either process credit card payments in the fee booth or install an AFM in the entry lane to allow visitors to pay by credit card without having to park and get out of their vehicle at the self-serve kiosk. It is also envisioned that pass holders may be able to scan their pass, with the automated barrier gate immediately allowing entry into the site.

With these modifications, it is expected that processing times would be shortened considerably and standing queues would be much smaller. The addition of a second booth would also provide more space for queues to build without having to extend down the city-owned portion of Lighthouse Drive. Both fee booths could be designed to operate fully automatically, however, it is desirable to BLM to have a booth staffed by at least 1 staff member so they can greet and orient visitors to the site, as this is sometimes the only contact rangers have with visitors. Staff also like to be present to issue ADA clickers and talk with visitors as they leave the site.

The entrance station is also equipped with in-ground loop conductors for traffic monitoring purposes. BLM uses vehicle counts from the loops to track the number of visitors to the site each day. Staff also manually track recreational vehicles versus non-recreational vehicles (BLM staff, delivery vehicles, utility and maintenance vehicles, contractors, and other non-visitor vehicles), pedestrians, bicycles, buses, and pass status. This data is used to track visitation at the site for planning and management purposes. It is desirable to keep some level of automatic visitation data either through loop conductors, radar, video, or other system.



Source: NRB Modular Solutions

An automated fee booth with attached credit card kiosk and automatic barrier arm could help expedite visitor entry times.

EMERGENCY MANAGEMENT

When improving the site, it is important to consider and address emergency transportation issues, both for small-scale and large-scale emergencies. In the event of a small-scale emergency, such as the need for immediate medical attention or a building fire, easy and efficient access by emergency vehicles will be critical. As discussed under the site-specific improvements (**Section 6.2**), access by emergency vehicles was considered with each potential improvement option. All preferred concepts would be designed to accommodate oversize emergency vehicles, such as pumpers and ladder trucks, and would also allow more direct access by emergency vehicles in emergency situations. For example, the new circulation pattern at the Interpretive Center would allow emergency vehicles to travel the shortest path through the parking lot and not require them to circulate around the entire outside edge of the lot. Additionally, installing a second entry lane into the site would help create additional space for vehicles to pull over so an ambulance or other emergency vehicle could enter the site more quickly. However, installing a pedestrian path along the entirety of Lighthouse Drive may use up the space previously dedicated for roadway shoulders that could be used in emergency situations. When the roadway is reconstructed, consideration should be given to whether additional shoulder space is needed for vehicles to pull over in emergency situations, or if the sporadic turnouts along Lighthouse Drive are sufficient.

Lincoln County's *Multi-Jurisdictional Natural Hazards Mitigation Plan*¹⁷ provides resources, information, and mitigation strategies for reducing risk of disaster and long-term effects resulting from natural hazards. The plan notes that the area around Yaquina Head and Moolack Beach is particularly vulnerable for coastal erosion and, because of its role in defining and supporting the community, the Yaquina Head Lighthouse is identified as an important historic resource to protect from the impact of disasters. Due to its elevation, almost the entire ONA is outside the hazard area for a tsunami resulting from an earthquake. However, the Quarry Cove ADA access road is within the hazard area for both a local and distant tsunami. Emergency evacuation for Quarry Cove visitors, especially disabled visitors, should be considered.



Preparation of an evacuation plan can help with rescue efforts during a large scale emergency.

In the event of a natural disaster such as wildfire, earthquake, or tsunami, emergency evacuation is particularly challenging at Yaquina Head ONA with Lighthouse Drive being the only ingress/egress route. BLM would have to consider how visitors and staff should evacuate the site, whether by foot, by vehicles, or both. Typically, evacuation on foot is preferred to reduce traffic congestion that could delay or prohibit evacuation. A mix of vehicles and pedestrians in the constrained space of Lighthouse Drive could be potentially dangerous. Installation of a pedestrian path along the entire length of Lighthouse Drive could help alleviate some concerns. Advertising the evacuation plan and evacuation routes for the site through wayfinding signs could also be beneficial. The Ernest Bloch Memorial Wayside parking area is the closest designated assembly area to the ONA.

6.1.8. Summary of Sitewide Improvement Strategies

Table 5 on the following page presents a summary of the strategies discussed in the previous sections.

TABLE 5: SITEWIDE IMPROVEMENT STRATEGIES

Strategy/Option	Advantages	Disadvantages	Other Considerations
TRAFFIC CALMING STRATEGIES			
Lower Posted Speed Limit	<ul style="list-style-type: none"> Lower vehicle speeds may be more comfortable for pedestrians walking along the roadway 	<ul style="list-style-type: none"> Lower speed limit may not be well observed by visitors Would require enforcement to be effective 	<ul style="list-style-type: none"> Consistent speed limits throughout the site would likely be better observed Engineering judgment should be used to set the speed limit if not using the 85th percentile speed
Speed Feedback Signs	<ul style="list-style-type: none"> May encourage visitors to observe posted speed limits 	<ul style="list-style-type: none"> Additional signage may contribute to information overload Would require enforcement to be effective 	<ul style="list-style-type: none"> Can become less effective over time for regular site visitors
Warning Signs	<ul style="list-style-type: none"> Could help reduce vehicle speeds if placed appropriately Could help increase awareness of pedestrians/bicycles near the roadway 	<ul style="list-style-type: none"> Additional signage may contribute to information overload and detract from natural setting 	<ul style="list-style-type: none"> Consider appropriate placement and number of signs throughout site
Speed Bumps, Humps, and Tables	<ul style="list-style-type: none"> Physical obstruction forces drivers to slow down May improve safety and reduce speeds at pedestrian crossings 	<ul style="list-style-type: none"> May be frustrating to visitors Increased maintenance required Can cause damage to vehicles May impact emergency vehicle access within the site 	<ul style="list-style-type: none"> Consider placement for maximum effectiveness Consider pavement markings and signage to ensure visibility
Narrow Travel Lanes	<ul style="list-style-type: none"> May encourage drivers to slow down Reduces exposure and crossing distances for pedestrians 	<ul style="list-style-type: none"> May be difficult for trucks, RVs, and buses to maneuver tight curves 	<ul style="list-style-type: none"> Consider reallocation of roadway travel lanes to be used for pedestrian facilities
Lateral Shifts and Chicanes	<ul style="list-style-type: none"> May encourage drivers to slow down Chicanes typically achieve a greater speed reduction than lateral shifts 	<ul style="list-style-type: none"> Less effective where traffic volumes are higher in 1 direction or where likelihood of encountering opposing vehicle is low Increased maintenance required 	<ul style="list-style-type: none"> Consider medians to ensure vehicles do not cross centerline Consider emergency vehicle access such as mountable medians
PEDESTRIAN ACCOMMODATION STRATEGIES			
Path on North Side of Lighthouse Drive	<ul style="list-style-type: none"> Provides an easier connection to the TSP-proposed NW Rocky Way path Wouldn't have to shift roadway alignment significantly to accommodate path between US 101 and entrance station 	<ul style="list-style-type: none"> Path or roadway would likely have to shift south after entrance station due to limited available space Potential user safety concern due to landslides and rockfall on north side cliffs Farther from desirable ocean view 	<ul style="list-style-type: none"> Consider appropriate crossing locations to facilitate connections to Ernest Bloch Memorial Wayside, the OCT, and other pedestrian facilities
Path on South Side of Lighthouse Drive	<ul style="list-style-type: none"> Provides an easier connection to existing pedestrian facilities within the ONA Closer to desirable ocean views to the south 	<ul style="list-style-type: none"> Lighthouse Drive would have to be shifted north to accommodate path on south side between US 101 and entrance station 	<ul style="list-style-type: none"> Consider appropriate crossing locations to facilitate connections to NW Rocky Way and other pedestrian facilities outside the ONA
Separation Types	<ul style="list-style-type: none"> Guardrail and cable rails match the existing infrastructure onsite Jersey barriers provide the maximum degree of pedestrian protection Bollards can be fixed or temporary depending on site needs 	<ul style="list-style-type: none"> Metal and plastic barriers are more susceptible to deterioration from environmental elements and require more maintenance over time Jersey barriers and guardrail require the most lateral space 	<ul style="list-style-type: none"> Consider which separation type best balances protection for pedestrians, aesthetics, maintenance needs, and usable pedestrian space
STRATEGIES TO ENCOURAGE ALTERNATIVE TRANSPORTATION			
Regular Transit Service	<ul style="list-style-type: none"> May help boost tourism Could reduce parking needs if highly used Could potentially be accommodated through Lincoln County Transit 	<ul style="list-style-type: none"> May not be profitable if ridership is low 	<ul style="list-style-type: none"> Consider location of rider drop off; consider potential delays caused by waiting in entrance station queue to ONA; consider pedestrian connections outside ONA

Strategy/Option	Advantages	Disadvantages	Other Considerations
STRATEGIES TO ENCOURAGE ALTERNATIVE TRANSPORTATION (CONTINUED)			
Bicycle Accommodations	<ul style="list-style-type: none"> May help increase bicycle use onsite and encourage visitation by OCT users Shared lane markings help increase awareness of bicyclists in roadway 	<ul style="list-style-type: none"> Additional signage for shared lanes may contribute to information overload 	<ul style="list-style-type: none"> Consider best location for bike racks or bike lockers Consider how e-bikes are best accommodated within existing laws
Bike Share Program/Onsite Bike Rentals	<ul style="list-style-type: none"> May help boost tourism If implemented in coordination with the city, could help reduce vehicular use and parking demands Environmentally friendly option for traveling through the ONA 	<ul style="list-style-type: none"> Can be costly; fees passed on to users may not be desirable, especially if compounded with site entrance fees Helmets are generally not provided, which can be a safety concern 	<ul style="list-style-type: none"> Consider partnering with the City of Newport to provide expanded biking options Consider where bike share stations would be located and who would maintain distribution of bikes across the system
Onsite Shuttle Bus	<ul style="list-style-type: none"> Visitors could park and ride the shuttle bus to other onsite destinations, reducing parking needs at other locations Beneficial for groups with young children or disabled persons 	<ul style="list-style-type: none"> May be cost prohibitive, expenses include purchase, maintenance, and operations of buses as well as staffing needs 	<ul style="list-style-type: none"> Consider how the shuttle would be funded (user fees, grant, etc.)
Guided Tour Bus	<ul style="list-style-type: none"> May help boost tourism Could reduce parking needs if highly used Information provided by tour guide could help enhance the visitor experience 	<ul style="list-style-type: none"> May not be profitable if ridership is low 	<ul style="list-style-type: none"> Consider partnering with other jurisdictions to provide a guided tour along the Oregon Coast
Electric Vehicle Accommodations	<ul style="list-style-type: none"> Supports Oregon's desire for electric vehicle adoption across the state Environmentally friendly option for traveling through the ONA 	<ul style="list-style-type: none"> If electric vehicle charging station is located outside of ONA, or not well-advertised, may not boost tourism on site 	<ul style="list-style-type: none"> Consider location of electric vehicle charging stations for maximum use
WAYFINDING STRATEGIES			
Wayfinding Strategies	<ul style="list-style-type: none"> Help guide visitors throughout the site and reduce confusion Reduce staffing needs to set out temporary signs Technologically integrated signs can display information in real time 	<ul style="list-style-type: none"> Additional signage may contribute to information overload Dynamic signs may require increased maintenance and utility needs 	<ul style="list-style-type: none"> Opportunity to enhance Yaquina Head ONA branding/messaging
PAVEMENT PRESERVATION AND MAINTENANCE STRATEGIES			
Optimal Timing	<ul style="list-style-type: none"> Most cost-effective way to manage and preserve roadways Extends service life Fixes minor deficiencies before they become failures 	<ul style="list-style-type: none"> If treatments are not implemented at the optimal time, previous maintenance investments will be wasted 	<ul style="list-style-type: none"> Development of a pavement preservation plan will help ensure treatments are completed regularly and at the optimal time
Preventive Asphalt Maintenance Activities	<ul style="list-style-type: none"> Treatments are most effective when implemented at the optimal time Chip sealing is the most common preventive technique in the Pacific Northwest 	<ul style="list-style-type: none"> The expected life varies based on traffic volumes and environmental conditions 	<ul style="list-style-type: none"> Other pavement preservation techniques can be used but effectiveness and appropriateness may vary based on cost and existing roadway conditions
Drainage Improvements	<ul style="list-style-type: none"> Proper drainage prevents water from penetrating the roadbed, preserving the pavement 	<ul style="list-style-type: none"> Inadequate drainage is a primary factor in pavement failures 	<ul style="list-style-type: none"> Proper vegetation maintenance prevents erosion and flooding and helps provide adequate drainage
Routine Maintenance Activities	<ul style="list-style-type: none"> Help keep the roadway in proper working order and are beneficial for operations and safety 	<ul style="list-style-type: none"> Staff time is required to complete maintenance duties on a regular basis 	<ul style="list-style-type: none"> Developing a maintenance plan will help ensure all routine maintenance activities are completed regularly
Emergency Maintenance Activities	<ul style="list-style-type: none"> Precautionary measures can help prevent substantial damage when an emergency occurs 	<ul style="list-style-type: none"> Typically conducted in response to an emergency condition or catastrophic failure 	<ul style="list-style-type: none"> Conduct site analysis to determine where vulnerabilities occur and the most appropriate preventive measures

Strategy/Option	Advantages	Disadvantages	Other Considerations
STRATEGIES TO ACCOMMODATE OVERSIZE AND ACCESSIBLE PARKING			
Accessible Parking	<ul style="list-style-type: none"> Designated parking locations ensure key site attractions are accessible to disabled individuals Providing a minimum number of ADA-accessible parking spaces is required under federal regulations 	<ul style="list-style-type: none"> The minimum number of ADA stalls may not be sufficient at the ONA due to historic visitor needs and trends Designating more than the minimum number of ADA stalls reduces available parking for other visitors. During times of high visitation, enforcement may sometimes be needed to ensure ADA parking designations are respected. 	<ul style="list-style-type: none"> Assess the appropriate number and placement of ADA parking spaces for each parking area Assess accessible routes from ADA parking to buildings
RV Parking	<ul style="list-style-type: none"> Designated RV locations minimize inappropriate parking throughout the site and facilitate turning maneuvers for larger vehicles. 	<ul style="list-style-type: none"> There is no standard guidance available for the number of RV stalls needed RV stalls are not exempt from accessibility standards but there are no specific technical provisions Due to their length, visitors may treat RV parking stalls as travel lanes 	<ul style="list-style-type: none"> Determine the appropriate number of RV stalls based on historic visitor trends
MANAGEMENT STRATEGIES			
Entrance Station Management	<ul style="list-style-type: none"> A second fee booth and entry lane would help expedite processing times and should eliminate the need for "line busting" 	<ul style="list-style-type: none"> Automated fee booths would reduce staff communication with visitors 	<ul style="list-style-type: none"> Consider the best method(s) for monitoring visitation data
Emergency Management	<ul style="list-style-type: none"> Site-specific improvements will be designed to accommodate oversized emergency vehicles Advertising the site's evacuation plan and evacuation routes with wayfinding signs can be beneficial 	<ul style="list-style-type: none"> Emergency evacuation is particularly challenging since Lighthouse Drive is the only ingress/egress route Quarry Cove ADA access road is within the tsunami hazard area, and evacuation for Quarry Cove visitors, especially disabled visitors, should be considered 	<ul style="list-style-type: none"> Developing an evacuation plan can help visitors and staff know how to evacuate in an emergency

6.2. SITE-SPECIFIC IMPROVEMENTS

This section contains descriptions and performance summary of preferred configurations intended to address identified conflict points and areas of concern at the entrance station, Quarry Cove, Interpretive Center, and lighthouse. The preferred configurations reflect input from stakeholders and the public, staff feedback, information gathered from an evaluation of the existing and projected conditions of the study area, and a planning-level feasibility analysis. The preferred configurations are intended to address the identified needs and objectives defined for the Yaquina Head ONA.

6.2.1. Alternatives Analysis Process

Initially, a range of possible alternatives were prepared for consideration by BLM and the OC. After review and input, the configurations were revised and analyzed based on criteria including management and maintenance, traffic and safety performance, environmental impacts, geotechnical feasibility, and overall constructibility. The revised concepts and an analysis of advantages and disadvantages of each option according to the criteria were presented to BLM staff for additional input. The study team then conducted a site visit to identify any constraints or barriers that may limit the feasibility of an option. Through the site visit and coordination with BLM and FHWA staff, preferred configurations were identified for each of the four site-specific locations. The preferred configurations were determined to best balance competing needs, interests, and perspectives while also minimizing overall impacts and cost. The preferred configurations reflecting confirmation of site conditions are presented in this chapter. A description of each preferred configuration, performance evaluations, potential impacts, cost estimates, overall feasibility, and potential constraints are provided in the following sections. The options that were considered but not advanced can be found in **Appendix C**.

DESCRIPTION

A description of the preferred configuration and associated traffic flow are provided. Images showing a conceptual design of the preferred configuration, anticipated impacts resulting from construction, and traffic circulation patterns are also provided.

MANAGEMENT/MAINTENANCE

Each concept was reviewed from a staff management perspective addressing topics such as staffing and staff transportation needs, enforcement needs, emergency management, and general site management implications. To keep the site's transportation facilities operating safely and efficiently for visitors, various upgrades, repairs, or maintenance activities may also be necessary. An evaluation of maintenance needs and requirements was another consideration for each concept.

TRAFFIC PERFORMANCE

A high-level evaluation of traffic performance was performed for each concept. The evaluation included an analysis of circulation patterns and turning movements, access needs, and connectivity for vehicles and non-motorized users. The ability of each option to accommodate large vehicles, including emergency vehicles, was also considered. Overall operational performance of each option was also a factor, including vehicle processing times, queue storage, and general congestion. Additionally, a parking capacity analysis was performed to determine if the proposed option provided adequate ADA, RV, and standard parking stalls based on visitation needs and intended use of each parking lot.

SAFETY PERFORMANCE

Speeds, unsafe driver behavior, and non-motorist protection were identified as primary safety concerns at the site. Safety performance was assessed through a high-level evaluation analysis of potential vehicle conflict areas, pedestrian conflict areas, accessibility, and general user safety. The potential for unsafe driving behavior, including bypass maneuvers and speeding, was also evaluated.

ENVIRONMENTAL IMPACTS

To preserve the ONA, it is important to BLM, stakeholders, and visitors to minimize the amount of new pavement required for improvements and provide additional vegetation wherever feasible. Likewise, it is important to minimize temporary and permanent environmental impacts from construction. Potential notable environmental impacts are listed for each option. If improvements are advanced for implementation, detailed analysis would be required during the project development process to quantify specific resource impacts and identify associated permits, laws, regulations, and mitigation requirements that may apply.

GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTIBILITY

A planning-level field analysis was performed to determine the geotechnical feasibility of each option. Existing conditions such as steep hillsides, rocky cliffs, utilities, and right-of-way were evaluated and considered for potential constraints to feasibility and overall constructibility of each concept. Further field studies would be required for any concept advanced into future project development phases to determine design details and feasibility.

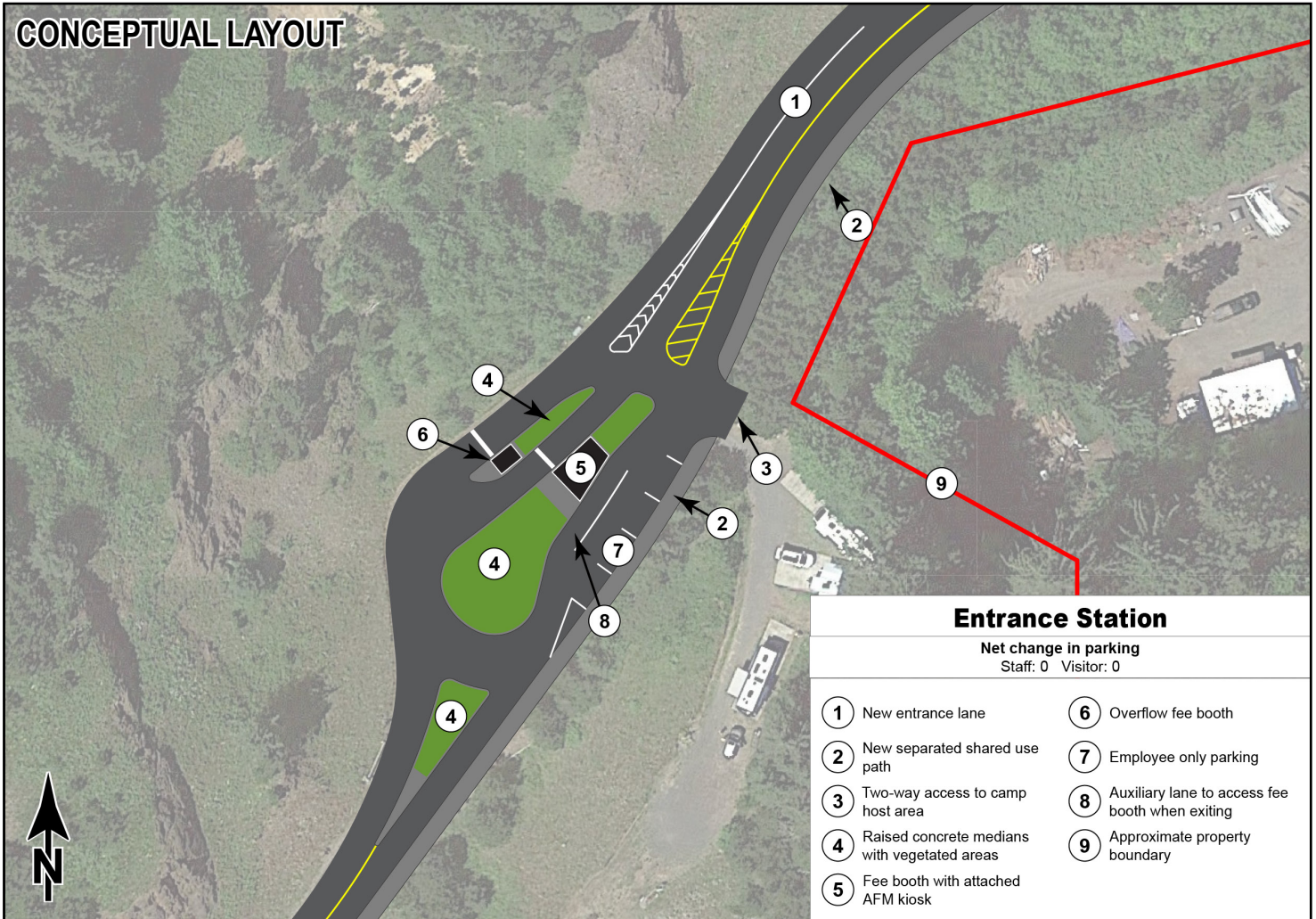
ESTIMATED COST

Planning-level cost estimates were developed for each preferred configuration. The estimates include costs for construction engineering, preliminary engineering, traffic control, and mobilization. A general contingency to account for unknown factors and anticipated project development risk level was also included in the cost estimates for all configurations. The estimates are presented in 2022 dollars and can be expected to increase with inflation depending on the anticipated future year of expenditure. **Appendix D** contains planning-level cost estimates for each of the preferred configurations presented.



ENTRANCE STATION PREFERRED CONFIGURATION

CONCEPTUAL LAYOUT



DESCRIPTION:

In this configuration the entrance station would remain in its existing location. Some roadway expansion would be necessary to provide a second entrance lane with a secondary fee booth. It is envisioned that one or both of the new entrance stations would be equipped with a credit card kiosk and a barrier gate with an automatic arm. An auxiliary exit lane would be provided to allow visitors to stop at the fee booth to talk to the ranger or return an ADA clicker. A SUP would also be constructed on one side of Lighthouse Drive beginning at the US 101 intersection and continuing westward onto the site. In the preferred configuration, the path is shown on the south side due to desirable views and separation from an active landslide area on the north side of the entrance station. Placement of the path could be pursued on the north side if constructibility or other issues were identified to the south during design.

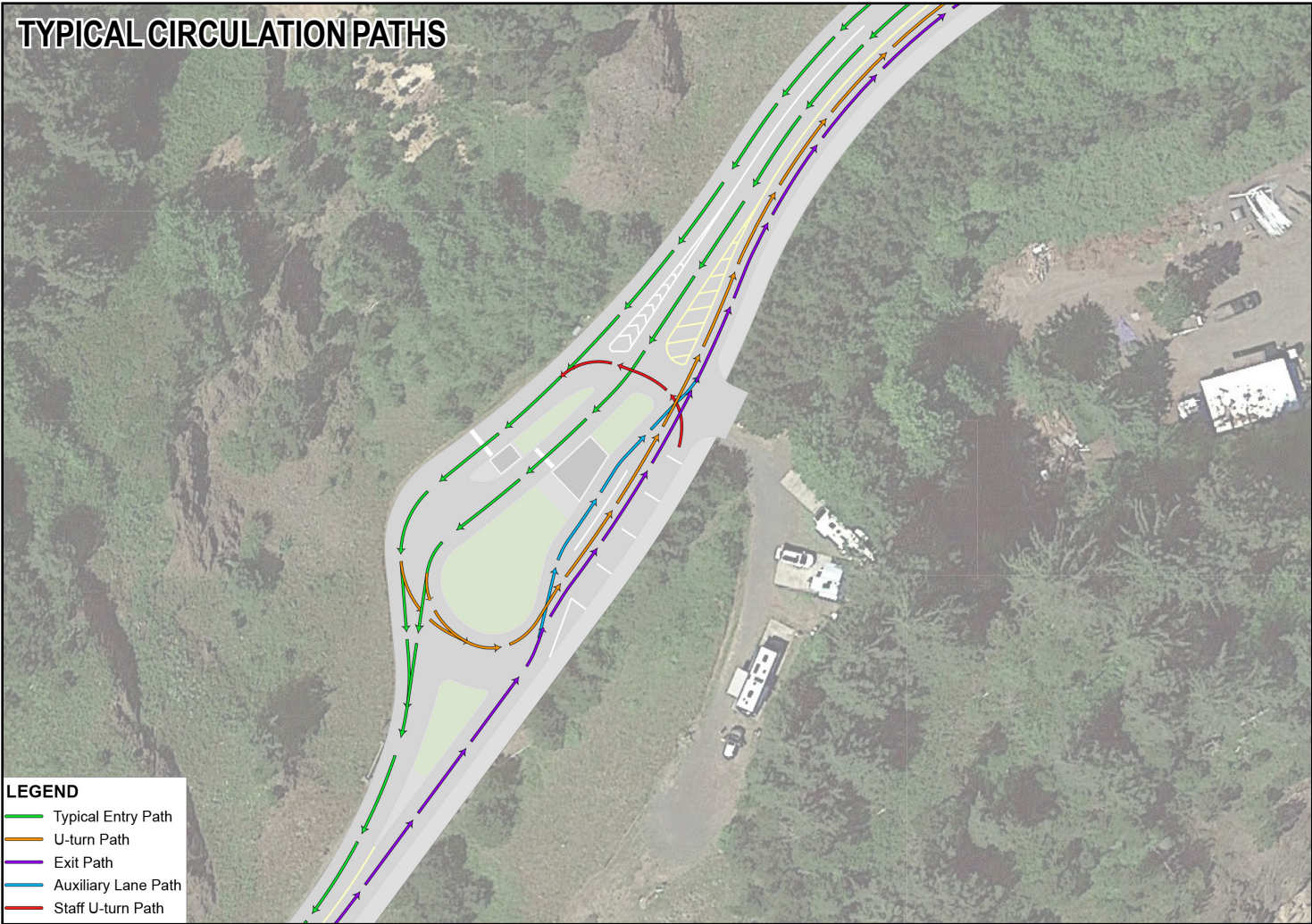
MANAGEMENT/MAINTENANCE:

The second entry lane with automated fee booth would provide flexibility based on staffing capacity. During the off season, one lane could be closed or automated to reduce staffing needs. The second lane would also diminish the need for staff to stand in the roadway to conduct line busting. Four staff parking stalls are anticipated to be sufficient during the typical day. An auxiliary exit lane is provided to allow visitors to stop at the fee booth to talk to the ranger or return an ADA clicker. The entrance to the camp host area is designed to allow easy access by RVs and easy turnarounds by staff with large vehicles. Increased maintenance would be required for the SUP on Lighthouse Drive.

ESTIMATED COST:

\$1.9M - \$2.3M

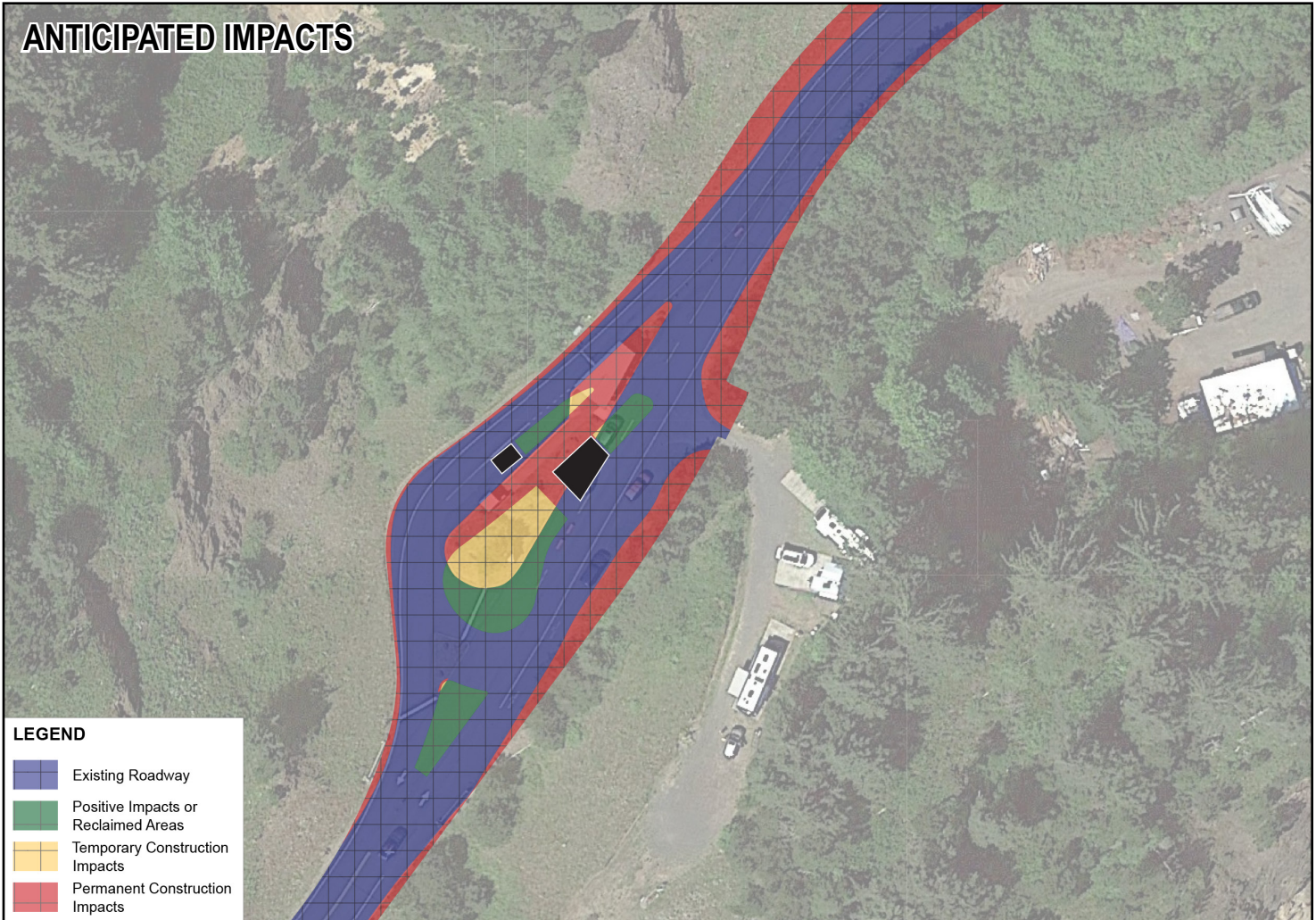
ENTRANCE STATION PREFERRED CONFIGURATION



TRAFFIC PERFORMANCE:	SAFETY PERFORMANCE:
<p>The dual entry lanes with credit card kiosks and barrier gates with automatic arms would help expedite entrance times and reduce queues. Additional informational signage could be incorporated to indicate the fee structure and other common visitor misconceptions to reduce the number of visitor turnarounds. Additional signage would be needed to direct visitors into the appropriate lane based on payment method, pass status, or other variable. More detailed analysis will be required during the design phase to determine the appropriate length of the second entry lane to accommodate visitor demand and reduce queuing effects on Lighthouse Drive outside the ONA boundary.</p>	<p>Compared to the existing configuration, this concept has a greater number of merging and diverging conflict points. However, dual entry lanes increase staff safety by removing the need for staff to stand in the roadway to conduct line busting. Incorporating credit card kiosks within or attached to the fee booths would also diminish the need for visitors to park, pay for their pass, and walk to the fee booth to collect their pass from a ranger. Additionally, the proposed SUP would provide protection for non-motorists and physical separation from vehicles, reducing the potential for conflicts. If the SUP is provided on the north side of the entrance station, visitor safety concerns pertaining to landslides and rockfall should be considered and properly mitigated.</p>

ENTRANCE STATION PREFERRED CONFIGURATION

ANTICIPATED IMPACTS



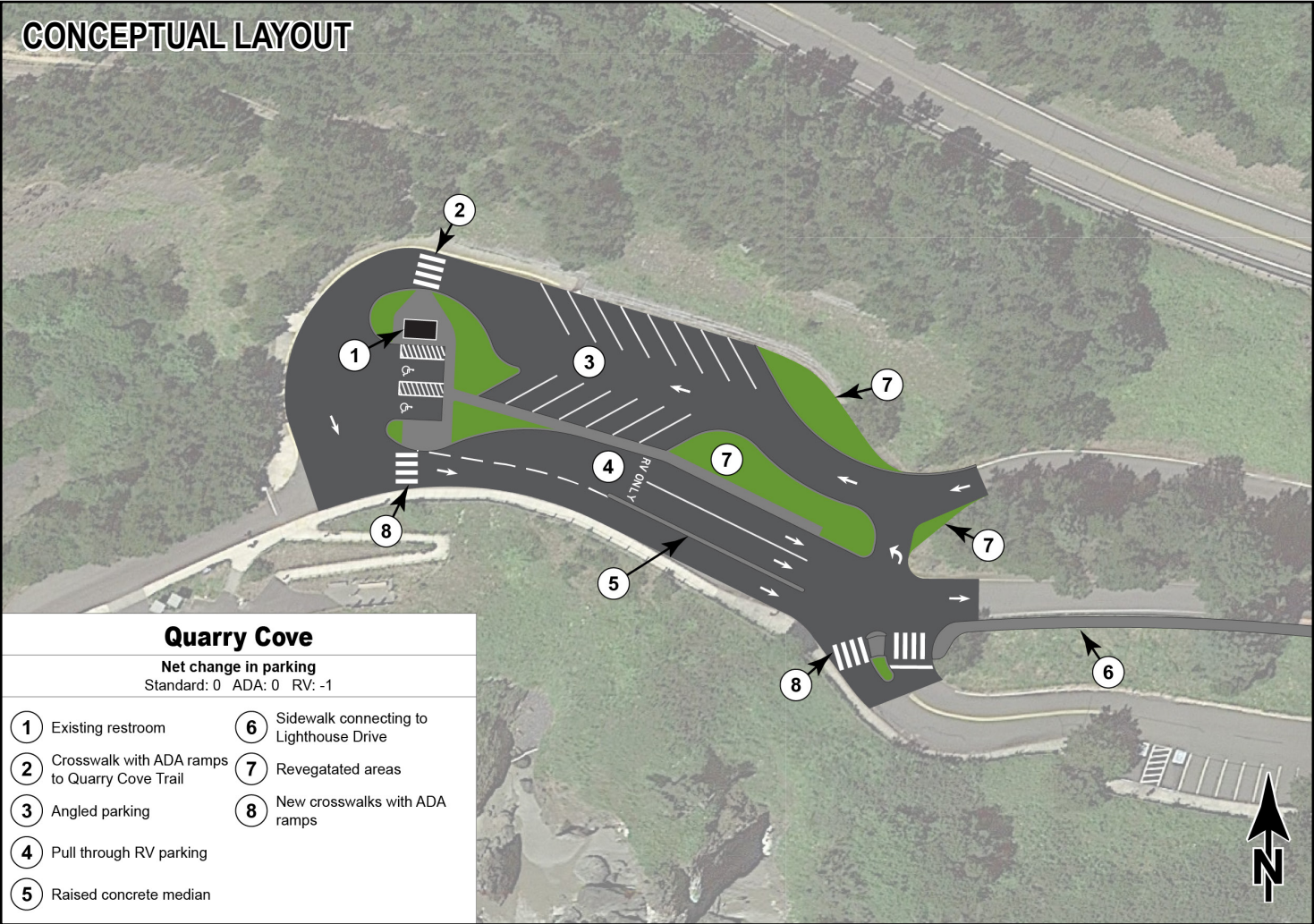
ENVIRONMENTAL IMACTS:

This configuration is designed to fit closely within the existing roadway footprint. Some expansion will be required on the north side of the entrance station to accommodate a second entry lane, and on the south side of the entrance station to accommodate a SUP. If a SUP is installed on the north side, the roadway would have to shift south to avoid potential impacts to the northern hillside that is an active landslide area. Vegetation could be incorporated into the concrete medians where feasible to minimize the additional pavement needed.

FEASIBILITY/CONSTRUCTIBILITY:

The hillside on the northern edge of the entrance station is an active landslide area, and impacts to this hillside should be avoided as much as possible. Rockfall barriers, retaining structures, or catchments may be needed to stabilize the slope and prevent hazardous landslide events from occurring. The length of the second entry lane should be evaluated in terms of traffic performance but should not extend past the BLM property boundary, which is approximately 500 feet east of the existing fee booth. Potential geotechnical and slope stability constraints should be investigated when determining the feasible length of the second lane. Right-of-way constraints on the south side of the entrance station should also be taken into consideration. A pinch point approximately 175 feet east of the existing fee booth provides approximately 15 feet of space between the edge of the existing pavement and the property boundary. Although no right-of-way acquisition is anticipated, property boundaries would need to be confirmed during design.

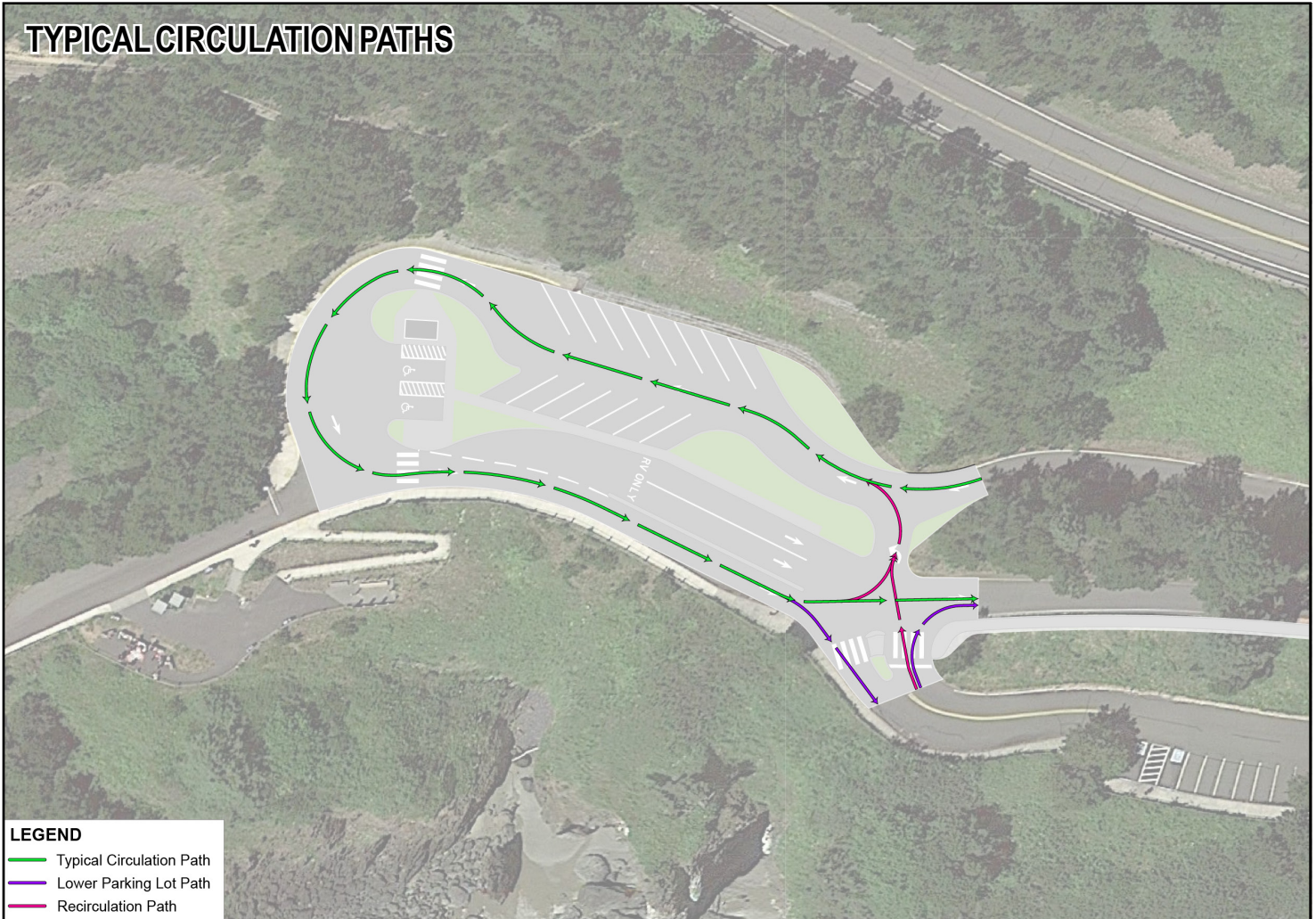
QUARRY COVE PARKING LOT PREFERRED CONFIGURATION



DESCRIPTION:	MANAGEMENT/MAINTENANCE:
<p>This configuration is intended to improve circulation and provide a more logical traffic flow within the existing parking lot footprint. In this configuration, all entering traffic would circulate through a single parking aisle with angled parking stalls on both sides. Two ADA parking stalls would be provided by the restrooms, and two RV/bus parking lanes would be provided on the south side of center island. A sidewalk would also be provided on the exit road between the parking lot and Lighthouse Drive.</p>	<p>Slightly more maintenance will be required for the sidewalk between the parking lot and Lighthouse Drive. The overall management of this lot is substantially similar to the existing configuration.</p>
ESTIMATED COST:	\$600,000 - \$900,000

QUARRY COVE PARKING LOT PREFERRED CONFIGURATION

TYPICAL CIRCULATION PATHS



TRAFFIC PERFORMANCE:

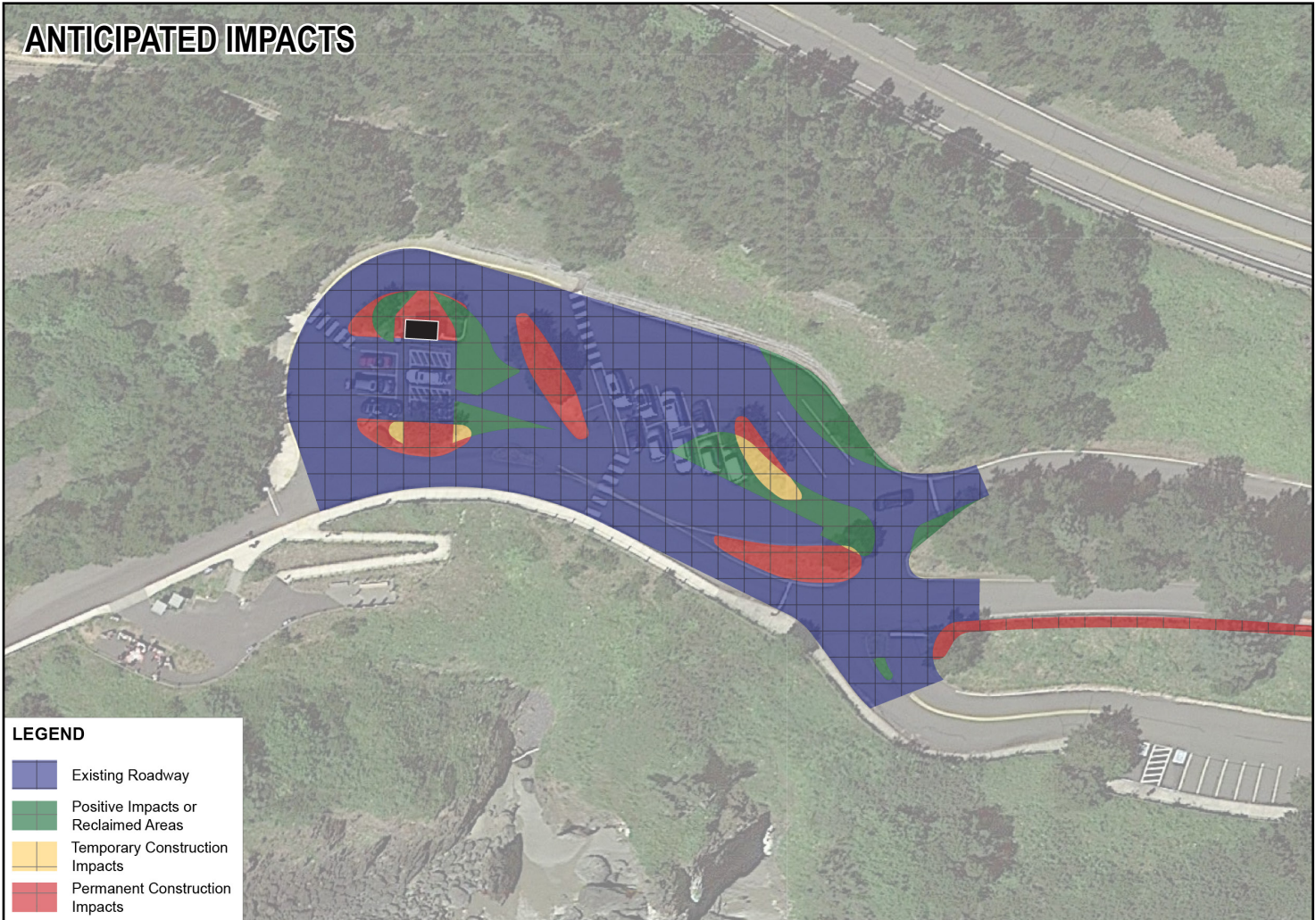
This configuration allows more logical and functional circulation through the upper parking lot and provides a more logical flow into the Quarry Cove overflow parking area. To reduce vehicle conflicts, all entering vehicles are directed to circulate through the upper lot before exiting or traveling into the lower lot, which may be frustrating to some visitors. The total number of standard and ADA parking spaces remains the same with this configuration compared to existing. The angled stall closest to the restroom could be converted to an additional ADA stall if desired. There is a loss of one RV/bus parking stall.

SAFETY PERFORMANCE:

The revised circulation pattern is more logical and would likely reduce the potential for conflict due to driver confusion and unintentional wrong-way driving. Construction of the sidewalk on the exit road will help enhance connectivity and provide protection for non-motorists. The crosswalks provide logical connections and help streamline pedestrian movements through the parking lot.

QUARRY COVE PARKING LOT PREFERRED CONFIGURATION

ANTICIPATED IMPACTS



ENVIRONMENTAL IMPACTS:

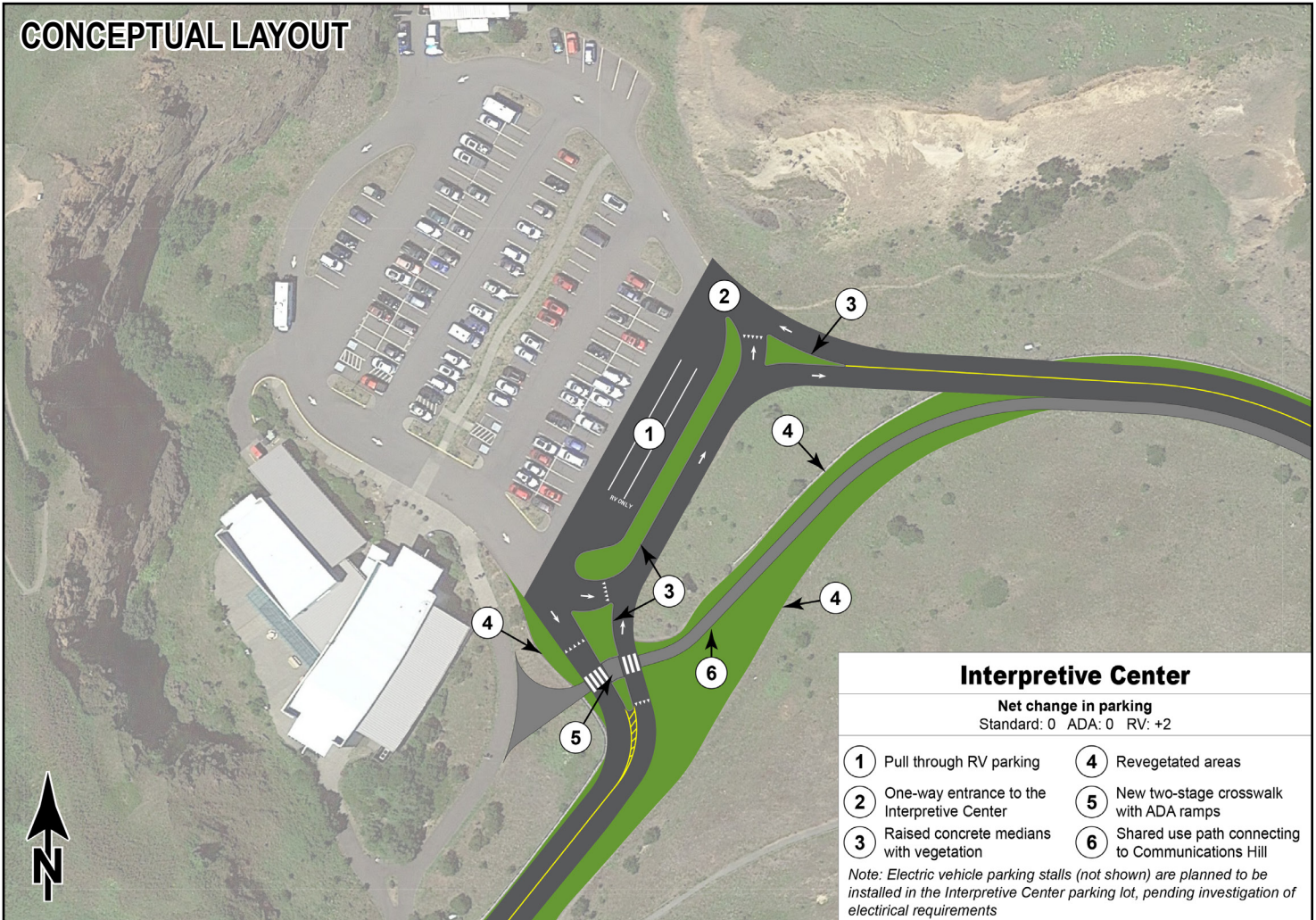
The new configuration is generally designed to fit within the existing paved footprint, with some areas near the entrance allowing for removal of pavement and revegetation. A loss of vegetation would occur where the new sidewalk is installed. Vegetation would be provided within the concrete medians where feasible. The restrooms would remain in their existing location to avoid utility impacts.

FEASIBILITY/CONSTRUCTIBILITY:

A planning-level feasibility analysis indicates that the parking lot configuration is feasible to construct. However, the overall feasibility of the sidewalk between Lighthouse Drive and the parking lot would have to be determined through further field surveys and geotechnical analyses.

INTERPRETIVE CENTER PARKING LOT PREFERRED CONFIGURATION

CONCEPTUAL LAYOUT



DESCRIPTION:

In this configuration, all traffic would circulate through the Interpretive Center parking lot via a new approach road where the existing dog walk is located. All traffic would be directed to circulate around the outside perimeter of the lot in a counterclockwise motion. A concrete median would help separate eastbound exiting traffic from the remainder of the lot to reduce potential conflicts. A SUP connecting from the Interpretive Center to Communications Hill Trail would be installed in the existing roadbed between the new approach and the existing entrance/exit intersection. Alternatively, a SUP could be installed on the north side of Lighthouse Drive and be routed to connect with the existing path in the center aisle of the parking lot. An additional RV/bus lane would be provided adjacent to the existing lane on the edge of the lot, for a net gain of 2 RV/bus spaces. The configuration and circulation of the internal parking lot would need to be determined in future design phases.

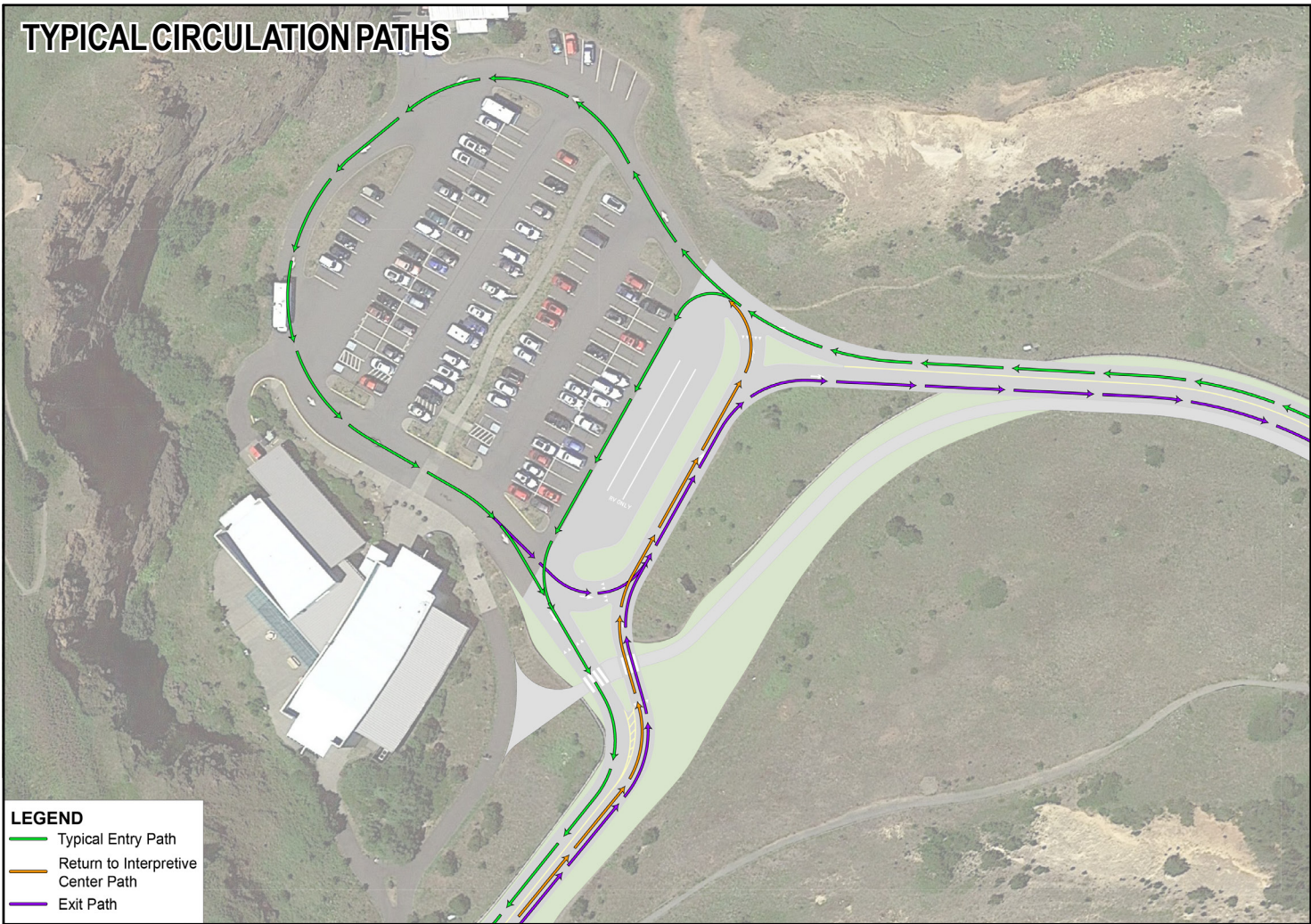
MANAGEMENT/MAINTENANCE:

This configuration directs all traffic into the Interpretive Center parking lot without requiring staff to move traffic cones each day. By directing all traffic into the parking lot, it is anticipated that more vehicles would park in the Interpretive Center parking lot, potentially reducing the parking demand at the lighthouse. Dynamic signage could be implemented to indicate the number of available parking spaces at the lighthouse to reduce vehicle circulation at the lighthouse. However, regular visitors may be confused or frustrated by the new configuration that eliminates the ability to drive directly to the lighthouse without circling the Interpretive Center parking lot. Increased maintenance would be required for the SUP on Lighthouse Drive. BLM can revisit the configuration and circulation of the internal parking lot during future design phases to best meet user and staff needs.

ESTIMATED COST:

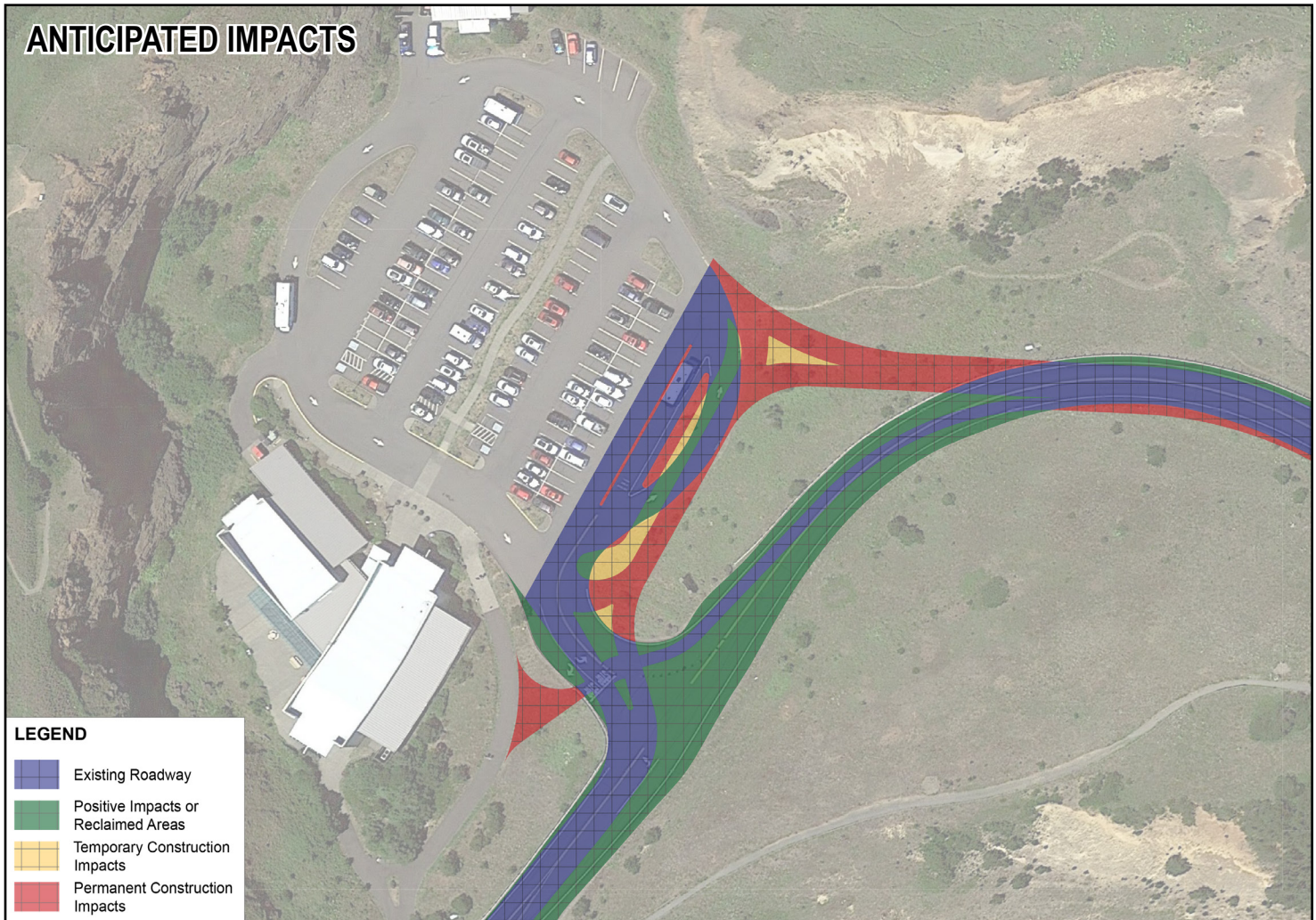
\$1.1M - \$1.9M

INTERPRETIVE CENTER PARKING LOT PREFERRED CONFIGURATION



TRAFFIC PERFORMANCE:	SAFETY PERFORMANCE:
<p>With all traffic routed into the Interpretive Center parking lot, traffic congestion could increase within the lot. However, the separation of eastbound traffic from the remainder of the lot may help alleviate this issue. Due to the potential for increased traffic flow on the northern perimeter of the lot, the parking spaces nearest the maintenance building may be difficult to back out of during peak periods. These spaces may be better suited for staff parking. RVs and buses would have to circle the perimeter of the lot in order to park correctly in the RV/bus lanes on the southeast side of the lot and would also have to circle the lot a second time when leaving. The concrete medians would help direct traffic through the lot and may help make the one-way circulation more logical to visitors, compared to the existing configuration. The new configuration would also eliminate the existing intersection and the need for a stop sign. Although two intersections are provided in the new configuration, only yielding maneuvers are required.</p>	<p>A two-stage pedestrian crossing is incorporated where the proposed SUP crosses Lighthouse Drive to meet the existing SUP extending from the Interpretive Center. This type of crossing requires pedestrians to cross only one lane of traffic at a time, allowing refuge in the center island between the entrance and exit lanes. The reconfigured parking lot would remove left-turn movements out of the Interpretive Center and replace that movement with a yield-controlled merging maneuver, which is considered safer due to the lower potential for severe conflicts. Potentially more conflicts are anticipated in the first aisle of the parking lot between the RV parking lanes and the first row of standard parking. It is anticipated that regular visitors may choose to travel down this aisle to more quickly exit and continue to the lighthouse rather than circling the perimeter of the lot.</p>

INTERPRETIVE CENTER PARKING LOT PREFERRED CONFIGURATION



ENVIRONMENTAL IMPACTS:

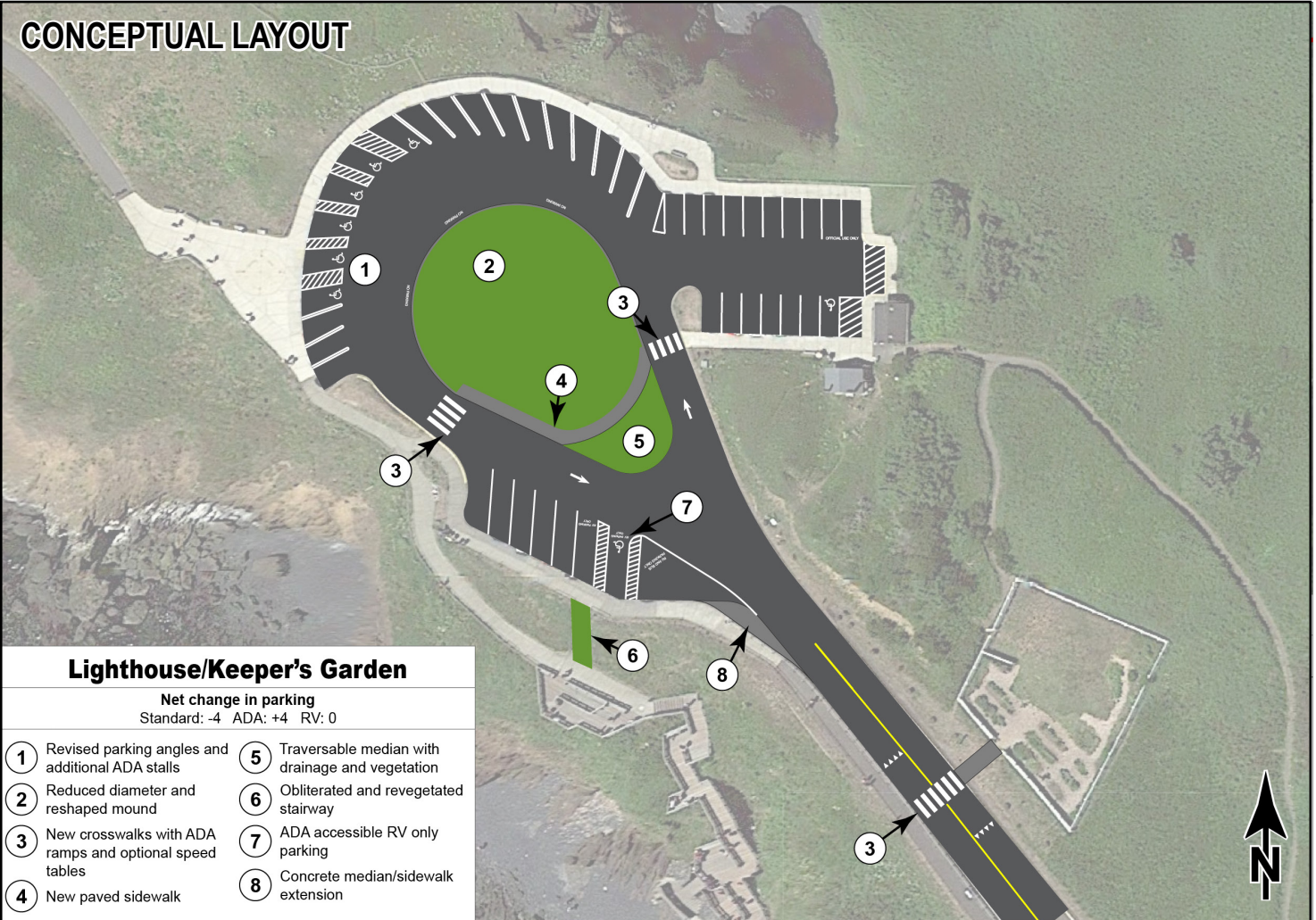
Considerable impacts would result due to construction of the new entrance road. However, the segment of Lighthouse Drive between the new entrance road and existing intersection would be obliterated and revegetated, except where the new SUP is constructed. Without the need for an eastbound left-turn bay into the Interpretive Center, Lighthouse Drive can be narrowed and revegetated to introduce more positive impacts. Potential temporary impacts may occur during construction on the hillside between Lighthouse Drive and the parking lot and in the dog walk area. Vegetation would be incorporated into concrete medians wherever feasible.

FEASIBILITY/CONSTRUCTIBILITY:

The slope and alignment of the new entrance road would have to be determined through further field surveys and geotechnical analyses due to steep slopes and potentially constraining rock faces on the northeast side of the parking lot. The SUP could be constructed in the roadbed of the existing portion of Lighthouse Drive that would be removed with this configuration. Constructing the SUP in the roadbed would alleviate feasibility issues that may otherwise exist due to the slope of the new entrance road or the proximity to potentially unstable rockfaces on the northeast side of the parking lot.

LIGHTHOUSE/KEEPER'S GARDEN PREFERRED CONFIGURATION

CONCEPTUAL LAYOUT



Lighthouse/Keeper's Garden

Net change in parking
Standard: -4 ADA: +4 RV: 0

- | | |
|---|---|
| ① Revised parking angles and additional ADA stalls | ⑤ Traversable median with drainage and vegetation |
| ② Reduced diameter and reshaped mound | ⑥ Obliterated and revegetated stairway |
| ③ New crosswalks with ADA ramps and optional speed tables | ⑦ ADA accessible RV only parking |
| ④ New paved sidewalk | ⑧ Concrete median/sidewalk extension |

DESCRIPTION:

The reconfigured lighthouse parking lot would include wider parking stalls with more functional parking angles and more designated ADA-accessible parking. The size of the center island would be reduced to improve vehicular circulation. A sidewalk would be constructed through the center of the parking lot with ADA curb ramps and optional raised crosswalks, or speed tables, to slow traffic and enhance pedestrian visibility. A crosswalk with optional speed table would also be provided from Lighthouse Trail to the Keeper's Garden with a short SUP facilitating easier access to the garden.

MANAGEMENT/MAINTENANCE:

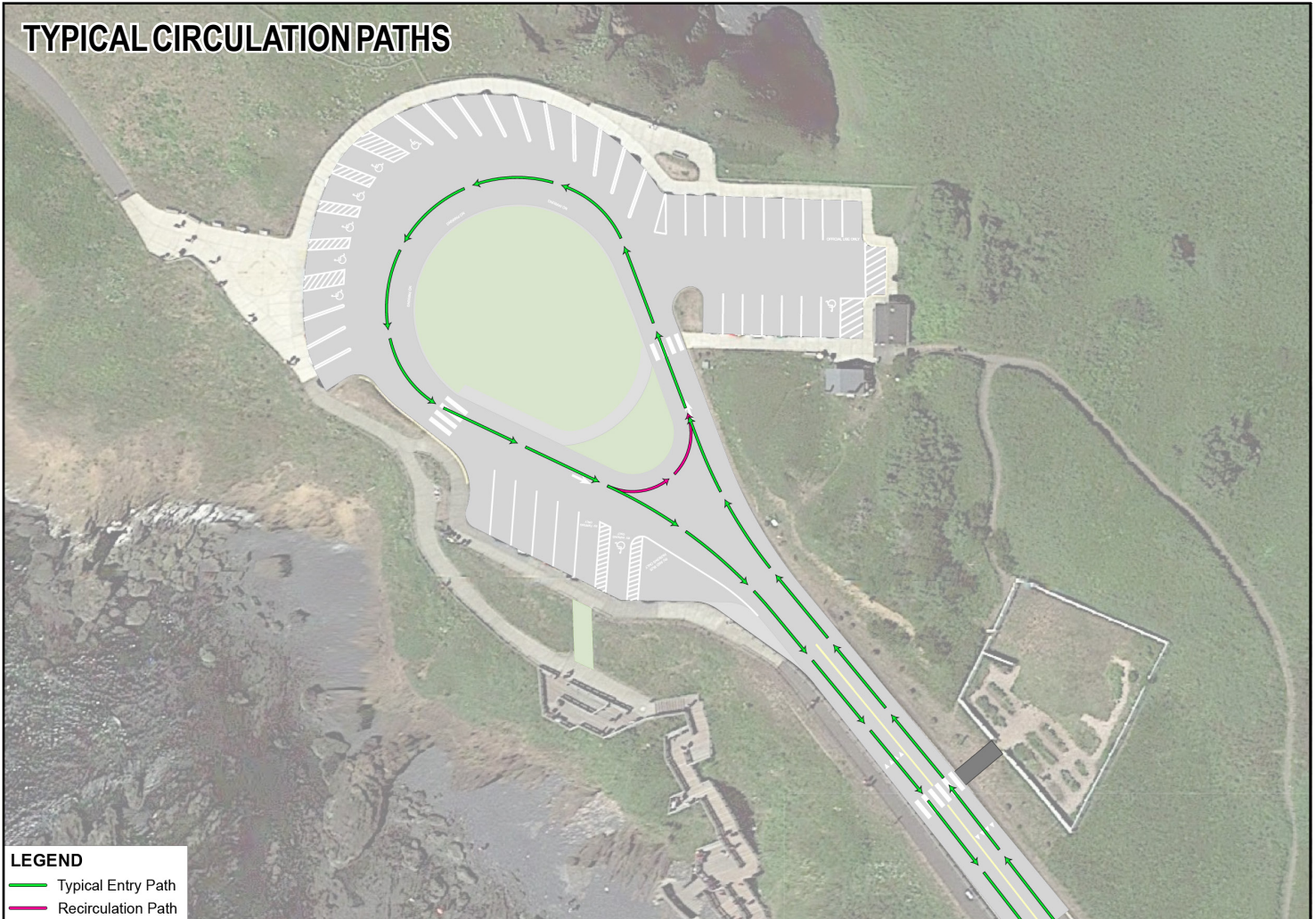
Slightly more maintenance would be required for the SUP leading to the Keeper's Garden and the sidewalk across the center island, however, removal of the stairs to Cobble Beach would decrease required maintenance efforts. The reshaped center island would allow suitable circulation area for large vehicles including BLM maintenance vehicles. If speed tables are pursued, they may impact travel by low-profile vehicles. Although the reconfigured lot would better define parking and circulation, some visitors may become frustrated with the reduction in parking for standard vehicles and the presence of speed tables. During busy periods, enforcement may be needed to ensure ADA and RV/bus stalls are used appropriately.

ESTIMATED COST:

\$300,000 - \$700,000

LIGHTHOUSE/KEEPER'S GARDEN PREFERRED CONFIGURATION

TYPICAL CIRCULATION PATHS



LEGEND

- Typical Entry Path
- Recirculation Path

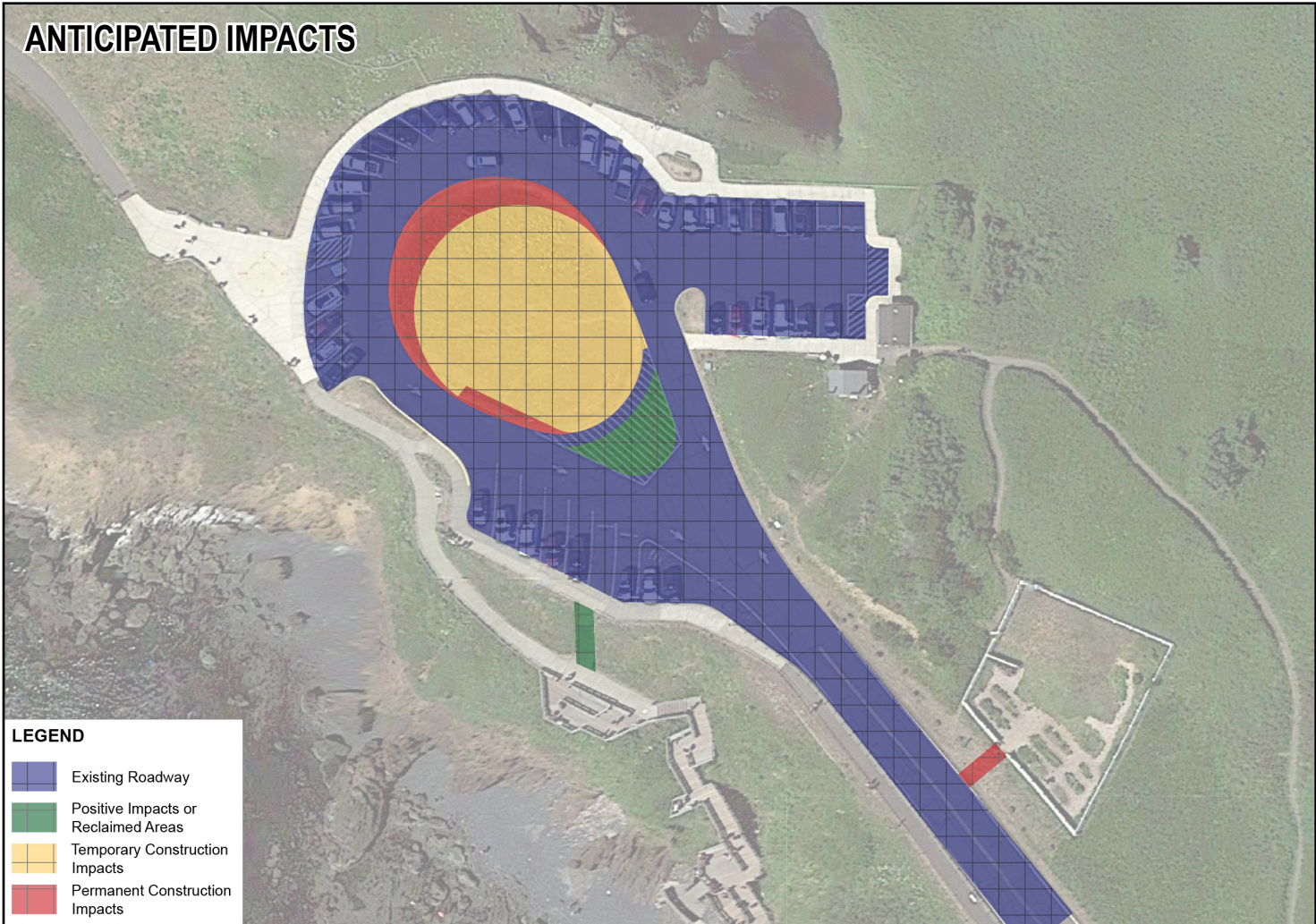
TRAFFIC PERFORMANCE:

This configuration provides revised striping for parking stalls to improve parking angles. The revised striping also converts 4 standard parking stalls to 4 ADA stalls and designates at least one accessible RV/bus stalls. The parking stalls that provide the best views of the lighthouse remain as standard stalls. The center mound would be reduced in size and reshaped to allow for better circulation for large vehicles and allow better views of available parking and pedestrians in the roadway. The pedestrian path through the center mound would help streamline pedestrian movements. Removing the stairway to Cobble Beach would also help promote use of the sidewalk.

SAFETY PERFORMANCE:

The sidewalk through the center island, crosswalks with optional speed tables, and SUP to the Keeper's Garden would help streamline pedestrian movements, enhance visibility of pedestrians, and provide protection for non-motorists through the parking lot. The configuration would also help reduce the potential for inappropriate parking at the eastern nose of the center island and in the irregularly shaped portion of the designated RV/bus parking stall.

LIGHTHOUSE/KEEPER’S GARDEN PREFERRED CONFIGURATION



ENVIRONMENTAL IMPACTS:	FEASIBILITY/CONSTRUCTIBILITY:
<p>The new configuration is designed to fit within the existing roadway footprint. A loss of vegetation would occur where the mound is reduced in size and where the SUP to the Keeper’s Garden is installed. Additional vegetation would, however, be incorporated where the stairs are removed and in the extension of the center island. Additional impacts would have to be investigated in future environmental analyses, as there is potential that some features could be culturally significant.</p>	<p>A planning-level feasibility analysis indicates that this configuration is feasible to construct. Some modifications to utilities may be needed in the center island.</p>



Chapter 7: Implementation

This study evaluated the existing transportation system at the Yaquina Head ONA to determine areas of concern within the study area and identify improvements to address concerns and enhance the safety and overall experience of all users. A set of sitewide strategies and preferred configurations for four site-specific locations were identified through a comprehensive review of available information on the existing and projected transportation conditions, environmental setting, and other characteristics of the study area, coupled with focused outreach with the public and other stakeholders. Implementation of specific strategies will depend on funding availability, additional environmental analysis, design constraints, and construction considerations determined in coordination with various agencies, stakeholders, and the public.

Improvements can be implemented using federal, state, local and private funding sources. However, federal funding programs will likely be the most appropriate and applicable for improvements within the Yaquina Head ONA. Considering the current funding limits and eligibility requirements of traditional federal programs, the scale of recommended improvements, and possibility of implementing strategies that benefit the regional transportation system, additional funding or support from local and private sources may also be beneficial to accommodate existing and future visitor demands and transportation needs at the ONA. This chapter summarizes potential funding sources and next steps in the project development process once funding is secured.

7.1. FUNDING STRATEGIES

On November 15, 2021, the Bipartisan Infrastructure Law, or Infrastructure Investment and Jobs Act (IIJA), was signed into law. The bill reauthorizes several federal-aid surface transportation programs defined by the previous Fixing America's Surface Transportation (FAST) Act through federal fiscal year 2026. The bill also invests approximately \$400 billion over that period to repair the nation's roads and bridges and support projects that will create jobs, boost the economy, make the transportation system safer and more resilient. In addition to reauthorizing surface transportation funding programs, the IIJA also contains significant new funding for roadways, bridges, and other major projects funded by FHWA and the US Department of Transportation.

The following sections provided an overview of federal funding sources authorized under IIJA that may be applicable for transportation projects and programs in the Yaquina Head ONA. A narrative description of each potential funding source is provided including the source of revenue, required match, purpose for which funds are intended, means by which the funds are distributed, and the agency or jurisdiction responsible for establishing priorities for use of the funds.

7.1.1. Federal Lands Access Program (FLAP)

The Federal Lands Access Program (FLAP) was created to provide safe and adequate transportation access to and through federal lands for visitors, recreationists, and resource users. The program is directed towards public

highways, roads, bridges, trails, and transit systems that are located on, adjacent to, or provide access to federal lands and for which title or maintenance responsibility is vested in a state, county, town, township, tribal, municipal, or local government. In this case, improvements to US 101, Lighthouse Drive, NW Rocky Way, NW Gilbert Way and trails connecting to Yaquina Head ONA (federal land owned and operated by BLM) would be eligible for FLAP funding.

The FHWA Western Federal Lands Highway Division administers the program, and local governments are eligible applicants for the funds. All proposals must be submitted jointly by the Federal Land Management Agency(ies) (FLMA) whose lands are accessed and the entity with title or vested maintenance responsibility (state, county, town, township, tribal, municipal or local government). Projects eligible for funding include capital improvements, site enhancements, surface preservation, safety improvements, transit services/facilities, planning studies, and research projects. Competitive projects are those that improve multimodal transportation on roads, bridges, trails, transit systems, and other transportation facilities, with an emphasis on high-use federal recreation sites and federal economic generators.

Funds are allocated among the states using a statutory formula based on road mileage, number of bridges, land area, and visitation. Oregon is currently estimated to receive approximately \$39 million in FLAP funds annually. Proposals requesting at least \$100,000 or more will be considered. Under IIJA, a local match is no longer required.

2021 FLAP PROPOSAL

The Western Federal Lands Highway Division of FHWA solicited for proposals to receive funds through Oregon FLAP in fiscal years 2024 and 2025. ODOT, City of Newport, and BLM submitted a joint proposal for access improvements to Yaquina Head ONA. The proposed improvements included the addition of designated pedestrian/bicycle facilities on Lighthouse Drive, NW Rocky Way, and US 101; pedestrian crossing improvements at the US 101/Lighthouse Drive intersection and Lighthouse Drive approaches; ADA-accessible sidewalk to fill gaps adjacent to US 101; provision of a shuttle bus and ADA-accessible transit stop within adjacent city right-of-way; and pavement preservation on Lighthouse Drive.

7.1.2. Federal Lands Transportation Program (FLTP)

The Federal Lands Transportation Program (FLTP) was established to improve the transportation infrastructure owned and maintained by FMLAs including BLM, USFWS, National Park Service (NPS), US Forest Service (USFS), US Army Corps of Engineers, Bureau of Reclamation, and independent federal agencies with land and natural resource management responsibilities. By statute the NPS, USFWS, and USFS receive annual sums. Other FMLAs receive funding based on application submissions and determinations by the Office of the Secretary of Transportation by use of a performance management model. The federal share for FLTP projects is 100 percent. In addition, FLTP funds may be used to pay the non-federal share or match of the cost of any project that is funded under title 23 of United States Code (USC) [FLAP] or chapter 53 of title 49 USC [Public Transportation], and that provides access to or within federal or tribal land.

FLTP invests in the nation's infrastructure and supports critical transportation needs within the country's transportation network by providing access within national parks, forests, wildlife refuges, recreation areas, and other federal public lands. FLTP funding is available for program administration, transportation planning, research, preventive maintenance, engineering, rehabilitation, restoration, construction, and reconstruction of federal lands transportation facilities as well as capital, operations, and maintenance of transit facilities. The program focuses on improving transportation facilities that are located on, adjacent to, or provide access to federal lands. The facilities must be owned and maintained by the federal government.

In this case, BLM would be eligible to receive FLTP funds for improvements within the ONA. FLTP funds could also be used as a match for FLAP funds received by ODOT or City of Newport if needed. BLM generally uses FLTP for improvement projects within the ONA. FLTP funds would likely be the largest potential funding source for the proposed improvements at the site.

7.1.3. Direct Federal Spending for Resilient Recreation Sites

The DOI Office of the Secretary will implement a new funding program under IIJA to improve resilience of recreation sites on federal lands, including Indian forest

or range lands. The Office of the Secretary is authorized to spend allocated funds on projects to restore, prepare, or adapt recreation sites on federal land that have experienced or may likely experience visitation and use beyond the carrying capacity of the sites. Funding is available until expended for total amount of \$905 million across the entire program. However, portions of the total program amount are allocated to specific fiscal years, each with a different period of availability. The 2022 funding amount is \$45 million.

If visitation at Yaquina Head ONA continues to increase beyond the carrying capacity of the site, it is possible the ONA may be eligible for funding under this program.

7.2. NEXT STEPS

The *Yaquina Head Traffic Study* is a planning document that helps identify potential improvements to be completed as funding becomes available. At this time, no funding or timeframe for construction of the recommended projects has been identified. **Figure 10** illustrates the project implementation process. After the traffic study is complete, a project would advance from the planning stage into the project development and eventual construction phases. Public involvement would occur throughout all phases. The general next steps for implementation are listed below.

1. A funding source(s) is identified and secured.
2. The project is nominated for execution by the implementing agency.
3. Feasibility studies, environmental investigations, and other development processes are completed as applicable.
4. A design is completed for the project and approved by responsible agency(ies) as needed.
5. Right-of-way is acquired for the project if necessary.
6. The project is constructed.

Although improvements initiated onsite at Yaquina ONA would fall under BLM jurisdiction, it will be important to coordinate with ODOT and the City of Newport to ensure that connecting facilities are consistent with the transportation needs of all agencies involved.

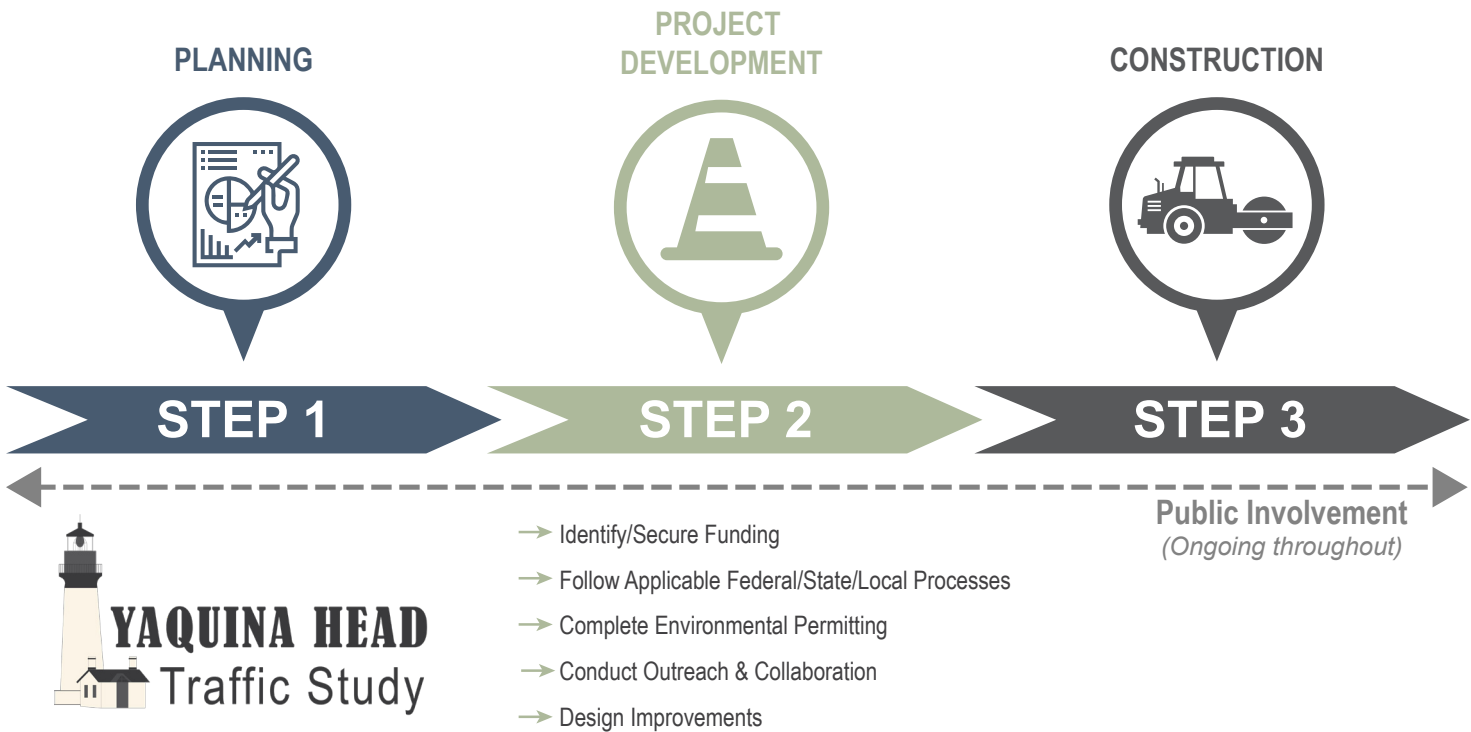


FIGURE 10: PROJECT IMPLEMENTATION PROCESS

7.2.1. Environmental Review Process

The National Environmental Policy Act (NEPA) process begins when a federal agency develops a proposal to take a major federal action as defined in 40 Code of Federal Regulations 1508.1. Federal actions include adoption of official policy, formal plans, or program, as well as approval of specific projects, such as construction or management activities. Each federal agency is required to develop NEPA procedures that supplement the general regulations. BLM's *NEPA Handbook (H-1790-1)*¹⁸ provides additional guidance on BLM-specific NEPA compliance activities. Several jurisdictions have also established state or local environmental review requirements, however, Oregon relies on the federal NEPA regulations.

The environmental review under NEPA can involve three different levels of analysis—Categorical Exclusion Determination (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS)—as discussed in the following sections. Based on the scope and scale of the proposed improvements, an EA may be required for site-specific improvements and some sitewide strategies. In most cases, a CATEX will be sufficient to implement other sitewide strategies such as wayfinding or installing bike racks.

CATEGORICAL EXCLUSION DETERMINATION (CATEX)

A federal action may be categorically excluded from a detailed environmental analysis when the federal action normally does not have a significant effect on the human environment. BLM provides a list of categorical exclusions with extraordinary circumstances which must be reviewed for applicability. If an extraordinary circumstance applies, the proposed action defaults to the next level of environmental review. When no extraordinary circumstances apply, a CATEX is prepared. The list is included in the DOI *Department Manual Part 516 Chapter 11*.¹⁹

ENVIRONMENTAL ASSESSMENT/FINDING OF NO SIGNIFICANT IMPACT (EA/FONSI)

If the federal agency determines that a CATEX does not apply to a proposed action, the agency may then prepare an EA. The EA determines whether or not a federal action has the potential to cause significant environmental effects. BLM provides specific guidance for preparing an EA in Department Manual 516. The manual states that an EA is usually appropriate for land use plan amendments and land use plan implementation decisions including site-specific project plans, such as construction of a trail.

If the responsible official is uncertain of the potential for significant impacts and needs further analysis to make a determination, an EA should be completed.

Generally, the EA includes a brief discussion of:

- The purpose and need for the proposed action
- Alternatives as described in section 102(2)(E) of NEPA
- The environmental impacts of the proposed action and alternatives
- A listing of agencies and persons consulted

If the agency determines that the action will not have significant environmental impacts, the agency will issue a Finding of No Significant Impact (FONSI). A FONSI is a document that presents the reasons why the agency has concluded that there are no significant environmental impacts projected to occur upon implementation of the action. If it is anticipated or determined that the action would result in significant environmental impacts, an EIS is prepared.



It is anticipated that an EA would be required to assess the environmental impacts of each of the site-specific improvements.

ENVIRONMENTAL IMPACT STATEMENT (EIS)

Federal agencies prepare an EIS if a proposed major federal action is determined to significantly affect the quality of the human environment. An EIS should also be completed in circumstances where a proposed action is directly related to another action(s), and cumulatively the effects of the actions taken together would be significant, even if the effects of the actions taken separately would not be significant. The regulatory requirements for an EIS are more detailed and rigorous than the requirements for an EA. The EIS process ends with the issuance of the Record of Decision which explains the agency's decision, describes the alternatives the agency considered, and discusses the agency's plans for mitigation and monitoring, if necessary.

7.2.2. Cultural and Historic Review Process

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their undertakings on historic properties and sites. Additionally, NEPA requires an analysis of potential impacts to cultural, historic, and tribal resources and possible mitigation measures. It is BLM policy to coordinate NEPA and NHPA responsibilities, including consulting with appropriate entities such as State and Tribal Historic Preservation Officers (SHPO/THPO), identifying protected properties and sites, evaluating project alternatives and assessing project effects on protected resources, and resolving any adverse effects.²⁰ BLM would conduct NHPA and NEPA reviews concurrently for future improvement projects at the Yaquina Head site.

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YAQUINA HEAD

Traffic Study

The Yaquina Head Outstanding Natural Area was established by Congress to provide for the conservation and development of the scenic, natural, and historic values of the area; the continued use of the area for education, scientific study, and public recreation; and protection of the wildlife habitat of the area.



YAQUINA HEAD

Traffic Study

Appendix A: Public Involvement

[Appendix A1: Public Involvement Plan](#)

[Appendix A2: Public Outreach #1 Materials](#)

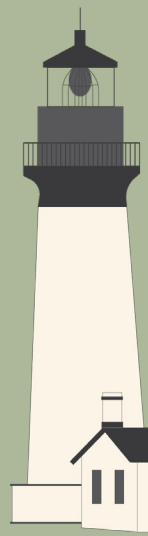
[Appendix A3: Survey and Results](#)

[Appendix A4: Public Outreach #2 Materials](#)

[Appendix A5: Public Outreach #3 Materials](#)

[Appendix A6: Public Comments Outside Review](#)

[Appendix A7: Public Comments During and After Review \(May 16 - June 17, 2022\)](#)



YAQUINA HEAD Traffic Study

Appendix A1:

Public Involvement Plan

Yaquina Head Traffic Study Public Involvement Plan

OR BLM NWO 1516291(1)
Contract No. DTFH7015D00007
Task Order No. 69056721F000012

August 11, 2021



Prepared for:
**Federal Highway Administration
(FHWA)**



In coordination with:
**Bureau of Land
Management (BLM)**



Prepared by:
**Robert Peccia and
Associates**

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ABBREVIATIONS/ACRONYMS

ADA	Americans with Disabilities Act
BLM	U.S. Bureau of Land Management
FHWA	Federal Highway Administration
OC	Oversight Committee
ODOT	Oregon Department of Transportation
ONA	Outstanding Natural Area
PIP	Public Involvement Plan
RPA	Robert Peccia and Associates

1.0. INTRODUCTION

The Federal Highway Administration (FHWA) has initiated a study in coordination with the Bureau of Land Management (BLM) to evaluate the transportation system at the Yaquina Head Outstanding Natural Area (ONA) and address traffic and safety needs at the site.

The Yaquina Head ONA is a high-use fee site located on a prominent headland north of Newport, Oregon. The 100-acre site was officially designated as an ONA due to its scenic quality and cultural and natural resources. BLM manages the site to optimize recreation, education, and conservation opportunities for the benefit of current and future visitors.

The site's transportation system includes 1.21 miles of two-lane asphalt surfaced roads and four parking areas which provide access to the historic Yaquina Head Lighthouse, Quarry Cove, and Interpretive Center. Additionally, several trails providing pedestrian access to various recreation opportunities in and around the historic Yaquina Head Lighthouse. Increasing visitation to the Yaquina Head ONA has resulted in growing traffic congestion and risk of user conflicts. The *Yaquina Head Traffic Study* will identify and address transportation needs including operations at the entrance station, overall site circulation, bicycle and pedestrian accommodations and safety enhancements, parking management, pavement preservation, and congestion mitigation. When identifying potential improvements, the study will consider public and stakeholder comments, environmental constraints, constructability challenges, and financial feasibility. The study will be a collaborative process with FHWA, BLM, Oregon Department of Transportation (ODOT), the City of Newport, stakeholders, and the public to identify needs and potential solutions.

The study process involves early communication with interested parties to help identify needs, constraints, and opportunities to determine reasonable improvements given available resources and local support. Community, stakeholder, agency, and public involvement are important study components. Several strategies are proposed to disseminate information and elicit meaningful participation. These opportunities will include:

- providing information on critical elements and observations within the study area;
- seeking comments and answering questions throughout the study process; and
- presenting findings and recommendations.

1.1. Purpose of the PIP

Education and public outreach are essential parts of fulfilling the responsibility to inform the public about the study process. Public involvement is critical to ensure the study reflects visitor and local community needs, issues, and values. Comments from the public foster cooperation and help study staff, consultants, and local officials make informed decisions.

An initial step in the study process is to develop a *Public Involvement Plan* (PIP) to guide public participation opportunities. The PIP outlines key audiences, proposed public participation strategies, and opportunities for engagement with members of the public and stakeholders. The goal of the PIP is to facilitate ongoing public engagement throughout the study process to ensure the needs and concerns of all Yaquina Head ONA site users are appropriately identified and addressed. The PIP describes the information and participation opportunities that will be provided as part of the study.

2.0. AUDIENCES

Active participation will be encouraged at every stage of the study process. Development of the study will be overseen by an oversight committee (OC) that will guide work, review deliverables, and provide general oversight on all matters related to the study. The following sections discuss the study contacts, oversight committee, anticipated key stakeholders, and other interested parties to be included in the study process.

2.1. Study Contacts

The following contact information for FHWA, BLM, and RPA representatives will be provided in all published information. These individuals will serve as main points of contact for the study.

Carrie Warren, PE
FHWA Project Manager
610 East Fifth Street
Vancouver, WA 98661
(360) 619-7881
carrie.warren@dot.gov

Matt Betenson
Yaquina Head Site Manager – BLM
750 NW Lighthouse Drive
Newport, OR 97365
(541) 574-3142
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Sarah Nicolai, PE, PTP
Consultant Project Manager
3147 Saddle Drive
Helena, MT 59601
(406) 447-5038
snicolai@rpa-hln.com

2.2. Oversight Committee

The OC will guide work and review deliverables produced by the consultant team. Regular OC meetings will be held to discuss study milestones, review materials, and provide feedback. RPA's project manager and support staff will facilitate meetings to present updates on the work effort. The meetings will track progress and address study development issues and questions. The meetings are important for the exchange of technical information and ideas during the development of the study. The following topics are anticipated to be covered at the OC meetings, which will be held using both in-person and virtual formats.

- **OC Meeting 1** (May 2021, in person): Work Tasks, Data Gaps, Public Involvement Plan, Schedule
- **OC Meeting 2** (September 2021, virtual): Existing and Projected Conditions, Preliminary Issues and Concerns, Public Outreach #1 Summary
- **OC Meeting 3** (November 2021, virtual): Existing and Projected Conditions Memorandum
- **OC Meeting 4** (January 2022, in person): Concept Identification, Public Outreach #2
- **OC Meeting 5** (February 2022, virtual): Concept Refinement, Public Outreach #2 Summary
- **OC Meeting 6** (March 2022, virtual): Draft Feasibility Report, Public Review Period
- **OC Meeting 7** (May 2022, virtual): Public Comments, Final Report

2.3. Stakeholders

A stakeholder contact list will be developed to include individuals or groups identified in coordination with the OC and through the public involvement process. Comments from a diverse range of stakeholders is important to the study process. Areas of concern will be identified through stakeholder outreach and may include visitor safety, conflicts between user types, site access, right-of-way encroachment, and alignment with statewide and local planning efforts. Stakeholders will include adjacent and nearby property owners and residents, state and local governments, tribal organizations, educational and non-profit organizations, recreational interest groups, business and tourism interests, and other interested parties. Specific stakeholder representatives will be identified building from the initial list developed at the OC meeting, as identified in the following list.

- Adjacent property owners
- Yaquina Head neighbors
- City of Newport / Newport City Council
- Lincoln County / Lincoln County Commission
- US Fish and Wildlife Service
- US Coast Guard
- Confederated Tribes of Siletz Indians
- Oregon Parks and Recreation Department
- Friends of Yaquina Lighthouses
- Oregon Coast Trail Committee
- Surfrider Foundation
- Pedestrian/bicycle community
- Spanish-speaking community / Centro de Ayuda
- Limited Mobility Advocates

All stakeholders will be invited to participate in public outreach activities. To ensure a broad range of stakeholder participation, outreach through direct emails, phone calls, and other forms of communication may also be used. Coordination with select stakeholders may occur through BLM staff as appropriate.

2.4. Public Contacts

Members of the public representing both local and visitor perspectives will be invited to participate in the study. Public comments will be solicited throughout the study process. Additionally, an official comment period will be provided after the release of the draft *Yaquina Head Traffic Study* to obtain feedback on the proposed improvements identified.

All public comments will be directed to BLM and FHWA. Comments will be forwarded to RPA to catalog, collate, characterize and form draft responses to comments received. FHWA, in conjunction with BLM, will provide final responses to all public comments.

Common themes from public comments will be compiled and published in a public-facing document, such as a project newsletter, to show the public how their comments were considered.

3.0. OUTREACH AND ENGAGEMENT

Information will be provided in multiple formats, and public and stakeholder comments will be solicited and encouraged at every stage of the study process. Several public engagement strategies are proposed to reach a broad audience and elicit meaningful participation. This section provides an overview of the outreach methods that will be used to gather comments from stakeholders and the public.

3.1. Outreach Strategies

Targeted outreach is intended to obtain meaningful comments and dialogue about the study process, to share information, and to identify important considerations. Anticipated targeted outreach activities and strategies are described in the following sections.

Mailing List

A contact list of email and physical addresses will be maintained and updated throughout the study process for those wishing to receive periodic updates. The list will include members of the public who have expressed interest in the study and all identified stakeholders, including landowners directly adjacent to the study area. The list will be developed in coordination with partner agencies including BLM and the City of Newport building from known contacts from previous studies or projects in the same geographic area. Outreach to the contact list will include distribution of newsletters, outreach announcements, and other important information regarding the study process.

Website

RPA will be able to share important study information via the website of Friends of Yaquina Lighthouses and/or the BLM's site. Materials including public outreach notices, newsletters, study reports, and other relevant study information may be posted on the websites.

News Releases

Before public outreach activities, news releases will be developed, reviewed, and approved by FHWA and BLM, and distributed to local media outlets to be identified in coordination with the oversight committee, potentially including the *Newport News Times*, *Oregon Coast Daily News*, *Oregon Coast Today*, *News Guard*, and local radio stations. In addition to announcing the event location, time, date, and format, the releases will explain the study purpose and key issues.

Stakeholder Outreach

Targeted stakeholder outreach will be conducted at the time of public outreach activities to encourage stakeholder participation. Stakeholder outreach methods may include email, telephone contacts, or coordination through BLM.

Public Outreach Activities

Two sets of public outreach activities will be conducted for this study. The first effort will occur during the 2021 summer field data collection period and will be focused on gathering information from the local community and site visitors. The purpose of this outreach will be to explain the study process and gather information from the public to identify issues and concerns relating to the site. To provide the public with background information and explain the study process, RPA will prepare a brief recorded presentation to be posted on the Friends of Yaquina Lighthouses website. To gather background information and public opinions, RPA will prepare a survey. RPA will provide handouts with a link or QR code directing visitors to the survey at the Yaquina Head ONA Interpretive Center and the entrance gate. Visitor signage including flyers and notice boards with information about the study and the survey will also be developed and posted at the site. RPA will coordinate with BLM to identify the best locations to post information and collect completed paper surveys to gain a broad sampling of site visitors. It will be important to capture the opinions of different user groups, including yearly visitors, new visitors, residents, disabled users, bicyclists, pedestrians, and others. The goal of the first outreach effort will be to share information about the study and gather feedback from visitors about site needs based on their observations and experiences and the site.

During the 2022 winter site visit, a second round of public outreach will be conducted to share information. An open house event is proposed to enable drop-in participation at the public's convenience. At the event, study team members will share existing conditions information, key findings, and preliminary improvements concepts. The meeting location will be determined in coordination with the oversight committee in the vicinity of the City of Newport and the Yaquina Head ONA. A ticketing system for individual appointments or other

measures may be incorporated depending on local health and safety guidelines. Members of the public will have an opportunity to view exhibits summarizing key findings and preliminary recommendations, talk with members of the study team, provide feedback, and obtain printed copies of study materials.

The second round of public outreach activities are proposed to be held in person, however the format may be modified as needed based on health and safety restrictions. Supporting materials will be developed for each set of outreach activities and may include a combination of exhibits, informational sheets, and newsletters. Exhibits will display the study area and the surrounding vicinity, site photographs, proposed improvements as they are developed, and the study schedule. Printed and digital versions of the materials will be provided.

Newsletters

Two study newsletters will be developed corresponding with each of the two sets of public outreach activities to be held during the study process. The newsletters will include background information about the study, identified needs, observations and findings, proposed solutions, public involvement activities, anticipated schedules, and a feedback mechanism to elicit comments from the recipients. Following review and approval by BLM, up to 200 printed copies will be distributed on site, and a digital version will be developed for distribution to the study email list and to partner agencies.

3.2. Access and Visibility

The study team will strive to provide convenient, accessible opportunities for the public and stakeholders to participate in the study process. The following measures will be used.

Published Materials

All published study information will be developed in compliance with applicable federal accessibility regulations, including the Americans with Disabilities Act (ADA) and Section 508 of the Rehabilitation Act. Alternative formats will be available upon request. Contact information for FHWA, BLM, and RPA representatives will be provided with all published materials. The BLM Public Affairs Group will review all materials before publishing.

Spanish Language Outreach

RPA will contact and coordinate with the Newport Centro de Ayuda to outreach to the Spanish-speaking community. The organization provides interpretation and translation services and is a valuable resource to ensure Spanish-speaking community members are informed and represented in study efforts. Additionally, RPA will provide Spanish versions of all printed outreach materials.

Consideration of Public and Stakeholder Comments

All comments from stakeholders and the public will be considered by the OC throughout the study process. Comments received through public outreach efforts and throughout the study will be summarized in project newsletters. Public comments received on the draft *Yaquina Head Traffic Study* will be documented and included as an appendix.

Considerations for Traditionally Underserved Populations

Additional efforts are necessary to involve traditionally underserved segments of the population, including disabled, minority, non-English-speaking, and low-income individuals. The following steps will help with these efforts.

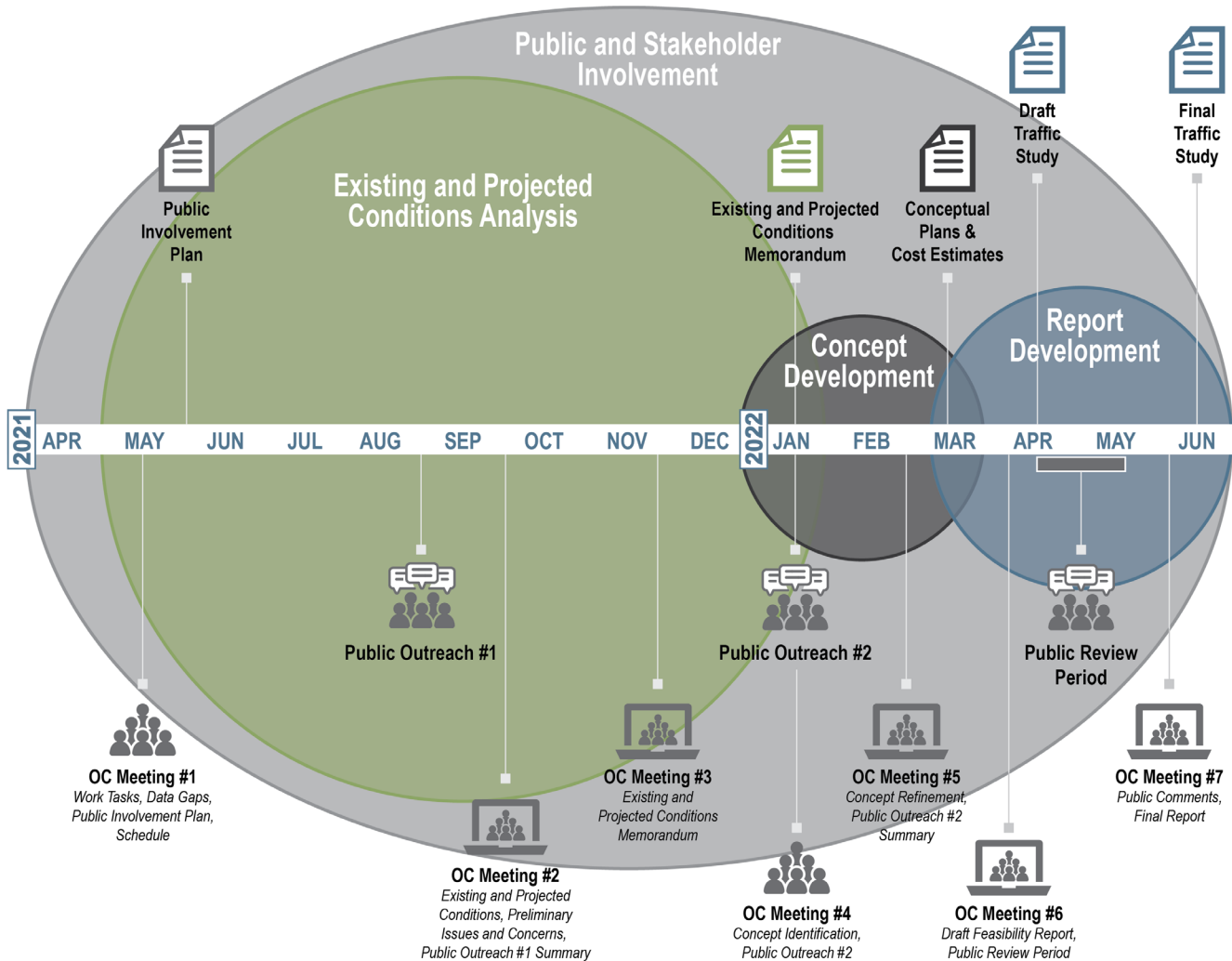
- Plan Meetings Carefully – In-person public meetings will be held in locations that are accessible and ADA compliant. Alternative accommodations will be available upon request.
- Seek Help from Community Leaders and Organizations – To facilitate involvement of traditionally underserved populations, community leaders and organizations that represent these groups will be consulted about how to reach their members most effectively.
- Be Sensitive to Diverse Audiences – At public outreach events, the study team will attempt to communicate as effectively as possible. Presenters will avoid using overly technical language and will explain concepts in simple terms. Spanish-language materials will be provided.

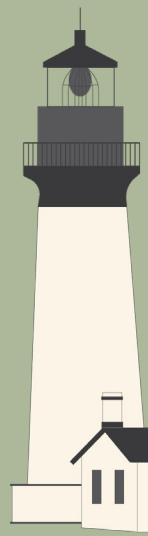
4.0. OUTREACH SUMMARY AND SCHEDULE

This PIP establishes guidelines and procedures for encouraging public participation. The following communication strategies and techniques will be used to share information and to seek public and stakeholder comments.

- A mailing list will be developed to contact interested stakeholders and members of the public.
- The Friends of Yaquina Lighthouses and/or BLM websites will be used to post study information.
- News releases will be prepared to announce public outreach activities and provide status updates.
- Stakeholder outreach will include targeted invitations to participate in study activities.
- Two set of public outreach activities will be held to learn about issues and concerns and to share proposed concepts.
- Newsletters will be developed in advance of public outreach activities.
- Public comments will be collected and considered throughout the study process.
- Published materials will be sensitive to diverse audiences and will be approved by the BLM Public Affairs Group.

The proposed schedule for public and stakeholder involvement activities is illustrated below.





YAQUINA HEAD

Traffic Study

Appendix A2:

Public Outreach #1 Materials



YAQUINA HEAD Traffic Study

The Federal Highway Administration has initiated a study, in coordination with the Bureau of Land Management, to evaluate the transportation system at the Yaquina Head Outstanding Natural Area.

La Administración Federal de Carreteras, en coordinación con la Oficina de Gestión Territorial, ha iniciado un estudio para evaluar el Área Natural Destacada de Yaquina Head.

A survey is being conducted to gather feedback about transportation needs and concerns. The survey will help the study team identify areas of focus.

Se está llevando a cabo una encuesta para recoger comentarios sobre las necesidades e inquietudes relativas al transporte. La encuesta ayudará al equipo del estudio a identificar áreas de interés.



SCAN TO TAKE
THE SURVEY



ESCANEAR
PARA REALIZAR
LA ENCUESTA

Please respond to the
survey by
SEPTEMBER 10, 2021

*Responde a la encuesta hasta el
10 DE SEPTIEMBRE DE 2021*

FOR MORE INFORMATION VISIT:
Para más información visita:

www.yaquinallights.org/yaquina-head-traffic-study

For more information or to submit comments | *Para obtener más información o enviar comentarios*



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YAQUINA HEAD Traffic Study

STUDY AREA

Yaquina Head ONA is a 100-acre protected area managed by the BLM and officially designated by the United States as an Outstanding Natural Area due to its scenic quality, and cultural and natural resources. The ONA is located on a prominent headland north of Newport, Oregon. The site provides numerous recreation opportunities including seal, sea bird, and wildlife viewing; whale watching; tide pooling; and walking and biking.

The ONA is accessible via Lighthouse Drive which begins at the intersection with the Oregon Coast Highway (US Highway 101) at Mile Post 137.61. The Yaquina Head ONA boundary begins about 0.2 miles west of the intersection. Within the site, the primary transportation system is comprised of 1.21 miles of asphalt paved roads and four parking lots. Additionally, trails provide pedestrian access to various recreation opportunities in and around the Yaquina Head Lighthouse.

INTRODUCTION

The Federal Highway Administration (FHWA) has initiated a study, in coordination with the Bureau of Land Management (BLM), to evaluate the Yaquina Head Outstanding Natural Area (ONA). Increasing visitation to the Yaquina Head ONA has resulted in growing traffic congestion and risk of user conflicts. The *Yaquina Head Traffic Study* will identify and address site needs including operations at the entrance station, overall site circulation, multimodal (bicycle and pedestrian) accommodations and safety enhancements, parking management, pavement preservation, and congestion mitigation. The study will be a collaborative process with FHWA, BLM, Oregon Department of Transportation (ODOT), the City of Newport, stakeholders, and the public to identify needs and potential solutions.

PURPOSE

The purpose of the *Yaquina Head Traffic Study* is to determine what transportation improvements can be made to address operational, safety, and geometric needs and any other areas of transportation concern identified through public and stakeholder outreach efforts. The study will consider public and stakeholder comments, environmental constraints, constructability challenges, and financial feasibility when identifying potential transportation improvements. The intent of the study is to provide an efficient transition from transportation analysis to future project development and environmental review, if any, based on identified need and funding availability. This is an initial study to help inform a future design or construction project.



GET INVOLVED

Public comments will be considered to better understand potential issues, concerns, opportunities, and constraints. To submit comments, view documents, and to learn more about the study please visit:

www.yaquinahlights.org/yaquina-head-traffic-study

For more information or to submit comments:



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SURVEY

A survey is being conducted to gather feedback about transportation needs and concerns at Yaquina Head ONA. The survey will help the study team identify areas of focus.



SCAN CODE
TO TAKE
SURVEY

Please respond to the survey by
SEPTEMBER 10, 2021

STUDY CONSIDERATIONS

The *Yaquina Head Traffic Study* is focused on the transportation aspects of the Outstanding Natural Area. A high-level analysis of the existing environmental setting will be conducted in order to identify environmental constraints that may affect potential transportation recommendations. The following topics will be evaluated and considered in the study:



Site Circulation



Existing and Future Traffic Operations



Multimodal Accommodations (Pedestrians, Bicyclists, Transit)



Parking



Roadway Geometrics and Infrastructure



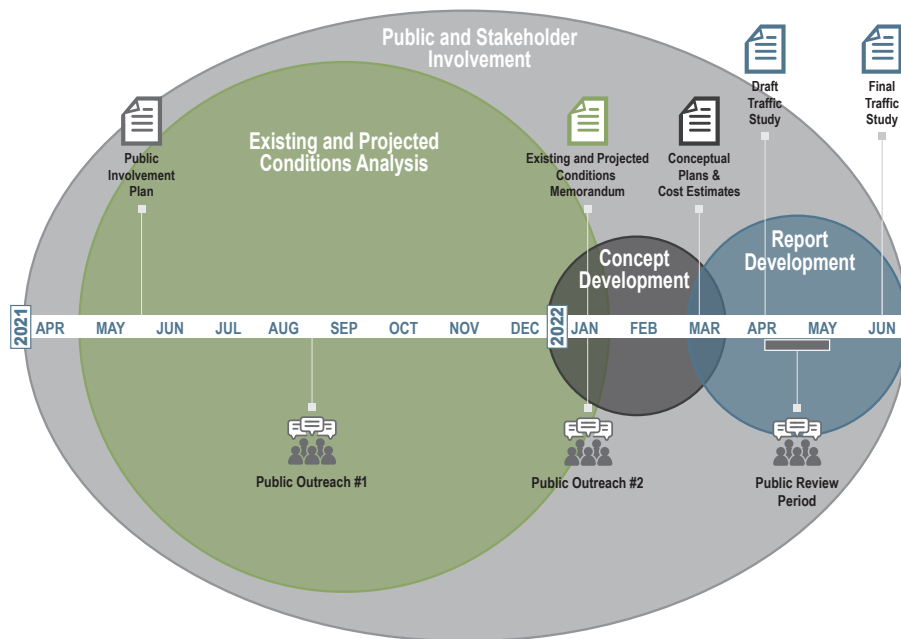
User Safety



Past Planning Efforts and Applicable Regulations

SCHEDULE

The *Yaquina Head Traffic Study* kicked off in April 2021. The first public outreach effort is occurring during the summer of 2021 and will help inform development of the study. A second public outreach effort will occur in January 2022 in coordination with release of the draft *Existing and Projected Conditions Memorandum*. All comments will be considered and incorporated as appropriate as the study team moves into the concept development phase. The draft *Traffic Study* is anticipated to be complete in April 2022. Following a public and stakeholder review period, the final *Traffic Study* is anticipated to be complete in June 2022.



The Yaquina Head Outstanding Natural Area was established by Congress to provide for the conservation and development of the scenic, natural, and historic values of the area; the continued use of the area for education, scientific study, and public recreation; and protection of the wildlife habitat of the area.



YAQUINA HEAD

Estudio de tráfico

ÁREA DE ESTUDIO

El ONA de Yaquina Head es un área protegida de 100 acres gestionada por el BLM y designada oficialmente por los Estados Unidos como un área natural destacada debido a su calidad paisajística y recursos culturales y naturales. El ONA se encuentra en un cabo prominente al norte de Newport, Oregon. El sitio ofrece numerosas oportunidades de esparcimiento, como el avistamiento de focas, aves marinas y fauna silvestre; también se puede avistar ballenas, bañarse en pozas marinas, realizar caminatas o andar en bicicleta.

Se puede acceder al ONA entrando por Lighthouse Drive, que comienza en el cruce con el Oregon Coast Highway (US Highway 101) a la altura del Mile Post 137.61. El límite del ONA de Yaquina Head comienza a unas 0.2 millas al oeste del cruce. Dentro del sitio, el sistema de transporte principal se compone de 1.21 millas de carreteras asfaltadas y cuatro estacionamientos. Asimismo, los senderos ofrecen acceso peatonal a diversas instalaciones recreativas en el Faro de Yaquina Head y sus alrededores.

INTRODUCCIÓN

La Administración Federal de Carreteras (FHWA), en coordinación con la Oficina de Gestión Territorial (BLM), ha iniciado un estudio para evaluar el Área Natural Destacada de Yaquina Head (ONA). El incremento de visitantes en el ONA de Yaquina Head ha provocado una creciente congestión del tráfico, así como el riesgo de conflictos entre usuarios. El *Estudio del Tráfico de Yaquina Head* identificará y abordará las necesidades del sitio, incluyendo las operaciones en la estación de entrada, la circulación general del sitio, mejoras a las instalaciones multimodales (bicicletas y peatones) y a la seguridad, gestión de estacionamientos, conservación de la acera y reducción de la congestión. El estudio será un proceso de colaboración entre FHWA, BLM, ODOT, la ciudad de Newport, las partes interesadas y el público en general, a fin de identificar necesidades y potenciales soluciones.

OBJETIVO

El objetivo del *Estudio del Tráfico de Yaquina Head* es determinar qué mejoras de transporte se pueden realizar para abordar las necesidades operativas, geométricas y de seguridad, y cualquier otra área de interés relativa al transporte que se identifique mediante las iniciativas de divulgación pública y de las partes interesadas. El estudio tomará en cuenta los comentarios del público y de las partes interesadas, las limitaciones medioambientales, desafíos constructivos y viabilidad financiera al identificar posibles mejoras en el transporte. Su objetivo es fomentar una transición eficiente del análisis del transporte al desarrollo futuro del proyecto y, de ser necesario, una evaluación medioambiental en función de las necesidades identificadas y el acceso a la financiación. Se trata de un estudio inicial que servirá para orientar un futuro proyecto de diseño o construcción.



PARTICIPA

Se tendrá en cuenta los comentarios del público a fin de comprender mejor las potenciales inquietudes, preocupaciones, oportunidades y limitaciones. Para enviar comentarios, ver documentos y obtener más información sobre el estudio, visita:

www.yaquinalights.org/yaquina-head-traffic-study

Para obtener más información o enviar comentarios:



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ENCUESTA

Se está llevando a cabo una encuesta para recoger comentarios sobre las necesidades e inquietudes relativas al transporte en el ONA de Yaquina Head. La encuesta ayudará al equipo del estudio a identificar áreas de interés.



ESCANEAR
PARA REALIZAR
LA ENCUESTA

Responde a la encuesta hasta el
10 DE SEPTIEMBRE DE 2021

CONSIDERACIONES DEL ESTUDIO

El *Estudio del Tráfico de Yaquina Head* se centra en los aspectos del transporte del Área Natural Destacada. Se llevará a cabo un análisis de alto nivel del actual entorno ambiental, para identificar limitaciones ambientales que podrían afectar a potenciales recomendaciones sobre el transporte. En el estudio se evaluarán y considerarán los siguientes temas:



Circulación en el sitio



Operaciones de Tráfico Existentes y Futuras



Instalaciones Multimodales (Peatones, Ciclistas, Tránsito)



Estacionamiento



Geometría e Infraestructura Vial



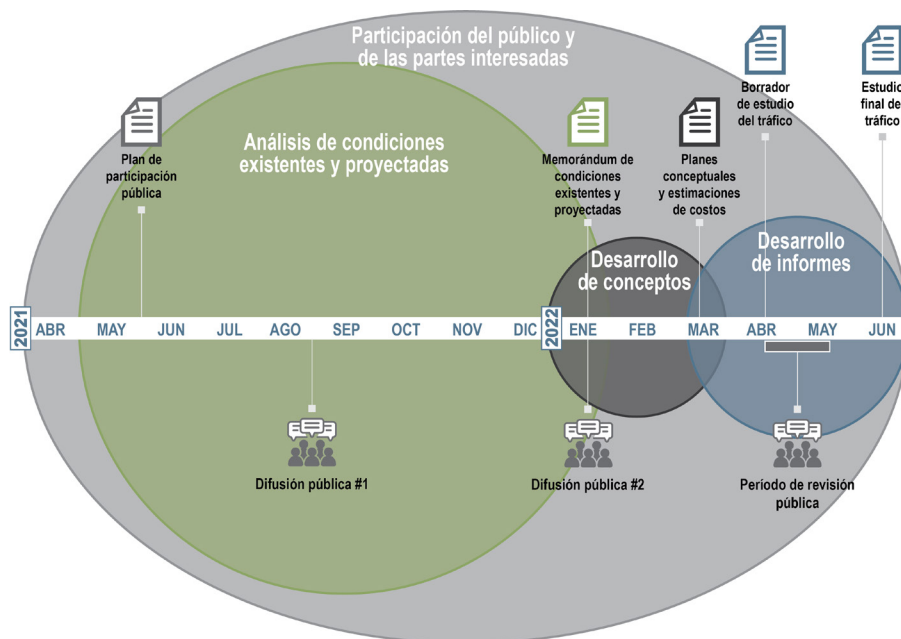
Seguridad del Usuario



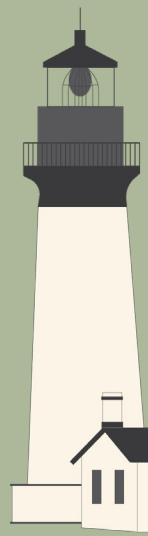
Iniciativas de Planificación Anteriores y Normativa Aplicable

PROGRAMA

El *Estudio del Tráfico de Yaquina Head* comenzó en abril de 2021. La primera iniciativa de divulgación pública se lleva a cabo a lo largo del verano de 2021 y ayudará a orientar el desarrollo del estudio. En enero de 2022 se realizará una segunda iniciativa de divulgación pública, que coincidirá con la publicación del borrador de *Memorándum de Condiciones Existentes y Propuestas*. Todo comentario se tomará en cuenta e incorporará, según corresponda, cuando el equipo del estudio pase a la fase de desarrollo del concepto. Se prevé que el borrador del estudio del tráfico esté terminado en abril de 2022. Tras un periodo de revisión por el público y las partes interesadas, se prevé que el Estudio definitivo del Tráfico esté terminado en junio de 2022.



El área natural destacada de Yaquina Head fue creada por el Congreso para fomentar la conservación y desarrollo de los valores paisajísticos, naturales e históricos de la zona; el uso continuado del área para la educación, estudios científicos y público esparcimiento; así como la protección del hábitat de la vida silvestre de la zona.



YAQUINA HEAD

Traffic Study

Appendix A3: Survey and Results



YAQUINA HEAD Traffic Study

Introduction

The Federal Highway Administration (FHWA) and the Bureau of Land Management (BLM) have initiated a transportation study at Yaquina Head Outstanding Natural Area. This study will identify transportation improvements to better address user needs while considering public and stakeholder comments, environmental constraints, constructability challenges, and financial feasibility.

We want your feedback to help guide the study!

- Your responses to this survey will help the study team better understand user needs and concerns.
- The survey should take less than 10 minutes to complete.
- Your answers will remain anonymous. We do not require any identifying information and will not report individual responses.

For more information about the study, please visit the website (<https://www.yaquinalights.org/yaquina-head-traffic-study>) where you can learn about other opportunities to share your feedback. Thank you for your participation. The deadline to complete the survey is September 10, 2021.



YAQUINA HEAD Traffic Study

Visitation Characteristics

1. During which seasons do you typically visit Yaquina Head Outstanding Natural Area? (Please select all that apply.)

- ☐ Spring (March – May)
- ☐ Summer (June – August)
- ☐ Fall (September – November)
- ☐ Winter (December – February)

2. On which days do you typically visit Yaquina Head Outstanding Natural Area? (Please select all that apply.)

- ☐ Weekdays
- ☐ Weekends
- ☐ Holidays

3. During what time period do you typically visit Yaquina Head Outstanding Natural Area? (Please select all that apply.)

- ☐ Early morning (before 8 AM)
- ☐ Morning (8 AM – 12 PM)
- ☐ Afternoon (12 PM - 5 PM)
- ☐ Evening (5 PM - sunset)
- ☐ Late evening (after park hours)

4. How long do you typically spend at Yaquina Head Outstanding Natural Area? (Please select all that apply.)

- ☐ Less than an hour
- ☐ A few hours
- ☐ Half day
- ☐ Full day

5. Do you typically visit Yaquina Head Outstanding Natural Area as part of a group?

- ☐ No, I typically visit by myself
- ☐ Yes, with one other person
- ☐ Yes, with a larger group (including adults and/or children)
- ☐ Yes, with an organized group (such as a school trip)
- ☐ Other (please specify)

6. Which activities have you participated in during visits to Yaquina Head Outstanding Natural Area? (Please select all that apply.)

- ☐ School/group tour
- ☐ Dog walking
- ☐ Surfing
- ☐ Paragliding/hang-gliding
- ☐ Walking/hiking
- ☐ Bicycling
- ☐ Bird/wildlife watching
- ☐ Tide pooling
- ☐ Visiting the Interpretive Center
- ☐ Lighthouse tour
- ☐ Other (please specify)

7. Which of the activities above was the primary purpose of your visit to Yaquina Head Outstanding Natural Area? (Please indicate only one activity)



YAQUINA HEAD

Traffic Study

Transportation Characteristics

8. How do you typically access the Yaquina Head Outstanding Natural Area? (Please select all that apply.)

- ☐ Walking
- ☐ Wheelchair or mobility aid
- ☐ Bicycle
- ☐ Motorcycle
- ☐ Passenger vehicle (car/small pickup truck)
- ☐ Recreational Vehicle (RV) or vehicle with trailer
- ☐ Tour/school bus
- ☐ Other (please specify)

9. How often do you use the following transportation modes when you visit the Yaquina Head Outstanding Natural Area?

	Daily	Weekly	Monthly	Yearly	Never
Walking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wheelchair or mobility aid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bicycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motorcycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Passenger vehicle (car/small pickup truck)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RV or vehicle with trailer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tour/school bus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

10. Below are alternative transportation options that could be offered at Yaquina Head Outstanding Natural Area in the future. Please tell us the likelihood that you would use each transportation option.

	Very Unlikely	Somewhat Unlikely	Neither	Somewhat Likely	Very Likely
A shuttle bus that takes passengers to different points at the site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A bike offered through a Bike Share Program at the site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A shuttle bus that provides a guided tour of the site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An offsite parking lot that provides trail access for walking/hiking into the site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Some other transportation option (please specify)

11. If alternative transportation were offered at Yaquina Head Outstanding Natural Area, would it enhance your experience?

- ☐ Yes
- ☐ No
- ☐ Not sure

Please share any additional feedback regarding alternative transportation options.

12. Should the Yaquina Head Outstanding Natural Area provide charging stations for electric vehicles?

- ☐ Yes
- ☐ No

13. If yes, where should electric vehicle charging stations be located?

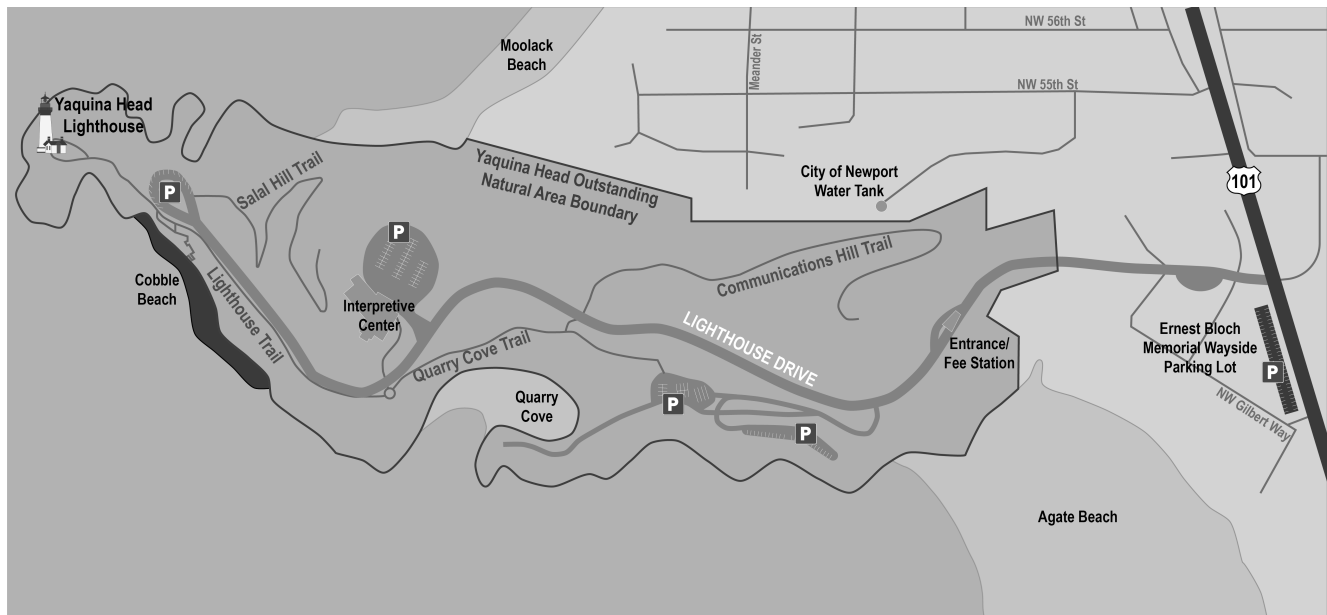


YAQUINA HEAD

Traffic Study

Site Characteristics

Yaquina Head Outstanding Natural Area Site Map



14. Please rate the following traffic, safety, and maintenance matters at Yaquina Head Outstanding Natural Area based on your experiences. (Please reference the site map.)

	Very Poor	Poor	Neutral	Good	Very Good	N/A
Entrance gate operations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall site traffic circulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall site accessibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall site pavement condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pedestrian paths/trails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quarry Cove parking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpretive Center parking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lighthouse parking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On-street parking at pullouts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pedestrian safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bicycle safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vehicle safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please provide any additional feedback about traffic, safety, and maintenance matters at Yaquina Head Outstanding Natural Area based on your experiences.



YAQUINA HEAD

Traffic Study

Parking Characteristics

15. On recent visits, did you park at the Interpretive Center Parking Lot?

☐ Yes

☐ No

16. If yes, how long did you park at the Interpretive Center Parking Lot?

☐ 0 to 30 minutes

☐ 30-60 minutes

☐ 1-2 hours

☐ More than 2 hours

☐ I did not park at the Interpretive Center Parking Lot

17. On recent visits, did you park at the Lighthouse Parking Lot?

☐ Yes

☐ No

18. If yes, how long did you park at the Lighthouse Parking Lot?

☐ 0 to 30 minutes

☐ 30-60 minutes

☐ 1-2 hours

☐ More than 2 hours

☐ I did not park at the Lighthouse Parking Lot

19. On recent visits, did you park at the Quarry Cove Parking Lot?

☐ Yes

☐ No

20. If yes, how long did you park at the Quarry Cove Parking Lot?

- ☐ 0 to 30 minutes
- ☐ 30-60 minutes
- ☐ 1-2 hours
- ☐ More than 2 hours
- ☐ I did not park at the Quarry Cove Parking Lot

21. Should the Yaquina Head Outstanding Natural Area provide additional parking designated for disabled individuals?

- ☐ Yes
- ☐ No

22. If yes, where is additional parking for disabled individuals needed?



YAQUINA HEAD

Traffic Study

Demographics

23. How would you describe yourself?

- ☐ First-time visitor
- ☐ Infrequent visitor
- ☐ Frequent visitor
- ☐ Staff member/volunteer

24. Please select your age group.

- ☐ Under 18
- ☐ 19-34
- ☐ 35-50
- ☐ 51-64
- ☐ 65+
- ☐ Prefer not to specify

25. Where do you live?

- ☐ City of Newport
- ☐ Oregon state
- ☐ Out of state
- ☐ Outside of the country
- ☐ Other (please specify)



YAQUINA HEAD

Traffic Study

Additional Feedback

26. Do you have any suggestions that would help improve the transportation experience at Yaquina Head Outstanding Natural Area?

27. Please share any additional feedback that may be helpful to the study team.

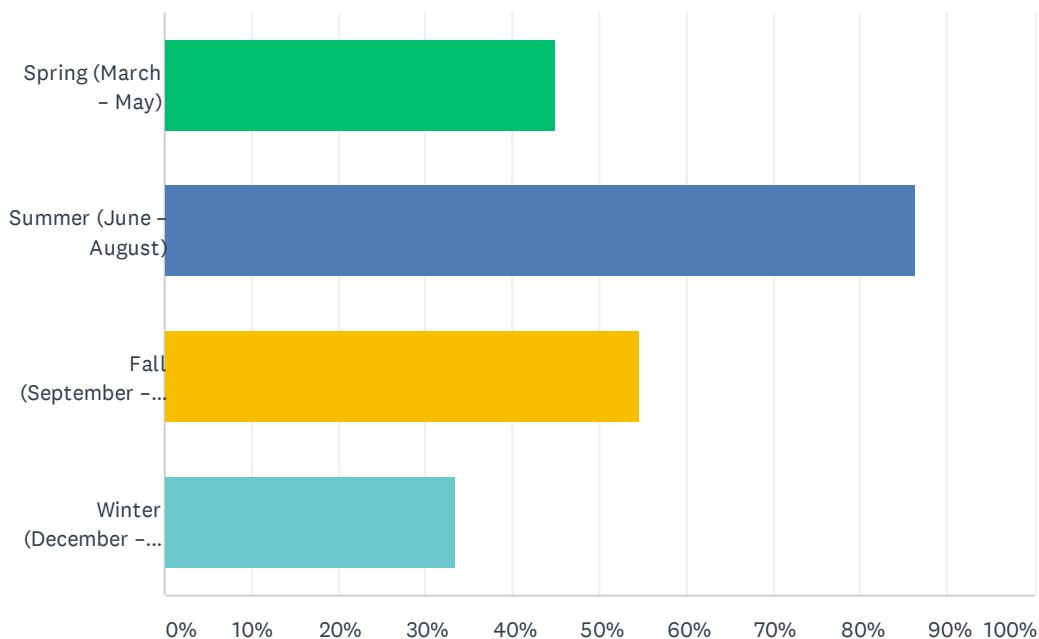
28. If you would like to stay involved in the study, please provide your name and email address.

Name

Email Address

Q1 During which seasons do you typically visit Yaquina Head Outstanding Natural Area? (Please select all that apply.)

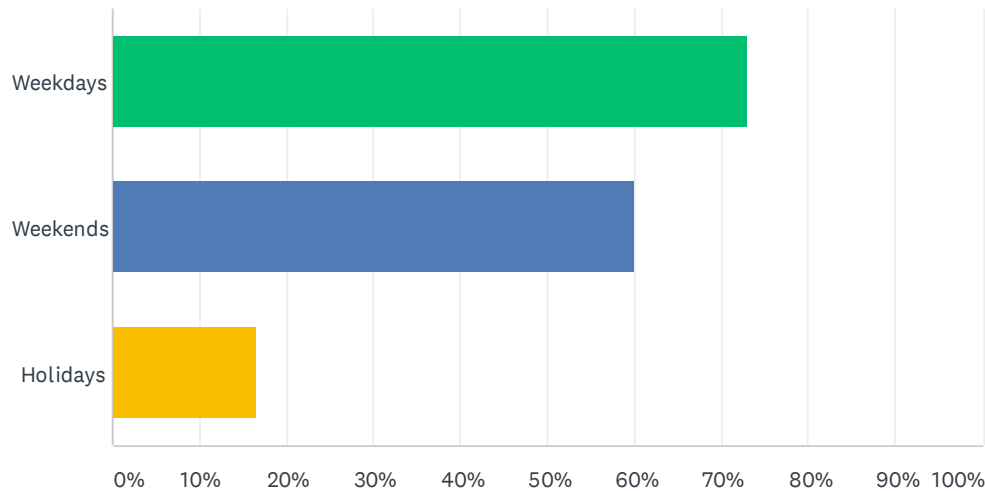
Answered: 251 Skipped: 0



ANSWER CHOICES	RESPONSES	
Spring (March – May)	45.02%	113
Summer (June – August)	86.45%	217
Fall (September – November)	54.58%	137
Winter (December – February)	33.47%	84
Total Respondents: 251		

Q2 On which days do you typically visit Yaquina Head Outstanding Natural Area? (Please select all that apply.)

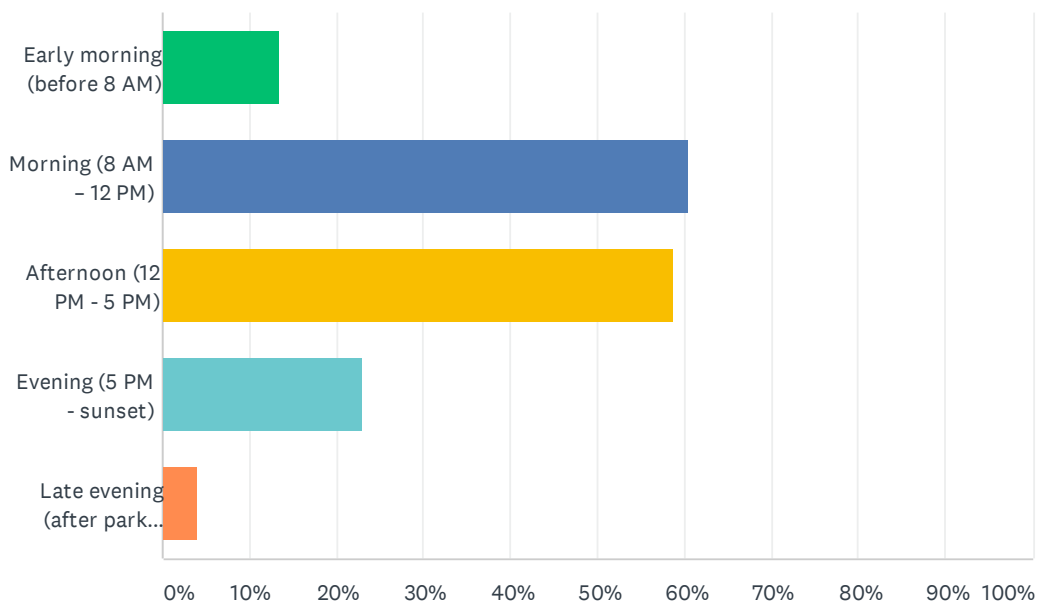
Answered: 248 Skipped: 3



ANSWER CHOICES		RESPONSES	
Weekdays		72.98%	181
Weekends		60.08%	149
Holidays		16.53%	41
Total Respondents: 248			

Q3 During what time period do you typically visit Yaquina Head Outstanding Natural Area? (Please select all that apply.)

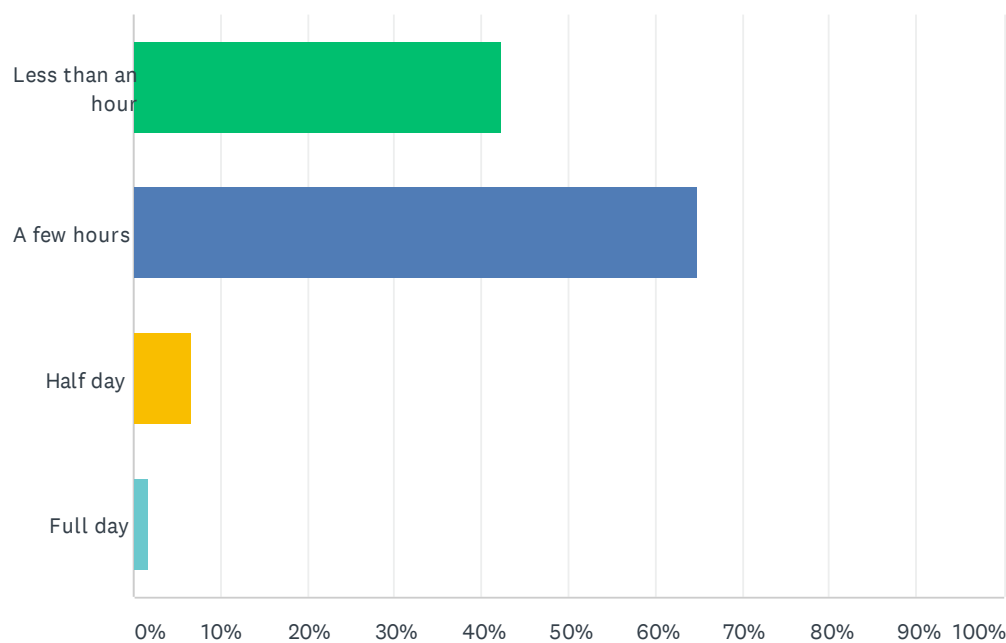
Answered: 248 Skipped: 3



ANSWER CHOICES	RESPONSES	
Early morning (before 8 AM)	13.31%	33
Morning (8 AM – 12 PM)	60.48%	150
Afternoon (12 PM - 5 PM)	58.87%	146
Evening (5 PM - sunset)	22.98%	57
Late evening (after park hours)	4.03%	10
Total Respondents: 248		

Q4 How long do you typically spend at Yaquina Head Outstanding Natural Area? (Please select all that apply.)

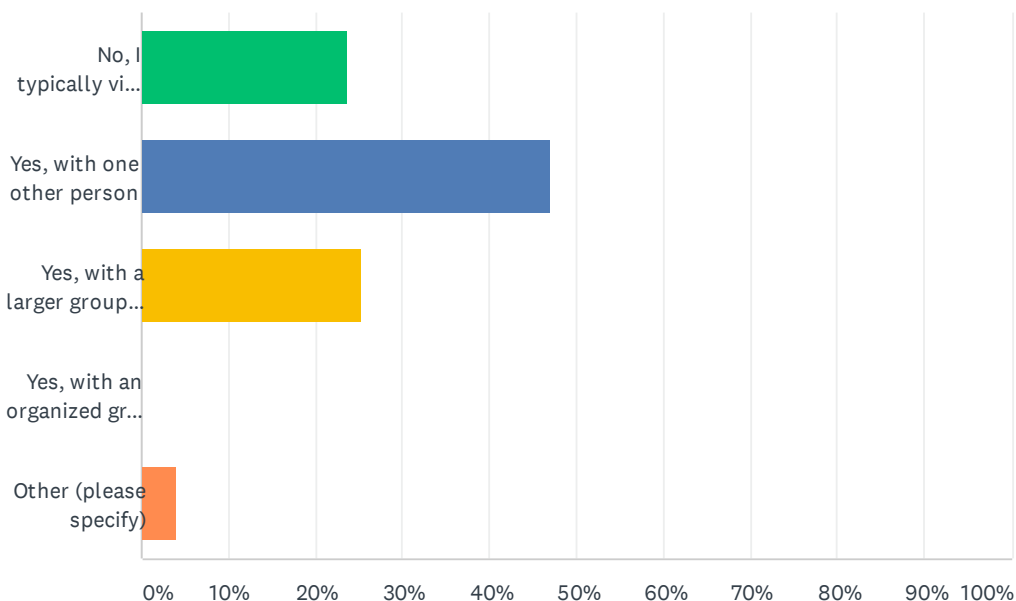
Answered: 251 Skipped: 0



ANSWER CHOICES	RESPONSES	
Less than an hour	42.23%	106
A few hours	64.94%	163
Half day	6.77%	17
Full day	1.59%	4
Total Respondents: 251		

Q5 Do you typically visit Yaquina Head Outstanding Natural Area as part of a group?

Answered: 249 Skipped: 2

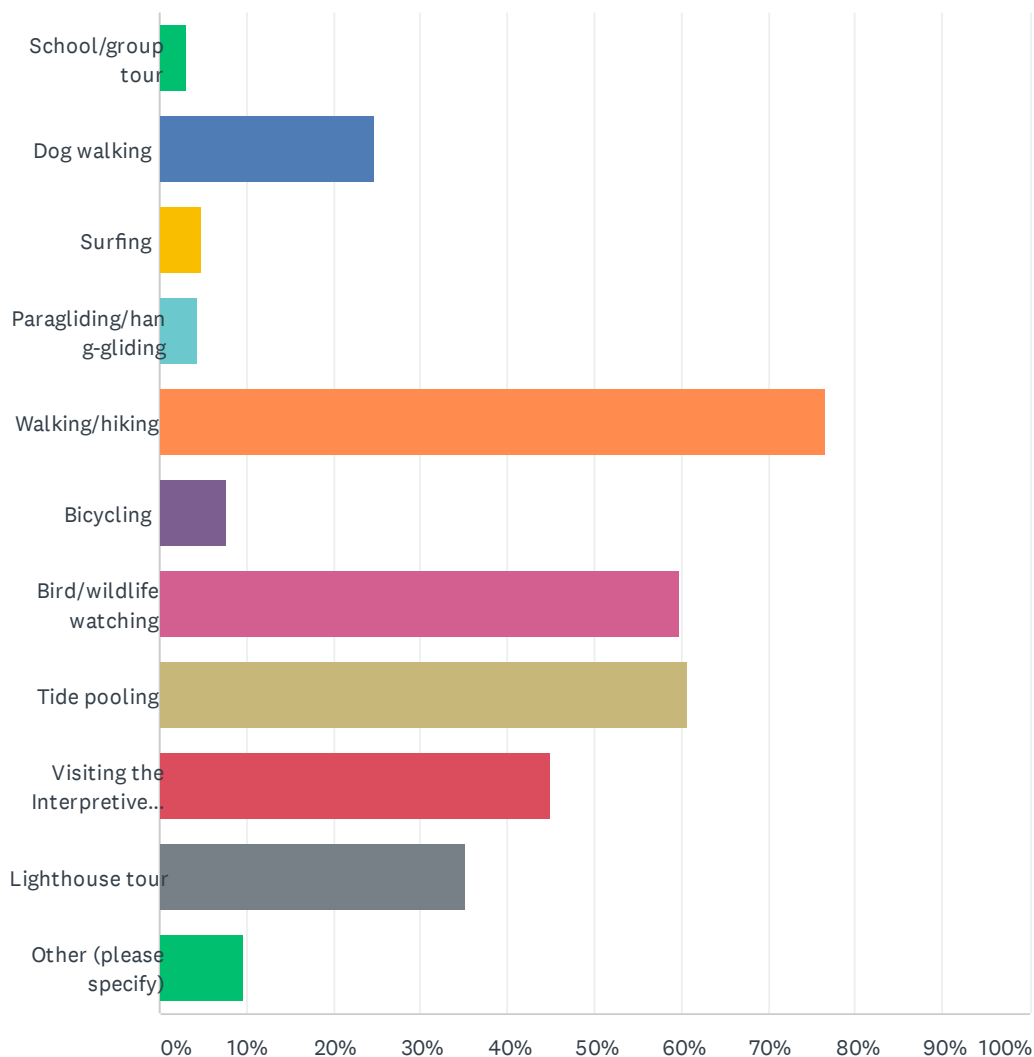


ANSWER CHOICES	RESPONSES	
No, I typically visit by myself	23.69%	59
Yes, with one other person	46.99%	117
Yes, with a larger group (including adults and/or children)	25.30%	63
Yes, with an organized group (such as a school trip)	0.00%	0
Other (please specify)	4.02%	10
TOTAL		249

#	OTHER (PLEASE SPECIFY)	DATE
1	volunteer living in the Park	8/26/2021 3:41 PM
2	family	8/25/2021 4:39 PM
3	Hang gliding pilots	8/24/2021 10:31 AM
4	I visit both by myself at time and with small groups of friends in a coordinated manner.	8/22/2021 2:00 PM
5	Varies, I'm a local So sometimes I enjoy the area by myself or sometimes I take my friends and visitors to enjoy it with me.	8/19/2021 6:58 PM
6	By myself, with my family, with my friends, and in the past with school groups	8/18/2021 8:08 PM
7	2 adults 1 child	8/16/2021 1:06 PM
8	another person and dog/ occasional out of town visitors	8/16/2021 11:44 AM
9	With family	8/15/2021 2:13 PM
10	I work here!	8/12/2021 5:14 PM

Q6 Which activities have you participated in during visits to Yaquina Head Outstanding Natural Area? (Please select all that apply.)

Answered: 247 Skipped: 4



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ANSWER CHOICES	RESPONSES
School/group tour	3.24% 8
Dog walking	24.70% 61
Surfing	4.86% 12
Paragliding/hang-gliding	4.45% 11
Walking/hiking	76.52% 189
Bicycling	7.69% 19
Bird/wildlife watching	59.92% 148
Tide pooling	60.73% 150
Visiting the Interpretive Center	44.94% 111
Lighthouse tour	35.22% 87
Other (please specify)	9.72% 24
Total Respondents: 247	

#	OTHER (PLEASE SPECIFY)	DATE
1	Photography	9/7/2021 5:05 PM
2	Photography	9/4/2021 2:24 PM
3	Viewing the ocean	8/29/2021 12:08 PM
4	Sometimes just watching the activity of the natural area.	8/29/2021 11:44 AM
5	Running	8/28/2021 6:56 PM
6	UW COASST / monthly bird mortality study	8/27/2021 8:34 PM
7	Lighthouse and views	8/27/2021 11:29 AM
8	R2-D2	8/27/2021 7:35 AM
9	volunteer duties involving above noted activites	8/26/2021 3:41 PM
10	Hang gliding	8/24/2021 10:31 AM
11	Lighthouse. No tour	8/23/2021 7:41 PM
12	The ashes of several family members have been scattered there so we often go as a family to remember them.	8/19/2021 6:28 PM
13	The Interpretive Center and Light House were closed. We would have visited if they were open.	8/19/2021 12:15 PM
14	I was an intern and park ranger!	8/18/2021 8:08 PM
15	assisting with COASST beached bird survey--citizen science	8/18/2021 12:50 PM
16	Look for whales	8/16/2021 6:34 PM
17	I live on the headland less than a block to the pay shack.	8/16/2021 5:52 PM
18	Lighthouse	8/16/2021 1:06 PM
19	Whale watching	8/15/2021 3:47 PM
20	Photography	8/14/2021 2:41 PM
21	Siteseeing	8/14/2021 1:44 PM

Yaquina Head Public Outreach

22	Photography	8/14/2021 12:26 PM
23	Camping	8/14/2021 11:19 AM
24	Photos	8/13/2021 8:57 PM

Q7 Which of the activities above was the primary purpose of your visit to Yaquina Head Outstanding Natural Area? (Please indicate only one activity)

Answered: 198 Skipped: 53

#	RESPONSES	DATE
1	Fun educational	9/11/2021 2:51 PM
2	Tide pools	9/10/2021 3:01 PM
3	Lighthouse tour	9/10/2021 12:52 PM
4	Lighthouse	9/10/2021 11:34 AM
5	Tidepooling	9/9/2021 2:04 PM
6	Walking	9/9/2021 1:46 PM
7	Walking/hiking	9/9/2021 1:30 PM
8	Bird/wildlife watching	9/8/2021 4:51 PM
9	Sightseeing	9/8/2021 11:40 AM
10	Lighthouse	9/8/2021 11:24 AM
11	Tide pooling	9/8/2021 11:22 AM
12	Lighthouse Tour	9/7/2021 8:19 PM
13	Photography	9/7/2021 5:05 PM
14	Tide pool	9/7/2021 1:47 PM
15	Hiking	9/6/2021 6:28 PM
16	Exploring cobble beach	9/6/2021 4:33 PM
17	Walking, hiking	9/6/2021 1:44 PM
18	Bird/wildlife watching	9/6/2021 1:36 PM
19	Lighthouse tour	9/6/2021 12:41 PM
20	Walking	9/6/2021 12:04 PM
21	Lighthouse Tour	9/6/2021 8:23 AM
22	walking	9/5/2021 4:04 PM
23	walking/hiking	9/5/2021 12:44 PM
24	Tide pooling	9/4/2021 3:48 PM
25	Walking	9/4/2021 2:34 PM
26	Photography	9/4/2021 2:24 PM
27	Tide pooling	9/4/2021 12:57 PM
28	Wildlife	9/4/2021 12:41 PM
29	Tide Pooling	9/3/2021 7:42 PM
30	Tide pooling	9/3/2021 4:46 PM

Yaquina Head Public Outreach

31	Hike	9/3/2021 10:27 AM
32	Tide pooling	9/1/2021 2:55 PM
33	Walking/hiking	9/1/2021 1:12 PM
34	Lighthouse tour	9/1/2021 1:04 PM
35	Tide pools	9/1/2021 12:23 PM
36	Tide pooling	9/1/2021 11:36 AM
37	Tide pooling	9/1/2021 1:57 AM
38	Tide pooling	8/31/2021 11:23 PM
39	Bird watching	8/31/2021 5:05 PM
40	Wildlife watching	8/31/2021 11:45 AM
41	Paragliding	8/30/2021 12:43 AM
42	View birds off shore of Lighthouse	8/29/2021 6:47 PM
43	Lighthouse	8/29/2021 6:05 PM
44	Walking	8/29/2021 5:03 PM
45	Tide pooling	8/29/2021 3:28 PM
46	Tide pools/cobble beach	8/29/2021 3:25 PM
47	Light house tour???	8/29/2021 1:38 PM
48	Cobble Beach	8/29/2021 1:07 PM
49	Hiking	8/29/2021 1:00 PM
50	Viewing the ocean	8/29/2021 12:08 PM
51	My "other" comment. Just watching the wildlife and ocean.	8/29/2021 11:44 AM
52	Tide pooling	8/29/2021 9:11 AM
53	Beautiful Natural Area	8/28/2021 7:45 PM
54	Tide Pooling	8/28/2021 6:56 PM
55	walking	8/28/2021 5:08 PM
56	Tide pool	8/28/2021 11:51 AM
57	walking/hiking	8/27/2021 8:34 PM
58	Walking	8/27/2021 6:25 PM
59	Visit lighthouse	8/27/2021 6:10 PM
60	Bird watching	8/27/2021 5:46 PM
61	Fun visit	8/27/2021 12:28 PM
62	Bird and wildlife watching	8/27/2021 11:42 AM
63	Tide pools	8/27/2021 11:29 AM
64	Tide pooling	8/27/2021 11:17 AM
65	Site seeing	8/27/2021 11:07 AM
66	Walking, hiking	8/27/2021 10:53 AM
67	Viewing	8/27/2021 10:13 AM
68	Hiking	8/26/2021 8:03 PM

Yaquina Head Public Outreach

69	cobble beach	8/26/2021 7:59 PM
70	Paragliding	8/26/2021 4:33 PM
71	Wildlife and bird watching	8/26/2021 3:34 PM
72	Visit the Lighthouse which the website and phone system implied was open. We didn't learn it was closed due to Covid until we arrived.	8/26/2021 2:54 PM
73	Walking/hiking	8/26/2021 11:30 AM
74	Lighthouse	8/25/2021 6:44 PM
75	Tide pooling	8/25/2021 4:43 PM
76	lighthouse	8/25/2021 4:39 PM
77	Paragliding	8/25/2021 2:28 PM
78	paragliding	8/25/2021 1:49 PM
79	Bird/wildlife watching	8/25/2021 10:55 AM
80	Lighthouse tour	8/25/2021 10:41 AM
81	Paragliding/hang gliding	8/24/2021 10:28 PM
82	walking/hiking	8/24/2021 7:16 PM
83	Tide Pooling	8/24/2021 5:34 PM
84	Walking/hiking	8/24/2021 12:59 PM
85	Walking	8/24/2021 11:38 AM
86	Hang gliding	8/24/2021 10:31 AM
87	Tide pool	8/23/2021 9:48 PM
88	Tourist	8/23/2021 7:41 PM
89	tidepooling on time off and marine debris cleanup for work	8/23/2021 6:15 PM
90	Walking	8/23/2021 6:14 PM
91	Lighthouse tour	8/23/2021 3:54 PM
92	walking	8/23/2021 3:36 PM
93	Lighthouse tour	8/23/2021 9:50 AM
94	Hang gliding/paragliding	8/22/2021 8:13 PM
95	Walking	8/22/2021 5:11 PM
96	Hiking	8/22/2021 4:25 PM
97	Tide pooling	8/22/2021 3:00 PM
98	Walking	8/22/2021 2:17 PM
99	I visit YHONA frequently for all these activities, but hang gliding is one my primary activities there.	8/22/2021 2:00 PM
100	Tidepools	8/22/2021 1:45 PM
101	Cycling	8/22/2021 12:53 PM
102	Tourist in the area	8/22/2021 11:23 AM
103	Bird/wildlife watching	8/22/2021 12:05 AM
104	Tide pooling	8/21/2021 1:59 PM
105	Paragliding	8/20/2021 8:33 AM

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106	Bird/wildlife watching	8/19/2021 9:02 PM
107	Bird/wildlife watching	8/19/2021 7:30 PM
108	Surfing, nature viewing	8/19/2021 6:58 PM
109	Tide pools	8/19/2021 6:47 PM
110	Lighthouse tour, hiking	8/19/2021 6:47 PM
111	Other-remembering family members whose ashes have been scattered there.	8/19/2021 6:28 PM
112	Wildlife viewing	8/19/2021 4:18 PM
113	Regular bird and wildlife watcher	8/19/2021 3:24 PM
114	Surfing	8/19/2021 2:41 PM
115	Tide pool	8/19/2021 12:15 PM
116	Lighthouse tour	8/19/2021 11:06 AM
117	Dog Walking	8/19/2021 11:03 AM
118	Wildlife watching	8/19/2021 10:10 AM
119	Tidepooling	8/19/2021 7:50 AM
120	Walking	8/18/2021 8:52 PM
121	Walking	8/18/2021 8:08 PM
122	Bird watching	8/18/2021 6:16 PM
123	Paragliding	8/18/2021 4:00 PM
124	Beach waves and wildlife	8/18/2021 3:00 PM
125	Running	8/18/2021 1:50 PM
126	Walking/hiking	8/18/2021 1:21 PM
127	Bird/wildlife watching	8/18/2021 1:18 PM
128	walking/hiking/birding	8/18/2021 12:50 PM
129	Walking	8/18/2021 12:06 PM
130	Tide Pooling	8/18/2021 11:15 AM
131	bird/wildlife watching	8/18/2021 11:11 AM
132	Surfing	8/18/2021 10:26 AM
133	Dog walking	8/17/2021 9:51 PM
134	Walking	8/17/2021 7:52 PM
135	Visit the Interpretive Center	8/17/2021 6:39 PM
136	Dog walking	8/17/2021 4:53 PM
137	Tide poolibg	8/17/2021 4:36 PM
138	Tide pooling	8/17/2021 4:09 PM
139	Tide pooling	8/17/2021 4:02 PM
140	walking	8/17/2021 3:54 PM
141	Seeing the light house	8/17/2021 3:31 PM
142	Walking	8/17/2021 2:02 PM
143	Walking	8/17/2021 1:31 PM

Yaquina Head Public Outreach

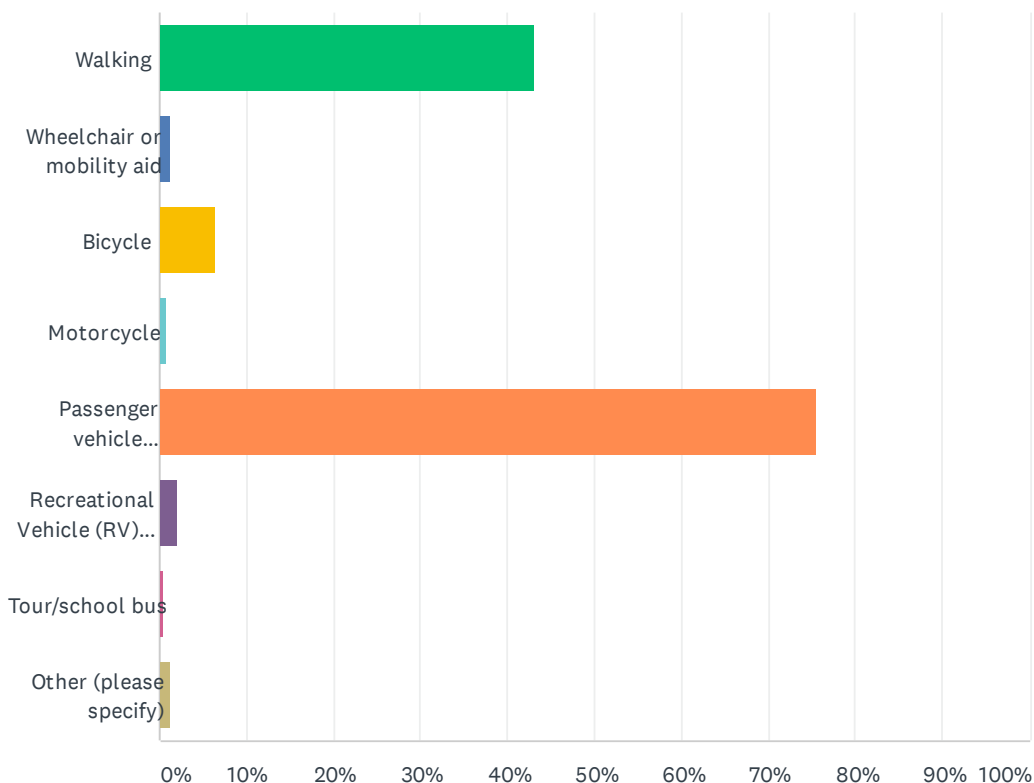
144	Hiking	8/17/2021 1:30 PM
145	Walking / Hiking	8/17/2021 1:07 PM
146	Enjoying the view	8/17/2021 12:06 PM
147	Tide pool	8/17/2021 10:58 AM
148	dog walking	8/17/2021 10:14 AM
149	dog walking	8/17/2021 10:00 AM
150	Bird/ wildlife watching	8/16/2021 8:24 PM
151	Walking/hiking	8/16/2021 8:05 PM
152	dog walking	8/16/2021 6:54 PM
153	Look for whales and lighthouse	8/16/2021 6:34 PM
154	Walking	8/16/2021 5:52 PM
155	Hiking	8/16/2021 5:46 PM
156	Walking	8/16/2021 5:35 PM
157	Lighthouse	8/16/2021 1:06 PM
158	walking/hiking	8/16/2021 11:44 AM
159	Bird/wildlife	8/16/2021 9:34 AM
160	Hiking/walking	8/15/2021 7:00 PM
161	Tide pooling	8/15/2021 3:47 PM
162	Taking pictures of the lighthouse.	8/15/2021 3:46 PM
163	Lighthouse	8/15/2021 2:13 PM
164	I walk there most days	8/15/2021 10:09 AM
165	Bird watching	8/15/2021 10:09 AM
166	Bird/wildlife watching	8/15/2021 1:47 AM
167	Tidepooling	8/14/2021 6:21 PM
168	Wildlife including the tidepools	8/14/2021 5:55 PM
169	Birdwatching	8/14/2021 3:58 PM
170	Lighthouse	8/14/2021 2:57 PM
171	Viewing the wildlife	8/14/2021 2:18 PM
172	Lighthouse tour	8/14/2021 2:02 PM
173	Enjoying the sites	8/14/2021 1:51 PM
174	Tide pooling	8/14/2021 1:02 PM
175	Photography	8/14/2021 12:26 PM
176	Walking	8/14/2021 12:16 PM
177	Viewing nature	8/14/2021 12:04 PM
178	Walking and runnin	8/14/2021 11:44 AM
179	Tide pools	8/14/2021 11:41 AM
180	Tidepools	8/14/2021 11:35 AM
181	Tidepools	8/14/2021 11:33 AM

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182	Camping	8/14/2021 11:19 AM
183	Walking	8/14/2021 10:47 AM
184	Walking	8/14/2021 10:13 AM
185	Taking myself and the dog for a walk	8/14/2021 9:50 AM
186	dogwalk	8/14/2021 8:56 AM
187	I'm local so I typically enjoy my coffee on my walk to the lighthouse the occasional morning. Sometimes afternoon to watch the surfers or for sunsets.	8/14/2021 8:43 AM
188	ingress	8/14/2021 8:30 AM
189	Dog jogging	8/14/2021 8:19 AM
190	dog walking	8/14/2021 8:18 AM
191	walking	8/14/2021 7:59 AM
192	Tide pooling	8/13/2021 8:57 PM
193	Bird watching.	8/13/2021 4:08 PM
194	View/wildlife	8/13/2021 3:09 PM
195	Bird / wildlife viewing	8/13/2021 2:23 PM
196	Hike	8/13/2021 1:48 PM
197	Employment	8/12/2021 5:14 PM
198	Tide Pooling	8/11/2021 6:14 PM

Q8 How do you typically access the Yaquina Head Outstanding Natural Area? (Please select all that apply.)

Answered: 232 Skipped: 19

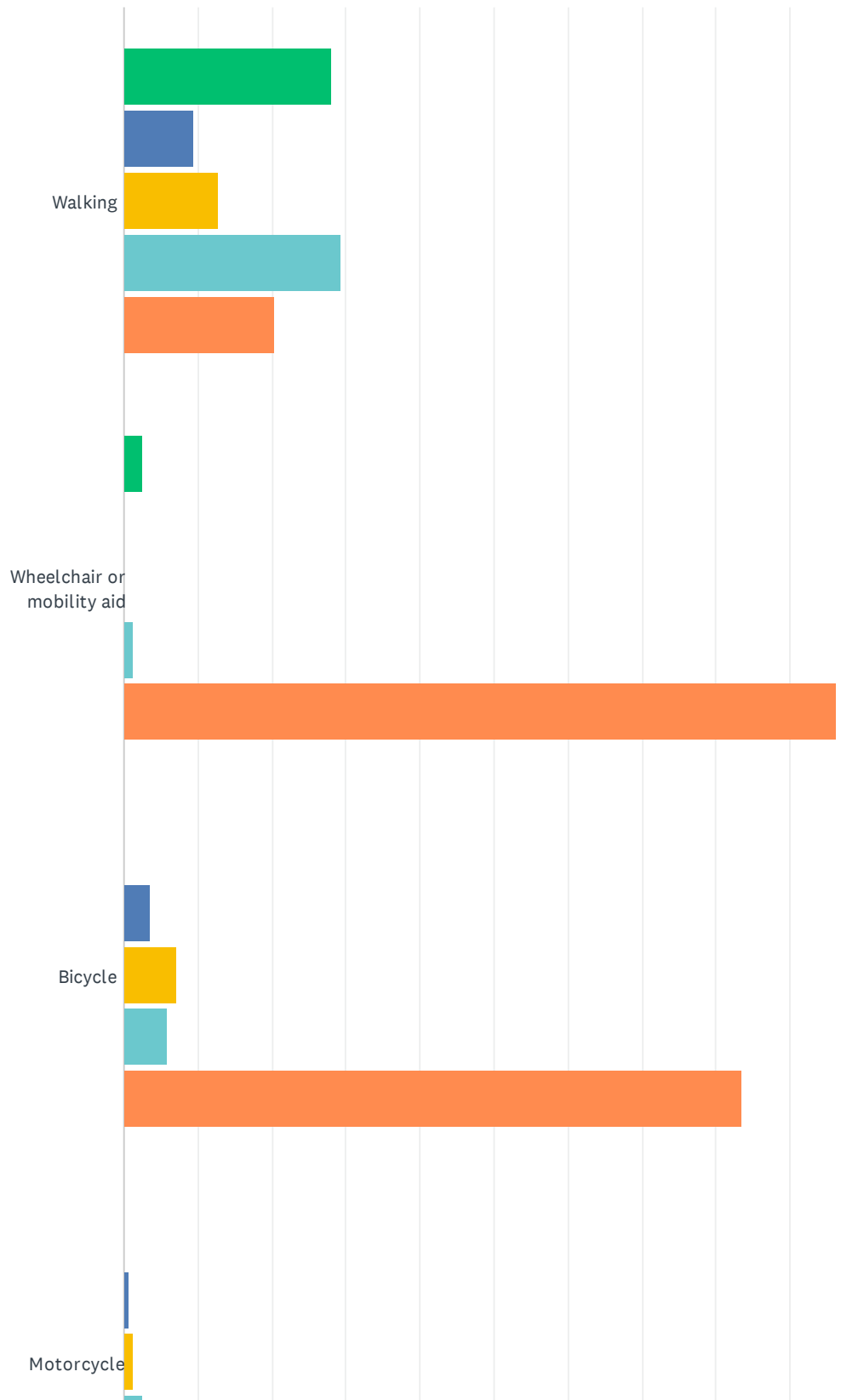


ANSWER CHOICES	RESPONSES	
Walking	43.10%	100
Wheelchair or mobility aid	1.29%	3
Bicycle	6.47%	15
Motorcycle	0.86%	2
Passenger vehicle (car/small pickup truck)	75.43%	175
Recreational Vehicle (RV) or vehicle with trailer	2.16%	5
Tour/school bus	0.43%	1
Other (please specify)	1.29%	3
Total Respondents: 232		

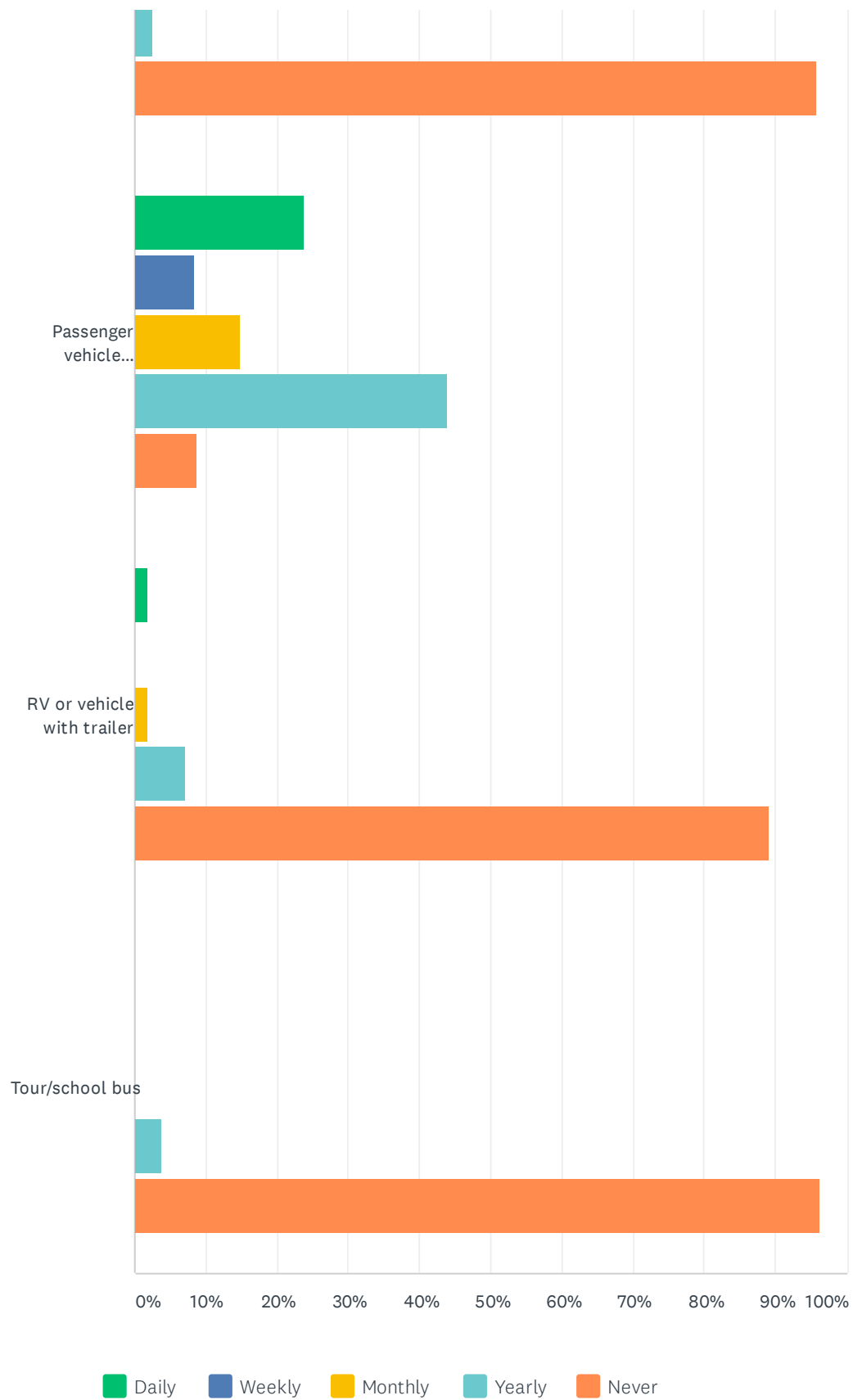
#	OTHER (PLEASE SPECIFY)	DATE
1	truck from volunteer park to Interpretive center	8/26/2021 3:45 PM
2	Recumbent trike	8/22/2021 12:55 PM
3	Running	8/18/2021 1:53 PM

Q9 How often do you use the following transportation modes when you visit the Yaquina Head Outstanding Natural Area?

Answered: 232 Skipped: 19



Yaquina Head Public Outreach



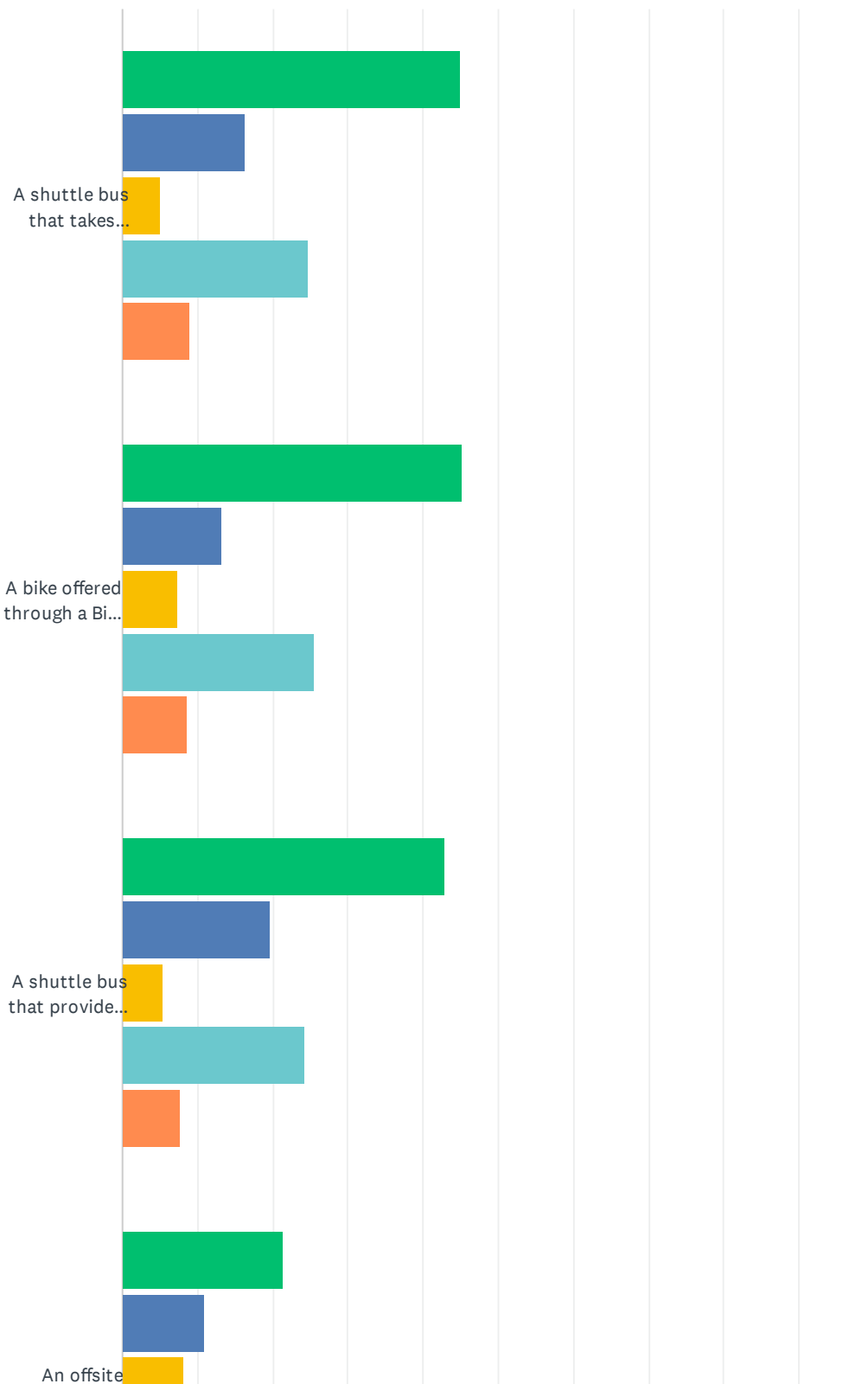
Yaquina Head Public Outreach

	DAILY	WEEKLY	MONTHLY	YEARLY	NEVER	TOTAL
Walking	27.96% 59	9.48% 20	12.80% 27	29.38% 62	20.38% 43	211
Wheelchair or mobility aid	2.48% 4	0.00% 0	0.00% 0	1.24% 2	96.27% 155	161
Bicycle	0.00% 0	3.53% 6	7.06% 12	5.88% 10	83.53% 142	170
Motorcycle	0.00% 0	0.61% 1	1.21% 2	2.42% 4	95.76% 158	165
Passenger vehicle (car/small pickup truck)	23.83% 51	8.41% 18	14.95% 32	43.93% 94	8.88% 19	214
RV or vehicle with trailer	1.80% 3	0.00% 0	1.80% 3	7.19% 12	89.22% 149	167
Tour/school bus	0.00% 0	0.00% 0	0.00% 0	3.70% 6	96.30% 156	162

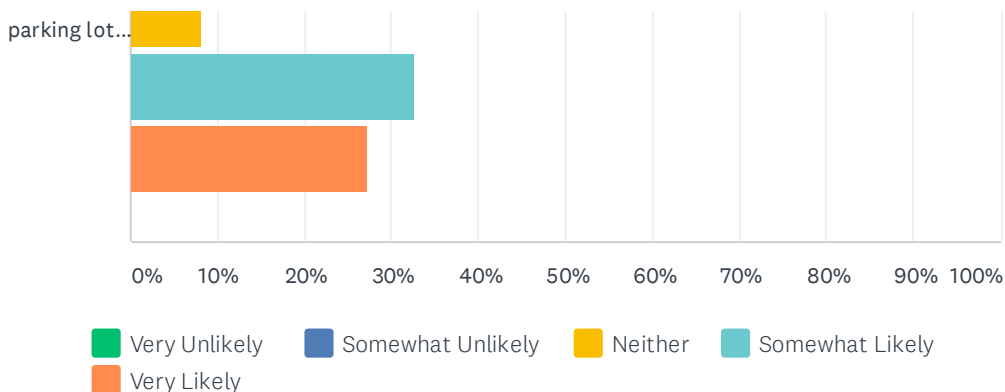
#	OTHER (PLEASE SPECIFY)	DATE
1	Always drive, hauling a glider on the roof rack	8/24/2021 10:30 PM
2	One time trip	8/22/2021 3:02 PM
3	Just retired without a doubt I will be there weekly	8/19/2021 6:38 PM
4	I want to bicycle there more often but it is too dangerous on Hwy 101	8/18/2021 10:54 AM

Q10 Below are alternative transportation options that could be offered at Yaquina Head Outstanding Natural Area in the future. Please tell us the likelihood that you would use each transportation option.

Answered: 228 Skipped: 23



Yaquina Head Public Outreach

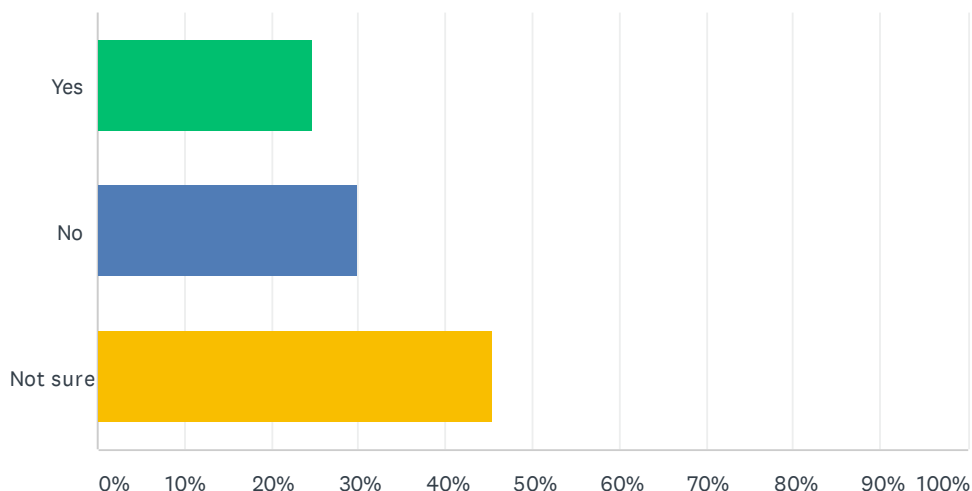


	VERY UNLIKELY	SOMEWHAT UNLIKELY	NEITHER	SOMEWHAT LIKELY	VERY LIKELY	TOTAL
A shuttle bus that takes passengers to different points at the site	45.05% 100	16.22% 36	4.95% 11	24.77% 55	9.01% 20	222
A bike offered through a Bike Share Program at the site	45.21% 99	13.24% 29	7.31% 16	25.57% 56	8.68% 19	219
A shuttle bus that provides a guided tour of the site	42.92% 94	19.63% 43	5.48% 12	24.20% 53	7.76% 17	219
An offsite parking lot that provides trail access for walking/hiking into the site	21.27% 47	10.86% 24	8.14% 18	32.58% 72	27.15% 60	221

#	SOME OTHER TRANSPORTATION OPTION (PLEASE SPECIFY)	DATE
1	Horse and buggy or old jalope car	9/6/2021 8:26 AM
2	park our small pickup near gate to go paragliding (2 people)	8/25/2021 1:51 PM
3	Golf carts ? For older people	8/23/2021 9:51 PM
4	None of above because of COVID-19	8/23/2021 8:42 PM
5	EV charging needed at Visitor Center	8/23/2021 6:17 PM
6	Inlet and outlet multimodal access points on north and east perimeter	8/23/2021 5:42 PM
7	no cars past interpretive center except for disabled	8/23/2021 3:47 PM
8	limit the amount of cars going through at any given time / change to reservation based system for entry	8/19/2021 6:32 PM
9	bike/ped trails	8/18/2021 10:54 AM
10	I wouldn't use a parking lot because I live here but a parking area is desperately needed!!	8/16/2021 5:55 PM
11	Not having to wait in line at the Fee Booth—I have an annual pass.	8/15/2021 3:50 PM
12	Only allow parking at the visitor center, shuttle to lighthouse	8/14/2021 11:46 AM

Q11 If alternative transportation were offered at Yaquina Head Outstanding Natural Area, would it enhance your experience?

Answered: 234 Skipped: 17



ANSWER CHOICES	RESPONSES	
Yes	24.79%	58
No	29.91%	70
Not sure	45.30%	106
TOTAL		234

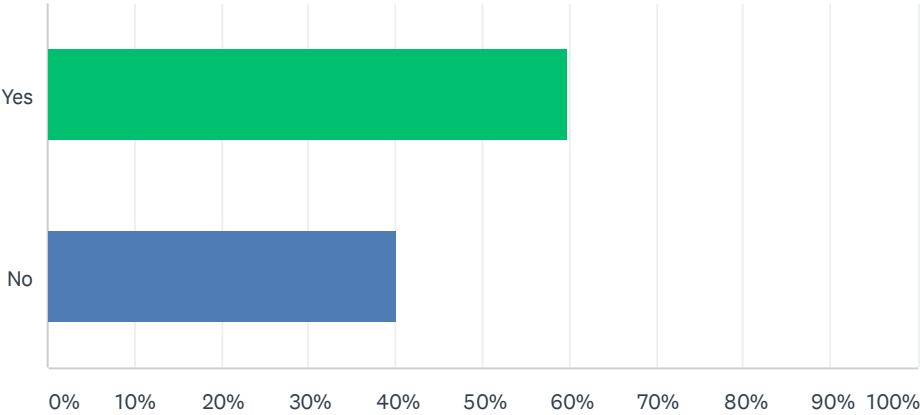
#	PLEASE SHARE ANY ADDITIONAL FEEDBACK REGARDING ALTERNATIVE TRANSPORTATION OPTIONS.	DATE
1	Clse site to all cars	9/6/2021 8:26 AM
2	would depend on the details, but interested to hear about concepts	9/5/2021 12:46 PM
3	A sidewalk or trail to walk in would be great	9/4/2021 2:35 PM
4	I am semi-disabled, it would be great to have a transportation option that would take me down to cobble beach as it is very difficult to go up and down the stairs	9/1/2021 2:00 AM
5	Mark a northern hiking/biking entrance	8/29/2021 5:07 PM
6	It's nice to set in my car and watch the wildlife. But, the Oregon coast is discovered and options have to be reviewed.	8/29/2021 11:54 AM
7	We visit from out-of- state via auto which is also our mode to site	8/29/2021 9:16 AM
8	At gate need a lane for seniors with passes. Next, parking is the issue. Ecologist need to be prioritized for access including retired ones. On weekends or at least once a week walking in should be the only way to access to give the area a break from people loving it to death.	8/28/2021 7:53 PM
9	A safe bike route would make me rethink driving. If possible besides safe it would also be accessible from north of the site toward Depoe Bay and south toward Newport. The current Oregon coastal bike route isn't safe.	8/28/2021 7:00 PM
10	I would favor a shuttle service if it decreased personal automobile traffic density on Lighthouse Drive.	8/28/2021 5:11 PM

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11	We found it easy to drive to and park at sites we wanted to see.	8/27/2021 11:11 AM
12	Yes yes yes! Close as much road as possible, use shuttles. Last year's road closure from Interpretive Center to lighthouse greatly enhanced the visitor experience for those who walked!!	8/26/2021 3:39 PM
13	would need room for paragliding equipment and a stop near the PG area	8/25/2021 1:51 PM
14	Only if the shuttle had a hang glider rack! (not likely!)	8/24/2021 10:30 PM
15	stricter enforcement of speeding cars & slower speed limits - VERY IMPORTANT FOR WALKING VISITORS	8/23/2021 3:47 PM
16	I do enjoy the walk to the lighthouse. I would hope that if a tour bus was offered, access to walking or biking would still be an option.	8/23/2021 9:59 AM
17	When I go hang gliding at Yaquina Head I bring my equipment in on my car, if others come with me to fly we consolidate into one car. We park near the gate by the road up to Communications Hill and manually bring our equipment to launch, then retrieve the vehicle after flying.	8/22/2021 2:08 PM
18	What would the options be of where I could exit & re-enter the alternative transportation?	8/22/2021 12:08 AM
19	Go to reservation based system for car usage. Keep vehicle traffic open in the winter when less tourists are there.	8/19/2021 6:32 PM
20	We appreciated the way the Grand Canyon park operated with frequent shuttles inside the park from a central location. The distances between viewpoints or trails was fairly short. I'm not sure a shuttle between Oregon Coast parks would be practical. If just for Yaquina Head then not likely a big benefit. We always have found parking - never been turned away for this reason. However, if the number of visitors is growing then I welcome an alternative for parking and would use a shuttle from a satellite parking lot.	8/19/2021 12:24 PM
21	Right now I can walk & so prefer to do so, if as I age I can't walk far, I'd be interested in a shuttle bus.	8/18/2021 12:52 PM
22	(1) ADA MULTI-USE PATHS. (2) vehicular access to Visitor Center only. Other roads for service, emergency, transit and ADA tagged vehicles ONLY.	8/18/2021 10:54 AM
23	I would love to see a shuttle bus system started	8/18/2021 8:17 AM
24	I live in the neighborhood, so I always walk in. What would enhance my experience is a wider and safer pedestrian zone along the road starting at Highway 101 until the pedestrian trail starts across from communication hill. There also needs to be clearer speed limit signs on that road. People drive really fast on that little stretch between the highway and the kiosk. There should be signs that are 15 mph as well as speed bumps.	8/17/2021 7:57 PM
25	less.vehicles on the road racing from feature to feature would feel safer as a walker	8/17/2021 10:14 AM
26	I currently park down by the Cafe for sale — the empty parking lot and walk in	8/15/2021 10:11 AM
27	But open to it	8/14/2021 6:48 PM
28	Don't know if it's worth the money	8/14/2021 2:19 PM
29	It is nice with limited cars. Walking the roads is a great experience with the views	8/14/2021 8:22 AM
30	Reducing traffic is very important to experiencing this site	8/14/2021 8:21 AM
31	The easier we can make it for people to visit YHONA the better!	8/11/2021 6:14 PM

Q12 Should the Yaquina Head Outstanding Natural Area provide charging stations for electric vehicles?

Answered: 222 Skipped: 29



ANSWER CHOICES	RESPONSES	
Yes	59.91%	133
No	40.09%	89
TOTAL		222

Q13 If yes, where should electric vehicle charging stations be located?

Answered: 114 Skipped: 137

#	RESPONSES	DATE
1	Visitors center	9/10/2021 12:55 PM
2	By the restrooms	9/10/2021 11:36 AM
3	Away from the area. Other side of hi-way	9/9/2021 1:34 PM
4	By pay station	9/8/2021 4:52 PM
5	Near entrance	9/8/2021 11:41 AM
6	By interpretative center	9/8/2021 11:23 AM
7	In the parking lot	9/7/2021 8:21 PM
8	Interpretive Center	9/6/2021 6:30 PM
9	Existing parking areas	9/6/2021 1:48 PM
10	in main parking lot	9/5/2021 4:06 PM
11	visitor center parking lot	9/5/2021 12:46 PM
12	At visitor center	9/4/2021 3:50 PM
13	Parking lot	9/4/2021 2:35 PM
14	At lighthouse and/or Interpretation center	9/4/2021 1:00 PM
15	Visitor center	9/4/2021 12:44 PM
16	Visitors center	9/1/2021 2:58 PM
17	Interpretative Center	9/1/2021 1:05 PM
18	Visitor center	9/1/2021 11:38 AM
19	Park visitor center	8/31/2021 11:25 PM
20	Interpretive center	8/31/2021 5:07 PM
21	The interpretation center parking lot	8/31/2021 11:46 AM
22	Base of trail/road	8/29/2021 6:07 PM
23	Visitor Center only	8/29/2021 5:07 PM
24	Visitor center parking lot	8/29/2021 4:37 PM
25	Visitors / interpretive center	8/29/2021 3:27 PM
26	Interpretive center parking lot	8/29/2021 1:10 PM
27	Visitor center parking lot	8/29/2021 1:08 PM
28	At visitors center	8/29/2021 9:16 AM
29	By interpretation center	8/28/2021 7:53 PM
30	In the Interpretive Center parking lot.	8/28/2021 5:11 PM
31	Interpretative centers	8/28/2021 2:58 PM
32	VC	8/27/2021 6:27 PM
33	At a specified area.	8/27/2021 6:12 PM

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34	Interpretive center parking lot	8/27/2021 11:45 AM
35	In a parking area, allowing time for hiking and touring while charging.	8/27/2021 11:31 AM
36	The interpretive center so that you could walk to other sites without taking spots at the overlooks	8/27/2021 11:11 AM
37	IC	8/26/2021 8:05 PM
38	parking lots	8/26/2021 8:01 PM
39	How about at Ernest Bloch Wayside? A collaborative effort.	8/26/2021 3:39 PM
40	Interpretive center	8/26/2021 11:34 AM
41	Interpretation Center	8/25/2021 4:45 PM
42	Parking lot	8/25/2021 2:30 PM
43	near the restrooms/visitor center.	8/25/2021 1:51 PM
44	Parking areas, maybe just off-site to reduce congestion	8/24/2021 10:30 PM
45	Interpretive Center parking lot	8/24/2021 1:02 PM
46	Parking lot	8/24/2021 10:49 AM
47	Visitor Center.	8/23/2021 6:17 PM
48	Before I say yes; I have had to leave the area because every parking spot was full. What would stop a person from parking in those spots that did not have an EV vehicle?	8/23/2021 9:59 AM
49	Visitor center parking area	8/22/2021 2:18 PM
50	Electric vehicle charging stations seem an unneeded and expensive thing to add at Yaquina Head and relatively few could likely be added there.	8/22/2021 2:08 PM
51	Large parking lot	8/22/2021 1:49 PM
52	At the interpretive center	8/22/2021 12:55 PM
53	In the parking lot at the interpretive center	8/21/2021 2:01 PM
54	In the parking lot by the interpretive center	8/19/2021 7:32 PM
55	Just outside the park entrance and in the main parking lot by the visitor center.	8/19/2021 6:59 PM
56	intrepretive center	8/19/2021 6:32 PM
57	At visitor's center	8/19/2021 3:26 PM
58	Interpretive center	8/19/2021 2:43 PM
59	Visitor center	8/19/2021 11:08 AM
60	Walmart	8/18/2021 5:36 PM
61	Good question?	8/18/2021 1:24 PM
62	visitors' center parking lot	8/18/2021 12:52 PM
63	By maintenance building in IC parking lot	8/18/2021 11:19 AM
64	parking area	8/18/2021 11:13 AM
65	near the entrance (so there is not excess vehicular traffic in the ONA)	8/18/2021 10:54 AM
66	interpretive center	8/18/2021 10:27 AM
67	Near entrance to park	8/18/2021 8:17 AM
68	I Center	8/17/2021 6:41 PM
69	Interpretive Center parking lot	8/17/2021 4:55 PM

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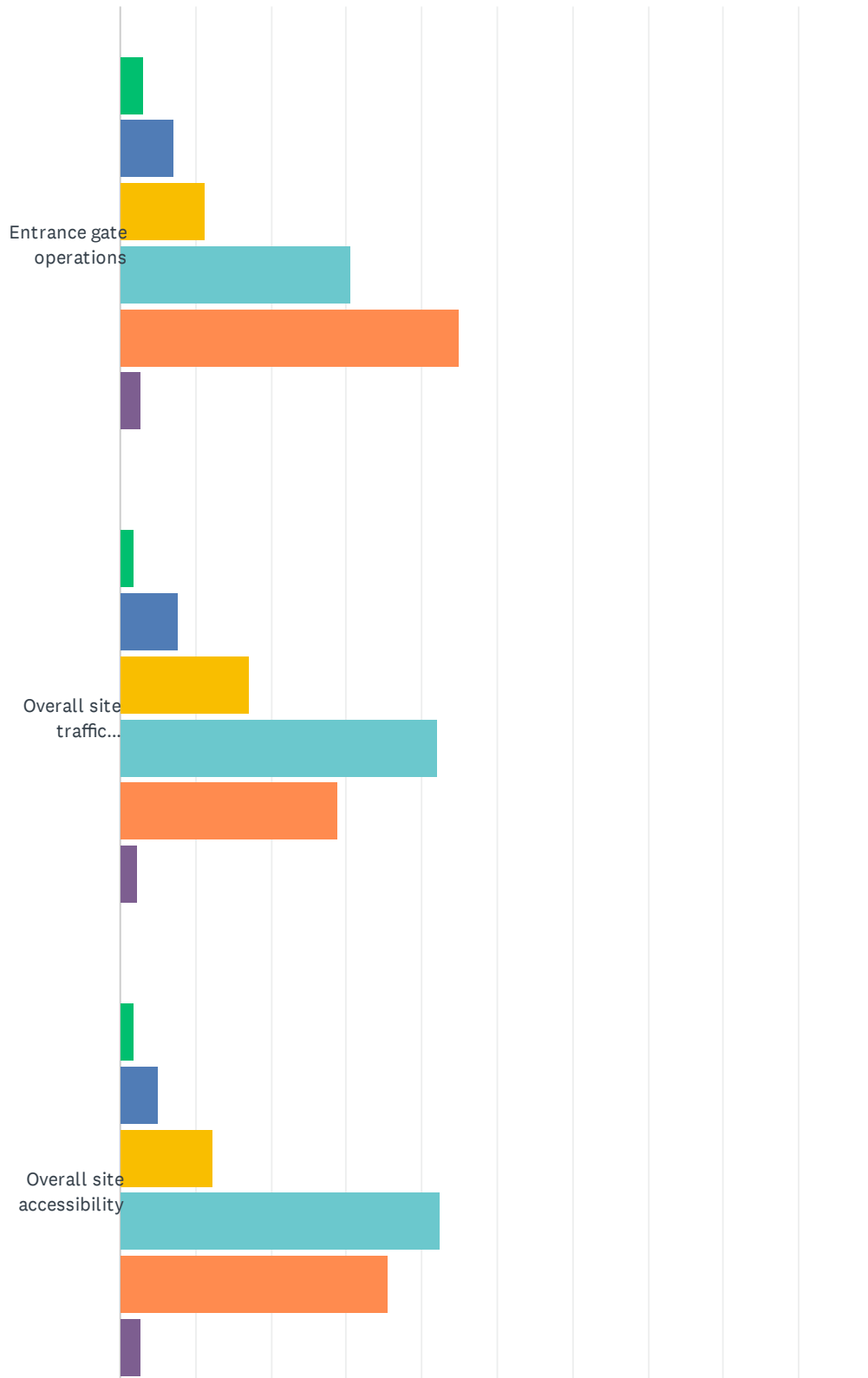
70	By the lighthouse	8/17/2021 4:39 PM
71	Visitor center	8/17/2021 4:11 PM
72	interpretive center	8/17/2021 3:56 PM
73	Near Interpretive Center	8/17/2021 1:09 PM
74	At the interpretive center	8/17/2021 12:08 PM
75	Visitor center	8/17/2021 11:00 AM
76	interpretive center parking lot	8/17/2021 10:14 AM
77	Interpretive Center parking	8/16/2021 8:08 PM
78	interpretive center parking lot	8/16/2021 6:56 PM
79	Interpretive center and all parking areas	8/16/2021 6:36 PM
80	People should think ahead and have their cars charged up. They need all the parking spaces open for guests out there.	8/16/2021 5:55 PM
81	Visitor center	8/16/2021 1:12 PM
82	Visitor center, main gate, or basalt mining parking lot	8/15/2021 7:03 PM
83	At the Ernest Bloch Wayside.	8/15/2021 3:51 PM
84	Parking lots	8/15/2021 3:49 PM
85	Near the interpretive center	8/15/2021 10:54 AM
86	Near large museum	8/15/2021 10:13 AM
87	Parking lots, away from main doors to buildings	8/15/2021 9:43 AM
88	Interpretive center lot	8/14/2021 6:48 PM
89	Interpretive Center parking lot	8/14/2021 4:54 PM
90	Parking lot	8/14/2021 4:01 PM
91	Don't know	8/14/2021 4:00 PM
92	Interpretive center	8/14/2021 2:06 PM
93	Main parking areas	8/14/2021 1:04 PM
94	Front&end	8/14/2021 1:02 PM
95	Best location for use	8/14/2021 12:28 PM
96	Don't know	8/14/2021 12:17 PM
97	Unknown	8/14/2021 12:11 PM
98	By main entrance	8/14/2021 11:43 AM
99	Interpretive center	8/14/2021 11:37 AM
100	Interpretive center	8/14/2021 11:35 AM
101	Parking lot	8/14/2021 11:20 AM
102	In the front by the interpetor center	8/14/2021 10:58 AM
103	Parking lot	8/14/2021 10:47 AM
104	Not sure	8/14/2021 9:45 AM
105	not sure	8/14/2021 8:45 AM
106	Visitor center	8/14/2021 8:21 AM
107	interpretive center	8/14/2021 8:01 AM

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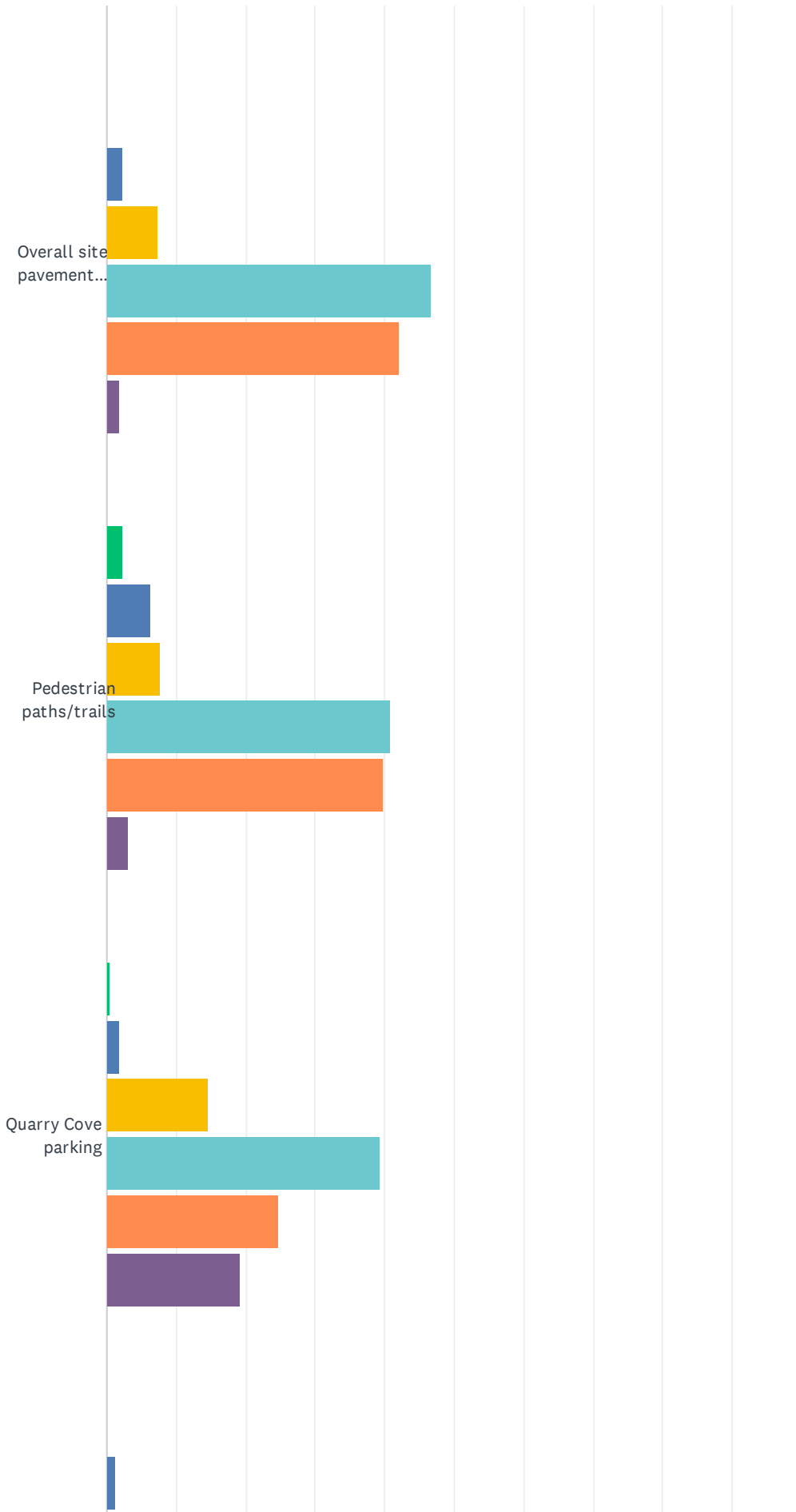
108	Separate area from interpretive center.	8/13/2021 4:11 PM
109	Parking lot near visitors center	8/13/2021 3:10 PM
110	Interpretation center	8/13/2021 2:25 PM
111	Parking lot	8/13/2021 1:49 PM
112	Everything	8/13/2021 12:59 PM
113	IC parking lot	8/12/2021 5:17 PM
114	Interpretive Center Parking Lot	8/11/2021 6:14 PM

Q14 Please rate the following traffic, safety, and maintenance matters at Yaquina Head Outstanding Natural Area based on your experiences. (Please reference the site map.)

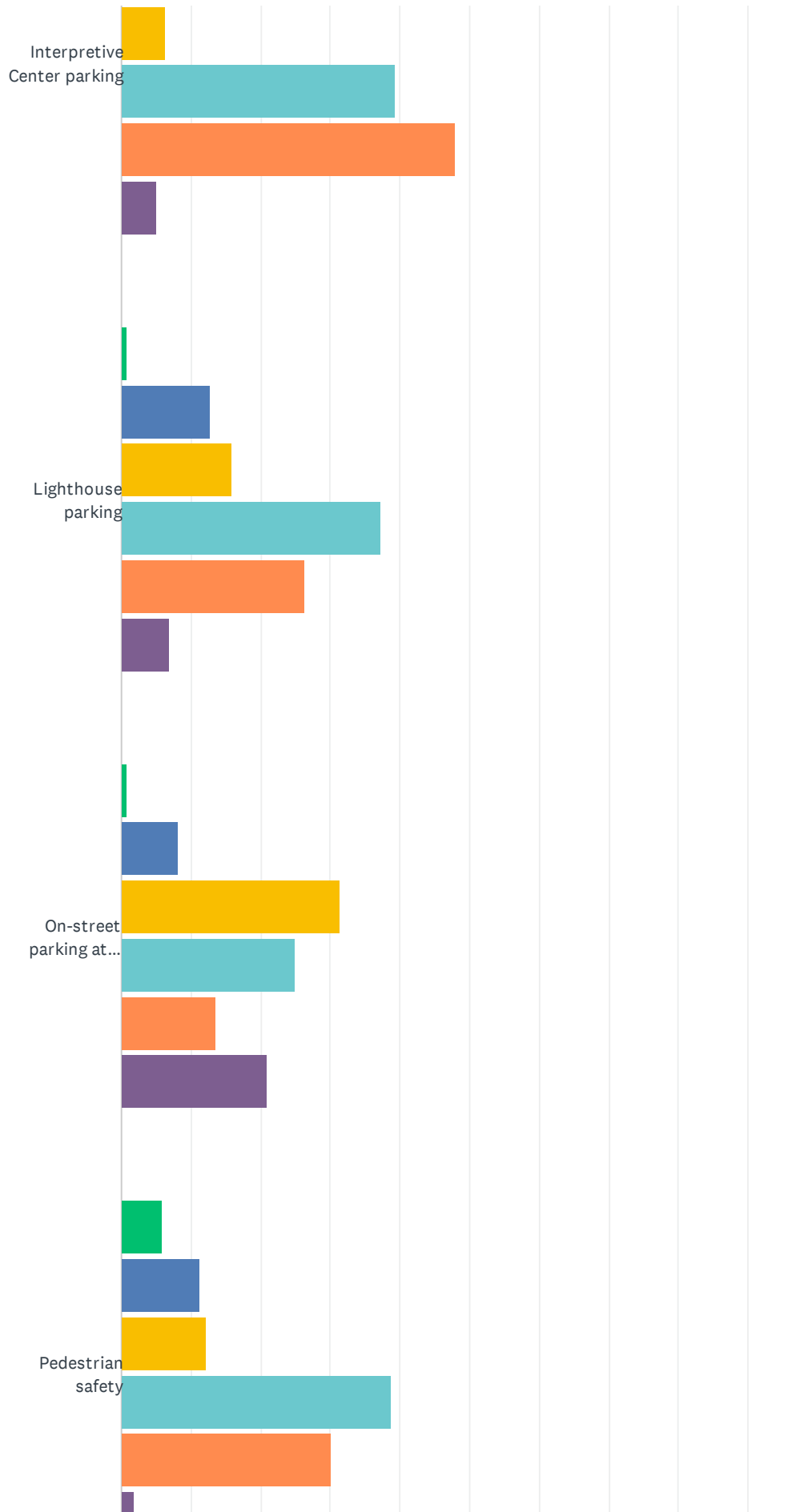
Answered: 223 Skipped: 28



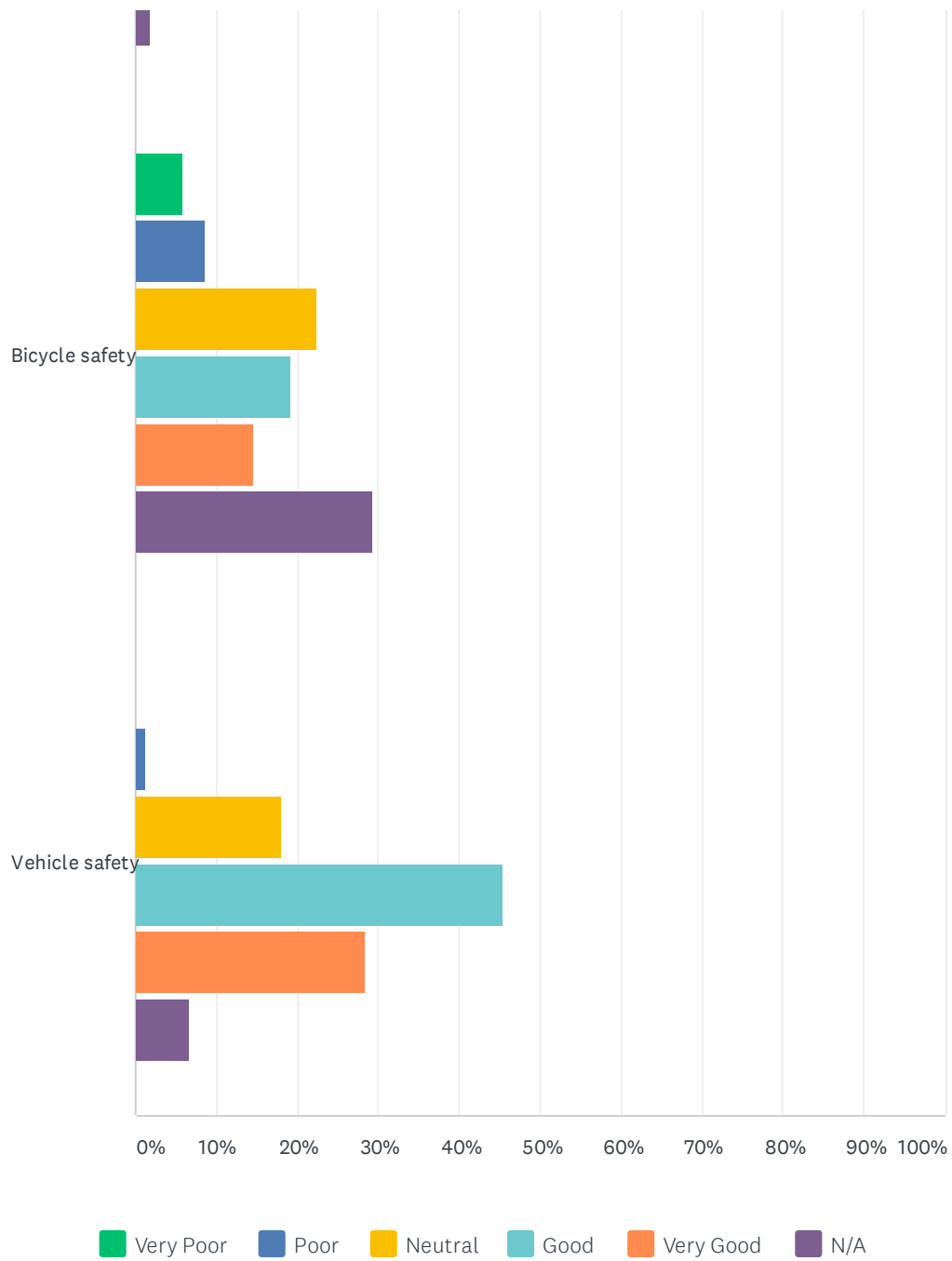
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	VERY POOR	POOR	NEUTRAL	GOOD	VERY GOOD	N/A	TOTAL
Entrance gate operations	3.15% 7	7.21% 16	11.26% 25	30.63% 68	45.05% 100	2.70% 6	222
Overall site traffic circulation	1.81% 4	7.69% 17	17.19% 38	42.08% 93	28.96% 64	2.26% 5	221
Overall site accessibility	1.83% 4	5.02% 11	12.33% 27	42.47% 93	35.62% 78	2.74% 6	219
Overall site pavement condition	0.00% 0	2.28% 5	7.31% 16	46.58% 102	42.01% 92	1.83% 4	219
Pedestrian paths/trails	2.26% 5	6.33% 14	7.69% 17	40.72% 90	39.82% 88	3.17% 7	221
Quarry Cove parking	0.46% 1	1.83% 4	14.61% 32	39.27% 86	24.66% 54	19.18% 42	219
Interpretive Center parking	0.00% 0	1.36% 3	6.33% 14	39.37% 87	47.96% 106	4.98% 11	221
Lighthouse parking	0.91% 2	12.73% 28	15.91% 35	37.27% 82	26.36% 58	6.82% 15	220
On-street parking at pullouts	0.91% 2	8.18% 18	31.36% 69	25.00% 55	13.64% 30	20.91% 46	220
Pedestrian safety	5.86% 13	11.26% 25	12.16% 27	38.74% 86	30.18% 67	1.80% 4	222
Bicycle safety	5.94% 13	8.68% 19	22.37% 49	19.18% 42	14.61% 32	29.22% 64	219
Vehicle safety	0.00% 0	1.35% 3	18.02% 40	45.50% 101	28.38% 63	6.76% 15	222

#	PLEASE PROVIDE ANY ADDITIONAL FEEDBACK ABOUT TRAFFIC, SAFETY, AND MAINTENANCE MATTERS AT YAQUINA HEAD OUTSTANDING NATURAL AREA BASED ON YOUR EXPERIENCES.	DATE
1	crosswalks could be better signed/marked, could also be more crosswalks	9/5/2021 12:47 PM
2	It needs a larger parking area at the lighthoyse, or a shuttle to and from the lighthouse and interpretive center	9/1/2021 2:02 AM
3	As a paraglider pilot, we would like to continue to be able to park by the gate to the launch. Nobody else parks there, it doesn't impede traffic, it's out of the way and everyone's happy that way.	8/30/2021 12:46 AM
4	More than one lane to pay and a bypass lane for annual pass holders would speed up the entrance process.	8/29/2021 6:54 PM
5	Entrance to first trailhead is most dangerous for walking & biking	8/29/2021 5:11 PM
6	See my prior comments. But priority is to maintain and enhance nature. People access is secondary and should be periodically restricted to walking in.	8/28/2021 7:58 PM
7	Site should/could be reimaged as a biking/hiking/walking destination or as part of a recreational waypoint.	8/28/2021 7:02 PM
8	Area near the entry kiosk is very dangerous to walkers. Dedicated pedestrian paths completely separate from street traffic would be very helpful.	8/28/2021 5:13 PM
9	Speed is too high on the roads coming in - there are many walkers on the main road and dropping the speed to 15 mph in the park would greatly enhance safety of pedestrians. Consider only having handicapped parking at the lighthouse with a shuttle for others?	8/26/2021 8:08 PM
10	Very poor noted above is related to the speed visitors are driving. We have had several close	8/26/2021 3:50 PM

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	calls from speeding cars that don't move over. Speed is a major issue!	
11	Parking by the Communications Hill trail entry is desirable, since we're hauling heavy gliders out to launch.	8/24/2021 10:32 PM
12	Might be nice to have a pullout parking area near the garden so you don't have to cross the street	8/24/2021 1:05 PM
13	it's soooo nice when cars/trucks are restricted....i.e when site is closed or as it was at pandemics and families walked the roads	8/23/2021 3:52 PM
14	Yaquina Head is a wonderful place. The addition of the entrance gate and interpretive center have substantially added to traffic congestion at this site. The congestion is mostly seasonal in nature and is worst during the summer months based on my experience, although there can also be issues during holidays and school holiday periods.	8/22/2021 2:14 PM
15	No need for crazy directions at big lot. Just eliminate parking further on. Actually I preferred it when everyone had to walk in last summer. Much more of a natural area experience.	8/22/2021 1:52 PM
16	I don't like being forced to go into the Interpretive center when I just want to go to the lighthouse parking	8/21/2021 2:03 PM
17	most pedestrians are safe and follow rules, but occasionally there will be people that are not paying attention and will step out into traffic. If there could be a railing or something along the pedestrian walkways on the street to keep them inside the railing that would help.	8/19/2021 6:34 PM
18	The entry station is frequently backed up, need to add lane for pass holders at busy times	8/19/2021 3:28 PM
19	As a person who accesses the head multiple times a day when the conditions warrant, the gate house is a bummer, and the gate hours are worse - the access to quarry cove should be down to an hour after sunset, or, better yet, unrestricted, moving the gate just past the quarry cove road.	8/19/2021 2:50 PM
20	Well organized and maintained. That last step at the tide pools could be improved.	8/19/2021 12:26 PM
21	I wish there was a better walking path from the parking near 101to the entrance gates	8/18/2021 6:20 PM
22	Cars need to slow down going into the park and coming out of the park	8/18/2021 5:38 PM
23	I love having the flexibility to walk in and also sometimes not to. It's an amazing site traffic is rarely a real issue compared to other places.	8/18/2021 4:04 PM
24	I really enjoyed walking into & around YH when it was closed to motor vehicles and even when people could drive to the interpretative/visitors center but then had to walk to the lighthouse, Cobble Beach, etc. You could really hear all the bird calls, etc. instead of having them partially drowned out by motor vehicle noise. Ditto plane noise, much less during the state shut down	8/18/2021 12:54 PM
25	Vehicles do not drive at posted speeds. Don't even slow down for pedestrians.	8/18/2021 12:09 PM
26	more parking needed, shuttle bus could be good	8/18/2021 11:15 AM
27	Eliminate all but Interpretive Center Parking. Make more, or ADA-improve, offroad multi-use paths.	8/18/2021 10:58 AM
28	I am concerned about the new barriers that have been installed by the lighthouse on the side of the Murre colony. I see children climbing and standing on them and running out in front into the open area. These barriers are much more easily climbed than the previous ones.	8/17/2021 7:59 PM
29	The entrance needs a separate lane for people who already have a pass	8/17/2021 4:12 PM
30	I walk regularly and many many vehicles are exceeding the posted speed limits. I would recommend periodic law enforcement traffic enforcement	8/17/2021 2:09 PM
31	Need two gates going in. I have a pass and must often wait 10 minutes or more during tourist season .	8/17/2021 1:34 PM
32	speed bumps need to slow traffic	8/17/2021 10:15 AM
33	Pedestrians are required to share road with vehicles throughout most of the park; these vehicles, speed, park improperly, and do not offer proper safety distance. In addition, the park staff do NOT do anything to make it safer. In fact, many of the staff also speed, drive too	8/16/2021 11:53 AM

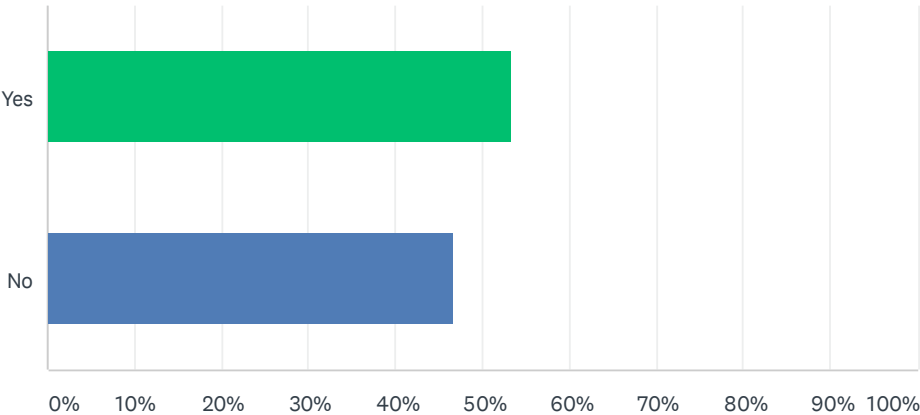
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close to pedestrians. Lack of proper maintenance on roads and trails make speed limit signs difficult to see, and weeds impede trails and make roads narrower.

34	NO enforcement of RV only parking near the lighthouse. Plus add signs in front so that people can NOT use the excuse they did not see "RV" on pavement	8/16/2021 9:41 AM
35	Drivers speed into and out of the park at speeds much higher than 25 MPH! I've seen pedestrians almost get hit in the crosswalk from Communications Hill to the Oceanside trail (very dangerous because vehicles come speeding around the corner right before this crosswalk. Also, pedestrians walking on the edge of the road have no safety buffer and speeding vehicles don't see the pedestrians until they have rounded corners. It's a miracle that no pedestrians have been injured or killed by speeding vehicles at this site!	8/15/2021 3:58 PM
36	Only been twice. I was there when tide was high so not sure about heavier traffic. Though visited both times during weekend	8/14/2021 6:50 PM
37	The main parking issue is at the lighthouse. A small bus from the center to the lighthouse would work well for people but I would rather walk or ride a bike. I really like the bike idea	8/14/2021 5:59 PM
38	I thought the cones blocking the lighthouse on the road were unnecessary and implied the parking at lighthouse was closed. I just wanted to visit lighthouse so this was confusing when I realized the parking lot was actually open.	8/14/2021 2:21 PM
39	Entrance gate update for pass holders	8/14/2021 11:44 AM
40	Thank you	8/14/2021 11:22 AM
41	Less car access, more walking access	8/14/2021 8:23 AM
42	On busy days lighthouse parking area is very unsafe for pedestrians	8/14/2021 8:23 AM
43	A sidewalk area along the road would be much safer for pedestrians than walking on the road itself.	8/11/2021 6:17 PM

Q15 On recent visits, did you park at the Interpretive Center Parking Lot?

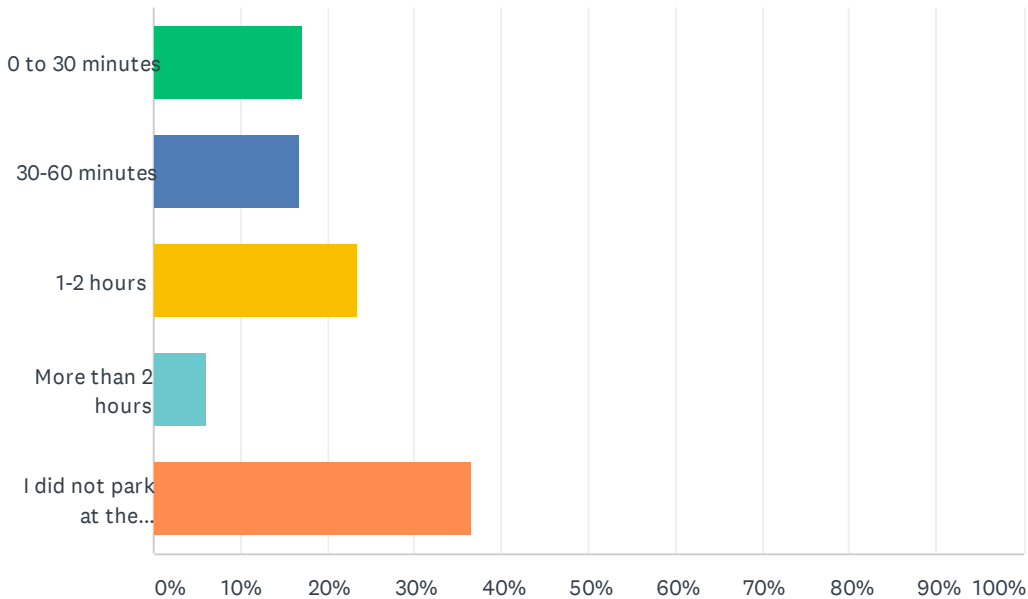
Answered: 221 Skipped: 30



ANSWER CHOICES		RESPONSES	
Yes		53.39%	118
No		46.61%	103
TOTAL			221

Q16 If yes, how long did you park at the Interpretive Center Parking Lot?

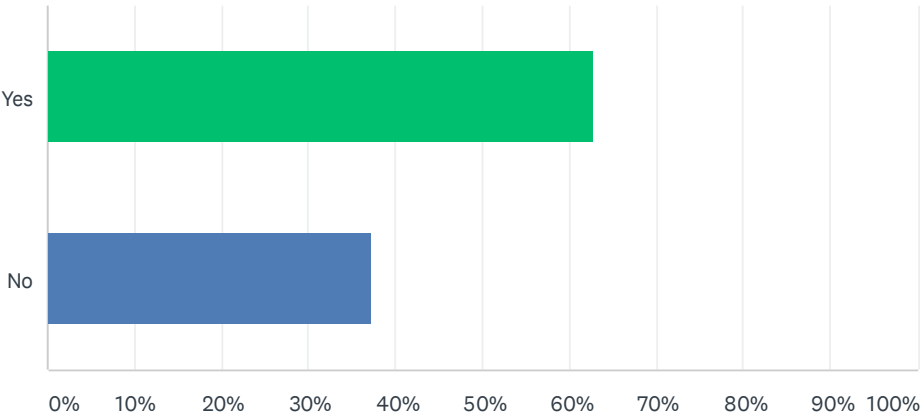
Answered: 197 Skipped: 54



ANSWER CHOICES	RESPONSES	
0 to 30 minutes	17.26%	34
30-60 minutes	16.75%	33
1-2 hours	23.35%	46
More than 2 hours	6.09%	12
I did not park at the Interpretive Center Parking Lot	36.55%	72
TOTAL		197

Q17 On recent visits, did you park at the Lighthouse Parking Lot?

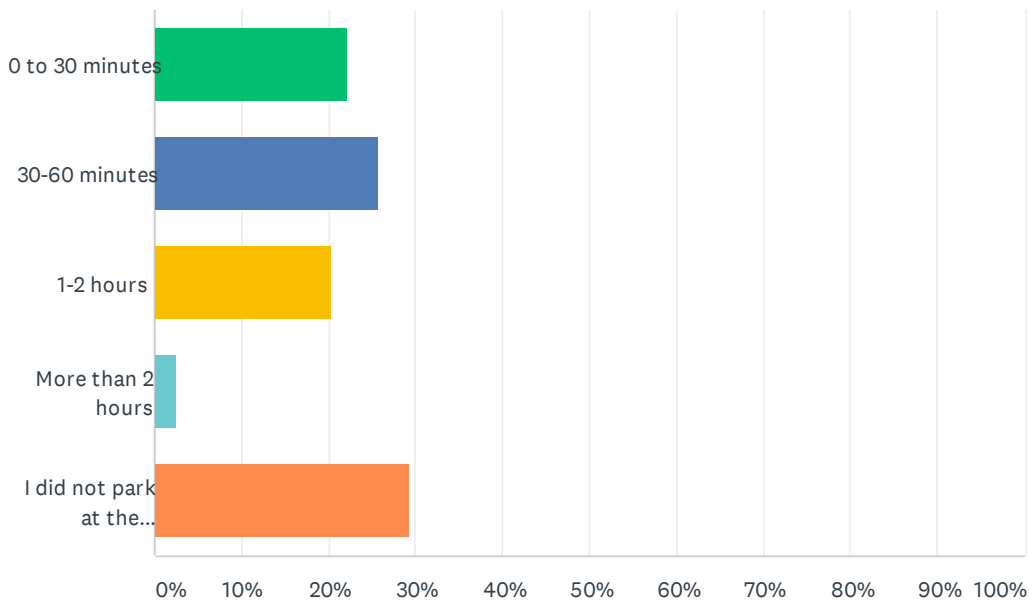
Answered: 220 Skipped: 31



ANSWER CHOICES	RESPONSES	
Yes	62.73%	138
No	37.27%	82
TOTAL		220

Q18 If yes, how long did you park at the Lighthouse Parking Lot?

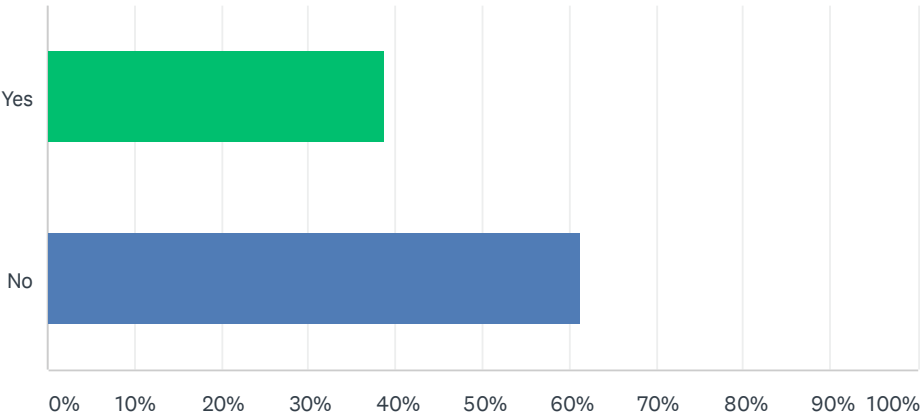
Answered: 202 Skipped: 49



ANSWER CHOICES	RESPONSES	
0 to 30 minutes	22.28%	45
30-60 minutes	25.74%	52
1-2 hours	20.30%	41
More than 2 hours	2.48%	5
I did not park at the Lighthouse Parking Lot	29.21%	59
TOTAL		202

Q19 On recent visits, did you park at the Quarry Cove Parking Lot?

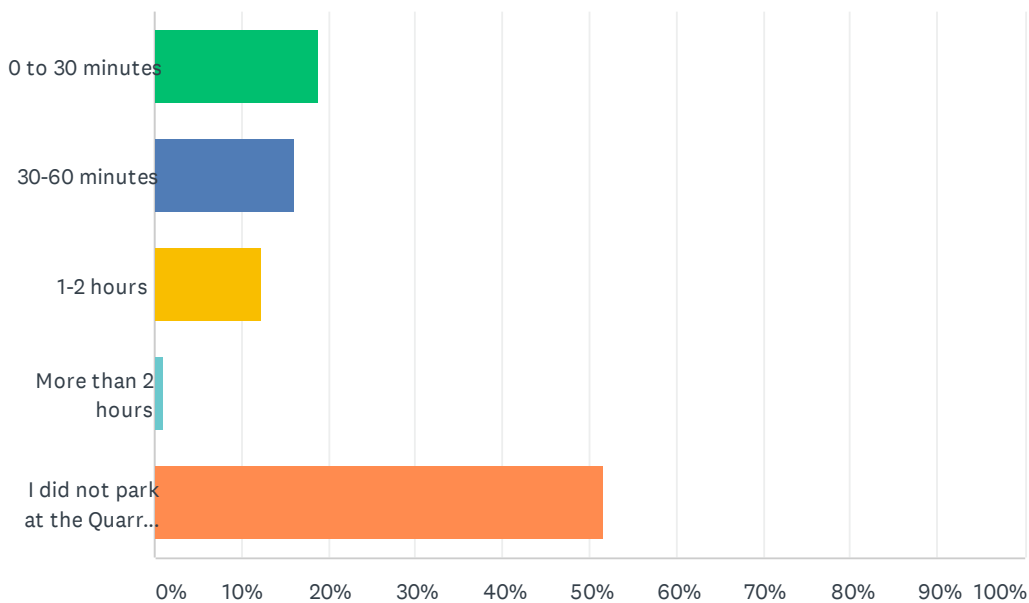
Answered: 220 Skipped: 31



ANSWER CHOICES	RESPONSES	
Yes	38.64%	85
No	61.36%	135
TOTAL		220

Q20 If yes, how long did you park at the Quarry Cove Parking Lot?

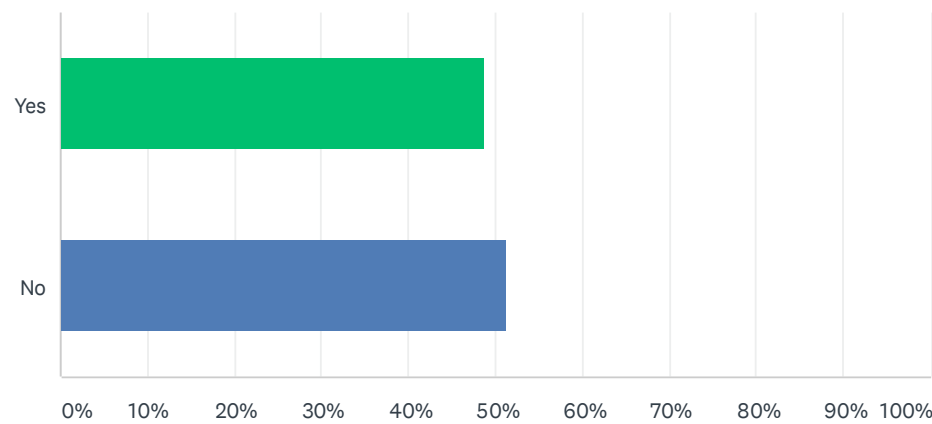
Answered: 186 Skipped: 65



ANSWER CHOICES	RESPONSES	
0 to 30 minutes	18.82%	35
30-60 minutes	16.13%	30
1-2 hours	12.37%	23
More than 2 hours	1.08%	2
I did not park at the Quarry Cove Parking Lot	51.61%	96
TOTAL		186

Q21 Should the Yaquina Head Outstanding Natural Area provide additional parking designated for disabled individuals?

Answered: 205 Skipped: 46



ANSWER CHOICES		RESPONSES	
Yes		48.78%	100
No		51.22%	105
TOTAL			205

Q22 If yes, where is additional parking for disabled individuals needed?

Answered: 61 Skipped: 190

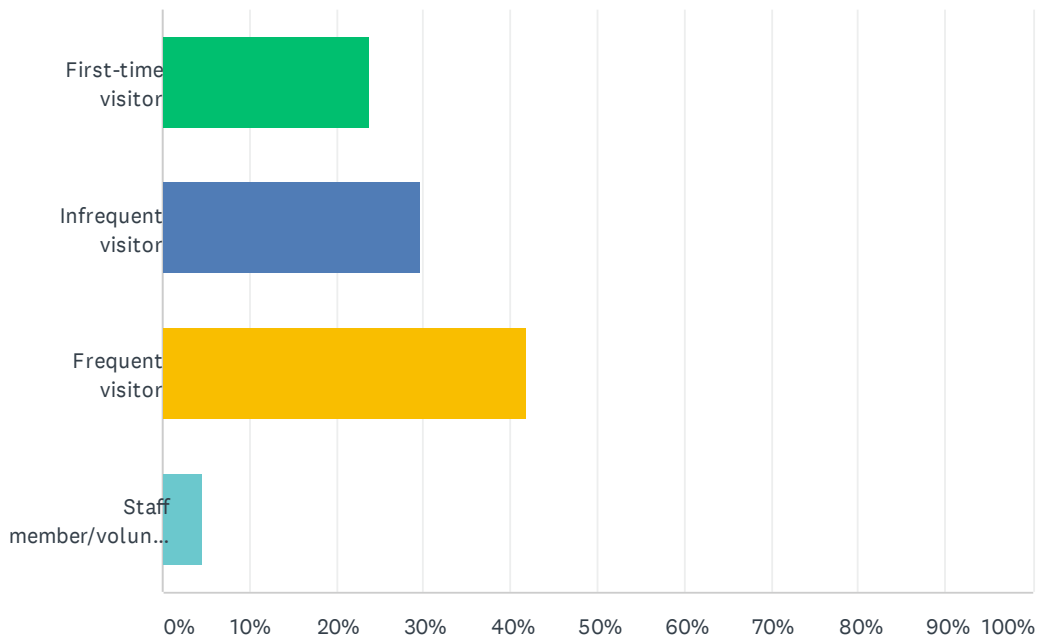
#	RESPONSES	DATE
1	Well I'm not sure, I just feel bad from them	9/9/2021 1:51 PM
2	Close to lookoits	9/8/2021 11:51 AM
3	Lighthouse	9/6/2021 6:31 PM
4	Lighthouse	9/6/2021 1:41 PM
5	Lighthouse parking	9/6/2021 8:28 AM
6	lighthouse parking lot	9/5/2021 12:48 PM
7	Light house	9/4/2021 3:52 PM
8	Everywhere that access is needed	9/3/2021 10:29 AM
9	At the Quarry	9/1/2021 1:17 PM
10	Near the interpretative center with a bus shutting disabled individuals to the lighthouse	9/1/2021 1:07 PM
11	The lighthouse	9/1/2021 2:03 AM
12	Easy access to individual sights	8/31/2021 11:27 PM
13	Lighthouse	8/31/2021 5:09 PM
14	provide more at the base	8/29/2021 6:08 PM
15	At the lighthouse site. Add more signage indicating trail to lighthouse to encourage folks to walk.	8/29/2021 1:14 PM
16	Lighthouse. But there needs to be a way to offset this loss of spaces with more non-vehicle access via quality hiking, biking, walking routes.	8/28/2021 7:04 PM
17	Only if disabled parking is enforced, otherwise, No.	8/28/2021 5:15 PM
18	Lighthouse	8/27/2021 11:47 AM
19	Have lighthouse parking only for handicapped	8/26/2021 8:09 PM
20	all lots	8/26/2021 8:04 PM
21	Lighthouse	8/26/2021 3:51 PM
22	All areas	8/26/2021 11:37 AM
23	wherever they need it. near restrooms?	8/25/2021 1:53 PM
24	Not sure, but it's always nice to have plenty of spots available.	8/24/2021 1:06 PM
25	Bottom of quarry cove	8/24/2021 11:41 AM
26	?	8/23/2021 9:55 PM
27	Unsure	8/23/2021 7:47 PM
28	At the interpretive center.	8/23/2021 10:09 AM
29	I have never seen the parking for disabled individuals full at any of the locations when I have visited, but suppose it may happen. If this is a concern it would be good to documentaion of a need for more.	8/22/2021 2:18 PM
30	NA	8/22/2021 1:53 PM

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31	All lots	8/22/2021 12:56 PM
32	Closer to quarry cove	8/19/2021 6:43 PM
33	quarry cove and intrepreative center.	8/19/2021 6:35 PM
34	Disabled parking places seem to be adequate.. could change	8/19/2021 3:29 PM
35	Light house	8/19/2021 2:51 PM
36	All lots	8/19/2021 11:09 AM
37	When I walk out there no one is parked in the disabled spots	8/18/2021 6:21 PM
38	Probably all 3 parking lots, I don't use them so I don't know for sure, I do recall I haven't seen many disabled parking places	8/18/2021 12:55 PM
39	Lighthouse Parking Lot	8/18/2021 11:20 AM
40	near the sightseeing areas	8/18/2021 11:16 AM
41	Interpretive Center (eliminate other parking lots)	8/18/2021 10:59 AM
42	Not enough spots	8/17/2021 3:34 PM
43	all 3 lots	8/17/2021 10:16 AM
44	Light house and quarry cove parkway	8/16/2021 6:39 PM
45	I don't know if disabled parking is adequate or not ... I don't know how many people need those spots.	8/16/2021 5:59 PM
46	Up front at the Lighthouse & by the Quarry Cove parking area	8/16/2021 1:15 PM
47	Lighthouse parking lot	8/16/2021 11:54 AM
48	Light House area	8/16/2021 9:42 AM
49	Lighthouse parking lot.	8/15/2021 3:58 PM
50	Not sure	8/14/2021 6:51 PM
51	Where good view spots are	8/14/2021 3:41 PM
52	Main lighthouse	8/14/2021 1:06 PM
53	Light house area	8/14/2021 1:05 PM
54	Lighthouse	8/14/2021 12:13 PM
55	All locations where parking is available	8/14/2021 11:37 AM
56	Parking areas	8/14/2021 9:46 AM
57	ADA spots would be cool	8/14/2021 8:47 AM
58	Turn regular parking into parking for disabled visitors and then have shuttles	8/14/2021 8:25 AM
59	At the lighthouse.	8/13/2021 4:14 PM
60	Lighthouse parking lot	8/12/2021 5:20 PM
61	Lighthouse parking lot	8/11/2021 6:18 PM

Q23 How would you describe yourself?

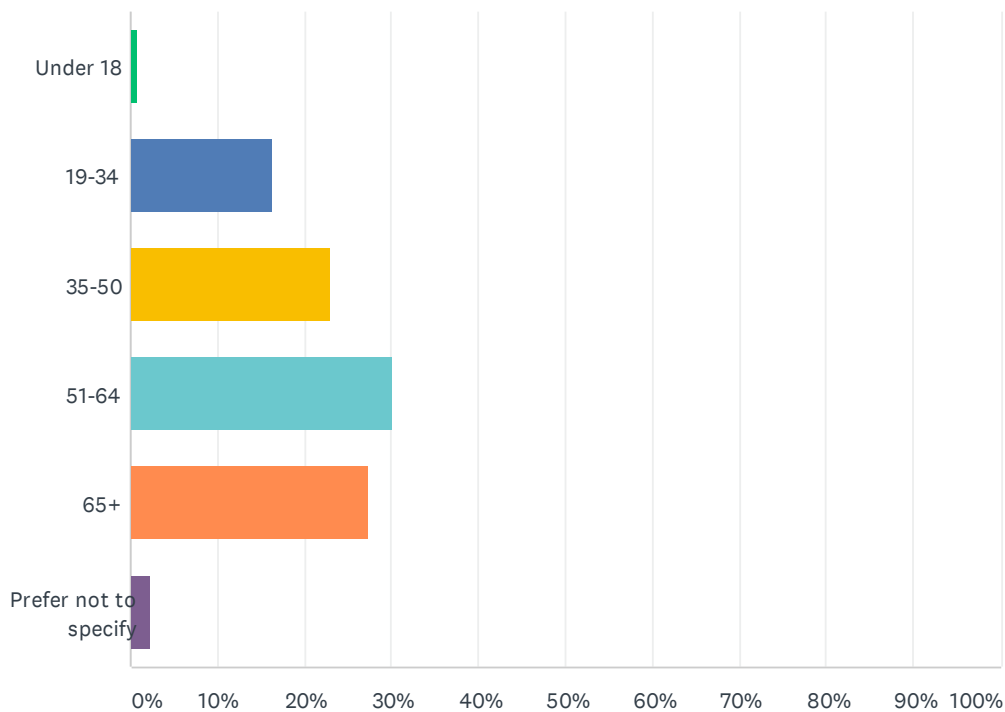
Answered: 222 Skipped: 29



ANSWER CHOICES	RESPONSES	
First-time visitor	23.87%	53
Infrequent visitor	29.73%	66
Frequent visitor	41.89%	93
Staff member/volunteer	4.50%	10
TOTAL		222

Q24 Please select your age group.

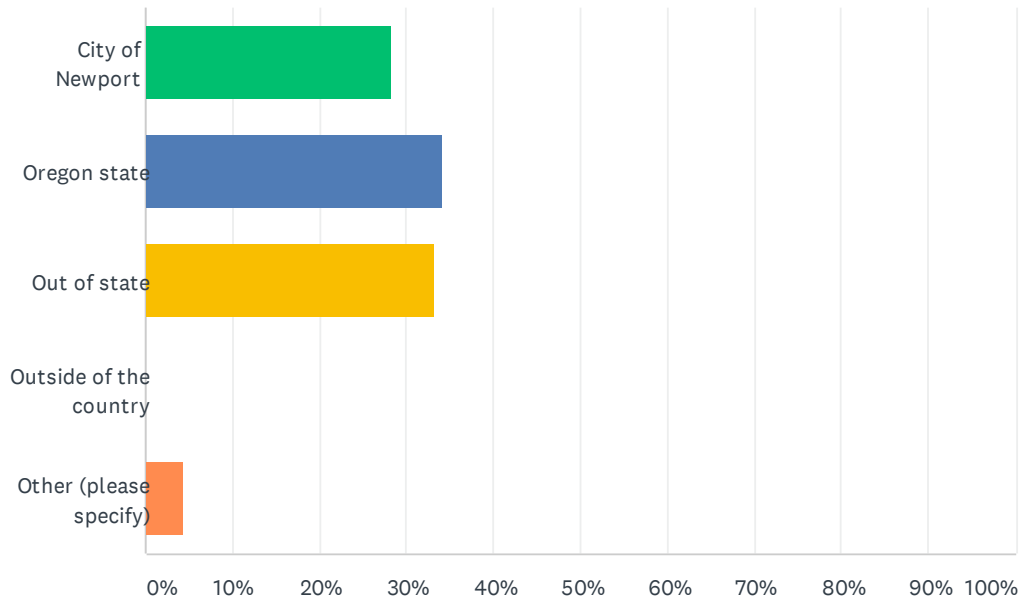
Answered: 222 Skipped: 29



ANSWER CHOICES	RESPONSES	
Under 18	0.90%	2
19-34	16.22%	36
35-50	22.97%	51
51-64	30.18%	67
65+	27.48%	61
Prefer not to specify	2.25%	5
TOTAL		222

Q25 Where do you live?

Answered: 223 Skipped: 28



ANSWER CHOICES	RESPONSES	
City of Newport	28.25%	63
Oregon state	34.08%	76
Out of state	33.18%	74
Outside of the country	0.00%	0
Other (please specify)	4.48%	10
TOTAL		223

#	OTHER (PLEASE SPECIFY)	DATE
1	Corvallis AND Newport	8/27/2021 8:38 PM
2	In RV at volunteer RV park for 3 months	8/26/2021 3:53 PM
3	Live in RV	8/25/2021 11:03 AM
4	Inside the county, Lincoln City	8/24/2021 6:10 PM
5	I live within a few miles of Yaquina Head, but outside of the Newport city limits.	8/22/2021 2:19 PM
6	Seal Rock, Oregon, Lincoln County	8/19/2021 7:01 PM
7	Agate beach	8/18/2021 8:12 PM
8	Agate Beach. On the south side of the Headland.	8/16/2021 6:00 PM
9	Portland oregon	8/14/2021 1:05 PM
10	Seal Rock, OR	8/11/2021 6:19 PM

Q26 Do you have any suggestions that would help improve the transportation experience at Yaquina Head Outstanding Natural Area?

Answered: 69 Skipped: 182

#	RESPONSES	DATE
1	Extra lane at entrance station - pass users can bypass the line	9/7/2021 5:14 PM
2	Reservations?	9/6/2021 8:29 AM
3	Na	9/6/2021 2:18 AM
4	not at this time	9/5/2021 12:48 PM
5	No	9/4/2021 3:53 PM
6	Sidewalks for pedestrians	9/4/2021 2:38 PM
7	N/A	9/1/2021 1:07 PM
8	No	9/1/2021 2:04 AM
9	Very nice place to visit	8/31/2021 11:29 PM
10	Please, no shuttle.	8/30/2021 12:48 AM
11	Display count of available lighthouse parking spots at visitor center entrance	8/29/2021 5:19 PM
12	Hey have such a long stupid line to pay. Let me get to the self pay without waiting for stupid chit chat w ranger. why is there a cone line up suggesting I can't drive to lighthouse when I can, indeed drive out to light house no problem? Dumb and useless.	8/29/2021 3:32 PM
13	At first, we pulled into the interpretive center parking lot. If it had been clearer that trail access is available to the lighthouse, we would have probably parked and walked. Better signage for lighthouse at the interp. center could help keep the upper parking free for disabled users. Rather than building new parking (which I doubt is the plan), restripe upper parking lot spaces for disabled parking as needed!	8/29/2021 1:22 PM
14	Already provided	8/28/2021 7:05 PM
15	speed bumps/rumble strips to slow down cars. Better signage to keep RV parking spaces open for RV use.	8/28/2021 5:18 PM
16	Better signage at crosswalks; 'Lighthouse Lot Full' sign at interpretive center	8/27/2021 8:39 PM
17	Approved parking location outside the park for people to walk into the park for when parking in the park is full.	8/27/2021 10:59 AM
18	A stop sign for a 3-way stop at quarry cove intersection to slow cars entering the park. Speed bumps at key locations. Flashing lighted signs to tell speeders to slow down.	8/26/2021 4:16 PM
19	I would like to see a capacity limit for vehicles and to limit driving access to the actual lighthouse to the interpretive parkinglot. Meaning, not allow cars passed the interpretive center. Add walking lanes all along the road to the lighthouse and slow down the speed of vehicles driving through.	8/26/2021 3:46 PM
20	No suggestions, you are doing a good job	8/26/2021 11:39 AM
21	Trails and more options	8/24/2021 6:11 PM
22	It would be nice to have an express lane or something that allows those who already have passes to go on through the gate and not have to wait behind those who are purchasing passes.	8/24/2021 1:09 PM
23	Paint fog lines and crack seal Lighthouse Drive	8/23/2021 6:19 PM

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24	better multimodal transportation access points	8/23/2021 5:45 PM
25	widen walking paths on roads for safety of pedestrians and enforce speeding cars....maybe some speed bumps	8/23/2021 4:01 PM
26	Talk to local pilot Greg Krutzikowsky to improve HG/PG access.	8/22/2021 8:17 PM
27	Although I would not likely use it, there may be some benefits of public transportation to and within YHONA. But that may entail creating outside parking areas that would likely be costly, create more pavement, and associated environmental problems. If there is a problem with too many vehicles at one time at YHONA, it would be best to alert people trying to get in well before they get anywhere near the entrance gate since turning around anywhere near there is problematic for a number of reasons.	8/22/2021 2:26 PM
28	Don't mix pedestrians and vehicles. Fix congestion at pay station	8/22/2021 1:56 PM
29	Have the open house well publicized beforehand.	8/22/2021 12:13 AM
30	timed entry (reservations) for vehicle access in peak months	8/19/2021 6:37 PM
31	Pass holder lane at entry and possibly shuttle bus for busy times	8/19/2021 3:31 PM
32	I already spelled it out.	8/19/2021 2:52 PM
33	Two lane entrance - one for automated pay and one for the ranger staffed window. It does get backed up so the two lanes need to start 100 yards from the entrance station.	8/19/2021 12:30 PM
34	No	8/18/2021 8:58 PM
35	Encourage more people to walk in.	8/18/2021 8:13 PM
36	Again better paths along lighthouse road from 101 to the entrance gates	8/18/2021 6:22 PM
37	With the interpretive center still being closed due to it being a Federal Building subject to Covid Shutdowns, and given that I read a sign in the restroom at Yaquina Head this morning stating that the restrooms are not being cleaned according to OHA guidelines, I don't understand why there is a want or need for additional parking.	8/18/2021 2:00 PM
38	Road improvements from 101 to the park entrance	8/18/2021 1:30 PM
39	provide an entry lane for visitors with passes	8/18/2021 1:24 PM
40	Limit small aircraft overflights, ban drone use over YH. Protect the birds and seals from all the self-absorbed jerks flying their drones & small planes & helicopters and ENFORCE the rules instead of having signs that say, dogs on leash and ignoring dogs in Quarry Cove who are most definitely NOT leashed.	8/18/2021 1:01 PM
41	Better speed control. Law enforcement presence.	8/18/2021 1:01 PM
42	additional parking near SR 101 with trail to lighthouse. It's a short walk and would be utilized if promoted, perhaps no fee entry	8/18/2021 11:17 AM
43	Eliminate all but I.C. parking lot. Make more and improve ADA multi-use paths. EV charger at entry.	8/18/2021 11:02 AM
44	Mandatory shuttle	8/18/2021 8:19 AM
45	Improve the pedestrian options for people walking into the Yaquina Head Outstanding Natural Area.	8/17/2021 9:59 PM
46	Traffic calming, pedestrian safety, bicycle safety	8/17/2021 8:01 PM
47	Improve bottleneck at fee station	8/17/2021 3:59 PM
48	No	8/17/2021 3:34 PM
49	No. We found it easy and efficient	8/17/2021 1:50 PM
50	bike lane, on busy days hellcat the Kiosk so traffic doesn't back up so far	8/17/2021 10:17 AM
51	No	8/16/2021 8:30 PM
52	Overall it is great park and I love coming back. Maybe just more reinactors	8/16/2021 6:40 PM

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53	The road leading into the park needs a pedestrian path desperately! And a few places in the park could use a designated walking path.	8/16/2021 6:04 PM
54	We need staff to enforce speed limits and parking restrictions. We need speed bumps/dugouts that would slow down traffic, especially on blind curves. A railing needs to be provided between vehicle and pedestrian traffic throughout the park from intersection of lighthouse with Coast highway. speed limit signs highly visible and posted at beginning at intersection at coast highway. Posting hours and fees at intersection would also limit turn around traffic.	8/16/2021 12:03 PM
55	Enforce RV only parking near lighthouse	8/16/2021 9:48 AM
56	Remove the fee booth. Hire an entry-level, BLM, law enforcement officer to write tickets for speeding and/or not displaying a pass on the dashboard. The officer could work on the busiest days of the week: Fri-Tue. Visitors would need to come into the Visitor Center to buy daily passes—this would increase sales at the gift shop. Parking at the lighthouse would be limited to vehicles with disabled placards, school busses, and tour busses. For those who don't want to make the 1/3 mile walk to the lighthouse, an electric shuttle bus could depart every 15 minutes from the Visitor Parking Lot for an additional fee of \$2.	8/15/2021 4:11 PM
57	Just trying to keep motorists' speeds down and making them aware there are pedestrians	8/15/2021 10:13 AM
58	No	8/15/2021 9:46 AM
59	I love the area especially the quarry at low tide. There are silly people often at the quarry cove climbing the rocks and thinking to swim with the seals. Having a volunteer here would be nice	8/14/2021 6:04 PM
60	Take away the cones blocking road to lighthouse. Or at least add a sign indicating that lot is still open.	8/14/2021 2:23 PM
61	Speed bumps. 15 mph everywhere	8/14/2021 12:21 PM
62	Speed bumps	8/14/2021 11:58 AM
63	Limit cars	8/14/2021 11:48 AM
64	Nope	8/14/2021 10:59 AM
65	No	8/14/2021 10:17 AM
66	none	8/14/2021 9:00 AM
67	More walking access or promoted more	8/14/2021 8:24 AM
68	Charging access for electric bicycles.	8/13/2021 4:15 PM
69	More signage indicating fee requirement before entrance station. Turn-around option for vehicles before entrance station. Sidewalk along road leading into and throughout park. Guard rail or railing fence along potential sidewalk to protect pedestrians. Speed detecting speed limit signs. Greater law enforcement presence within park.	8/11/2021 6:32 PM

Q27 Please share any additional feedback that may be helpful to the study team.

Answered: 46 Skipped: 205

#	RESPONSES	DATE
1	The park ranger was vey polite and informative!!	9/7/2021 8:23 PM
2	Closing right at sunset makes it difficult to obtain good photos - wishing for 15 extra minutes.	9/7/2021 5:14 PM
3	Ba	9/6/2021 2:18 AM
4	appreciate the efforts to reach out to the community for input on improvements	9/5/2021 12:48 PM
5	None	9/4/2021 3:53 PM
6	Not related to parking but the flies at the Lighthouse & parking lot were awful on the day that we visited (8/13/2021). It was very pleasant and enjoyable at the Quarry.	9/1/2021 1:20 PM
7	There needs to be a better/easier way to access Cobble Beach for disabled people that cant climb stairs	9/1/2021 2:04 AM
8	Don't hesitate to identify yourself as disabled if you have a disability, because the park staff is very accommodating.	8/31/2021 11:29 PM
9	Paragliding is low impact, makes no noise, disturbs no one. Please continue to support hangglising and paragliding at Yaquina.	8/30/2021 12:48 AM
10	Add northern walking/biking entrance	8/29/2021 5:19 PM
11	Fees rather than taxes are regressive and punishing to the poor. Why do seniors get a break without regard to income when they hold the largest amount of income of any demographic group? Dumb.	8/29/2021 3:32 PM
12	Thanks for the cool survey!	8/29/2021 1:22 PM
13	Quality of interaction at entry gate was impressive. Great employees!	8/28/2021 7:05 PM
14	Preference for asphalt or sand/dirt/grass paths for walking dogs, rather than rocky paths that are hard on their feet.	8/28/2021 5:18 PM
15	Don't have any specific suggestions, but I do fly a paraglider there occasionally and want to express my gratitude for allowing us to fly there. Its beautiful!	8/26/2021 4:38 PM
16	Front entrance gates should be located in front of the fee station to help ensure the safety of the volunteer RV lot. We have heard loud cars in the turn around at the present gates at 1 and 2 am.	8/26/2021 4:16 PM
17	Great staff and volunteers	8/26/2021 11:39 AM
18	Please keep Paragliding accessible and safe. Thank you!	8/25/2021 2:32 PM
19	n/a	8/24/2021 6:11 PM
20	This is my absolute favorite place on the coast and I visit as often as I can, sometimes daily.	8/24/2021 1:09 PM
21	Pity the delivery person that has to wait in line . Your stuck in line and no where to turn around	8/23/2021 9:58 PM
22	Most important thing to me as a local is to get bike access to the site that does not involve biking on 101 - I bike there frequently but hate having to go on 101.	8/22/2021 2:21 PM
23	Why did you put that new sidewalk up to the lighthouse. Seems out of character.	8/22/2021 1:56 PM
24	I'm not overly impressed with the questions asked.	8/22/2021 12:13 AM
25	Traffic use in summer, winter, and spring are very different. Traffic studies and policy decisions	8/19/2021 6:37 PM

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should reflect that, this is not "one size fits all use"

26	I think the popularity of the site will continue to increase.	8/19/2021 3:31 PM
27	See previous long answer.	8/19/2021 2:52 PM
28	I think there is adequate shoulder room on both sides for bikes and pedestrians.	8/19/2021 12:30 PM
29	We really hoped to go inside the lighthouse but it was not open!	8/18/2021 8:58 PM
30	Yaquina Head already has 3 large parking areas that I've never seen full. I would like to see the money being appropriated for additional parking to be used instead on making sure the bathrooms are clean and sanitary during this pandemic. Thank you.	8/18/2021 2:00 PM
31	sidewalks are needed on both sides of roads	8/18/2021 1:24 PM
32	No consideration of the noise of motor vehicles in this study but noise is pollution. As I said, I was amazed at how much nicer it was at YH during the time people couldn't drive in at all or could drive only to the "interpretative center." No exhaust smells, no motor vehicle noise, (lots of loud motor cycles and diesel pickups), how much easier it was to enjoy all the bird sounds. And I've had to be very careful when cross the main road when going from the pedestrian path to the gravel road to Communication Ridge. I don't see much regard for pedestrian or cycling safety or comfort in any of the questions in this "transportation plan" Why are only motorized vehicles important? And if there's a shuttle bus it should be electric or powered by natural gas.	8/18/2021 1:01 PM
33	Minimize vehicular access to (1) improve the bike/ped experience (2) protect shoreline and tidepools	8/18/2021 11:02 AM
34	Thanks for asking!	8/17/2021 8:01 PM
35	None	8/17/2021 3:34 PM
36	None	8/16/2021 8:30 PM
37	Overall electric vehicle stations and diabluty access should be the focus on improvement	8/16/2021 6:40 PM
38	Again just a pedestrian and maybe bike path would be helpful. I nearly got hit by a FedX truck one day.	8/16/2021 6:04 PM
39	Someone that give a tour of the area would be nice	8/16/2021 1:16 PM
40	If you post RV parking signs, speed limits-enforce those rules!	8/16/2021 12:03 PM
41	The entrance line up clogged many times. This year we did not see the second line open at entrance. Also, be helpful to have enlarged/widened entrance (two lanes for entry) and passholders/staff/volunteer entry	8/16/2021 9:48 AM
42	Would be nice if walking path distances were labeled on the map. Would make walking more incentivised imo as distances on current map were tough to judge	8/15/2021 7:06 PM
43	Removing pedestrians from the roadway should be of highest concern. Maybe also run a shuttle bus from the Ernest Bloch Wayside?	8/15/2021 4:11 PM
44	I think you all are doing a great job with resources you have. Perhaps another hiking trail- but I like hike so maybe not a priority. Thanks!	8/14/2021 6:04 PM
45	Na	8/14/2021 10:59 AM
46	No	8/14/2021 10:17 AM

Q28 If you would like to stay involved in the study, please provide your name and email address.

Answered: 62 Skipped: 189

ANSWER CHOICES	RESPONSES	
Name	100.00%	62
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	100.00%	62
Phone Number	0.00%	0

# - Note: names and email addresses have been redacted from appendix.	DATE
1	9/7/2021 5:14 PM
2	9/6/2021 6:32 PM
3	9/6/2021 2:18 AM
4	9/5/2021 11:49 AM
5	9/4/2021 2:38 PM
6	9/4/2021 2:28 PM
7	9/1/2021 1:07 PM
8	9/1/2021 2:04 AM
9	8/30/2021 12:48 AM
10	8/29/2021 6:08 PM
11	8/29/2021 3:30 PM
12	8/28/2021 5:18 PM
13	8/27/2021 10:59 AM
14	8/27/2021 10:16 AM
15	8/26/2021 8:10 PM
16	8/26/2021 4:38 PM
17	8/26/2021 4:16 PM
18	8/26/2021 3:46 PM
19	8/26/2021 3:42 PM

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20	8/25/2021 2:32 PM
21	8/24/2021 10:33 PM
22	8/24/2021 6:11 PM
23	8/24/2021 1:09 PM
24	8/23/2021 6:19 PM
25	8/23/2021 4:01 PM
26	8/22/2021 12:57 PM
27	8/19/2021 7:34 PM
28	8/19/2021 7:01 PM
29	8/19/2021 6:50 PM
30	8/19/2021 6:49 PM
31	8/19/2021 6:46 PM
32	8/19/2021 4:22 PM
33	8/19/2021 3:31 PM
34	8/19/2021 2:52 PM
35	8/19/2021 12:30 PM
36	8/18/2021 5:40 PM
37	8/18/2021 4:05 PM
38	8/18/2021 1:30 PM
39	8/18/2021 1:24 PM
40	8/18/2021 1:01 PM
41	8/18/2021 11:17 AM
42	8/18/2021 11:02 AM
43	8/18/2021 8:19 AM
44	8/17/2021 9:59 PM
45	8/17/2021 8:01 PM
46	8/17/2021 2:12 PM
47	8/17/2021 1:11 PM
48	8/17/2021 10:17 AM
49	8/16/2021 6:40 PM
50	8/16/2021 6:04 PM
51	8/16/2021 5:40 PM
52	8/16/2021 12:03 PM
53	8/15/2021 4:11 PM
54	8/15/2021 10:17 AM
55	8/14/2021 6:52 PM
56	8/14/2021 6:04 PM
57	8/14/2021 2:43 PM

Yaquina Head Public Outreach



YAQUINA HEAD

Estudio de tráfico

INTRODUCCIÓN

La Administración Federal de Carreteras (FHWA) y la Oficina de Gestión Territorial (BLM) han iniciado un estudio sobre el transporte en el Área Natural Destacada (ONA) de Yaquina Head. Este estudio identificará mejoras en el transporte para un mejor abordaje de las necesidades de los usuarios, teniendo en cuenta los comentarios del público y de las partes interesadas, limitaciones medioambientales, desafíos constructivos y viabilidad financiera.

¡Queremos que tus aportes ayuden a orientar el estudio!

- Tus respuestas a esta encuesta ayudarán al equipo del estudio a entender mejor las necesidades y preocupaciones de los usuarios.
- La encuesta debería poderse completar en menos de 10 minutos.
- Tus respuestas serán anónimas. No necesitamos ningún dato identificativo, y no divulgaremos ninguna respuesta individual.

Para más información sobre el estudio, visita el sitio web (<https://www.yaquinalights.org/yaquina-head-traffic-study>) donde hallarás más información sobre otras oportunidades para realizar comentarios. Gracias por tu participación. El plazo para completar la encuesta es el 10 de septiembre de 2021.



YAQUINA HEAD

Estudio de tráfico

Visitation Characteristics

1. ¿Durante qué temporadas sueles visitar el Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

- ☐ Primavera (marzo - mayo)
- ☐ Verano (junio - agosto)
- ☐ Otoño (septiembre - noviembre)
- ☐ Invierno (diciembre - febrero)

2. ¿En qué días visitas normalmente el Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

- ☐ Días laborables
- ☐ Fines de semana
- ☐ Días festivos

3. ¿Durante qué período sueles visitar el Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

- ☐ Temprano en la mañana (antes de las 8:00 am)
- ☐ Mañana (8 am - 12 pm)
- ☐ Tarde (12 pm - 5 pm)
- ☐ Tarde (5 pm - anochecer)
- ☐ Tarde por la noche (fuera del horario del parque)

4. ¿Cuánto tiempo pasas normalmente en el Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

- ☐ Menos de una hora
- ☐ Unas pocas horas
- ☐ Medio día
- ☐ Día completo

5. ¿Por lo general, visitas el Área Natural Destacada de Yaquina Head como parte de un grupo?

- ☐ No, típicamente lo visito yo solo
- ☐ Sí, con otra persona
- ☐ Sí, con un grupo más grande (incluye adultos y/o niños)
- ☐ Sí, con un grupo organizado (por ejemplo, un viaje escolar)
- ☐ Otra (especifique)

6. ¿En qué actividades has participado durante las visitas al Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

- ☐ Tour escolar/grupal
- ☐ Paseando perros
- ☐ Surf
- ☐ Parapente/ala delta
- ☐ Caminata/senderismo
- ☐ Ciclismo
- ☐ Avistamiento de aves y vida silvestre
- ☐ Baño en pozas marinas
- ☐ Visita al Centro de Interpretación
- ☐ Visita al Faro
- ☐ Otra (especifique)

7. ¿Cuál de las actividades anteriores fue el objetivo principal de tu visita al Área Natural Destacada de Yaquina Head? (Indica solo una actividad.)



YAQUINA HEAD

Estudio de tráfico

CARACTERÍSTICAS DE TRANSPORTE

8. ¿Cómo accedes normalmente al Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

- ☐ Caminata
- ☐ Silla de ruedas o medios auxiliares de movilidad
- ☐ Bicicleta
- ☐ Motocicleta
- ☐ Vehículo de pasajeros (auto/camioneta pequeña)
- ☐ Vehículo recreativo (RV) o vehículo con remolque
- ☐ Autobús turístico/escolar
- ☐ Otra (especifique)

9. ¿Con qué frecuencia utilizas los siguientes métodos de transporte dentro del Área Natural Destacada de Yaquina Head?

	Diariamente	Semanalmente	Mensualmente	Anualmente	Nunca
Caminata	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Silla de ruedas o medios auxiliares de movilidad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bicicleta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motocicleta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vehículo de pasajeros (auto/camioneta pequeña)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RV o vehículo con remolque	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Otra (especifique)

10. A continuación se muestran métodos de transporte alternativos que se podrían ofrecer en el Área Natural Destacada de Yaquina Head en el futuro. Indícanos la probabilidad de que utilices cada método de transporte.

	Muy Improbable	Algo Improbable	Ni una ni otra	Algo Probable	Muy Probable
Un autobús colectivo lleve a los pasajeros a diferentes puntos del sitio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Una bicicleta que se ofrezca en el sitio a través de un programa «Bike Share»	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Un autobús colectivo que ofrezca una visita guiada por el sitio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Un estacionamiento fuera de las instalaciones que proporcione acceso a senderos para paseos/excursiones en el sitio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Otro método de transporte (especifique)

11. Si se ofreciera transporte alternativo en el Área Natural Destacada de Yaquina Head, ¿mejoraría ello tu experiencia?

- ☐ Sí
- ☐ No
- ☐ No estoy seguro

Añade cualquier comentario adicional sobre métodos de transporte alternativos.

12. ¿Debería proporcionar el Área Natural Destacada de Yaquina Head estaciones de carga para vehículos eléctricos?

- ☐ Sí
- ☐ No

13. En caso afirmativo, ¿dónde deberían ubicarse las estaciones de recarga de vehículos eléctricos?

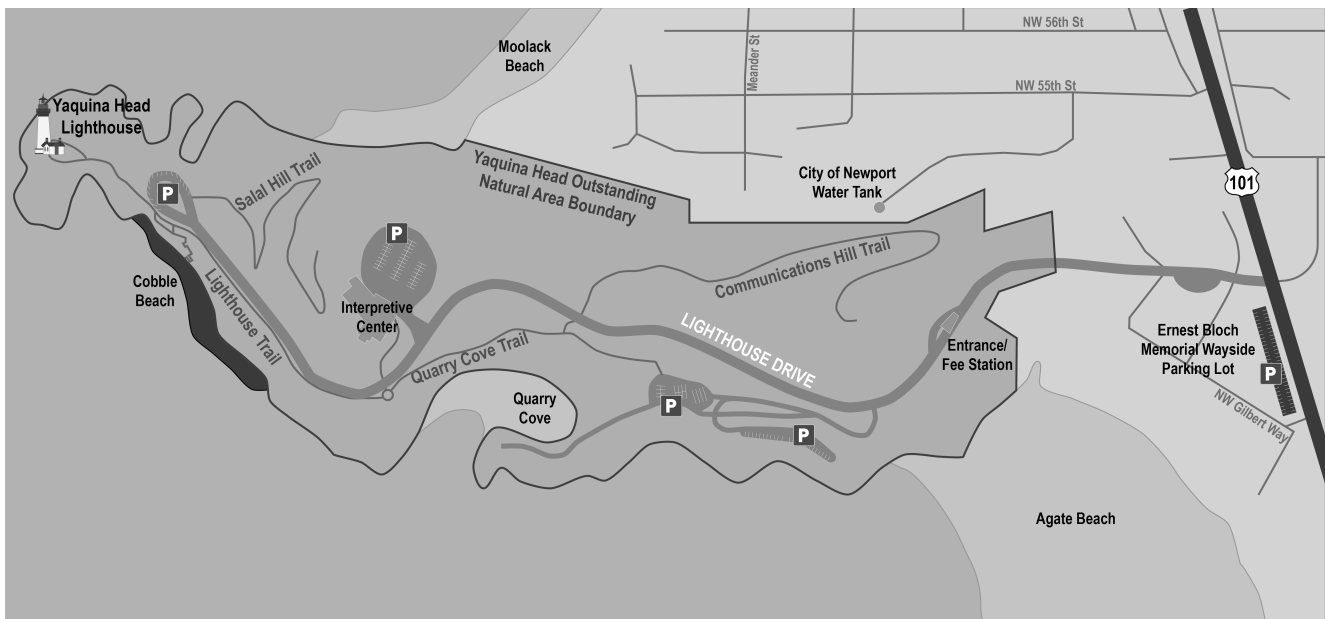


YAQUINA HEAD

Estudio de tráfico

CARACTERÍSTICAS DEL SITIO

Mapa del Sitio del Área Natural Destacada de Yaquina Head



14. Califica las siguientes cuestiones relativas al tráfico, seguridad y mantenimiento en el Área Natural Destacada de Yaquina Head en base a tus experiencias. (Consulta el mapa del sitio.)

	Muy pobre	Pobre	Neutro	Bueno	Muy Bueno	N/A
Operaciones en la puerta de acceso	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Circulación general en el sitio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accesibilidad general del sitio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estado general de la banqueta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Senderos/caminos peatonales	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estacionamiento de Quarry Cove	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estacionamiento del Centro de Interpretación	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estacionamiento del Faro	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estacionamiento en calle en las salidas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seguridad peatonal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seguridad en bicicleta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seguridad de los vehículos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Añade comentarios adicionales sobre cuestiones relativas al tráfico, seguridad y mantenimiento en el Área Natural Destacada de Yaquina Head en base a tus experiencias.



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CARACTERÍSTICAS DE ESTACIONAMIENTO

15. En visitas recientes, ¿usaste el estacionamiento del Centro de Interpretación?

- ☐ Sí
☐ No

16. En caso afirmativo, ¿por cuánto tiempo usaste el estacionamiento del Centro de Interpretación?

- ☐ 0 a 30 minutos
☐ 30-60 minutos
☐ 1-2 horas
☐ Más de 2 horas
☐ No usé el estacionamiento del Centro de Interpretación

17. En visitas recientes, ¿usaste el estacionamiento del Faro?

- ☐ Sí
☐ No

18. En caso afirmativo, ¿por cuánto tiempo usaste el estacionamiento del Faro?

- ☐ 0 a 30 minutos
☐ 30-60 minutos
☐ 1-2 horas
☐ Más de 2 horas
☐ No usé el Estacionamiento del Faro

19. En visitas recientes, ¿usaste el estacionamiento de Quarry Cove?

- ☐ Sí
☐ No

20. En caso afirmativo, ¿por cuánto tiempo usaste el estacionamiento de Quarry Cove?

- ☐ 0 a 30 minutos
- ☐ 30-60 minutos
- ☐ 1-2 horas
- ☐ Más de 2 horas
- ☐ No usé el estacionamiento de Quarry Cove

21. ¿Debería el Área Natural Destacada de Yaquina Head proporcionar estacionamiento adicional para personas con discapacidad?

- ☐ Sí
- ☐ No

22. En caso afirmativo, ¿dónde se necesita estacionamiento adicional para personas con discapacidad?



YAQUINA HEAD

Estudio de tráfico

DEMOGRAFÍA

23. ¿Cómo te describirías?

- ☐ Visitante por primera vez
- ☐ Visitante poco frecuente
- ☐ Visitante frecuente
- ☐ Miembro del personal/voluntario

24. Selecciona tu grupo de edad.

- ☐ Menor de 18
- ☐ 19-34
- ☐ 35-50
- ☐ 51-64
- ☐ 65+
- ☐ Prefiero no especificar

25. ¿Dónde vives?

- ☐ Ciudad de Newport
- ☐ Estado de Oregon
- ☐ Fuera del estado
- ☐ Fuera del país
- ☐ Otra (especifique)



YAQUINA HEAD

Estudio de tráfico

COMENTARIOS ADICIONALES

26. ¿Tienes alguna sugerencia que ayude a mejorar la experiencia de transporte en el Área Natural Destacada de Yaquina Head?

27. Añade cualquier comentario adicional que pueda resultar útil para el equipo del estudio.

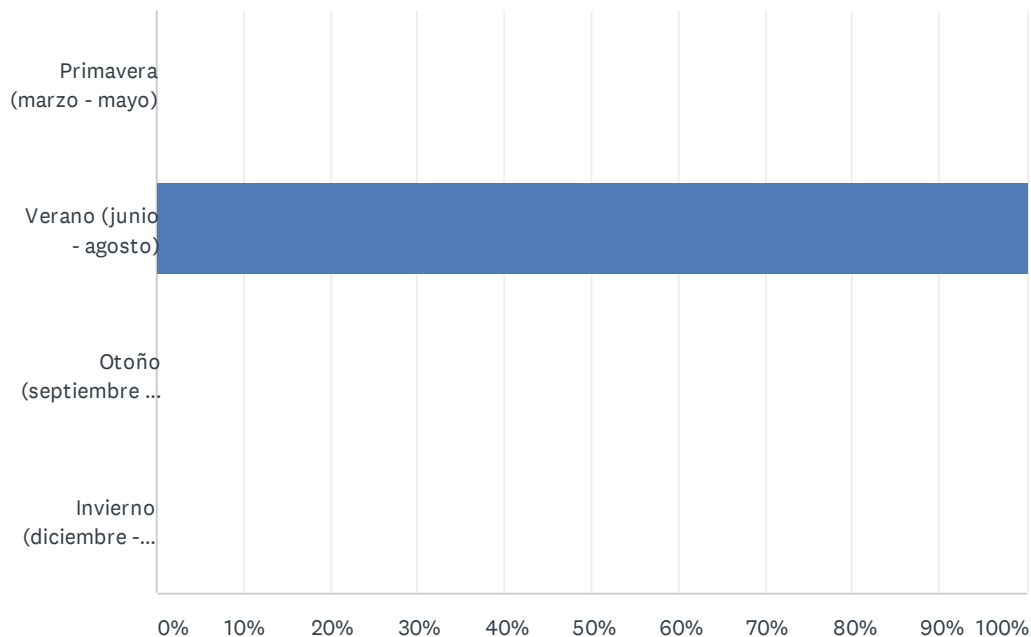
28. Si deseas seguir participando en el estudio, escribe tu nombre y dirección de correo electrónico.

Nombre

Dirección de correo electrónico

Q1 ¿Durante qué temporadas sueles visitar el Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

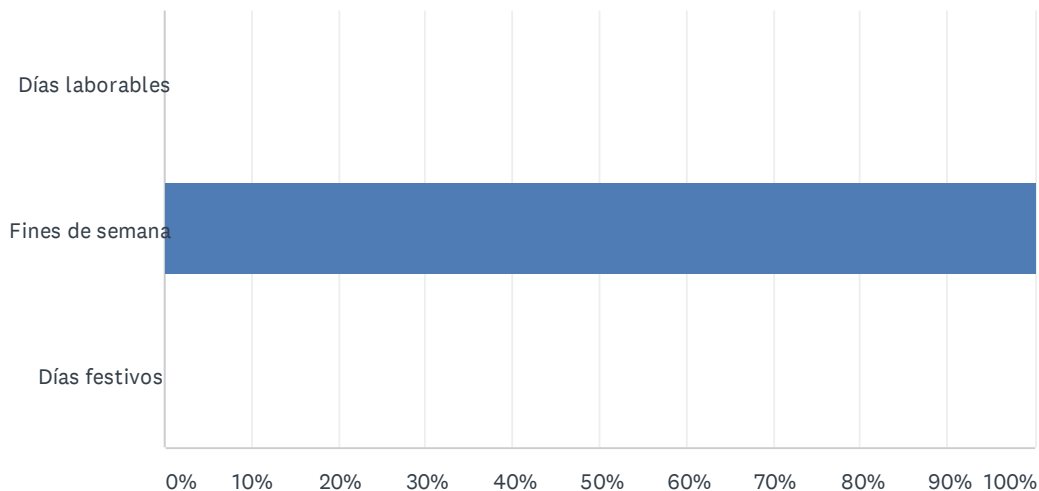
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Primavera (marzo - mayo)	0.00%	0
Verano (junio - agosto)	100.00%	1
Otoño (septiembre - noviembre)	0.00%	0
Invierno (diciembre - febrero)	0.00%	0
Total Respondents: 1		

Q2 ¿En qué días visitas normalmente el Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

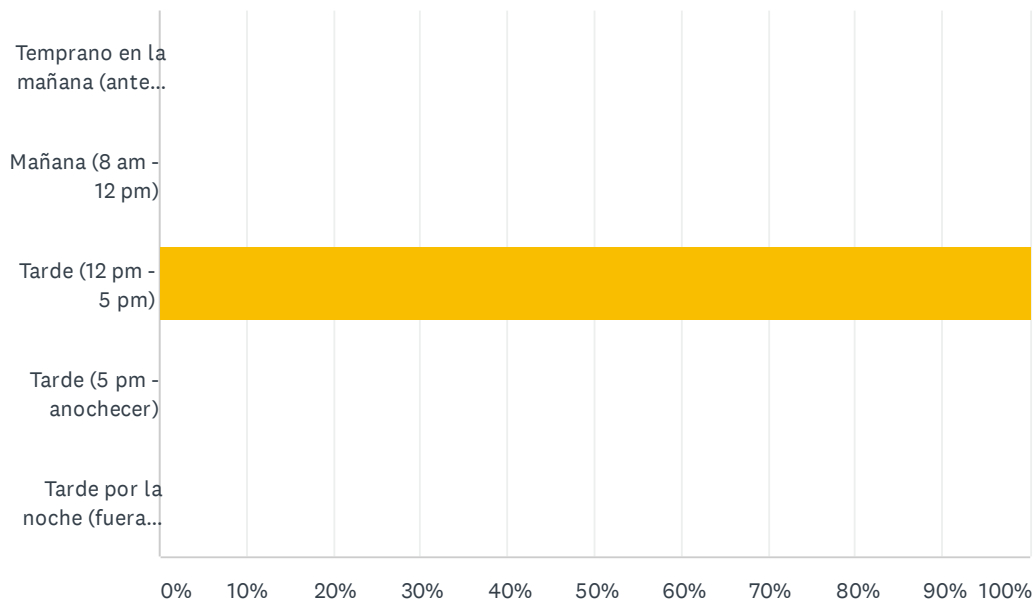
Answered: 1 Skipped: 0



ANSWER CHOICES		RESPONSES	
Días laborables		0.00%	0
Fines de semana		100.00%	1
Días festivos		0.00%	0
Total Respondents: 1			

Q3 ¿Durante qué período sueles visitar el Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

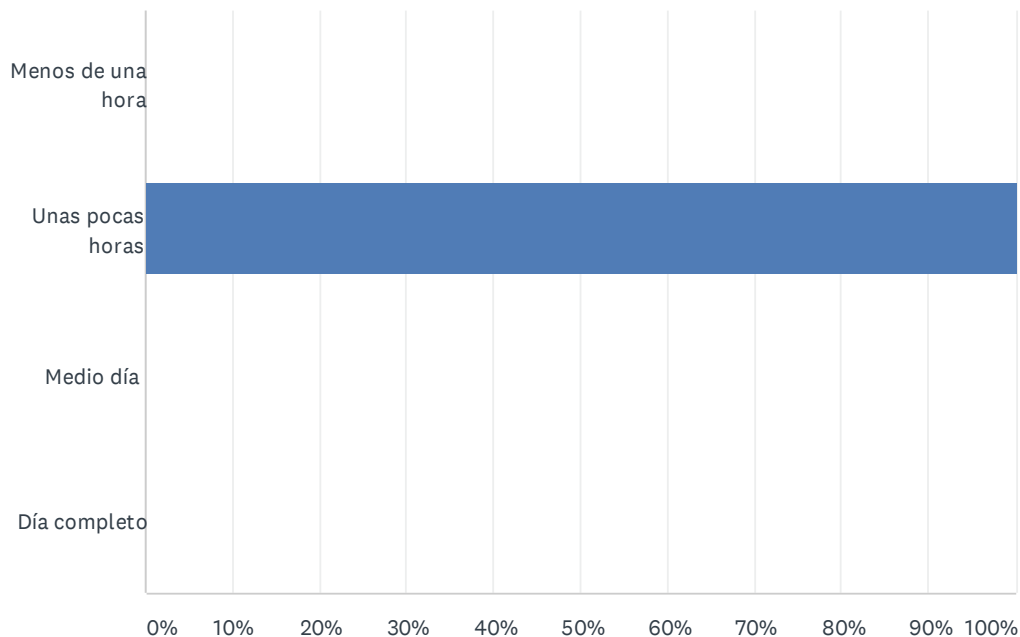
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Temprano en la mañana (antes de las 8:00 am)	0.00%	0
Mañana (8 am - 12 pm)	0.00%	0
Tarde (12 pm - 5 pm)	100.00%	1
Tarde (5 pm - anocheecer)	0.00%	0
Tarde por la noche (fuera del horario del parque)	0.00%	0
Total Respondents: 1		

Q4 ¿Cuánto tiempo pasas normalmente en el Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

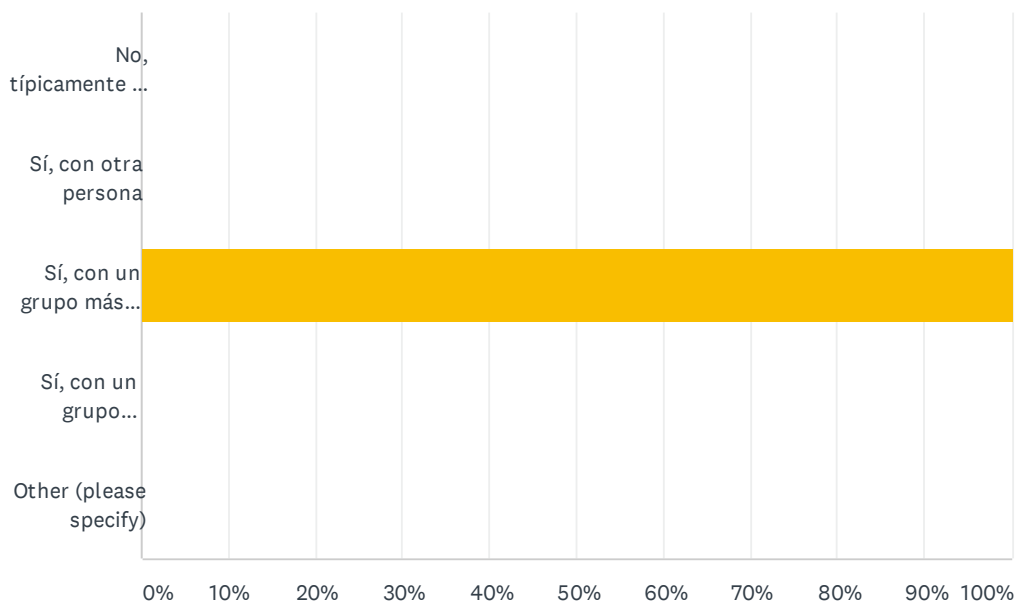
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Menos de una hora	0.00%	0
Unas pocas horas	100.00%	1
Medio día	0.00%	0
Día completo	0.00%	0
Total Respondents: 1		

Q5 ¿Por lo general, visitas el Área Natural Destacada de Yaquina Head como parte de un grupo?

Answered: 1 Skipped: 0

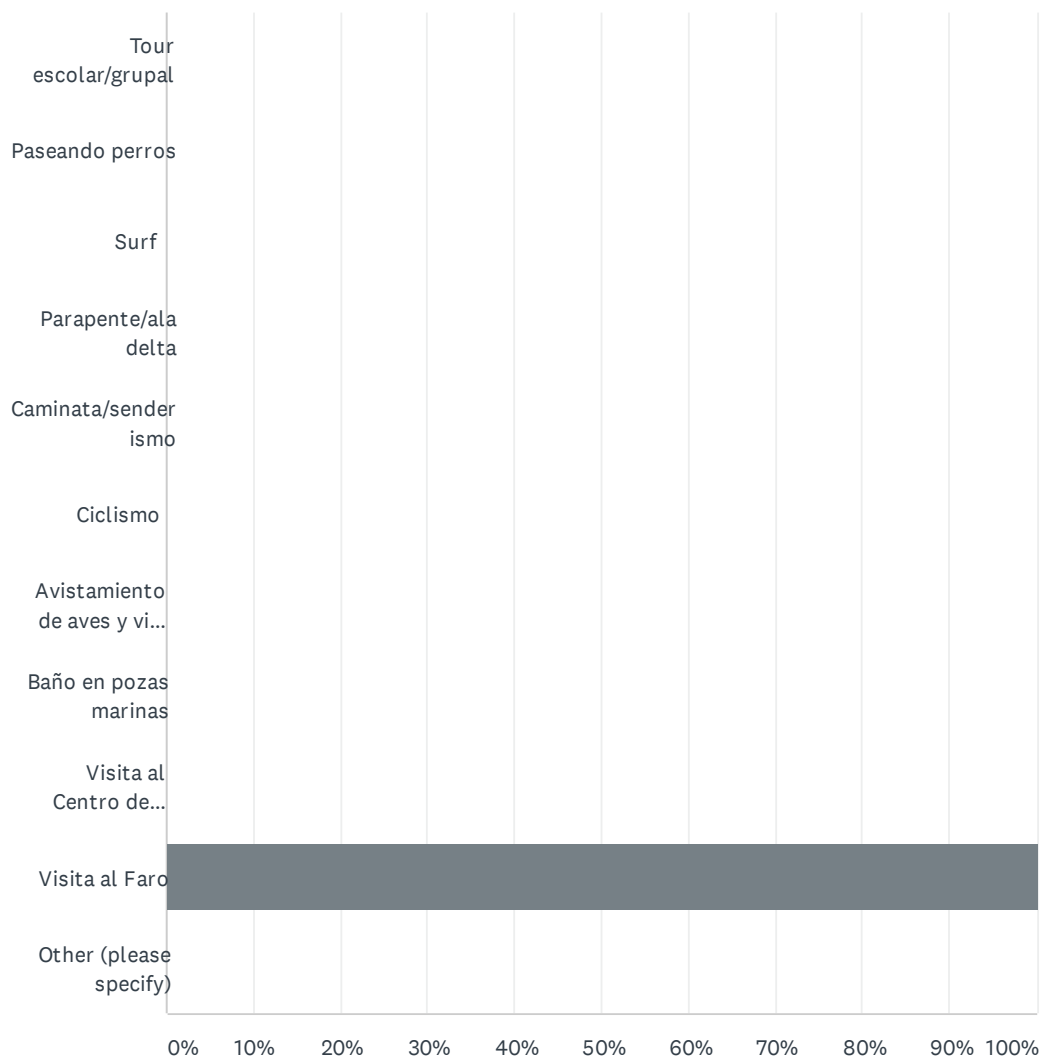


ANSWER CHOICES	RESPONSES	
No, típicamente lo visito yo solo	0.00%	0
Sí, con otra persona	0.00%	0
Sí, con un grupo más grande (incluye adultos y/o niños)	100.00%	1
Sí, con un grupo organizado (por ejemplo, un viaje escolar)	0.00%	0
Other (please specify)	0.00%	0
TOTAL		1

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q6 ¿En qué actividades has participado durante las visitas al Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

Answered: 1 Skipped: 0



Estudio del Tráfico de Yaquina Head

ANSWER CHOICES	RESPONSES	
Tour escolar/grupal	0.00%	0
Paseando perros	0.00%	0
Surf	0.00%	0
Parapente/ala delta	0.00%	0
Caminata/senderismo	0.00%	0
Ciclismo	0.00%	0
Avistamiento de aves y vida silvestre	0.00%	0
Baño en pozas marinas	0.00%	0
Visita al Centro de Interpretación	0.00%	0
Visita al Faro	100.00%	1
Other (please specify)	0.00%	0
Total Respondents: 1		

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

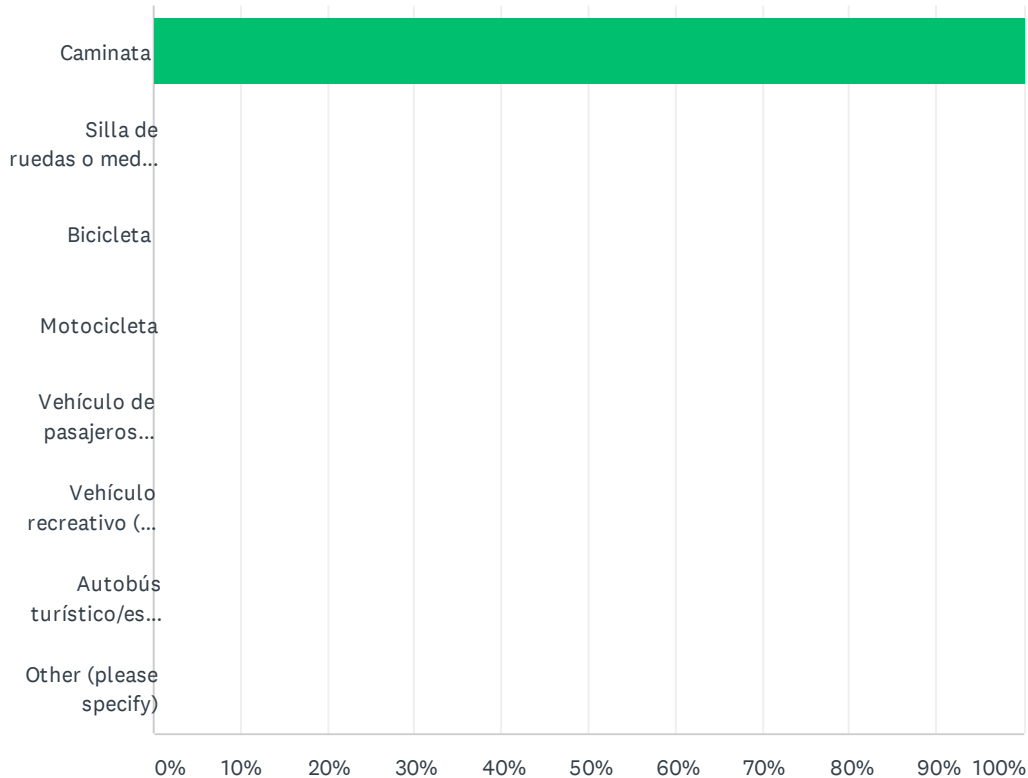
Q7 ¿Cuál de las actividades anteriores fue el objetivo principal de tu visita al Área Natural Destacada de Yaquina Head? (Indica solo una actividad.)

Answered: 1 Skipped: 0

#	RESPONSES	DATE
1	Vicitar el faro	8/22/2021 12:57 PM

Q8 ¿Cómo accedes normalmente al Área Natural Destacada de Yaquina Head? (Selecciona todo lo que corresponda).

Answered: 1 Skipped: 0

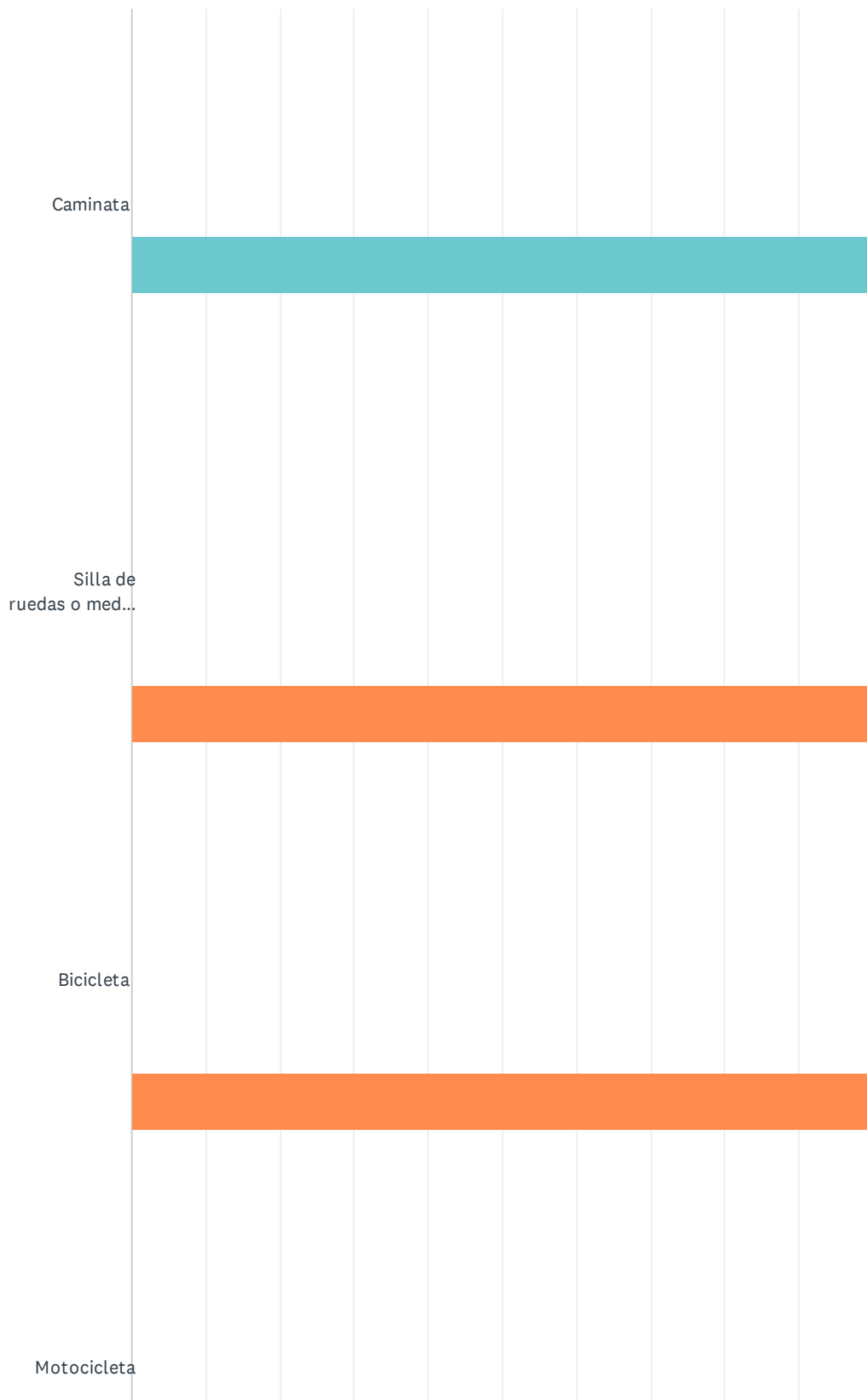


ANSWER CHOICES	RESPONSES	
Caminata	100.00%	1
Silla de ruedas o medios auxiliares de movilidad	0.00%	0
Bicicleta	0.00%	0
Motocicleta	0.00%	0
Vehículo de pasajeros (auto/camioneta pequeña)	0.00%	0
Vehículo recreativo (RV) o vehículo con remolque	0.00%	0
Autobús turístico/escolar	0.00%	0
Other (please specify)	0.00%	0
Total Respondents: 1		

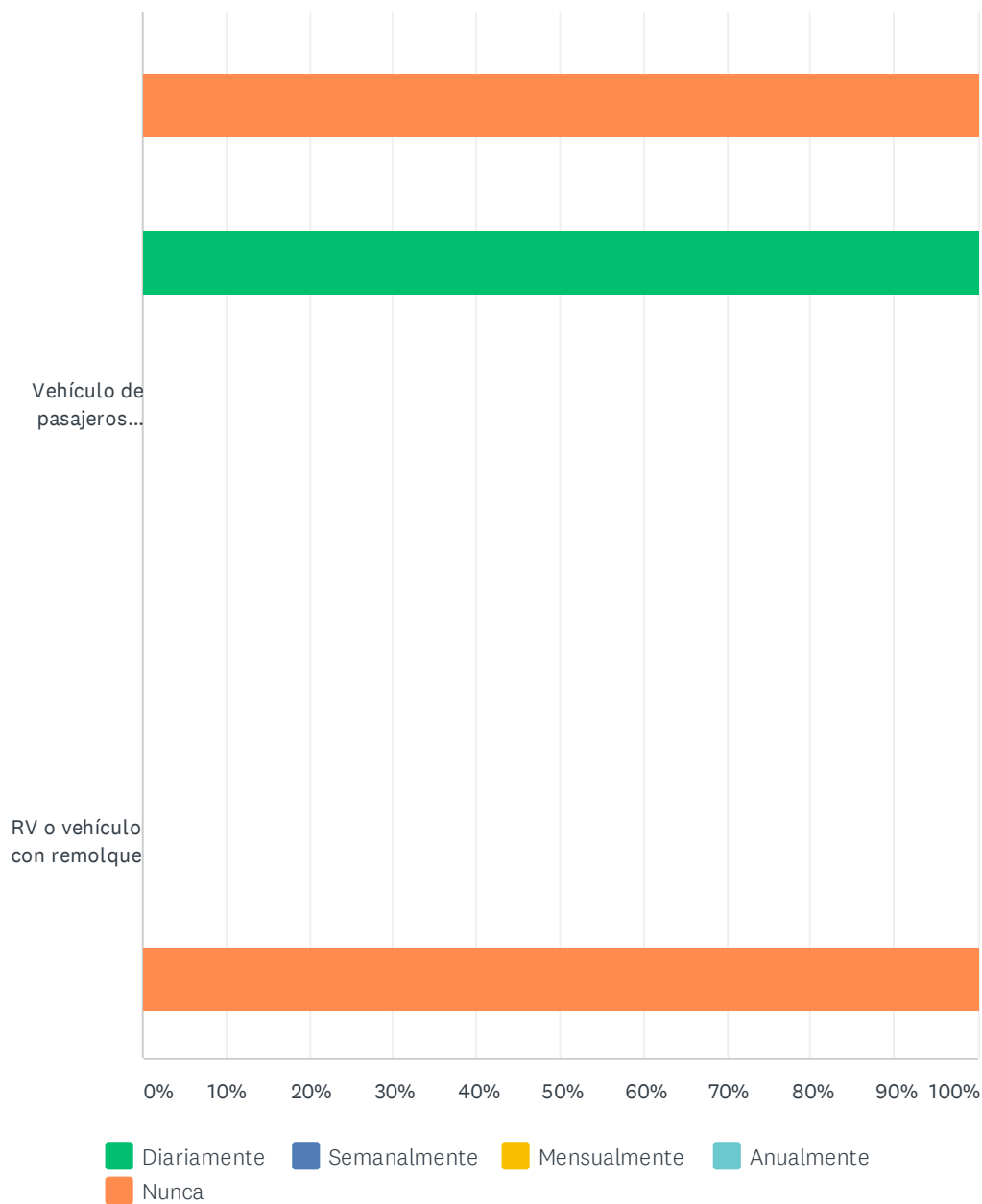
#	OTHER (PLEASE SPECIFY)	DATE
There are no responses.		

Q9 ¿Con qué frecuencia utilizas los siguientes métodos de transporte dentro del Área Natural Destacada de Yaquina Head?

Answered: 1 Skipped: 0



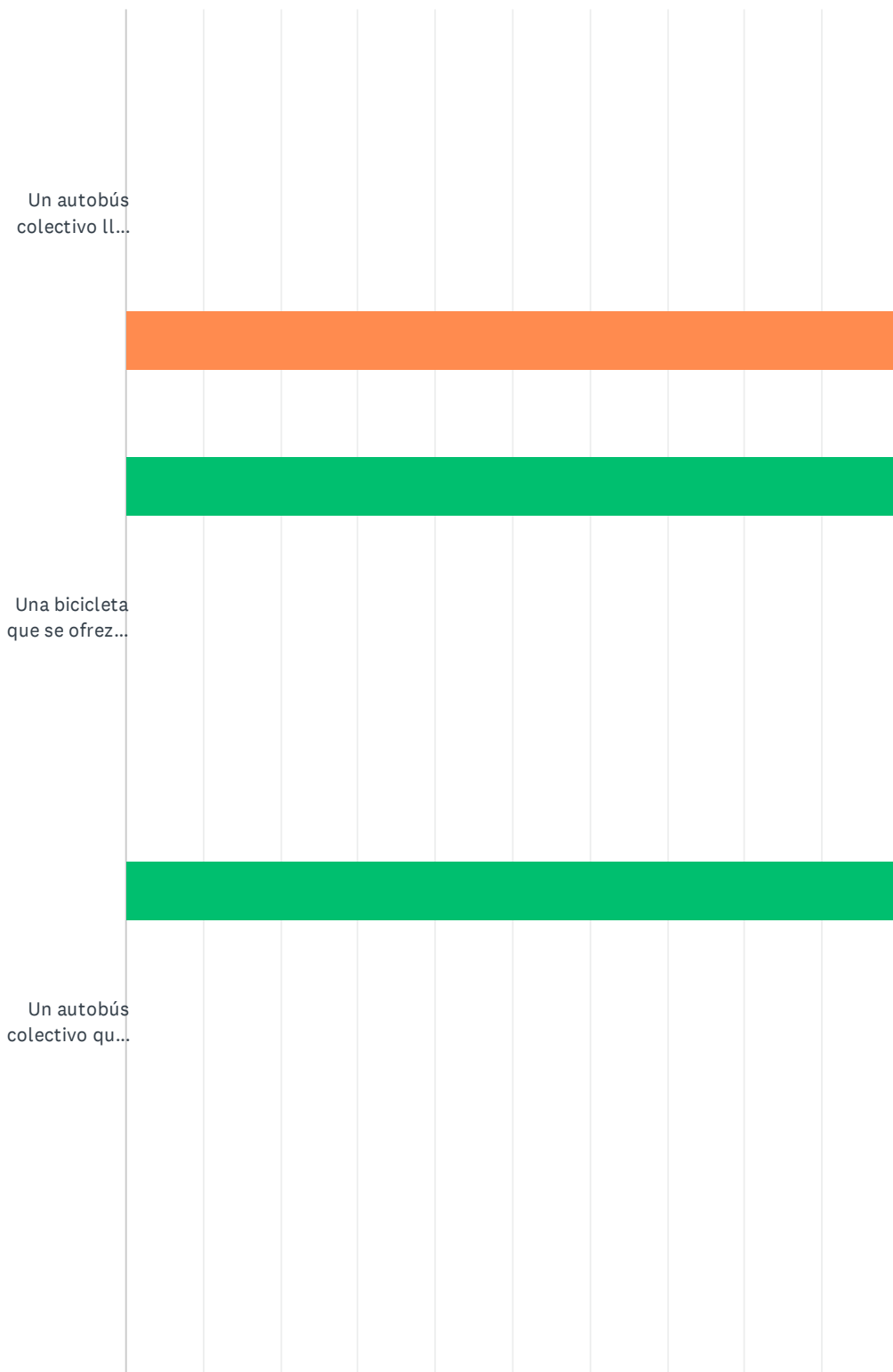
Estudio del Tráfico de Yaquina Head



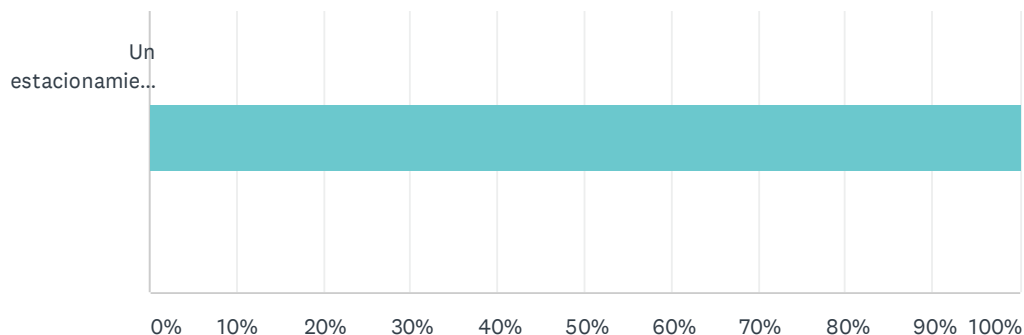
	DIARIAMENTE	SEMANALMENTE	MENSUALMENTE	ANUALMENTE	NUNCA	TOTAL
Caminata	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1
Silla de ruedas o medios auxiliares de movilidad	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	1
Bicicleta	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	1
Motocicleta	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	1
Vehículo de pasajeros (auto/camioneta pequeña)	100.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	1
RV o vehículo con remolque	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	1

Q10 A continuación se muestran métodos de transporte alternativos que se podrían ofrecer en el Área Natural Destacada de Yaquina Head en el futuro. Indícanos la probabilidad de que utilices cada método de transporte.

Answered: 1 Skipped: 0



Estudio del Tráfico de Yaquina Head

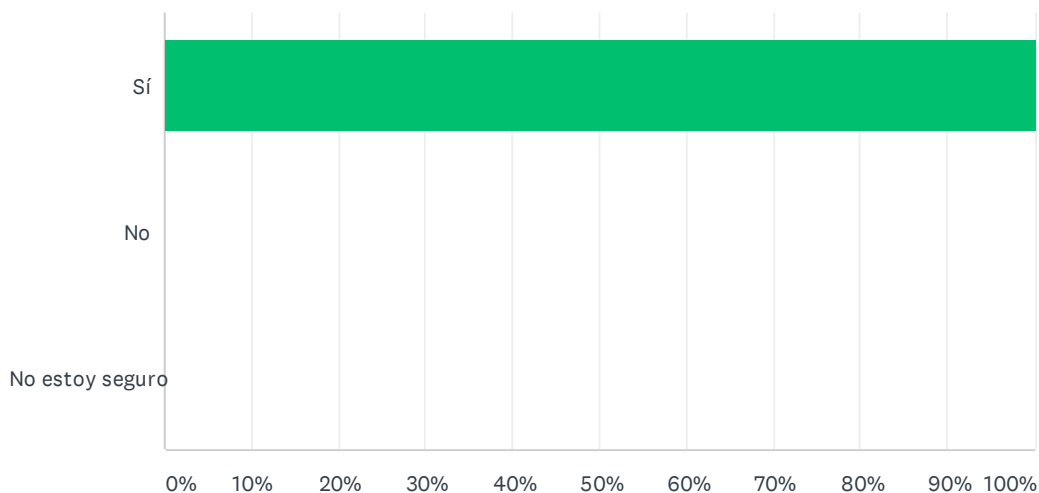


■ Muy Improbable
 ■ Algo Improbable
 ■ Ni una ni otra
 ■ Algo Probable
 ■ Muy Probable

	MUY IMPROBABLE	ALGO IMPROBABLE	NI UNA NI OTRA	ALGO PROBABLE	MUY PROBABLE	TOTAL
Un autobús colectivo lleve a los pasajeros a diferentes puntos del sitio	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	1
Una bicicleta que se ofrezca en el sitio a través de un programa «Bike Share»	100.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	1
Un autobús colectivo que ofrezca una visita guiada por el sitio	100.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	1
Un estacionamiento fuera de las instalaciones que proporcione acceso a senderos para paseos/excursiones en el sitio	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1

Q11 Si se ofreciera transporte alternativo en el Área Natural Destacada de Yaquina Head, ¿mejoraría ello tu experiencia?

Answered: 1 Skipped: 0

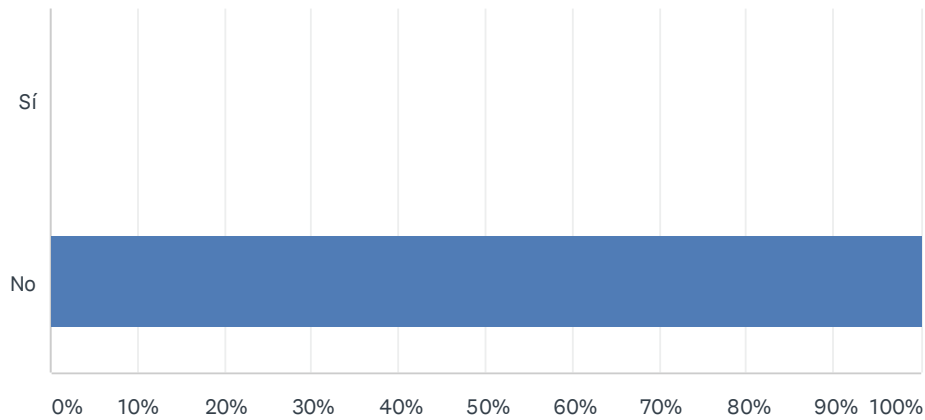


ANSWER CHOICES	RESPONSES
Sí	100.00% 1
No	0.00% 0
No estoy seguro	0.00% 0
TOTAL	1

#	AÑADE CUALQUIER COMENTARIO ADICIONAL SOBRE MÉTODOS DE TRANSPORTE ALTERNATIVOS.	DATE
	There are no responses.	

Q12 ¿Debería proporcionar el Área Natural Destacada de Yaquina Head estaciones de carga para vehículos eléctricos?

Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Sí	0.00%	0
No	100.00%	1
TOTAL		1

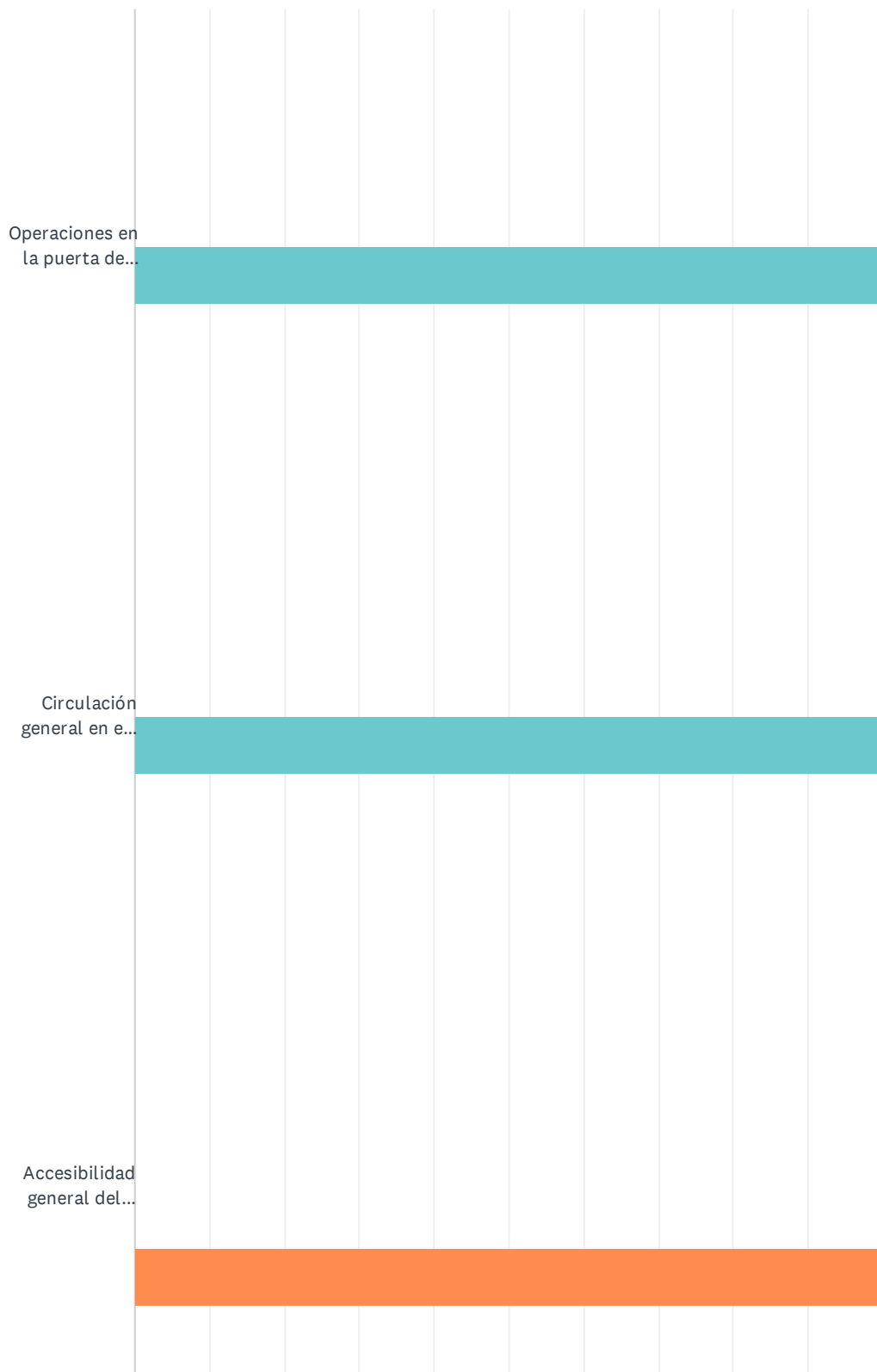
Q13 En caso afirmativo, ¿dónde deberían ubicarse las estaciones de recarga de vehículos eléctricos?

Answered: 0 Skipped: 1

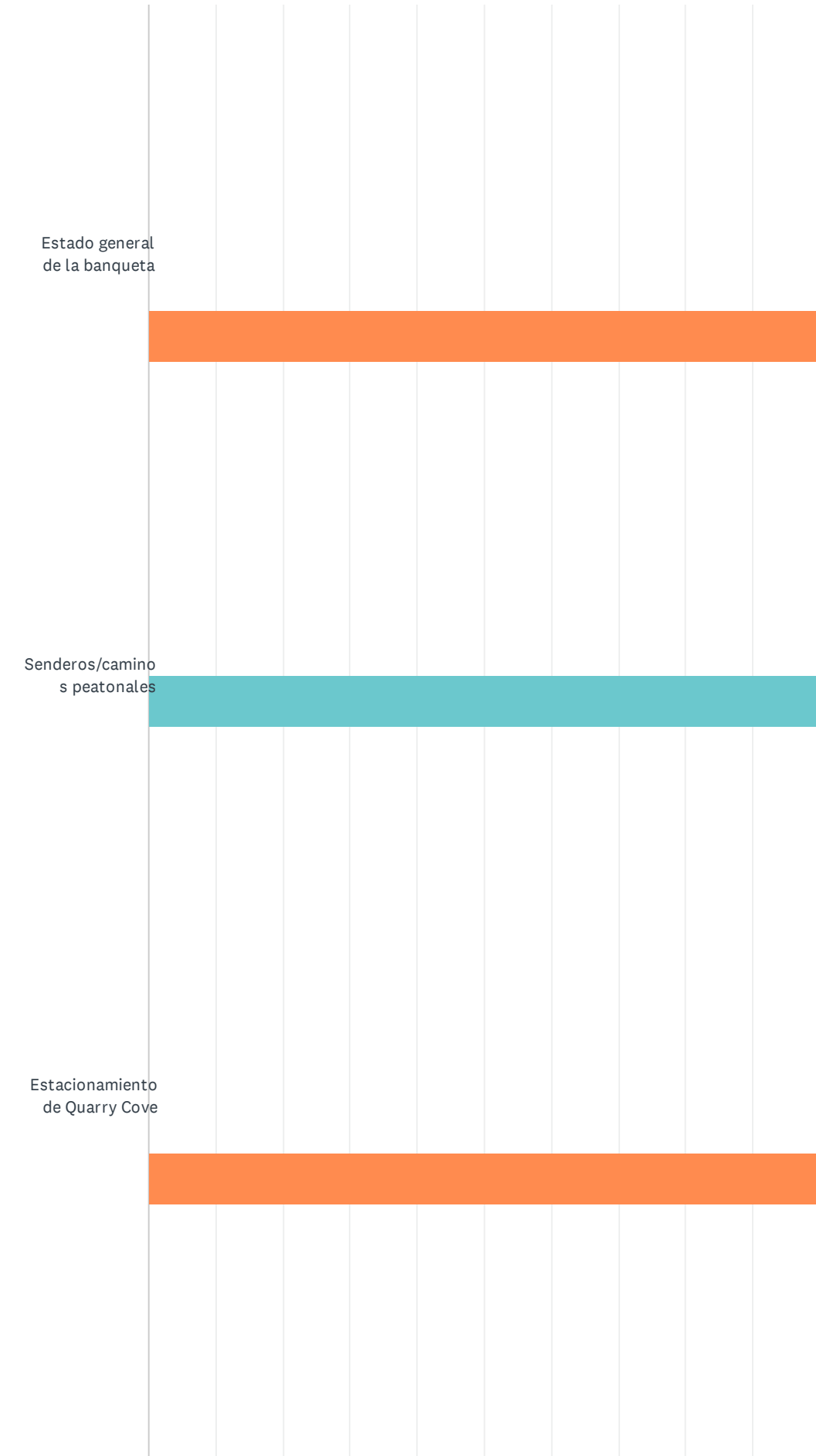
#	RESPONSES	DATE
	There are no responses.	

Q14 Califica las siguientes cuestiones relativas al tráfico, seguridad y mantenimiento en el Área Natural Destacada de Yaquina Head en base a tus experiencias. (Consulta el mapa del sitio.)

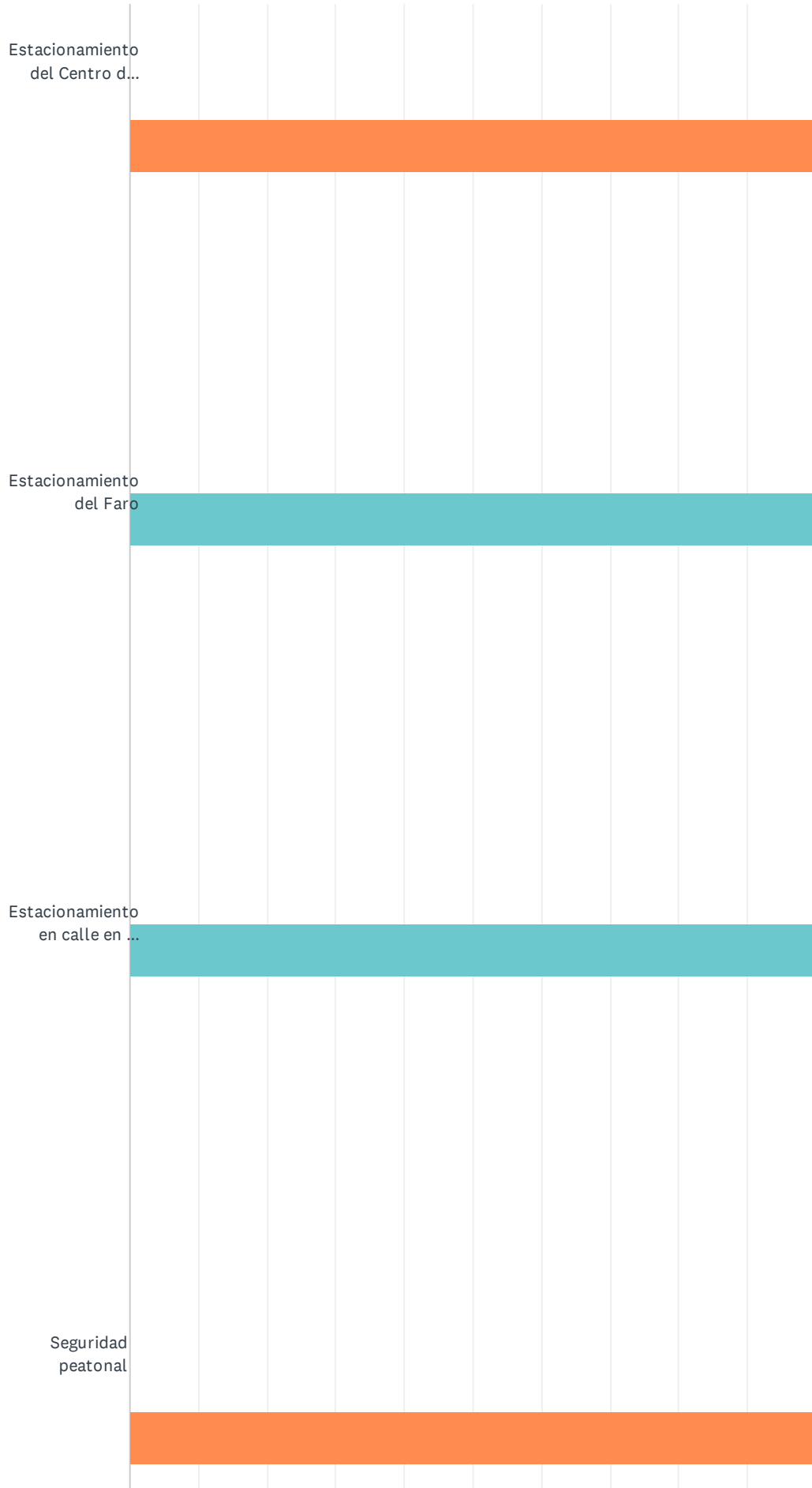
Answered: 1 Skipped: 0



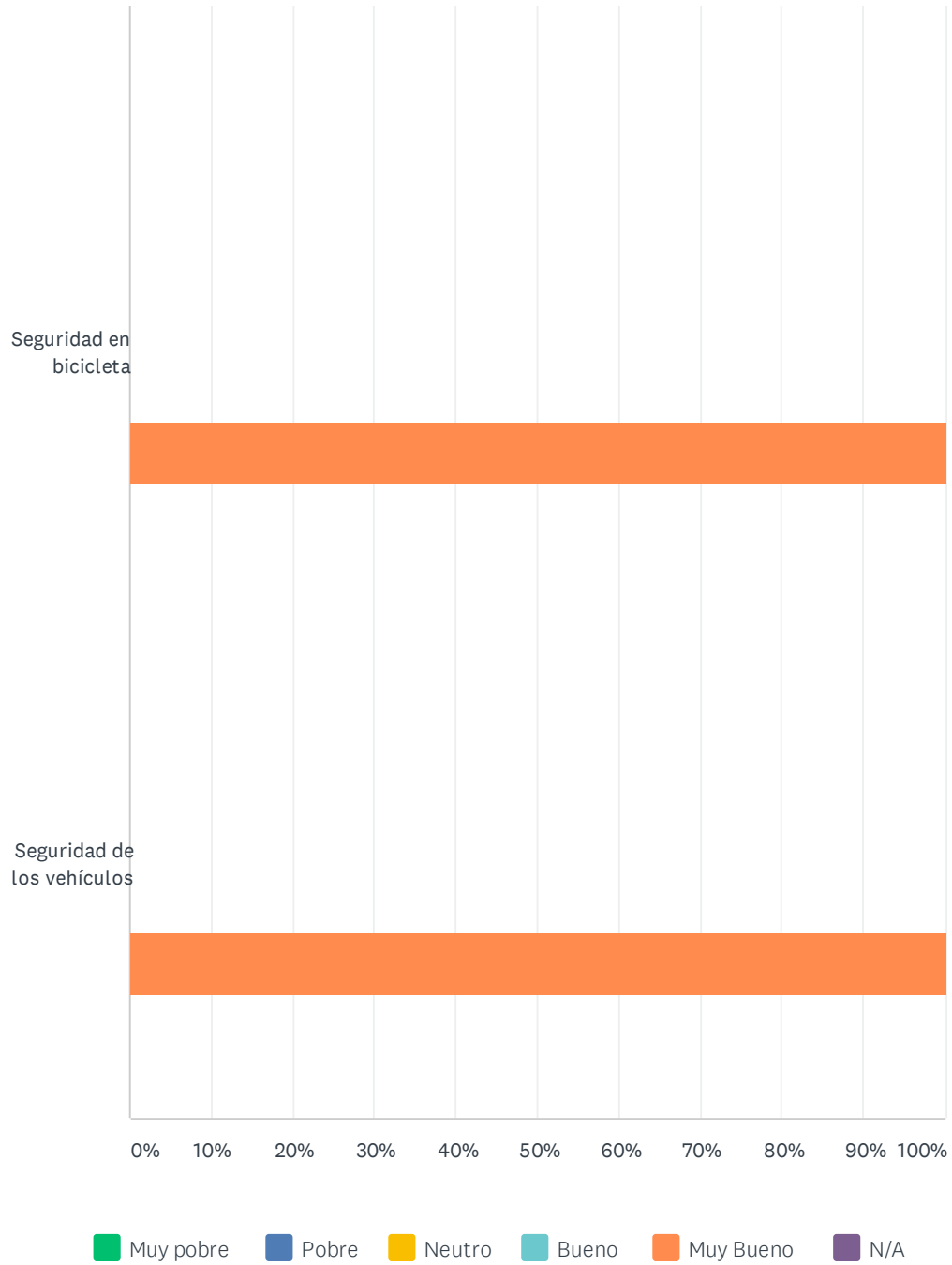
Estudio del Tráfico de Yaquina Head



Estudio del Tráfico de Yaquina Head



Estudio del Tráfico de Yaquina Head

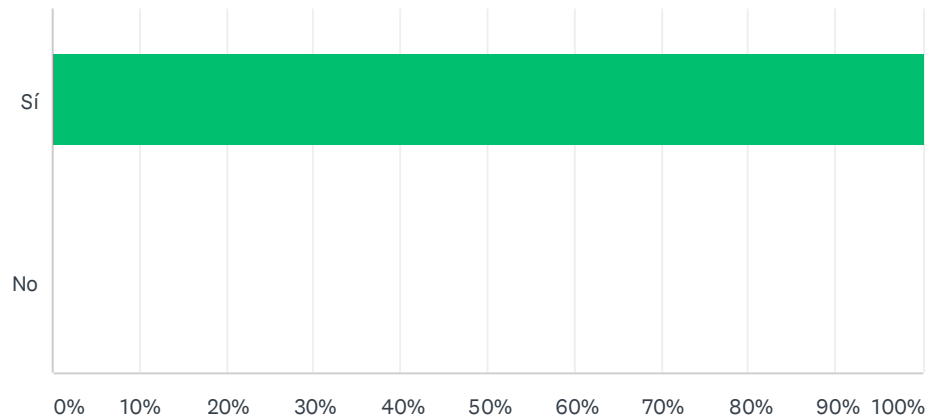


Estudio del Tráfico de Yaquina Head

	MUY POBRE	POBRE	NEUTRO	BUENO	MUY BUENO	N/A	TOTAL
Operaciones en la puerta de acceso	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	1
Circulación general en el sitio	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	1
Accesibilidad general del sitio	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1
Estado general de la banqueta	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1
Senderos/caminos peatonales	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	1
Estacionamiento de Quarry Cove	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1
Estacionamiento del Centro de Interpretación	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1
Estacionamiento del Faro	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	1
Estacionamiento en calle en las salidas	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	1
Seguridad peatonal	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1
Seguridad en bicicleta	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1
Seguridad de los vehículos	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1

Q15 En visitas recientes, ¿usaste el estacionamiento del Centro de Interpretación?

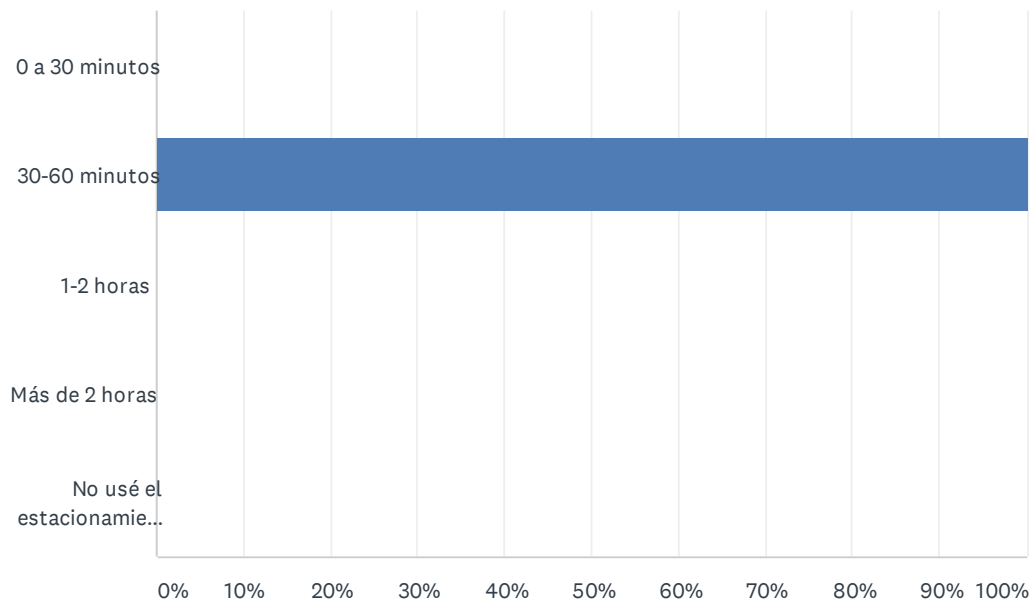
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Sí	100.00%	1
No	0.00%	0
TOTAL		1

Q16 En caso afirmativo, ¿por cuánto tiempo usaste el estacionamiento del Centro de Interpretación?

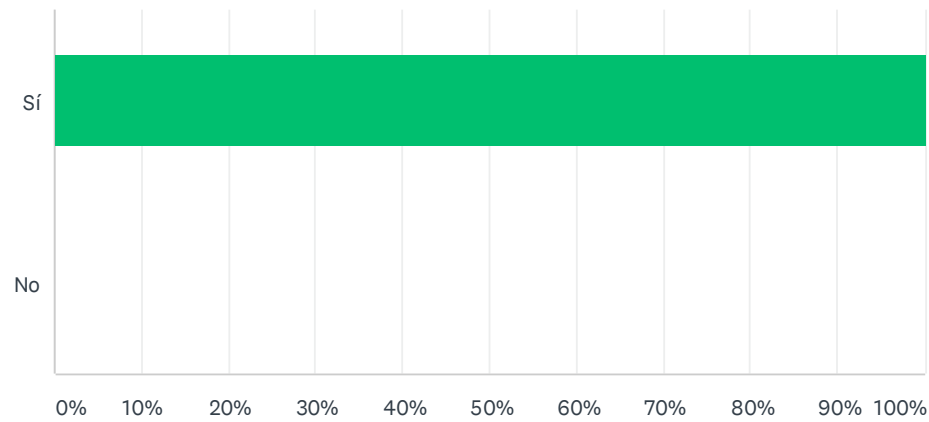
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
0 a 30 minutos	0.00%	0
30-60 minutos	100.00%	1
1-2 horas	0.00%	0
Más de 2 horas	0.00%	0
No usé el estacionamiento del Centro de Interpretación	0.00%	0
TOTAL		1

Q17 En visitas recientes, ¿usaste el estacionamiento del Faro?

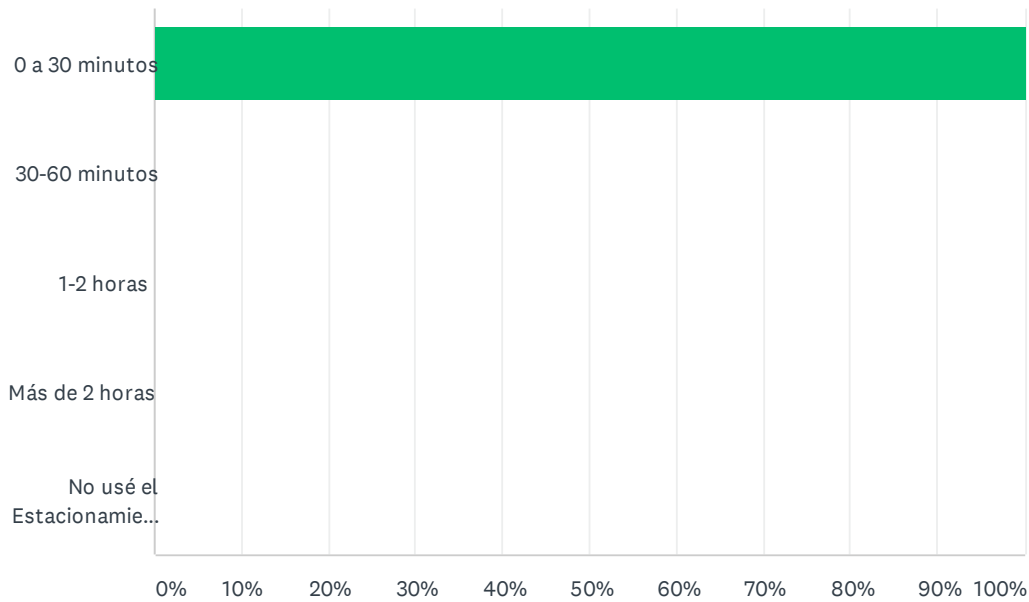
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Sí	100.00%	1
No	0.00%	0
TOTAL		1

Q18 En caso afirmativo, ¿por cuánto tiempo usaste el estacionamiento del Faro?

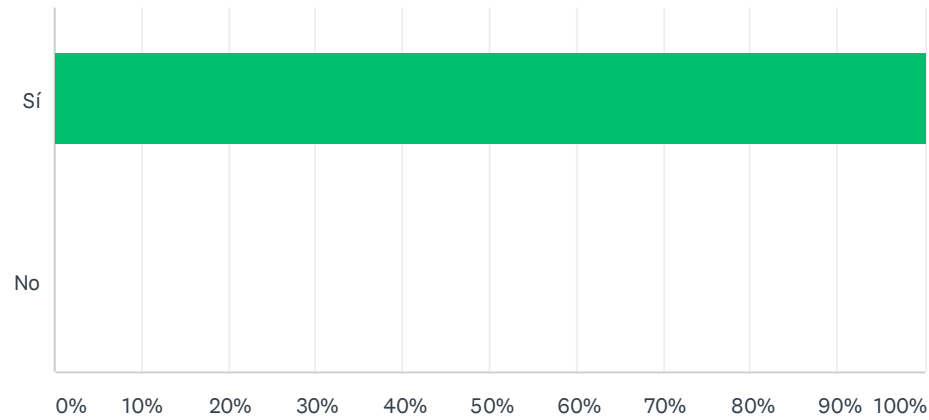
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
0 a 30 minutos	100.00%	1
30-60 minutos	0.00%	0
1-2 horas	0.00%	0
Más de 2 horas	0.00%	0
No usé el Estacionamiento del Faro	0.00%	0
TOTAL		1

Q19 En visitas recientes, ¿usaste el estacionamiento de Quarry Cove?

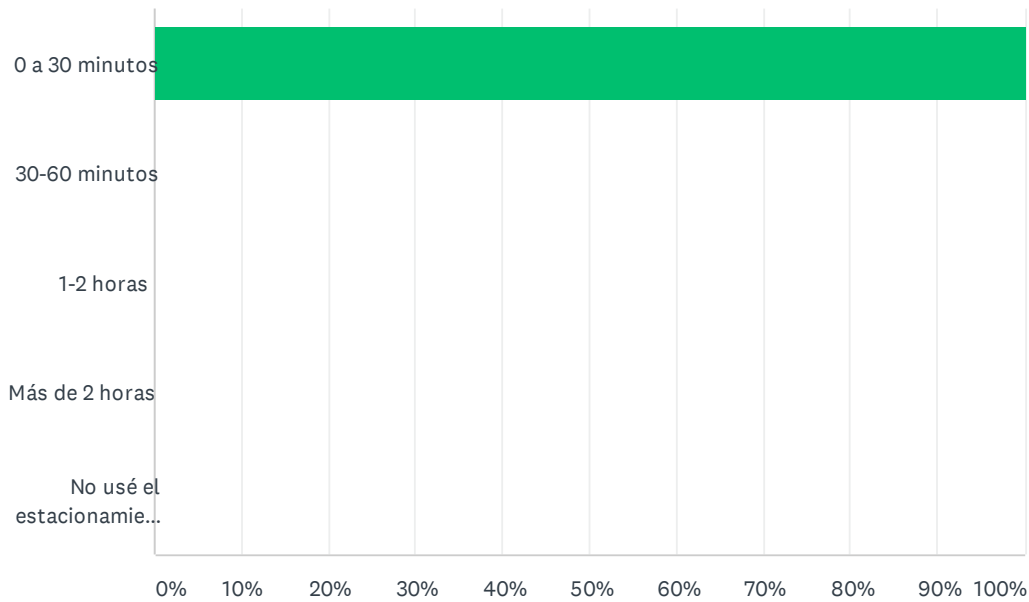
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Sí	100.00%	1
No	0.00%	0
TOTAL		1

Q20 En caso afirmativo, ¿por cuánto tiempo usaste el estacionamiento de Quarry Cove?

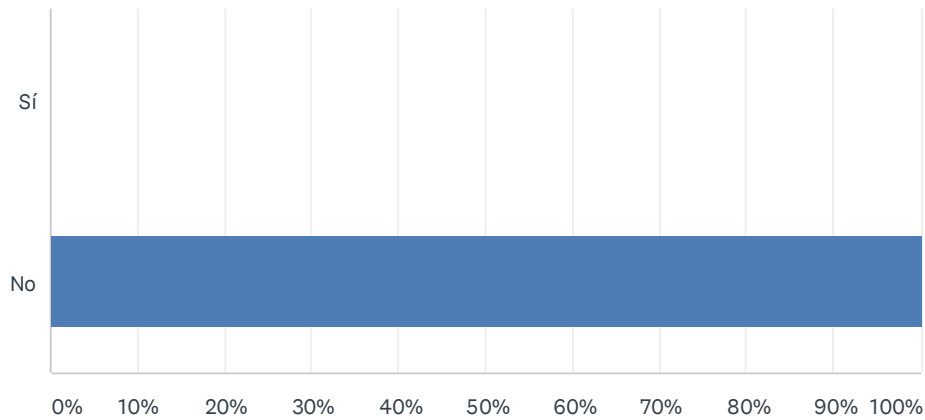
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
0 a 30 minutos	100.00%	1
30-60 minutos	0.00%	0
1-2 horas	0.00%	0
Más de 2 horas	0.00%	0
No usé el estacionamiento de Quarry Cove	0.00%	0
TOTAL		1

Q21 ¿Debería el Área Natural Destacada de Yaquina Head proporcionar estacionamiento adicional para personas con discapacidad?

Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Sí	0.00%	0
No	100.00%	1
TOTAL		1

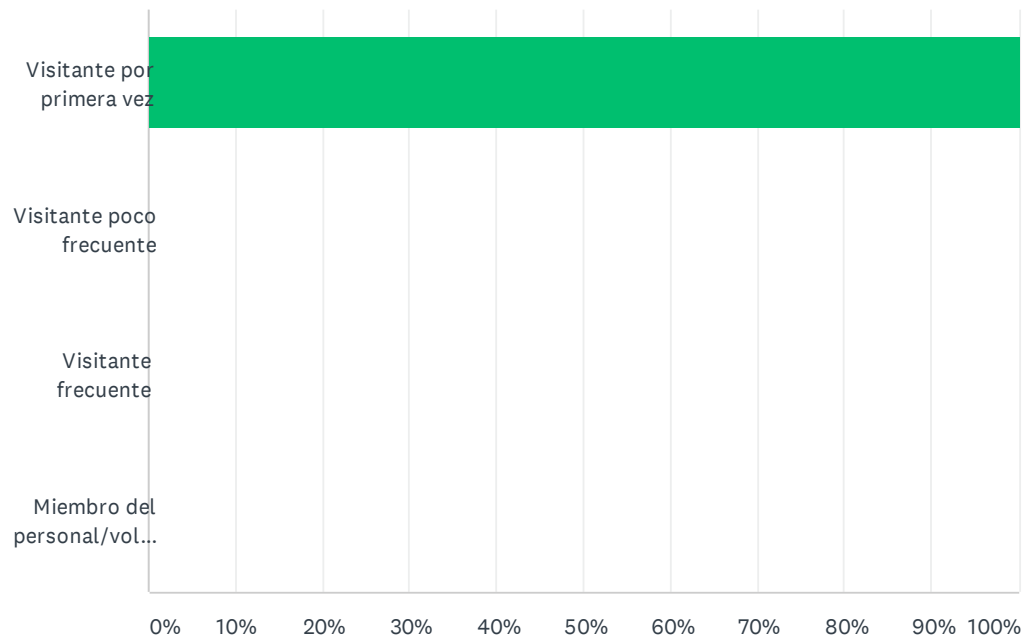
Q22 En caso afirmativo, ¿dónde se necesita estacionamiento adicional para personas con discapacidad?

Answered: 0 Skipped: 1

#	RESPONSES	DATE
	There are no responses.	

Q23 ¿Cómo te describirías?

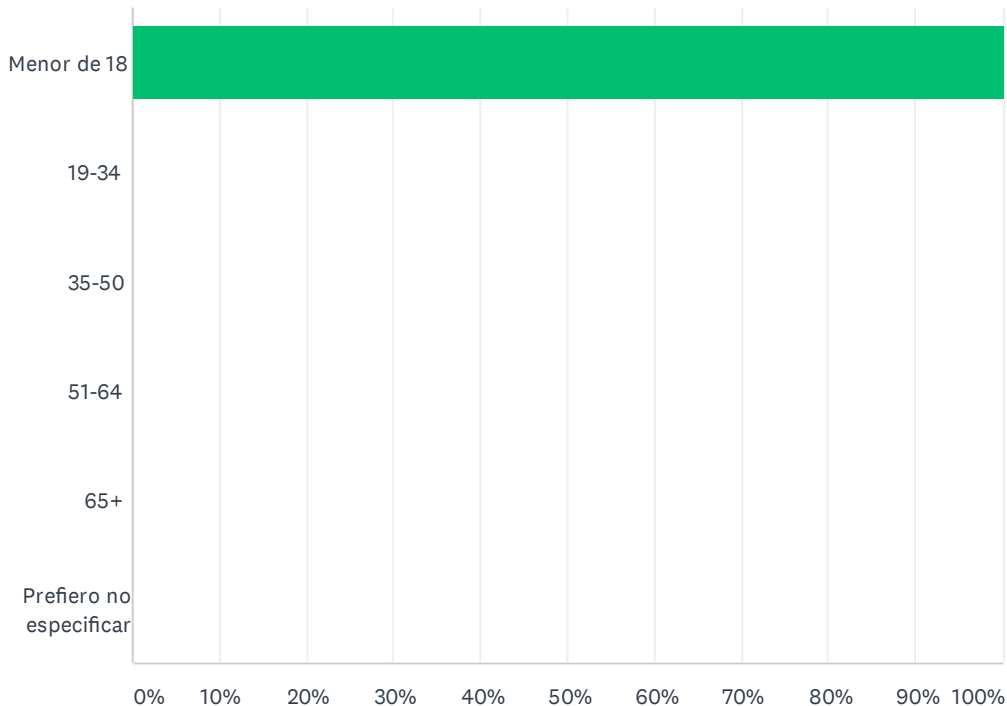
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Visitante por primera vez	100.00%	1
Visitante poco frecuente	0.00%	0
Visitante frecuente	0.00%	0
Miembro del personal/voluntario	0.00%	0
TOTAL		1

Q24 Selecciona tu grupo de edad.

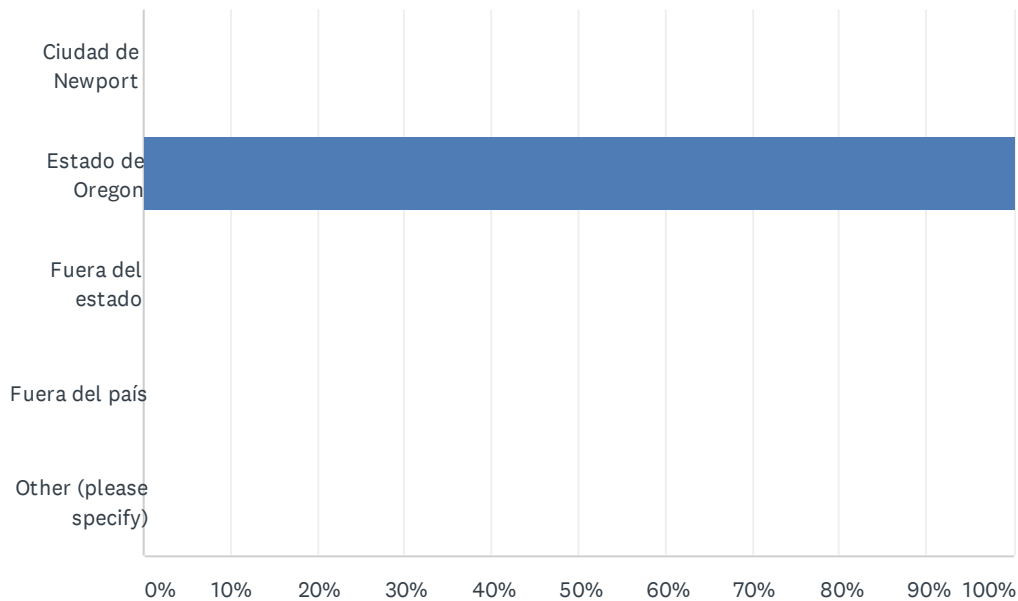
Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES	
Menor de 18	100.00%	1
19-34	0.00%	0
35-50	0.00%	0
51-64	0.00%	0
65+	0.00%	0
Prefiero no especificar	0.00%	0
TOTAL		1

Q25 ¿Dónde vives?

Answered: 1 Skipped: 0



ANSWER CHOICES	RESPONSES
Ciudad de Newport	0.00% 0
Estado de Oregon	100.00% 1
Fuera del estado	0.00% 0
Fuera del país	0.00% 0
Other (please specify)	0.00% 0
TOTAL	1

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q26 ¿Tienes alguna sugerencia que ayude a mejorar la experiencia de transporte en el Área Natural Destacada de Yaquina Head?

Answered: 1 Skipped: 0

#	RESPONSES	DATE
1	No	8/22/2021 1:40 PM

Q27 Añade cualquier comentario adicional que pueda resultar útil para el equipo del estudio.

Answered: 0 Skipped: 1

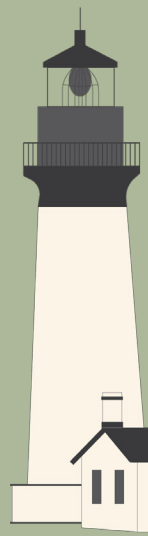
#	RESPONSES	DATE
	There are no responses.	

Q28 Si deseas seguir participando en el estudio, escribe tu nombre y dirección de correo electrónico.

Answered: 0 Skipped: 1

ANSWER CHOICES	RESPONSES	
Nombre	0.00%	0
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Dirección de correo electrónico	0.00%	0
Phone Number	0.00%	0

#	NOMBRE	DATE
	There are no responses.	
#	COMPANY	DATE
	There are no responses.	
#	ADDRESS	DATE
	There are no responses.	
#	ADDRESS 2	DATE
	There are no responses.	
#	CITY/TOWN	DATE
	There are no responses.	
#	STATE/PROVINCE	DATE
	There are no responses.	
#	ZIP/POSTAL CODE	DATE
	There are no responses.	
#	COUNTRY	DATE
	There are no responses.	
#	DIRECCIÓN DE CORREO ELECTRÓNICO	DATE
	There are no responses.	
#	PHONE NUMBER	DATE
	There are no responses.	



YAQUINA HEAD

Traffic Study

Appendix A4:

Public Outreach #2 Materials

YAQUINA HEAD Traffic Study

INTRODUCTION & PURPOSE

The Federal Highway Administration (FHWA) is conducting a study in coordination with the Bureau of Land Management (BLM) to evaluate the Yaquina Head Outstanding Natural Area (ONA). **Increasing visitation to the Yaquina Head ONA has resulted in growing traffic congestion and risk of user conflicts.** The purpose of the *Yaquina Head Traffic Study* is to identify transportation improvements to address operational, safety, and connectivity needs and any other areas of transportation concern.

STUDY AREA

Yaquina Head ONA is a 100-acre protected area managed by the BLM and officially designated by the United States as an Outstanding Natural Area. The ONA is accessible via Lighthouse Drive which begins at the intersection with the Oregon Coast Highway (US Highway 101). The Yaquina Head ONA boundary begins about 0.2 mile west of the intersection. **The ONA site serves as the primary focus area for this study.**

RECREATION OPPORTUNITIES

The ONA provides numerous recreation opportunities including:

- Seal, sea bird, falcon, and other wildlife viewing
- Whale watching
- ADA accessible beach access at Quarry Cove
- Tide pooling at Cobble Beach
- Interpretive Center exhibits
- Biking Lighthouse Drive
- Hiking the many trails on site
- Touring Oregon's tallest lighthouse (as weather & staffing conditions permit)



The Yaquina Head Outstanding Natural Area was established by Congress to provide for the conservation and development of the scenic, natural, and historic values of the area; the continued use of the area for education, scientific study, and public recreation; and protection of the wildlife habitat of the area.

YAQUINA HEAD Traffic Study

WHAT IS A TRAFFIC STUDY?

The *Yaquina Head Traffic Study* provides an **in-depth analysis of operational and safety conditions** and identifies areas of transportation concern. The study will also **develop potential transportation improvements to address identified needs**. All improvements will be sensitive to environmental constraints, constructability challenges, financial feasibility, and public and stakeholder comments. The following topics are evaluated and considered in the study:



Site Circulation



Existing and Future Traffic Operations



User Safety



Multimodal Accommodations (Pedestrians, Bicyclists, Transit)



Parking



Past Planning Efforts and Applicable Regulations



WHAT HAPPENS AFTER THE TRAFFIC STUDY?

The intent of the traffic study is to provide an efficient transition from transportation analysis to future project development and environmental review, if any, based on identified need and funding availability. **This is an initial planning study to help inform a future design or construction project.** The implementation timeline for a project varies based on funding availability and project complexity. The general project development process is shown in the following graphic.

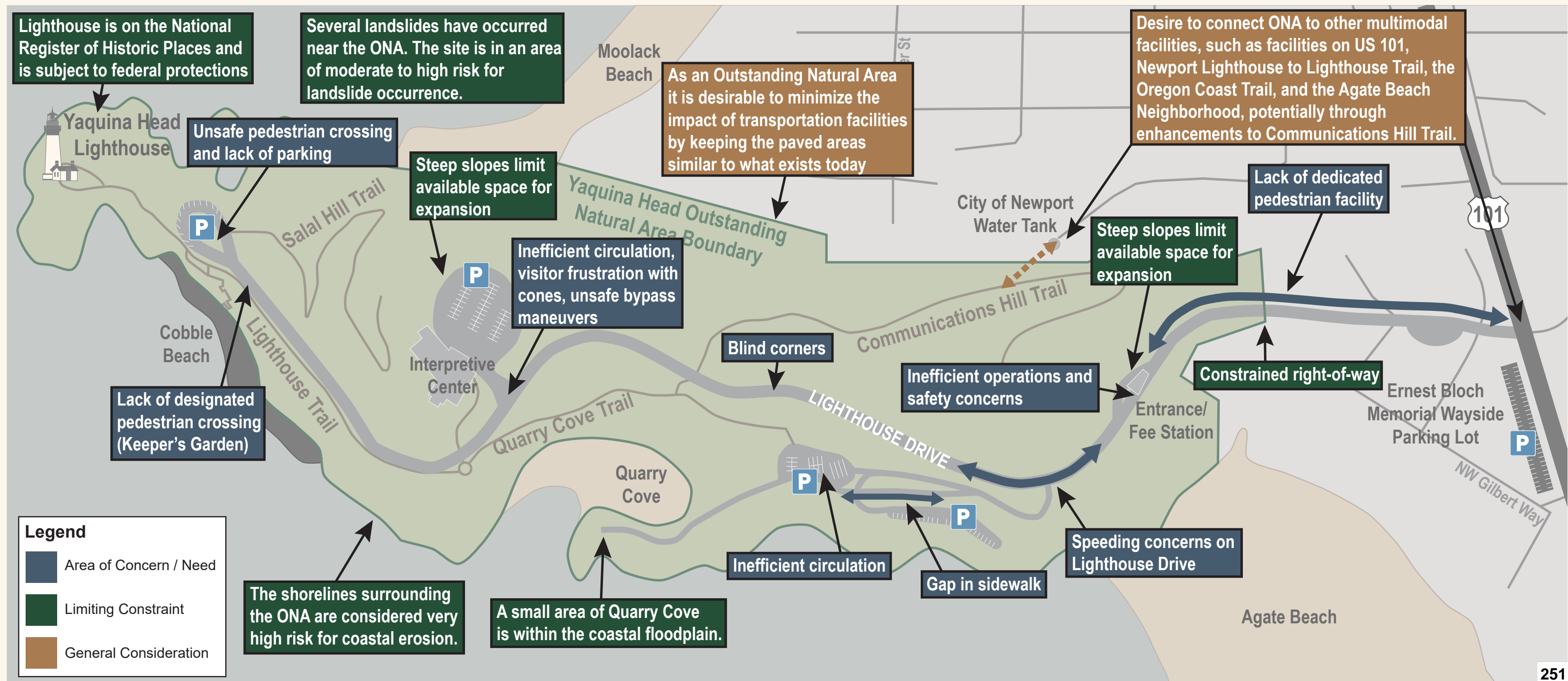


YAQUINA HEAD

Traffic Study

KEY FINDINGS

The following map summarizes observed trends and areas for further consideration. These conditions were identified through review of past studies, site review, various public databases and field collected data, and input from BLM staff, stakeholders, and the public. Improvement options identified for this study will consider these findings.





YAQUINA HEAD Traffic Study

GOALS, OBJECTIVES, & OTHER CONSIDERATIONS

Goals and objectives are important in explaining **why a potential improvement option may be necessary**. Other considerations serve as **constraints that may limit potential improvements**. The following goals, objectives, and other considerations **reflect the existing social, environmental, and engineering conditions** and recognize the local and regional use of Lighthouse Drive and the adjoining transportation system.

Goal 1: Improve operation of the roadway corridor, entrance station, and parking lots.



Objectives:

- Reconfigure the entrance station to improve efficiency.
- Reconfigure parking lots to improve circulation and provide adequate ADA and RV parking opportunities.

Goal 2: Improve the safety of the transportation system for all roadway users.



Objectives:

- Reduce potential for vehicle/non-motorist conflicts.
- Construct facilities that lower vehicle speeds.

Goal 3: Provide multimodal transportation facilities that connect to destinations within the site and to the regional transportation system.



Objectives:

- Facilitate multimodal transportation access to recreational opportunities within the Yaquina Head ONA and the broader region.
- Provide multimodal facilities consistent with local planning efforts and recreational needs.
- Integrate with regional public transportation travel options.

Goal 4: Extend the useful life of transportation facilities.



Objectives:

- Conduct appropriate preventative maintenance activities to extend the life of existing facilities.

Other Considerations



- Context, function, and use of the ONA
- Impacts to environmental resources
- Temporary construction impacts
- Construction feasibility and physical constraints
- Maintenance cost and responsibility
- Alignment with local and regional planning efforts
- Existing right-of-way
- Funding availability



YAQUINA HEAD Traffic Study

NOW AVAILABLE

The *Existing and Projected Conditions Report* is now available for public review. The report analyzes transportation and environmental conditions and identifies areas of concern within the study area. The analysis will influence the development of potential improvement options to address the identified areas of concern.

To review the report, please visit the study website.

GET INVOLVED!

The public is encouraged to submit comments at any time throughout the study duration. Your feedback will help the study team better understand potential issues, concerns, opportunities, and constraints.

TO PROVIDE YOUR INPUT:



VISIT
the study website

www.yaquinalights.org/yaquina-head-traffic-study



CALL OR EMAIL
the study representatives



CARRIE WARREN
FHWA Project Manager
carrie.warren@dot.gov
360-619-7658



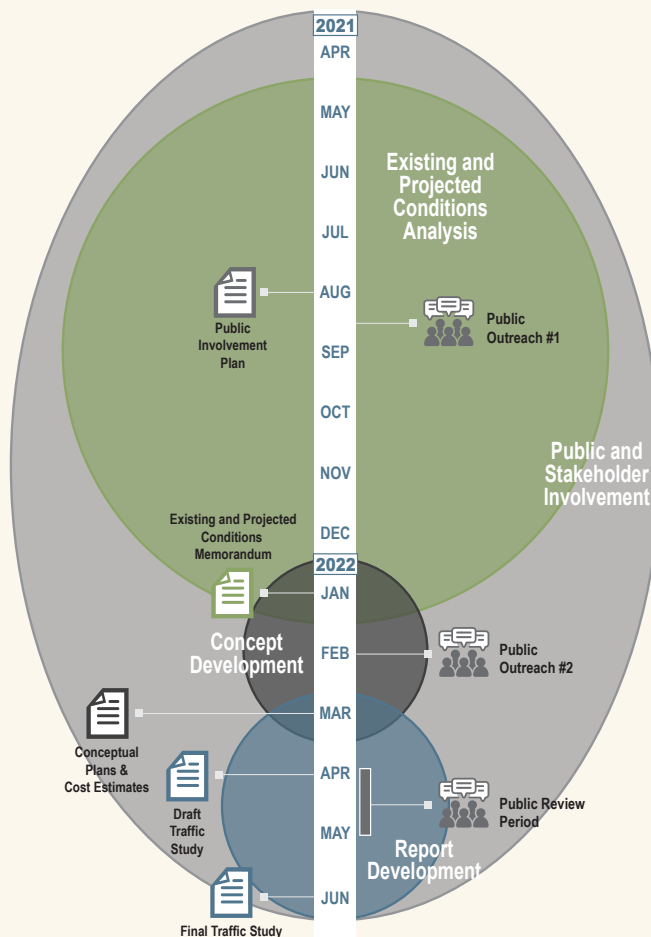
MATT BETENSON
Yaquina Head Site Manager
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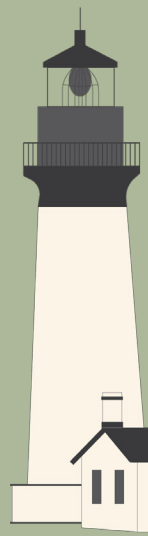


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SCHEDULE

The *Yaquina Head Traffic Study* kicked off in April 2021. The first public outreach effort was conducted during the summer of 2021 to help inform development of the study. The second public outreach effort is occurring in January 2022 in coordination with release of the *Existing and Projected Conditions Memorandum*. All comments will be considered and incorporated as appropriate while the study team develops and refines recommended improvements. The draft *Traffic Study* is anticipated to be complete in April/May 2022. Following a public and stakeholder review period, the final *Traffic Study* is anticipated to be complete in June 2022.





YAQUINA HEAD

Traffic Study

Appendix A5:

Public Outreach #3 Materials



YAQUINA HEAD Traffic Study

The Federal Highway Administration (FHWA) and the Bureau of Land Management (BLM) have conducted a study to evaluate the transportation system at the Yaquina Head Outstanding Natural Area.

La Administración Federal de Carreteras (FHWA) y la Oficina de Gestión Territorial (BLM) han realizado un estudio para evaluar el sistema de transporte en el Área Natural Destacada de Yaquina Head.

The draft *Yaquina Head Traffic Study* is now available for public and stakeholder review. The study provides a summary of work completed and identifies improvements to address areas of concern. The public is encouraged to review the study and provide comments on preferred improvement concepts before the study is finalized.

El proyecto del Estudio de Tráfico de Yaquina Head ya está disponible para su revisión por el público y las partes interesadas. El estudio proporciona un resumen del trabajo realizado e identifica varias mejoras para abordar las áreas de preocupación identificadas. Se invita al público a revisar el estudio y a hacer comentarios sobre los conceptos de mejora preferidos antes de que se finalice el estudio.



SCAN TO REVIEW
THE STUDY

ESCANEAR PARA
REVISAR EL ESTUDIO

**Please submit all comments by
JUNE 17TH, 2022**

*Por favor, envíe todos los comentarios antes del
17 DE JUNIO DE 2022*

FOR MORE INFORMATION VISIT:
Para más información visita:

www.yaquinallights.org/yaquina-head-traffic-study

For more information or to submit comments | *Para obtener más información o enviar comentarios*



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YAQUINA HEAD Traffic Study

INTRODUCTION & PURPOSE

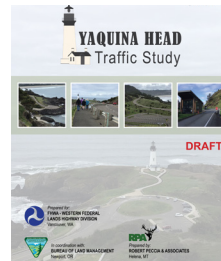
The Federal Highway Administration (FHWA) and the Bureau of Land Management (BLM) have conducted a study to evaluate the Yaquina Head Outstanding Natural Area (ONA). Increasing visitation to the Yaquina Head ONA has resulted in growing traffic congestion and risk of user conflicts. The purpose of the *Yaquina Head Traffic Study* is to determine what transportation improvements could be made to address operational, safety, and geometric needs and other areas of transportation concern. The study is a collaborative process with FHWA, BLM, Oregon Department of Transportation (ODOT), the City of Newport, stakeholders, and the public to identify needs and potential solutions. Preferred improvements have been identified by the study team for review by the public. The intended outcome of the study is to provide planning-level concepts that can be advanced to environmental review, design, and construction as funding becomes available.



NOW AVAILABLE!

The draft *Yaquina Head Traffic Study* and preferred improvements are now available for review!

FHWA and BLM are conducting a formal public review period to gather feedback before the study is finalized. The public is encouraged to review the traffic study and accompanying conceptual improvements and share any questions, comments, or concerns with the study team.



Please submit all comments by June 17, 2022.

All feedback received will be considered by the study team. To review available materials, submit comments, and learn more about the study please visit:

www.yaquinalights.org/yaquina-head-traffic-study

For more information or to submit comments:



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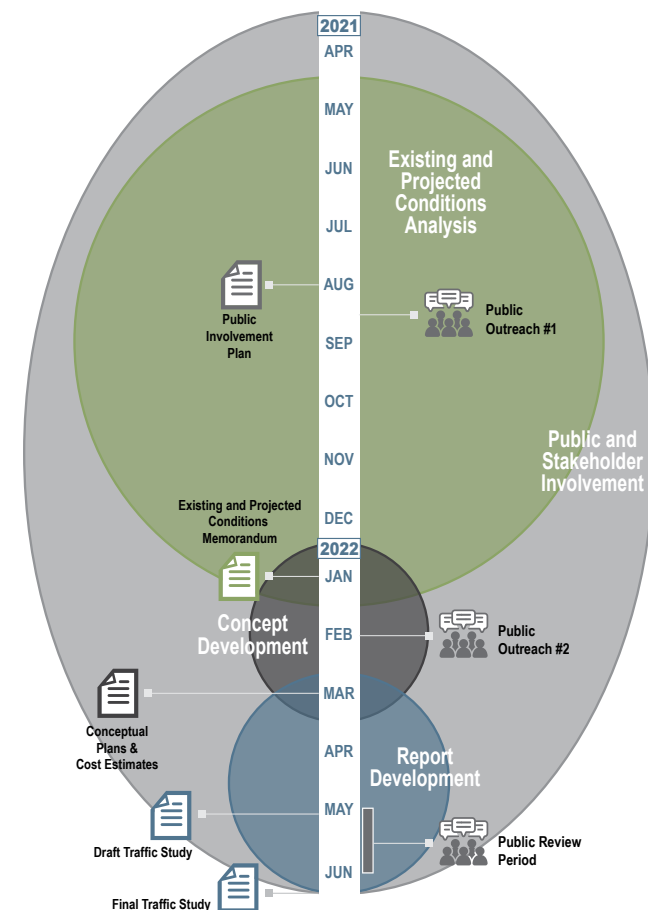
MATT BETENSON
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SARAH NICOLAI
Consultant Project Manager
snicolai@rpa-hln.com
406-447-5038

SCHEDULE

The *Yaquina Head Traffic Study* kicked off in April 2021. The first public outreach effort was conducted during the summer of 2021 to help inform development of the study. A second public outreach effort occurred in February 2022 in coordination with release of the *Existing and Projected Conditions Memorandum*. A third outreach effort is being held now in coordination with release of the draft *Yaquina Head Traffic Study* and a formal public and stakeholder review period. All comments received during this period will be considered and incorporated as appropriate. The final *Yaquina Head Traffic Study* is anticipated to be complete by the end of June 2022.



STUDY AREA


Yaquina Head ONA is a 100-acre protected area managed by the BLM and officially designated by the United States as an Outstanding Natural Area due to its scenic quality, and cultural and natural resources. The ONA is located on a prominent headland north of Newport, Oregon. The site provides numerous recreation opportunities including seal, sea bird, and wildlife viewing; whale watching; tide pooling; and walking and biking.


The ONA is accessible via Lighthouse Drive which begins at the intersection with the Oregon Coast Highway (US Highway 101) at Mile Post 137.61. The Yaquina Head ONA boundary begins about 0.2 miles west of the intersection. The ONA site and the Lighthouse Drive corridor starting from the US 101 intersection serve as the primary focus area for this study, although parking facilities and multimodal corridors outside the Yaquina Head ONA boundary are also considered in the context of connectivity and access for ONA visitors.





KEY FINDINGS


The draft *Yaquina Head Traffic Study* is now available for public review on the study website (www.yaquinalights.org/yaquina-head-traffic-study)! The report provides a summary of transportation and environmental conditions, identifies areas of concern within the study area, and presents preferred improvements to address identified needs as summarized below.

 **SITE CIRCULATION:** Inefficient circulation occurs at the **entrance station**, sometimes resulting in long delays and unsafe turnaround maneuvers. Circulation within the Yaquina Head ONA **parking areas**, including Quarry Cove, Interpretive Center, and lighthouse circle, could also be improved. **Large vehicle circulation** is particularly challenging in some parking areas.

 **SPEEDS:** Speeding was noted as a concern by staff and the public. Collected traffic data showed vehicles **speeding** in the 15-mph zones on the Quarry Cove access road and near the Keeper's Garden.

 **PARKING:** Visitors are often frustrated with **traffic cones** at the **Interpretive Center**, resulting in unsafe bypass or turning maneuvers. Visitor frustration also occurs due to lack of available parking at **lighthouse circle**. Additional **large vehicle and ADA parking stalls** are desired throughout the site.

 **PEDESTRIAN ACCOMMODATIONS:** Lighthouse Drive lacks **dedicated pedestrian facilities** between the US 101 intersection and the entrance station, and **gaps** in pedestrian facilities occur along the Quarry Cove access roadway. The Yaquina Head ONA lacks designated **crosswalks** in key locations where pedestrians typically cross Lighthouse Drive. Additionally, there is poor **multimodal connectivity** to facilities outside the ONA.

 **ENVIRONMENTAL CONSTRAINTS:** The site is located in an area that is **susceptible to landslides, earthquakes, coastal erosion, tsunami, and potential flooding**. There are steep slopes in several locations that may limit potential improvements. All improvements should be sensitive to native plant and animal species and be mindful of impacts to the **threatened and endangered species** that are known to occur in the area. The Yaquina Head Lighthouse is on the **National Register of Historic Places** and may be subject to federal protections. As an ONA, it is important to protect the environment and minimize impacts.

PREFERRED IMPROVEMENTS

Preferred configurations have been prepared for the following four key locations at the ONA.

- Yaquina Head Entrance Station
- Quarry Cove Upper Parking Lot
- Interpretive Center Parking Lot
- Lighthouse Circle / Keeper's Garden

Additional sitewide strategies to address areas of concern have also been identified. To review the preferred configurations and sitewide strategies and to provide your input, please visit the study website:

www.yaquinalights.org/yaquina-head-traffic-study

All feedback will be considered by the study team.

PLEASE SUBMIT ALL COMMENTS BY

JUNE 17, 2022



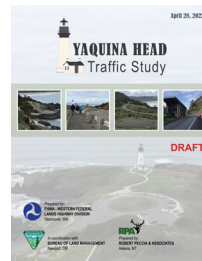
INTRODUCCIÓN & OBJETIVO

La Administración Federal de Carreteras (FHWA) y la Oficina de Gestión de Tierras (BLM) han realizado un estudio para evaluar el Área Natural Destacada (ONA) de Yaquina Head. El aumento de las visitas al ONA de Yaquina Head ha dado lugar a una creciente congestión del tráfico y al riesgo de conflictos entre los usuarios. El objetivo del *Estudio de Tráfico de Yaquina Head* es determinar qué mejoras en el transporte podrían realizarse para abordar las necesidades operativas, de seguridad y geométricas y otras áreas de interés para el transporte. El estudio es un proceso de colaboración con la FHWA, la BLM, el Departamento de Transporte de Oregón (ODOT), la ciudad de Newport, las partes interesadas y el público para identificar las necesidades y las posibles soluciones. El equipo de estudio ha identificado las mejoras prioritarias para que sean revisadas por el público. El resultado previsto del estudio es proporcionar conceptos a nivel de planificación que puedan avanzar hacia la revisión ambiental, el diseño y la construcción cuando se disponga de la financiación.



¡El proyecto de *Estudio de Tráfico de Yaquina Head* y las mejoras prioritarias ya están disponibles para su revisión!

La FHWA y la BLM están llevando a cabo un periodo de revisión pública formal para recabar opiniones antes de finalizar el estudio. Se invita al público a revisar el estudio de tráfico y las mejoras conceptuales que lo acompañan y a compartir cualquier pregunta, comentario o preocupación con el equipo del estudio.



Favor de enviar sus comentarios antes del **17 de junio de 2022**.

El equipo del estudio tendrá en cuenta todos los comentarios. Para consultar el material disponible, enviar comentarios y obtener más información sobre el estudio, visite:

www.yaquinalights.org/yaquina-head-traffic-study

Para obtener más información o enviar comentarios:



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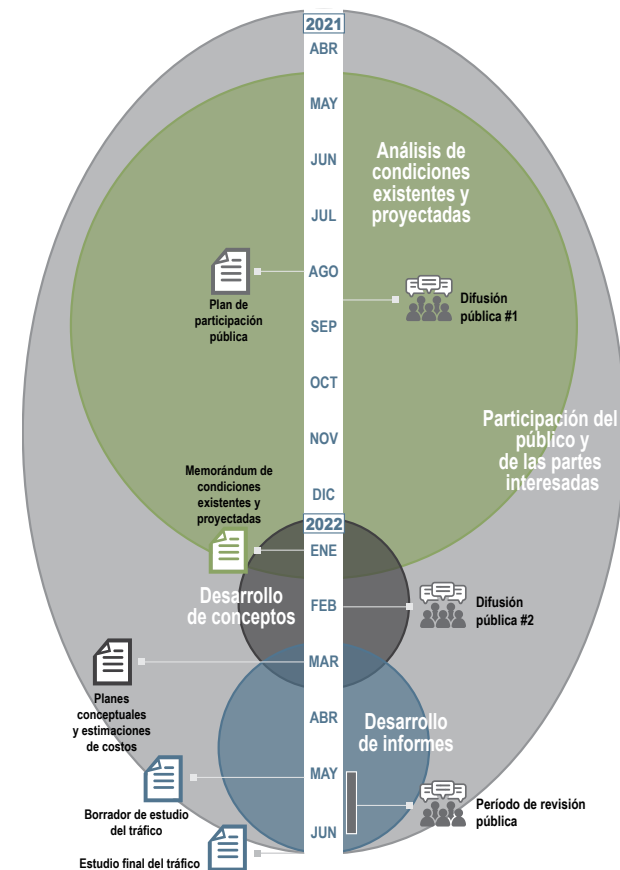


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Consultora Gerente de Proyectos
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El *Estudio de Tráfico de Yaquina Head* comenzó en abril de 2021. El primer esfuerzo de divulgación pública se llevó a cabo durante el verano de 2021 para ayudar a informar el desarrollo del estudio. Un segundo esfuerzo de divulgación pública ocurrió en febrero de 2022 en coordinación con la publicación del *Memorandum de Condiciones Existentes y Propuestas*. Un tercer esfuerzo de divulgación se está llevando a cabo actualmente, en coordinación con la publicación del proyecto de *Estudio de Tráfico de Yaquina Head* y un periodo de revisión formal del público y las partes interesadas. Todos los comentarios recibidos durante este periodo se tendrán en cuenta y se incorporarán según proceda. Se prevé que el *Estudio de Tráfico de Yaquina Head* final esté terminado a finales de junio de 2022.



ÁREA DE ESTUDIO

El ONA de Yaquina Head es un área protegida de 100 acres gestionada por el BLM y designada oficialmente por los Estados Unidos como un área natural destacada debido a su calidad paisajística y recursos culturales y naturales. El ONA se encuentra en un cabo prominente al norte de Newport, Oregon. El sitio ofrece numerosas oportunidades de esparcimiento, como el avistamiento de focas, aves marinas y fauna silvestre; también se puede avistar ballenas, bañarse en pozas marinas, realizar caminatas o andar en bicicleta.

Se puede acceder al ONA entrando por Lighthouse Drive, que comienza en el cruce con el Oregon Coast Highway (US Highway 101) a la altura del Mile Post 137.61. El límite del ONA de Yaquina Head comienza a unas 0.2 millas al oeste del cruce. El área del ONA y el corredor de Lighthouse Drive a partir de la intersección con la US 101 son el área principal de este estudio, aunque las instalaciones de estacionamiento y los corredores multimodales fuera de los límites del ONA de Yaquina Head también se consideran en el contexto de la conectividad y el acceso para los visitantes de la ONA.

MEJORAS PREFERENTES

Se han preparado arreglos preferentes para los siguientes cuatro lugares clave del ONA.

- Estación de entrada a Yaquina Head
- Estacionamiento superior de Quarry Cove
- Estacionamiento del Centro de Interpretación
- Rotonda del faro / Keeper's Garden

También se han identificado estrategias adicionales en todo el sitio para abordar las áreas de preocupación. Para revisar los arreglos preferentes y las estrategias a nivel de todo el sitio y para dar su opinión, por favor visite el sitio web del estudio:

www.yaquinallights.org/yaquina-head-traffic-study

El equipo del estudio tendrá en cuenta todos los comentarios.

POR FAVOR, ENVÍE TODOS LOS COMENTARIOS ANTES DEL

17 DE JUNIO, 2022



HALLAZGOS PRINCIPALES

¡El proyecto de Estudio de Tráfico de Yaquina Head ya está disponible para su revisión pública en el sitio web del estudio (www.yaquinallights.org/yaquina-head-traffic-study)! El informe proporciona un resumen de las condiciones del transporte y del medio ambiente, identifica las áreas de preocupación dentro del área de estudio y presenta las mejoras prioritarias para abordar las necesidades identificadas, como se resume a continuación.

CIRCULACIÓN EN EL SITIO: La circulación en la estación de entrada es ineficaz, lo que a veces provoca largos retrasos y maniobras de giro poco seguras. La circulación dentro de las **zonas de estacionamiento** del ONA de Yaquina Head, incluyendo Quarry Cove, el Centro de Interpretación y la rotonda del faro, también podría mejorarse. La **circulación de vehículos grandes** es especialmente difícil en algunas zonas de estacionamiento.

EXCESO DE VELOCIDAD: El personal y el público señalaron que el exceso de velocidad era una preocupación. Los datos de tráfico recogidos mostraron que los vehículos circulaban con exceso de velocidad en las zonas de 15 mph de la carretera de acceso a Quarry Cove y cerca del Keeper's Garden.

ESTACIONAMIENTO: Los visitantes se sienten a menudo frustrados por los **conos de tráfico** en el **Centro de Interpretación**, lo que da lugar a maniobras inseguras de circunvalación o giro. La frustración de los visitantes también se debe a la falta de estacionamiento disponible en la rotonda del faro. Se desea disponer de más plazas de estacionamiento para **vehículos grandes y ADA** en todo el recinto.

ADAPTACIONES PARA PEATONES: Lighthouse Drive carece de **instalaciones peatonales exclusivas** entre la intersección de la US 101 y la estación de entrada, y hay huecos en las instalaciones peatonales a lo largo de la carretera de acceso a Quarry Cove. El ONA de Yaquina Head carece de **cruces peatonales** designados en lugares clave donde los peatones suelen cruzar Lighthouse Drive. Además, hay una pobre **conectividad multimodal** con las instalaciones fuera del ONA.

LIMITACIONES MEDIOAMBIENTALES: El emplazamiento está situado en una zona susceptible de sufrir **desprendimientos, terremotos, erosión costera, tsunamis y posibles inundaciones**. Hay pendientes pronunciadas en varios lugares que pueden limitar las posibles mejoras. Todas las mejoras deberán tener en cuenta las especies vegetales y animales endémicas, así como el impacto en las **especies amenazadas y en peligro de extinción** que se sabe que existen en la zona. El faro de Yaquina Head está incluido en el **Registro Nacional de Lugares Históricos** y puede estar sujeto a protecciones federales. Como ONA, es importante proteger el medio ambiente y minimizar los impactos.

YAQUINA HEAD Traffic Study

INTRODUCTION & PURPOSE

The Federal Highway Administration (FHWA) and the Bureau of Land Management (BLM) have conducted a study to evaluate the transportation system at the Yaquina Head Outstanding Natural Area (ONA). **Increasing visitation to the Yaquina Head ONA has resulted in growing traffic congestion and risk of user conflicts.** The purpose of the *Yaquina Head Traffic Study* is to identify transportation improvements to address operational, safety, and connectivity needs and other areas of transportation concern.

STUDY AREA

Yaquina Head ONA is a 100-acre protected area managed by the BLM and officially designated by the United States as an Outstanding Natural Area. The ONA is accessible via Lighthouse Drive which begins at the intersection with the Oregon Coast Highway (US Highway 101). The Yaquina Head ONA boundary begins about 0.2 mile west of the intersection. **The ONA site serves as the primary focus area for this study.**

RECREATION OPPORTUNITIES

The ONA provides numerous recreation opportunities including:

- Seal, sea bird, falcon, and other wildlife viewing
- Whale watching
- ADA accessible beach access at Quarry Cove
- Tide pooling at Cobble Beach
- Interpretive Center exhibits
- Biking Lighthouse Drive
- Hiking the many trails on site
- Touring Oregon's tallest lighthouse (as weather & staffing conditions permit)



The Yaquina Head Outstanding Natural Area was established by Congress to provide for the conservation and development of the scenic, natural, and historic values of the area; the continued use of the area for education, scientific study, and public recreation; and protection of the wildlife habitat of the area.

YAQUINA HEAD Traffic Study

WHAT IS A TRAFFIC STUDY?

The *Yaquina Head Traffic Study* provides an **in-depth analysis of operational and safety conditions** and identifies areas of transportation concern. The study identifies **four site-specific improvements and several sitewide strategies to address transportation needs**. All improvements have been evaluated for sensitivity to environmental constraints, constructability challenges, financial feasibility, and public and stakeholder comments. The following topics were evaluated and considered in the study:



Site Circulation



Existing and Future Traffic Operations



User Safety



Multimodal Accommodations (Pedestrians, Bicyclists, Transit)



Parking

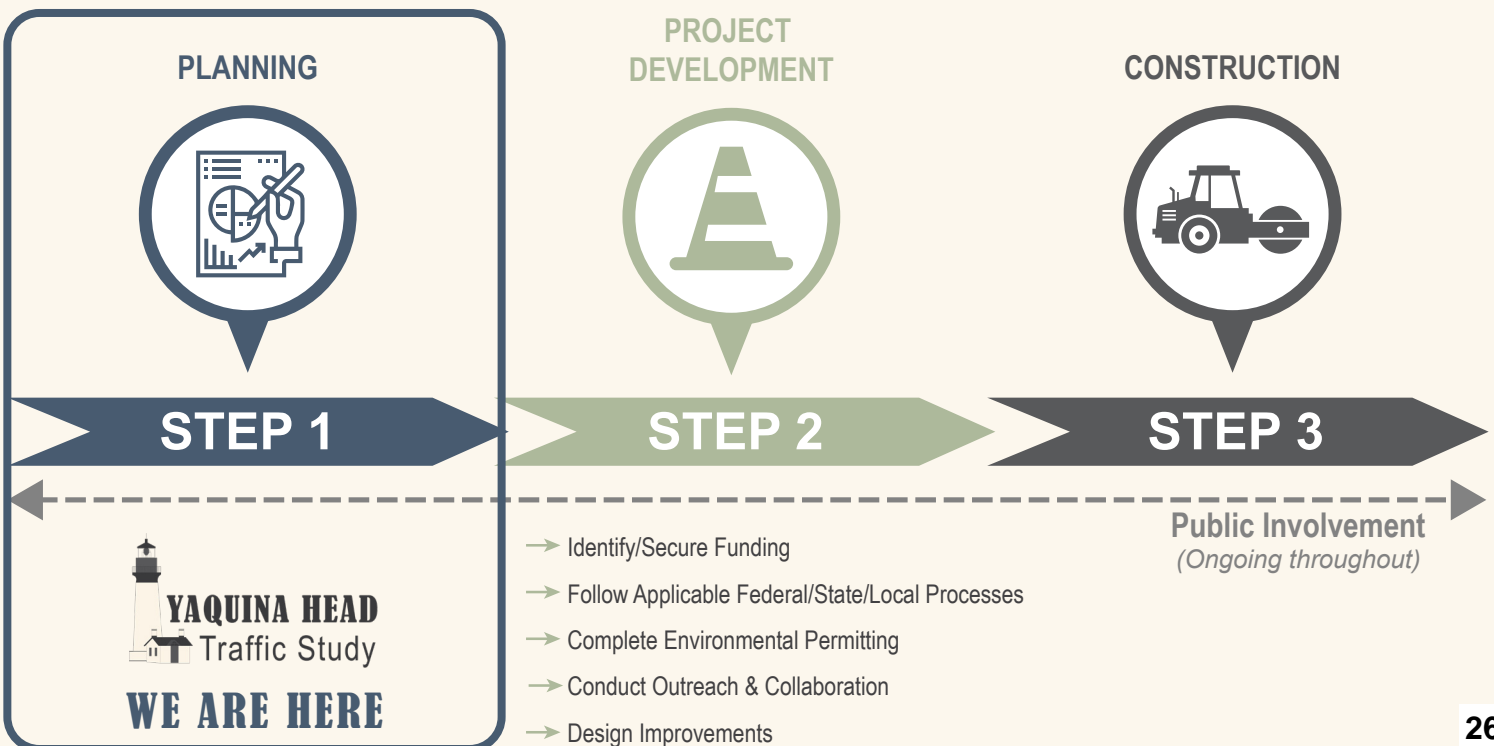


Past Planning Efforts and Applicable Regulations



WHAT HAPPENS AFTER THE TRAFFIC STUDY?

The intent of the traffic study is to provide an efficient transition from transportation analysis to future project development and environmental review, if any, based on identified need and funding availability. **This is an initial planning study to help inform a future design or construction project.** The implementation timeline for a project varies based on funding availability and project complexity. The general project development process is shown in the following graphic.

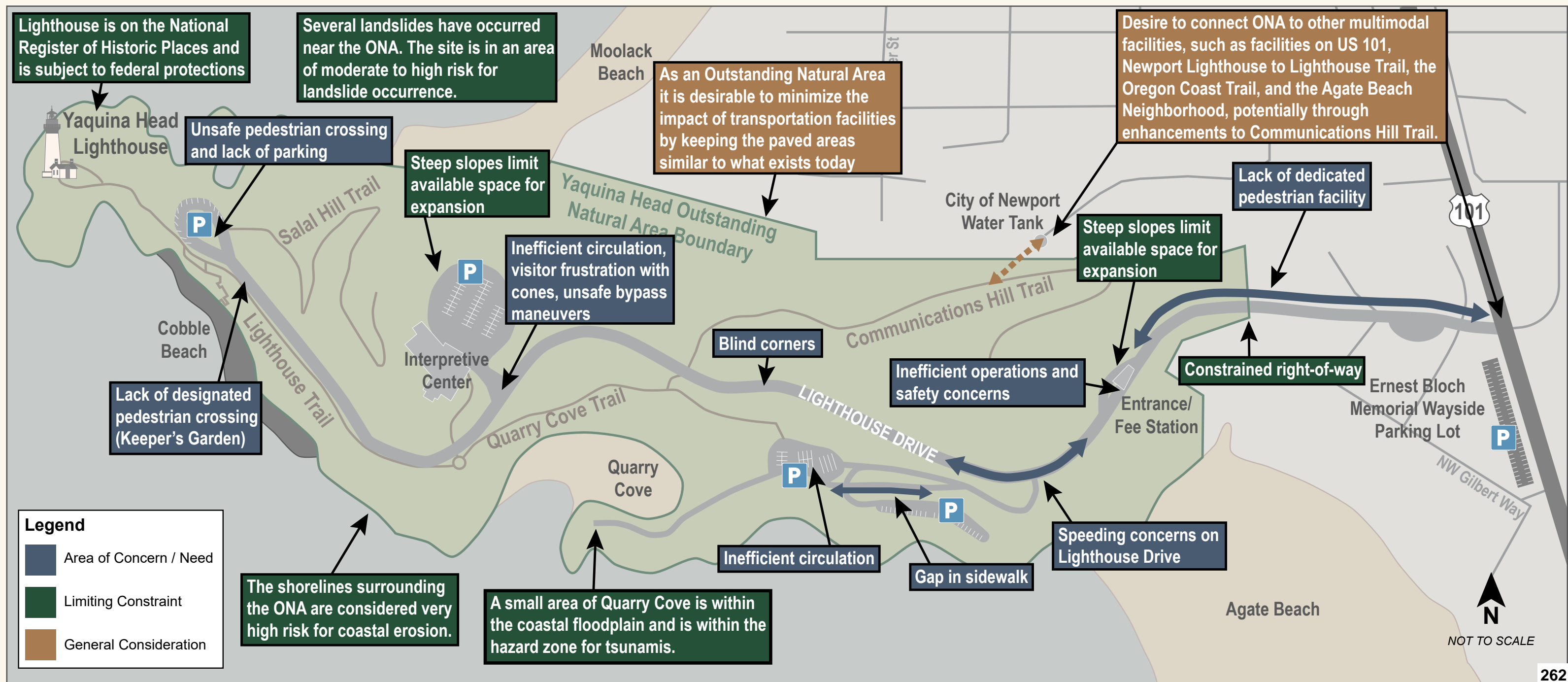


YAQUINA HEAD

Traffic Study

KEY FINDINGS

The following map summarizes observed trends and areas for further consideration. These conditions were identified through review of past studies, site review, various public databases and field collected data, and input from BLM staff, stakeholders, and the public. Improvements identified for this study are intended to address these findings.





YAQUINA HEAD Traffic Study

GOALS, OBJECTIVES, & OTHER CONSIDERATIONS

Goals and objectives are important in explaining **why a potential improvement may be necessary**. Other considerations serve as **constraints that may limit potential improvements**. The following goals, objectives, and other considerations **reflect the existing social, environmental, and engineering conditions** and recognize the local and regional use of Lighthouse Drive and the adjoining transportation system.

Goal 1: Improve operation of the roadway corridor, entrance station, and parking lots.



Objectives:

- Reconfigure the entrance station to improve efficiency.
- Reconfigure parking lots to improve circulation and provide adequate ADA and RV parking opportunities.

Goal 2: Improve the safety of the transportation system for all roadway users.



Objectives:

- Reduce potential for vehicle/non-motorist conflicts.
- Construct facilities that lower vehicle speeds.

Goal 3: Provide multimodal transportation facilities that connect to destinations within the site and to the regional transportation system.



Objectives:

- Facilitate multimodal transportation access to recreational opportunities within the Yaquina Head ONA and the broader region.
- Provide multimodal facilities consistent with local planning efforts and recreational needs.
- Integrate with regional public transportation travel options.

Goal 4: Extend the useful life of transportation facilities.



Objectives:

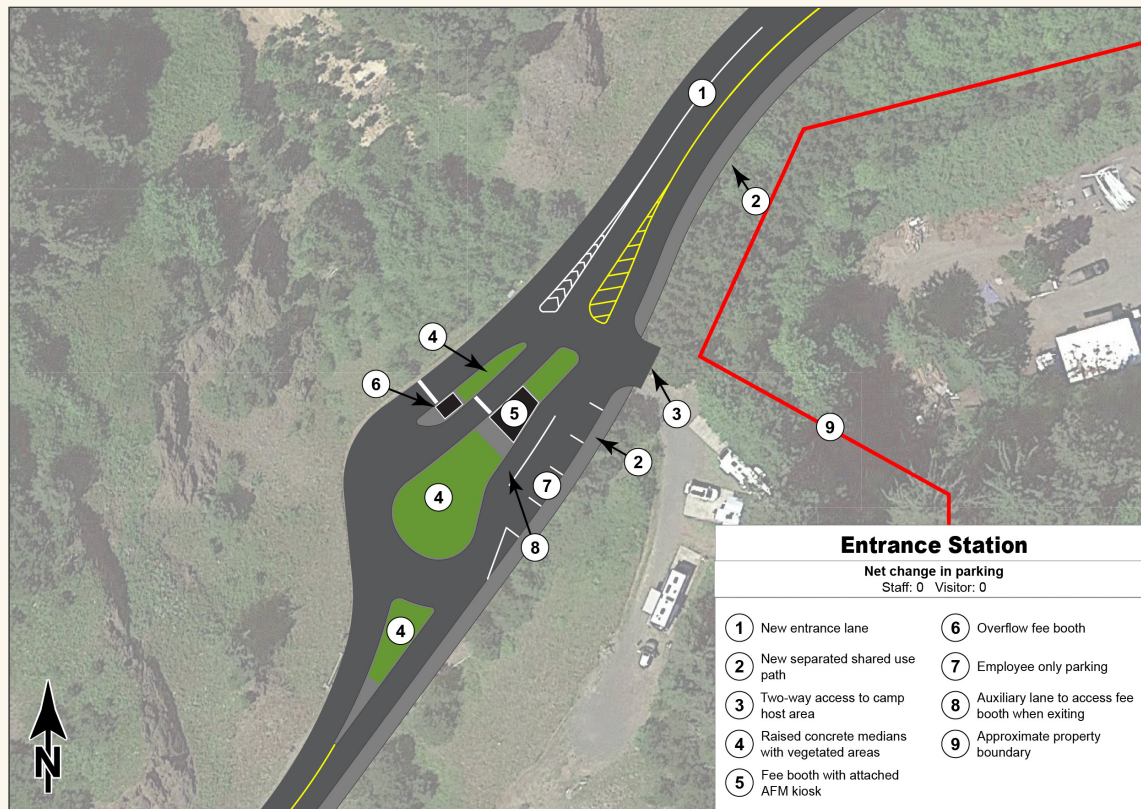
- Conduct appropriate preventive maintenance activities to extend the life of existing facilities.

Other Considerations



- Context, function, and use of the ONA
- Impacts to environmental resources
- Temporary construction impacts
- Construction feasibility and physical constraints
- Maintenance cost and responsibility
- Alignment with local and regional planning efforts
- Existing right-of-way
- Funding availability

ENTRANCE STATION



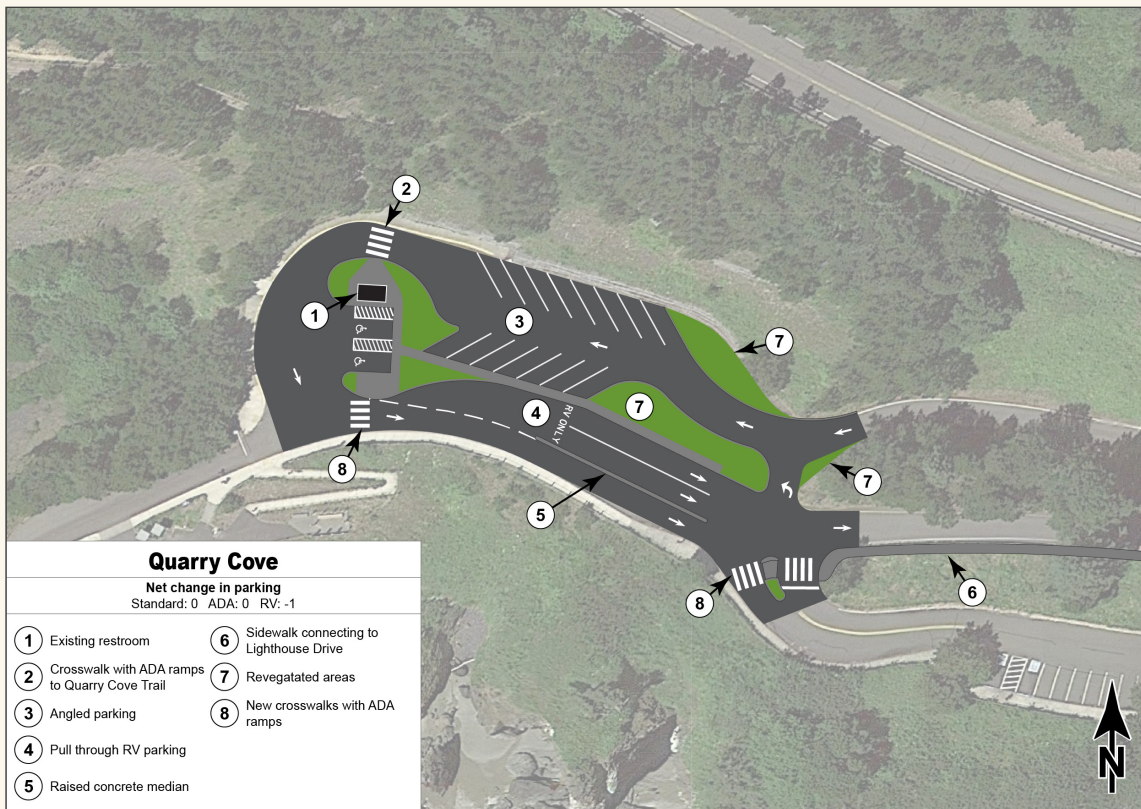
FEATURES & BENEFITS:

- Dual entry lanes with credit card kiosks and barrier gates with automatic arms would expedite entrance times and reduce queuing.
- Entrance to the camp host area is intended to allow easy access by RVs and easy turnarounds by staff with large vehicles.
- Auxiliary exit lane would allow visitors to stop at the fee booth to talk to the ranger or return an ADA clicker.
- Shared use path would provide protection for non-motorists and physical separation from vehicles, reducing the potential for conflicts.
- Configuration is intended to generally fit within the existing roadway footprint, however, some expansion would be required to accommodate a second entry lane and shared use path.

This preferred configuration is conceptual in nature and is intended to be used for discussion purposes only. The final configuration, design, and cost will be dependent on public and stakeholder input and future environmental and engineering analyses.

ESTIMATED COST: \$1.9M - \$2.3M 264

QUARRY COVE



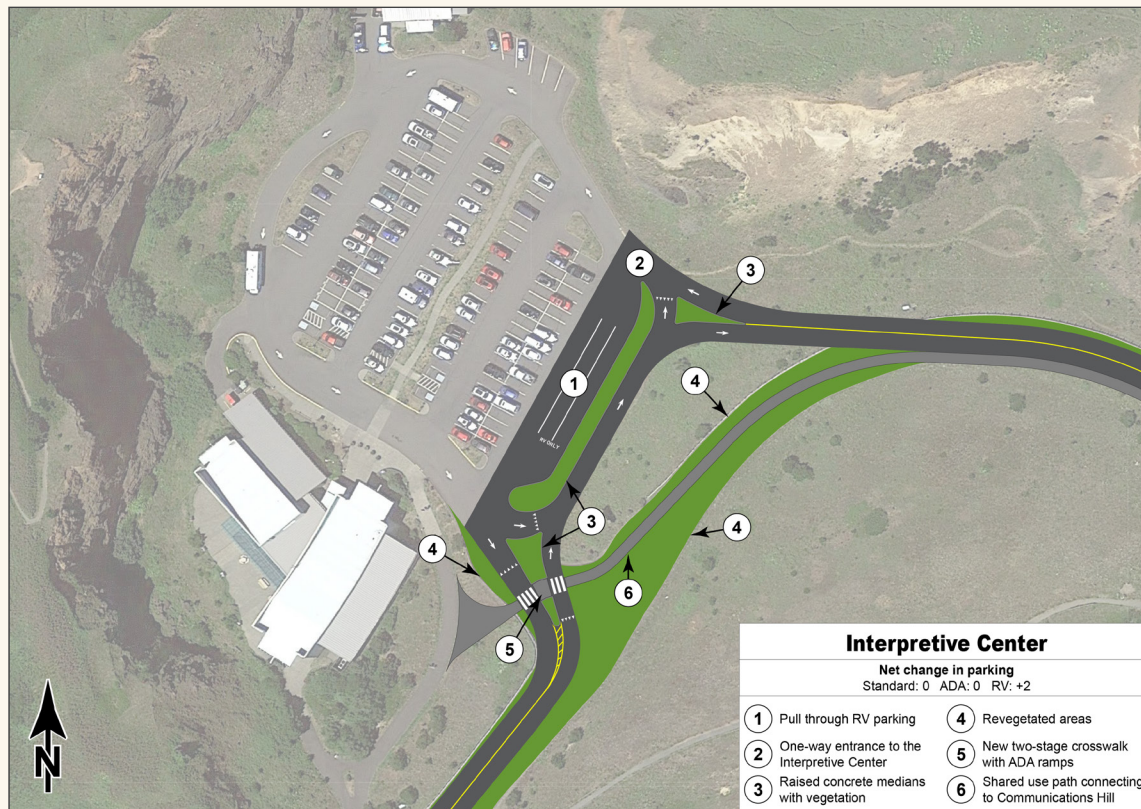
This preferred configuration is conceptual in nature and is intended to be used for discussion purposes only. The final configuration, design, and cost will be dependent on public and stakeholder input and future environmental and engineering analyses.

FEATURES & BENEFITS:

- Reconfigured lot would improve circulation and provides more logical traffic flow within the existing parking lot footprint.
- All entering traffic would circulate through a single parking aisle with angled parking stalls on both sides.
- The total number of standard and ADA parking spaces would remain the same compared to existing. There would be a loss of one RV/bus parking stall.
- The revised circulation pattern is more logical and would likely reduce the potential for conflict due to driver confusion and unintentional wrong-way driving.
- Construction of the sidewalk on the exit road would enhance connectivity and provide protection for non-motorists.

ESTIMATED COST: \$600K - \$900K 265

INTERPRETIVE CENTER



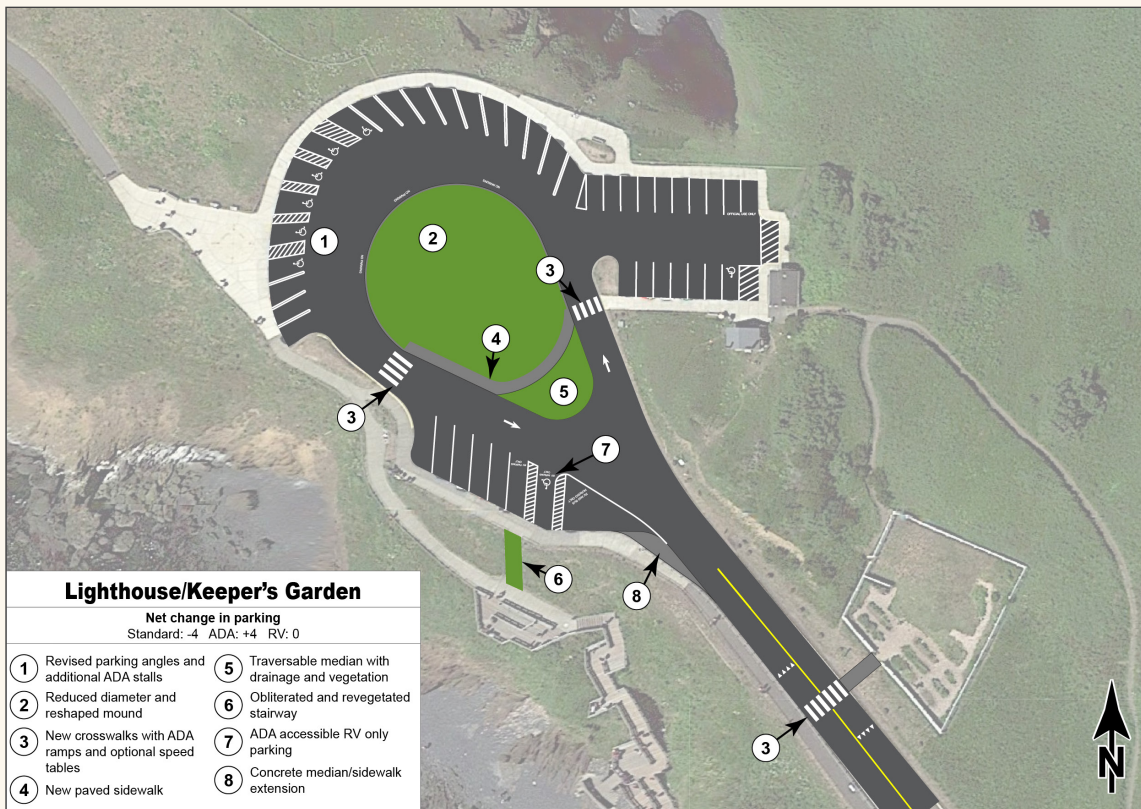
This preferred configuration is conceptual in nature and is intended to be used for discussion purposes only. The final configuration, design, and cost will be dependent on public and stakeholder input and future environmental and engineering analyses.

FEATURES & BENEFITS:

- All traffic would circulate through the Interpretive Center parking lot via a new approach road and around the outside perimeter of the lot in a counterclockwise motion.
- A shared use path constructed in the existing roadbed between the new approach and the existing entrance/exit intersection would enhance pedestrian safety and connectivity.
- Increased number of RV/bus parking stalls.
- Configuration directs all traffic into the Interpretive Center parking lot to encourage visitation/parking and reduce parking demand at the lighthouse.
- Although two intersections would be provided in the new configuration, only yielding maneuvers are required.

ESTIMATED COST: \$1.1M - \$1.9M 266

LIGHTHOUSE / KEEPER'S GARDEN



FEATURES & BENEFITS:

- Reconfigured parking stalls would allow more efficient and functional parking.
- Increased number of ADA-accessible parking stalls.
- Reduced diameter and reshaped center mound for easier circulation and better visibility of available parking and pedestrians.
- Streamlined pedestrian movements with safe crossings at Keeper's Garden and across parking lot.
- Removal of stairs to Cobble Beach would promote use of sidewalk and crossings.
- Optional speed tables at crossings would help slow traffic and enhance visibility for pedestrians.
- Minimal impacts; new configuration would fit within existing roadway footprint.

This preferred configuration is conceptual in nature and is intended to be used for discussion purposes only. The final configuration, design, and cost will be dependent on public and stakeholder input and future environmental and engineering analyses.

ESTIMATED COST: \$300K - \$700K 267



YAQUINA HEAD

Traffic Study

SITEWIDE STRATEGIES

TRAFFIC CALMING

- Lower Posted Speed Limit
- Speed Feedback Signs
- Warning Signs
- Speed Bumps, Humps, and Tables
- Narrow Travel Lanes
- Lateral Shifts and Chicanes



PEDESTRIAN ACCOMMODATIONS

- Lighthouse Drive Shared Use Path
 - North or South Side
- Separation Types
 - Guardrail, Cable Rail, Bollards, Jersey Barrier, Grade Separation/Curbing



ALTERNATIVE TRANSPORTATION

- Regular Transit Service
- Bicycle Accommodations
- Bike Share Program/Onsite Bike Rentals
- Onsite Shuttle Bus
- Guided Tour Bus
- Electric Vehicle Accommodations



WAYFINDING

- Identification, Directional, Informational, and Regulatory Signs
- Dynamic Display Signs



PRESERVATION & MAINTENANCE

- Optimal Timing
- Preventive Asphalt Maintenance Activities
- Drainage Improvements
- Routine Maintenance Activities
- Emergency Maintenance Activities



OVERSIZE & ACCESSIBLE PARKING

- ADA Parking
- RV/Bus Parking



MANAGEMENT

- Entrance Station Management
- Emergency Management





YAQUINA HEAD Traffic Study

GET INVOLVED!

FHWA and BLM are conducting a formal public review period to gather feedback before the study is finalized. The public is encouraged to review the traffic study and accompanying conceptual illustrations and share any questions, comments, or concerns with the study team. The public review period extends from **May 16, 2022, to June 17, 2022.**

The public is encouraged to submit comments at any time to one of the study representatives listed below. All feedback received will be considered by the study team.

Please submit all comments by **June 17, 2022.**

TO REVIEW MATERIALS & PROVIDE YOUR INPUT:



VISIT
The study website

www.yaquinalights.org/yaquina-head-traffic-study



CALL OR EMAIL
One of the study representatives



CARRIE WARREN
FHWA Project Manager
carrie.warren@dot.gov
360-619-7658



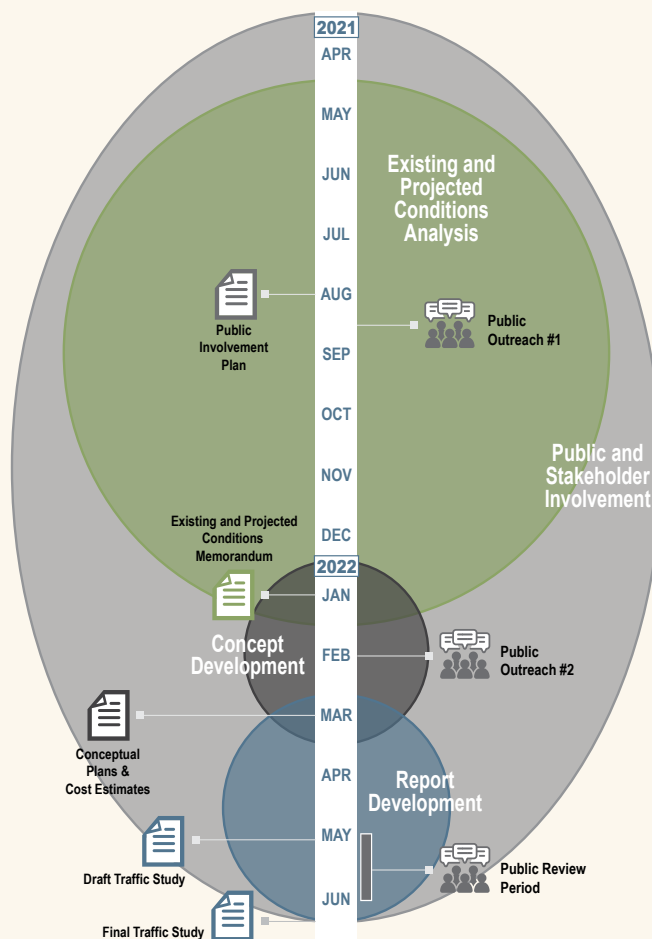
MATT BETENSON
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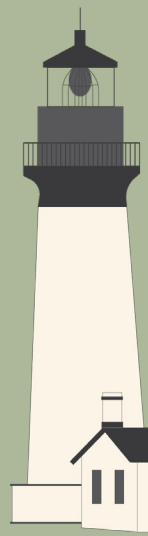


SARAH NICOLAI
Consultant Project Manager
snicolai@rpa-hln.com
406-447-5038

SCHEDULE

The *Yaquina Head Traffic Study* kicked off in April 2021. The first public outreach effort was conducted during the summer of 2021 to help inform development of the study. A second public outreach effort occurred in February 2022 in coordination with release of the *Existing and Projected Conditions Memorandum*. A third outreach effort is being held now in coordination with release of the draft *Yaquina Head Traffic Study* and a formal public and stakeholder review period. All comments received during this period will be considered. The final *Yaquina Head Traffic Study* is anticipated to be complete in June 2022.





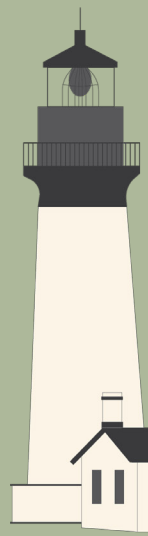
YAQUINA HEAD

Traffic Study

Appendix A6:

Public Comments
Outside Review

Comment ID		Comment
01	08/20/2021 George Dwyer Agate Beach Safety Coalition, LLC	<p>Thank you for the invite giving me the opportunity to provide suggestions that address the transportation enhancements currently in the planning stage. Having only the knowledge of a visitor's experience, I would like to suggest the following for consideration for improved mobility & safety during a typical visit.</p> <ul style="list-style-type: none"> • A secondary manned or un-manned (camera monitored) entry gate for pass holders not needing assistance or required to pay entry fees. This could be in use full time or just during peak visitation to alleviate long wait times. • Parking at the Lighthouse seems to always be scarce. I would like to suggest an overflow parking area made of non-asphalt, environmentally friendly materials. • A more clearly defined "STOP SIGN" should be used at the intersection of Quarry Cove Trail & Lighthouse Drive. • I do not know if any "Maximum Capacity" restrictions are in place for safety reasons? This is something that should be considered in the event of an emergency evacuation. • The installation of security cameras installed at strategic locations if not already in use.
02	03/01/2022 Kaety Jacobson Lincoln County Commissioner	<p>A few comments about the study materials provided. While the study focuses on daily transportation issues, and it certainly needs to do that, I felt there should have been more energy spent on addressing emergency transportation issues, both for "regular" emergencies (someone calls 911 and an ambulance needs to get in) as well as for large scale emergencies like a fire, earthquake, tsunami, etc. While daily operations was the focus and I agree in that purpose, I felt like a better layer of emergency services and evacuation needed to be provided. You could for example solve a daily transportation issue but it could create a worse problem for emergency vehicles. Additionally what is the mass scale site evacuation plan? Everyone on foot, letting people use vehicles to exit? The transportation should include considerations for those kinds of things in a bigger way than it seemed to.</p>
03	03/02/2022 Herb Fredricksen	<p>Please put me on your mailing list for this project. When are comments due on the traffic study? thank you</p>



YAQUINA HEAD Traffic Study

Appendix A7:

Public Comments

During and After Review
(May 16 - June 17, 2022)

Comment ID	Comment	Response
01 05/24/2022 L.L. Ehret Local Resident	<p>I live in North Agate Beach and am a regular visitor to YHONA.</p> <p>Shuttle: I endorse the idea of a shuttle bus to lessen traffic. Pickup sites to include RV parks besides the obvious like Nye beach/dense tourist lodging, bay front, aquarium, OMSI, Hatfield MSC. Significant funding will need be allotted for signage which should be big, attractive, and include schedules. Part of shuttle fee would cover entrance cost so no need to stop at entrance.</p> <p>Speed bumps/slowing speeders Speed bumps can be satisfactorily placed in urban areas of 25mph. Corvallis has speed bumps on the west end of Circle Blvd. specifically to slow traffic from a 35mph zone to a 25 mph zone. Speed bumps are also installed on Garfield NW in the area of Porter city park to remind drivers of the 25mph limit.</p> <p>Comments on bird and wildlife preservation are general, lacking a specificity that hints at a lack of actual consideration or effort.</p>	<p>Thank you for your email and participating in the public review process of this Traffic Study at the Yaquina Head Outstanding Natural Area. We will take these comments into consideration when completing the final Traffic Study.</p> <p>Transit considerations are addressed in the study, and the Federal Highway Administration (FHWA) and the Bureau of Land Management (BLM) A support connectivity with existing and future public transportation opportunities.</p> <p>Bird and wildlife preservation are important to the BLM/FHWA, especially for this site that has one of the largest nesting colonies of Common Murre's on the west coast. Speed reduction measures are an aspect of the study and more detailed considerations will be investigated through future project development and extensive environmental review. Further environmental effects, including wildlife, will be considered as required under the National Environmental Policy Act.</p> <p>Carrie Warren, P.E. FHWA-WFLHD Project Manager</p>
02 06/07/2022 Lee J. Siegel Local Resident	<p>From my skimming of the Yaquina Head traffic study, I gather that visitors now do not like the cones trying to force them into the interpretive center lot. I certainly drive around them when I want to go to the lighthouse.</p> <p>So what does your bureaucracy do? Propose forcing us into the interpretive center lot! Just the opposite of what the public wants. Obnoxious.</p> <p>People visit Yaquina Head primarily to see the lighthouse (although as a local resident, I often park in the interpretive center lot and hike up Communications Hill). But I also take out-of-town visitors to the lighthouse, where it often is very windy. There is no way in hell we're going to park at the interpretive center and walk or shuttle when the wind is howling. I take my visitors to the lighthouse parking area, park if possible (and it usually is possible), bundle up and spend 15-20 minutes walking to the viewpoints at the lighthouse and above Cobble Beach. Then we leave. Your proposal would make people spend a significantly longer period of time parking, taking shuttles, walking etc. instead of letting them quickly come and go after visiting the main highlight of the area: the lighthouse and environs. Typical but bad bureaucratic thinking.</p> <p>I do like proposals to speed things up at the entrance station and improve circulation at the Quarry Cove lot.</p>	<p>We appreciate you taking the time to comment on the Yaquina Head Traffic Study. Your comments will be included as part of the project documentation.</p> <p>As a regular visitor and neighbor your comments are particularly valuable. Much of the push for this study was due to the very concerns that you raised regarding cones and directing visitors to the Interpretive Center (IC). We are now receiving well over 450,000 visitor a year at Yaquina Head. The majority of those visitors have never been here before and benefit from the orientation and exhibits at the IC, and the facilities there that include real plumbing.</p> <p>I certainly understand the desire to get to the lighthouse as quickly as possible at times. The draft proposals we have out for review do consider realigning the road to encourage vehicles to stop at the IC but do not require it - lighthouse circle parking is not under consideration for a closure. We are hopeful that a new design will reduce the need for the use of cones and still provided quick access for those driving through to the lighthouse. We are trying to find the right balance for our new visitors and those that are lucky enough to live in the area - and your comments are helping with that.</p> <p>Please feel free to contact me via email or phone about anything connected to Yaquina Head.</p> <p>Matt Betenson Yaquina Head Site Manager Bureau of Land Management</p>

Comment ID	Comment	Response
03 06/09/2022 Carol Walsh Local Resident	<p>After reading all 82 pages of this VERY expensive study that "encouraged" comments on the study, I couldn't find any easy way to actually make my comments known. I addressed my concerns to Marie, who then provided me this email address. It seems the BLM really doesn't want comments.</p> <p>First: the speeds measured during study weren't accurate, since I personally witnessed almost every car that went over the test strips, slowed down to go over them.</p> <p>Since the study just presented various "options" with no clear recommendations, I will express my recommendation: Install a separate walkway for pedestrians (using the same barrier as on the path down to the lighthouse) on the south side of Lighthouse drive for the entire distance to connect with existing walkway, rather than switching back and forth on South/North requiring walkers to cross road.</p> <p>Although the problems with people parking inappropriately and speeding were addressed, nothing was discussed on enforcement of the present or future rules. This can be easily addressed NOW without any studies...follow through with warnings and/or tickets to the offenders and safety will improve dramatically for pedestrians.</p>	<p>We appreciate you taking the time to comment of the Yaquina Head Traffic Study. Your comments will be included as part of the project documentation.</p> <p>As a regular visitor and neighbor your comments are particularly valuable. Much of the push for this study was due to the very concerns that you raise regarding a safe walkway for pedestrians and proper separation from vehicle traffic. In coordination with the City of Newport and the Oregon Department of Transportation, we are hopeful of a dedicated pedestrian path - separated from vehicles - leading from Highway 101 all the way to the lighthouse. Location of the new pedestrian path is somewhat dependent on requirements for road design and terrain/geology, but the initial intent is to place it on the south side as much as possible.</p> <p>Please feel free to contact me via email or phone about anything connected to Yaquina Head.</p> <p>Thank you!</p> <p>Matt Betenson Yaquina Head Site Manager Bureau of Land Management</p>
04 06/13/2022 Kim Jones Local Resident	<p>I appreciate the interest in maintaining visitor access to Yaquina Head. I have a couple comments on the proposed traffic study for Yaquina Head. As background, I have been visiting Yaquina Head for more than 40 years. During the past 10 years, I visit regularly (weekly, monthly) to view whales and the sea pups, check on the nesting and resident seabirds, watch the peregrines and eagles, climb Salal Hill for a better view, walk down to the tide pools, and/or check/view the surf. When folks visit from out of state, Yaquina Head is a common destination for us as well.</p> <p>In my opinion, the two big bottlenecks are at the entrance and the interpretive center. Otherwise I have not experienced any issues while visiting.</p> <ul style="list-style-type: none"> The entrance should have a second line for folks (commonly local residents) to drive on the left side of the booth to show our annual or (now that I am officially old) lifetime passes. The current line is regularly backlogged because of one-time visitors who need to pay, ask for information, or request the brochure. Very simple solution - no need for complex gates. Just allow a line on each side of the 	<p>We appreciate you taking the time to comment on the Yaquina Head Traffic Study. Your comments will be included as part of the project documentation.</p> <p>As a regular visitor your comments are particularly valuable. Much of the push for this study was due to the very concerns that you raised regarding cones and directing visitors to the Interpretive Center (IC). We are now receiving well over 450,000 visitor a year at Yaquina Head. The majority of those visitors have never been here before and benefit from the orientation and exhibits at the IC, and the facilities there that include real plumbing to a sewer versus a vault toilet near the lighthouse.</p> <p>I certainly understand the desire to get to the lighthouse as quickly as possible at times. The draft proposals we have out for review includes a second booth at the entrance to help facilitate people through the line, especially those with passes. The proposals also consider realigning the road to encourage vehicles to stop at the IC but does not require it. We are hopeful that a new design will reduce the need for the use of cones and still provided quick access for those driving through to the lighthouse. We are trying to find the right balance for our new visitors and those that are lucky enough to</p>

Comment ID		Comment	Response
		<p>booth, the one on the left for those with annual passes.</p> <ul style="list-style-type: none"> The cones that direct cars into the interpretive center lot create a serious danger to vehicles and to pedestrians, especially youngsters and seniors walking from the parking lot to the interpretive center. Parking lots are the location of most vehicle and pedestrian accidents. The current parking lot forces people to walk across the driving lanes. Children are very hard to see darting out from between the cars. Please, please don't force vehicle into the parking lot. And lets face it, after dozens of trips to Yaquina Head over the years, I DO NOT WANT TO VISIT THE INTERPRETIVE CENTER! I want to drive slowly out to the lighthouse area. If the spaces are full, I will drive back, park and walk. If we have a less mobile individual with us, we can drop that person off, drive to the larger lot, and walk back. If traffic control is necessary to slow folks up, put in rumble strips and a stop sign. Don't create a complex driving pattern. Keep it simple. <p>Yaquina Head is a beautiful spot and worth visiting year round. Thanks for your consideration.</p>	<p>live in the surrounding area - and your comments are helping with that.</p> <p>Please feel free to contact me via email or phone about anything connected to Yaquina Head.</p> <p>Thank you!</p> <p>Matt Betenson Yaquina Head Site Manager Bureau of Land Management</p>
05	06/24/2022 Del Lockwood City of Newport Emergency Management	<p>State and Federal Parks are an important resource during emergencies. The public on both sides of Yaquina Head may climb up to get to higher ground in a Cascadia earthquake/Tsunami. An Emergency Cache of supplies for staff and the public would be needed if both sides of 101 were impassable due to earthquake/Tsunami. Yaquina Head may become an island of survivors of staff and public.</p> <p>Storing 55 gallon drums of water and emergency food rations is becoming more common.</p> <p>I reviewed the plan with Fire Department staff as they have performed rescues there and have no current issues with turn-around space or access. Adding a lane near the fee booth and drive through space in parking lots are both good for emergency access. The document has pictures of Tsunami way-finding signs but it does not state that they will be installed. Way-finding to high-ground and Ernest Bloch memorial Wayside would help people during an emergency.</p>	<p>Thank you, I appreciate the quick response. We'll add those comments into the project record.</p> <p>Separately, we've had start and stops with evacuation/tsunami planning. I hope it's alright if I reach out to you next time we visit this topic.</p> <p>Matt Betenson Yaquina Head Site Manager Bureau of Land Management</p>



YAQUINA HEAD

Traffic Study

Appendix B: Existing and Projected Conditions Memorandum

Appendix B1: *As-Builts*

Appendix B2: *Sign Inventory*

Appendix B3: *Traffic Data*

Appendix B4: *Environmental Figures*

Appendix B5: *EJSCREEN Report*

Appendix B6: *Photo Log*

Yaquina Head Traffic Study

Existing and Projected Conditions Memorandum

OR BLM NWO 1516291(1)

Contract No. DTFH7015D00007

Task Order No. 69056721F000012

March 24, 2022



Prepared for:
**Western Federal Lands
Highway Division (WFLHD)**



Prepared by:
**Robert Peccia and
Associates**

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ABBREVIATIONS/ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ACS	American Community Survey
ADA	Americans with Disabilities Act
AFM	Automated Fee Machine
BLM	U.S. Bureau of Land Management
CAGR	Compound Annual Growth Rate
CWA	Clean Water Act
EPA	US Environmental Protection Agency
EO	Executive Order
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FPPA	Farmland Policy Protection Act
HCM	Highway Capacity Manual
ITS	Intelligent Transportation System
LOS	Level of Service
MOA	Memorandum of Agreement
MP	Mile Post
MPH	Miles Per Hour
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHRP	National Register of Historic Places
NRCS	US Department of Agriculture Natural Resources Conservation Service
NWI	National Wetland Inventory
OC	Oversight Committee
ODOT	Oregon Department of Transportation
ODEQ	Oregon Department of Environmental Quality
OCZMA	Oregon Coastal Zone Management Association
ONA	Outstanding Natural Area
PIP	Public Involvement Plan
RPA	Robert Peccia and Associates
SSD	Stopping Sight Distance
TDAT	Tribal Directory Assessment Tool
TMC	Turning Movement Count
TSP	Transportation System Plan
WFLHD	Western Federal Lands Highway Division
UGB	Urban Growth Boundary
USFWS	United States Fish and Wildlife Services
USGS	United States Geological Survey

Existing and Projected Conditions Memorandum

1.0. INTRODUCTION

The Federal Highway Administration (FHWA) Western Federal Lands Highway Division (WFL) has initiated a study to evaluate the Yaquina Head Outstanding Natural Area (ONA) and determine what improvements can be made to address identified needs while considering public and stakeholder input, environmental constraints, constructability challenges, and financial feasibility. The *Yaquina Head Traffic Study* will identify site needs, determine potential improvements to address those needs, develop a funding strategy, and forecast a development timeline. The study will be a collaborative process with WFLHD, the U.S. Bureau of Land Management (BLM), Oregon Department of Transportation (ODOT), the City of Newport, stakeholders, and the public to identify needs and potential solutions.

The intent of this *Existing and Projected Conditions Memorandum* is to analyze transportation and environmental conditions and identify areas of concern within the study area. The analysis includes a planning-level examination of the site and surrounding area based on a variety of information sources and field reviews. The analysis will influence the development of potential improvement options intended to address the identified areas of concern.

1.1. Study Area

Yaquina Head ONA is a 100-acre protected area managed by the BLM and officially designated by the United States Congress to provide for the conservation and development of the scenic, natural, and historic values of the area; the continued use of the area for education, scientific study, and public recreation; and protection of the wildlife habitat of the area.

Yaquina Head ONA is located on the central coast of Oregon at the north end of the City of Newport in Lincoln County. The ONA is located on a headland extending nearly 1 mile into the Pacific Ocean. At the point of the basalt headland is the Yaquina Head Lighthouse, Oregon's tallest lighthouse.

The ONA is accessible via Lighthouse Drive which is a 1-mile-long, two-lane road that begins at the intersection with the Oregon Coast Highway (US Highway 101 [US 101]) at Mile Post (MP) 137.61. The ONA boundary begins about 0.2 mile west of the intersection. **Figure 1.1** presents the Yaquina Head ONA study area. The ONA site and the Lighthouse Drive corridor starting from the US 101 intersection serve as the primary focus area for this study, although parking facilities and multimodal corridors outside the Yaquina Head ONA boundary are also considered in the context of connectivity and access for ONA visitors.



1.2. Background and Site History

The Yaquina Head Lighthouse (originally called the Cape Foulweather Light at Yaquina Point) was built in 1872. It is just one in a string of lighthouses strategically planned along the Pacific Coast by the US Lighthouse Service to allow mariners to sail the rocky coastline after dark.

In the early days, the area was wilderness with limited access to the lighthouse. The US Lighthouse Service extended a rough wagon road to bring supplies from the docks at Newport to the light station at Yaquina Head traveling partially along Agate Beach. Construction materials and supplies were mainly delivered to the small cove just south of the headland, where workers hauled them up the bluff, eventually using a tramway built in 1885 at present-day Cobble Beach. Along with the construction of the lighthouse and its associated oil house, a large dwelling for two keepers and their families was built east of the lighthouse tower. Other structures included a smaller keeper's dwelling, barn, water tank, cisterns, and a workshop. Keepers and their families raised livestock and tended a kitchen garden to supply herbs, fruits, and vegetables. As the wagon road gradually improved, early automobiles brought increasing numbers of visitors to the lighthouse and reduced the need for the keepers to tend a garden and raise livestock.

In 1966, a computer was installed at Yaquina Head Lighthouse and a resident keeper was no longer needed on the grounds. The unoccupied keeper's quarters eventually fell into disrepair and were eventually removed in 1984. Today, only the lighthouse, oil house, water tank, and garden remain at the site.¹

Between 1917 and 1983, quarrying activity removed huge amounts of basalt rock from Yaquina Head, carving out present-day Quarry Cove and the site of the Interpretive Center. Basalt rock from the quarries was crushed into gravel and used for various road construction projects, including US 101. In the 1970s, nearby residents expressed concerns about the impacts of the quarry activity, including the changing shape of the headland.² On March 5, 1980, US Congress designated about 100 acres of Yaquina Head as an Outstanding Natural Area to protect the unique scenic, scientific, educational, and recreational values of the lands. BLM now acts as caretaker for the site, conserving and protecting its natural values for all to enjoy. Ongoing efforts are focused on eliminating non-native vegetation and reintroducing native plants to improve habitat for wildlife and preserve the cultural landscape. Yaquina Head ONA also offers space to conduct research, collect data, and house monitoring equipment for many areas of science including geology, paleontology, biology, marine biology, archaeology, history, and social science.³

1.3. Historic Construction and Improvements

Lighthouse Drive

The site layout of present-day Yaquina Head ONA was structured from the existing roadways used by the quarries and previous visitors. The current alignment was designed in 1995 and construction was completed in 1999.

US Highway 101

Table 1.1 contains documentation of past construction projects and roadway improvements on US 101 with work completed at the US 101/Lighthouse Drive/NE 52nd Street intersection based on a review of available as-built drawings provided by ODOT.

Table 1.1: US Highway 101 Historic Improvements

Date	Document Number	Project Number	Project Name	Project Description
1923	02V-150	98	Oregon Coast Highway Otter Rock – Agate Beach Section	Plan and profile of proposed state highway
1947	03V-411	F 98(5)	Oregon Coast Highway Miner Creek – Agate Beach Section	Grading and paving
1965	08V-391	ER-184(2)	Cannon Beach Jct-Neskowin & Kernville-Newport	Flood damage repair
1978	14V-004	TQF-2-4(4)	Oregon Coast Highway Agate Beach – NE 20 th St (Newport) Section	Grading and paving
1981	15V-218	PMS-2-4(7)	Oregon Coast Highway Washington State Line – Lane County Line Section	Pavement markings
1996	28V-013	X-STP-S009(44)	Oregon Coast Highway NE 54 th St – NE 20 th St (Newport) Section	Paving and replacement loops
2002	36V-008	STATE	US 101 at Agate Beach (Newport) Section	Grading and paving
2008	41V-064	X-HSIP-S000(384)	Oregon Coast HWY 101	Pavement markings
2009	42V-116	X-STP-S000(481)	Oregon Coast HWY Hebo to Cape Creek Bridge	Guardrail improvements

1.4. Recent and Planned Projects

Lighthouse Improvements

In 2005, BLM and its partners completed a full restoration of the lighthouse tower and oil house. The restored exterior and interior now match the condition and appearance of the original lighthouse.

In the spring of 2021, BLM constructed new concrete slab observation decks surrounding the lighthouse to replace the former wooden decking and added decorative rock-faced walls and railings. The asphalt path to the lighthouse from the parking lot was replaced with concrete sidewalks. The project also included exterior paint and a mineral coating of the lighthouse as well as a full structural investigation.⁴

Cobble Beach Stairway Replacement

In 2019, a proposed action⁵ was authorized to replace aging, wooden infrastructure in order to maintain a safe visitor experience at Yaquina Head ONA. The action included replacing the Cobble Beach stairway and observation deck. The existing stairway at Cobble Beach, constructed in 1994, is failing due to decomposing wood and metal components and slope erosion. Small landslides and general erosion have exposed several of the buried concrete footers of the stairway. The proposed stairway would be constructed using galvanized steel, stainless steel, and cedar. Alignment of the stairs would be modified for a straighter route while maintaining the general style of the existing stairway, using a short section of stairs with landings for rest and interpretative opportunities.

ITS Demonstration Project

A proposed Memorandum of Agreement (MOA) between the US Fish & Wildlife Service (USFWS), BLM, and ODOT states that USFWS will install intelligent transportation systems (ITS) technologies at Yaquina Head. The MOA is a result of an FHWA Task Order to implement and evaluate an ITS demonstration project at two Oregon Coast Sites – Cape Meares National Wildlife Refuge and Yaquina Head ONA. For Yaquina Head, the proposed equipment consists of vehicle detection sensors at the site entrance, dynamic message signs (DMS) on US 101, and large-screen displays at the Yaquina Head entrance station. The ITS project is intended to process information from the vehicle detection sensors to display parking availability on the DMS, various websites, or other public dissemination media. Ultimately, the MOA was tabled due to landslides cutting off road access to

the proposed site. Still, there is a high level of interest by the various parties on the need for improved wayfinding and guide signs on the highways approaching the two sites.

1.5. Existing Plans and Regulations

Several local plans outline goals, objectives, and proposed improvements related to the transportation system in and around the study area. The following sections provide a summary of existing planning documents and regulations relevant to Yaquina Head ONA.

Newport Transportation System Plan Update (2022)

The *Newport Transportation System Plan*⁶ (TSP) updates the city's previous plan which was adopted in 2012. The TSP is required by Oregon Statewide Planning Goal 12 – Transportation which is intended to promote the development of safe, convenient, and economic transportation systems designed to reduce reliance on the automobile. As the guiding document for local TSPs, the *Oregon Transportation Plan*⁷ establishes goals, policies, strategies, and initiatives addressing the core challenges and opportunities facing transportation in Oregon. The goals and policies are further implemented by various modal plans, including the *Aviation System Plan*, *Bicycle and Pedestrian Plan*, *Freight Plan*, *Highway Plan*, *Public Transportation Plan*, *Rail Plan*, *Transportation Options Plan*, *Transportation Safety Action Plan*, and the *Statewide Transportation Strategy*.⁸ These plans, and their relevance to the local transportation system, are discussed in the TSP's Technical Memo 2 – Plan Review Summary dated May 31, 2019. Several local plans, policies, and regulations are also summarized in the document.

The TSP analysis focused on the areas of Newport within the Urban Growth Boundary (UGB) and north of the Yaquina Bay bridge, including detailed analysis of the pedestrian, bicycle, transit, and motor vehicle systems. The US 101/NE 52nd Street/NW Lighthouse Drive intersection was 1 of 20 intersections analyzed in detail. The intersection is noted as having high pedestrian stress, low bicycle stress, and a high critical crash rate with 11 of 15 crashes occurring over a 5-year analysis period causing injuries. The intersection is also shown to operate at a level of service (LOS) C under summer 2019 existing conditions (30 HV¹) and meets adopted mobility targets based on vehicle-to-capacity ratios. A future conditions assessment predicts that the intersection will operate at LOS E and exceed mobility targets by 2040. This condition is noted as potentially having a negative effect on freight operations. In general, parallel routes to US 101 for north and southbound traffic in Newport are needed to alleviate congestion and enhance connectivity. Areas identified by the public as critical pedestrian needs include the NW Oceanview Drive corridor, the Oregon Coast Trail (including near Yaquina Head), and existing pedestrian crossings on US 101.

A vision statement, coupled with several goals and policies, provides a framework for development of the TSP. The goals include the following.

- **Goal 1: Safety** - Improve the safety of all users of the system for all modes of travel.
- **Goal 2: Mobility and Accessibility** - Promote efficient travel that provides access to goods, services, and employment to meet the daily needs of all users, as well as to local and regional major activity centers.

¹ 30 HV = 30th highest annual hour of traffic. The 30 HV period is the typical analysis and design period to account for recurring peak seasonal trends (while not accounting for extreme peaks due to special events or incidents). The 30 HV development process for existing conditions includes determination of the system peak (AM and PM), and seasonal adjustments.

- **Goal 3: Active Transportation** - Complete safe, convenient, and comfortable networks of facilities that make walking and biking an attractive choice by people of all ages and abilities.
- **Goal 4: Grow the Economy** - Develop a transportation system that facilitates economic activity and draws business to the area.
- **Goal 5: Environment** - Minimize environmental impacts on natural resources and encourage lower-polluting transportation alternatives.
- **Goal 6: Support Healthy Living** - Support options for exercise and healthy lifestyles to enhance the quality of life.
- **Goal 7: Prepare for Change** - Ensure that the choices being made today make sense at a time when Newport is growing, and the transportation industry is rapidly changing.
- **Goal 8: Fiscal Responsibility** - Sustain an economically viable transportation system.
- **Goal 9: Work with Regional Partners** - Partner with other jurisdictions to plan and fund projects that better connect Newport with the region.

In addition to the goals outlined above, the following set of supplemental strategies and guidelines were developed to address specific issues of concern within the Agate Beach area of the City.⁹

- Provide options for local street sections that consider the stormwater management needs of the Agate Beach area.
- Plan for local street connections adjacent to existing coastal routes given future erosion concerns.
- Evaluate safe crossing opportunities of US 101 in Agate Beach.
- Explore options to provide pedestrian and bicycle facilities on US 101 in Agate Beach.
- Explore options for a connection for pedestrians and bicyclists in Agate Beach to areas further south in the City.

To address the defined goals for the Agate Beach area, the TSP recommends the following projects listed in **Table 1.2**.

Table 1.2: Recommended Projects for Agate Beach Area

Project ID	Location	Description
TR2	US 101 (North) NW Oceanview Drive to North UGB	Construct a shared use path on the east side of US 101. Sidewalk infill will also be completed on the west side south of NW 60th Street. Shared use path project should be consistent with previous planning efforts (e.g., Agate Beach Historic Bicycle/Pedestrian Path, Lighthouse to Lighthouse Path).
TR3	US 101 (from NW Lighthouse Drive to NW Oceanview Drive)	Construct a shared use path on the west side of US 101, with sidewalk infill on the east side. Shared use path project should be consistent with previous planning efforts (e.g., Agate Beach Historic Bicycle/Pedestrian Path, Lighthouse to Lighthouse Path).
TR5	NW Lighthouse Drive US 101 to End	Construct a shared use path on one side only and other improvements as identified by the BLM/FHWA. <i>Note pedestrian/bicycle crossing improvements may be needed at the intersection of US 101/NW Lighthouse Drive.</i>
TR7	NW Rocky Way (from NW 55th Street to NW Lighthouse Drive)	Construct a shared use path and other improvements as identified by the BLM/FHWA.
TR8	NW Lighthouse Drive (from US 101 to terminus)	Construct a shared use path on one side and other improvements as identified by the BLM/FHWA.
CR3	NW 55th Street/US 101	Install an enhanced pedestrian and bike crossing to connect to the shared-use path on the east side of US 101

Project ID	Location	Description
BR16	NW 55 th Street (from NW Gladly Street to NW Piney Street)	Install signing and striping as needed to designate a bike route.
SW24	NW 55 th Street (from NW Gladly Street to NW Piney Street)	Complete existing sidewalk gaps.

Source: City of Newport, *Transportation System Plan*, December 2021.

Yaquina Head ONA Recreation Area Management Plan (Cancelled, 2018)

In 2016, BLM began the process of developing a *Recreation Area Management Plan* and Environmental Assessment for Yaquina Head ONA.¹⁰ The plan would have been the first for the site since the 1990s. The plan was intended to set management direction over a 20-year planning horizon to address identified issues, accommodate increasing numbers of visitors, and set a vision for the site in the future. However, the plan was withdrawn in August 2018.

Greater Newport Area Vision 2040 (2017)

The *Greater Newport Area Vision 2040*¹¹ is the community's vision for the year 2040. The vision is intended to guide the City of Newport and its public, private, civic, and community-based partner organizations in the cultivation of an "enterprising, livable, dynamic, affordable, educated, safe, healthy, collaborative, and inclusive" community in the future. Vision 2040 is organized into 3 tiers: the overarching vision, focus area visions, and focus area vision strategies. The 6 focus areas are listed below and are supported by specific strategies, all intended to cohesively achieve the overall vision. No specific strategies are listed relating to Yaquina Head ONA, but general protection of the natural environment and a robust multimodal transportation system are important components of the vision.

- Enhancing a Livable Region
- Preserving and Enjoying Our Environment
- Creating New Businesses and Jobs
- Learning, Exploring, and Creating New Horizons
- Improving Community Health and Safety
- Fostering Collaboration and Engagement

Lincoln County Multi-jurisdictional Natural Hazards Mitigation Plan (2015)

Lincoln County developed the *Multi-jurisdictional Natural Hazards Mitigation Plan*¹² to prepare for the long-term effects resulting from natural hazards including coastal erosion, drought, earthquake, flood, landslide, tsunami, volcano, wildfire, windstorm, and winter storm. The plan is intended to assist Lincoln County in reducing the risk from natural hazards by identifying resources, information, and strategies for risk reduction as well as to guide and coordinate mitigation activities throughout the county. The plan provides a risk assessment consisting of 3 phases (hazard identification, vulnerability assessment, and risk analysis) to develop mitigation strategies to decrease the risk of disaster. With considerations for past historical events, the probability of future occurrence, the vulnerability to the community, and the maximum threat, windstorm, winter storm, Cascadia earthquake, wildfire, and local tsunami rank as the top hazard threats to the county. To guide mitigation efforts, the plan defines a mission, 11 goals, and action items to be implemented by the coordinating agencies.

Pertinent to this study, it is noted that the area around Yaquina Head and Moolack Beach is particularly vulnerable for coastal erosion. Additionally, because of its role in defining and supporting the community, the Yaquina Head Lighthouse is identified as an important historic resource to protect from the impact of disasters.

Ten Year Update on Lincoln County, Oregon's Economy (2014)

Starting in the early 1990s, the Oregon Coastal Zone Management Association (OCZMA) commissioned a series of economic analysis and social implication studies about the Oregon Coast. The most recent OCZMA study was published in 2006 and was based on data from 2003. In 2014, the Lincoln County Commissioners funded the *Ten Year Update on Lincoln County, Oregon's Economy*¹³, an update of the 2006 OCZMA study solely for Lincoln County, to develop locally relevant economic information to improve local government decision making and aid in economic development efforts. The analysis provides a summary of changes in the county's economy over a 10-year period, including effects of the 2008 economic depression.

Over the analysis period, the county experienced a 4 percent increase in population while Newport increased by 5 percent. The primary economic sectors in the county include commercial fishing, agriculture, timber, and tourism. The report also notes a dramatic increase in the marine science and education sector and overall decrease in the local, state, and federal government sector. Other factors such as employment rates, income levels, housing availability, and age are also discussed in the report as economic indicators. The analysis concludes that Lincoln County is well positioned to meet economic development challenges.

Agate Beach Neighborhood Plan (1997)

The *Agate Beach Neighborhood Plan*¹⁴, completed in 1997, provides a framework for the management of change and promotion of growth as the area experiences new development and redevelopment. The Agate Beach Neighborhood is defined as the area bordered by the Pacific Ocean to the west, the Newport Urban Growth Boundary to the north and east, and the Agate Beach Golf Course/NW 43rd Street to the south. The plan provides a thorough review of existing environmental resources and land use as well as a plan for future development and infrastructure improvements. At the time of the plan, it was recommended that the US 101/Lighthouse Drive/NE 52nd Street intersection be signalized, an improvement that has since been completed. The plan also recommended several bicycle and pedestrian improvements including widening NE and NW 52nd Street (Lighthouse Drive) to provide a bike lane and sidewalks. As a general guide for future development, the plan provided the following 3 goals, each with additional supporting policies.

- **Goal 1:** To foster a sustainable urban living environment and to seek the maintenance and improvement of the character of the neighborhood for its people.
- **Goal 2:** The built environment will consider their compatibility with the neighborhood and strive to improve it.
- **Goal 3:** Further the various infrastructure plans developed and adopted by the City by requiring developers to comply to the greatest extent possible with those plans.

Newport Comprehensive Plan (1991)

The *City of Newport's Comprehensive Plan*¹⁵ is designed to guide the development of land within the city limits and to coordinate with Lincoln County the development of those lands outside the city limits but within the UGB. The plan also establishes the goals, policies, and means by which Newport should grow over a 20-year planning horizon. The goals address the Oregon Statewide Planning Goals including physical description, history, natural features, water quality, noise quality, energy conservation, solid waste, wetlands, and aggregate/mineral resources. In addition, the plan establishes the policies for other affected agency

involvement in the development of public and private property. The plan has been amended several times by various city ordinances, with the most recent ordinance being passed August 4, 2020.

The plan identifies the Yaquina Head Lighthouse as a site of historical and scenic significance and concludes that the site and lighthouse should be preserved, while other outbuildings are not significant and are not worthy of preservation. It states that any modification or alteration to the lighthouse or the site shall be reviewed by the Planning Commission to assure the maintenance of its historic value consistent with the provisions contained in the City of Newport Zoning Ordinance. The Ernest Bloch Home is also identified as a site of historical importance and a bronze plaque mounted on a boulder located at the junction of Lighthouse Drive and US 101 marks the site.

Additionally, the plan notes that Yaquina Head is 1 of 2 coastal headlands in Newport, and the most prominent. It is formed by the Cape Foulweather basalt which was mined in the 1900s. The only known mineral resource within the City of Newport is the Yaquina Head Quarry which was originally opened by the city in the 1920s and sold to a private party in the 1940s. The site has since been purchased and reclaimed by BLM.

The plan identifies large landslides on both the north and south sides of Yaquina Head. The landslide on the south side has made several buildings unusable. In Agate Beach, subsurface drainage is restricted. Additionally, the cliffs and offshore rocks at Yaquina Head are identified as significant shoreland and wetland biological habitats. However, due to the public ownership of Yaquina Head, the rocky shore intertidal marine environment wetland is not expected to be impacted by development. Lastly, the seaward exposure of the headland is included as a major visual resource of the Newport area. After being identified as an area with potential for an exceptional coastal experience, Yaquina Head was designated as an ONA by Congress.

National Parks and Recreation Act (1978)

On March 5, 1980, US Congress amended the *National Parks & Recreation Act of 1978*¹⁶ to establish Yaquina Head Outstanding Natural Area. Under Section 119¹⁷, the law established Yaquina Head Outstanding Natural Area “in order to protect the unique scenic, scientific, educational, and recreational values” of the land. The law designates the Secretary of the Interior to administer the area in accordance with laws and regulations applicable to public lands “in such a manner that will best provide for (a) the conservation and development of the scenic, natural, and historic values of the area; (b) the continued use of the area for purposes of education, scientific study, and public recreation [...], and (c) protection of the wildlife habitat of the area.”

The Secretary is authorized to issue permits for quarrying of materials from the area on the condition that the lands be reclaimed and restored. However, approximately 18.1 acres of the ONA are reserved for lighthouse purposes under Executive Order of June 8, 1866, and are withdrawn from mineral leasing laws and other provisions. The law also authorizes the Secretary to issue permits for installation and field testing of an experimental wind turbine generating system. Additionally, the Secretary is required to develop and administer a program for the reclamation and restoration of all lands previously affected by quarrying operations.

2.0. TRANSPORTATION SYSTEM

2.1. Physical Features and Operational Characteristics

Lighthouse Drive serves multiple residential and commercial areas and provides access to Yaquina Head ONA. The following sections discuss physical features and operational characteristics of the roadway and adjacent parking areas and multimodal corridors.

2.1.1. Roadway Surface

The entirety of Lighthouse Drive is paved from the US 101 intersection to the lighthouse parking lot. From the US 101/Lighthouse Drive intersection to the Yaquina Head ONA entrance gate, the widths on Lighthouse Drive are generally 21 feet with minimal shoulders. Past the entrance gate, the widths on Lighthouse Drive vary from 24 feet to 35.5 feet in width with 1.5-foot to 6-foot shoulders. The widest stretch of roadway occurs just beyond the entrance gate. The narrowest section of roadway within Yaquina Head ONA is 12 feet and occurs on the Quarry Cove access road beyond the upper parking lot.

2.1.2. Intersecting Facilities and Traffic Control

Based on field review and aerial photography, **Table 2.1** lists intersecting vehicular facilities along Lighthouse Drive, including a variety of public roadways, private approaches, recreational accesses, and parking areas.

Outside the Yaquina Head ONA, existing traffic control on Lighthouse Drive consists of a traffic signal at the US 101/Lighthouse Drive intersection and stop signs on some approach roadways including NW Agate Way, the Hill Buffet and Grill driveway, and NW Rocky Way to the north. Within the Yaquina Head ONA, stop signs are placed on the Quarry Cove and Interpretive Center access roadways.

Table 2.1: Intersecting Roadways/Approaches Along Lighthouse Drive

Intersecting Roadway/Approach	Type	Side of Roadway	Traffic Control	Within ONA Boundary?
US Highway 101	Public road	Both	Traffic Signal	No
NW Agate Way	Public road	South	Stop Sign	No
The Hill Buffet and Grill driveway	Private approach	North	Stop Sign	No
NW Rocky Way	Public road	South	None	No
NW Rocky Way	Public road	North	Stop Sign	No
NW Gilbert Way	Private approach	South	None	No
Camp host driveway	Private approach	South	None	Yes
Quarry Cove access road	Recreational access	South	Stop Sign	Yes
Communications Hill Trail	Recreational access	North	None	Yes
Yaquina Head Interpretive Center	Parking area	North	Stop Sign	Yes

2.1.3. Traffic Circulation and Parking

Within the Yaquina Head ONA, vehicular traffic uses Lighthouse Drive to enter the site and to reach key destinations. Additionally, the Quarry Cove roadway provides access to the upper and lower parking areas at Quarry Cove. Several parking opportunities are available both within the site and the surrounding area to serve visitors. The total number of parking stalls provided in each lot is summarized in **Table 2.2** at the end of this

section. **Figure 2.1** provides a map showing the locations of the available parking areas. Stakeholders have noted a desire for additional large vehicle and ADA parking stalls within the Yaquina Head ONA.

Entrance Station Circulation

After entering the Yaquina Head ONA site, visitors proceed to the entrance station where they are greeted by a ranger and either pay an entrance fee or present a valid pass. For credit card purchases, visitors are directed to an automated fee machine (AFM) kiosk located just to the west of the main booth.

During peak visitation periods, a traffic queue extends along Lighthouse Drive and sometimes reaches back to the US 101 intersection, according to BLM staff.¹⁸ To expedite visitor processing during these times, BLM staff conduct what is called “line busting” which involves standing in live traffic between traffic cones and directing pass holders to proceed to the left side of the booth through one of the lanes typically used for outbound traffic. This can create a conflict with pedestrians walking from the AFM kiosk back to the booth to pick up a pass from the ranger.

Occasionally, drivers decide not to proceed into Yaquina Head ONA and attempt to turn around before the entrance station. These maneuvers are generally not safely accommodated by the existing traffic control and entrance configuration.

Quarry Cove Circulation and Parking

The Quarry Cove access road is a single-lane, one-way couplet serving vehicles entering and existing the Quarry Cove recreational area. A pullout is provided on the south side of the couplet that is used for parking. In addition, 2 separate paved parking lots are available for visitor use off the Quarry Cove access road. The northern parking lot, referred to as the upper lot, consists of 12 angled parking stalls, 3 perpendicular parking stalls, 2 Americans with Disabilities Act (ADA)-compliant stalls, and 3 large vehicle parking stalls. Restroom facilities are provided as well as dedicated crosswalks with access to and from the upper and lower Quarry Cove Trails. The configuration of this lot is confusing and lacks clear direction for vehicle circulation. One-way signs appear to point in opposing directions, and some small personal vehicles were observed circulating through areas striped as large vehicle parking stalls. Additionally, BLM staff have reported that visitors sometimes cross the solid yellow line into the oncoming circulation lane in order to reach the gated ADA access roadway.

An additional lot, referred to as the lower lot, is provided on the southern side of the Quarry Cove access road. This narrow lot provides 31 perpendicular parking stalls and 2 ADA parking spots. A small turnaround area is provided at the eastern end of the lot. This lot generally does not accommodate large vehicles due to the narrow configuration.

Interpretive Center Circulation and Parking

The Interpretive Center parking lot is a popular paved parking area for visitors. It offers 126 perpendicular parking stalls, 4 of which are designated for Official Vehicles Only. The lot also provides 6 angled parking stalls and 8 ADA parking stalls. A lane designated for large vehicle parking is provided parallel to the parking lot entrance lane, and some drivers confuse the parking lane for a circulation route. The lane provides space for approximately 3 large vehicles. BLM staff have indicated that large vehicles sometimes park in the angled stalls near the maintenance building as well as in undesignated areas along the outer ring of the lot during busy times.

When the lighthouse parking area is full, BLM uses traffic cones to channel westbound vehicles from Lighthouse Drive into the Interpretive Center parking lot. This configuration is used to circulate visitors through the Interpretive Center lot in the hope that visitors will park and walk down to the lighthouse rather than driving. Once inside the Interpretive Center lot, the intended circulation pattern directs visitors around the outside edge of the lot in the counterclockwise direction. Visitors often express frustration with the cones and sometimes perform unsafe maneuvers to avoid circulating or parking in the Interpretive Center lot. Some drivers have been observed swerving around the cones to continue on Lighthouse Drive, while other drivers enter the parking lot and immediately make a U-turn in order to leave the lot and continue west on Lighthouse drive. These maneuvers result in increased potential for user conflicts within the parking area and on Lighthouse Drive.

A small pet relief area is provided northeast of the parking lot with a short loop trail/mowed corridor. Access to the lighthouse is provided from this lot via the Lighthouse Trail which wraps around the Interpretive Center, crosses under Lighthouse Drive, and continues along the south edge of Lighthouse Drive. Some visitors were observed walking from the parking lot to the intersection with Lighthouse Drive and then continuing west along Lighthouse Drive, despite the lack of dedicated pedestrian facilities on this route.

Lighthouse Circle Circulation and Parking

The lighthouse parking area is a one-way loop with angled parking around the outside edge. Access to the Yaquina Head lighthouse and Cobble Beach are provided on the western edge of this lot. A small area with additional parking is also provided off the east side of the parking lot, providing direct access to Salal Hill Trail, restroom facilities, and a small maintenance building. In total, the lot provides 26 angled parking stalls, 11 perpendicular stalls, 3 designated ADA stalls, 2 stalls for Official Vehicles Only, and 3 stalls designated for large vehicle parking. Sidewalk is provided along the outside edge of the parking lot, however pedestrians are often observed walking across the center island and within the vehicle travel lanes as a shortcut to reach their desired destination.

Ernest Bloch Memorial Wayside Parking

The Ernest Bloch Memorial Wayside Parking area is located adjacent to US 101 and is accessed from NW Gilbert Way. The lot offers 65 perpendicular parking stalls, 3 large vehicle stalls, and 3 designated ADA stalls. A crosswalk is provided across NW Gilbert Way allowing access from adjoining sidewalks next to the parking area. Some visitors choose to park in this area and walk into the Yaquina Head ONA or down to Agate Beach.

Informal Parking

Several informal parking areas are located adjacent within the site, including along the Quarry Cove access road and Lighthouse Drive. A small parking area exists approximately 130 feet west of the US 101/Lighthouse Drive intersection that offers approximately 11 parking stalls and allows visitors to walk down to the beach or to Yaquina Head ONA. The pullouts on Lighthouse Drive within the ONA are used by visitors for parking, although BLM staff indicated these pullouts are provided as short-term viewpoints and are not intended for long-term parking purposes. Staff also noted concerns about visitors attempting to park in these pullouts with the end of their vehicles still partially in the roadway. Some visitors, especially hang/paragliders, also park in the widened area at the base of Communications Hill.



Parking Lot	Perpendicular Stalls	Angled Stalls	ADA Stalls	Large Vehicle Stalls	Official Vehicles Only Stalls	Total Stalls
Quarry Cove (Upper)	12	3	2	3	--	20
Quarry Cove (Lower)	31	--	2	--	--	33
Interpretive Center	122	6	8	~3	4	143
Lighthouse Circle	11	26	3	2	3	45
Ernest Bloch Memorial Wayside	65	--	3	3	--	71
Informal Parking*	--	11	--	--	--	11
Total Stalls	241	46	18	11	7	323

This map illustrates the Yaquina Head Outstanding Natural Area, highlighting various trails, parking areas, and study routes. The area is situated along the Pacific Ocean coastline, with Lighthouse Circle Lot and Quarry Cove Upper/Lower Lots identified. Key trails include the Solar Hill Trail, Quarry Cove Trail, and Communications Hill Trail. The map also shows the location of the Interpretive Center Lot and the Ernest Bloch Memorial Wayside Lot. A legend defines symbols for parking (black 'P' for formal, red 'P' for informal), paved trails (solid line), gravel trails (dashed line), study routes (red line), and BLM property (green shading). A scale bar indicates distances up to 0.3 miles, and a compass rose shows cardinal directions.

2.1.4. Signs

Existing and Projected Conditions Memorandum
March 24, 2022

2.1.5. Hydraulics

Lighthouse Drive is located on a headland projecting into the Pacific Ocean. There are no prominent surface water features that cross or run parallel to Lighthouse Drive. However, based on data from the National Oceanic and Atmospheric Administration Continually Updated Shoreline Product, 3 intermittent unnamed streams cross Lighthouse Drive. These streams, by definition, only hold water during wet portions of the year.

The first stream crosses Lighthouse Drive approximately 250 feet west of the US 101 intersection. A water access is located within the vicinity of the crossing, however the access appears to be associated with a city water utility line. The second stream crosses Lighthouse Drive at the entrance station. No drainage features were identified based on available as-builts and field survey. The third stream crosses Lighthouse Drive near the Interpretive Center. Again, no drainage features were identified.

An additional 2 streams cross US 101 within the broader study area. The first is an unnamed perennial stream crossing US 101 approximately 800 feet south of the intersection with Lighthouse Drive. The second stream, Little Schooner Creek, crosses US 101 approximately 1,200 feet south of the intersection and is also a perennial stream. No drainage features were identified based on available survey.

2.1.6. Bridges and Culverts

Based on a review of visible roadway features, without the use of subsurface technology or excavation, only 1 culvert was identified on Lighthouse Drive. The culvert was located approximately 200 feet west of the Quarry Cove entrance roadway. A few drainage culverts are also located near the Interpretive Center in the vicinity of Lighthouse Trail. Supplemental review of available as-built drawings confirms no other hydraulic features occur within the Yaquina Head ONA boundary. As-built drawings for the portion of Lighthouse Drive from US 101 intersection to the Yaquina Head ONA entrance were not available for review.

2.1.7. Right-of-Way

The State of Oregon owns at least 25 feet of right-of-way on each side of the Lighthouse Drive centerline starting at the intersection with US 101 and extending west approximately 50 feet. Right-of-way widths vary slightly along this segment, with a maximum of 75 feet of right-of-way on Lighthouse Drive at the intersection.

Twenty-five feet of state right-of-way extends approximately 150 feet further to the west along the south side of the roadway, with 25 feet north of the centerline being City right-of-way along this same segment. This portion of roadway includes a small, informal parking area on the south edge of the roadway partially within state right-of-way and partially within private property.

Moving to the west, the City owns right-of-way along the next 650 feet of Lighthouse Drive, with at least 25 feet on each side of the centerline. The City right-of-way widths vary along this segment, but generally the City-owned right-of-way is 50 feet across the entire roadway. Additionally, the City of Newport owns approximately 50 total feet of right-of-way on NW Gilbert Way and 50 to 100 total feet of right-of-way on NW Rocky Way extending from Lighthouse Drive to NW 55th Street.

To the south, the State of Oregon owns and maintains US 101, with approximately 74 feet of right-of-way on each side of the roadway centerline (for a total of approximately 148 feet).

BLM recently performed a boundary retracement to confirm their property boundary. Right-of-way ownership changes from City to BLM approximately 0.2 mile west of the US 101/Lighthouse Drive intersection. As seen in **Figure 2.2**, the BLM right-of-way is fairly wide with the exception of a pinch point just before the entrance

station, where there is approximately 15 feet between the BLM boundary and the edge of the existing pavement. The northern BLM boundary borders the adjacent subdivisions. A city-owned water tank is also located just north of the BLM boundary and there has been discussion from the City about possibly moving the water tank or replacing it with a pump.

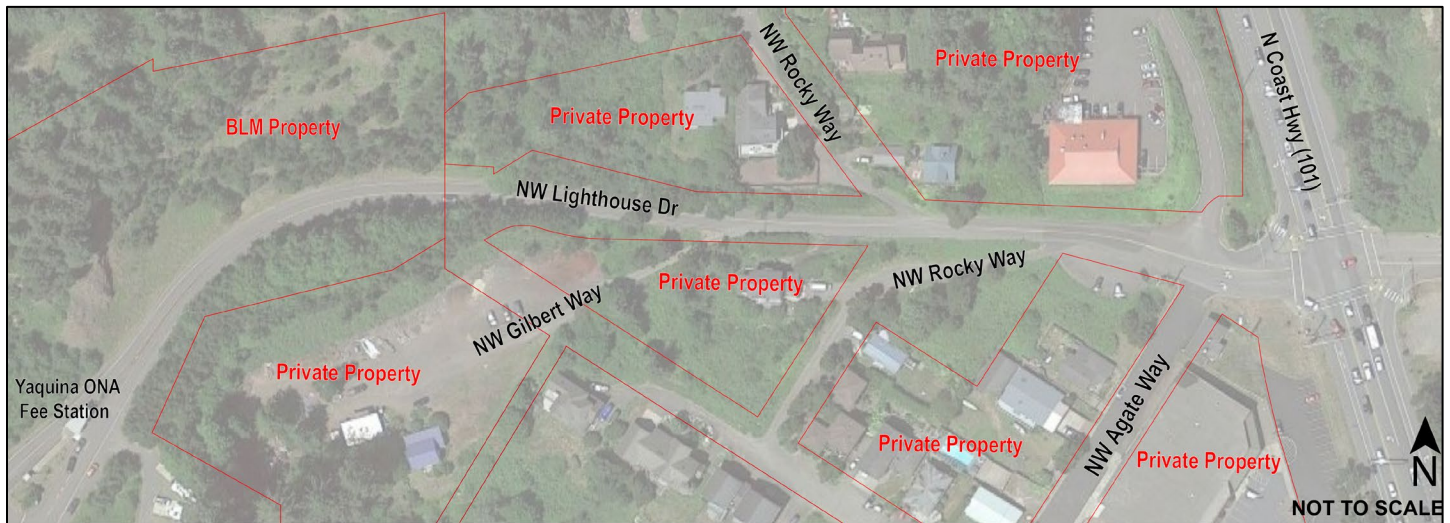


Figure 2.2: Right-of-Way Map

2.1.8. Utilities

Several utilities are located within the Lighthouse Drive corridor including underground telephone, gas, power, water, and sanitary sewer. The utilities are generally located along the roadway centerline with meters located sporadically along the corridor on both sides of the roadway. Overhead power and telephone lines also cross Lighthouse Drive about 400 feet west of the US 101/Lighthouse Drive intersection.

Traffic signals are located in all quadrants of the US 101/Lighthouse Drive intersection. The accompanying electrical boxes are located in the southwest quadrant of the intersection. Based on aerial imagery, overhead power and telephone lines run parallel to US 101 on both sides of the roadway from the intersection south to NW Oceanview Drive and beyond. The overhead utility lines cross US 101 several times throughout this section. Several water meters are also located on both sides of US 101 south of the intersection. The presence of other underground utilities is unknown.

The US Coast Guard maintains the facilities at the top of Communications Hill. The site includes communications equipment for aircraft, a cell phone tower, and research equipment for Oregon State University. The facility once housed communications equipment for ships, but the equipment was removed when ships stopped relying on land-based electronic navigation systems. Two large propane tanks also sit at the top of Communications Hill.

An AFM is located at the entrance gate outside of the fee booth and is used to collect credit card payments. Electrical utilities including a high voltage switch pad, telephone utilities, and a meter are located at the entrance station.

2.1.9. Maintenance Responsibility, Activities, and Vulnerabilities

ODOT is responsible for maintenance of US 101 and the Ernest Bloch Memorial Wayside parking area. The City of Newport is responsible for maintenance of Lighthouse Drive west of the US 101 intersection to the Yaquina Head ONA boundary. BLM is responsible for maintenance of Lighthouse Drive beginning at the Yaquina Head ONA boundary as well as all trails, parking areas, and buildings within the Yaquina Head ONA boundary, except the lens contained within the lighthouse which is operated by the Coast Guard. Radar equipment used by the Federal Aviation Administration (FAA) and the Coast Guard are located on Communications Hill, and access to this equipment must be maintained.

Historical asphalt maintenance records were provided by Yaquina Head ONA staff. The records include contract work dating back to 1998 and more recent maintenance work completed internally by BLM facilities staff. Records show that contract asphalt work was completed in 1998, 2004, 2009, and 2015. Maintenance activities included application of slurry seal, striping, and crack sealing. The most recent contract work involved 8,000 linear feet of crack sealing from the entrance station along Lighthouse Drive to the lighthouse. In 2020, BLM facilities staff completed 13,000 linear feet of crack sealing in the Interpretive Center parking lot, the lighthouse parking lot, and the Quarry Cove parking lot. The curb in the Interpretive Center parking lot was also repainted the same year.

Several locations along the Lighthouse Drive corridor have experienced pavement failures including transverse and longitudinal cracking and sloughing. The cause of these failures is typically a weakened or deteriorating subgrade. This distress on the pavement can be caused by a variety of factors including poor drainage, erosion, frost heave, lack of compaction, or weak materials. BLM staff noted an ongoing issue with sloughing on the Quarry Cove access road, which was previously filled and patched but continues to deteriorate.

2.1.10. Alternative Transportation Facilities and Services

Pedestrian and Bicycles

Multiple pedestrian and bicycle opportunities are provided at Yaquina Head ONA. Visitors entering the site on foot or by bike do not have to pay entrance fees. Once inside the ONA, pedestrian trails range in difficulty and surface type. Bicycles are only allowed on paved areas of the site and on the Communications Hill Trail. **Table 2.3** summarizes trails at Yaquina Head ONA, and **Figure 2.3** displays them graphically.

Table 2.3: Yaquina Head ONA Pedestrian and Bicycle Trails

Trail Name	Rating	Walking Time	Steepest Grade	Surface Type	Bicycles Allowed?	Wheelchair Accessible?	Notes
Quarry Cove Trail (Lower)	--	--	--	Paved	--	Yes	<ul style="list-style-type: none"> Access to Quarry Cove ADA Beach Disabled users can drive down to beach
Quarry Cove Trail (Upper)	Most Difficult	10 minutes each way (to Interpretive Center)	33%	Gravel	No	No	<ul style="list-style-type: none"> Steep concrete stairs Connection to Communications Hill and Lighthouse Trails
Lighthouse Trail	Most Difficult	10 minutes each way (to Interpretive Center)	8%	Asphalt	No	Yes	<ul style="list-style-type: none"> Paved path on south side of Lighthouse Drive separated from the roadway by guardrail Access to Cobble Beach via steep wooden stairs

Trail Name	Rating	Walking Time	Steepest Grade	Surface Type	Bicycles Allowed?	Wheelchair Accessible?	Notes
Salal Hill Trail	Moderate	25-30 minutes roundtrip	36%	Unimproved	--	No	<ul style="list-style-type: none"> Accessed from lighthouse parking lot behind the keeper's garden leading to a point above the Interpretive Center
Communications Hill Trail	Most Difficult	15 minutes each way	15%	Gravel Road	Yes	No	<ul style="list-style-type: none"> Trailhead to hang/paragliding launch sites Primitive trail to water tank and Agate Beach neighborhood
Lighthouse Access	--	--	--	Sidewalk	--	Yes	<ul style="list-style-type: none"> Recently reconstructed sidewalks from lighthouse parking lot to lighthouse and observation decks

-- Not stated on trail signs.

Source: Bureau of Land Management, Trail Wayfinding signs, viewed on site in May 2021.

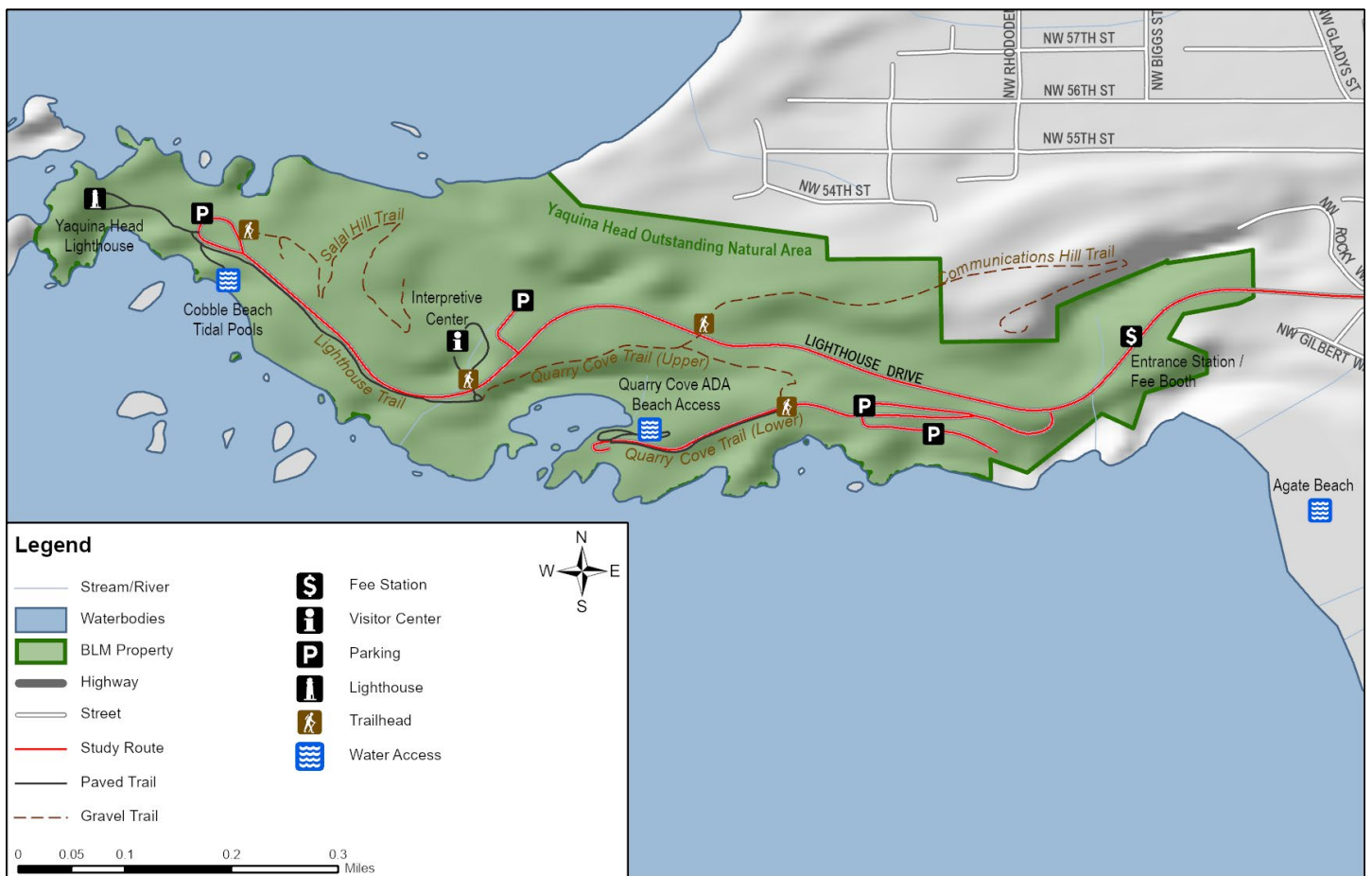


Figure 2.3: Yaquina Head ONA Trails

Other designated trails or pedestrian/bicycle routes within the study area are listed as follows.

- **Lighthouse to Lighthouse Trail:** Lighthouse Drive is featured as part of the 10-mile trail on Newport's published bike maps. The route connects the Yaquina Bay and Yaquina Head Lighthouses traveling mainly on city streets and US 101.
- **Oregon Coast Bike Route:** US 101 between the northern and southern Lincoln County lines is a designated bike route on the Lincoln County Bicycle Route Map. Bike lanes are provided on US 101 through the study area.
- **Oregon Coast Trail:** A 362-mile hiking trail follows the Oregon coastline along beaches, state parks, public lands, US 101, city streets, and some easements on private property. Some sections called "gap sections" are identified in areas that are disconnected, inconvenient, unsafe, or inaccessible during certain seasons. The Agate Beach gap section instructs trail users to take 55th Street to US 101 and continue south following signs to Yaquina Head Lighthouse then returning to the beach at the Agate Beach access/parking area.

Concerns regarding pedestrian and bicycle accommodations have been noted and observed within Yaquina Head ONA and the encompassing study area. In general, there is a lack of a continuous, dedicated facility for pedestrians on Lighthouse Drive. As a result, visitors entering the ONA on foot are often observed walking on the roadway up to the entrance station. Additionally, the ONA tends to experience high traffic volumes at locations such as the entrance station, Keeper's Garden, and Lighthouse Circle, all of which lack dedicated crosswalks. While some sidewalk is provided on the Quarry Cove access road, there is a gap in the sidewalk between the pullout on the south side of the couplet and the lower parking lot.

Additionally, there is a general lack of connectivity for multimodal facilities at the US 101/Lighthouse Drive intersection. Several trails and shared use paths exist near the intersection, such as the Lucky Gap Trail that provides access to Agate Beach, a small trail off NW Gilbert Way that provides access to the Ernest Bloch Memorial Wayside, and the Oregon Coast Bike Route on Oceanview Drive. The gaps between these various recreational opportunities result in poor pedestrian and bicycle connectivity in the area.

Transit

Lincoln County Transit provides transit services to the Newport area via a city loop and inter-city routes between Lincoln City, Siletz, Yachats, Corvallis, and Albany.

- The **Newport City Loop** completes a full loop through Newport 6 times each day, 7 days a week. In the evening, an additional southbound run is provided to City Hall. City loop buses are wheelchair accessible with bicycle racks. The closest transit stop to Yaquina Head ONA is Bloch Wayside/52nd Street and is provided by request only. The service fee is a flat fare of \$1 for each ride.
- The **Transit Intercity – North County** route provides daily service along the coast in Lincoln County north of Nye Beach. The route is fare-based ranging from \$1 to \$5 depending on the riders' start and end location. Monday through Saturday, the bus completes 5 loops and stops at the US 101/NE 52nd Street intersection by request in the northbound direction only. On Sundays, the bus completes 4 loops and stops at the US 101/NE 52nd Street intersection at 5:29 AM on the first loop of the day and by request on the other 3 loops in the northbound direction only.
- The **Coast to Valley Express** is a service provided through a partnership between Lincoln County Transit and Benton County Transportation. The bus operates 7 days a week with 4 daily runs between Albany, Corvallis, and Newport. From Albany, riders can take the Amtrak Cascades train to Portland; from Corvallis, riders can take the HUT Portland Airport Shuttle to Portland International Airport; and

from Newport, riders can take other Lincoln County Transit buses to destinations on the coast. The Newport stop is located at Newport City Hall.

- A **Dial-A-Ride** service is also provided within the City of Newport. The buses operate from 8:00AM to 3:30PM Monday through Friday. Reservations are made on a “first-call, first-serve” basis and are restricted to a maximum of 2 stops per person per day. The service is fare-based and costs \$1 for a one-way ride plus \$1 per additional stop.

2.2. Geometric Conditions

Existing roadway geometrics for Lighthouse Drive were evaluated and compared to current standards. As-built drawings from 1995 were available for the segment of Lighthouse Drive extending from the entrance station to the lighthouse parking lot. As-built drawings were not provided for the remaining segment of the Lighthouse Drive corridor from the entrance station to the US 101 intersection. Field review and aerial photography were used to document existing roadway geometrics in this segment.

2.2.1. Design Criteria

The American Association of State Highway Transportation Officials (AASHTO) *Policy on Geometric Design of Highways and Streets (Greenbook)*¹⁹ specifies general design principles and controls that determine the overall operational characteristics of the roadway. Of critical importance to determining design standards is the design speed. AASHTO’s manuals provide guidance for design speed based on facility and operating characteristics; however, some judgment is necessary. A facility’s design speed and its operating speed may differ. The design speed is a selected speed used to determine the various geometric design features of the roadway. The operating speed is the highest overall speed at which a driver may travel on a given section of roadway under favorable weather conditions and prevailing traffic conditions without at any time exceeding the safe speed as determined by the design speed.

Table 2.4 lists current design standards for local roads according to AASHTO design criteria. The highway design criteria depend on terrain, area context (i.e., urban or rural), and daily traffic volumes. Based on the definitions provided in the *Greenbook*, the Lighthouse Drive corridor appears to be within a rural context with rolling terrain and projected traffic volumes between 400 and 2,000 vpd. This correlates to a likely design speed of 40 miles per hour (mph) on the corridor. Note that the speed limit is signed 25 mph along the corridor.

Table 2.4: Geometric Design Criteria - Local Roads

Design Element			Design Criteria		
			50 to 250 vpd	250 to 400 vpd	400 to 2,000 vpd
Design Control	Design Speed	Level	30 mph	40 mph	50 mph
		Rolling	30 mph	30 mph	40 mph
		Mountainous	20 mph	20 mph	30 mph
Alignment Elements	Design Speed		20 mph	30 mph	40 mph
	Maximum Grade	Level	8%	7%	7%
		Rolling	11%	10%	10%
		Mountainous	16%	14%	13%
	Vertical Curvature (K-value)	Crest	7	19	44
		Sag	17	37	64
	Stopping Sight Distance (SSD)		115	200	305
	Radius		76	214	444

2.2.2. Roadway Width

The *AASHTO Greenbook* recommends a minimum roadway width of 26 feet for local roads carrying 400 to 2,000 vehicles per day (vpd) and with a design speed of 40 mph or less. Exceptions to these standards are allowed based on conditions such as topographic constraints and environmental factors as approved by the road owner and maintainer. The *Greenbook* states that alternate design criteria may be considered for minor collectors and local roads that carry 2,000 vpd or fewer in accordance with the *AASHTO Guidelines for Geometric Design of Very Low-Volume Local Roads*²⁰. The *Very Low-Volume Local Roads* guidance recommends roadway widths of 18 feet for new construction of scenic and recreational roadways with design speeds of 15-35 mph. The guidance also states that the cross-section widths of existing roads need not be modified except in those cases where there is evidence of site-specific safety problems.

During summer data collection, 694 vehicles were counted entering Yaquina Head ONA in a single day. To account for vehicles entering and leaving, multiplying the count by 2 yields a total traffic volume of 1,388 vpd. Since this number was collected on a Saturday during the summer, which is considered to be the peak time period for visitors, it is reasonable to assume that Yaquina Head ONA typically experiences daily traffic of less than 2,000 vpd, classifying Lighthouse Drive past the entrance gate as a low-volume road.

Generally, the roadways within Yaquina Head ONA follow the guidance for low-volume local roads as described previously, although the narrow portion of the Quarry Cove access road does not meet the minimum roadway width.

2.2.3. Horizontal Alignment

Elements comprising horizontal alignment include curvature, superelevation (i.e., the bank of the road), and sight distance. These horizontal alignment elements influence traffic operation and safety and relate directly to the design speed of the corridor. AASHTO's design standards for horizontal curves are defined in terms of curve radius, and they vary based on design speed. For a local road with a design speed of 40 mph, the minimum recommended radius is 444 feet with a minimum stopping sight distance (SSD) of 305 feet.

Horizontal curve radii along the Lighthouse Drive corridor were estimated based on aerial photography. Six horizontal curves were identified, and all appear to meet current AASHTO standards based on design speed. The curves on the Quarry Cove access road do not meet the minimum radii standards. However, this portion

of the study area is signed at 15 mph, and none of the horizontal curves are considered to be potential areas of concern.

2.2.4. Vertical Alignment

Vertical alignment is a measure of the elevation change of a roadway. The length and steepness of grades directly affect the operational characteristics of the roadway. The controlling design limits for vertical curves are SSD, vertical curvature (K-value), and maximum grade. Vertical curves can be placed into 2 categories: crest and sag. A crest curve is created at the top of a hill, and a sag curve occurs at the bottom of a hill.

No vertical curvature data for the roadway was available for review. However, during the field review no vertical curves were identified as potential areas of concern.

2.2.5. Sight Distance

Sight distance is the length of roadway visible to a driver and is influenced by the geometry of the road (horizontal or vertical curves) and obstacles alongside the road. Sight distance is commonly defined in 3 ways: passing sight distance, stopping sight distance, and intersection sight distance. In general, the driver of a vehicle should have an unobstructed view and enough distance to perceive, react, and safely stop for or avoid approaching vehicles and other hazards.

Observations during the field review were used to determine locations where limited sight distance is of concern. The 2 curves to the east of Communications Hill were identified as providing limited sight distance due to the density of trees adjacent to the roadway.

2.2.6. Clear Zone

The FHWA defines a clear zone as the unobstructed, traversable roadside area that allows a driver to stop safely or regain control of a vehicle that has left the roadway. The width of the clear zone is based on traffic volumes, speeds, and slopes. Clear roadsides consider both fixed objects and terrain that may cause vehicles to roll over. For local roads, FHWA recommends a minimum clear width of 7 to 10 feet. While no cross-sectional data were available to evaluate clear zone distances, most of Lighthouse Drive generally appears to have adequate recoverable side slopes and minimum clear zones. It is not always feasible to provide wide clear zone distances or side slopes due to the environment along the roadway, such as in cases of steep embankments or heavy tree growth. Guardrail is in place along Lighthouse Drive in areas without sufficient side slopes.

2.3. Existing Traffic Conditions

Lighthouse Drive serves a variety of access purposes including residential, commercial, and recreational. Heading west from the US 101 intersection, approximately the first 0.1 mile of roadway contains several approaches that provide access to residential areas and businesses. The remainder of Lighthouse Drive generally serves users who are intending to visit Yaquina Head ONA. Passenger cars, delivery trucks, buses, RVs, emergency vehicles, bicycles, and pedestrians are all common on the roadway.

2.3.1. Visitor Entry Data

The BLM staff at the Yaquina Head ONA entrance station collect visitor entry data each day during regular operating hours. The staff tracks entering users and classifies them based on payment type, transportation mode, and visitor type. To approximate the total number of visitors, BLM uses a generalized estimate of 3 visitors per vehicle. This estimate is largely supported by a recent study which found that, on average, there are 2.79 visitors per vehicle at the ONA.²¹ Upon entry, BLM classifies vehicles as either a recreational or a non-

recreational vehicle. Non-recreational vehicles include BLM staff, delivery vehicles, utility and maintenance vehicles, contractors, and other non-visitor vehicles. Recreational vehicles include all other vehicles which are assumed to be occupied by visitors. Only recreational vehicles are included in the visitation count.

Monthly visitor entry data were provided for the years 2015 through 2019. Daily breakdowns of visitor data were also provided for several days of interest anticipated to reflect peak visitation including the second Saturday of spring break, the last Sunday of May, last Saturday of June, all Saturdays and Sundays in July, first Saturday in August, and the first Sunday in September. Data were also provided for the peak vehicle visitation day of each year. The daily counts do not include vehicles paying by credit or debit card who must use the AFM as this data is only compiled monthly. As such, monthly counts are more representative of total visitation. The daily counts give a more detailed breakdown of transportation mode, including vehicles, pedestrians, and bicycles, and pass holding status.

The number of visitors recorded per month at the site over the 5-year period from 2015 to 2019 is displayed in **Figure 2.4**. As shown in the figure, visitation generally begins to increase in May with peak visitation observed in July. Numbers begin to decrease in October, and low volumes are recorded throughout the winter season. A slight increase in visitation is observed in the month of March, potentially corresponding to spring break and the spring gray whale migration.

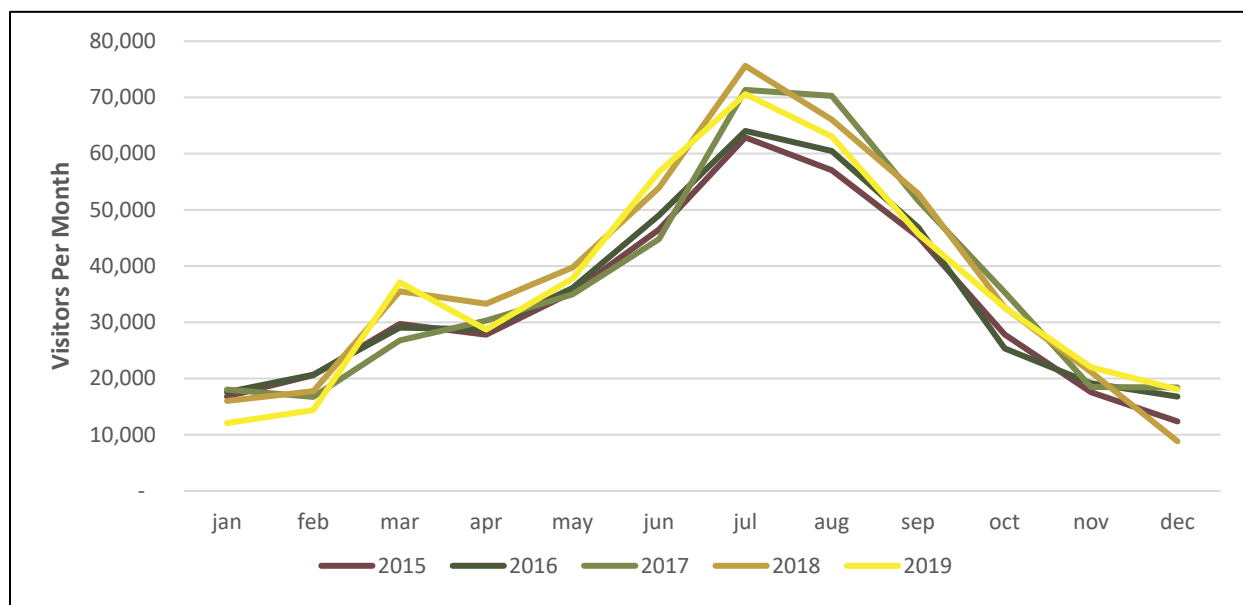


Figure 2.4: Visitors Per Month

Figure 2.5 displays the annual visitation trends at Yaquina Head from 2015 to 2019. Visitor numbers exhibited a steady increase between 2015 and 2018 with a decline experienced in 2019. Over this 5-year period, visitation increased at a compound annual growth rate (CAGR) of 2.8 percent per year. However, it is relevant to note that a government shutdown occurred from December 22, 2018, to January 26, 2019. While the site partially reopened on January 12 with no fee collection, it is appropriate to assume that these circumstances likely impacted the number of visitors and recorded volumes.

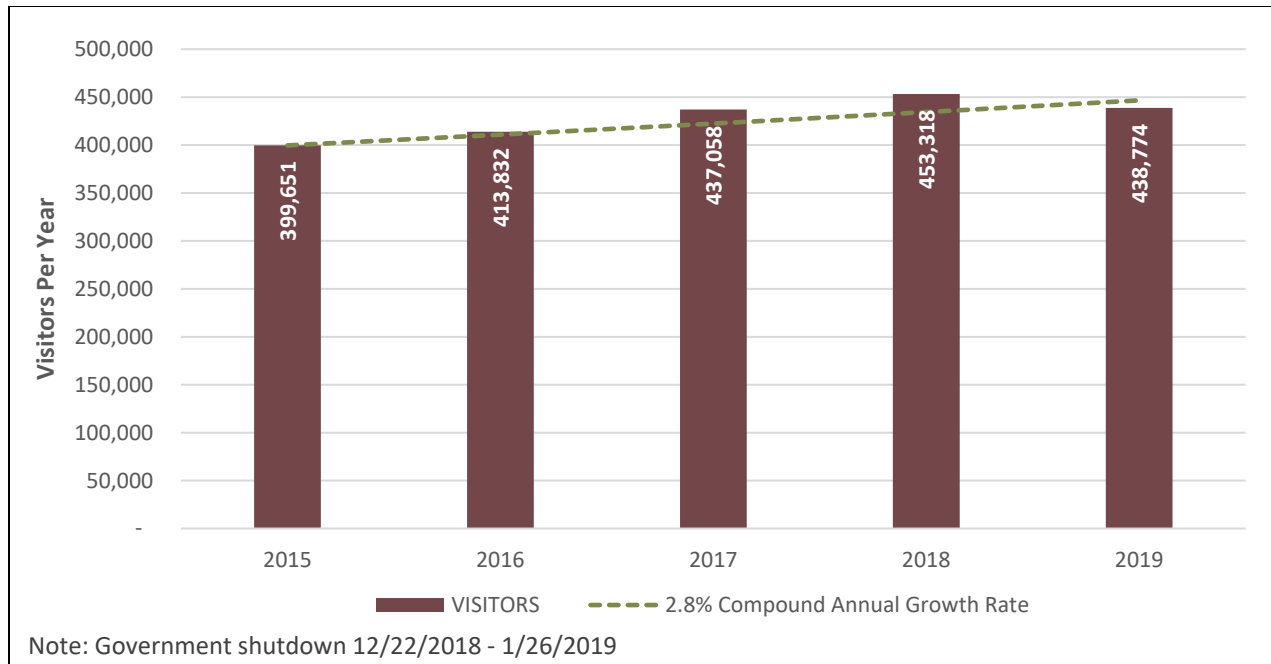


Figure 2.5: Visitors per Year

Figure 2.6 displays 2015 to 2019 average visitor volumes for select days, which were analyzed with the intent of understanding peak visitation. Approximately 2,500 people visit Yaquina Head on a typical day during the peak season. Visitation spikes occur over the weekends of Memorial Day and July 4th and at the end of July. Of the dates reviewed, Yaquina Head ONA generally experienced higher visitation on Saturdays compared to than Sundays.

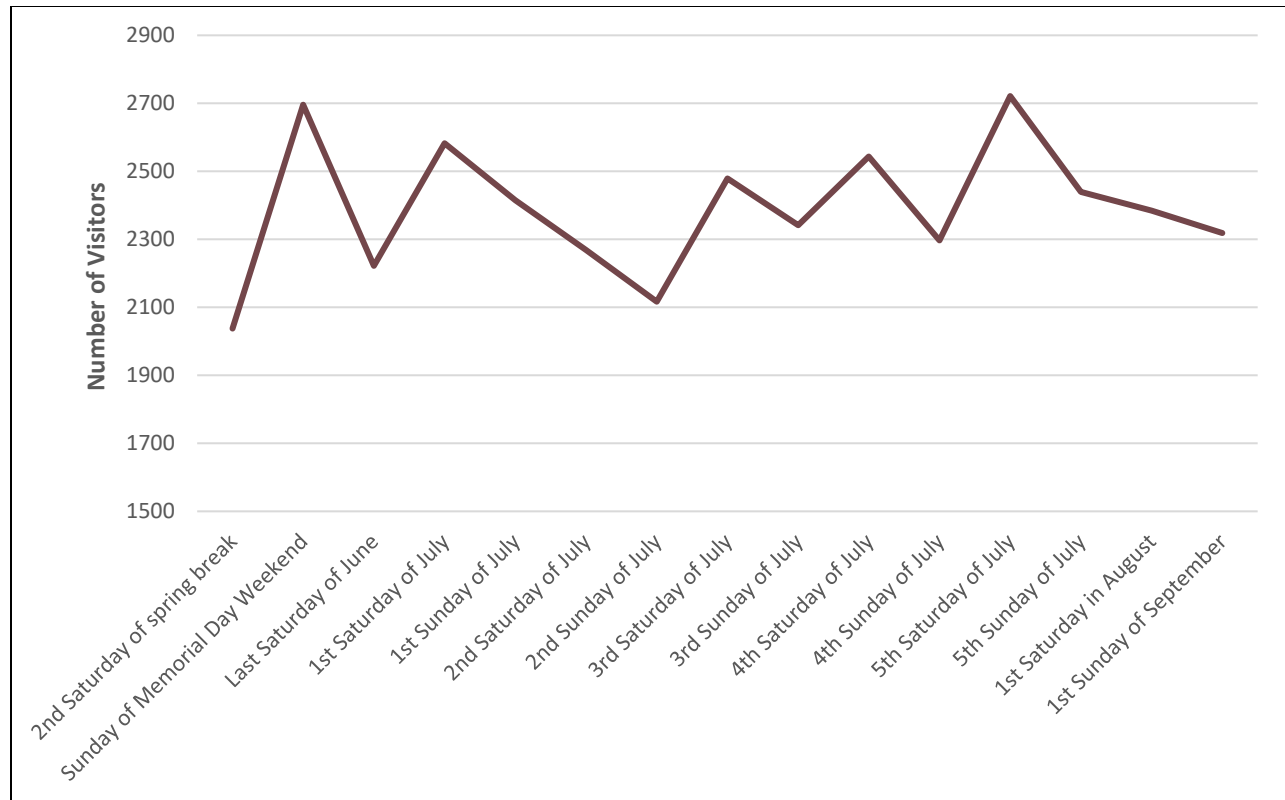


Figure 2.6: Average Daily Visitor Volumes During Peak Periods

Table 2.5 displays the maximum, minimum, and average visitor volumes by transportation mode for the peak visitation days analyzed from 2015 through 2019. Total visitors are calculated by summing the pedestrians, bicyclists, and recreation vehicles, assuming 3 visitors per recreation vehicle. Of the dates reviewed, the maximum number of visitors was recorded on Friday, July 13, 2018, and the minimum number of visitors was recorded on Sunday, September 1, 2019.

Table 2.5: Daily Visitor Trends by Transportation Mode 2015-2019

	Pedestrians	Bicycles	Total Recreation Vehicles*	Total Visitors
Maximum	119	14	1,716	5,186
Minimum	14	0	299	948
Average	39	6	803	2,447

*Non-recreational vehicles include BLM staff, delivery vehicles, utility and maintenance vehicles, contractors, and other non-visitor vehicles. Recreational vehicles include all other vehicles which are assumed to be occupied by visitors.

Figure 2.7 displays visitor trends by typical form of entry for the years 2015 through 2019. Upon entry, vehicles either present their pass (week, annual, or lifetime) or pay a fee to be issued a pass. When visitors have their pass already in hand, processing time at the gate is typically expedited. While there is considerable variability each day, when averaged over all data points, the mix of passes in hand and passes issued is nearly equal (53 and 47 percent, respectively). At the highest, the percent of visitors with a pass already in hand was 67 percent, and at the lowest it was 24 percent.

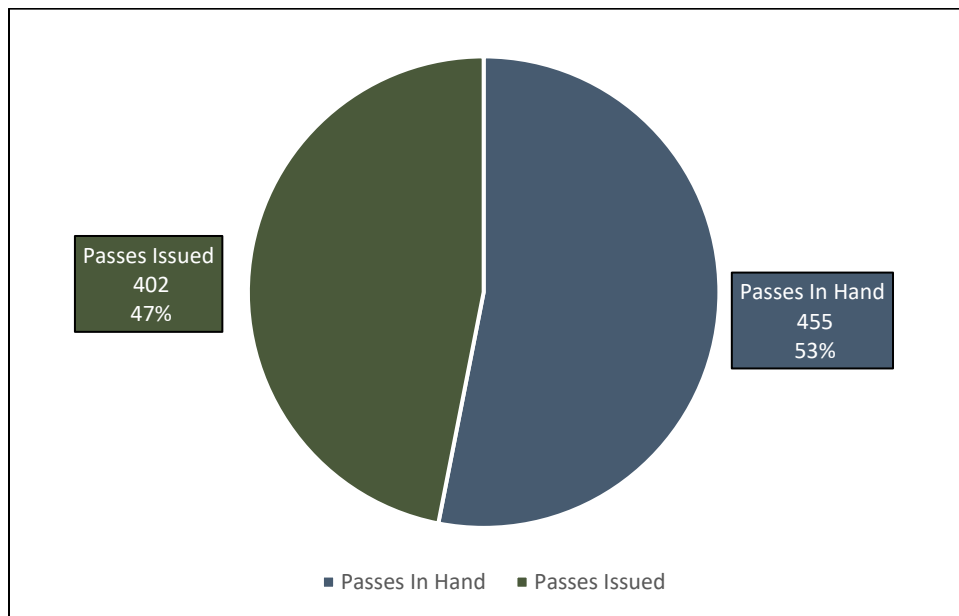


Figure 2.7: Form of Entry by Pass Type

2.3.2. Traffic Volumes and Vehicle Speeds

Traffic data were collected on site at Yaquina Head ONA using pneumatic road tubes on Friday August 13 and Saturday August 14, 2021, between the hours of 7:00 AM and 8:00 PM. The tubes were placed at multiple locations within the site to collect two-way volume and speed information. The road tubes were placed on Lighthouse Drive before and after the entrance station, on Lighthouse Drive between Quarry Cove and the Interpretive Center, on Lighthouse Drive near the Keeper's Garden, and along the access road for Quarry Cove.

These count sites were used to estimate how far vehicles travel into the site. These data do not indicate the path vehicles take within the site, only how many vehicles pass a given point. For example, a vehicle could enter the site, travel to the Lighthouse and turn around, travel to Quarry Cove, drive back to the Interpretive Center, and finally leave the site. In this scenario the vehicle would have been counted twice in each direction at the site between Quarry Cove and the Interpretive Center. As a result, the sum of the vehicles entering the site may not equal the sum of vehicles counted at the other locations within the site.

Figure 2.8 presents a map of the locations where traffic data were collected along with the resulting volume data from the Saturday counts. See **Appendix C** for more information.



Figure 2.8: Summer Data Collection Sites and Two-Way Volumes

Lighthouse Drive Traffic Volumes

A higher volume of traffic was observed traveling on Lighthouse Drive on Saturday, which is expected given the recreational nature of Yaquina Head ONA. The entering and exiting pattern was found to be different between the 2 days, with a larger percentage of daily visitors arriving in the morning and leaving before noon on Friday. On Saturday, visitors appeared to arrive later and stay at the site longer with no defined peaks throughout the day.

The maximum number of vehicles at the site over any given 15-minute period was determined using data from the count site west of the entrance. This was calculated by cumulatively adding entering (westbound) vehicles and subtracting exiting (eastbound) vehicles. The maximum number of vehicles within the site was roughly the same on Friday and Saturday with 115 and 127 vehicles recorded, respectively. On Friday, the peak number of vehicles was reached around 11:15 AM and decreased until around 1:00 PM where the count leveled off at approximately 60 vehicles. Around 4:30 PM the number of vehicles began to decrease into the evening. On

Saturday, total vehicles reached 100 by about 10:45 AM and remained above 100 until approximately 2:30 PM. The peak number of vehicles within the site occurred at 1:00 PM. From 2:30 PM continuing into the evening, the number of vehicles within the site decreased at a steady rate. **Figure 2.9** presents the entering, exiting, and cumulative sum of vehicles within the site.

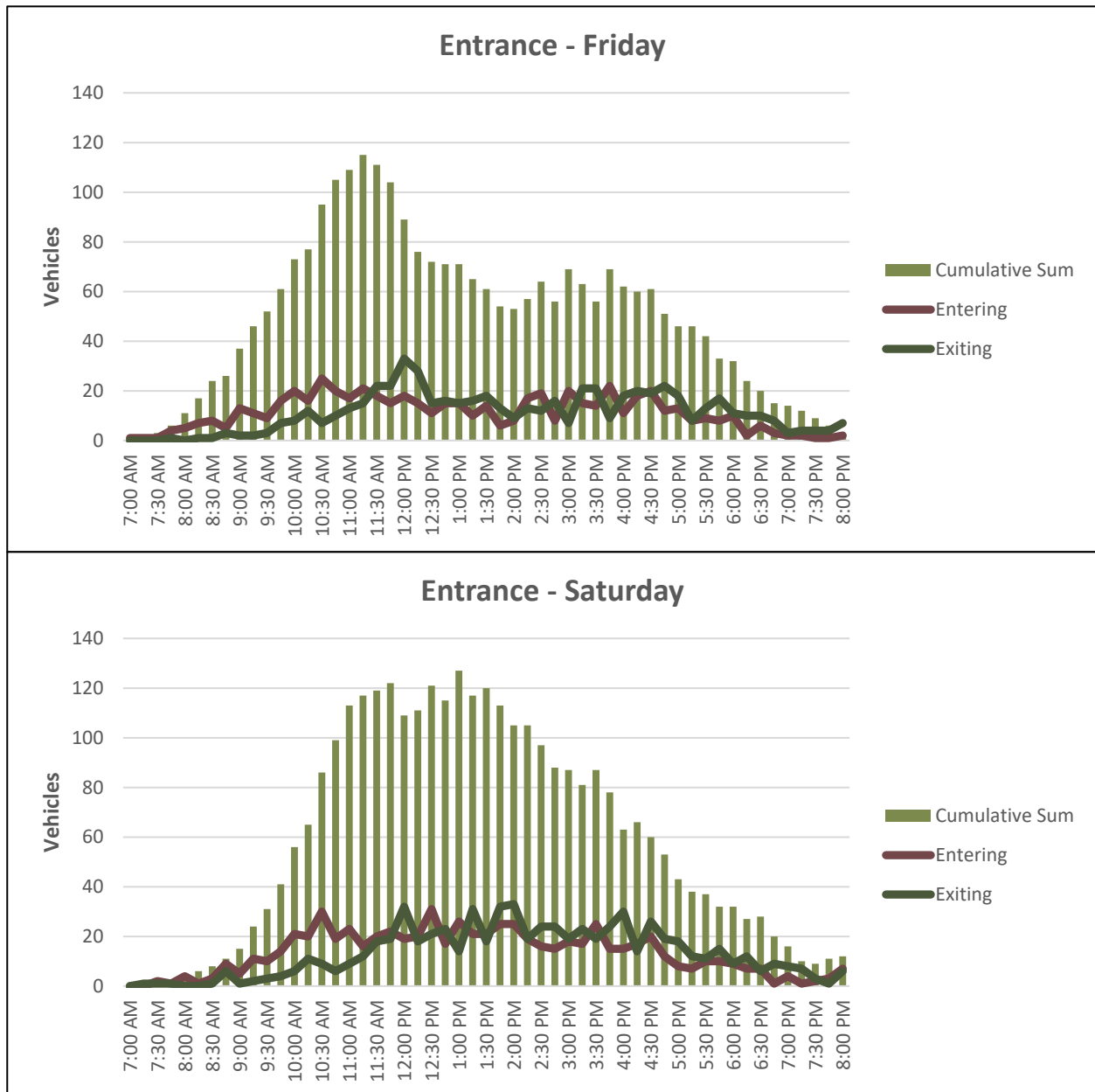


Figure 2.9: Lighthouse Drive after Entrance

Between 7:00 AM and 8:00 PM, a total of 586 and 694 vehicles entered the site on Friday and Saturday, respectively. Based on a comparison of the number of vehicles counted at the sites both before and after the entrance, it was found that approximately 15 percent of vehicles on Lighthouse Drive reached the entrance and turned around without continuing into the site.

The charts in **Figure 2.10** show the exiting, entering, and cumulative sum of vehicles on Lighthouse Drive between Quarry Cove and the Interpretive Center. The count site presents the same general trends as the entrance. On Friday, a peak occurred before noon with volumes tapering off into the evening. On Saturday, the peak occurred from about 11:00 AM until 2:15 PM with a slow decrease into the evening. The peak on both days was around 100 vehicles and was more pronounced on Friday.

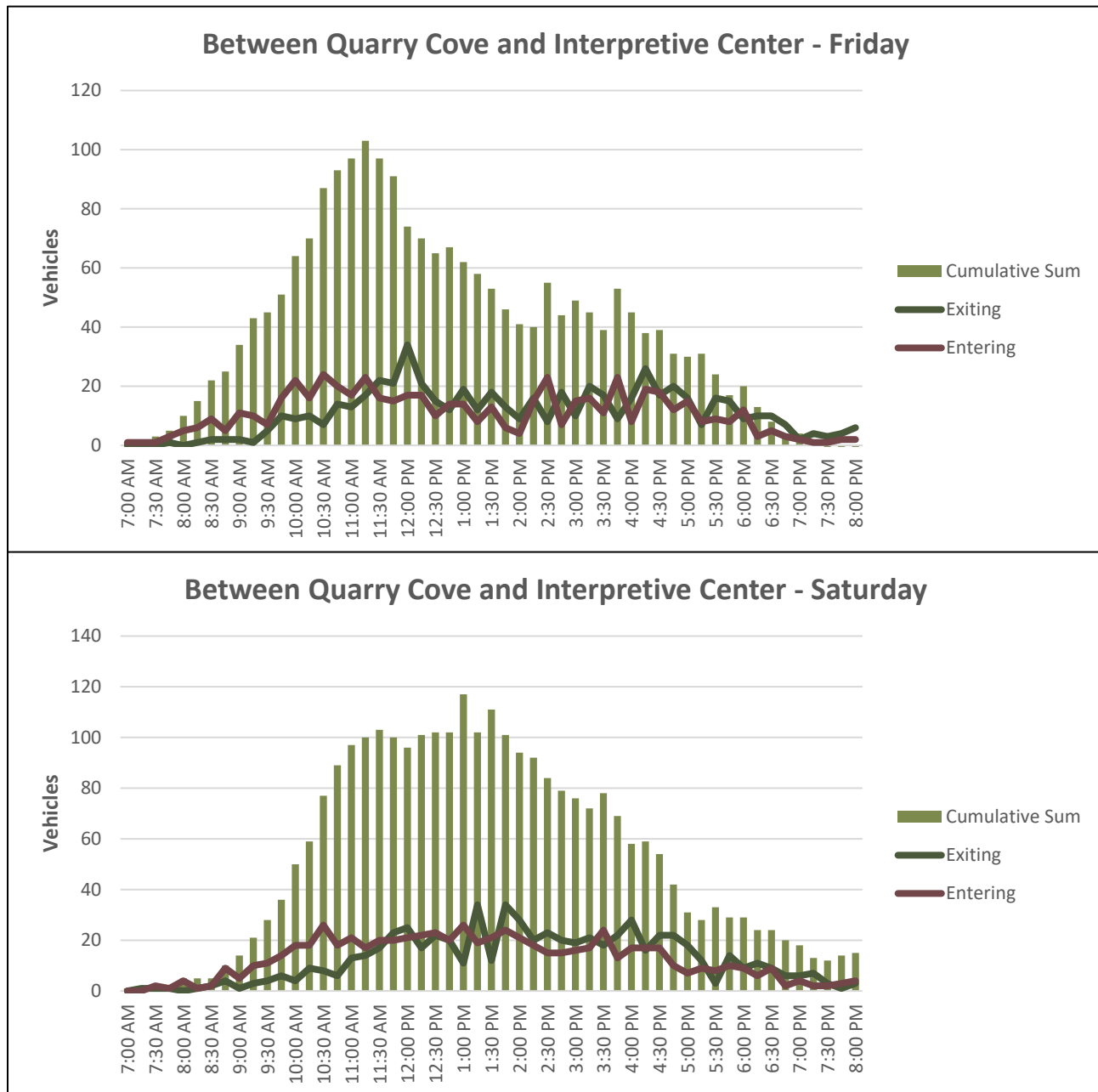


Figure 2.10: Lighthouse Drive Between Quarry Cove and the Interpretive Center

The parking lot at the end of Lighthouse Drive has 37 personal vehicle stalls, 3 large vehicle stalls, and 3 ADA accessible stalls. An additional 2 stalls are designated for official use only. Based on the traffic counts, this

parking area reached or surpassed available capacity about 10 percent of the time on Friday and about 7 percent of the time on Saturday. On Friday, the lot was at capacity (45 cumulative vehicles or more) between 10:00 AM and 11:30 AM. After this time, the number of vehicles decreased until around 2:30 PM, at which time the volume increased again to more than 30 cumulative vehicles until 5:30 PM. The peaks on Saturday exceeded 45 vehicles for only one 15-minute interval at 10:30 AM. As with Friday, the Saturday data showed 2 peaks throughout the day with a lull between noon and 3:00 PM. When the lighthouse parking lot is at or near capacity, vehicles are directed into the Interpretive Center by cones placed at the intersection. **Figure 2.11** presents charts displaying the vehicles entering, exiting, and the cumulative sum of vehicles on Lighthouse Drive beyond the Keeper's Garden.

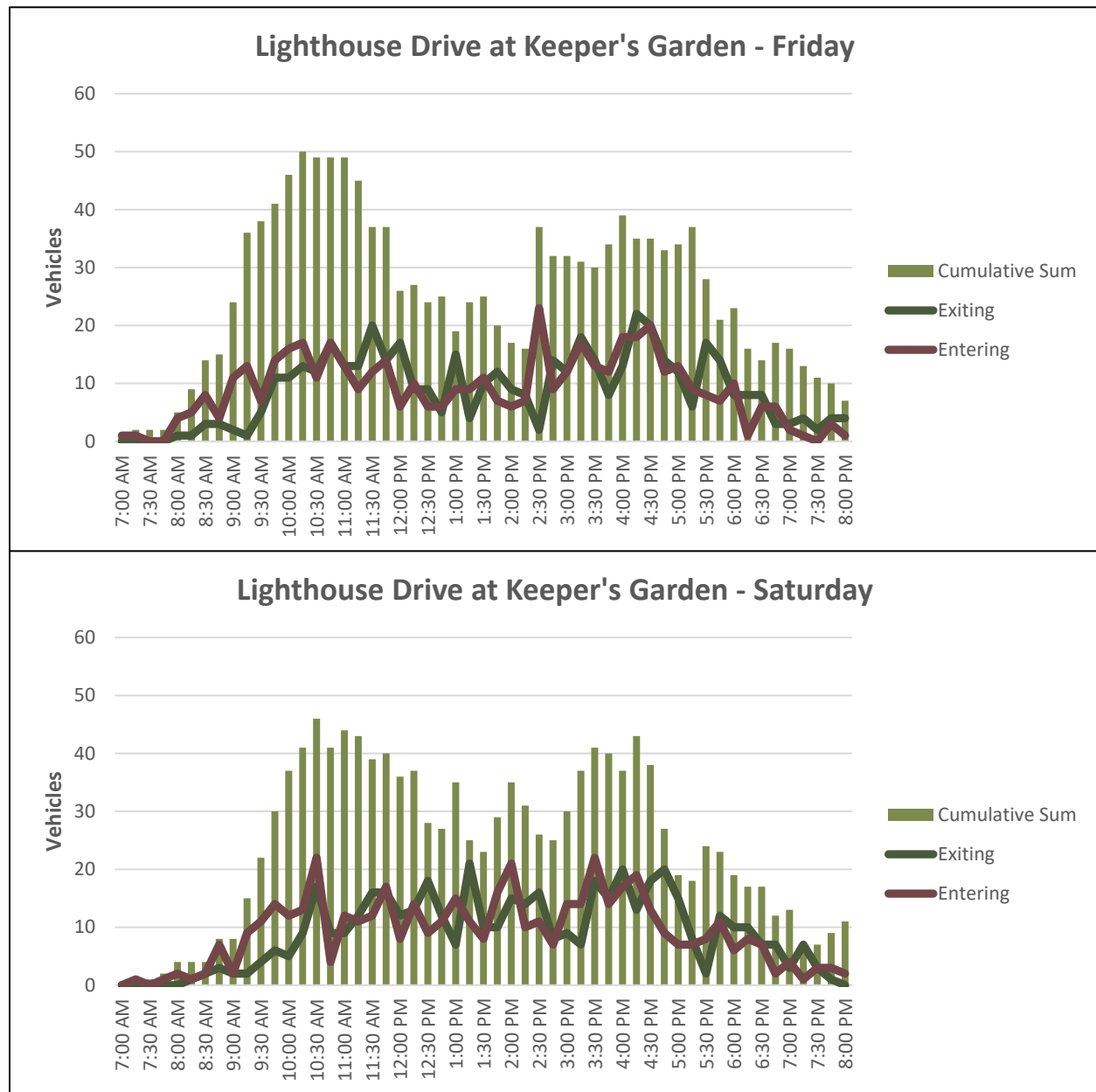


Figure 2.11: Lighthouse Drive at the Keeper's Garden

2.3.3. Quarry Cove Access Road Traffic Volumes

Beyond the Yaquina Head ONA entrance, pneumatic road tubes were placed along the access road for Quarry Cove. The Quarry Cove parking lot has approximately 55 parking stalls. Based on the volume counts on the Quarry Cove access road, this parking lot never reached capacity on the days of observation. On Friday, 2 peaks occurred at 11:30 AM and 3:00 PM with approximately 16 vehicles each. On Saturday, 1 distinct peak occurred at 11:45 AM with 25 vehicles, with 10 or more vehicles in the Quarry Cove area for the majority of the day from 11:00 AM until 5:30 PM. The low tide on these days occurred at about 11:00 AM, correlating with the visitor peak on both Friday and Saturday. The charts in **Figure 2.12** show the exiting, entering, and cumulative sum of vehicles in the Quarry Cove area.

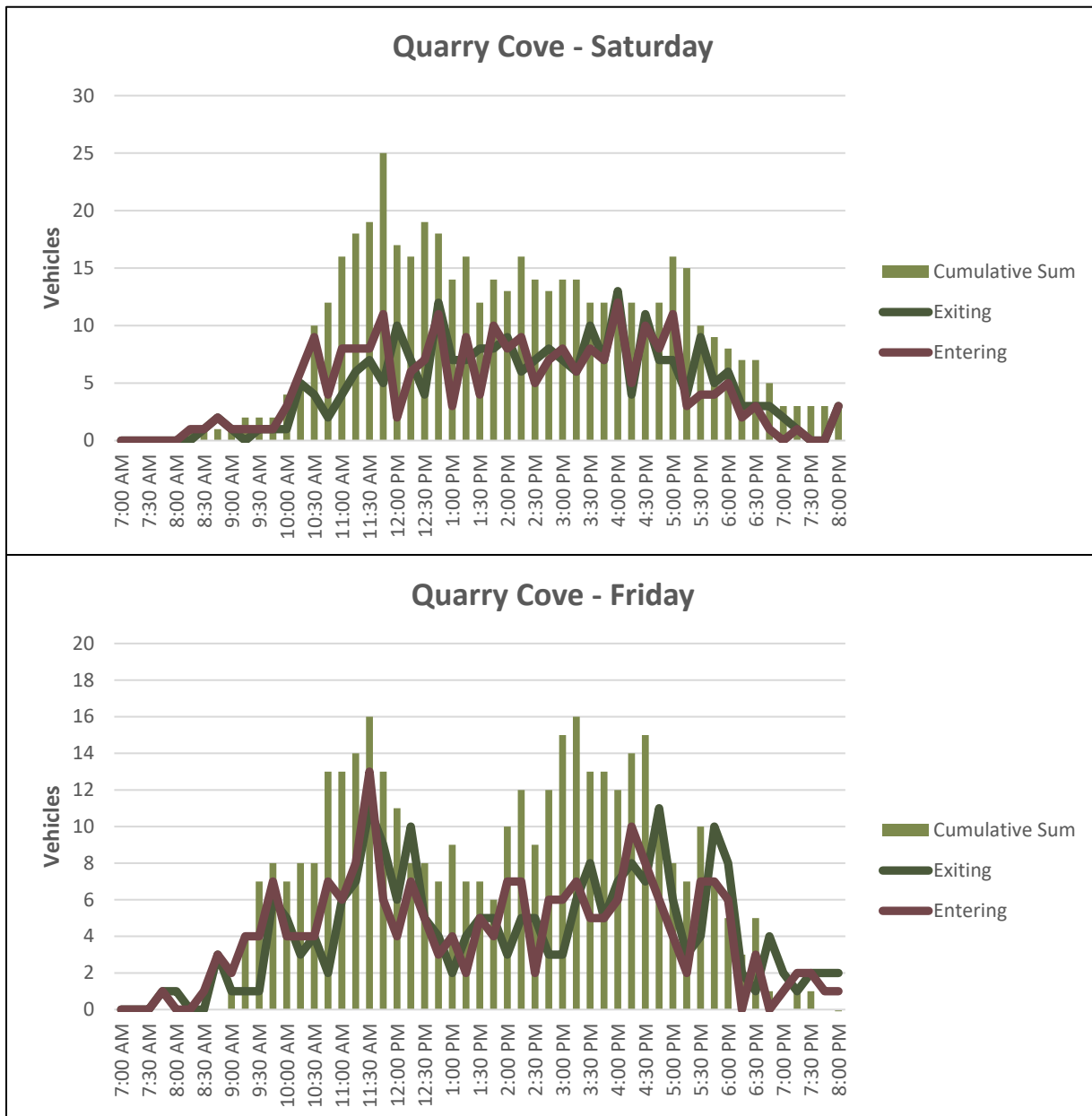


Figure 2.12: Quarry Cove Access Road

2.3.4. Vehicle Speeds

Most of the site is signed at 25mph, except the Quarry Cove access road in both directions and Lighthouse Drive in the eastbound direction only near the Keeper's Garden, which are signed at 15 mph. US 101 through the study area is signed at 45 mph. Input from BLM suggests that posted speed limits are not well respected within the Yaquina Head ONA boundaries, and vehicles often speed through the site, endangering non-motorists and motorists alike.

Along with traffic volume information, the pneumatic tube counters were used to collect speed data. From these data the average speed, 85th percentile speed, and the pace of traffic were determined. The 85th percentile speed is the speed at or below which 85 percent of vehicles are observed to travel. The pace of traffic is the 10 mph range at which the most vehicles are traveling. **Table 2.6** presents speed data in tabular form. See **Appendix C** for more information.

Table 2.6: Traffic Speed Data

Location	Direction	Posted Speed (mph)	Average Speed (mph)	85th Percentile Speed (mph)	10 mph Pace (% of Vehicles)
Lighthouse Drive – East of Entrance	Westbound	25	24.9	28.9	20.2 – 30.1 (80.5%)
	Eastbound	25	24.5	28.6	19.9 – 29.8 (81.6%)
Lighthouse Drive – West of Entrance	Westbound	25	16.7	19.3	11.7 – 21.6 (95.0%)
	Eastbound	25	19.6	23.0	14.7 – 24.6 (87.9%)
Quarry Cove Access Road	Westbound	15	19.6	23.8	14.3 – 24.2 (81.1%)
	Eastbound	15	16.7	20.0	11.4 – 21.3 (90.7%)
Lighthouse Drive – Between Quarry Cove and the Interpretive Center	Westbound	25	25.5	29.3	20.9 – 30.7 (84.7%)
	Eastbound	25	26.5	30.3	21.4 – 31.3 (81.0%)
Lighthouse Drive – Keeper's Garden	Westbound	25	19.9	24.4	15.1 – 25.0 (78.1%)
	Eastbound	15	17.6	21.7	13.4 – 23.3 (79.1%)

Based on the data collected, the average, 85th percentile speeds, and pace of traffic were all generally below or within 5 mph of the posted 25 mph speed limits. The most common spots at which speeding vehicles were noted were within the 15 mph zones. In the westbound direction on the Quarry Cove access road, 88 percent of vehicles were observed exceeding the speed limit. Near Keeper's Garden, 20.2 percent of vehicles were observed exceeding the 15 mph speed limit. Approximately 4.3 percent of vehicles were speeding within the combined 25 mph zones, while 32.8 percent of vehicles were speeding within the combined 15 mph zones.

2.3.5. US 101 / Lighthouse Drive Traffic Data

Data collection cameras were used to collect turning movement counts (TMCs) at the intersection of US 101 and Lighthouse Drive in both the 2021 spring and summer seasons. In the spring, data were collected on Saturday May 1st through Sunday May 2nd from 5:00 AM to 9:00 PM and on Monday May 3rd from 5:00 AM to 5:00 PM. In the summer, data were collected in tandem with pneumatic tubes on Friday August 13th from 5:00 AM to 9:00 PM and Saturday August 14th from 5:00 AM to 8:30 PM.

An operational analysis was performed for the US 101 and Lighthouse Drive intersection using the collected traffic data. Field collected data, as discussed previously, were used as inputs for the analysis. Data were

evaluated for 2 timeframes: AM (7:00 AM – 11:00 AM) and PM (3:00 PM – 7:00 PM). The peak hour of traffic during each timeframe was calculated for the intersection.

Intersection performance is evaluated in terms of vehicle delay. The amount of vehicle delay experienced at an intersection correlates to a measure called level of service (LOS). LOS is used as a means for identifying intersections that are experiencing operational difficulties. The LOS scale (A through F) represents the full range of operating conditions. The scale is based on the ability of an intersection to accommodate the amount of traffic using the intersection. The scale ranges from “A” which indicates little, if any, vehicle delay, to “F” which indicates significant vehicle delay and traffic congestion. The Transportation Research Board’s Highway Capacity Manual (HCM) is the most widely used reference in determining the performance of existing roads and intersections and for providing input into estimating future performance.²² HCM methods were used to calculate the delay and LOS for the US 101 / Lighthouse Drive intersection, as shown in **Table 2.7**.

Table 2.7: Existing Intersection Operational Analysis

Intersection	SPRING				SUMMER			
	AM		PM		AM		PM	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
FRIDAY								
US 101 / Lighthouse Dr	-	-	-	-	75.6	E	66.6	E
Northbound (US 101)	-	-	-	-	46.4	D	85.3	F
Southbound (US 101)	-	-	-	-	97.9	F	48.1	D
Eastbound (Lighthouse Dr)	-	-	-	-	47.0	D	41.6	D
Westbound (Lighthouse Dr)	-	-	-	-	118.8	F	62.7	E
SATURDAY								
US 101 / Lighthouse Dr	31.5	C	35.2	D	34.4	C	59.2	E
Northbound (US 101)	35.1	D	36.9	D	38.3	D	74.2	E
Southbound (US 101)	23.3	C	30.1	C	28.5	C	40.2	D
Eastbound (Lighthouse Dr)	38.7	D	47.3	D	37.7	D	57.0	E
Westbound (Lighthouse Dr)	70.1	E	59.2	E	66.4	E	81.4	F
SUNDAY								
US 101 / Lighthouse Dr	28.6	C	27.6	C	-	-	-	-
Northbound (US 101)	33.6	C	28.3	C	-	-	-	-
Southbound (US 101)	20.1	C	21.9	C	-	-	-	-
Eastbound (Lighthouse Dr)	41.1	D	41.5	D	-	-	-	-
Westbound (Lighthouse Dr)	59.5	E	72.6	E	-	-	-	-
MONDAY								
US 101 / Lighthouse Dr	23.9	C	26.5	C	-	-	-	-
Northbound (US 101)	22.1	C	27.9	C	-	-	-	-
Southbound (US 101)	21.7	C	19.8	B	-	-	-	-
Eastbound (Lighthouse Dr)	39.3	D	39.1	D	-	-	-	-
Westbound (Lighthouse Dr)	63.6	E	64.1	E	-	-	-	-

The intersection typically operated at LOS C during the spring except during the Saturday PM peak hour which yielded LOS D. During the spring season, the longest delays were experienced by the minor street (westbound and eastbound) approaches, with delays ranging from 39 to 47 seconds on the eastbound leg and 59 to 70

seconds on the westbound leg. The east and westbound approach signals are not configured with protected left turn arrows. This likely is a contributing factor to the longer delays at these approaches.

In the summer, the intersection experienced reduced levels of service and increased delays on all legs. The westbound leg experienced the longest delays, with delays ranging from 63 seconds to 119 seconds. The southbound leg experienced a significant delay of 98 seconds during Friday AM peak hour as compared to 48 seconds during the Friday PM peak hour. Newport has historically been and continues to be a popular tourist stopping point given its location on the Oregon Coast Highway. Given this, it is reasonable to assume that delays at the intersection increase during the summer as a result of an increase in tourist activity.

The northbound left-turn bay on US 101 is approximately 160 feet long with an additional 400 feet of two-way left-turn lane that could be used to accommodate additional queued vehicles. During both spring and summer data collection periods, all queued traffic cleared the intersection in 1 cycle. The maximum observed queue was 8 vehicles. Although the signal timing allows all vehicles to clear the intersection, the signal phasing only allows protected left turns which increases delay by prohibiting unprotected left turns. Still, the northbound leg is shown to exhibit lower vehicle delays compared to the east and westbound legs.

2.4. Projected Traffic Conditions

The Newport TSP forecasted future (2040) traffic conditions using the latest (2018) Newport Travel Demand Model developed and maintained by ODOT. The model predicted future traffic volumes based on an assumed 21 percent overall increase in households and 20 percent increase in the number of jobs in Newport. A significant portion of those households and jobs are predicted to occur in developments in the land surrounding the US 101/Lighthouse Drive/NE 52nd Street intersection.

Overall, the TSP forecasts the average daily traffic on US 101 in downtown Newport to increase nearly 30% during typical weekday traffic conditions and nearly 25% during peak summer traffic conditions. In particular, at the US 101/Lighthouse Drive/NE 52nd Street intersection, traffic is forecast to increase at an average rate of 1.7 percent per year under peak summer conditions and 1.3 percent per year under average weekday conditions. Traffic on the minor streets is expected to increase at a higher rate than the US 101 legs of the intersection due to predicted traffic patterns.

2.4.1. Projected Traffic Volumes

Existing intersection TMCs were used to predict future traffic volumes on Lighthouse Drive for the design year 2042 based on the projected growth rates provided in the TSP. Since 24-hour TMCs were not collected at the intersection, a design hourly volume (DHV) adjustment was applied to estimate average daily traffic (ADT). The DHV was determined based on a nearby ODOT continuous count site located on US 101 at MP 139.11. The 2020 DHV at this site was 11.8%. **Table 2.8** displays the projected ADT counts.

Table 2.8: Projected Traffic Volumes – Lighthouse Drive

Location	2021 Adjusted ADT*		2042 Projected ADT	
	Spring	Summer	Spring	Summer
Lighthouse Drive	1,847	2,271	2,423	3,236

*ADT = DHV * Highest Peak Hour Volume

If traffic grows in the manner predicted by the TSP, Lighthouse Drive could experience traffic volumes greater than 3,000 during the peak summer season within the next 20 years. During the spring season, upwards of 2,500 vehicles could be observed on Lighthouse Drive by 2042.

2.4.2. Projected Intersection Operations

Existing intersection TMCs were projected to predict future traffic conditions for the design year of 2042. The analysis assumes that the traffic mix and patterns observed under existing conditions will remain the same into the future while growing at the rates discussed in the previous section. The results of the analysis are presented in **Table 2.9**.

Table 2.9: Projected Intersection Operational Analysis

Intersection	SPRING				SUMMER			
	AM		PM		AM		PM	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
FRIDAY								
US 101 / Lighthouse Dr	-	-	-	-	210.4	F	222.9	F
Northbound (US 101)	-	-	-	-	113.3	F	269.1	F
Southbound (US 101)	-	-	-	-	299.0	F	198.4	F
Eastbound (Lighthouse Dr)	-	-	-	-	53.7	D	48.1	D
Westbound (Lighthouse Dr)	-	-	-	-	220.6	F	83.7	F
SATURDAY								
US 101 / Lighthouse Dr	65.3	E	93.3	F	106.2	F	203.1	F
Northbound (US 101)	79.6	E	99.3	F	99.2	F	244.7	F
Southbound (US 101)	50.2	D	94.4	F	119.6	F	177.1	F
Eastbound (Lighthouse Dr)	42.1	D	55.3	E	41.7	D	86.5	F
Westbound (Lighthouse Dr)	93.0	F	69.0	E	86.9	F	126.7	F
SUNDAY								
US 101 / Lighthouse Dr	50.0	D	49.2	D	-	-	-	-
Northbound (US 101)	64.1	E	55.2	E	-	-	-	-
Southbound (US 101)	32.7	C	41.0	D	-	-	-	-
Eastbound (Lighthouse Dr)	43.5	D	44.9	D	-	-	-	-
Westbound (Lighthouse Dr)	66.8	E	90.1	F	-	-	-	-
MONDAY								
US 101 / Lighthouse Dr	36.1	D	53.7	D	-	-	-	-
Northbound (US 101)	31.1	C	71.7	E	-	-	-	-
Southbound (US 101)	37.8	D	29.4	C	-	-	-	-
Eastbound (Lighthouse Dr)	40.6	D	41.9	D	-	-	-	-
Westbound (Lighthouse Dr)	75.1	E	78.1	E	-	-	-	-

When compared to existing conditions, peak-hour operations are projected to degrade. The projected conditions analysis shows failing traffic conditions during all peak hours in both the summer and spring seasons. Delays are projected to increase significantly compared to the existing conditions. The traffic conditions on Friday and Saturday yield the greatest delays, especially during the PM peak hour. In particular, summer traffic conditions are projected to experience the highest delays. During the AM peak hour, the southbound leg shows the greatest delay of nearly 300 seconds. During the PM peak hour, the northbound leg shows the greatest delay of 269 seconds.

Tourism activity is expected to increase at Yaquina Head ONA in future years. An increase in visitors will result in an increase in traffic at the US 101/Lighthouse Drive intersection. Given this assumption, it is reasonable to conclude that the current intersection configuration will not adequately accommodate future traffic volumes.

2.5. Safety

ODOT provided data for crashes occurring on US 101 between MP 137 and 138 over the 10-year period between January 1, 2009, through December 31, 2018. The crash data included location, time period, type, severity, environmental factors, driver demographics, and vehicle details associated with each crash. A total of 65 crashes were reported on the 1-mile-long stretch of the highway during this time period. Of the 65 crashes, 36 are reported as occurring at the US 101/Lighthouse Drive/NE 52nd St intersection based on the reports prepared by the responding officers.

The crash data obtained from ODOT were compiled from individual driver and police crash reports submitted to ODOT. As such, some of the information contained in the crash reports may be subjective or inaccurate. Any crash records that were not reported to ODOT are not contained in the database and are not included in this analysis. The following sections summarize only the 36 crashes occurring at the study intersection as reported by ODOT.

2.5.1. Severity

The determination of injury severity for a person involved in a crash is based on the latest information available at the time the crash report is completed. From least to most severe, injury severity categories include no apparent injury, possible injury, suspected minor injury, suspected serious injury, and fatal injury. The distribution of reported injury severity resulting from crashes occurring at the intersection is presented in **Figure 2.13**.

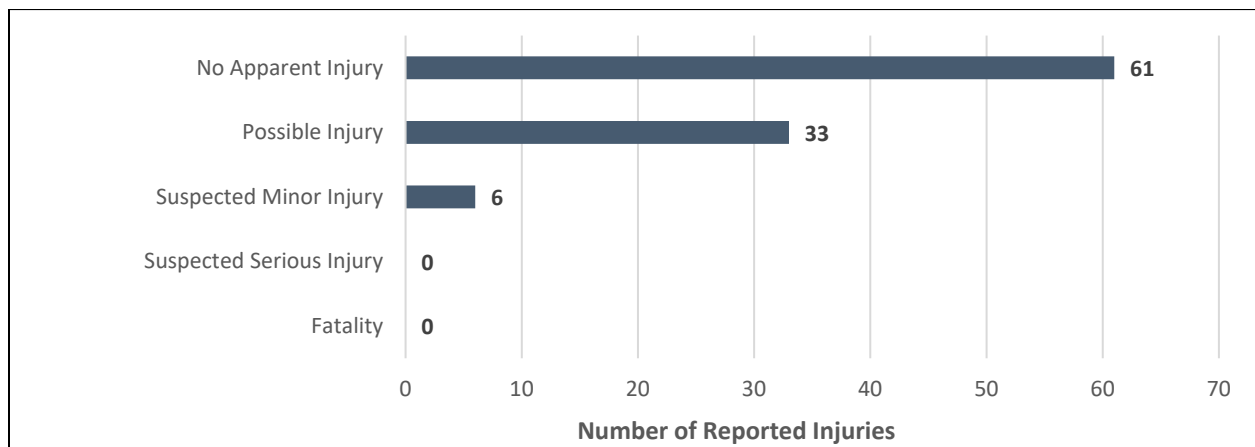


Figure 2.13: Injury Severity

Of the 100 people involved in the 36 crashes at the intersection, 39 individuals experienced injuries, including 6 suspected minor injuries and 33 possible injuries. No fatalities or suspected serious injuries were reported at the intersection, and 61 individuals experienced no apparent injury.

2.5.2. Crash Period

Crash data for the study area was evaluated based on the time period when the crash occurred. Temporal trends such as crashes per year, month, day of week, and hour of the day were identified. **Figure 2.14** shows

the frequency of crashes occurring per year over the 10-year analysis period. During this time, the number of crashes per year fluctuated but generally trended downward. ODOT noted that a higher number of crashes may be reported as of 2011 compared to prior years due to an internal department reporting process to add previously unavailable, non-fatal crash reports to the data file.

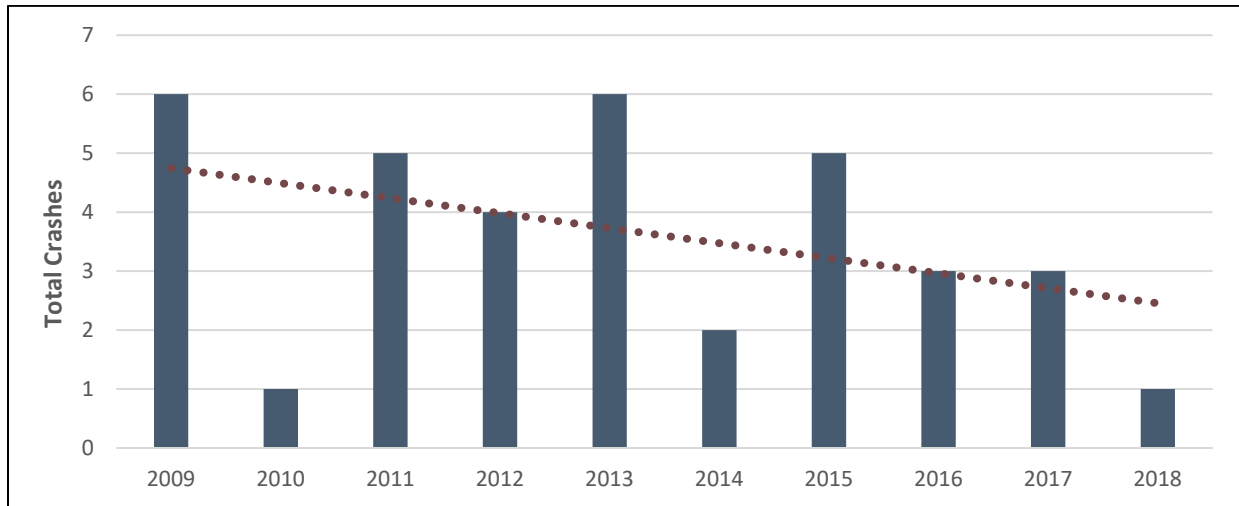


Figure 2.14: Crashes per Year

The frequency of crashes occurring during each month and day of the week were plotted in **Figure 2.15**. The highest number of crashes were observed during the summer months, June through September (17 crashes), which may reflect higher traffic volumes associated with summer tourism. Crashes peaked on Mondays (7 crashes) and Saturdays (8 crashes), with the fewest crashes occurring on Thursdays (3 crashes).

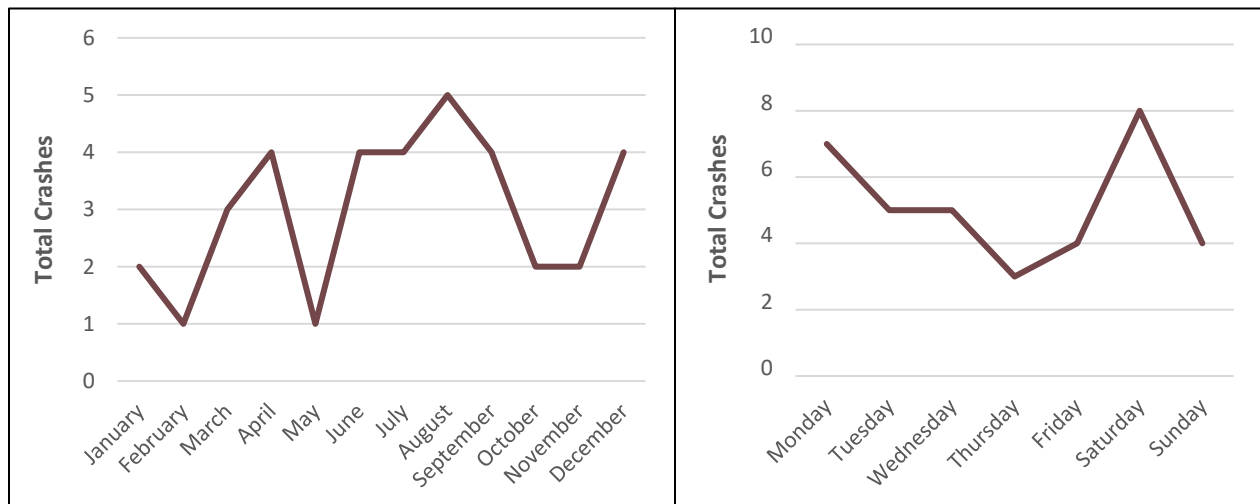


Figure 2.15: Crashes by Month and Day of Week

2.5.3. Crash Type

Crash types can be grouped into 2 categories: multiple and single vehicle crashes. During the 10-year analysis period, no single vehicle crashes occurred at the intersection. Multiple vehicle crashes involving 2 vehicles accounted for nearly 70 percent of all crashes while crashes involving 3 or 4 vehicles accounted for 25 and 6

percent of crashes, respectively. The most common crash types were rear end (31 crashes) followed by crashes related to turning movements (4 crashes). The remaining crash was related to improper backing. **Figure 2.16** presents the distribution of crash types at the intersection.

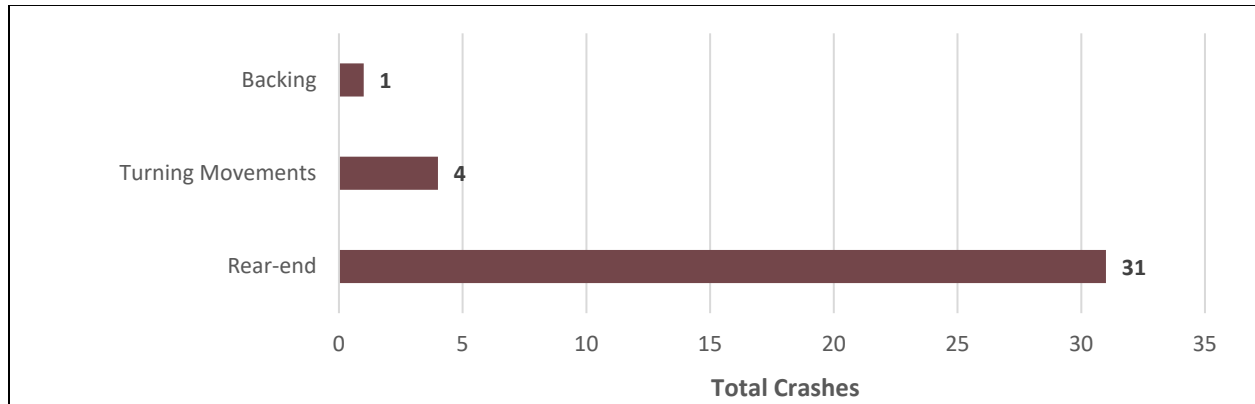


Figure 2.16: Crash Type

2.5.4. Environmental Factors

Crash records include information relating to environmental factors such as roadway surface, weather, and lighting conditions. This information was analyzed to identify trends. The road condition was reported as dry for 61 crashes. Snow, ice, or frost covered roadways were reported for 21 crashes and wet roadways were reported for 15 crashes. Daylight conditions were reported for 77 crashes and dark-lighted conditions were reported for 12 crashes. With respect to weather conditions, clear weather was reported for 60 crashes, cloudy conditions were reported for 22 crashes, and snow was reported for 12 crashes. **Figure 2.17** presents the distribution of environmental factors. **Table 2.10** details the relationship between weather, road, and lighting factors.

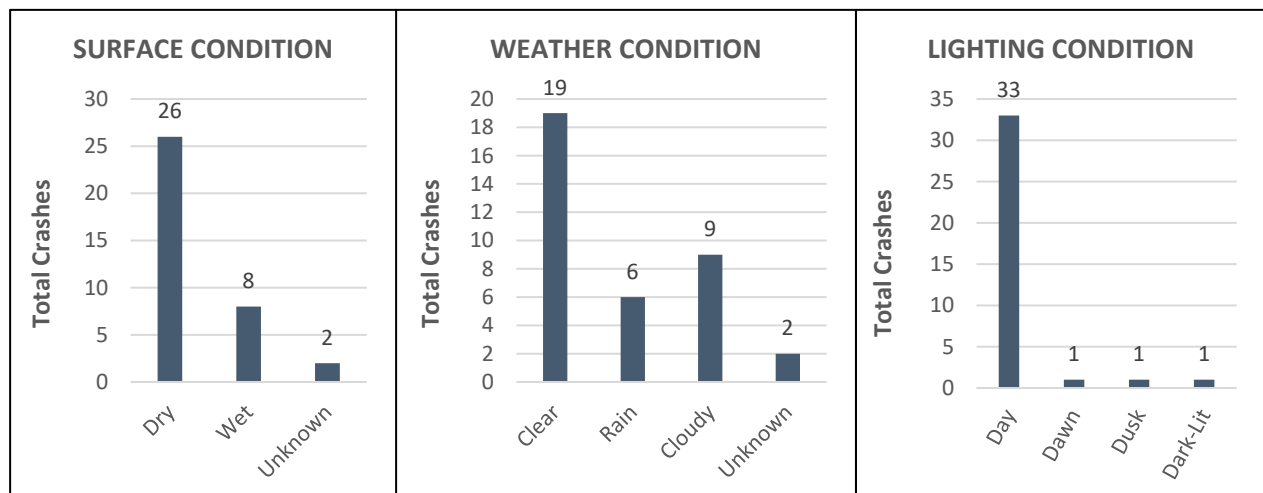


Figure 2.17: Environmental Factors

Table 2.10: Environmental Factors in Crashes

Weather	Lighting				Total
Surface	Day	Dark	Dawn	Dusk	
Clear	18	--	--	1	19
Dry	14	--	--	1	15
Wet	4	--	--	--	4
Unknown	--	--	--	--	--
Rain	5	--	1	--	6
Dry	4	--	--	--	4
Wet	1	--	1	--	2
Unknown	--	--	--	--	--
Cloudy	9	--	--	--	9
Dry	7	--	--	--	7
Wet	1	--	--	--	1
Unknown	1	--	--	--	1
Unknown	1	1	--	--	2
Dry	--	--	--	--	--
Wet	--	1	--	--	1
Unknown	1	--	--	--	1
Total	33	1	1	1	36

2.5.5. Driver Demographics

Driver gender and age were analyzed to identify potential trends. A total of 84 drivers were involved in the 36 reported crashes, reflecting more than 1 driver involved in multiple-vehicle crashes. Males accounted for 43 of the drivers (51 percent), while females accounted for 31 of the drivers (37 percent). The gender of the remaining 10 drivers was reported as unknown. Since 2016, age and gender are not reported by ODOT for crashes resulting in property damage only. About 63 percent of the drivers involved in crashes resulting in injuries were female.

Female drivers outnumbered male drivers in the 26-35 age category, but male drivers outnumbered or equaled female drivers in the remaining age categories. The average age of drivers was 37.3 years. The youngest and oldest drivers were reported as 17 and 72 years, respectively. Individuals 25 years old and younger accounted for 11 drivers (13 percent), while individuals 66 years old and older accounted for 5 drivers (6 percent). The age distribution and gender of drivers involved in reported crashes is shown in **Figure 2.18**.

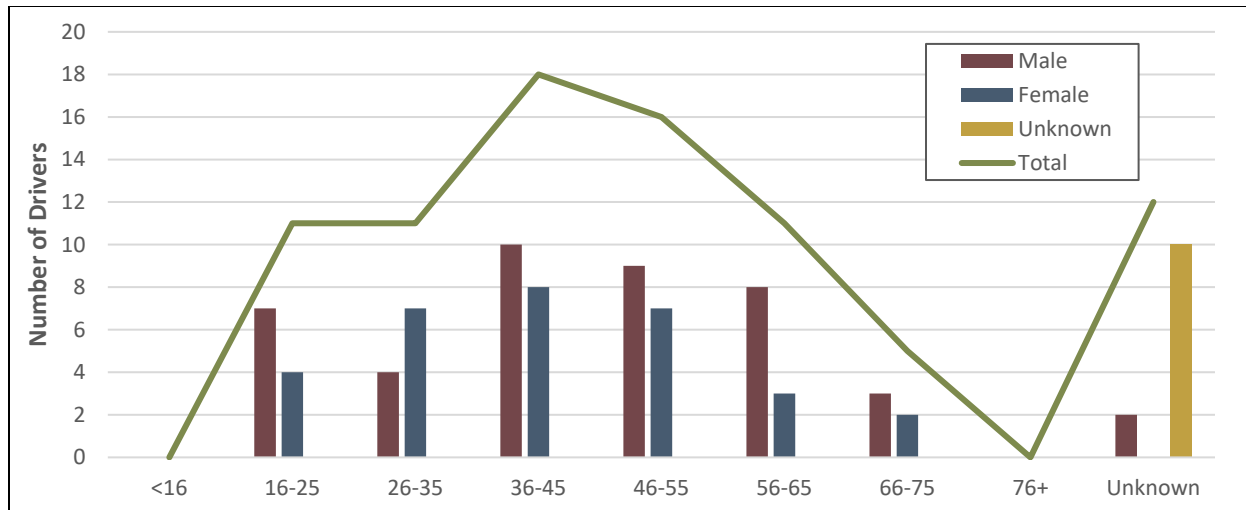


Figure 2.18: Driver's Age and Gender

2.5.6. Vehicle Details

A total of 84 vehicles were involved in the 36 reported crashes. All vehicles were either categorized as “passenger car, pickup, or light delivery vehicle” (72 vehicles) or were reported as unknown (12 vehicles). Similar to driver demographics, since 2016 ODOT has stopped reporting select vehicle details when the crash causes property damage only. No large trucks or motorcycles were reported in crashes at this intersection over the 10-year analysis period. Likewise, no bicyclists or pedestrians were reported to be directly involved in the crashes. However, 1 bicyclist and 1 pedestrian were reported as being indirectly involved in 2 separate rear-end crashes.

2.5.7. Contributing Factors

For each crash, reporting indicated the cause of the crash, which represents the circumstance(s) most responsible for the occurrence of the crash. Each crash must have at least 1 cause entered, but up to 3 are allowed. The causes are reported in order of relevance to the crash. The reported cause of the crashes is presented in **Figure 2.19**. The most common cause was following too closely (21 occurrences), which is common in rear-end crash types. Inattention and driving too fast for conditions (but not exceeding the speed limit) were the next most common, occurring 7 and 6 times, respectively. In the 4 crashes reported as turning movement crash types, the primary causes were disregarding the traffic signal (2 crashes), making an improper turn (1 crash), and careless driving (1 crash).

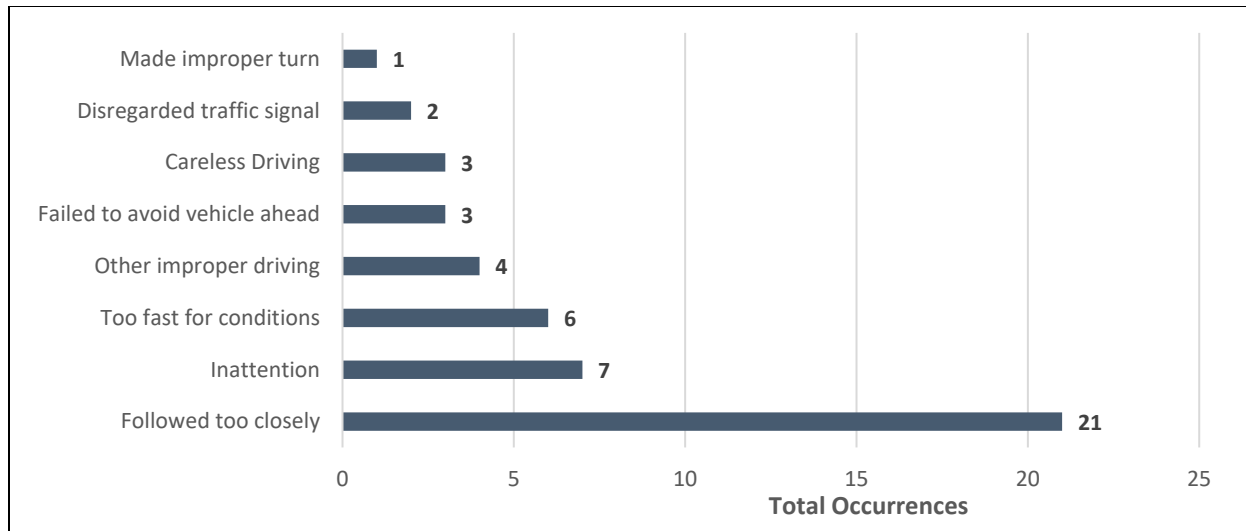


Figure 2.19: Reported Causes of Crashes

ODOT reports alcohol involvement in the crash when an active participant (driver or non-motorist in a position of control during the crash) has been using alcohol. This is determined based on reported use by the participant or officer as well as participant blood alcohol content results. Alcohol was determined to be involved in 1 of the 36 crashes at the intersection over the 10-year analysis period.

ODOT also reported whether a vehicle was exceeding the posted speed based on information from the police report, issued citations, or by the driver's own admission. Of the 36 reported crashes, 6 were determined to involve vehicles exceeding the speed limit. Since 2016, speed data is no longer collected when the crash results in property damage only. Based on crash date and injury severity, up to 3 additional property damage only crashes may have involved high speeds.

2.5.8. Wildlife Incidents

ODOT maintains data for wildlife incidents on Oregon Highways on its TransGIS²³ interactive mapping tool. At the time of viewing, 5 wildlife incidents were reported at the US 101/Lighthouse Drive intersection. All 5 incidents involved deer. Each of the incidents occurred in separate years: 2014, 2016, 2018, 2019, and 2020. One of the incidents occurred in the spring, 2 in the summer, and 2 occurred in autumn.

2.5.9. Additional Safety Concerns

ODOT also provides publicly available crash data on its TransGIS interactive mapping tool. Crash data for the years 2015 through 2019 were available at the time of viewing. Based on available data, 2 crashes were reported on Lighthouse Drive over the 5-year period.

The first crash occurred in August of 2016 at Lighthouse Circle and was reported as a backing crash type. The second crash occurred in June of 2017 and was reported as a rear-end crash. Both crashes were reported as property damage only crashes and occurred on dry roads under daylight conditions.

The BLM also records safety incidents that occur on site at Yaquina Head ONA. No transportation-related incidents were shared for reporting in this memorandum.

BLM staff have noted additional safety concerns relating to potential conflicts between vehicles and pedestrians due to a lack of dedicated pedestrian facilities. Concern has been voiced regarding the section of

Lighthouse Drive between the US 101 intersection and the entrance station. Pedestrians often walk into the site on foot along the roadway shoulder and sometimes in the travel lanes, increasing the potential for vehicle-pedestrian conflicts. Several areas within the site also lack pedestrian facilities or provide poor visibility. At the entrance station, conflicts have been observed between pedestrians and opposing traffic as well as vehicles performing unsafe turnaround maneuvers. Additionally, staff safety has been noted as a potential concern, particularly when staff are conducting line busting activities in live traffic.

3.0. ECONOMIC AND RECREATIONAL CHARACTERISTICS AND OPPORTUNITIES

The following sections describe the current and future economic and recreational characteristics and opportunities at the city, county, and statewide levels.

3.1.1. Economic Characteristics

Median household incomes in Newport and Lincoln County are both below the state median values. The median income in Newport is approximately 22 percent lower than that of the statewide median, while that in Lincoln County is 24 percent lower than the statewide median. The poverty rates in Newport and Lincoln County are both above that of the overall poverty rate in Oregon. The statewide unemployment rate is also less than that of the city and county rates.

Table 3.1: Economic Characteristics Near the Study Area

		Newport	Lincoln County	Oregon
Population		10,559	48,547	4,129,803
Economic Characteristics	Median household income	\$49,039	\$47,882	\$62,818
	Persons below poverty level	17.0%	16.3%	13.2%
	Unemployment rate	5.7%	6.1%	5.5%

Source: U.S. Census Bureau American Community Survey, 5-Year Estimates (2015 – 2019)

In 2019, the City of Newport employed approximately 4,467 people. The largest employing industry in the city was accommodation and food services (18 percent). Retail trade employed 13 percent and health care and social assistance employed 11 percent of the population in Newport. The highest paying industries were utilities (\$103,750), professional, scientific, and technical services (\$53,750), and public administration (\$52,708).

Historically, the tourism industry has thrived in Newport. Newport boasts a plentitude of tourist attractions including museums and city parks. Recreational opportunities are also in abundance including fishing, boating, biking, and various other activities. The national and state parks and historical sites in the area also continue to attract tourists.

3.1.2. Site Fees

Yaquina Head honors and issues all America the Beautiful National Parks and Federal Recreational Lands passes as well as Oregon Pacific Coast passes. The fee structure is listed in **Table 3.2**. Visitation is projected to increase within the upcoming years. As visitation increases, the potential for future revenue generation also increases.

Table 3.2: Yaquina Head ONA Fee Structure

Pass Type	Time Valid	Cost	Notes
Private Vehicles & Buses			
Passenger Vehicle, Non-Commercial	3 days	\$7	Valid at Yaquina Head ONA only
Motorcycle	3 days	\$3	
Commercial Bus (<20)	1 day	\$25	
Commercial Bus (>20)	1 day	\$50	
Oregon Pacific Coast Passport			
Non-Commercial	5 days	\$10	Provides access to Oregon State Park, US Forest Service (USFS), National Park Service (NPS) and BLM sites along the Oregon Coast.
Non-Commercial (Annual)	1 year	\$35	
Annual Passes			
Yaquina Head	1 year	\$15	Valid at Yaquina Head ONA only
Interagency	1 year	\$80	Covers NPS, BLM, USFS, USFWS, Bureau of Reclamation (BOR), Army Corps of Engineers (USACE) – anyone can purchase.
Interagency (Senior)	1 year	\$20	Covers NPS, BLM, USFS, USFWS, BOR, USACE - US Citizens age 62+ only
Lifetime Passes			
Interagency Access	Lifetime	Free	US Citizens with a permanent disability only
Interagency Senior	Lifetime	\$80	US Citizens age 62+ only
Free Entry			
Pedestrians	1 day	Free	Valid at Yaquina Head ONA only
Bicyclists			
Registered Educational Groups			

Source: U.S. Department of the Interior, Bureau of Land Management.

Lighthouse Tours

Tours of the Yaquina Head Lighthouse are offered when weather and staffing conditions permit. Each tour is limited to 16 visitors. Day-of-tour passes are available on a first-come, first-serve basis and must be reserved in person at the Interpretive Center no earlier than 10 AM on the day of the tour. A \$1 administration fee is required to hold each ticket reservation.

3.1.3. Future Economic Opportunities

The *Greater Newport Area Vision and Strategic Plan* outlines various strategies for developing new economic opportunities in the Newport area. The recommended strategies, outlined below, focus on creating new businesses and jobs in the community. Robust interpretive programming and visitation at the Yaquina Head ONA support strategies relating to tourism diversification and science economy expansion.

- **Expanded Working Waterfront** – Expand the capacity of existing marine businesses through utilization of marine-related assets
- **Science Economy Expansion** – Expand the science and marine economy in Newport through national and international promotion methods highlighting the Newport area as a hub for scientific research, education, observation, and conservation activities.
- **Living-Wage Jobs** – Create and retain jobs that provide at the least a minimum income that allows employees to meet basic life needs

- **Airport Improvements** – Maintain and enhance the Newport Municipal Airport as a viable transportation asset that can support business growth and improve access to and from the community
- **Marine Economy and Economic Development** – Consider Oregon State University’s Marine Studies Initiative in tangent with the area’s marine economy in future economic development planning
- **Tourism Diversification** – Promote expansion of ecotourism and interpretive programs based on Newport’s marine industries
- **Arts and Cultural Destination** – Promote the Newport area as a major arts and cultural destination
- **Local Businesses Support** – Support and retain existing local businesses
- **Small Business Development** – Expand training and education for small business development and skills. Include resources for artists, craftspeople, tradesmen, and technology start-ups.
- **Green and Sustainable Business** – Promote and support businesses that use sustainable technologies, materials, and products.
- **Sustainable Fisheries** – Support sustainable fisheries by utilizing new technologies and partnering with the science community.
- **Diversified Agricultural Economy** – Promote the production, marketing, and sales of seafood, wood products, and local agricultural goods.
- **Shoulder Season Attractions and Festivals** – Develop new attractions to sustain tourism throughout the shoulder season
- **Viable and Sustainable Commercial Air Service** – Partner with local, state, and federal officials to develop a model for sustainable air service
- **Permanent Farmers Market** – Implement a year-round farmers market with expanded hours. Provide expanded opportunities for food, beverage, and agricultural goods start-ups.

3.1.4. Existing Recreational Opportunities

Yaquina Head ONA provides multiple recreation opportunities including seal, sea bird, and wildlife viewing; whale watching; tide pooling; and numerous walking and biking opportunities. The offshore islands are a year-round refuge for harbor seals and a spring-summer home for thousands of nesting seabirds. Gray whales can be spotted during their annual migrations to Mexico (during late fall-early winter) and Alaska (during late winter-early spring). During the summer months some gray whales feed in the shallow waters around the headland. Cobble Beach, named for the smooth, dark, rounded basalt stones that cover the beach, offers some of the best tidepool exploration in the area. When the tide is low, a vibrant ocean floor is revealed with pools of colorful animals including orange sea stars, purple sea urchins, and giant green anemones. For a brief time, Quarry Cove provided access to the nation’s only wheelchair-accessible tidepools. However, the ocean continually deposited sand in the pools, so the BLM decided to instead maintain Quarry Cove as an ADA-accessible beach.

Many local residents regularly walk their dogs at the site. Leashed dogs are allowed on all trails and beaches but are not allowed inside the Interpretive Center or lighthouse. Walking, hiking, and biking are popular for both locals and out-of-area visitors to enjoy sunning views of the Oregon coast.

Other users visit Yaquina Head ONA to surf or hang/paraglide. Communications Hill Trail provides access to 2 hang/paragliding launch sites. Pilots are instructed to check in with ONA staff prior to flying as there is at least 1 closure or restriction in force at all times. There are also several good viewpoints to watch these recreationists.

Guests are encouraged to visit the Interpretive Center to view exhibits, presentations, and videos on seabirds and marine life as well as human history on the headland. The center also features the wheelhouse of an historic ship, a recreated rocky island and its inhabitants, and a full-scale replica of the lighthouse lantern. For many years, peregrine falcons have built nests on the cliffs above the Interpretive Center. Visitors often congregate in the Interpretive Center parking lot to watch the falcons, and 24-hour livestream cameras were recently installed to allow distant visitors to watch the birds.

BLM staff and volunteers are available for visitors to ask questions. When weather and staffing conditions permit, ranger-led lighthouse tours are also offered.

3.1.5. Future Recreational Opportunities

The *Newport Transportation System Plan* (TSP) outlines several locations in Newport that are in critical need of improvements to pedestrian facilities (See **Section 1.6** for detail). Identified locations include the Yaquina Bay area, the Oregon Coast Trail (near Yaquina Head), and crossings on US 101. There is a need to address existing gaps in pedestrian facilities, poor connections, vehicle speeds, and safety issues. The intent is to complete the pedestrian system, making walking a more attractive option in the area.

Coordination with the city of Newport to provide new trails or connections between existing trails would further facilitate recreational opportunities in the area. Connectivity between Yaquina Head ONA and Yaquina Bay would fill a gap in the existing Oregon Coast Trail. As it exists, the trail terminates at the beach just north of Yaquina Head ONA and begins again on Agate Beach. Coordination with the Oregon Coast Trail would facilitate better access through Yaquina Head ONA while simultaneously helping to complete the pedestrian system in Newport.

4.0. ENVIRONMENTAL SETTING

As with any potential roadway improvement project, the current and potential environmental conditions need to be considered. This section provides a planning-level overview of environmental resources and identifies potential constraints and opportunities based on readily available environmental information. Improvement projects forwarded from this planning study which may impact the species supported by the environment, the land surrounding the roadway, and the nearby populations will need to be considered. Project-level environmental analysis would be required for any improvements forwarded from this study. Information contained in this section may be used to support future environmental documentation.

4.1. Physical Environment

The following subsections present an overview of items related to the physical environment of the study area.

4.1.1. Land Ownership and Land Use

Yaquina Head ONA is located within the city limits of Newport. Allowed land uses in and around Yaquina Head ONA are regulated by the City of Newport's *Comprehensive Plan* through its zoning maps and code. According to the City's 2016 zoning map, Yaquina Head ONA is zoned as public structures and all land immediately adjacent to the site is zoned as medium density single-family (R-2). The land surrounding the US 101/Lighthouse Drive/NE 52nd Street intersection is zoned as light industrial (I-1) with some bordering lands zoned as tourist commercial (C-2). Future/planned land uses surrounding Yaquina Head ONA, as shown in the city's Comprehensive Plan Map, include low density residential, as well as higher density residential and commercial uses closer to the US 101 intersection.

Lands surrounding Yaquina Head ONA are mostly privately held, although some bordering lands are owned by the City of Newport and Lincoln County. BLM owns the nearly 100 acres of Yaquina Head ONA including all roads. The right-of-way for Lighthouse Drive and US 101 is held in public interests. The City of Newport is responsible for Lighthouse Drive from the US 101 intersection extending about 850 feet west and ODOT is responsible for US 101. The small parking lot adjacent to Lighthouse Drive near the US 101 intersection is mostly within private right-of-way while the Ernest Bloch Memorial Wayside parking lot along US 101 south of Lighthouse Drive is within the US 101 right-of-way.

4.1.2. Soil Resources and Prime Farmland

The *Farmland Policy Protection Act* (FPPA) (7 U.S.C. 4201 et. seq.) requires deliberate analysis for potential farmland impacts of projects with federal involvement. The FPPA defines the term farmland only as prime farmland, unique farmland, and farmland of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. The FPPA does not apply to lands already in or committed to urban development but does stipulate that federal programs be compatible with state, local and private efforts to protect farmland

The US Department of Agriculture Natural Resources Conservation Service (NRCS) determines where prime farmland exists and maintains mapping resources and information to support the FPPA. Prime farmland soils are those that have the best combination of physical and chemical characteristics for producing food, feed, and forage; the area must also be available for these uses. Prime farmland can be either non-irrigated or lands that would be considered prime if irrigated. Farmland of statewide importance is land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops.

The study area has been mapped by the NRCS and is included in the Lincoln County Area survey area. The map shows that no prime farmland exists within the Lincoln County Area. About 11 percent of the lands are classified as farmland of statewide importance.

Federally funded projects apply the FPPA requirements to determine if prime farmland may be irreversibly converted to nonagricultural use. If any improvement options are forwarded from the traffic study to become federally funded projects, coordination with the NRCS will be required to determine the necessary NRCS processing requirements. Projects planned and completed without the assistance of a federal agency are not subject to the FPPA.

4.1.3. *Geologic Hazards*

The study area lies within the Siletz-Yaquina Watershed and is primarily composed of Quaternary sediments and Miocene volcanic and marine sedimentary rocks.²⁴ Coastal erosion and landslides are extensive from Otter Rock southward to Yaquina Head. There are also large landslides on both the north and south sides of Yaquina Head. According to the Oregon Department of Geology and Mineral Industries, the majority of Yaquina Head ONA is considered to be at moderate to high risk for landslide occurrence.

Seismic hazards are considered 1 of the major natural hazards in Oregon. The strongest earthquake effects are generally felt closer to the coastline. According to the *Oregon HazVu: Statewide Geohazards Viewer*, Yaquina Head ONA is located in a region that is expected to experience very strong to severe shaking in the instance of an earthquake.

The Cascadia Subduction Zone is a fault that runs from northern California to British Columbia. It lies approximately 70 to 100 miles off the Pacific Coast shoreline and has the potential to cause a 9.0+ magnitude earthquake in Oregon and a resulting tsunami of 100 feet in height. If an earthquake of this magnitude were to occur, it is anticipated that most of Oregon would be without services for 2 weeks or more. Scientists currently predict that the probability of a 7.1+ magnitude earthquake occurring within the next 50 years is about 37 percent. Yaquina Head ONA lies in a region that is expected to experience severe to violent shaking from a Cascadia earthquake.²⁵

Tsunamis are also considered a hazard for this area. The main hazard exists on the coastline, and Yaquina Head ONA is considered to be outside of the inundation hazard area. Additional tsunami hazard information is contained in **Appendix D**.

Coastal erosion is an additional geologic hazard that could potentially affect the study area due to the high activity of ocean waves. The shorelines surrounding Yaquina Head ONA are mostly within a very high hazard zone.²⁶

4.1.4. *Surface Waters*

The study area lies entirely within the Siletz-Yaquina Watershed (Hydrologic Unit Code 17100204) as delineated by the United States Geological Survey (USGS). More specifically, it falls within the Moolack Creek watershed (171002040903). As discussed previously in **Section 2.1.5**, there are no prominent surface water features that cross or run parallel to Lighthouse Drive. Three unnamed, intermittent streams cross Lighthouse drive and only hold water during wet portions of the year. Two perennial streams, Little Schooner Creek and an unnamed stream, cross US 101 within the study area.

Road construction and reconstruction activities may have potential impacts to surface waters. Coordination with federal, state, and local agencies would be necessary to determine the appropriate permits based on the improvement options forwarded from this study. Impacts should be avoided and minimized to the maximum extent practicable. Impacts to streams and wetlands may trigger compensatory mitigation requirements.

Water Quality

The *Clean Water Act* (CWA) is the principal federal legislation directed at protecting water quality. The Oregon Department of Environmental Quality (ODEQ) is the state agency responsible for implementing components of the CWA. As directed by the CWA, ODEQ prepares a report every 2 years listing the status of water quality for waterbodies under state jurisdiction and showing which waters in Oregon don't meet standards. ODEQ also examines its standards every 3 years to ensure that they incorporate the most relevant scientific data.

The ODEQ biennial Integrated Reports include a list of all surface waters where pollutants have impaired the beneficial uses of water (such as for drinking, recreation, and aquatic habitats). The CWA requires the development and implementation of cleanup plans for waterbodies that fail to meet state water quality standards. This typically involves the development of a Total Maximum Daily Load (TMDL) in which ODEQ determines the sources of pollutants and sets the maximum amount of pollutants that each source can discharge to a waterbody.

According to ODEQ's *2018/2020 Integrated Report*, the Moolack Creek Watershed is rated as impaired for aquatic life. The impairment categories were identified as low oxygen levels in the water and impaired biota, meaning that the biological community within the water body is unhealthy or the population numbers are significantly lower than expected. Nye Beach is rated as impaired for recreation purposes and fish and shellfish consumption. Beverly Beach, Moolack Beach, and Yaquina Head are all rated as impaired for fish and shellfish consumption as well. Big Creek is rated as impaired for aquatic life and recreation.

4.1.5. Groundwater

Groundwater is the water present beneath Earth's surface in soil pore spaces and in the fractures of rock formations. In Oregon, groundwater is an important source of drinking water for individual homes and public water systems. Groundwater is also important for irrigation and livestock. According to the Oregon Water Resources Department Well Report Mapping Tool²⁷, there are 6 wells within the Yaquina Head ONA, 5 of which are used to collect water. An additional 39 wells are located adjacent to US 101 within the broader study area. All of these wells are used for monitoring and geotechnical purposes. Well depths vary by individual location throughout the entire study area, but the reported depths of wells drilled in Yaquina Head ONA have been drilled to depths of greater than 100 feet. The reported static water levels range from 35 to 46 feet below the ground surface. Impacts to the groundwater supply should be considered in any improvement option that may be brought forward from the traffic study.

4.1.6. Floodplains and Floodways

Floodplains are the flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. The floodplain includes the "floodway" which consists of the stream channel and adjacent areas that carry flood flows and the "flood fringe" including the area covered by the flood.

Executive Order (EO) 11988, *Floodplain Management*, requires efforts be taken to reduce the risk of flood loss; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains, including providing habitat for fish, wildlife, plants, open space, natural

flood moderation, water quality maintenance, and groundwater recharge. EO 11988 requires projects undertaken or funded by federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

Compliance with this directive requires an evaluation of a proposed project and its alternatives to determine the effects of any encroachments on the "base" floodplain, which is the area covered by water from the 100-year flood and is a regulatory standard used by federal agencies and states to administer floodplain management programs. The 100-year flood represents a flood event that has a 1 percent chance of being equaled or exceeded in any given year.

Floodplain mapping for the study area can be found in Flood Insurance Rate Map (FIRM) panels 41041C0362E and 41041C0366E, provided in **Appendix D**. Based on this mapping, the entirety of Lighthouse Drive runs adjacent to the coastal floodplain, but the roadway itself lies outside of the floodplain boundary. A small area on the end of Quarry Cove Road lies within the coastal floodplain boundary. FEMA categorizes the headland and inland portion of the study area as Zone X, meaning this is an area of minimal flood hazard. The Pacific Ocean along Quarry Cove and Cobble Beach is subject to flooding by the 1-percent-annual-chance flood event due to high velocity waves that are typically present during storms (Zone VE).

4.1.7. *Wetlands and Waters of the U.S.*

Wetlands are lands that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The repeated or prolonged presence of water at or near the soil surface is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Wetlands can typically be identified by the existence of 3 environmental parameters: a dominance of hydrophytic vegetation, hydric soils, and prolonged periods of inundation or saturation resulting in sufficient hydrology to support wetland development. Examples of types of wetlands include marshes, bogs, the shallow portions and shorelines of lakes, ponds, and reservoirs, seasonal wet meadows, and the floodplain and shoreline of streams.

USFWS is the principal federal agency that provides information to the public on the extent and status of the nation's wetlands. The USFWS has compiled mapping to show wetlands and deepwater habitats in the US including many parts of Oregon and has made this mapping available through access to the National Wetland Inventory (NWI). NWI wetlands are identified in general accordance with USFWS's publication *Classification of Wetlands and Deepwater Habitats of the United States*²⁸. NWI maps do not define wetlands for regulatory purposes since the wetlands are identified through aerial photo interpretation. The NWI definition of wetlands requires 1 or more of the 3 attributes of wetlands (wetland hydrology, vegetation, or soils) be present to be a wetland.

NWI mapping for the study area shows primarily estuarine and marine wetlands, freshwater ponds, and various rivers and stream channels. Three unnamed, intermittent riverine features cross Lighthouse Drive at separate locations. Two additional riverines cross US 101 within the broader area that is being considered for the study.

4.1.8. Hazardous Substances

ODEQ works to clean up contaminated properties throughout the state. ODEQ also regulates underground storage tanks on properties owned by private businesses and public entities, ensuring that the tanks are installed, managed, and monitored in a manner that prevents releases into the environment.

National Priority List (Superfund) Sites

The National Priority List is the list of hazardous waste sites throughout the US eligible for long-term remedial action financed under the federal Superfund program. A Superfund site is any land that has been contaminated by hazardous waste and identified by the US Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment. No Superfund sites exist in or near the study area.

Hazardous Waste Generators

The Yaquina Head Lighthouse is listed as a very small quantity generator in the EPA Hazardous Waste Site database. Coast Towing, located on the corner of NW 55th St and US 101, is also listed on the hazardous waste site database. No additional details are provided for this site regarding activity type or amount of waste generated.²⁹

Hazardous Waste Release Sites

There are no hazardous waste release sites in the area. However, there are 2 hazardous waste release sites nearby³⁰:

- The **Arlo Development Co** site (US 101 and NE 32nd St.) experienced soil contamination as a result of activities at the former salvage yard. Contaminants included chromium, lead, arsenic, and benzo anthracene. A deed is in place prohibiting residential use of the property. No further action is needed.
- The **Riverbend Marine Service** (Yaquina Bay Rd) site was created entirely from historic dredge spoils. A site visit in 1997 yielded observations of spent grit entering the Yaquina River. Contaminants of concern included tributyltin, dibutyltin, monobutyltin, polycyclic aromatic hydrocarbons, colatile organic compounds, and polychlorinated biphenyls. Remedial investigation is recommended.

Underground Storage Tanks

Six underground storage tanks are located within a mile of Yaquina Head ONA.³¹ Four of the tanks are located at Agate Beach Market near the intersection of US 101 and NW 49th St. Another exists about a mile from Yaquina Head ONA at the Agate Beach Golf Course located off US 101. The last tank is on the corner of NW 55th St and US 101, about ½ mile from Yaquina Head ONA. All 6 tanks have been decommissioned. The closest active underground storage tank is about 2.2 miles away at the Chevron on the corner of NE 15th St and US 101.

Petroleum Tank Releases

No petroleum tank releases were identified in the study area. The nearest release occurred about ½ mile from Yaquina Head ONA at Agate Beach Time, near the NW 48th St and US 101 intersection.³²

Abandoned and Inactive Mine Sites

According to the Oregon Department of Geology and Mineral Industries, no abandoned or inactive mine sites are located within or near the project area.

Landfills

No active landfills occur in the study area.

4.1.9. Air Quality

The *Clean Air Act* of 1970, as amended, is the basis for air pollution control programs. In accordance with the Act, the EPA established National Ambient Air Quality Standards (NAAQS) for 6 criteria pollutants: ozone, carbon monoxide, particulate matter (PM-2.5 and PM-10), lead, sulfur dioxide, or nitrogen dioxide. The NAAQS are health-based standards to protect human health and public welfare and set allowable concentrations and exposure limits for each criteria pollutant.

The EPA and the ODEQ are charged with regulating air quality and may designate areas as attainment or nonattainment based on their history of meeting the NAAQS for pollutants of concern. Areas where air pollution levels do not exceed the air pollution thresholds established in the NAAQS are designated as “attainment” areas. “Nonattainment areas” are localities where air pollution levels persistently exceed the NAAQS, or that contribute to ambient air quality in a nearby area that fails to meet standards. An area that has been designated as nonattainment in the past, but that now complies with the NAAQS, is classified as a “maintenance” area.

Lincoln County is considered an attainment area for all pollutants, and therefore proposed transportation projects would likely not be subject to conformity requirements. However, if the area’s air quality changes, conformity requirements could be implemented in the future. Any project proposed would need to examine the current status and determine if the project is subject to conformity requirements.

4.1.10. Noise

Roadway projects can cause noise levels to increase for affected receivers during project construction and/or from operation of the traffic facility. Noise impacts can potentially occur due to construction of a roadway on a new location or the physical alteration of an existing roadway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes.

Residences in the study area are sensitive noise receptors that could be affected by roadway improvements within Yaquina Head ONA. Sites protected under Section 4(f) of the U.S. Department of Transportation Act and Section 6(f) of the Land and Water Conservation Fund Act within the study area may also be considered sensitive noise receptors. Improvements in the area may require a noise analysis. Detailed noise analyses are often conducted when the potential for noise impacts exists due to substantial changes in roadway design or configuration.

Construction activities associated with improvements within Yaquina Head ONA may result in localized and temporary noise impacts in the vicinity of residences. These impacts can be minimized by incorporating measures to control noise sources during construction.

4.2. Biological Resources

The following information applies to the biological environment within the study area and reflects baseline natural resource conditions. Depending on the level of detail available, some of the information is presented at the county level, some at the study area level, and some at the statewide level.

4.2.1. Vegetation

Several vegetation types occur within the Yaquina Head ONA study area, including mixed hardwood and coniferous forest, coastal spruce, and western hemlock forest. The majority of Yaquina Head ONA is classified as conifer, developed, or non-vegetated.

Invasive weeds are a growing concern in Lincoln County, Oregon. Nine species of noxious weeds are known to occur within the study area. All are designated as 'List B' by the State of Oregon, meaning they are regionally abundant but may have limited distribution in some counties. Intensive control measures for these weeds are conducted at the state, county, or regional level and are determined on a case-by-case basis. The known noxious weeds within the study area are knotweed, herb Robert, ivy, giant knotweed, Armenian blackberry, field bindweed, bull thistle, Canada thistle, and St. Johnswort. Lincoln County's Vegetation Management program has been active in education, control, and eradication of noxious weeds. If improvement options are forwarded from this feasibility study, field surveys for noxious weeds should take place before any ground disturbance occurs. Proposed projects should incorporate applicable practices outlined by Lincoln County.

4.2.2. Fish and Wildlife

Bird observation is a common activity at Yaquina Head ONA. During the breeding season, typically from May to August, seabird breeding colonies can be observed within close range of Yaquina Head ONA facilities. According to the USFWS, 5 species of seabird and 1 shorebird species breed on the coast at Yaquina Head ONA. Two varieties of cormorants can be observed: Brandt's and Pelagic. The Brandt's cormorants in the area typically nest on the rock tops along the coast, and the Pelagic cormorants nest among the cliff faces. Pigeon guillemots and western gulls are also observed along the cliff ledges. Black osytercatchers frequent the tides in search of food. The common murre, an abundant seabird in Oregon, is often observed on the nearshore sea stacks. Other birds that frequent or pass through Yaquina Head ONA include brown pelicans, bald eagles, spring harlequin ducks, surfbirds, and black turnstones.

Other wildlife that are commonly observed in the area are gray whales and harbor seals. Gray whales pass by Yaquina Head ONA just off the coast, and harbor seals can be observed with their young resting on the coastal rocks, which are managed by the USFWS as part of the Oregon Islands National Wildlife Refuge. They provide sanctuary for the harbor seals and seabirds and are closed to public access year-round.

If any improvement projects are brought forward from the study, project planners should coordinate with fish and wildlife biologists from Oregon FWP and the USFWS to gain further insight into issues related to the management of these species, as well as measures for avoiding, minimizing, or mitigating adverse effects on species and habitat.

4.2.3. Threatened and Endangered Species

Section 7(a)(2) of the ESA of 1973, as amended, requires federal agencies to review actions they authorize, fund, or carry out, and to ensure such actions do not jeopardize the continued existence of federally listed species, or result in the destruction or adverse modification of designated critical habitat. **Table 4.1** shows the ESA listed species that may potentially occupy the study area or be affected by projects in the vicinity (as of September 23, 2021) as defined by the USFWS Oregon Fish and Wildlife Office.

Table 4.1: Threatened and Endangered Species Impacted by the Study Area

Species	Federal Status	Typical Habitat
Pacific Marten (<i>Martes caurina</i>)	Listed as Threatened	The pacific marten is a medium-sized carnivore in the weasel family. They are forest-dwelling mammals that are native to coastal Oregon and coastal California. They tend to select older forests as their primary habitat, but they have also been known to reside in younger forests where a dense understory development is present. Their range generally spans from the central California coast to the northern Oregon coast.
Marbled Murrelet (<i>Brachyramphus marmoratus</i>)	Listed as Threatened	The marbled murrelet, a small diving seabird, is generally found all along the western coast of the United States. They typically spend most of their time on the ocean but come inland (up to 50 miles) to nest. Their nests are usually in large trees that offer branches or deformities for use as a platform.
Northern Spotted Owl (<i>Strix occidentalis caurina</i>)	Listed as Threatened	The northern spotted owl lives in forests with dense canopy closure. They typically prefer forests with older growth characteristics. A large number of the population resides on the Olympic peninsula. Other locations where the population is known or believed to occur include British Columbia, the Cascade Mountains of northern Washington, and the coast ranges of southwest Washington and northwest Oregon.
Western Snowy Plover (<i>Charadrius nivosus nivosus</i>)	Listed as Threatened	The western snowy plover is a small shorebird found along the coasts of California, Oregon, and Washington. Nesting season usually occurs from early march through late September. They typically nest in flat, open areas on coastal beaches.
Short-tailed Albatross (<i>Phoebastria albatrus</i>)	Listed as Endangered	The majority of the short-tailed albatross population is known to nest on Torishima Island of Japan. They are also believed to occupy the Pacific Ocean off the Oregon Coast.
Leatherback Sea Turtle (<i>Dermochelys coriacea</i>)	Listed as Endangered	The leatherback sea turtle, the largest turtle in the world, occupies a vast range of oceans and beaches around the world, including the US western Pacific coast.
Loggerhead Sea Turtle (<i>Caretta caretta</i>)	Listed as Endangered	The loggerhead turtle, while more common along the Atlantic coast, is also known to live in Oregon coastal waters. Most adults that nest on US beaches migrate from neighboring countries such as Mexico, Cuba, and the Bahamas.
Olive Ridley Sea Turtle (<i>Lepidochelys olivacea</i>)	Listed as Threatened	The olive ridley sea turtle, one of the world's smallest sea turtles, is found throughout the world. In the US, populations are found along the coasts of Oregon, California, and Hawaii.
Oregon Silverspot Butterfly (<i>Speyeria zerene hippolyta</i>)	Listed as Threatened	The Oregon silverspot butterfly occurs in Cascade Head, Oregon, approximately 34 miles north of Newport. It is additionally believed to likely occur in the Nestucca Bay National Wildlife Refuge approximately 34 miles north of Newport.

Source: U.S. Fish and Wildlife Services, Oregon Fish and Wildlife Office

All of the listed species are known or believed to either reside within the study area or have the potential to be indirectly affected by project activities within the study area. The above list was defined by the USFWS office of Oregon using the known or expected habitat range of each species. Species often move and habitats change, therefore the listed species are not guaranteed to be found within or near the study area.

In 2015, an Environmental Assessment (EA)³³ was conducted for Yaquina Bay to assess potential environmental impacts from river maintenance dredging. A portion of the EA involved a Biological Assessment (BA) to examine potentially affected threatened and endangered species in the area. The USFWS provided a determination of “no effect” for the silverspot butterfly.

4.2.4. Other Species of Concern

The red tree vole is a small rodent that inhabits treetops and rarely ventures to ground level. Their principal diet consists of conifer needles, which is enough to sustain them. Adult red tree voles tend to live alone and only come together to breed. Their home ranges are often less than half an acre.

Red tree voles are native to coniferous forests west of the crest of the Cascade Mountains in Oregon and northwestern California and generally are found at lower elevations. In Oregon, the red tree vole occurs in the region from the Cascade crest to the Pacific coast. The north coast, which includes Lincoln County, is the primary management concern for the species.

Habitat loss is the main cause for concern for the red tree vole. Given that they are primarily a tree-dwelling species, they are very vulnerable to activities that potentially cause tree reduction or disturbance. Activities of concern include development, recreation, and road construction.³⁴

4.3. Social and Cultural Resources

The following subsections present an overview of the social and cultural environment within the study area.

4.3.1. Demographic Conditions

Implementing regulations for the National Environmental Policy Act (NEPA) require federal agencies to assess potential social and economic impacts resulting from proposed actions. FHWA guidelines recommend consideration of impacts to neighborhoods and community cohesion, social groups including minority populations, and local and/or regional economies, as well as growth and development that may be induced by transportation improvements. Demographic and economic information presented in this section is intended to assist in identifying populations that might be affected by improvements in the study area.

According to the *American Community Survey* (ACS), the city of Newport is slightly more diverse, racially and ethnically, than both Lincoln County and the state of Oregon. Persons identifying as White make up approximately 71 percent of the population in Newport, 83 percent of the population in Lincoln County, and 76 percent of the population in Oregon. The percentage of the population identifying as Hispanic or Latino is greater in Newport (20 percent) compared to Lincoln County (9 percent) and Oregon (13 percent). Persons identifying as Black or African American make up nearly 2 percent of the population in Oregon and Newport compared to 0.6 percent in Lincoln County. The percent of the statewide population identifying as Asian is about 4 percent in Oregon and approximately 2 percent and 1 percent in Newport and Lincoln County, respectively. For all other races, the city, county, and state have comparable population distributions. **Table 4.2** displays the summarized demographic data.

Title VI of the *United States Civil Rights Act of 1964* and *Executive Order 12898* require that projects receiving federal funds must not result in disproportionately high and adverse effects on minority or low-income populations. For transportation projects, this means that minority or low-income populations must not be disproportionately isolated, displaced, or otherwise subjected to adverse effects. If improvement options are forwarded from the planning study into project development, environmental justice would need to be further evaluated during the project development process. However, demographic data obtained for this study indicates minority and/or low-income populations are present in the area.

Table 4.2: Demographic Characteristics Near the Study Area

	Newport	Lincoln County	Oregon
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Population		10,559	48,547	4,129,803
Racial/Ethnic Characteristics	White (not Hispanic or Latino)	70.9%	82.5%	75.7%
	Hispanic or Latino	20.3%	9.2%	13.0%
	Black or African American	1.9%	0.6%	1.9%
	American Indian or Alaska Native	2.0%	2.8%	1.2%
	Asian	1.7%	1.2%	4.4%
	Some Other Race	8.4%	2.6%	3.5%
	Two or more races	5.6%	4.6%	4.8%

Source: U.S. Census Bureau American Community Survey, 5-Year Estimates (2015-2019)

Environmental Justice

Title VI of the *United States Civil Rights Act of 1964* prohibits recipients of federal financial assistance from discriminating based on race, color, or national origin in any program or activity. In 1994, EO 12898 was issued to direct federal agencies to incorporate achieving environmental justice into their mission. Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

To better meet responsibilities related to the protection of public health and the environment, the EPA has developed an environmental justice mapping and screening tool called EJSCREEN based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports.

While the EJSCREEN report (**Appendix E**) indicates that most environmental and demographic indicator values for Yaquina Head ONA are below comparable values for the State of Oregon, EPA Region, and the nation, minority and/or low-income populations are present in the area. If improvement options are forwarded from this study into project development, environmental justice would be evaluated during the project development process.

4.3.2. Cultural and Historic Resources

The OCZMA has classified the Yaquina Head Lighthouse as being of natural historic significance, and it is denoted with a Lincoln County Historical Society marker. The site is also listed on the National Register of Historic Places (NRHP). The NRHP is an official list of historic places in the US that have been deemed worthy of preservation. Qualified historic locations may receive preservation assistance and incentives.

Data about Indian Tribes with potential interests in the study area was obtained from the Tribal Directory Assessment Tool (TDAT) available from the website of the US Department of Housing and Urban Development. TDAT has the ability to link tribes' geographic areas of current and ancestral interest down to the county level and provides tribal contact information to assist users with initiating Section 106 consultation under the *National Historic Preservation Act*. The TDAT search identified the following tribes with potential interests in Lincoln County:

- Confederated Tribes of Siletz Indians of Oregon
- Confederated Tribes of the Grand Ronde Community of Oregon
- Confederated Tribes of the Warm Springs Reservation of Oregon

If improvement options are forwarded from this study into project development, evaluation of impacts to cultural and historic resources and consultation with state and tribal entities would be required during the project development process.

4.3.3. Section 4(f) Resources

Projects that receive federal funding and/or discretionary approvals from the FHWA must demonstrate compliance with *Section 4(f) of the Department of Transportation Act of 1966* (23 U.S.C. § 138 and 49 U.S.C. § 303). Section 4(f) protects publicly owned public parks, recreation areas, wildlife/waterfowl refuges, and historic sites of national, state, or local significance on public or private land that are potentially eligible for listing or are listed on the NRHP. The regulations require coordination with the official(s) with jurisdiction when making determinations about the use of protected properties or resources.

The Yaquina Head Lighthouse is listed on the NRHP and impacts to the study area should be investigated and appropriately considered in accordance with Section 4(f) if improvement options are forwarded from this study. The Ernest Bloch House, located at 116 NW Gilbert Way is also listed on the NRHP and could potentially be impacted by improvements within the broader study area.

If a project uses a Section 4(f) property and a finding of *de minimis* impact is not made, FHWA can approve the use of that property only if the agency finds that (1) there is no feasible and prudent avoidance alternative to the use of the Section 4(f) property, and (2) all possible planning to minimize harm to the Section 4(f) property has been incorporated into the alternative.

4.3.4. Section 6(f) Resources

Projects may also be subject to *Section 6(f) of the Land and Water Conservation Fund (LWCF) Act* which was enacted to preserve, develop, and ensure the quality and quantity of outdoor recreation resources. Section 6(f) protection applies to public recreational sites purchased or improved with LWCF funds. Section 6(f)(3) of the Act prevents conversion of lands purchased or developed with LWCF funds to non-recreation uses, unless the Secretary of the Department of the Interior, through the National Park Service, approves the conversion. Conversion may only be approved if it is consistent with the comprehensive statewide outdoor recreation plan in force when the approval occurs, and the converted property is replaced with other recreation property of at least equal fair market value and of reasonably equivalent usefulness and location.

It does not appear that any recently LWCF funded projects in Oregon are within the vicinity of the study area.

4.3.5. Visual Resources

The visual resources of an area include the features of its landforms, vegetation, water surfaces, and cultural modifications including physical changes caused by human activities that give the landscape its visual character and aesthetic qualities. Landscape features, natural appearing or otherwise, form the overall impression of an area. Visual resources are typically assessed based on landscape character (what is seen), visual sensitivity (human preferences and values regarding what is seen), scenic integrity (degree of intactness and wholeness in landscape character), and landscape visibility (relative distance of seen areas) of a geographically defined view shed.

The study area boasts a high level of scenic quality. Protruding approximately a mile into the Pacific Ocean, Yaquina Head ONA is comprised of lush greenery, sandy beaches, and a dark basalt coast. The rocky areas of Cobble Beach provide excellent tidepool viewing opportunities. The *City of Newport Comprehensive Plan*

expanded the Ocean Shorelands Boundary in 1991 to include Yaquina Head as a major visual resource of the Newport area due to the seaward exposure of the headland.

Actions that may have visual impacts include projects on new locations or that involve expansion, realignment or other changes that could alter the character of an existing landscape or move the roadway closer to residential areas, parks and recreation areas, historic or other culturally important resources.

5.0. AREAS OF CONCERN AND CONSIDERATION

The following is a summary of observed trends and areas for further consideration. These areas were identified through review of as-built drawings, field review, past studies, public databases, and discussions with BLM staff and other stakeholders.

5.1. Transportation System

Section 2 identifies physical features and operational characteristics, geometric conditions, traffic conditions, and safety trends within the study area. The following transportation system conditions were noted as areas of concern or consideration. Project-level traffic, geometric, or safety analysis may be required for any improvements forwarded from this study.

Physical Features and Operational Characteristics

- Inefficient circulation occurs at the entrance station and within the Yaquina Head ONA parking areas, including Quarry Cove, Interpretive Center, and Lighthouse Circle.
- Inappropriate parking sometimes occurs in designated parking areas and in informal pullouts along Lighthouse Drive.
- Visitors are often frustrated with entrance station delays and traffic cones used at the Interpretive Center, resulting in unsafe bypass or turning maneuvers. Visitor frustration also occurs due to lack of available parking at Lighthouse Circle.
- Additional large vehicle and ADA parking stalls are desired throughout the site.
- Large vehicle circulation is challenging in some parking areas within the site.
- Right-of-way varies through the study area, with narrow BLM right-of-way occurring just before the entrance station.
- Overhead and underground utilities are located adjacent to Lighthouse Drive and US 101 throughout the study area.
- Multiple locations on Lighthouse Drive and the Quarry Cove access road exhibit poor pavement conditions.
- Lighthouse Drive lacks dedicated pedestrian facilities between the US 101 intersection and the entrance station, and gaps in pedestrian facilities occur along the Quarry Cove access roadway. Additionally, there is poor multimodal connectivity to facilities outside the study area.
- The Yaquina Head ONA lacks designated crosswalks in key locations where pedestrians typically cross Lighthouse Drive.

Traffic Conditions

- Speeding was noted as a concern by staff and the public. Speeding was observed in 15 mph zones on the Quarry Cove access road and near the Keeper's Garden.
- Long delays are experienced at the entrance station.

- The US 101 intersection typically operated at LOS C during the spring of 2021. However, LOS E occurred during 2021 summer peak periods.
- If traffic grows in the manner predicted by the TSP, Lighthouse Drive could experience traffic volumes greater than 3,000 during the peak summer season within the next 20 years.
- Compared to existing conditions, peak-hour operations at the US 101 intersection are projected to degrade by 2042. Failing traffic conditions and significant delays are projected during all peak hours in both the summer and spring seasons. The current intersection configuration will not adequately accommodate future traffic volumes.

Safety

- The study area lacks dedicated pedestrian facilities, creating potential conflicts with vehicles. Within the Yaquina Head site, pedestrian-vehicle conflicts create safety concerns on Lighthouse Drive, at the entrance station, within parking areas, and at key crossing locations.
- Vehicles have been observed performing unsafe turnaround maneuvers at the entrance station and the Interpretive Center.
- Poor visibility creates a safety concern for pedestrians at existing crosswalks and curves on Lighthouse Drive.
- Staff safety at the entrance station is a concern during periods of high visitation when line busting is conducted in live traffic.

5.2. Environmental Setting

Section 4 identifies physical, biological, social, and cultural resources within the study area that may be affected by potential future improvements arising from the *Yaquina Head Traffic Study*. Project-level environmental analysis would be required for any improvements forwarded from this study. Information contained in this memorandum may be used to support future environmental documentation for compliance with NEPA. The following environmental concerns were noted.

Physical Environment

- Lands surrounding Yaquina Head ONA are mostly privately held, although some bordering lands are owned by the City of Newport and Lincoln County. BLM owns the nearly 100 acres of Yaquina Head ONA including all roads.
- The right-of-way for Lighthouse Drive and US 101 is held in public interests.
- Several landslides have occurred in areas adjacent to Yaquina Head ONA. The majority of Yaquina Head ONA is considered to be at moderate to high risk for landslide occurrence. Steep slopes occur near the entrance station and at the Interpretive Center.
- Yaquina Head ONA is located in a region that is expected to experience very strong to severe shaking in the instance of an earthquake.
- The shorelines surrounding Yaquina Head ONA are considered to be at very high risk for coastal erosion.
- Three unnamed, intermittent streams cross Lighthouse Drive and only hold water during wet portions of the year. Two perennial streams, Little Schooner Creek and another unnamed stream, cross US 101.
- The Moolack Creek Watershed is rated as impaired for aquatic life.

- The entirety of Lighthouse Drive runs adjacent to the coastal floodplain, but the roadway itself lies outside of the floodplain boundary. A small area on the end of Quarry Cove Road lies within the coastal floodplain boundary.
- Residences near the study area comprise the only sensitive noise receptors that could be affected by improvements within Yaquina Head ONA.

Biological Resources

- Mixed hardwood and coniferous forest, coastal spruce, and western hemlock forest occur within the Yaquina Head ONA study area.
- Invasive weeds are a growing concern in Lincoln County. Nine species of noxious weeds are known to occur within the study area.
- Grey whales, harbor seals, and various species of birds frequent Yaquina Head ONA and the surrounding coastal waters.
- Nine threatened or endangered species and 1 species of concern may be affected or indirectly affected by improvements within the study area.

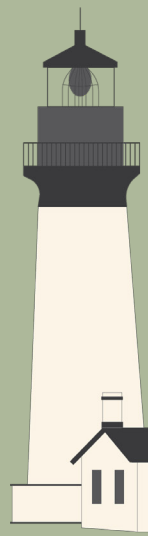
Social and Cultural Resources

- Minority and/or low-income populations are present in the area. Environmental justice would need to be further evaluated during any future project development process.
- The Yaquina Head lighthouse and the Ernest Bloch House are on the NRHP and may be subject to Section 4(f) protections.
- The study area boasts a high level of scenic quality. Improvement activities within the study area may have visual impacts, and consideration should be taken to minimize the effects.

6.0. REFERENCES

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- ¹¹ City of Newport, Greater Newport Area Vision 2040 – Community Vision and Strategic Plan, October 2017.
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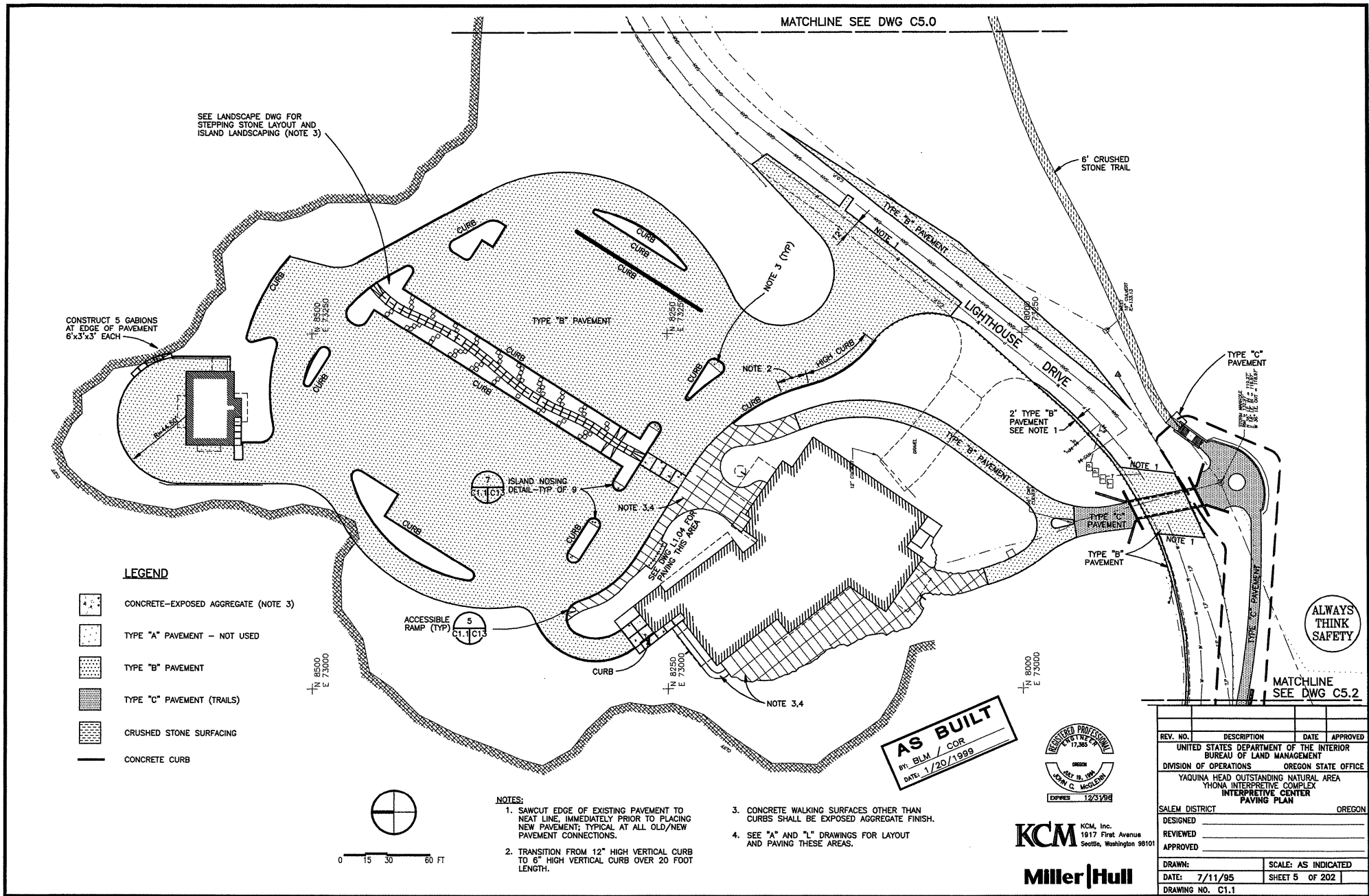
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- ³³ Moffatt & Nichol, Environmental Assessment, Yaquina Bay and River Maintenance Dredging, June 30, 2015.
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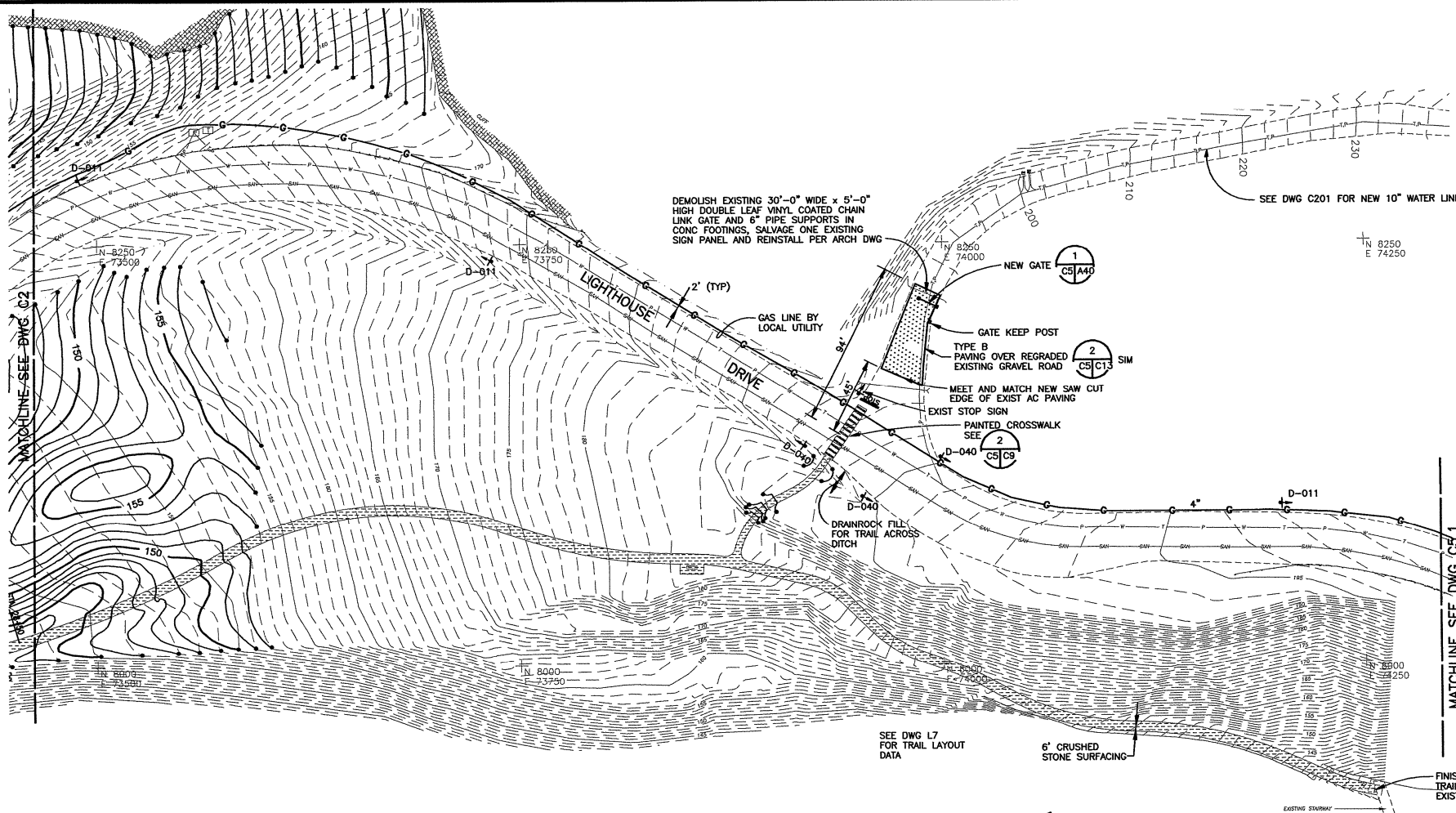
YAQUINA HEAD

Traffic Study

Appendix B1: As-Builts







DEMOLISH EXISTING 30'-0" WIDE x 5'-0" HIGH DOUBLE LEAF VINYL COATED CHAIN LINK GATE AND 6" PIPE SUPPORTS IN CONC FOOTINGS. SALVAGE ONE EXISTING SIGN PANEL AND REINSTALL PER ARCH DWG

SEE DWG C201 FOR NEW 10" WATER LINE

NEW GATE 1 CS/A40

GATE KEEP POST
TYPE B
PAVING OVER REGRADED
EXISTING GRAVEL ROAD 2 CS/C13 SIM

MEET AND MATCH NEW SAW CUT
EDGE OF EXIST AC PAVING
EXIST STOP SIGN
PAINTED CROSSWALK
SEE 2 CS/C9

DRAINROCK FILL
FOR TRAIL ACROSS
DITCH

SEE DWG L7
FOR TRAIL LAYOUT
DATA

6" CRUSHED
STONE SURFACING

MATCHLINE SEE DWG C5/1

ALWAYS
THINK
SAFETY

FINISH GRADE OF
TRAIL TO MATCH
EXIST STAIRWAY

AS BUILT
BY: BLM / COR
DATE: 1/20/1999

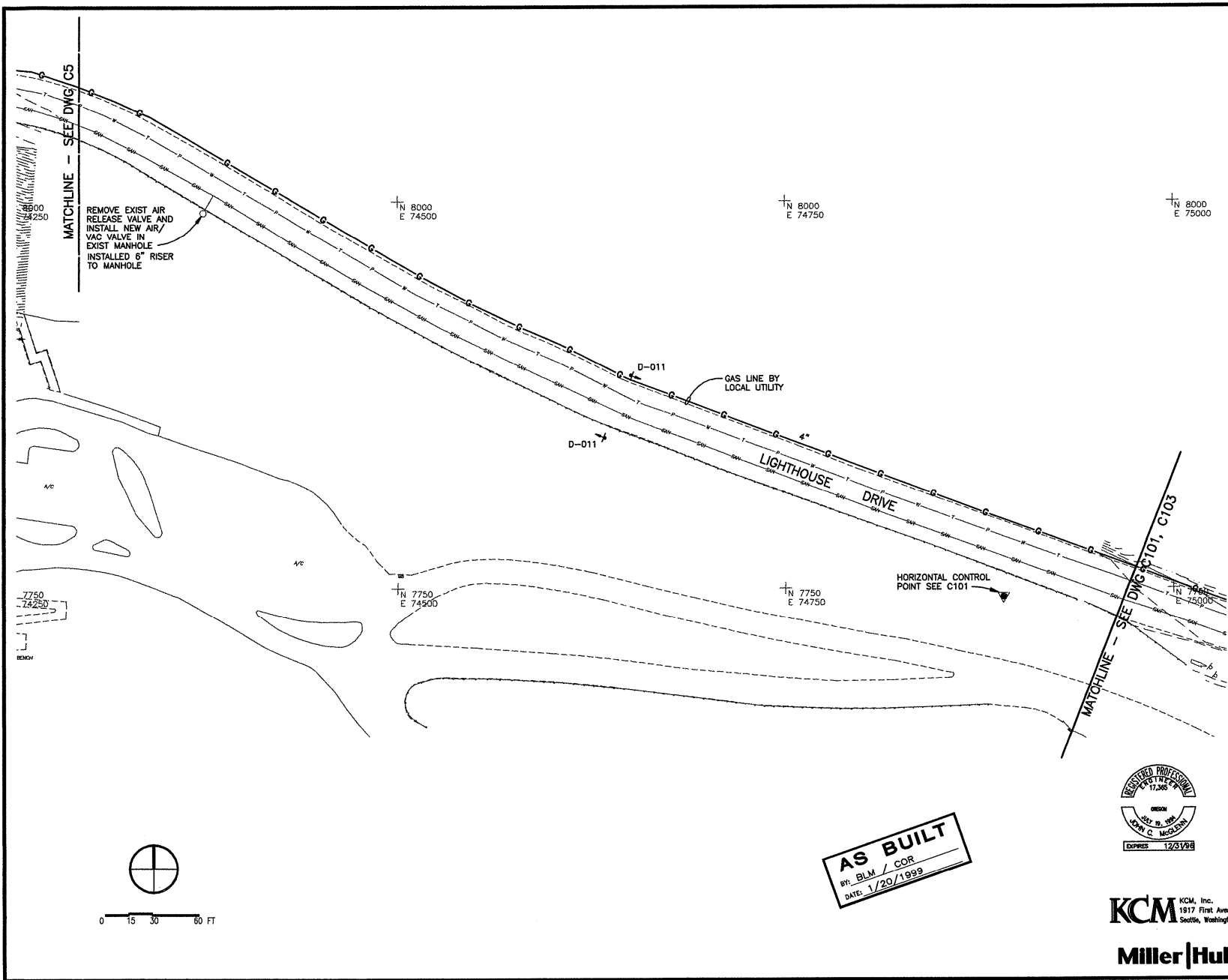


KCM KCM, Inc.
1917 First Avenue
Seattle, Washington 98101
Miller|Hull

- NOTES:
1. SEE DWG C201 FOR WATERLINE IMPROVEMENTS THIS AREA.
 2. SEE DWG A601 FOR SIGNAGE SCHEDULE.
 3. SEE DWG L7 FOR ADDITIONAL INFORMATION.

REV. NO.	DESCRIPTION	DATE	APPROVED
	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YAQUINA HEAD OUTSTANDING NATURAL AREA YHONA INTERPRETIVE COMPLEX PERIPHERAL AREA "A" LAYOUT, GRADING, SIGNAGE AND PAVING PLAN SALEM DISTRICT OREGON		
	DESIGNED MLK		
	REVIEWED MHT		
	APPROVED		
DRAWN: GCD	SCALE: AS INDICATED		
DATE: 7/11/95	SHEET 9 OF 202		
DRAWING NO. C5			

140614 0005-1296 1-20 3110029 8.27.95 10000 000000 140614 0005-1296 1-20 3110029 8.27.95 10000 000000



ALWAYS
THINK
SAFETY

AS BUILT
BY: BLM / COR
DATE: 1/20/1999



KCM KCM, Inc.
1917 First Avenue
Seattle, Washington 98101

Miller/Hull

REV. NO.	DESCRIPTION	DATE	APPROVED
	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YAQUINA HEAD OUTSTANDING NATURAL AREA YHONA INTERPRETIVE COMPLEX PERIPHERAL AREA SIGNAGE AND UTILITY PLAN		
	SALEM DISTRICT OREGON		
	DESIGNED		
	REVIEWED		
	APPROVED		
DRAWN:	SCALE: AS INDICATED		
DATE: 7/11/95	SHEET 10 OF 202		
DRAWING NO. CS.1			

This drawing is full size when 22" x 34" or is reduced to half size when 11" x 17"

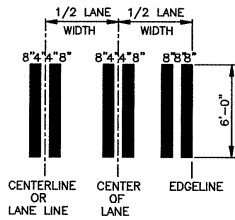


PAINTING STRIPE PAINT SCHEDULE			
NAME	COLOR	WIDTH	TYPE
ROAD CENTERLINE TWO-WAY TRAFFIC	YELLOW	20" 4" SPACE	DOUBLE YELLOW SOLID
STOP LINE	WHITE	14"	SOLID
CROSSWALK LINE	WHITE	AS SHOWN	SOLID
GENERAL PARKING STALL & DIAGONAL STRIPES	WHITE	4"	SOLID
EDGE STRIPE	WHITE	4"	SOLID

NOTE: ALL PAINT SHALL BE REFLECTORIZED

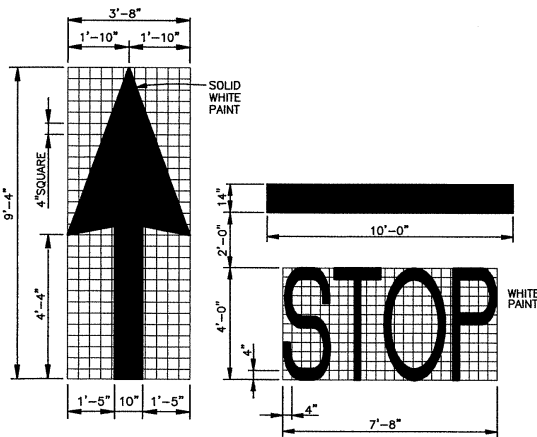
1 PAINTING STRIPE PAINT SCHEDULE

NO SCALE



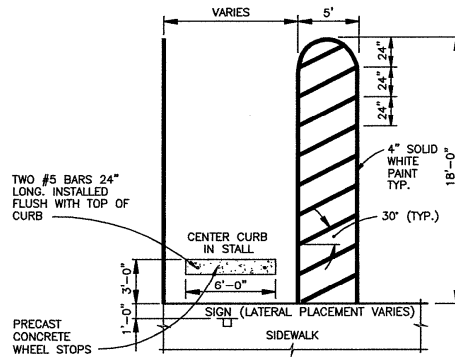
2 PAINTED CROSSWALK DETAIL

NO SCALE



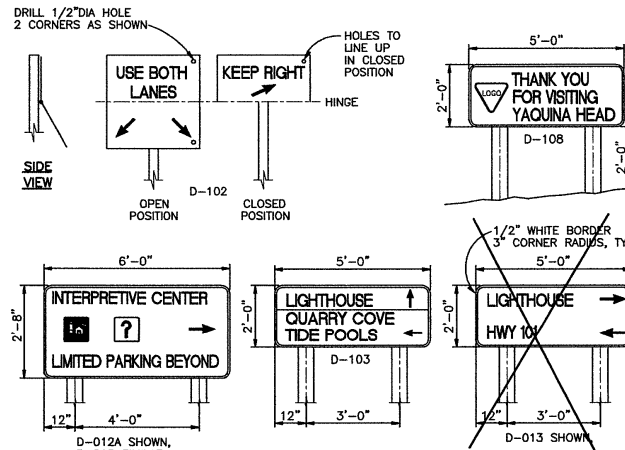
3 PAINTED TRAFFIC MARKINGS

NO SCALE



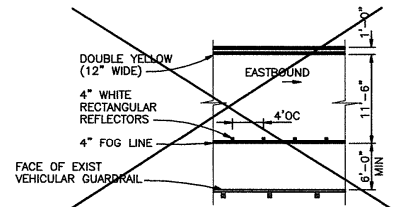
4 ACCESSIBLE STALL DETAIL

NO SCALE



5 SIGN DETAIL

NO SCALE



6 WALKWAY PLAN - NOT USED

NO SCALE

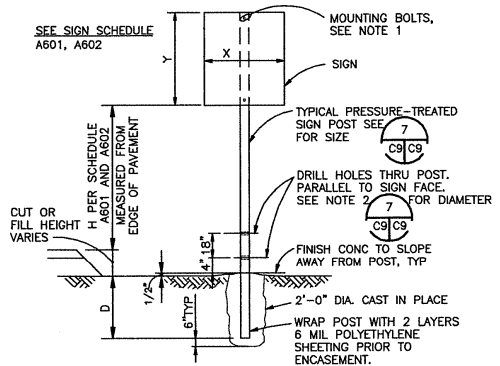
SIGN SHAPE	X x Y OR EQUIVALENT TOTAL AREA	(NUMBER OF POSTS) SIZE OF POST	(NUMBER OF POSTS) SIZE OF POST	POST EMBED D
		H=4' TO 10'	H=10' TO 15'	
□	24"x30"	(1) 4"x4"	(1) 4"x6"	4'-0"
◇	30"x30"	(1) 4"x6"	(1) 4"x6"	4'-0"
◇	36"x36"	(1) 4"x6"	(1) 6"x6"	5'-0"
◇	48"x48"	(1) 6"x6"	(2) 6"x6"	5'-0"
□	48"x24"	(2) 4"x6"	(2) 4"x6"	5'-0"
□	72"x36"	(2) 4"x6"	(2) 6"x6"	5'-0"

NOTES:

- SIGN PANELS SHALL BE ATTACHED W/ A MINIMUM OF (2) 3/8" GALVANIZED THRU-BOLTS AND OVERSIZED BACKING WASHERS PER POST. SEE STANDARD SPECIFICATIONS.
- DIAMETER OF HOLES DRILLED SHALL BE 1 1/2" DIA. FOR 4"x6" POST AND 2" DIA. FOR 6"x6" POST AT THE LOCATION SHOWN. NO HOLES REQUIRED IN 4"x4" POST.

7 SCHEDULE OF WOOD POSTS

NO SCALE



8 STANDARD SIGNPOST DETAIL

NO SCALE

ALWAYS THINK SAFETY

NOTES:

- TYPE "C" TRAFFIC SIGNS. (BROWN BACKGROUND WITH WHITE LETTERING) FOR SIGNS SHOWN. SEE STANDARD SPECIFICATIONS.
- TEXT SIZE 5", LEGEND SERIES C LETTERING PER MUTCD 2A-15.
- BACK OF SIGNS SHOWN SHALL BE PAINTED BROWN.
- HINGED SIGN TO BE MOUNTED IN SUCH A MANNER TO ALLOW FOLDING CLOSED FLAT.

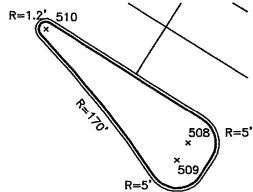
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BY: BLM / COR
DATE: 1/20/1999



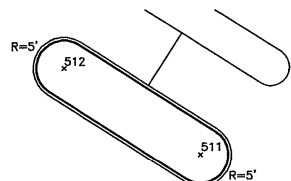
KCM KCM Inc.
1917 First Avenue
Seattle, Washington 98101
Miller/Hull

REV. NO.	DESCRIPTION	DATE	APPROVED
	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YAQUINA HEAD OUTSTANDING NATURAL AREA YTHONA INTERPRETIVE COMPLEX STRIPING AND SIGNAGE DETAILS SALEM DISTRICT OREGON		
	DESIGNED		
	REVIEWED		
	APPROVED		
DRAWN:	SCALE: AS INDICATED		
DATE: 7/11/95	SHEET 15 OF 202		
DRAWING NO. C9			

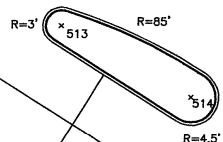
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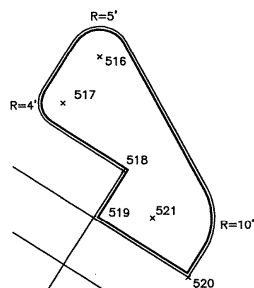
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PARKING LOT ISLAND
CURB LAYOUT DETAIL
XREF: ICPR.DWG



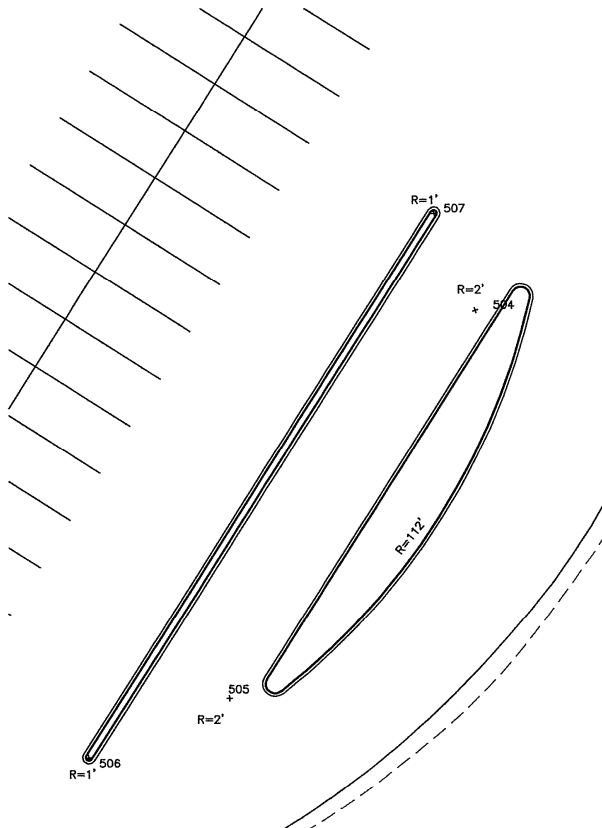
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PARKING LOT ISLAND
CURB LAYOUT DETAIL
XREF: ICPR.DWG



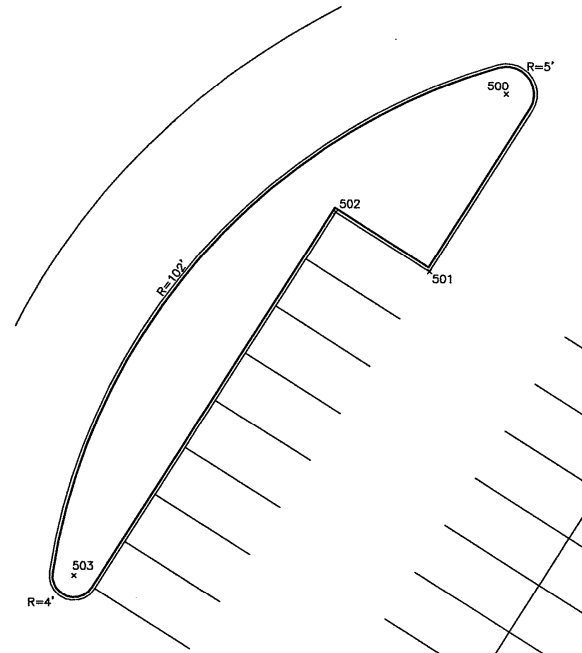
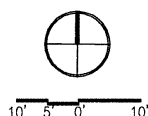
C
PARKING LOT ISLAND
CURB LAYOUT DETAIL
XREF: ICPR.DWG



D
PARKING LOT ISLAND
CURB LAYOUT DETAIL
XREF: ICPR.DWG



E
PARKING LOT ISLAND
CURB LAYOUT DETAIL
XREF: ICPR.DWG



F
PARKING LOT ISLAND
CURB LAYOUT DETAIL
XREF: ICPR.DWG

POINT #	NORTHING	EASTING
500	8467.19	73148.52
501	8438.47	73136.29
502	8448.09	73121.07
503	8389.37	73079.22
504	8298.00	73327.87
505	8235.47	73288.35
506	8225.88	73265.73
507	8313.67	73321.22
508	8216.90	73226.93
509	8214.14	73225.19
510	8235.27	73204.03
511	8301.63	73114.86
512	8315.52	73092.88
513	8502.84	73214.84
514	8491.41	73235.74
515	8498.05	73246.19
516	8398.53	73310.97
517	8391.09	73305.08
518	8380.23	73314.78
519	8372.62	73309.97
520	8363.00	73325.19
521	8372.64	73319.45

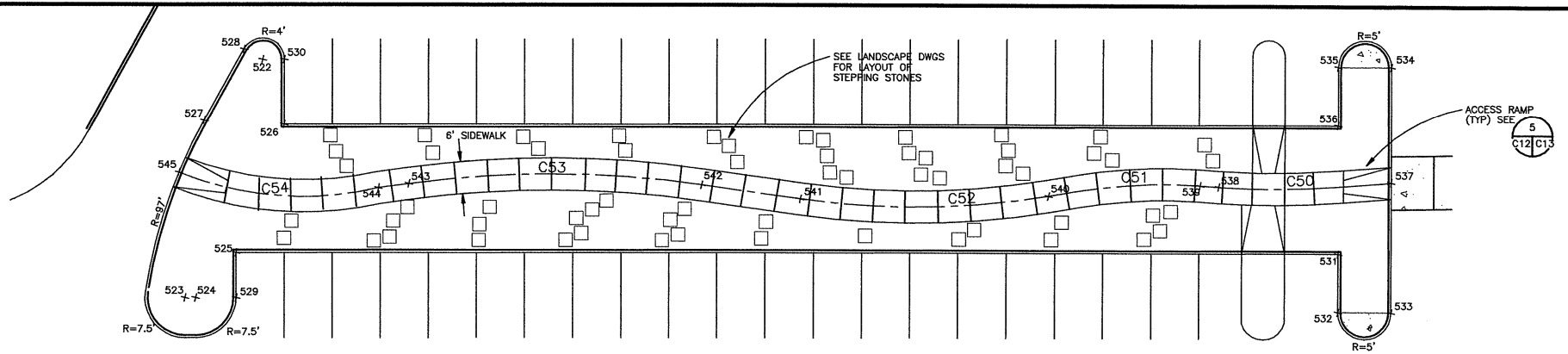
1
PARKING LOT ISLAND
CURB LAYOUT POINT DATA
XREF: ICPR.DWG



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REV. NO.	DESCRIPTION	DATE	APPROVED
	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YAQUINA HEAD OUTSTANDING NATURAL AREA YAQUINA INTERPRETIVE COMPLEX INTERPRETIVE CENTER LAYOUT DATA		
DESIGNED			
REVIEWED			
APPROVED			
DRAWN:		SCALE: AS INDICATED	
DATE: 7/11/95		SHEET 17 OF 202	
DRAWING NO. C11			



THIS IS SUPPORTING DATA FOR DWG C1
INTERPRETIVE CENTER, ROAD LAYOUT AND
PAVING PLAN

PARKING LOT ISLAND/SIDEWALK CURB LAYOUT DETAIL

XREF: ICPR.DWG

POINT # NORTHING EASTING

100	8142.43	73318.64
101	8203.86	73277.48
102	8317.20	73355.50
103	8380.38	73347.14
104	8467.00	73299.99
105	8488.34	73297.01
106	8514.84	73303.37
107	8545.12	73247.33
108	8541.44	73243.69
109	8530.13	73246.70
110	8523.97	73240.77
111	8526.42	73181.50
112	8536.07	73172.47
113	8549.00	73172.47
114	8554.00	73222.62
115	8554.00	73227.62
116	8559.60	73236.62
117	8587.68	73232.62
118	8590.00	73143.62
119	8516.96	73143.62
120	8481.96	73122.97
121	8479.19	73117.96
122	8356.91	73057.30
123	8343.35	73049.19
124	8271.92	73028.51
125	8273.52	73057.63
126	8286.63	73047.47
127	8281.73	73041.15
128	8313.84	73038.19
129	8311.80	73061.25
130	8272.92	73091.01
131	8229.63	73159.50
132	8153.24	73212.86
133	8148.13	73214.26
134	8104.22	73244.28
135	8189.70	73368.60
136	8169.69	73393.77
137	8044.75	73313.77
138	7950.96	73230.33
139	7923.39	73195.67
140	8160.28	73193.13
141	8155.92	73181.95
142	8051.28	73170.38
143	8044.13	73180.02
144	7997.21	73130.30
145	7989.43	73139.47
146	7938.39	73127.86
147	7997.62	73097.87
148	8021.64	73085.98
149	8027.20	73084.22
150	8023.57	73072.78
151	8018.02	73074.54
152	7984.38	73092.90
153	7945.09	73109.68
154	8262.31	73107.81
155	8034.86	73253.44
156	7976.14	73115.31
157	7976.14	73116.36
158	7976.14	73116.36
159	7964.80	73116.71

THIS IS SUPPORTING DATA FOR DWG C1
INTERPRETIVE CENTER, ROAD LAYOUT AND
PAVING PLAN

CURB RADIUS LAYOUT GEOMETRY

CURVE #	RADIUS	LENGTH	TANGENT	RADIUS POINT NORTHING	RADIUS POINT EASTING
C1	37.50'	130.37'	221.80'	8169.67	73292.87
C2	157.69'	165.43'	91.24'	8347.67	73212.78
C3	112.00'	65.47'	34.47'	8342.47	73260.47
C4	30.00'	10.47'	6.47'	8471.47	73326.47
C5	132.93'	99.03'	51.94'	8416.35	73214.34
C6	5.00'	6.24'	5.12'	8542.22	73246.59
C7	5.00'	10.26'	8.25'	8533.36	73240.67
C8	112.00'	58.47'	30.47'	8416.47	73214.47
C9	10.00'	18.61'	13.42'	8536.07	73178.62
C10	(NOT USED)				
C11	47.50'	149.54'	INF	8588.00	73191.12
C12	40.00'	42.63'	23.59'	8516.97	73103.62
C13	119.96'	145.08'	82.90'	8374.21	73176.00
C14	12.50'	17.16'	10.24'	8355.25	73044.91
C15	45.80'	86.39'	63.12'	8300.33	73064.45
C16	29.80'	33.76'	18.95'	8300.33	73064.45
C17	12.77'	30.22'	31.28'	8308.12	73049.31
C18	71.51'	50.60'	26.43'	8332.99	73128.84
C19	138.00'	102.09'	53.51'	8116.79	73079.77
C20	81.50'	54.19'	28.14'	8169.67	73292.87
C21	48.7193'	78.05'	50.26'	8065.11	73215.25
C22	116.00'	111.56'	60.52'	8113.22	73086.85
C23	104.00'	100.01'	54.25'	8113.22	73086.85
C24	88.00'	26.90'	13.56'	8048.22	73169.88
C25	100.00'	38.58'	19.52'	8048.22	73169.88
C26	20.00'	37.82'	27.71'	8009.13	73114.24
C27	65.00'	53.86'	28.59'	7950.72	73191.69
C28	75.00'	43.32'	22.28'	7936.50	73035.18

PNT # NORTHING EASTING

522	8432.37	73293.57
523	8468.52	73263.52
524	8466.83	73262.46
525	8455.95	73265.63
526	8435.52	73281.11
527	8447.70	73289.73
528	8434.30	73297.08
529	8460.49	73258.45
530	8428.99	73291.43
531	8281.81	73155.57
532	8287.69	73146.27
533	8279.24	73140.93
534	8254.66	73179.81
535	8263.11	73185.16
536	8268.99	73175.86
537	8266.23	73161.51
538	8294.03	73178.01
539	8296.84	73180.07
540	8321.87	73193.55
541	8361.32	73217.74
542	8375.46	73229.78
543	8421.70	73259.26
544	8426.92	73261.65
545	8456.82	73283.94

PARKING LOT ISLAND AND SIDEWALK LAYOUT POINT DATA

CURB RADIUS LAYOUT GEOMETRY

CURVE #	RADIUS	LENGTH	TANGENT	RADIUS POINT NORTHING	RADIUS POINT EASTING
C50	150.00'	22.61'	11.03'	8205.35	73299.00
C51	100.00'	23.72'	11.92'	8355.00	73069.42
C52	150.00'	46.47'	23.42'	8264.10	73332.00
C53	200.00'	55.01'	27.68'	8505.08	73077.50
C54	150.00'	55.68'	28.16'	8364.39	73398.00

SIDEWALK CURVE GEOMETRY

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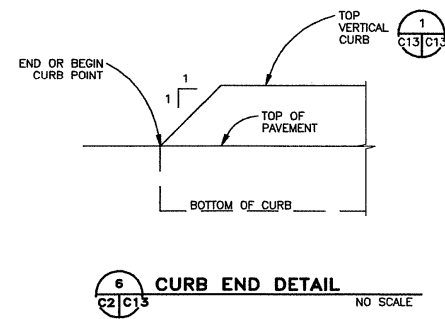
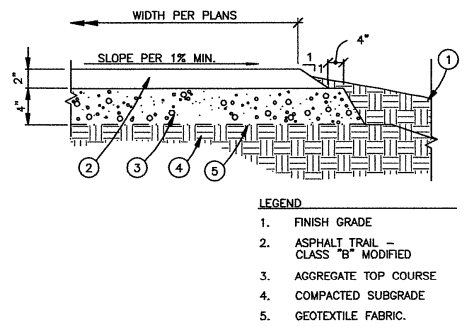
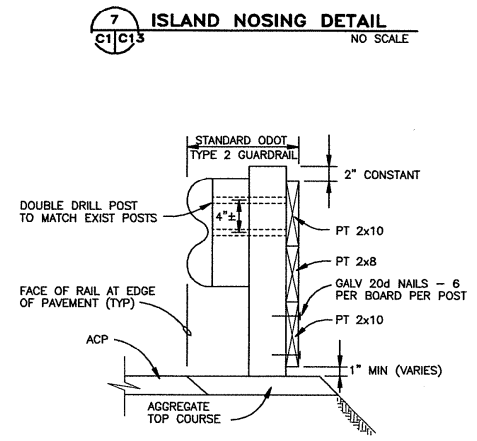
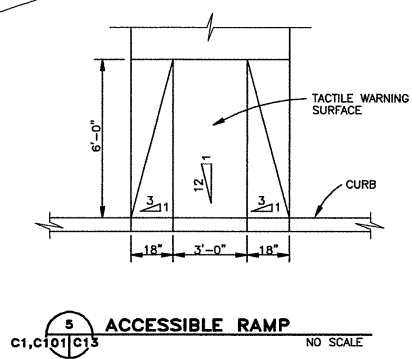
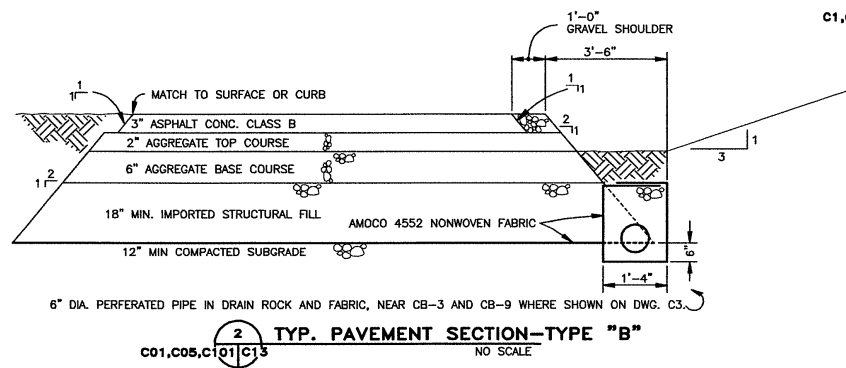
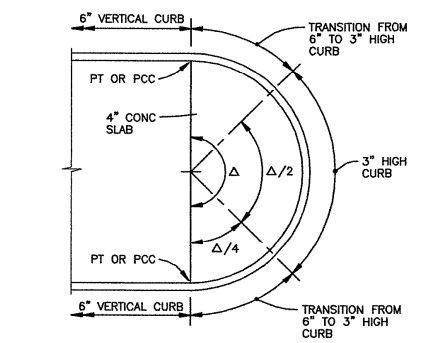
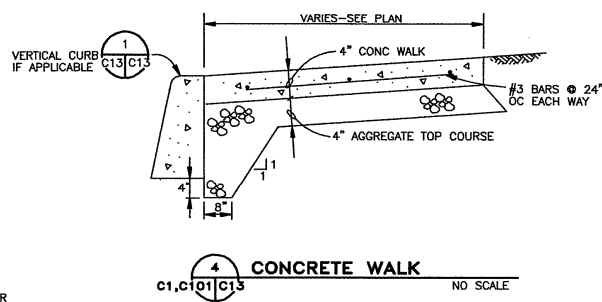
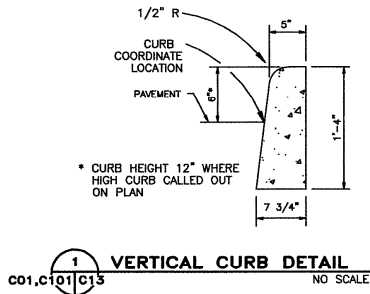


AS BUILT
BY: BLM / COR
DATE: 1/20/1999

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Seattle, Washington 98101
Miller/Hull

REV. NO.	DESCRIPTION	DATE	APPROVED
1	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YAKIMA HEAD OUTSTANDING NATURAL AREA YONA INTERPRETIVE COMPLEX INTERPRETIVE CENTER LAYOUT DATA		
SALEM DISTRICT		OREGON	
DESIGNED			
REVIEWED			
APPROVED			
DRAWN:	SCALE: AS INDICATED		
DATE: 7/11/95	SHEET 18 OF 202		
DRAWING NO. C12			

A0014 C012.DWG 1-10 6/95 XREF: ICPR.DWG, C-BUILDING, M-F-BUILDING, L4000.DWG



AS BUILT
BY: BLM / COR
DATE: 1/20/1999

REGISTERED PROFESSIONAL
PEAK TRAIL
17,365
DESIGN
REV. 9, 98
JOHN C. MOORE, P.E.
EXPIRES 12/31/98

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REV. NO.	DESCRIPTION	DATE	APPROVED
	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YAKIMA HEAD OUTSTANDING NATURAL AREA YHONA INTERPRETIVE COMPLEX LAYOUT AND PAVING DETAILS		
SALEM DISTRICT		OREGON	
DESIGNED			
REVIEWED			
APPROVED			
DRAWN:	SCALE: AS INDICATED		
DATE: 7/11/95	SHEET 19 OF 202		
DRAWING NO. C13			

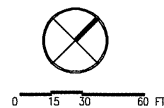
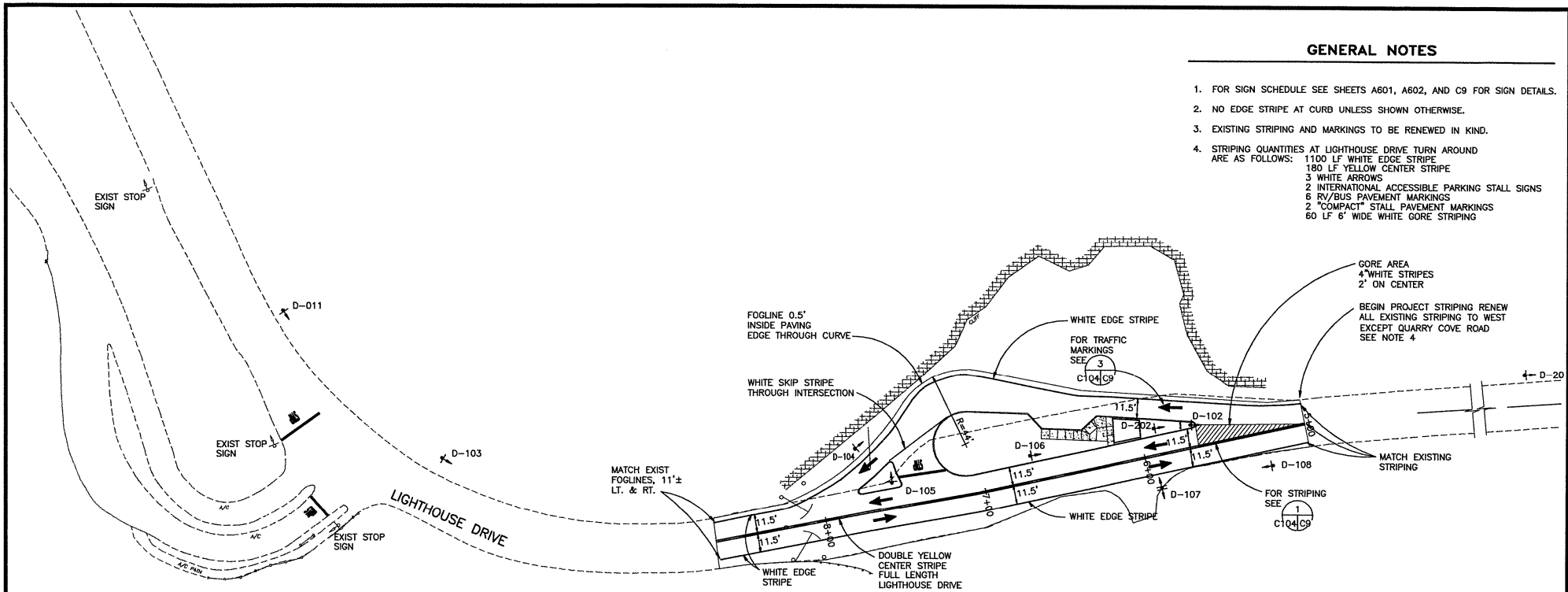
ALWAYS
THINK
SAFETY



AD014 C:\ALONE 1-30 231028 7/98 XREF: BPC\ALONE 134810POLING 0-FULL.DWG, 0-FULL.DWG, 0-FULL.DWG

GENERAL NOTES

- FOR SIGN SCHEDULE SEE SHEETS A601, A602, AND C9 FOR SIGN DETAILS.
- NO EDGE STRIPE AT CURB UNLESS SHOWN OTHERWISE.
- EXISTING STRIPING AND MARKINGS TO BE RENEWED IN KIND.
- STRIPING QUANTITIES AT LIGHTHOUSE DRIVE TURN AROUND ARE AS FOLLOWS:
 - 1100 LF WHITE EDGE STRIPE
 - 180 LF YELLOW CENTER STRIPE
 - 3 WHITE ARROWS
 - 2 INTERNATIONAL ACCESSIBLE PARKING STALL SIGNS
 - 6 RV/BUS PAVEMENT MARKINGS
 - 2 "COMPACT" STALL PAVEMENT MARKINGS
 - 60 LF 6" WIDE WHITE GORE STRIPING



AS BUILT
 BY: BLM / COR
 DATE: 1/20/1999

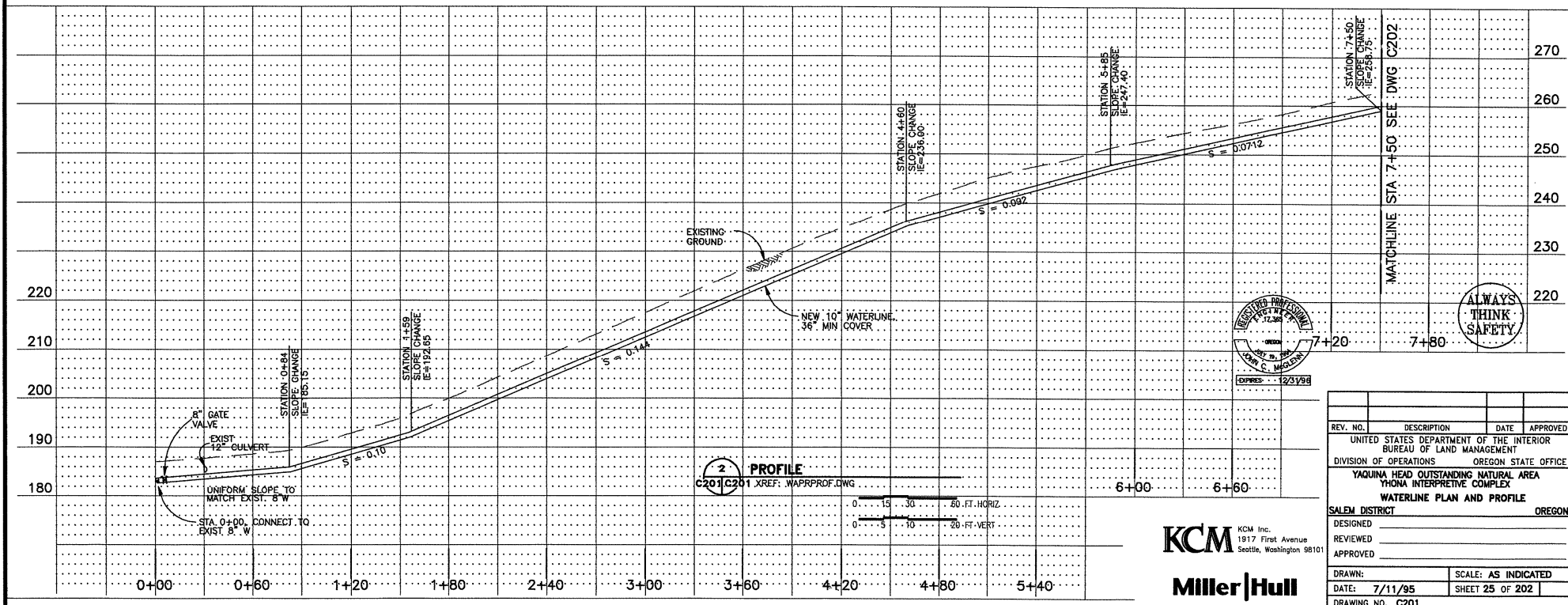
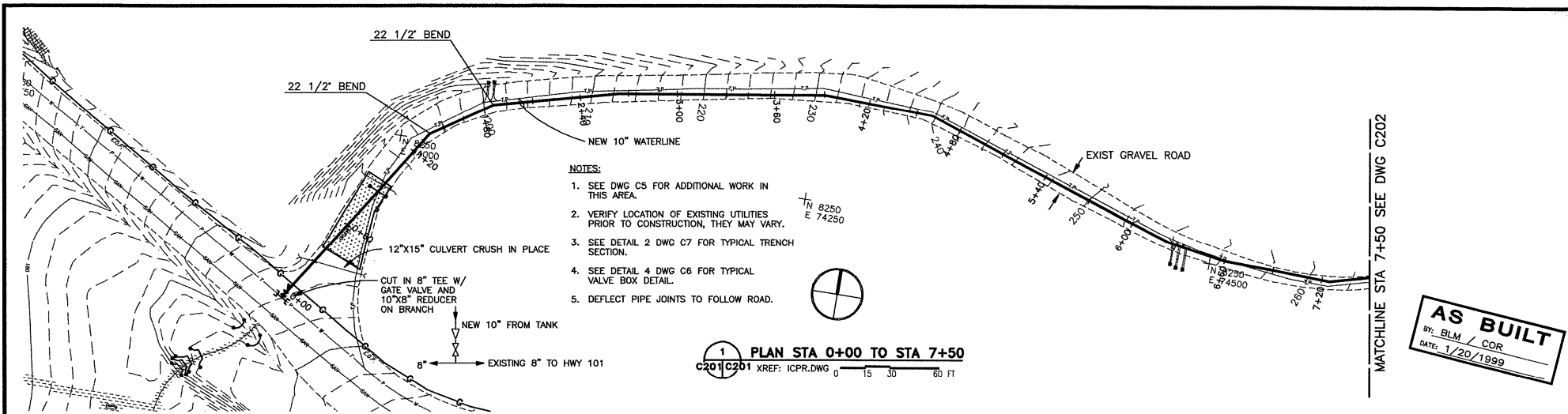


KCM KCM Inc.
 1917 First Avenue
 Seattle, Washington 98101

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ALWAYS
 THINK
 SAFETY

REV. NO.	DESCRIPTION	DATE	APPROVED
	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YAKIMA HEAD OUTSTANDING NATURAL AREA YHONA INTERPRETIVE COMPLEX ENTRANCE AREA STRIPING AND SIGNAGE PLAN OREGON		
DESIGNED			
REVIEWED			
APPROVED			
DRAWN:	SCALE: AS INDICATED		
DATE: 7/11/95	SHEET 24 OF 202		
DRAWING NO. C104			



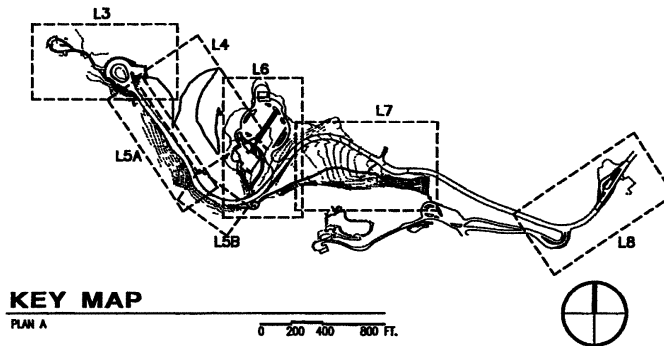
KCM KCM Inc.
1917 First Avenue
Seattle, Washington 98101

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REV. NO.	DESCRIPTION	DATE	APPROVED
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YAKIMA HEAD OUTSTANDING NATURAL AREA YHONA INTERPRETIVE COMPLEX WATERLINE PLAN AND PROFILE			
SALEM DISTRICT		OREGON	
DESIGNED			
REVIEWED			
APPROVED			
DRAWN: 7/11/95		SCALE: AS INDICATED	
DATE: 7/11/95		SHEET 25 OF 202	
DRAWING NO. C201			

LEGEND

SYMBOL	DESCRIPTION
	DETAIL CALLOUT
	DETAIL NUMBER TO SHEET NUMBER
	SECTION CALLOUT
	ELEVATION CALLOUT
	ACP "C"
	CRUSHED STONE (PLAN)
	RIVER ROCK
	SIGNAGE & INTERP. PANELS
	FENCE LINE
	CENTERLINE
	LIMIT OF TOPSOIL MIX
	EXISTING CONTOUR
	PROPOSED CONTOUR
	BASALTIC BOULDER
	ASPHALTIC PAVEMENT
	BASALTIC BOULDER
	BOTTOM OF FOOTING
	BOTTOM OF STAIR
	CATCH BASIN
	CLEAR
	CENTER LINE
	CONCRETE
	DOUGLAS FIR
	DIAMETER
	DRAWING
	EASTING
	ELEVATION
	EQUAL
	EXTING
	FINISH FLOOR ELEVATION
	FINISH ELEVATION OF EARTH AT WALL
	GALVANIZED
	HOT DIP
	HEIGHT
	INTERPRETIVE
	LANDSCAPE AREA
	MAXIMUM
	MINIMUM
	NORTHING
	OBSERVATION
	POINT OF CURVATURE
	POINT OF BEGINNING
	PRESSURE TREATED
	POINT OF TANGENCY
	RADIUS
	RIM ELEVATION
	SHEET
	SIMILAR
	STAINLESS STEEL
	STEEL
	SQUARE
	TOP OF STAIR
	TOP OF WALL
	TYPICAL
	UNLESS NOTED OTHERWISE
	WITH
	WITHOUT



KEY MAP

PLAN A

NOTES:

- TRAIL CENTERLINE IS CENTER OF 6'-0" CLEAR WIDTH. ADDITIONAL PAVEMENT WIDTH MAY BE REQUIRED BY EDGE CONDITIONS (SEE FENCING SCHEDULE AND DETAILS).
- DRYSTACK WALL CAP SHALL BE "FLAT" STONE PER SPECIFICATIONS, PLACED AS NOTED IN PLANS.
- ALL IMPROVEMENTS SHALL BE FIELD STAKED BY CONTRACTOR AND ADJUSTED, AS NECESSARY FOR APPROVAL BY THE CONTRACTING OFFICER.
- ALL SPOT ELEVATIONS SPECIFIED TO THE NEAREST HUNDREDTH OF A FOOT ARE FINISHED HARDSCAPE SURFACE. ALL SPOT ELEVATIONS TO THE NEAREST TENTH OF A FOOT ARE TO TOP OF FINISHED EARTH.
- ALL FENCES AND GUARDRAILS SHALL BE OF IDENTICAL COMPONENTS TO RESULT IN UNIFORM APPEARANCE THROUGHOUT THE PROJECT.

FENCE AND GUARDRAIL SCHEDULE

SYMBOL	SHEET	DESCRIPTION	LENGTH	CABLE STRANDS	DETAIL
	L3	GUARDRAIL "A" POST BASE "B"	40'	9	
	L3	GUARDRAIL "A" POST BASE "A"	180'	9	
	L3	GUARDRAIL "B" BOLTED POST BASE	102'	9	
	L3	FENCE "A" POST BASE "A"	50'	3	
	L3	FENCE "A" POST BASE "A"	35'	3	
	L3	FENCE "A" POST BASE "A"	180'	3	
	L3	MODIFY EXISTING CHAINLINK FENCE	405'	NA	
	L3	GUARDRAIL "A" POST BASE "A"	185'	9	
	L3	GUARDRAIL "B" POST BASE "B"	53'	9	
	L3	GUARDRAIL "A" POST BASE "B"	16'	9	
	L3	GUARDRAIL "A" POST BASE "A"	95'	9	
	L3	FENCE "A" POST BASE "A"	221'	3	
	L3	FENCE "A" POST BASE "A"	14'	3	
	L3	FENCE "A" POST BASE "A"	61'	3	

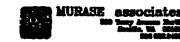
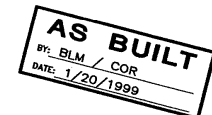
FENCE AND GUARDRAIL SCHEDULE CONTINUED

SYMBOL	SHEET	DESCRIPTION	LENGTH	CABLE STRANDS	DETAIL
	L3	FENCE "A" POST BASE "A"	95'	3	
	L3	FENCE "A" POST BASE "A"	81'-0"	3	
	L4	FENCE "A" POST BASE "A"	375'	3	
	L5-L6	FENCE "A" POST BASE "A"	177'	3	
	L6	FENCE "B" POST BASE "C"	5'	4	
	L6	GUARDRAIL "B" POST BASE "C"	71'	9	
	L6	FENCE "B" POST BASE "C"	5'	4	
	L6	FENCE "A" POST BASE "A"	324'	3	
	L6	FENCE "A" POST BASE "A"	140'	3	
	L6-L7	FENCE "A" POST BASE "A"	748'	3	
	L7	GUARDRAIL "A" POST BASE "A"	405'	9	
	L5	FENCE "A" POST BASE "A"	850'	3	
	L5	FENCE "A" POST BASE "A"	100'	9	

NOTE: SEE & FOR FENCE / GUARDRAIL CONNECTIONS AT TRANSITION POINTS.

SEE PLAN 5/11.01 AND SHEETS A10 AND A501 FOR HANDRAILS NOT INCLUDED ABOVE.

SEE A101-FOR-CHAINLINK-FENCE-AT-MAINTENANCE-BUILDING- AMEND. 1, ITEM Y

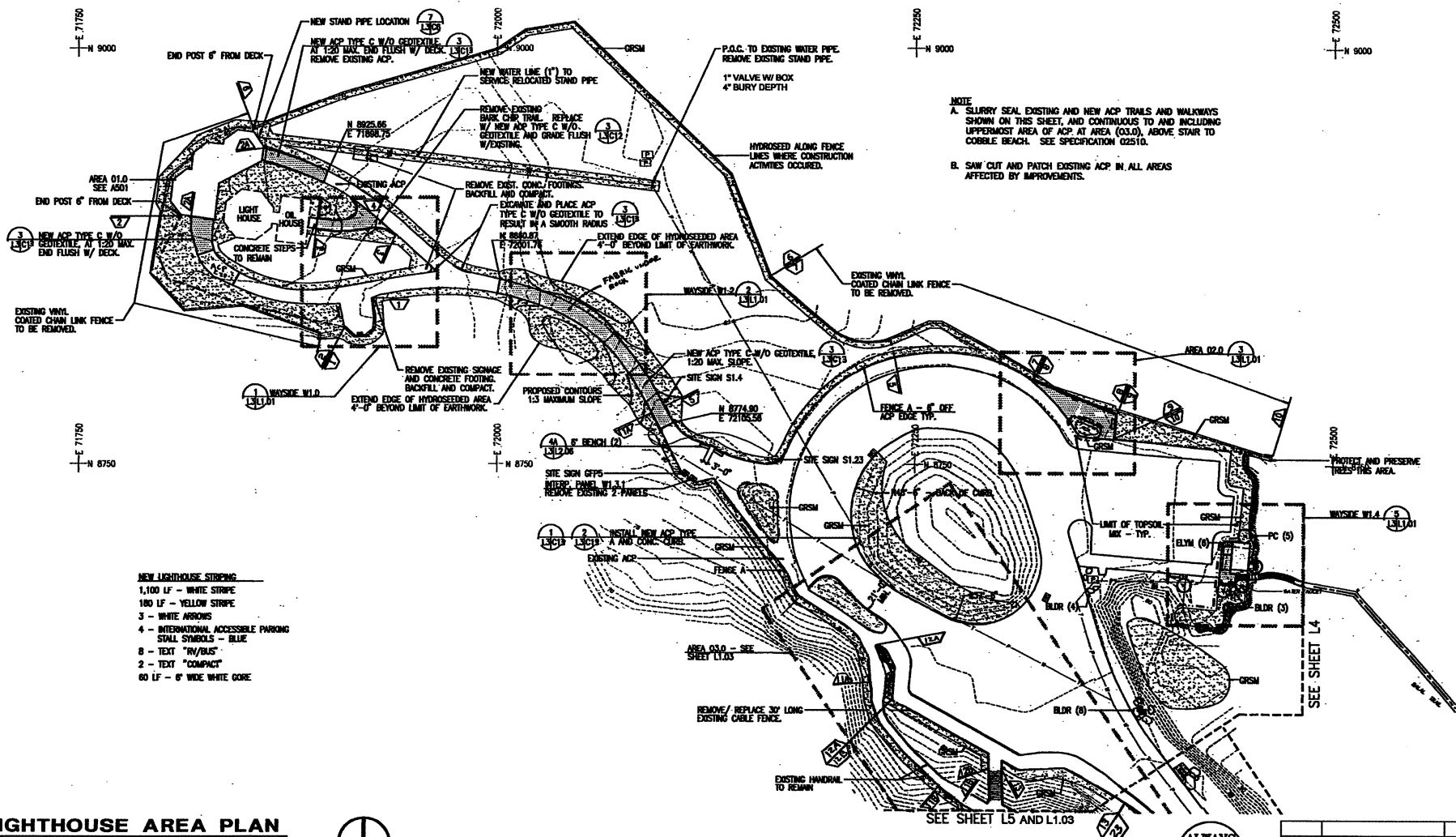


REV. NO.	DESCRIPTION	DATE	APPROVED
	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YAKIMA HEAD OUTSTANDING NATURAL AREA YONA INTERPRETIVE COMPLEX KEY MAP, FENCE SCHEDULE AND LEGEND		
	SALEM DISTRICT OREGON		
	DESIGNED MURASE ASSOCIATES		
	REVIEWED B.A.S.		
	APPROVED R.K.M.		
	DRAWN: J.N.K./B.A.S.	SCALE: AS INDICATED	
	DATE: 11 JULY 1995	SHEET 27 OF 202	
	DRAWING NO. L1		

LIGHTHOUSE AREA PLAN

YH-L03.DWG

0' 15' 30' 60 FT.



NEW LIGHTHOUSE STRIPING
1,100 LF - WHITE STRIPE
180 LF - YELLOW STRIPE
3 - WHITE ARROWS
4 - INTERNATIONAL ACCESSIBLE PARKING
STALL SYMBOLS - BLUE
8 - TEXT "RV/BUS"
2 - TEXT "COMPACT"
60 LF - 6" WIDE WHITE CORE

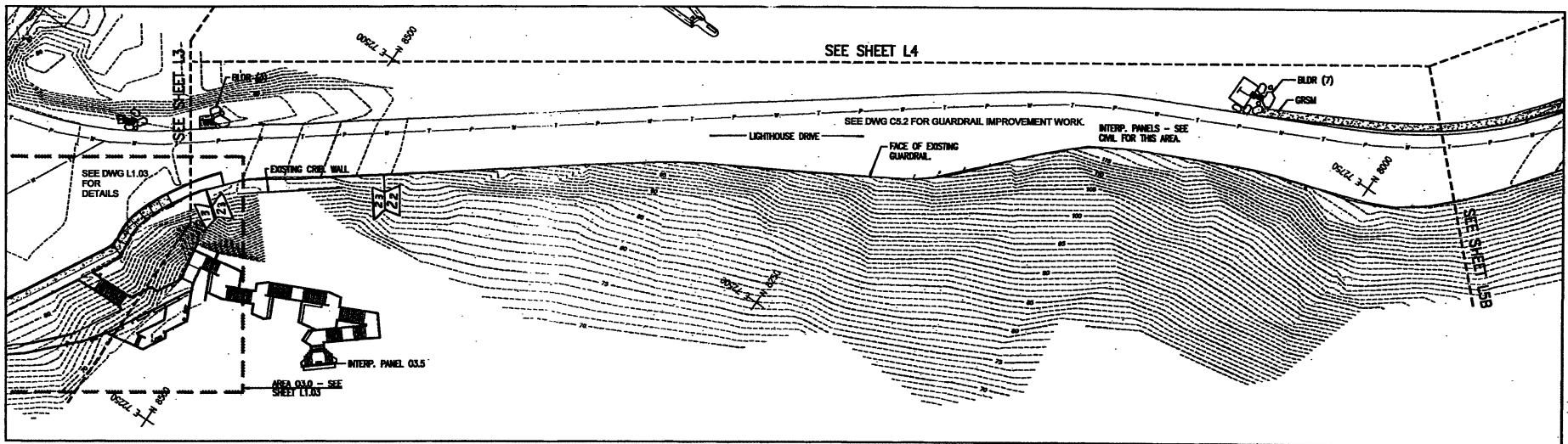
AS BUILT
BY: BLM / COR
DATE: 1/20/1999

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REGISTERED
MURASE ASSOCIATES
LANDSCAPE ARCHITECT
201
OREGON

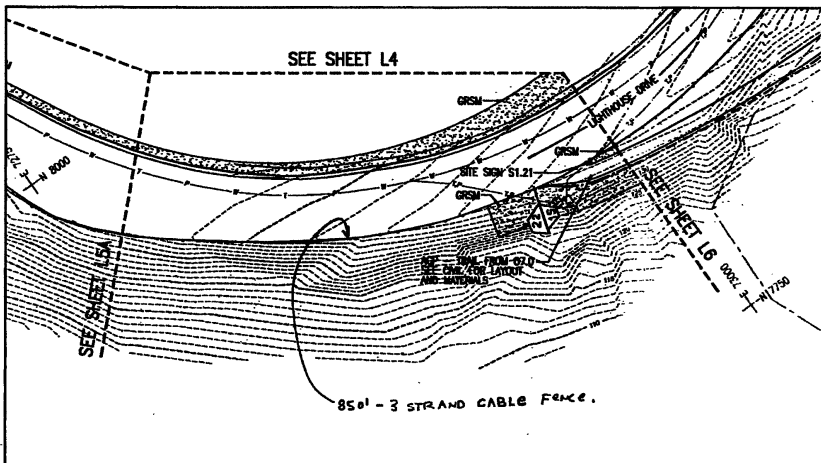
MURASE ASSOCIATES
201
OREGON

REV. NO.	DESCRIPTION	DATE	APPROVED
	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT		
	DIVISION OF OPERATIONS - OREGON STATE OFFICE		
	YACUINA HEAD OUTSTANDING NATURAL AREA		
	YHONA INTERPRETIVE COMPLEX		
	LIGHTHOUSE AREA		
	LANDSCAPE PLAN		
	SALEM DISTRICT		OREGON
	DESIGNED MURASE ASSOCIATES		
	REVIEWED B.A.S.		
	APPROVED R.K.M.		
	DRAWN: J.N.K./B.A.S.	SCALE: AS INDICATED	
	DATE: 11 JULY 1995	SHEET 29 OF 202	
	DRAWING NO. L3		



LIGHTHOUSE TRAIL PLAN, WEST END

0 15 30 60 FT.



LIGHTHOUSE TRAIL PLAN, EAST END

0 15 30 60 FT.



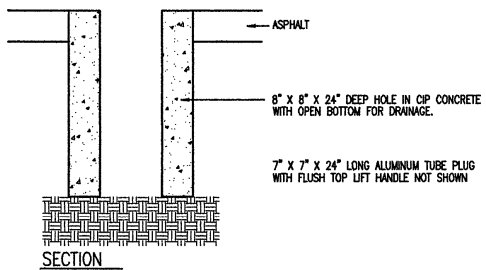
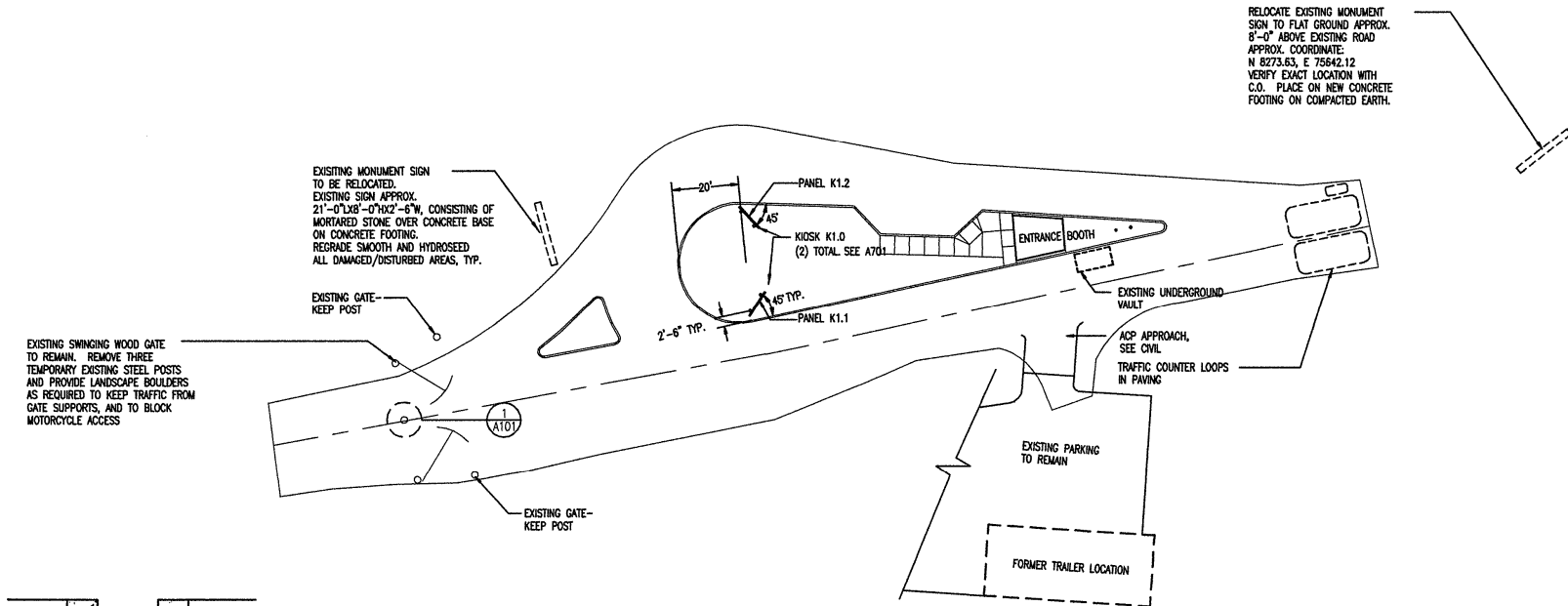
AS BUILT
BY: BLM / COR
DATE: 1/20/1999



MURASE ASSOCIATES

REV. NO.	DESCRIPTION	DATE	APPROVED
	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YAQUINA HEAD OUTSTANDING NATURAL AREA YHONA INTERPRETIVE COMPLEX LIGHTHOUSE TRAIL LANDSCAPE PLAN		
SALEM DISTRICT			OREGON
DESIGNED	MURASE ASSOCIATES		
REVIEWED	B.A.S.		
APPROVED	R.K.M.		
DRAWN:	J.N.K./B.A.S.	SCALE:	AS INDICATED
DATE:	11 JULY 1995	SHEET	31 OF 202
DRAWING NO.	LS		

AC014 02/07/85 1348TOP.DWG; IC-FLR1.DWG; MT-FLR1.DWG XREF: ICPR.DWG; 1348TOP.DWG; IC-FLR1.DWG; MT-FLR1.DWG



1 GATEPOST HOLE DETAIL
GATEPOST.DWG



ENTRANCE AREA SITE PLAN


XREF: ICPR.DWG

0 10 20 40 FT.

AS BUILT
BY: BLM / COR
DATE: 1/20/1999

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REV. NO.	DESCRIPTION	DATE	APPROVED	
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT				
DIVISION OF OPERATIONS		OREGON STATE OFFICE		
YAKIMA HEAD OUTSTANDING NATURAL AREA YHONA INTERPRETIVE COMPLEX ENTRANCE AREA SITE PLAN				
SALEM DISTRICT		OREGON		
DESIGNED	THE MILLER/HULL PARTNERSHIP			
REVIEWED	CC			
APPROVED	BH			
DRAWN:	CA/SR/PW	SCALE: AS INDICATED		
DATE:	7/11/95	SHEET	89	OF 202
DRAWING NO. A101				

A technical diagram of a roof structure. The roof is shown with a slope of 2:12, indicated by an arrow and the text "SLOPE 2:12". The roof is divided into several sections by dashed lines. The sections are labeled with circled numbers and area codes: 1 (A201 | A203), 13 (A201 | A203), 14 (A201 | A203), and 9 (A201 | A203). A section labeled "A" (A202) is shown on the left side. The roof is labeled "MANUFACTURED METAL ROOFING TYPE 3".

XREF: ES-FLR1

XREF: ES-FLR1

0 2 4 8 FT

SEE S17 FOR
FRAMING DETAILS

SEE A201/A202
FOR TYP. PERIMETER
WALL & FOOTING
DIMENSIONS AND
REINFORCING

5 1/8 X 6 GLC WITH
TYPE 1 HOLD DOWN
TYP. OF 6
SEE DETAIL 1/S17

6" THICK CONC. SLAB
ON GRADE.

FD SLOPE MIN.
1/6"/FT.
TO DRAIN

NOTE: JOG FOOTING
AT UTILITY VAULT
IS REQUIRED

NOTE: ADJACENT
UNDERGROUND VAULT
PROTECT DURING
CONSTRUCTION

3'-0" DIA. X 5'-0" DEEP
C.I.P. CONC. FOOTING
W/ 8 - #8 VERT. "L" BARS
& 6 - #4 HOOPS AT 12" O.C.
T.O.C. 1" ABOVE TOP OF CURB

F1
C9

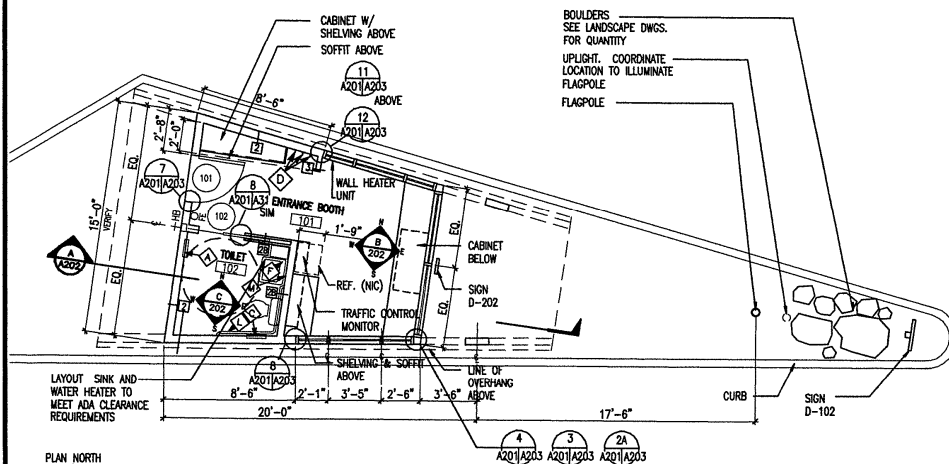
F1
C9

SEE DETAIL 1/SS AND 5/SS FOR
COLUMN AND FOOTING DETAILS
F1 FOOTING: 2'-6" C.I.P. CONC. CUBE
T.O.C. IS 7.5' BELOW FF

F1 FOOTING PLAN - NTS
5 - #4 HOOPS AT 8" O.C.
ADD 2 - #4 HOOPS AT A. B.
6 - #8 VERT. "L" BARS

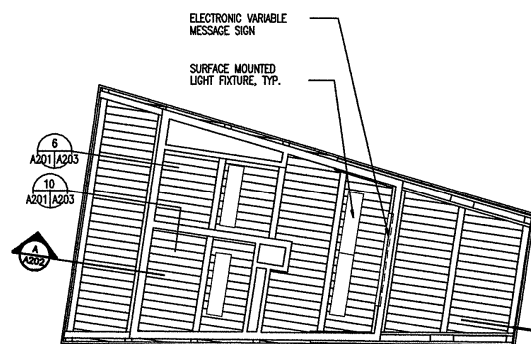
XREF: ES-FLR1

A horizontal number line with tick marks at 0, 2, 4, and 5. Above the line, there are three brackets. The first bracket spans from 0 to 2 and is labeled $2'$. The second bracket spans from 2 to 4 and is labeled $2'$. The third bracket spans from 4 to 5 and is labeled $1'$.



XREF: ES-FLR1

XREF: ES-FLR1



XREF: ES-FLR1

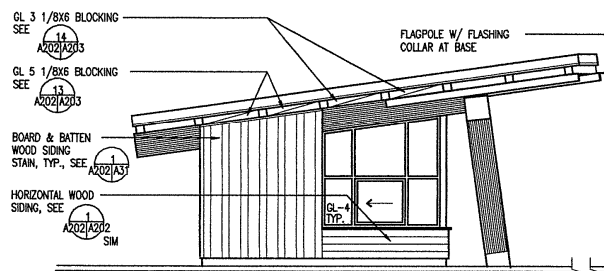
A horizontal number line with tick marks at 0, 2, 4, and 8. The unit is labeled 'FT' at the end.

AS BUILT
BY: BLM / COR
DATE: 1/20/1999

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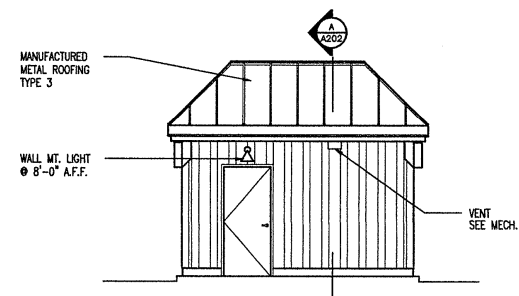
			
REV. NO.	DESCRIPTION	DATE	APPROVED
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT			
DIVISION OF OPERATIONS		OREGON STATE OFFICE	
YAKIMA HEAD OUTSTANDING NATURAL AREA YHOMA INTERPRETIVE COMPLEX ENTRANCE BOOTH PLANS			
SALEM DISTRICT			OREGON
DESIGNED	THE MILLER/HULL PARTNERSHIP		
REVIEWED	CC		
APPROVED	BH		
DRAWN:	CA/SR/PW	SCALE:	AS INDICATED
DATE:	7/11/95	SHEET	99 OF 202
DRAWING NO. A201			

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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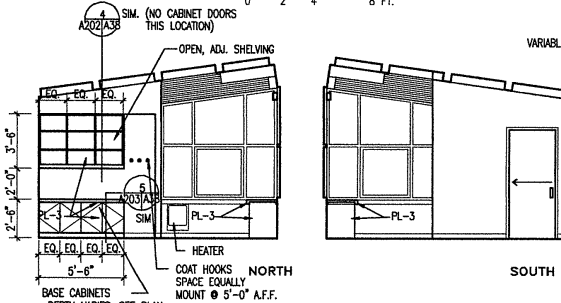
SOUTH ELEVATION

XREF: ES-ELEVS
 0' 2' 4' 8 FT.



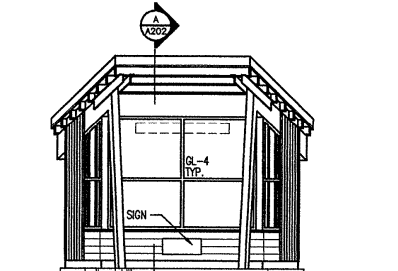
WEST ELEVATION

XREF: ES-ELEVS
 0' 2' 4' 8 FT.



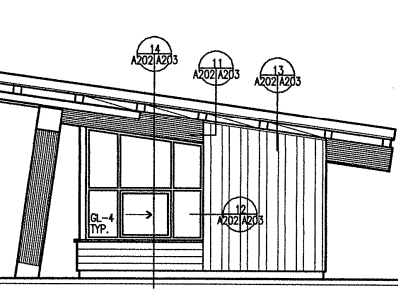
NORTH ELEVATION

XREF: ES-ELEVS
 0' 2' 4' 8 FT.



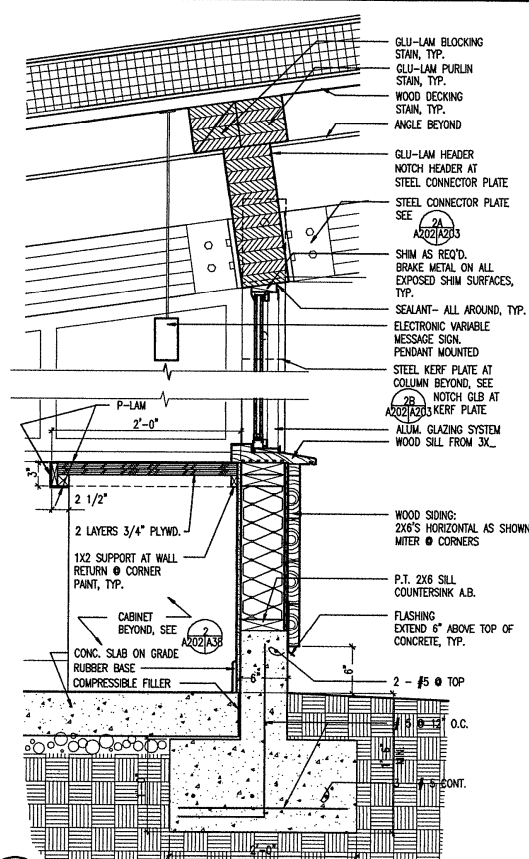
EAST ELEVATION

XREF: ES-ELEVS
 0' 2' 4' 8 FT.



WEST ELEVATION

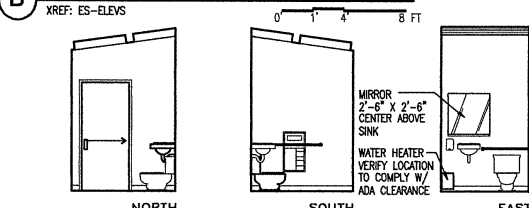
XREF: ES-ELEVS
 0' 2' 4' 8 FT.



1 WALL SECTION

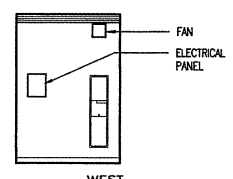
XREF: MISC
 0' 2' 6" 1' 2 FT.

B ROOM 101: ENTRANCE BOOTH



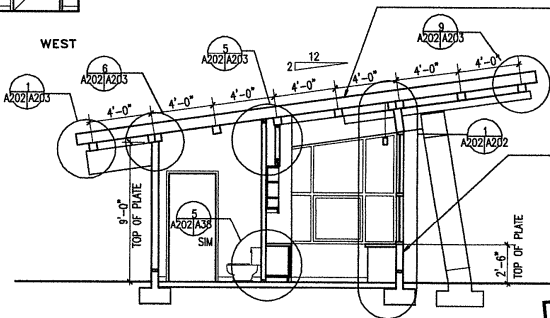
C ROOM 102: TOILET

XREF: ES-ELEVS
 0' 1' 4' 8 FT.



A BUILDING SECTION

XREF: ES-ELEVS
 0' 1' 4' 8 FT.



A BUILDING SECTION

XREF: ES-ELEVS
 0' 1' 4' 8 FT.

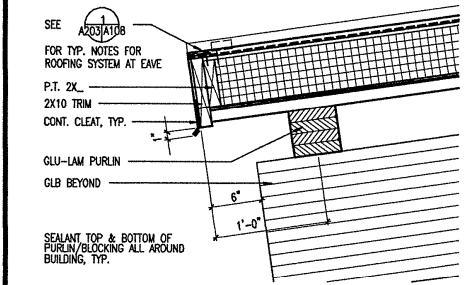
AS BUILT
 BY: BLM / COR
 DATE: 1/20/1999

Miller|Hull
 ALWAYS THINK SAFETY

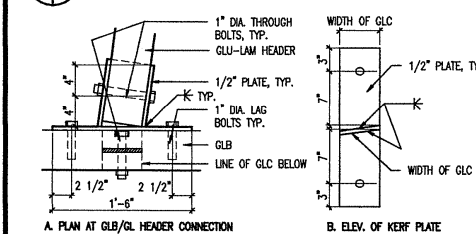
REV. NO.	DESCRIPTION	DATE	APPROVED
1	DESIGNED THE MILLER/HULL PARTNERSHIP		
2	REVIEWED CC		
3	APPROVED BH		

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT	OREGON STATE OFFICE
DIVISION OF OPERATIONS	YAOQUINA HEAD OUTSTANDING NATURAL AREA YAOQUINA INTERPRETIVE COMPLEX
SALEM DISTRICT	OREGON
DRAWN: CA/SR/PW	SCALE: AS INDICATED
DATE: 7/11/95	SHEET 100 OF 202
DRAWING NO. A202	

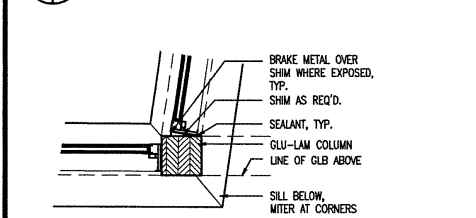
A202/A203
 02/07/95 11:34
 XREF: ES-ELEV2.DWG; MSC.DWG
 YAOQUINA A202.DWG



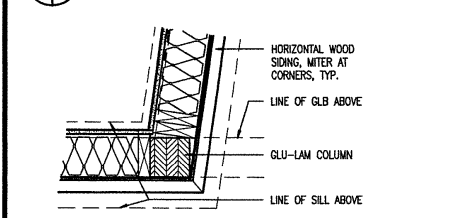
1 EAVE DETAIL
A202 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



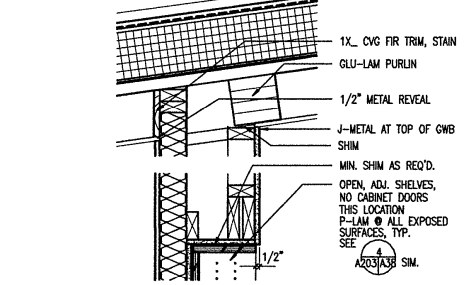
2 STEEL CONNECTOR PLATES
A201 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



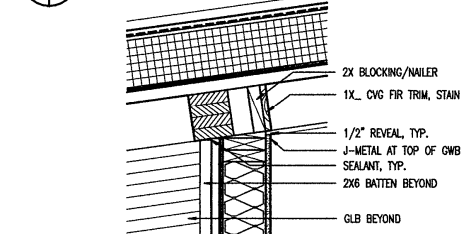
3 WINDOW JAMB
A201 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



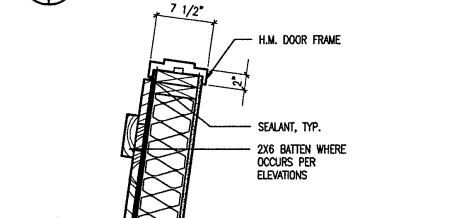
4 CORNER PLAN DETAIL
A201 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



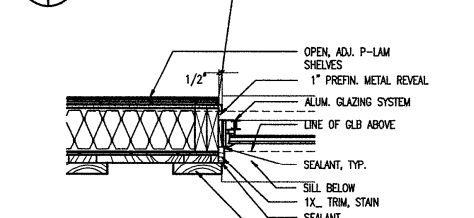
5 SOFFIT DETAIL
A202 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



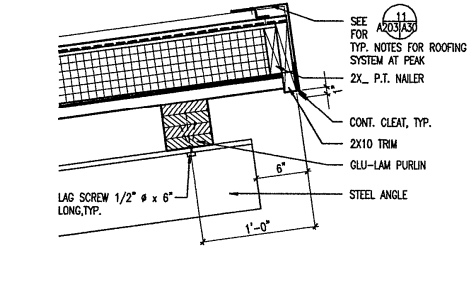
6 ROOF DETAIL
A202 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



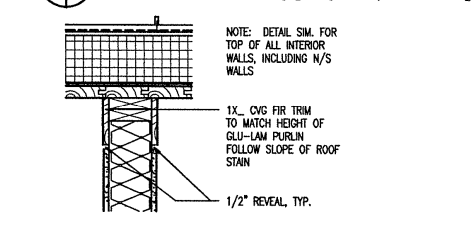
7 DOOR JAMB
A201 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



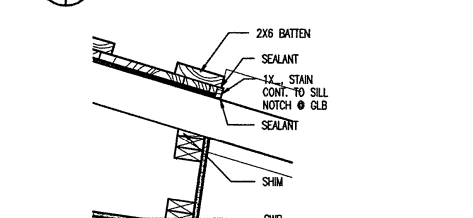
8 WINDOW JAMB
A201 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



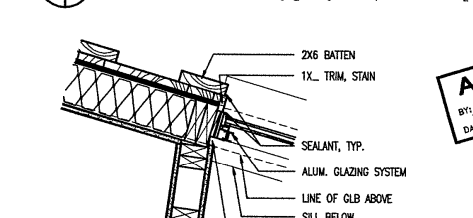
9 PEAK DETAIL
A202 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



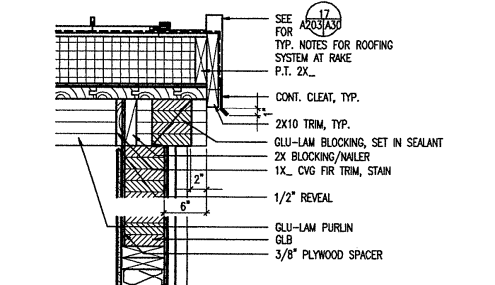
10 TYP. INT. WALL DETAIL
A201 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



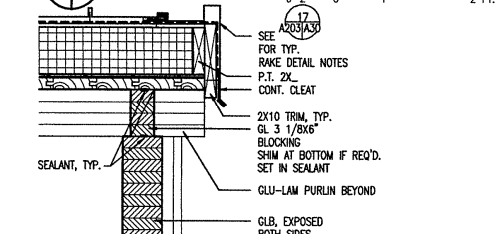
11 PLAN AT GLB
A201 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



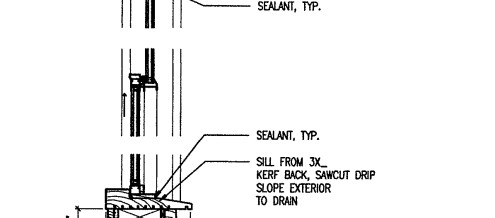
12 WINDOW JAMB
A201 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



13 RAKE DETAIL
A202 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



14 WINDOW SECTION
A202 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.



14 WINDOW SECTION
A202 | A203 XREF: MISC.DWG 0' 2' 6" 1' 2 FT.

AS BUILT
BY: BLM /COR
DATE: 1/20/1999

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Miller/Hull

REV. NO.	DESCRIPTION	DATE	APPROVED
1	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF OPERATIONS OREGON STATE OFFICE YACUINA HEAD OUTSTANDING NATURAL AREA YHONA INTERPRETIVE COMPLEX ENTRANCE BOOTH DETAILS		
DESIGNED	THE MILLER/HULL PARTNERSHIP		OREGON
REVIEWED	CC		
APPROVED	RH		
DRAWN	CA/SR/PW	SCALE: AS INDICATED	
DATE	7/11/95	SHEET 101 OF 202	
DRAWING NO.	A203		

KEYED NOTES

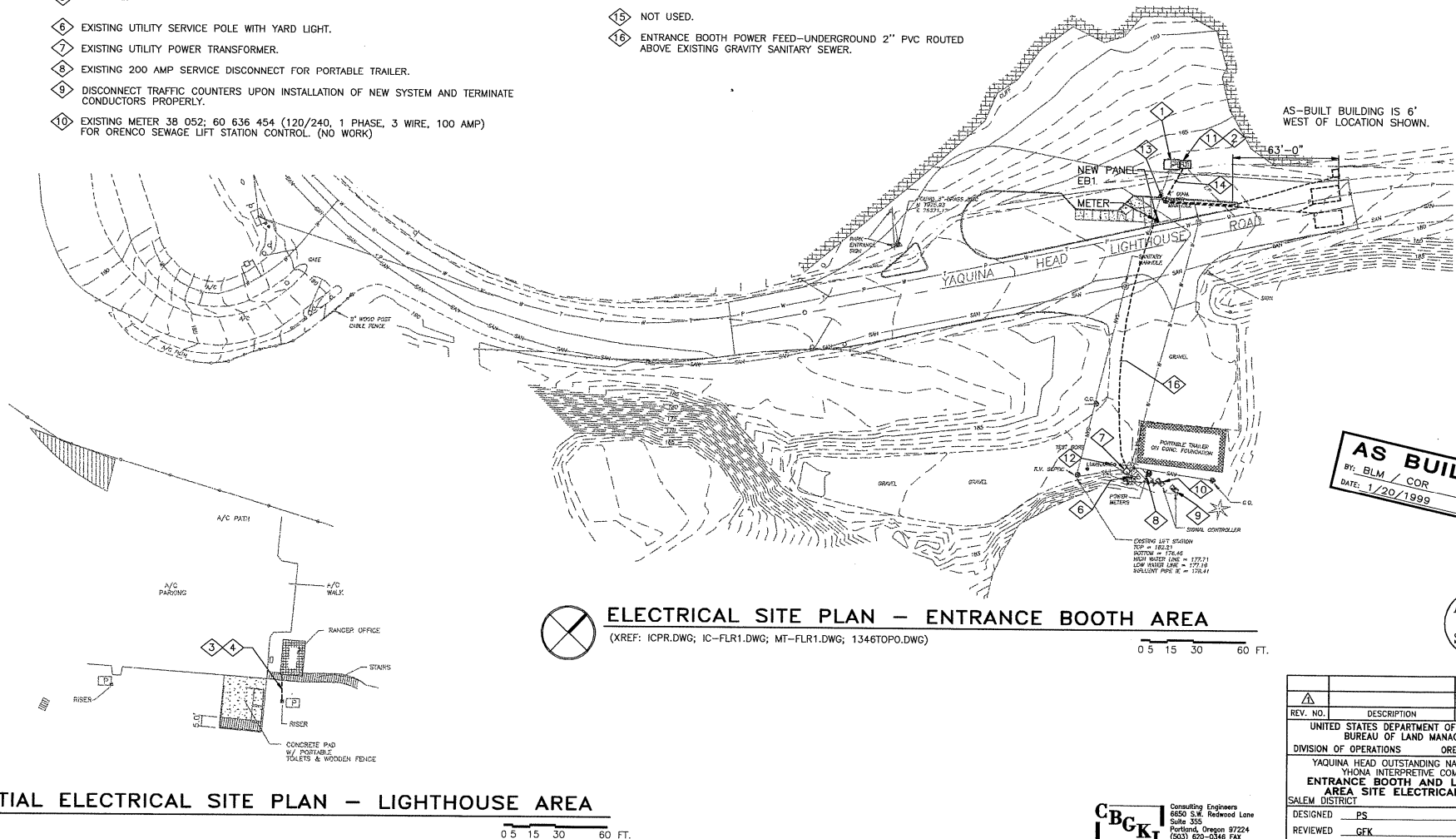
- 1 EXISTING PUD HIGH VOLTAGE SWITCH PAD.
- 2 EXISTING U.S. WEST TELEPHONE PULL BOX.
- 3 REMOVE EXISTING POWER FEED AND PROVIDE NEW STAINLESS STEEL POWER PEDESTAL.
- 4 EXISTING BUILDING TO BE MOVED 3'-0" NORTH. SEE DWG. L3 FOR NEW LOCATION. PROVIDE NEW FEEDER FROM EXISTING RISER (3#3 & 1#8G, 1-1/4" PVC, VERIFY) TO NEW LOCATION. INSTALL NEW GROUND ROD(S) AS REQUIRED AND BOND TO SYSTEM.
- 5 NOT USED
- 6 EXISTING UTILITY SERVICE POLE WITH YARD LIGHT.
- 7 EXISTING UTILITY POWER TRANSFORMER.
- 8 EXISTING 200 AMP SERVICE DISCONNECT FOR PORTABLE TRAILER.
- 9 DISCONNECT TRAFFIC COUNTERS UPON INSTALLATION OF NEW SYSTEM AND TERMINATE CONDUCTORS PROPERLY.
- 10 EXISTING METER 38 052; 60 636 454 (120/240, 1 PHASE, 3 WIRE, 100 AMP) FOR ORENCO SEWAGE LIFT STATION CONTROL. (NO WORK)

KEYED NOTES

- 11 EXISTING TELEPHONE PEDESTAL. (NO WORK)
- 12 EXISTING TELEPHONE PEDESTAL FOR PORTABLE TRAILER. (NO WORK)
- 13 PROVIDE TELEPHONE CABINET (6" WIDE X 12" HIGH X 4" DEEP) FLUSH MOUNTED 18" TO BOTTOM ABOVE FINISH FLOOR.
- 14 PROVIDE 2-2" U. G. PVC CONDUITS WITH 25 PAIR, COPPER, TWISTED PAIR TELEPHONE CABLE FROM EXISTING TELEPHONE PEDESTAL AND TERMINATE IN TELEPHONE CABINET ON A "ATT 110" BLOCK. VERIFY ALL REQUIREMENTS WITH U. S. WEST.
- 15 NOT USED.
- 16 ENTRANCE BOOTH POWER FEED-UNDERGROUND 2" PVC ROUTED ABOVE EXISTING GRAVITY SANITARY SEWER.

SHEET NOTES

1. CONTRACTOR SHALL COORDINATE ALL UNDERGROUND ELECT. WORK WITH OTHER UTILITIES. VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO ANY TRENCHING.
2. SEE PANEL SCHEDULES AT END OF PANELBOARD SPECIFICATION SECTION 16476 FOR FEEDER AND BRANCH CIRCUIT WIRING NOT SHOWN ON THIS PLAN.
3. BOND TELEPHONE SYSTEM TO ELECTRICAL SYSTEM GROUND.



ELECTRICAL SITE PLAN - ENTRANCE BOOTH AREA

(XREF: ICPR.DWG; IC-FLR1.DWG; MT-FLR1.DWG; 1346TOPO.DWG)

0 5 15 30 60 FT.

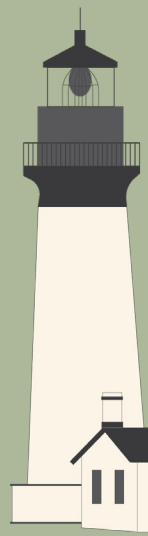
PARTIAL ELECTRICAL SITE PLAN - LIGHTHOUSE AREA

0 5 15 30 60 FT.

CBGKL Consulting Engineers
6650 S.W. Redwood Lane
Suite 305
Portland, Oregon 97224
(503) 620-0346 FAX
(503) 620-3332

REV. NO.	DESCRIPTION	DATE	APPROVED
1	DESIGNED	PS	
2	REVIEWED	GFK	
3	APPROVED	GFK	
4	DRAWN	JW	
5	DATE	07/11/95	
6	DRAWING NO.	E101	
7	SCALE	AS INDICATED	
8	SHEET	153 OF 202	

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YAQUINA HEAD

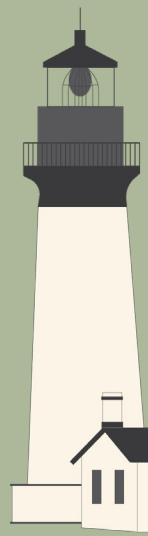
Traffic Study

Appendix B2: Sign Inventory

#	Sign Text	Sign Height	Sign Width	Mount Height	Sign Condition	Post Type	Post Shape	Post Height (ft)	Post Diameter (Inches)	Post Diameter 2 (inches)	Breakaway	Offset (ft)	Sign Comments
1	YAQUINA HEAD OUTSTANDING NATURAL AREA	30	72	14	Good	Steel	Round	35	12		Y	12	BLM sign
2	YAQUINA HEAD OUTSTANDING NATURAL AREA	30	72	14	Good	Steel	Round	35	12		Y	7	BLM sign
3	YIELD	18	18	60	Good	Wood	Square	78	4		N	7	Hidden by vegetation
4	TURN LANE MARKINGS	30	36	82	Fair	Wood	Square	114	4		N	2	Moss and dirt
5	SIGNAL SYMBOL	48	48	94	Good	Wood	Rectangle	164	4	6	N	4	good reflectivity
6	DEAD END	36	36	60	Poor	Steel	Round	96	3		N	56	Faded overgrown vegetation
7	NO PARKING / PARKING LOCATED AT ERNEST BLOCH MEMORIAL WAYSIDE RIGHT AT LIGHT HWY 101 SOUTH	9	12	18	Fair	Other	Other				N/A	4	On guardrail laminated paper sign with zip ties
8	NO PARKING	9	12	18	Fair	Other	Other				N/A	4	On guardrail laminated paper sign with zip ties
9	SPEED LIMIT 25	30	24	41	Fair	Wood	Square	74	4		N	12.5	Non reflective
10	NO PARKING	9	12	18	Fair	Other	Other				N/A	4.5	On guardrail laminated paper sign with zip ties
11	NO PARKING	9	12	12	Fair	Other	Other				N/A	8.5	On guardrail laminated paper sign with zip ties
12	NO PARKING ANYTIME TOW AWAY ZONE	18	12	60	Good	Wood	Rectangle	104	4	6	Y	11	24x24 visitor sign attached "day use area fee required"
13	LIMITED ACCESS / NO PARKING ALONG ROAD (FACING TOWARD HIGHWAY)			26	Fair	Other	Other	45	10		N/A	1	Plastic temporary removable sign laminated
14	LIMITED ACCESS / NO PARKING ALONG ROAD (FACES TOWARD HIGHWAY)			26	Fair	Other	Other	45	10		N/A	1	Plastic temporary removable sign laminated
15	TURNAROUND AHEAD	12	18	47	Fair	Wood	Square	62	4		N	11	Loose mounting; 24x24 us fee area sign mounted below
16	TURNAROUND AVAILABLE AHEAD	18	24	6	Fair	Other	Other				N/A	12	Homemade sign removable laminated
17	SITE FULL / OPEN 8-SUNSET / OFF PEAK HOURS: 8-10 AM & 5-CLOSE	24	18	24	Fair	Other	Round	50	3		N/A		Removable sign laminated to aluminum sign
18	STOP	24	24	36	Poor	Other	Round	61	2		N/A		Tape peeled off. Temporary removable sign
19	CAUTION WALKERS ON ROAD	18	24	6	Fair	Other	Other				N/A	6	Homemade sign removable laminated
20	AUTHORIZED VEHICLES ONLY	18	12	36	Good	Wood	Square	73	4		N	10	
21	AUTHORIZED VEHICLES ONLY / TOW AWAY ZONE	24	12	38	Fair	Wood	Square	63	4		N	17	
22	AUTHORIZED VEHICLES ONLY	18	12	53	Fair	Wood	Square	71	4		N	1	Fog line stops
23	STOP	30	30	77	Good	Wood	Rectangle	110	4	6	Y	3	
24	STOP	30	30	86	Poor	Wood	Rectangle	112	4	6	N	5.5	faded and cracking
25	EXIT	24	18	56	Poor	Wood	Rectangle	112	4	6	N	5.5	faded and cracking
26	STOP	30	30	10	Fair	Wood	Other	29			N/A		On gate, dirty faded
27	CAUTION	12	36	51	Good	Wood	Rectangle	112	4	6	N	6.5	
28	INTERSECTION SYMBOL	41	41	67	Fair	Wood	Rectangle	112	4	6	N	6.5	

#	Sign Text	Sign Height	Sign Width	Mount Height	Sign Condition	Post Type	Post Shape	Post Height (ft)	Post Diameter (Inches)	Post Diameter 2 (inches)	Breakaway	Offset (ft)	Sign Comments
29	NO PARKING TOW AWAY ZONE	18	12	8	Fair	Wood	Square	27	4		N	1	Bent; End sidewalk
30	EXIT DO NOT ENTER	24	24	71	Poor	Wood	Rectangle	100	4	6	N	2	faded
31	ONE WAY	24	18	72	Good	Wood	Rectangle	101	4	6	N	2	
32	ONE WAY	24	18	71	Good	Wood	Rectangle	100	4	6	N	3	
33	STOP	30	30	76	Fair	Wood	Rectangle	110	6	8	N	1	Bent
34	NO LEFT SYMBOL	24	24	53	Poor	Wood	Rectangle	77	6	8	N	2	Faded
35	STOP	30	30	59	Poor	Wood	Rectangle	93	6	8	N	2.5	Faded
36	ONE WAY	24	18	44	Good	Wood	Rectangle	70	4	6	N	4	
37	DO NOT ENTER	18	18	52	Fair	Wood	Rectangle	71	4	6	N	6.5	
38	STOP	30	30	61	Good	Wood	Rectangle	94	6	8	N	4.5	
39	STOP	12	30	46	Good	Wood	Rectangle	94	6	8	N	4.5	
40	SPEED LIMIT 15	30	24	81	Poor	Wood	Rectangle	114	4	6	N	5	Cracked and faded
41	EXIT DO NOT ENTER	24	24	74	Fair	Wood	Rectangle	101	6	8	N	4	Fading
42	NO TURNS	24	24	42	Good	Wood	Rectangle	101	6	8	N	4	Reflective
43	KEEP RIGHT	30	24	68	Good	Wood	Rectangle	101	6	8	N	4	
44	SPEED LIMIT 15	30	24	74	Fair	Wood	Rectangle	108	4	6	N	6	damaged
45	KEEP RIGHT	30	24	59	Fair	Wood	Rectangle	92	6	8	N	4.5	damaged
46	STOP	24	24		Poor	Other	Other				N/A		Faded, on gate
47	KEEP RIGHT	30	24	68	Good	Wood	Rectangle	99	4	6	N	5	
48	STOP	24	24	78	Fair	Wood	Rectangle	108	4	6	N	6.5	Damage
49	EXIT DO NOT ENTER	24	24	36	Poor	Wood	Rectangle	61	4	6	N	4	Faded
50	STOP	30	30	79	Fair	Wood	Rectangle	109	4	6	N	3	
51	SPEED LIMIT 25	30	24	71	Poor	Wood	Rectangle	104	4	6	N	7.5	Cracked faded
52	STOP AHEAD SYMBOL	41	41	71	Good	Wood	Rectangle	115	4	6	N	6.5	
53	SPEED LIMIT 25	24	30	24	Good	Wood	Square	87	4		N	14	
54	RIGHT CURVE SYMBOL	33	33	54	Fair	Wood	Square	87	4		N	14	
55	PEDESTRIAN CROSSING SYMBOL	24	24	44	Poor	Wood	Square	69	4		N	15.5	Cracked
56	STOP	18	18		Poor	Wood	Other				N/A		On gate
57	PEDESTRIAN CROSSING SYMBOL	24	24	44	Poor	Wood	Square	70	4		N	8.5	Cracked
58	SPEED LIMIT 25	30	24	81	Fair	Wood	Square	112	4		N	7.5	Fading
59	SPEED LIMIT 25	30	24	87	Good	Wood	Square	118	4		N	6.5	Fading
60	P / ALL TRAFFIC	24	24	13	Fair	Other	Other	45			N/A		Dings. Removable sign. Homemade modifications
61	KEEP RIGHT	30	24	73	Good	Wood	Square	104	4		N	3	
62	PEDESTRIAN CROSSING SYMBOL	24	24	36	Fair	Wood	Square	62	4		N	2.5	No marked crosswalk. No sign on opposite side. Curb ramps not compliant.
63	STOP	30	30	87	Fair	Wood	Rectangle	116	4	6	N	4.5	
64	SPEED LIMIT 25	30	24	81	Poor	Wood	Square	112	4		N	10	Fading dirty
65	SPEED LIMIT 15	24	18	82	Good	Wood	Square	108	4		N	11	
66	PEDESTRIAN CROSSING SYMBOL	41	41	70	Fair	Wood	Rectangle	115	4	6	N	9.5	Faded cracking
67	NO PARKING SYMBOL	18	18	12	Good	Wood	Square	32	4		N	1	

#	Sign Text	Sign Height	Sign Width	Mount Height	Sign Condition	Post Type	Post Shape	Post Height (ft)	Post Diameter (Inches)	Post Diameter 2 (inches)	Breakaway	Offset (ft)	Sign Comments
68	EXIT DO NOT ENTER	24	24	44	Poor	Steel	UChan	69	2		N	3	Faded
69	HANDICAP PARKING ONLY	18	12	52	Poor	Steel	Round	88	6		N	12	Faded; Stall = 13 ft wide. Aisle = 8 ft wide. Ramp not accessible



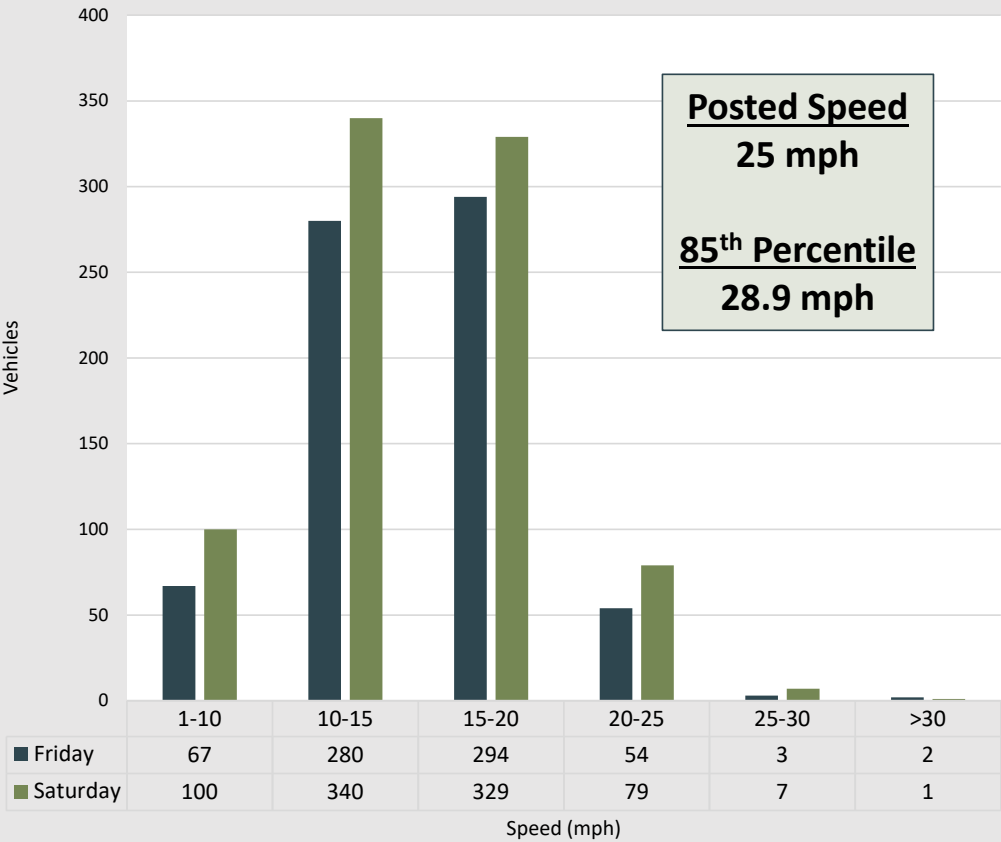
YAQUINA HEAD

Traffic Study

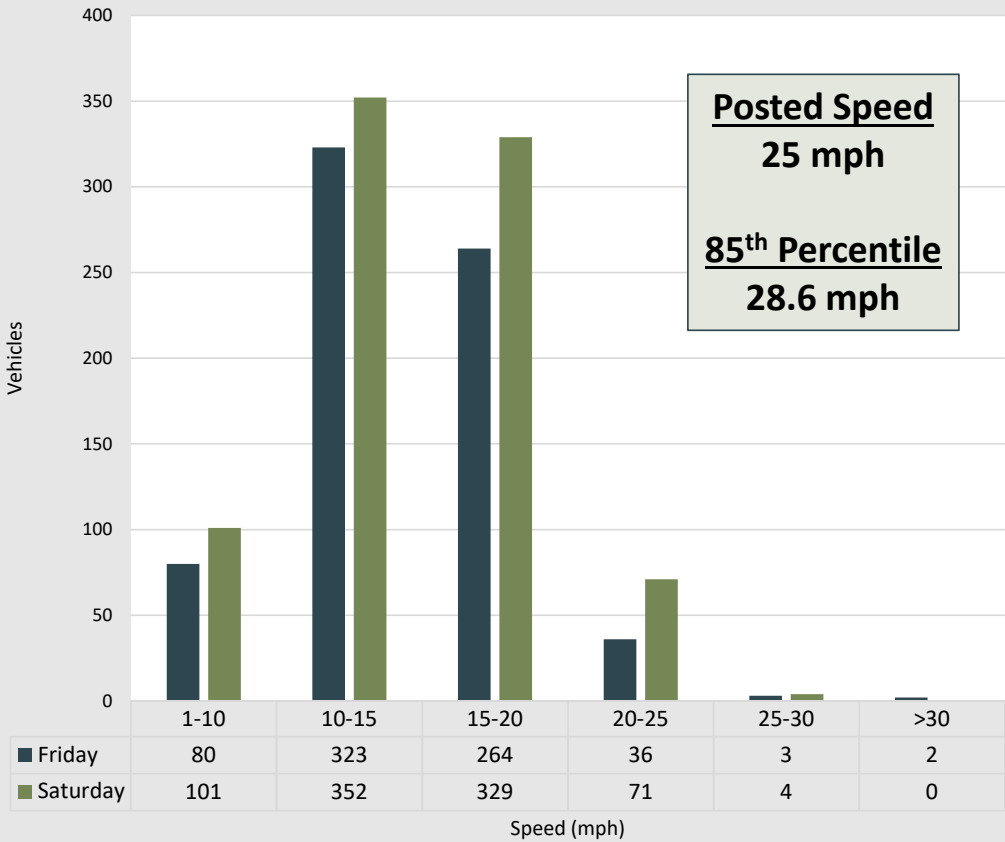
Appendix B3: Traffic Data

East of Yaquina Entrance – August Traffic Speed

Lighthouse Drive - Westbound

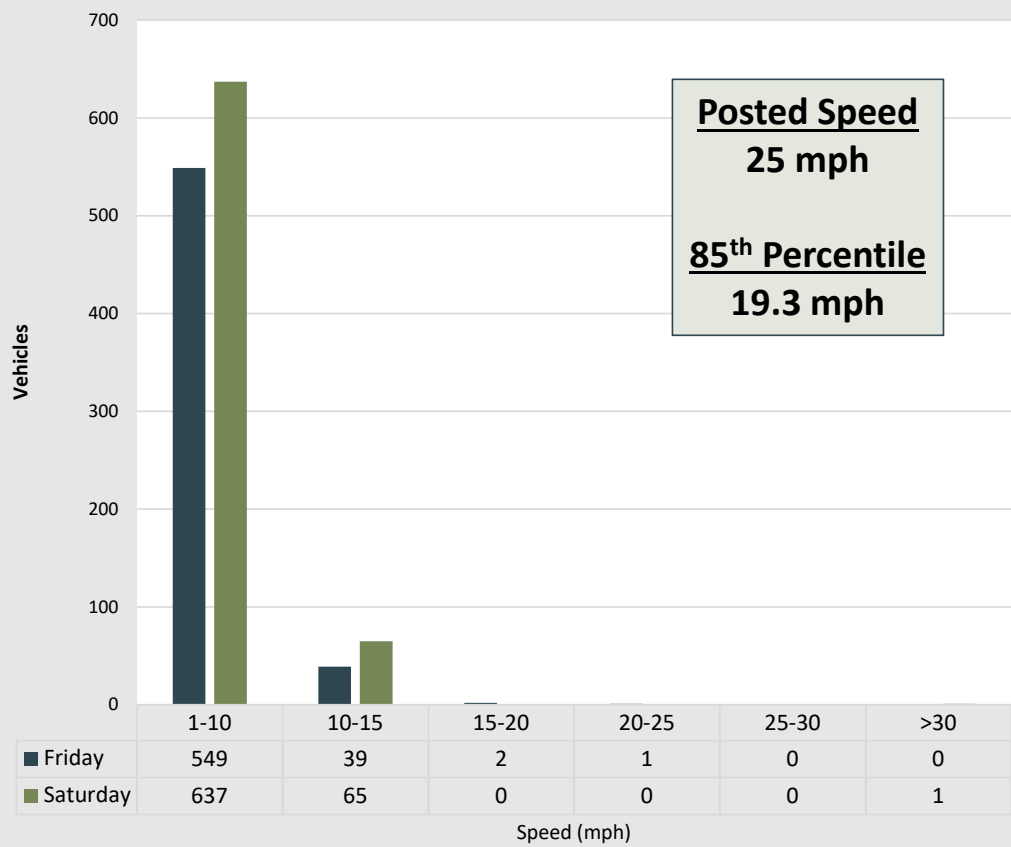


Lighthouse Drive - Eastbound

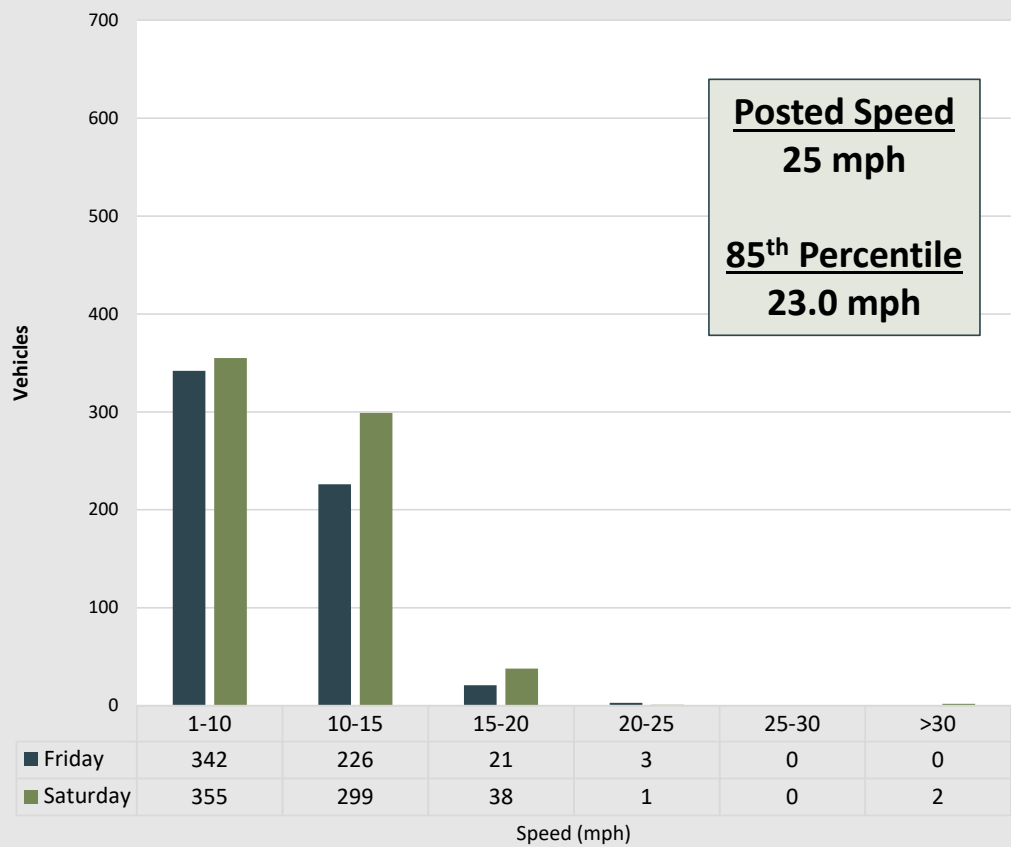


West of Yaquina Entrance – August Traffic Speed

West of Entrance - Westbound

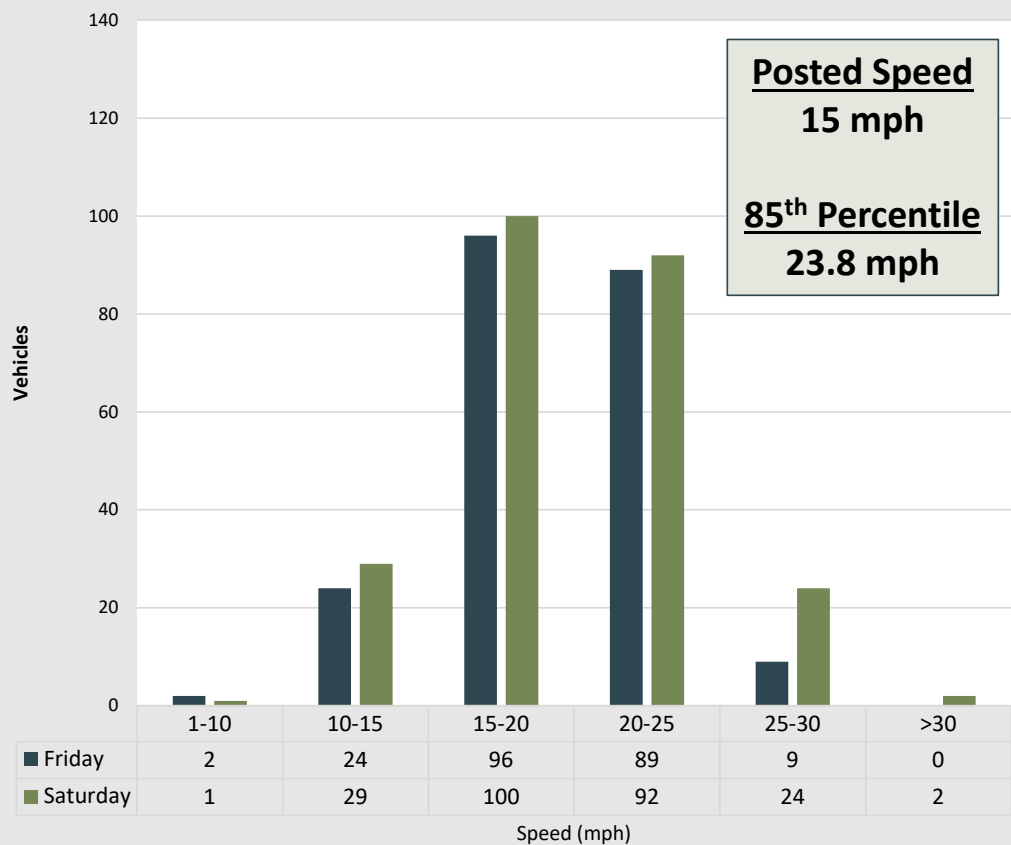


West of Entrance - Eastbound

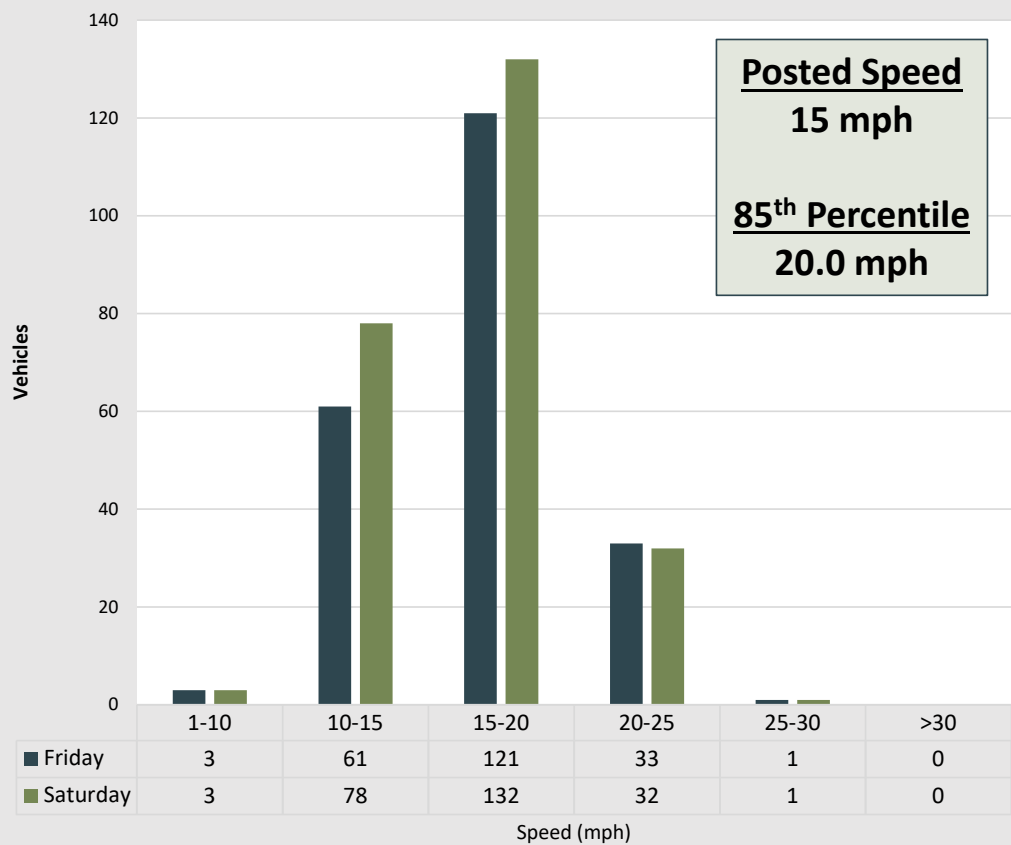


Quarry Cove Access Road – August Traffic Speed

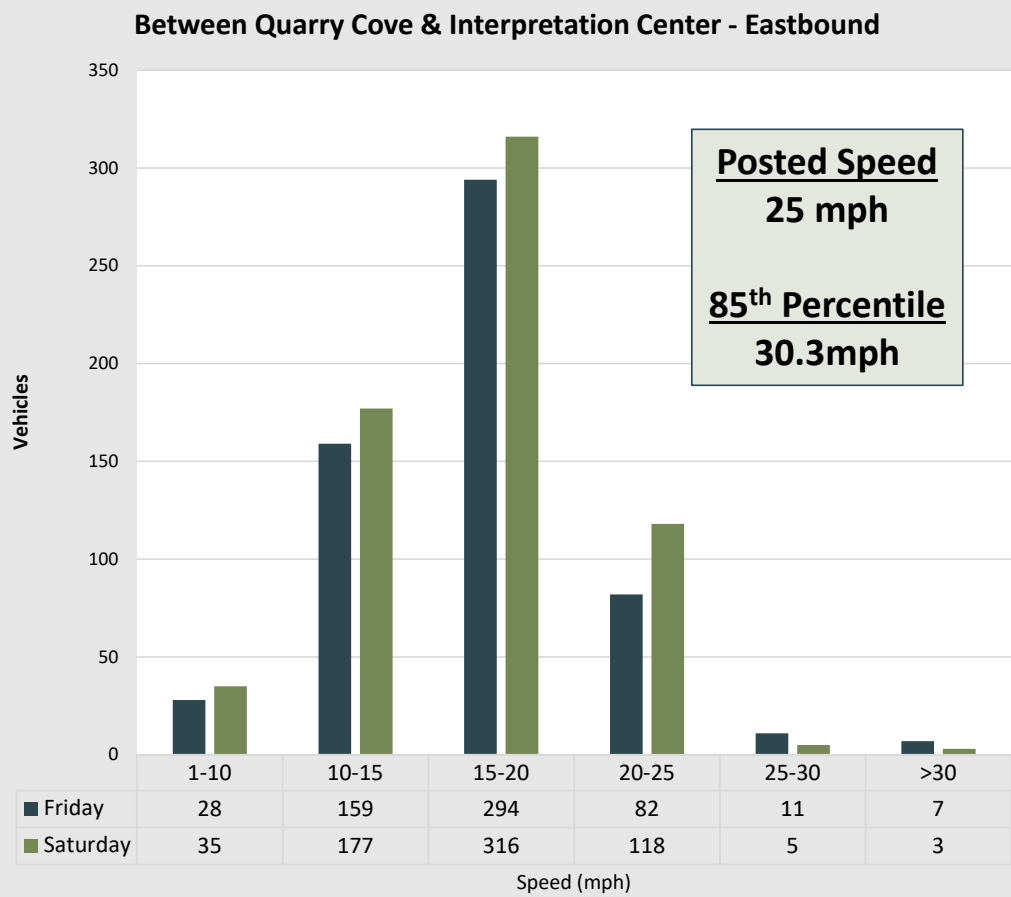
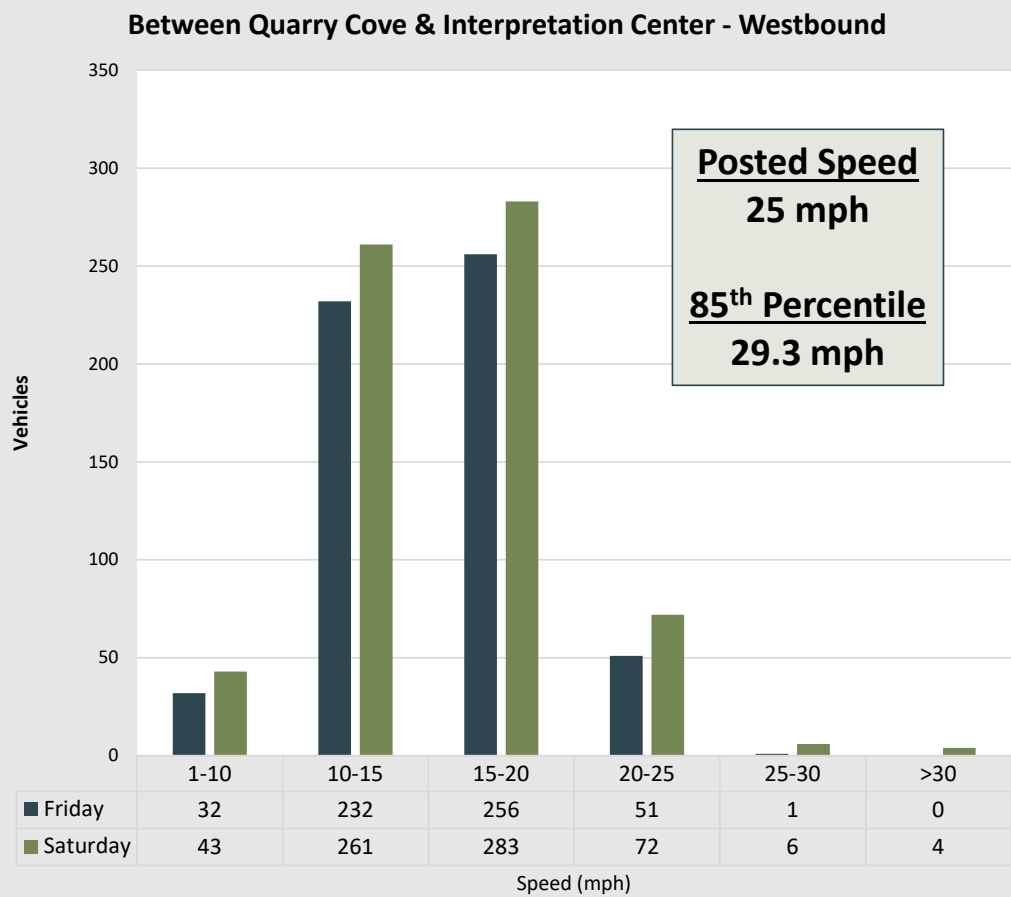
Quarry Cove - Westbound



Quarry Cove - Eastbound

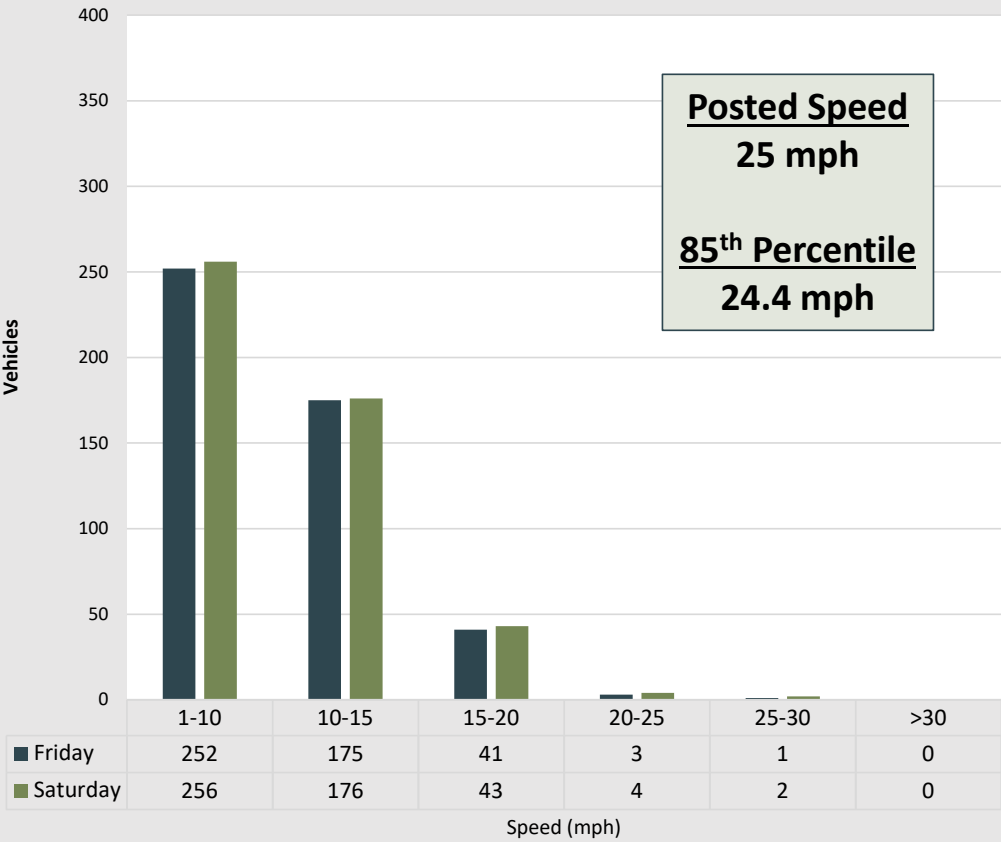


Quarry Cove / Interpretive Center – August Traffic Speed

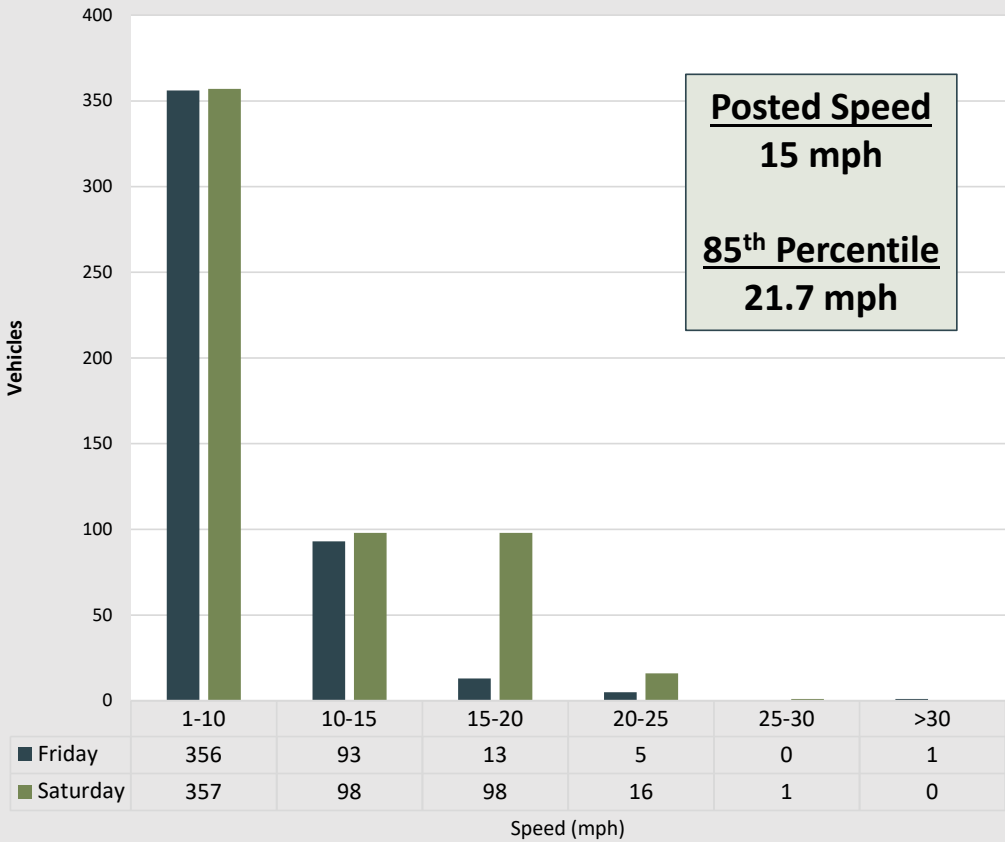


Lighthouse Garden – August Traffic Speed

Lighthouse Garden - Westbound



Lighthouse Garden - Eastbound



Per-Vehicle Summary Report: Curves b/w QC & IC

Station ID : Curves b/w QC & IC

Info Line 1 : At guardrail

Info Line 2 : A=uphill(east)/B=downhill(west)

GPS Lat/Lon :

DB File : Curves bw QC & IC.DB

Last Connected Device Type : RoadRunner3

Version Number : 1.34

Serial Number : 19238

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
2.	Opp -		Axle-Axle	5.0 ft	

Average Daily Traffic (ADT)

Weekday		Weekend		Total ADT	
Cars :	538 (97%)	Cars :	700 (98%)	Cars :	606 (97%)
Trucks :	13 (3%)	Trucks :	13 (2%)	Trucks :	13 (3%)
Total :	552	Total :	713	Total :	620

Speed Totals

50 % :	26.8 mph	Top Speed :	47.8 mph	Average Truck Speed :	26.1 mph
85 % :	30.3 mph	Low Speed :	14.2 mph	Average Car Speed :	26.5 mph
Avg :	26.5 mph	10mph Pace Speed:	21.4 - 31.3 (81.0%)		

Peak Hour Totals

AM Peak Hour (Volume)

Weekday : 11:00 - 12:00 (Avg 40)

Weekend : 10:45 - 11:45 (Avg 13)

PM Peak Hour (Volume)

Weekday : 12:30 - 13:30 (Avg 98)

Weekend : 14:15 - 15:15 (Avg 54)

AM Peak Hour (Speed)

08:00 - 09:00 (26.8 mph)

08:00 - 09:00 (29.4 mph)

PM Peak Hour (Speed)

21:30 - 22:30 (30.6 mph)

18:30 - 19:30 (28.1 mph)

Grand Totals

Total Cars :	1315 (	606 ADT)	Average Length : 10.8 ft	Average Headway : 79.7 sec
Total Trucks :	29 (	13 ADT)	Average Axles : 2.0	Average Gap : 79.4 sec
Total Volume :	1344 (	620 ADT)		

Per-Vehicle Summary Report: Curves b/w QC & IC

Station ID : Curves b/w QC & IC

Info Line 1 : At guardrail

Info Line 2 : A=uphill(east)/B=downhill(west)

GPS Lat/Lon :

DB File : Curves bw QC & IC.DB

Last Connected Device Type : RoadRunner3

Version Number : 1.34

Serial Number : 19238

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
1.			Axle-Axle	5.0 ft	

Average Daily Traffic (ADT)

Weekday		Weekend		Total ADT	
Cars :	513 (99%)	Cars :	721 (98%)	Cars :	601 (99%)
Trucks :	4 (1%)	Trucks :	8 (2%)	Trucks :	6 (1%)
Total :	517	Total :	729	Total :	607

Speed Totals

50 % :	25.4 mph	Top Speed :	87.9 mph	Average Truck Speed :	29.8 mph
85 % :	29.3 mph	Low Speed :	11.9 mph	Average Car Speed :	25.5 mph
Avg :	25.5 mph	10mph Pace Speed:	20.9 - 30.8 (84.7%)		

Peak Hour Totals

AM Peak Hour (Volume)		AM Peak Hour (Speed)	
Weekday :	11:00 - 12:00 (Avg 82)	10:30 - 11:30	(26.0 mph)
Weekend :	11:00 - 12:00 (Avg 40)	09:00 - 10:00	(26.0 mph)
PM Peak Hour (Volume)		PM Peak Hour (Speed)	
Weekday :	18:15 - 19:15 (Avg 78)	19:30 - 20:30	(27.0 mph)
Weekend :	13:15 - 14:15 (Avg 45)	16:45 - 17:45	(27.8 mph)

Grand Totals

Total Cars :	1303 (	601 ADT)	Average Length :	9.8 ft	Average Headway :	83.1 sec
Total Trucks :	13 (	6 ADT)	Average Axles :	2.0	Average Gap :	82.8 sec
Total Volume :	1316 (	607 ADT)				

Per-Vehicle Summary Report: Lighthouse Drive

Station ID : Lighthouse Drive

Info Line 1 : Below entrance

Info Line 2 : A=Hwy101(east)/B=entrance(west)

GPS Lat/Lon :

DB File : Lighthouse Drive.DB

Last Connected Device Type : RoadRunner3

Version Number : 1.34

Serial Number : 19236

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
2.	Opp -		Axle-Axle	5.0 ft	

Average Daily Traffic (ADT)

Weekday		Weekend		Total ADT	
Cars :	629 (98%)	Cars :	926 (99%)	Cars :	757 (98%)
Trucks :	10 (2%)	Trucks :	8 (1%)	Trucks :	9 (2%)
Total :	640	Total :	934	Total :	767

Speed Totals

50 % :	24.6 mph	Top Speed :	94.8 mph	Average Truck Speed :	27.3 mph
85 % :	28.6 mph	Low Speed :	7.6 mph	Average Car Speed :	24.5 mph
Avg :	24.5 mph	10mph Pace Speed:	19.9 - 29.8 (81.6%)		

Peak Hour Totals

AM Peak Hour (Volume)

Weekday : 10:45 - 11:45 (Avg 42)

Weekend : 11:00 - 12:00 (Avg 20)

PM Peak Hour (Volume)

Weekday : 12:30 - 13:30 (Avg 113)

Weekend : 14:15 - 15:15 (Avg 66)

AM Peak Hour (Speed)

05:45 - 06:45 (24.6 mph)

07:15 - 08:15 (26.3 mph)

PM Peak Hour (Speed)

20:15 - 21:15 (26.5 mph)

21:15 - 22:15 (27.3 mph)

Grand Totals

Total Cars :	1610 (	757 ADT)	Average Length : 10.0 ft	Average Headway : 80.3 sec
Total Trucks :	21 (	9 ADT)	Average Axles : 2.0	Average Gap : 80.0 sec
Total Volume :	1631 (	767 ADT)		

Per-Vehicle Summary Report: Lighthouse Drive

Station ID : Lighthouse Drive

Info Line 1 : Below entrance

Info Line 2 : A=Hwy101(east)/B=entrance(west)

GPS Lat/Lon :

DB File : Lighthouse Drive.DB

Last Connected Device Type : RoadRunner3

Version Number : 1.34

Serial Number : 19236

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
1.			Axle-Axle	5.0 ft	

Average Daily Traffic (ADT)

Weekday			Weekend			Total ADT		
Cars :	594	(98%)	Cars :	921	(99%)	Cars :	735	(98%)
Trucks :	9	(2%)	Trucks :	8	(1%)	Trucks :	8	(2%)
Total :	603		Total :	930		Total :	744	

Speed Totals

50 % :	25.0 mph	Top Speed :	100.0 mph	Average Truck Speed :	28.4 mph
85 % :	28.9 mph	Low Speed :	6.1 mph	Average Car Speed :	24.8 mph
Avg :	24.9 mph	10mph Pace Speed:	20.2 - 30.1 (80.5%)		

Peak Hour Totals

AM Peak Hour (Volume)	AM Peak Hour (Speed)
Weekday : 10:45 - 11:45 (Avg 86)	10:30 - 11:30 (25.5 mph)
Weekend : 11:00 - 12:00 (Avg 49)	06:30 - 07:30 (24.9 mph)
PM Peak Hour (Volume)	PM Peak Hour (Speed)
Weekday : 16:00 - 17:00 (Avg 85)	14:30 - 15:30 (28.1 mph)
Weekend : 13:15 - 14:15 (Avg 57)	20:30 - 21:30 (27.2 mph)

Grand Totals

Total Cars :	1563 (	735 ADT)	Average Length : 10.1 ft	Average Headway : 82.5 sec
Total Trucks :	19 (	8 ADT)	Average Axles : 2.0	Average Gap : 82.2 sec
Total Volume :	1582 (	744 ADT)		

Per-Vehicle Summary Report: LH

Station ID : LH

Info Line 1 : By Keepers Garden

Info Line 2 : A-Uphill

GPS Lat/Lon :

DB File : LH.DB

Last Connected Device Type : RoadRunner3

Version Number : 1.34

Serial Number : 21416

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
2.	Opp -		Axle-Axle	5.0 ft	

Average Daily Traffic (ADT)

Weekday			Weekend			Total ADT		
Cars :	468	(98%)	Cars :	534	(99%)	Cars :	495	(98%)
Trucks :	7	(2%)	Trucks :	4	(1%)	Trucks :	6	(2%)
Total :	476		Total :	539		Total :	501	

Speed Totals

50 % :	17.6 mph	Top Speed :	88.4 mph	Average Truck Speed :	20.9 mph
85 % :	21.7 mph	Low Speed :	5.1 mph	Average Car Speed :	17.6 mph
Avg :	17.6 mph	10mph Pace Speed:	13.4 - 23.3 (79.1%)		

Peak Hour Totals

AM Peak Hour (Volume)		AM Peak Hour (Speed)	
Weekday :	11:00 - 12:00 (Avg 53)	09:30 - 10:30 (18.0 mph)	
Weekend :	11:00 - 12:00 (Avg 20)	09:15 - 10:15 (18.0 mph)	
PM Peak Hour (Volume)		PM Peak Hour (Speed)	
Weekday :	17:15 - 18:15 (Avg 121)	21:30 - 22:30 (21.6 mph)	
Weekend :	17:00 - 18:00 (Avg 35)	18:30 - 19:30 (19.6 mph)	

Grand Totals

Total Cars :	1073 (	495 ADT)	Average Length : 9.8 ft	Average Headway : 95.5 sec
Total Trucks :	14 (	6 ADT)	Average Axles : 2.0	Average Gap : 95.1 sec
Total Volume :	1087 (	501 ADT)		

Per-Vehicle Summary Report: LH

Station ID : LH

Info Line 1 : By Keepers Garden

Info Line 2 : A-Uphill

GPS Lat/Lon :

DB File : LH.DB

Last Connected Device Type : RoadRunner3

Version Number : 1.34

Serial Number : 21416

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
1.			Axle-Axle	5.0 ft	

Average Daily Traffic (ADT)

Weekday			Weekend			Total ADT		
Cars :	445	(99%)	Cars :	547	(99%)	Cars :	485	(99%)
Trucks :	3	(1%)	Trucks :	2	(1%)	Trucks :	3	(1%)
Total :	449		Total :	549		Total :	489	

Speed Totals

50 % :	19.9 mph	Top Speed :	37.0 mph	Average Truck Speed :	22.7 mph
85 % :	24.4 mph	Low Speed :	4.5 mph	Average Car Speed :	19.9 mph
Avg :	19.9 mph	10mph Pace Speed:	15.1 - 25.0 (78.1%)		

Peak Hour Totals

AM Peak Hour (Volume)

Weekday : 11:00 - 12:00 (Avg 61)

Weekend : 10:45 - 11:45 (Avg 30)

PM Peak Hour (Volume)

Weekday : 17:00 - 18:00 (Avg 123)

Weekend : 16:30 - 17:30 (Avg 36)

AM Peak Hour (Speed)

07:15 - 08:15 (25.5 mph)

07:30 - 08:30 (29.6 mph)

PM Peak Hour (Speed)

21:30 - 22:30 (27.2 mph)

19:00 - 20:00 (22.5 mph)

Grand Totals

Total Cars :	1073 (	485 ADT)	Average Length : 9.6 ft	Average Headway : 103.4 sec
Total Trucks :	7 (	3 ADT)	Average Axles : 2.0	Average Gap : 103.1 sec
Total Volume :	1080 (	489 ADT)		

Per-Vehicle Summary Report: Past Entrance

Station ID : Past Entrance

Info Line 1 : At guardrail west of entrance

Info Line 2 : A=only

GPS Lat/Lon :

DB File : Past Entrance.DB

Last Connected Device Type : RoadRunner3

Version Number : 1.34

Serial Number : 19237

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
2.	Opp -		Axle-Axle	5.0 ft	

Average Daily Traffic (ADT)

Weekday		Weekend		Total ADT	
Cars :	541 (98%)	Cars :	748 (98%)	Cars :	630 (98%)
Trucks :	7 (2%)	Trucks :	9 (2%)	Trucks :	8 (2%)
Total :	548	Total :	758	Total :	639

Speed Totals

50 % :	19.7 mph	Top Speed :	64.7 mph	Average Truck Speed :	20.7 mph
85 % :	23.0 mph	Low Speed :	5.0 mph	Average Car Speed :	19.6 mph
Avg :	19.6 mph	10mph Pace Speed:	14.7 - 24.6 (87.9%)		

Peak Hour Totals

AM Peak Hour (Volume)	AM Peak Hour (Speed)
Weekday : 11:00 - 12:00 (Avg 37)	10:15 - 11:15 (19.1 mph)
Weekend : 11:00 - 12:00 (Avg 16)	10:15 - 11:15 (22.6 mph)
PM Peak Hour (Volume)	PM Peak Hour (Speed)
Weekday : 12:30 - 13:30 (Avg 105)	15:30 - 16:30 (20.3 mph)
Weekend : 14:15 - 15:15 (Avg 57)	13:45 - 14:45 (21.3 mph)

Grand Totals

Total Cars :	1340 (630 ADT)	Average Length :	9.8 ft	Average Headway :	77.3 sec
Total Trucks :	18 (8 ADT)	Average Axles :	2.0	Average Gap :	77.0 sec
Total Volume :	1358 (639 ADT)				

Per-Vehicle Summary Report: Past Entrance

Station ID : Past Entrance

Info Line 1 : At guardrail west of entrance

Info Line 2 : A=only

GPS Lat/Lon :

DB File : Past Entrance.DB

Last Connected Device Type : RoadRunner3

Version Number : 1.34

Serial Number : 19237

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
1.			Axle-Axle	5.0 ft	

Average Daily Traffic (ADT)

Weekday		Weekend		Total ADT	
Cars :	494 (98%)	Cars :	758 (98%)	Cars :	606 (98%)
Trucks :	7 (2%)	Trucks :	8 (2%)	Trucks :	7 (2%)
Total :	501	Total :	766	Total :	613

Speed Totals

50 % :	16.7 mph	Top Speed :	81.3 mph	Average Truck Speed :	19.5 mph
85 % :	19.3 mph	Low Speed :	5.3 mph	Average Car Speed :	16.6 mph
Avg :	16.7 mph	10mph Pace Speed:	11.7 - 21.6 (95.0%)		

Peak Hour Totals

AM Peak Hour (Volume)	AM Peak Hour (Speed)
Weekday : 11:00 - 12:00 (Avg 81)	10:30 - 11:30 (17.3 mph)
Weekend : 11:00 - 12:00 (Avg 45)	07:00 - 08:00 (23.7 mph)
PM Peak Hour (Volume)	PM Peak Hour (Speed)
Weekday : 12:15 - 13:15 (Avg 72)	21:30 - 22:30 (24.9 mph)
Weekend : 13:15 - 14:15 (Avg 47)	21:15 - 22:15 (81.3 mph)

Grand Totals

Total Cars :	1313 (606 ADT)	Average Length : 9.4 ft	Average Headway : 80.6 sec
Total Trucks :	17 (7 ADT)	Average Axles : 2.0	Average Gap : 80.2 sec
Total Volume :	1330 (613 ADT)		

Per-Vehicle Summary Report: Q Cove

Station ID : Q Cove

Info Line 1 : Below pullout

Info Line 2 : A=uphill/B=downhill

GPS Lat/Lon :

DB File : Q Cove.DB

Last Connected Device Type : RoadRunner3

Version Number : 1.34

Serial Number : 21414

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
2.	Opp -		Axle-Axle	5.0 ft	

Average Daily Traffic (ADT)

Weekday		Weekend		Total ADT	
Cars :	206 (99%)	Cars :	281 (100%)	Cars :	236 (99%)
Trucks :	1 (1%)	Trucks :	0 (0%)	Trucks :	0 (1%)
Total :	208	Total :	281	Total :	237

Speed Totals

50 % :	16.7 mph	Top Speed :	27.5 mph	Average Truck Speed :	14.5 mph
85 % :	20.0 mph	Low Speed :	8.4 mph	Average Car Speed :	16.7 mph
Avg :	16.7 mph	10mph Pace Speed:	11.4 - 21.3 (90.7%)		

Peak Hour Totals

AM Peak Hour (Volume)		AM Peak Hour (Speed)	
Weekday : 10:45 - 11:45 (Avg 18)		09:00 - 10:00 (17.6 mph)	
Weekend : 11:00 - 12:00 (Avg 6)		10:15 - 11:15 (15.6 mph)	
PM Peak Hour (Volume)		PM Peak Hour (Speed)	
Weekday : 18:00 - 19:00 (Avg 54)		21:15 - 22:15 (20.3 mph)	
Weekend : 16:15 - 17:15 (Avg 18)		15:15 - 16:15 (17.4 mph)	

Grand Totals

Total Cars :	513 (236 ADT)	Average Length : 9.5 ft	Average Headway : 197.1 sec
Total Trucks :	2 (0 ADT)	Average Axles : 2.0	Average Gap : 196.7 sec
Total Volume :	515 (237 ADT)		

Per-Vehicle Summary Report: Q Cove

Station ID : Q Cove

Info Line 1 : Below pullout

Info Line 2 : A=uphill/B=downhill

GPS Lat/Lon :

DB File : Q Cove.DB

Last Connected Device Type : RoadRunner3

Version Number : 1.34

Serial Number : 21414

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
1.			Axle-Axle	5.0 ft	

Average Daily Traffic (ADT)

Weekday		Weekend		Total ADT	
Cars :	200 (100%)	Cars :	282 (99%)	Cars :	233 (99%)
Trucks :	0 (0%)	Trucks :	1 (1%)	Trucks :	0 (1%)
Total :	200	Total :	283	Total :	234

Speed Totals

50 % :	19.8 mph	Top Speed :	31.3 mph	Average Truck Speed :	9.9 mph
85 % :	23.8 mph	Low Speed :	6.2 mph	Average Car Speed :	19.6 mph
Avg :	19.6 mph	10mph Pace Speed:	14.3 - 24.2 (81.1%)		

Peak Hour Totals

AM Peak Hour (Volume)	AM Peak Hour (Speed)
Weekday : 10:15 - 11:15 (Avg 19)	08:00 - 09:00 (22.4 mph)
Weekend : 11:00 - 12:00 (Avg 11)	08:30 - 09:30 (21.8 mph)
PM Peak Hour (Volume)	PM Peak Hour (Speed)
Weekday : 18:15 - 19:15 (Avg 46)	21:30 - 22:30 (24.5 mph)
Weekend : 12:00 - 13:00 (Avg 17)	20:00 - 21:00 (31.1 mph)

Grand Totals

Total Cars :	506 (	233 ADT)	Average Length : 9.5 ft	Average Headway : 202.8 sec
Total Trucks :	1 (0 ADT)	Average Axles : 2.0	Average Gap : 202.4 sec
Total Volume :	507 (234 ADT)		



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Count Name:
Highway101_LighthouseDr_Mon
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Start Date: 05/03/2021
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Turning Movement Data

Start Time	Highway 101 Northbound					Highway 101 Southbound					Lighthouse Dr Eastbound					NE 52nd St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
5:00 AM	1	6	1	0	8	0	13	0	0	13	1	0	0	0	1	0	0	0	0	0	22
5:15 AM	0	14	1	0	15	0	14	1	0	15	0	0	1	0	1	1	0	1	0	2	33
5:30 AM	0	19	1	0	20	0	20	0	0	20	0	0	0	0	0	3	0	1	0	4	44
5:45 AM	0	30	0	0	30	0	36	1	0	37	0	1	0	0	1	6	0	0	0	6	74
Hourly Total	1	69	3	0	73	0	83	2	0	85	1	1	1	0	3	10	0	2	0	12	173
6:00 AM	0	26	1	0	27	0	28	0	0	28	0	0	0	0	0	3	0	1	0	4	59
6:15 AM	1	46	2	0	49	1	44	0	1	45	0	0	0	0	0	2	0	0	0	2	96
6:30 AM	0	48	2	1	50	1	54	1	1	56	0	0	0	0	0	5	0	0	0	5	111
6:45 AM	2	60	0	1	62	0	65	2	1	67	2	0	0	0	2	3	0	0	0	3	134
Hourly Total	3	180	5	2	188	2	191	3	3	196	2	0	0	0	2	13	0	1	0	14	400
7:00 AM	0	39	1	0	40	0	63	2	0	65	0	0	0	0	0	5	0	1	0	6	111
7:15 AM	2	71	2	0	75	0	93	2	0	95	0	0	1	0	1	7	0	2	0	9	180
7:30 AM	0	52	2	0	54	0	132	0	0	132	0	0	1	0	1	8	0	1	0	9	196
7:45 AM	3	68	3	0	74	2	149	1	0	152	0	0	0	0	0	8	1	1	0	10	236
Hourly Total	5	230	8	0	243	2	437	5	0	444	0	0	2	0	2	28	1	5	0	34	723
8:00 AM	3	64	7	0	74	0	79	3	0	82	5	0	0	0	5	9	0	0	0	9	170
8:15 AM	1	55	6	0	62	0	93	3	1	96	0	0	1	0	1	12	0	1	0	13	172
8:30 AM	2	78	4	0	84	3	131	2	0	136	2	0	5	0	7	14	1	0	0	15	242
8:45 AM	7	97	11	0	115	1	143	3	0	147	0	0	1	0	1	3	0	1	1	4	267
Hourly Total	13	294	28	0	335	4	446	11	1	461	7	0	7	0	14	38	1	2	1	41	851
9:00 AM	4	101	6	0	111	0	87	3	0	90	3	0	1	0	4	6	0	0	0	6	211
9:15 AM	6	96	5	0	107	2	103	4	0	109	2	0	0	0	2	6	0	2	0	8	226
9:30 AM	4	97	8	0	109	0	120	4	0	124	1	0	3	0	4	9	0	0	0	9	246
9:45 AM	2	100	9	0	111	2	146	6	1	154	1	0	7	1	8	10	0	0	0	10	283
Hourly Total	16	394	28	0	438	4	456	17	1	477	7	0	11	1	18	31	0	2	0	33	966
10:00 AM	6	102	8	0	116	3	127	7	0	137	2	0	6	0	8	7	0	4	0	11	272
10:15 AM	4	116	2	0	122	0	141	6	0	147	1	0	7	1	8	7	0	0	1	7	284
10:30 AM	10	150	8	0	168	0	122	5	0	127	1	0	9	0	10	11	0	1	0	12	317
10:45 AM	8	118	8	0	134	1	116	10	0	127	5	1	9	0	15	11	0	1	0	12	288
Hourly Total	28	486	26	0	540	4	506	28	0	538	9	1	31	1	41	36	0	6	1	42	1161
11:00 AM	11	118	6	1	135	3	147	1	0	151	4	0	7	0	11	8	0	2	0	10	307
11:15 AM	10	126	9	2	145	1	138	10	1	149	3	0	7	0	10	11	0	3	0	14	318
11:30 AM	3	104	4	2	111	4	150	4	0	158	6	0	6	0	12	8	0	2	0	10	291
11:45 AM	10	151	4	2	165	1	133	8	0	142	4	0	12	0	16	6	0	1	0	7	330
Hourly Total	34	499	23	7	556	9	568	23	1	600	17	0	32	0	49	33	0	8	0	41	1246
12:00 PM	16	148	15	0	179	1	153	3	0	157	5	0	8	0	13	11	1	0	0	12	361
12:15 PM	9	136	12	2	157	1	139	6	0	146	1	0	8	0	9	7	0	0	0	7	319
12:30 PM	11	134	9	0	154	1	145	14	0	160	3	0	15	0	18	12	0	2	0	14	346
12:45 PM	11	142	13	1	166	4	156	8	0	168	6	0	13	0	19	10	0	0	0	10	363
Hourly Total	47	560	49	3	656	7	593	31	0	631	15	0	44	0	59	40	1	2	0	43	1389
1:00 PM	12	140	9	0	161	3	125	8	0	136	2	1	13	0	16	7	0	5	0	12	325
1:15 PM	9	158	11	0	178	2	143	3	0	148	9	1	16	0	26	8	1	2	0	11	363
1:30 PM	8	120	8	0	136	2	150	10	0	162	0	1	5	0	6	13	1	2	0	16	320
1:45 PM	8	149	11	0	168	3	130	0	0	133	4	1	15	0	20	13	0	1	0	14	335
Hourly Total	37	567	39	0	643	10	548	21	0	579	15	4	49	0	68	41	2	10	0	53	1343
2:00 PM	11	148	6	0	165	2	135	7	0	144	5	0	10	0	15	14	0	2	0	16	340
2:15 PM	7	154	10	0	171	5	162	5	0	172	1	0	7	0	8	13	0	1	0	14	365
2:30 PM	10	137	12	0	159	0	139	9	1	148	3	1	12	1	16	5	0	0	0	5	328
2:45 PM	8	154	12	0	174	2	151	8	0	161	10	0	12	1	22	8	0	3	0	11	368
Hourly Total	36	593	40	0	669	9	587	29	1	625	19	1	41	2	61	40	0	6	0	46	1401
3:00 PM	5	134	14	0	153	3	128	11	0	142	7	1	13	0	21	11	0	4	0	15	331
3:15 PM	11	162	10	0	183	2	141	8	0	151	6	1	17	0	24	7	0	2	1	9	367
3:30 PM	5	171	10	0	186	2	153	6	0	161	3	0	8	0	11	6	0	1	0	7	365
3:45 PM	6	146	23	0	175	4	113	8	0	125	6	0	10	0	16	15	1	5	0	21	337
Hourly Total	27	613	57	0	697	11	535	33	0	579	22	2	48	0	72	39	1	12	1	52	1400
4:00 PM	11	189	10	1	210	2	127	5	0	134	6	1	14	0	21	8	0	3	0	11	376
4:15 PM	5	169	15	0	189	0	113	14	0	127	5	0	9	0	14	11	0	3	0	14	344
4:30 PM	6	162	19	0	187	0	123	3	0	126	6	0	12	0	18	8	1	3	0	12	343
4:45 PM	5	191	15	2	211	5	127	3	0	135	10	2	12	0	24	10	0	1	0	11	381
Hourly Total	27	711	59	3	797	7	490	25	0	522	27	3	47	0	77	37	1	10	0	48	1444

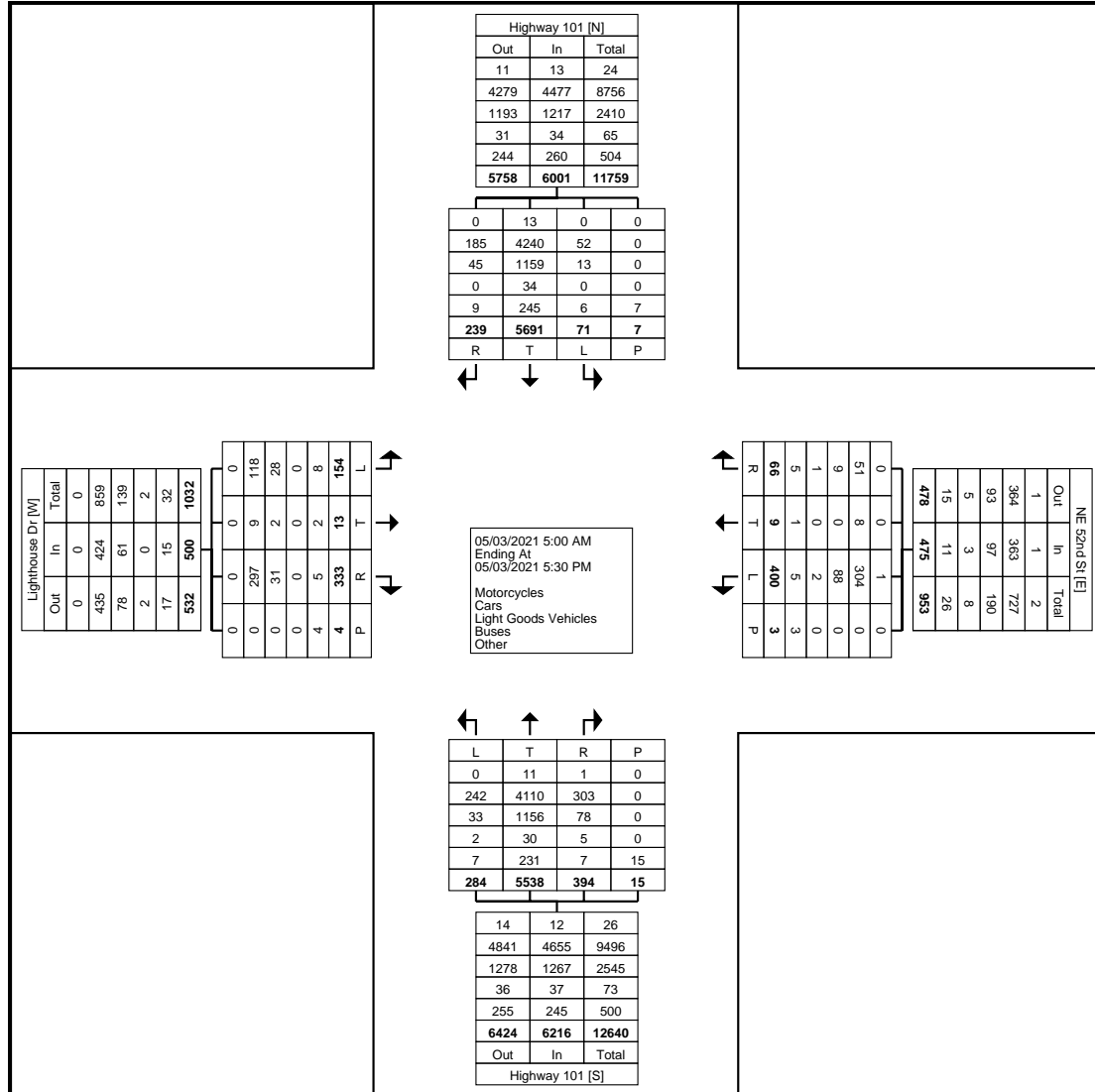
5:00 PM	6	186	13	0	205	1	121	5	0	127	11	0	8	0	19	6	1	0	0	7	358
5:15 PM	4	156	16	0	176	1	130	6	0	137	2	1	12	0	15	8	1	0	0	9	337
Grand Total	284	5538	394	15	6216	71	5691	239	7	6001	154	13	333	4	500	400	9	66	3	475	13192
Approach %	4.6	89.1	6.3	-	-	1.2	94.8	4.0	-	-	30.8	2.6	66.6	-	-	84.2	1.9	13.9	-	-	-
Total %	2.2	42.0	3.0	-	47.1	0.5	43.1	1.8	-	45.5	1.2	0.1	2.5	-	3.8	3.0	0.1	0.5	-	3.6	-
Motorcycles	0	11	1	-	12	0	13	0	-	13	0	0	0	-	0	1	0	0	-	1	26
% Motorcycles	0.0	0.2	0.3	-	0.2	0.0	0.2	0.0	-	0.2	0.0	0.0	0.0	-	0.0	0.3	0.0	0.0	-	0.2	0.2
Cars	242	4110	303	-	4655	52	4240	185	-	4477	118	9	297	-	424	304	8	51	-	363	9919
% Cars	85.2	74.2	76.9	-	74.9	73.2	74.5	77.4	-	74.6	76.6	69.2	89.2	-	84.8	76.0	88.9	77.3	-	76.4	75.2
Light Goods Vehicles	33	1156	78	-	1267	13	1159	45	-	1217	28	2	31	-	61	88	0	9	-	97	2642
% Light Goods Vehicles	11.6	20.9	19.8	-	20.4	18.3	20.4	18.8	-	20.3	18.2	15.4	9.3	-	12.2	22.0	0.0	13.6	-	20.4	20.0
Buses	2	30	5	-	37	0	34	0	-	34	0	0	0	-	0	2	0	1	-	3	74
% Buses	0.7	0.5	1.3	-	0.6	0.0	0.6	0.0	-	0.6	0.0	0.0	0.0	-	0.0	0.5	0.0	1.5	-	0.6	0.6
Single-Unit Trucks	6	172	7	-	185	5	186	8	-	199	8	2	2	-	12	5	1	5	-	11	407
% Single-Unit Trucks	2.1	3.1	1.8	-	3.0	7.0	3.3	3.3	-	3.3	5.2	15.4	0.6	-	2.4	1.3	11.1	7.6	-	2.3	3.1
Articulated Trucks	0	56	0	-	56	1	53	0	-	54	0	0	1	-	1	0	0	0	-	0	111
% Articulated Trucks	0.0	1.0	0.0	-	0.9	1.4	0.9	0.0	-	0.9	0.0	0.0	0.3	-	0.2	0.0	0.0	0.0	-	0.0	0.8
Bicycles on Road	1	3	0	-	4	0	6	1	-	7	0	0	2	-	2	0	0	0	-	0	13
% Bicycles on Road	0.4	0.1	0.0	-	0.1	0.0	0.1	0.4	-	0.1	0.0	0.0	0.6	-	0.4	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	15	-	-	-	-	7	-	-	-	-	4	-	-	-	-	3	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



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Count Name:
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Turning Movement Data Plot



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Count Name:
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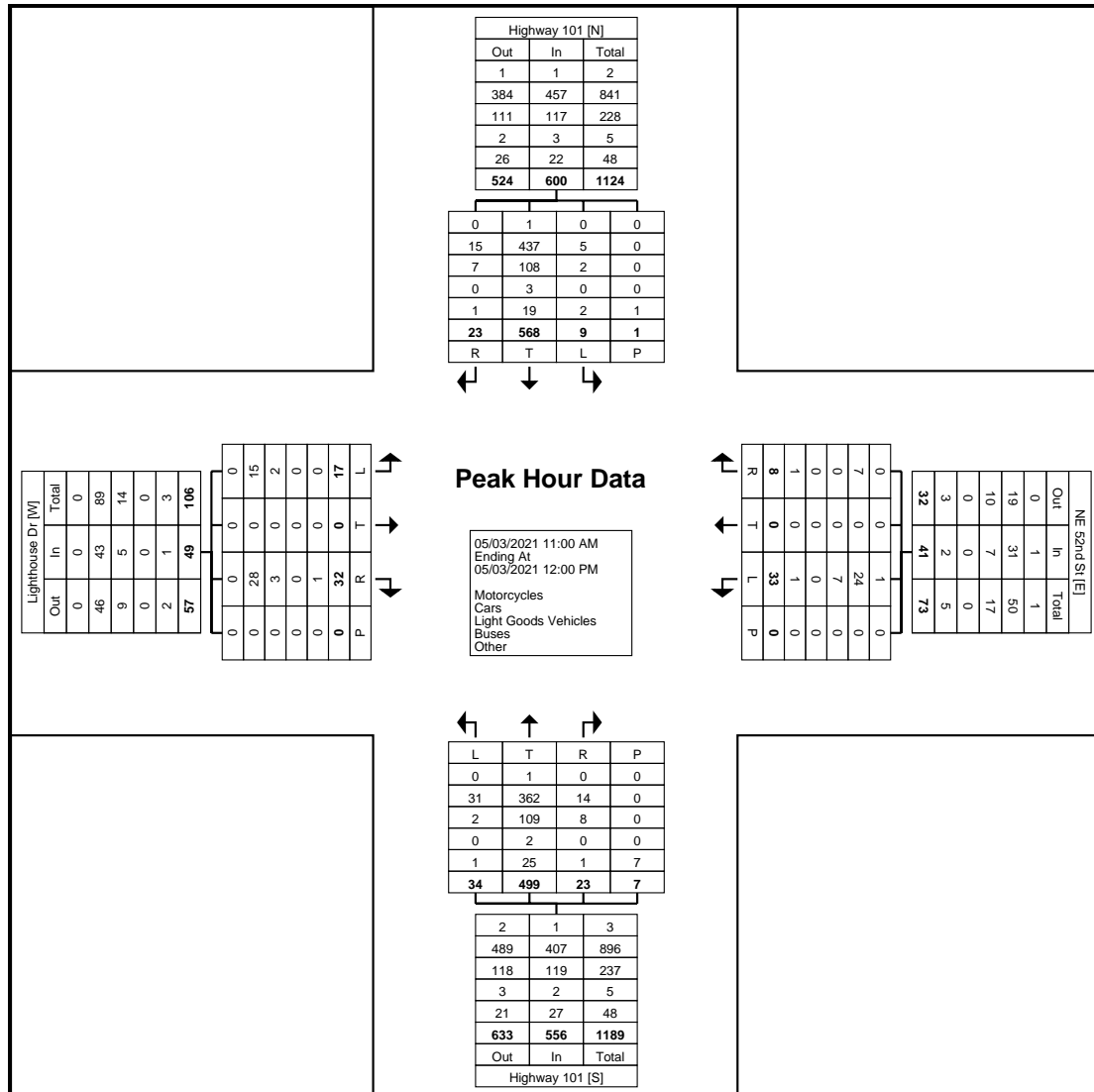
Turning Movement Peak Hour Data (11:00 AM)

Start Time	Highway 101 Northbound					Highway 101 Southbound					Lighthouse Dr Eastbound					NE 52nd St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
11:00 AM	11	118	6	1	135	3	147	1	0	151	4	0	7	0	11	8	0	2	0	10	307
11:15 AM	10	126	9	2	145	1	138	10	1	149	3	0	7	0	10	11	0	3	0	14	318
11:30 AM	3	104	4	2	111	4	150	4	0	158	6	0	6	0	12	8	0	2	0	10	291
11:45 AM	10	151	4	2	165	1	133	8	0	142	4	0	12	0	16	6	0	1	0	7	330
Total	34	499	23	7	556	9	568	23	1	600	17	0	32	0	49	33	0	8	0	41	1246
Approach %	6.1	89.7	4.1	-	-	1.5	94.7	3.8	-	-	34.7	0.0	65.3	-	-	80.5	0.0	19.5	-	-	-
Total %	2.7	40.0	1.8	-	44.6	0.7	45.6	1.8	-	48.2	1.4	0.0	2.6	-	3.9	2.6	0.0	0.6	-	3.3	-
PHF	0.773	0.826	0.639	-	0.842	0.563	0.947	0.575	-	0.949	0.708	0.000	0.667	-	0.766	0.750	0.000	0.667	-	0.732	0.944
Motorcycles	0	1	0	-	1	0	1	0	-	1	0	0	0	-	0	1	0	0	-	1	3
% Motorcycles	0.0	0.2	0.0	-	0.2	0.0	0.2	0.0	-	0.2	0.0	-	0.0	-	0.0	3.0	-	0.0	-	2.4	0.2
Cars	31	362	14	-	407	5	437	15	-	457	15	0	28	-	43	24	0	7	-	31	938
% Cars	91.2	72.5	60.9	-	73.2	55.6	76.9	65.2	-	76.2	88.2	-	87.5	-	87.8	72.7	-	87.5	-	75.6	75.3
Light Goods Vehicles	2	109	8	-	119	2	108	7	-	117	2	0	3	-	5	7	0	0	-	7	248
% Light Goods Vehicles	5.9	21.8	34.8	-	21.4	22.2	19.0	30.4	-	19.5	11.8	-	9.4	-	10.2	21.2	-	0.0	-	17.1	19.9
Buses	0	2	0	-	2	0	3	0	-	3	0	0	0	-	0	0	0	0	-	0	5
% Buses	0.0	0.4	0.0	-	0.4	0.0	0.5	0.0	-	0.5	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.4
Single-Unit Trucks	1	15	1	-	17	1	16	1	-	18	0	0	1	-	1	1	0	1	-	2	38
% Single-Unit Trucks	2.9	3.0	4.3	-	3.1	11.1	2.8	4.3	-	3.0	0.0	-	3.1	-	2.0	3.0	-	12.5	-	4.9	3.0
Articulated Trucks	0	10	0	-	10	1	3	0	-	4	0	0	0	-	0	0	0	0	-	0	14
% Articulated Trucks	0.0	2.0	0.0	-	1.8	11.1	0.5	0.0	-	0.7	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	1.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	7	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name:
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Turning Movement Peak Hour Data Plot (11:00 AM)



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Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name:
Highway101_LighthouseDr_Mon
Site Code:
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Turning Movement Peak Hour Data (3:15 PM)

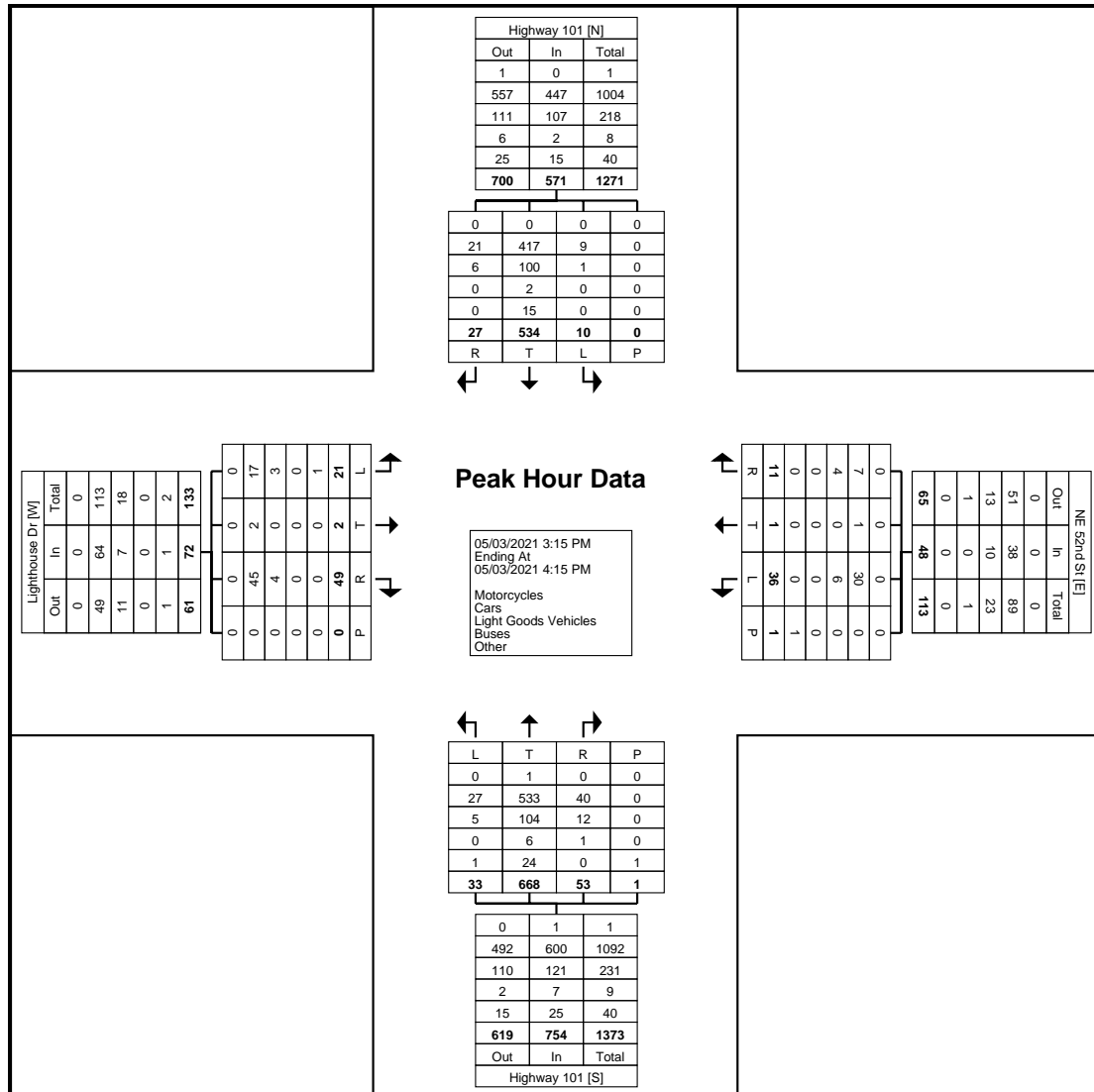
Start Time	Highway 101 Northbound					Highway 101 Southbound					Lighthouse Dr Eastbound					NE 52nd St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:15 PM	11	162	10	0	183	2	141	8	0	151	6	1	17	0	24	7	0	2	1	9	367
3:30 PM	5	171	10	0	186	2	153	6	0	161	3	0	8	0	11	6	0	1	0	7	365
3:45 PM	6	146	23	0	175	4	113	8	0	125	6	0	10	0	16	15	1	5	0	21	337
4:00 PM	11	189	10	1	210	2	127	5	0	134	6	1	14	0	21	8	0	3	0	11	376
Total	33	668	53	1	754	10	534	27	0	571	21	2	49	0	72	36	1	11	1	48	1445
Approach %	4.4	88.6	7.0	-	-	1.8	93.5	4.7	-	-	29.2	2.8	68.1	-	-	75.0	2.1	22.9	-	-	-
Total %	2.3	46.2	3.7	-	52.2	0.7	37.0	1.9	-	39.5	1.5	0.1	3.4	-	5.0	2.5	0.1	0.8	-	3.3	-
PHF	0.750	0.884	0.576	-	0.898	0.625	0.873	0.844	-	0.887	0.875	0.500	0.721	-	0.750	0.600	0.250	0.550	-	0.571	0.961
Motorcycles	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	1
% Motorcycles	0.0	0.1	0.0	-	0.1	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.1
Cars	27	533	40	-	600	9	417	21	-	447	17	2	45	-	64	30	1	7	-	38	1149
% Cars	81.8	79.8	75.5	-	79.6	90.0	78.1	77.8	-	78.3	81.0	100.0	91.8	-	88.9	83.3	100.0	63.6	-	79.2	79.5
Light Goods Vehicles	5	104	12	-	121	1	100	6	-	107	3	0	4	-	7	6	0	4	-	10	245
% Light Goods Vehicles	15.2	15.6	22.6	-	16.0	10.0	18.7	22.2	-	18.7	14.3	0.0	8.2	-	9.7	16.7	0.0	36.4	-	20.8	17.0
Buses	0	6	1	-	7	0	2	0	-	2	0	0	0	-	0	0	0	0	-	0	9
% Buses	0.0	0.9	1.9	-	0.9	0.0	0.4	0.0	-	0.4	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.6
Single-Unit Trucks	1	19	0	-	20	0	12	0	-	12	1	0	0	-	1	0	0	0	-	0	33
% Single-Unit Trucks	3.0	2.8	0.0	-	2.7	0.0	2.2	0.0	-	2.1	4.8	0.0	0.0	-	1.4	0.0	0.0	0.0	-	0.0	2.3
Articulated Trucks	0	4	0	-	4	0	3	0	-	3	0	0	0	-	0	0	0	0	-	0	7
% Articulated Trucks	0.0	0.6	0.0	-	0.5	0.0	0.6	0.0	-	0.5	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.5
Bicycles on Road	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.1	0.0	-	0.1	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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Count Name:
Highway101_LighthouseDr_Mon
Site Code:
Start Date: 05/03/2021
Page No: 7



Turning Movement Peak Hour Data Plot (3:15 PM)



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Count Name:
Highway101_LighthouseDr_Sat
Site Code:
Start Date: 05/01/2021
Page No: 1

Turning Movement Data

Start Time	Highway 101 Northbound					Highway 101 Southbound					Lighthouse Dr Eastbound					NE 52nd St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
5:00 AM	0	5	0	0	5	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	13
5:15 AM	0	8	0	0	8	0	8	0	0	8	1	0	0	0	1	0	0	0	0	0	17
5:30 AM	0	9	0	0	9	0	13	0	0	13	0	0	0	0	0	1	0	1	0	2	24
5:45 AM	0	10	0	0	10	0	21	0	0	21	0	0	0	0	0	1	0	0	0	1	32
Hourly Total	0	32	0	0	32	0	50	0	0	50	1	0	0	0	1	2	0	1	0	3	86
6:00 AM	0	12	1	0	13	0	16	0	0	16	0	0	0	0	0	1	0	0	0	1	30
6:15 AM	0	10	1	1	11	0	34	0	0	34	0	0	1	0	1	1	0	0	0	1	47
6:30 AM	0	22	0	0	22	0	33	0	0	33	0	0	0	0	0	0	0	0	0	0	55
6:45 AM	0	27	1	0	28	1	56	2	0	59	1	0	0	0	1	0	1	0	0	1	89
Hourly Total	0	71	3	1	74	1	139	2	0	142	1	0	1	0	2	2	1	0	0	3	221
7:00 AM	0	28	0	0	28	0	28	1	0	29	0	0	0	0	0	3	1	2	0	6	63
7:15 AM	3	35	1	1	39	0	45	0	0	45	1	0	0	0	1	3	0	0	0	3	88
7:30 AM	3	41	2	0	46	0	61	0	0	61	0	1	0	0	1	3	0	0	0	3	111
7:45 AM	5	46	2	2	53	1	63	1	0	65	2	0	2	2	4	9	0	0	0	9	131
Hourly Total	11	150	5	3	166	1	197	2	0	200	3	1	2	2	6	18	1	2	0	21	393
8:00 AM	10	55	1	0	66	1	68	1	0	70	0	1	0	0	1	3	0	0	0	3	140
8:15 AM	7	53	4	0	64	1	74	4	0	79	1	0	3	0	4	7	0	0	0	7	154
8:30 AM	8	56	3	0	67	0	78	2	0	80	1	0	1	2	2	4	1	0	0	5	154
8:45 AM	12	74	1	0	87	2	91	5	0	98	1	0	4	0	5	4	0	0	0	4	194
Hourly Total	37	238	9	0	284	4	311	12	0	327	3	1	8	2	12	18	1	0	0	19	642
9:00 AM	7	83	3	0	93	1	103	5	0	109	3	0	3	0	6	11	0	0	0	11	219
9:15 AM	7	108	7	0	122	0	109	2	0	111	2	0	1	0	3	5	0	2	0	7	243
9:30 AM	11	97	7	1	115	0	106	4	0	110	5	0	1	0	6	10	1	1	0	12	243
9:45 AM	9	81	10	0	100	2	131	10	0	143	4	0	5	1	9	12	0	0	1	12	264
Hourly Total	34	369	27	1	430	3	449	21	0	473	14	0	10	1	24	38	1	3	1	42	969
10:00 AM	20	125	6	0	151	0	133	3	1	136	7	0	4	1	11	11	0	1	1	12	310
10:15 AM	13	126	3	0	142	2	141	5	0	148	4	1	10	0	15	11	0	1	0	12	317
10:30 AM	11	113	4	0	128	1	141	7	0	149	3	0	6	0	9	9	0	2	0	11	297
10:45 AM	17	156	13	0	186	0	145	10	1	155	5	3	12	1	20	15	0	0	0	15	376
Hourly Total	61	520	26	0	607	3	560	25	2	588	19	4	32	2	55	46	0	4	1	50	1300
11:00 AM	10	166	12	0	188	3	160	7	0	170	1	0	6	0	7	8	1	3	1	12	377
11:15 AM	24	154	7	0	185	0	175	11	0	186	7	0	20	0	27	12	1	4	0	17	415
11:30 AM	13	177	15	1	205	2	149	8	0	159	8	1	19	0	28	7	0	0	1	7	399
11:45 AM	18	156	5	0	179	4	138	14	1	156	7	2	24	0	33	12	1	4	0	17	385
Hourly Total	65	653	39	1	757	9	622	40	1	671	23	3	69	0	95	39	3	11	2	53	1576
12:00 PM	22	169	7	1	198	3	168	10	0	181	6	0	24	0	30	7	0	1	1	8	417
12:15 PM	21	156	10	0	187	2	162	9	1	173	4	0	13	3	17	4	0	1	0	5	382
12:30 PM	15	148	8	0	171	2	186	5	0	193	12	0	23	0	35	12	0	3	1	15	414
12:45 PM	14	157	10	0	181	2	167	8	0	177	5	2	16	0	23	9	0	2	0	11	392
Hourly Total	72	630	35	1	737	9	683	32	1	724	27	2	76	3	105	32	0	7	2	39	1605
1:00 PM	13	156	15	1	184	3	172	11	0	186	7	1	20	0	28	11	0	2	0	13	411
1:15 PM	18	176	7	0	201	2	163	9	0	174	9	0	17	0	26	10	0	1	0	11	412
1:30 PM	20	199	12	0	231	4	147	5	2	156	6	0	13	0	19	6	1	3	0	10	416
1:45 PM	16	163	14	0	193	1	167	19	0	187	12	0	32	2	44	11	2	2	0	15	439
Hourly Total	67	694	48	1	809	10	649	44	2	703	34	1	82	2	117	38	3	8	0	49	1678
2:00 PM	13	179	6	0	198	0	201	8	1	209	6	1	21	0	28	14	0	3	0	17	452
2:15 PM	23	184	9	0	216	0	188	8	0	196	4	1	13	0	18	5	0	3	0	8	438
2:30 PM	16	168	8	1	192	4	175	8	0	187	19	1	21	1	41	5	0	5	1	10	430
2:45 PM	10	191	9	0	210	1	173	14	0	188	8	1	22	0	31	11	0	5	1	16	445
Hourly Total	62	722	32	1	816	5	737	38	1	780	37	4	77	1	118	35	0	16	2	51	1765
3:00 PM	11	168	8	0	187	0	154	12	1	166	12	1	14	2	27	9	0	2	1	11	391
3:15 PM	12	190	9	1	211	2	175	3	0	180	7	0	20	1	27	10	0	0	0	10	428
3:30 PM	14	198	18	0	230	3	174	11	0	188	8	0	15	0	23	6	0	0	0	6	447
3:45 PM	10	137	14	0	161	2	150	8	0	160	8	0	12	0	20	15	0	3	0	18	359
Hourly Total	47	693	49	1	789	7	653	34	1	694	35	1	61	3	97	40	0	5	1	45	1625
4:00 PM	12	199	3	0	214	5	135	12	0	152	6	0	14	0	20	8	0	2	0	10	396
4:15 PM	11	173	14	0	198	2	131	14	1	147	4	0	15	0	19	5	0	3	0	8	372
4:30 PM	13	166	9	0	188	4	154	8	0	166	6	0	12	0	18	8	0	2	1	10	382
4:45 PM	5	172	10	0	187	1	140	11	0	152	8	0	15	0	23	9	1	5	0	15	377
Hourly Total	41	710	36	0	787	12	560	45	1	617	24	0	56	0	80	30	1	12	1	43	1527

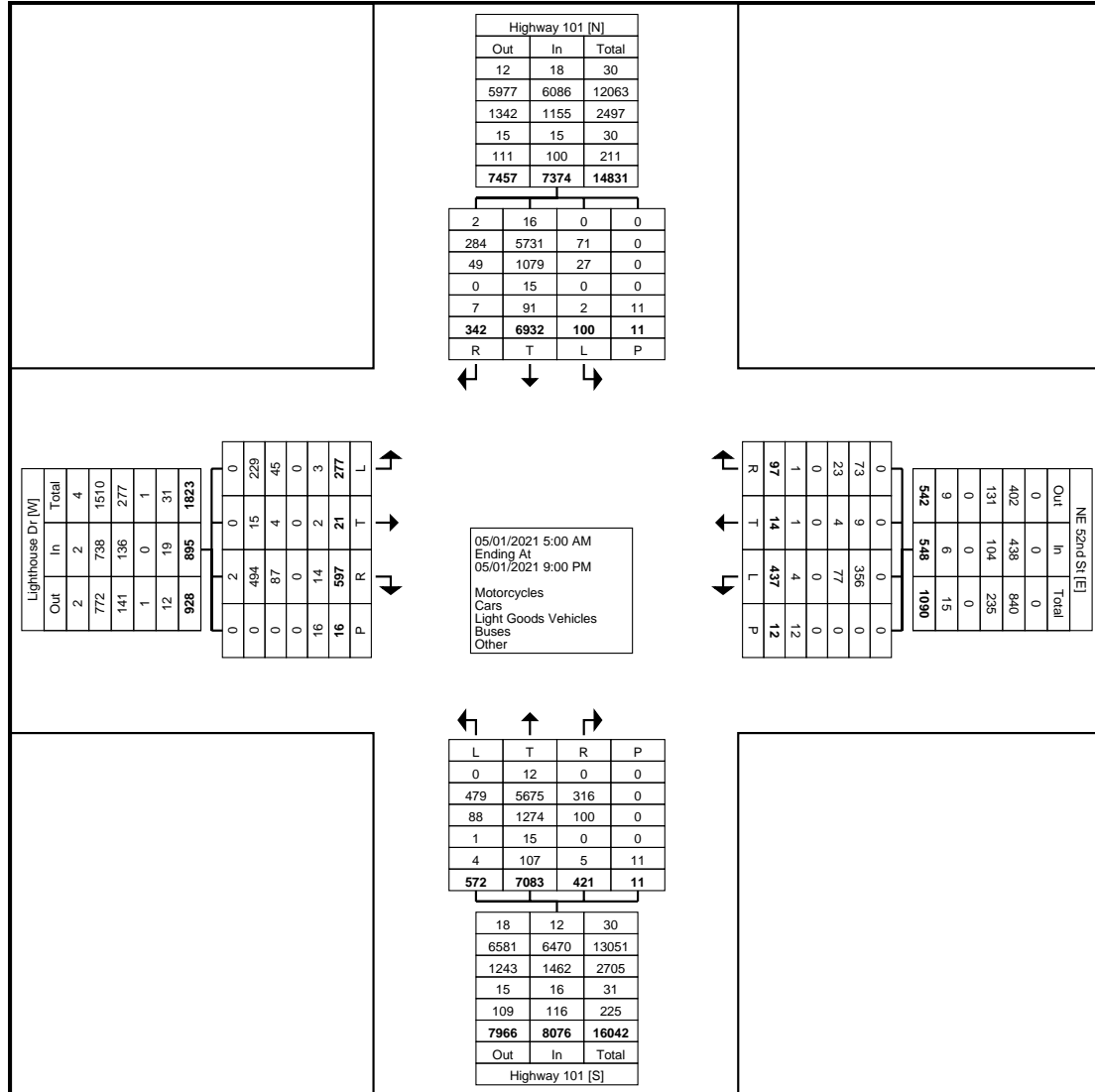
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5:15 PM	12	135	8	0	155	5	99	3	0	107	10	0	12	0	22	7	0	0	0	7	291
5:30 PM	1	124	8	0	133	3	116	2	0	121	9	0	8	0	17	8	0	7	0	15	286
5:45 PM	10	132	6	0	148	6	108	4	0	118	8	0	20	0	28	2	0	3	0	5	299
Hourly Total	35	568	27	0	630	16	469	16	0	501	35	1	54	0	90	18	1	10	0	29	1250
6:00 PM	5	130	13	1	148	2	96	2	1	100	0	0	10	0	10	9	0	3	0	12	270
6:15 PM	6	111	5	0	122	1	96	8	0	105	1	1	7	0	9	8	1	1	1	10	246
6:30 PM	6	109	11	0	126	4	101	5	0	110	2	0	13	0	15	6	1	4	0	11	262
6:45 PM	2	96	11	0	109	5	89	2	1	96	4	1	8	0	13	15	0	2	0	17	235
Hourly Total	19	446	40	1	505	12	382	17	2	411	7	2	38	0	47	38	2	10	1	50	1013
7:00 PM	3	88	13	0	104	0	75	2	0	77	0	0	9	0	9	8	0	5	1	13	203
7:15 PM	5	81	3	0	89	0	71	2	0	73	3	0	4	0	7	8	0	0	0	8	177
7:30 PM	1	71	7	0	79	0	63	3	0	66	1	0	2	0	3	7	0	0	0	7	155
7:45 PM	4	90	10	0	104	2	61	2	0	65	2	0	5	0	7	5	0	2	0	7	183
Hourly Total	13	330	33	0	376	2	270	9	0	281	6	0	20	0	26	28	0	7	1	35	718
8:00 PM	2	68	0	0	70	2	58	3	0	63	3	0	1	0	4	0	0	1	0	1	138
8:15 PM	4	75	4	0	83	3	55	2	0	60	0	1	4	0	5	4	0	0	0	4	152
8:30 PM	2	62	4	0	68	0	47	0	0	47	3	0	6	0	9	6	0	0	0	6	130
8:45 PM	0	52	4	0	56	1	41	0	0	42	2	0	0	0	2	5	0	0	0	5	105
Hourly Total	8	257	12	0	277	6	201	5	0	212	8	1	11	0	20	15	0	1	0	16	525
Grand Total	572	7083	421	11	8076	100	6932	342	11	7374	277	21	597	16	895	437	14	97	12	548	16893
Approach %	7.1	87.7	5.2	-	-	1.4	94.0	4.6	-	-	30.9	2.3	66.7	-	-	79.7	2.6	17.7	-	-	-
Total %	3.4	41.9	2.5	-	47.8	0.6	41.0	2.0	-	43.7	1.6	0.1	3.5	-	5.3	2.6	0.1	0.6	-	3.2	-
Motorcycles	0	12	0	-	12	0	16	2	-	18	0	0	2	-	2	0	0	0	-	0	32
% Motorcycles	0.0	0.2	0.0	-	0.1	0.0	0.2	0.6	-	0.2	0.0	0.0	0.3	-	0.2	0.0	0.0	0.0	-	0.0	0.2
Cars	479	5675	316	-	6470	71	5731	284	-	6086	229	15	494	-	738	356	9	73	-	438	13732
% Cars	83.7	80.1	75.1	-	80.1	71.0	82.7	83.0	-	82.5	82.7	71.4	82.7	-	82.5	81.5	64.3	75.3	-	79.9	81.3
Light Goods Vehicles	88	1274	100	-	1462	27	1079	49	-	1155	45	4	87	-	136	77	4	23	-	104	2857
% Light Goods Vehicles	15.4	18.0	23.8	-	18.1	27.0	15.6	14.3	-	15.7	16.2	19.0	14.6	-	15.2	17.6	28.6	23.7	-	19.0	16.9
Buses	1	15	0	-	16	0	15	0	-	15	0	0	0	-	0	0	0	0	-	0	31
% Buses	0.2	0.2	0.0	-	0.2	0.0	0.2	0.0	-	0.2	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.2
Single-Unit Trucks	4	84	2	-	90	2	63	2	-	67	3	1	6	-	10	4	1	1	-	6	173
% Single-Unit Trucks	0.7	1.2	0.5	-	1.1	2.0	0.9	0.6	-	0.9	1.1	4.8	1.0	-	1.1	0.9	7.1	1.0	-	1.1	1.0
Articulated Trucks	0	21	0	-	21	0	26	0	-	26	0	1	0	-	1	0	0	0	-	0	48
% Articulated Trucks	0.0	0.3	0.0	-	0.3	0.0	0.4	0.0	-	0.4	0.0	4.8	0.0	-	0.1	0.0	0.0	0.0	-	0.0	0.3
Bicycles on Road	0	2	3	-	5	0	2	5	-	7	0	0	8	-	8	0	0	0	-	0	20
% Bicycles on Road	0.0	0.0	0.7	-	0.1	0.0	0.0	1.5	-	0.1	0.0	0.0	1.3	-	0.9	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	11	-	-	-	-	11	-	-	-	-	16	-	-	-	-	12	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



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Count Name:
Highway101_LighthouseDr_Sat
Site Code:
Start Date: 05/01/2021
Page No: 3



Turning Movement Data Plot



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Count Name:
Highway101_LighthouseDr_Sat
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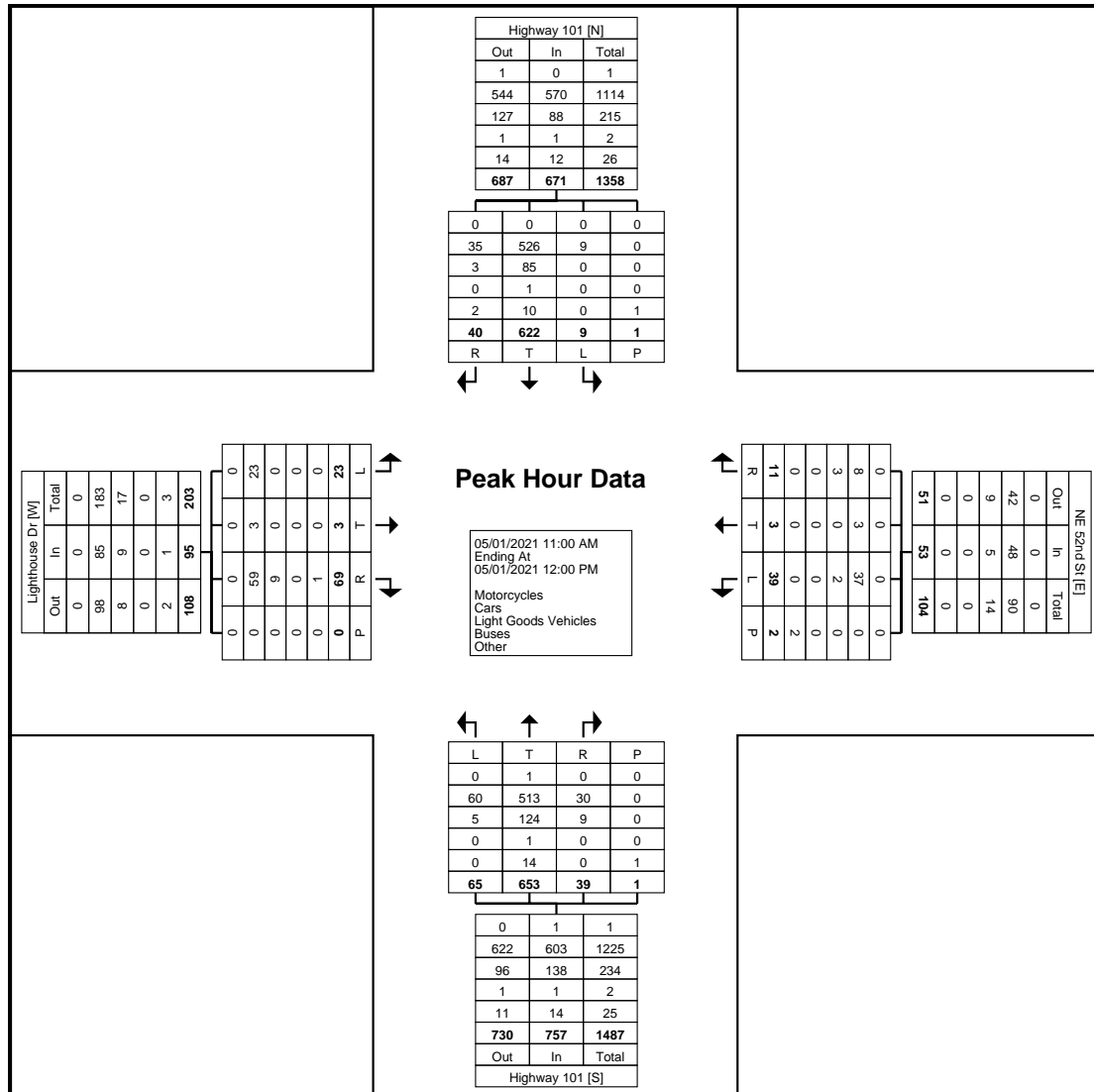
Turning Movement Peak Hour Data (11:00 AM)

Start Time	Highway 101 Northbound					Highway 101 Southbound					Lighthouse Dr Eastbound					NE 52nd St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
11:00 AM	10	166	12	0	188	3	160	7	0	170	1	0	6	0	7	8	1	3	1	12	377
11:15 AM	24	154	7	0	185	0	175	11	0	186	7	0	20	0	27	12	1	4	0	17	415
11:30 AM	13	177	15	1	205	2	149	8	0	159	8	1	19	0	28	7	0	0	1	7	399
11:45 AM	18	156	5	0	179	4	138	14	1	156	7	2	24	0	33	12	1	4	0	17	385
Total	65	653	39	1	757	9	622	40	1	671	23	3	69	0	95	39	3	11	2	53	1576
Approach %	8.6	86.3	5.2	-	-	1.3	92.7	6.0	-	-	24.2	3.2	72.6	-	-	73.6	5.7	20.8	-	-	-
Total %	4.1	41.4	2.5	-	48.0	0.6	39.5	2.5	-	42.6	1.5	0.2	4.4	-	6.0	2.5	0.2	0.7	-	3.4	-
PHF	0.677	0.922	0.650	-	0.923	0.563	0.889	0.714	-	0.902	0.719	0.375	0.719	-	0.720	0.813	0.750	0.688	-	0.779	0.949
Motorcycles	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	1
% Motorcycles	0.0	0.2	0.0	-	0.1	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.1
Cars	60	513	30	-	603	9	526	35	-	570	23	3	59	-	85	37	3	8	-	48	1306
% Cars	92.3	78.6	76.9	-	79.7	100.0	84.6	87.5	-	84.9	100.0	100.0	85.5	-	89.5	94.9	100.0	72.7	-	90.6	82.9
Light Goods Vehicles	5	124	9	-	138	0	85	3	-	88	0	0	9	-	9	2	0	3	-	5	240
% Light Goods Vehicles	7.7	19.0	23.1	-	18.2	0.0	13.7	7.5	-	13.1	0.0	0.0	13.0	-	9.5	5.1	0.0	27.3	-	9.4	15.2
Buses	0	1	0	-	1	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	2
% Buses	0.0	0.2	0.0	-	0.1	0.0	0.2	0.0	-	0.1	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.1
Single-Unit Trucks	0	13	0	-	13	0	8	0	-	8	0	0	1	-	1	0	0	0	-	0	22
% Single-Unit Trucks	0.0	2.0	0.0	-	1.7	0.0	1.3	0.0	-	1.2	0.0	0.0	1.4	-	1.1	0.0	0.0	0.0	-	0.0	1.4
Articulated Trucks	0	1	0	-	1	0	2	0	-	2	0	0	0	-	0	0	0	0	-	0	3
% Articulated Trucks	0.0	0.2	0.0	-	0.1	0.0	0.3	0.0	-	0.3	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.2
Bicycles on Road	0	0	0	-	0	0	0	2	-	2	0	0	0	-	0	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	5.0	-	0.3	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	1	-	-	-	-	1	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name:
Highway101_LighthouseDr_Sat
Site Code:
Start Date: 05/01/2021
Page No: 5



Turning Movement Peak Hour Data Plot (11:00 AM)



Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srall@rpa-hln.com

Count Name:
Highway101_LighthouseDr_Sat
Site Code:
Start Date: 05/01/2021
Page No: 6

Turning Movement Peak Hour Data (2:00 PM)

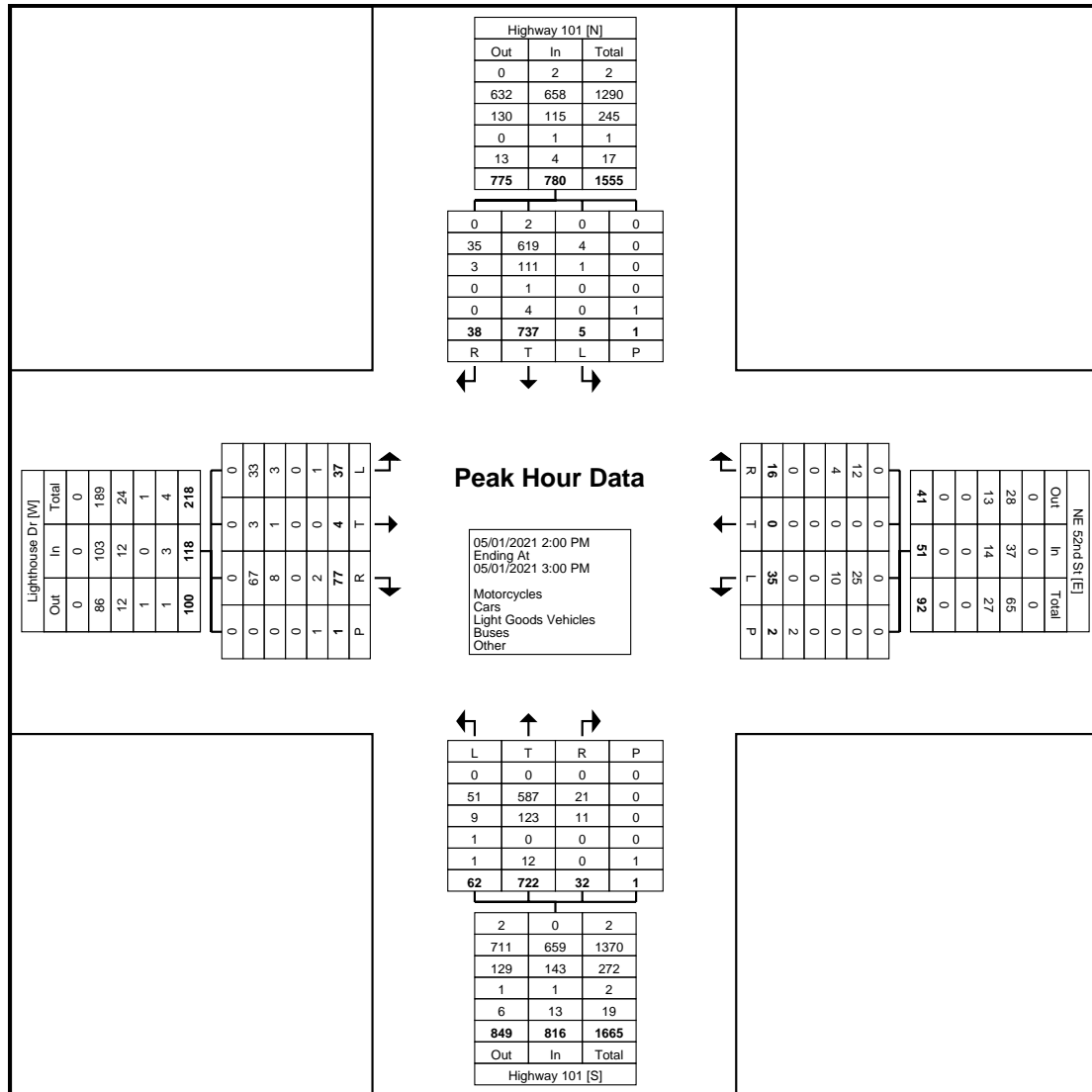
Start Time	Highway 101 Northbound					Highway 101 Southbound					Lighthouse Dr Eastbound					NE 52nd St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
2:00 PM	13	179	6	0	198	0	201	8	1	209	6	1	21	0	28	14	0	3	0	17	452
2:15 PM	23	184	9	0	216	0	188	8	0	196	4	1	13	0	18	5	0	3	0	8	438
2:30 PM	16	168	8	1	192	4	175	8	0	187	19	1	21	1	41	5	0	5	1	10	430
2:45 PM	10	191	9	0	210	1	173	14	0	188	8	1	22	0	31	11	0	5	1	16	445
Total	62	722	32	1	816	5	737	38	1	780	37	4	77	1	118	35	0	16	2	51	1765
Approach %	7.6	88.5	3.9	-	-	0.6	94.5	4.9	-	-	31.4	3.4	65.3	-	-	68.6	0.0	31.4	-	-	-
Total %	3.5	40.9	1.8	-	46.2	0.3	41.8	2.2	-	44.2	2.1	0.2	4.4	-	6.7	2.0	0.0	0.9	-	2.9	-
PHF	0.674	0.945	0.889	-	0.944	0.313	0.917	0.679	-	0.933	0.487	1.000	0.875	-	0.720	0.625	0.000	0.800	-	0.750	0.976
Motorcycles	0	0	0	-	0	0	2	0	-	2	0	0	0	-	0	0	0	0	-	0	2
% Motorcycles	0.0	0.0	0.0	-	0.0	0.0	0.3	0.0	-	0.3	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	0.1
Cars	51	587	21	-	659	4	619	35	-	658	33	3	67	-	103	25	0	12	-	37	1457
% Cars	82.3	81.3	65.6	-	80.8	80.0	84.0	92.1	-	84.4	89.2	75.0	87.0	-	87.3	71.4	-	75.0	-	72.5	82.5
Light Goods Vehicles	9	123	11	-	143	1	111	3	-	115	3	1	8	-	12	10	0	4	-	14	284
% Light Goods Vehicles	14.5	17.0	34.4	-	17.5	20.0	15.1	7.9	-	14.7	8.1	25.0	10.4	-	10.2	28.6	-	25.0	-	27.5	16.1
Buses	1	0	0	-	1	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	2
% Buses	1.6	0.0	0.0	-	0.1	0.0	0.1	0.0	-	0.1	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	0.1
Single-Unit Trucks	1	12	0	-	13	0	2	0	-	2	1	0	2	-	3	0	0	0	-	0	18
% Single-Unit Trucks	1.6	1.7	0.0	-	1.6	0.0	0.3	0.0	-	0.3	2.7	0.0	2.6	-	2.5	0.0	-	0.0	-	0.0	1.0
Articulated Trucks	0	0	0	-	0	0	2	0	-	2	0	0	0	-	0	0	0	0	-	0	2
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.3	0.0	-	0.3	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	0.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	2	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name:
Highway101_LighthouseDr_Sat
Site Code:
Start Date: 05/01/2021
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Turning Movement Peak Hour Data Plot (2:00 PM)

Highway101_LighthouseDr_Sat - TMC

Sat May 1, 2021

Full Length (5 AM-9 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 836247, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates
3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound							Highway 101 Southbound							Lighthouse Dr Eastbound							NE 52nd St Westbound							
Time	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		Int
2021-05-01																													
5:00AM	0	5	0	0	5	0		0	8	0	0	8	0		0	0	0	0	0	0		0	0	0	0	0	0		13
5:15AM	0	8	0	0	8	0		0	8	0	0	8	0		1	0	0	0	1	0		0	0	0	0	0	0		17
5:30AM	0	9	0	0	9	0		0	13	0	0	13	0		0	0	0	0	0	0		1	0	1	0	2	0		24
5:45AM	0	10	0	0	10	0		0	21	0	0	21	0		0	0	0	0	0	0		1	0	0	0	1	0		32
Hourly Total	0	32	0	0	32	0		0	50	0	0	50	0		1	0	0	0	1	0		2	0	1	0	3	0		86
6:00AM	0	12	1	0	13	0		0	16	0	0	16	0		0	0	0	0	0	0		1	0	0	0	1	0		30
6:15AM	0	10	1	0	11	1		0	34	0	0	34	0		0	0	1	0	1	0		1	0	0	0	1	0		47
6:30AM	0	22	0	0	22	0		0	33	0	0	33	0		0	0	0	0	0	0		0	0	0	0	0	0		55
6:45AM	0	27	1	0	28	0		1	56	2	0	59	0		1	0	0	0	1	0		0	1	0	0	1	0		89
Hourly Total	0	71	3	0	74	1		1	139	2	0	142	0		1	0	1	0	2	0		2	1	0	0	3	0		221
7:00AM	0	28	0	0	28	0		0	28	1	0	29	0		0	0	0	0	0	0		3	1	2	0	6	0		63
7:15AM	3	35	1	0	39	1		0	45	0	0	45	0		1	0	0	0	1	0		3	0	0	0	3	0		88
7:30AM	3	41	2	0	46	0		0	61	0	0	61	0		0	1	0	0	1	0		3	0	0	0	3	0		111
7:45AM	5	46	2	0	53	2		1	63	1	0	65	0		2	0	2	0	4	2		9	0	0	0	9	0		131
Hourly Total	11	150	5	0	166	3		1	197	2	0	200	0		3	1	2	0	6	2		18	1	2	0	21	0		393
8:00AM	10	55	1	0	66	0		1	68	1	0	70	0		0	1	0	0	1	0		3	0	0	0	3	0		140
8:15AM	7	53	4	0	64	0		1	74	4	0	79	0		1	0	3	0	4	0		7	0	0	0	7	0		154
8:30AM	7	56	3	1	67	0		0	78	2	0	80	0		1	0	1	0	2	2		4	1	0	0	5	0		154
8:45AM	12	74	1	0	87	0		2	91	5	0	98	0		1	0	4	0	5	0		4	0	0	0	4	0		194
Hourly Total	36	238	9	1	284	0		4	311	12	0	327	0		3	1	8	0	12	2		18	1	0	0	19	0		642
9:00AM	7	83	3	0	93	0		1	103	5	0	109	0		3	0	3	0	6	0		11	0	0	0	11	0		219
9:15AM	7	108	7	0	122	0		0	109	2	0	111	0		2	0	1	0	3	0		5	0	2	0	7	0		243
9:30AM	11	97	7	0	115	1		0	106	4	0	110	0		5	0	1	0	6	0		10	1	1	0	12	0		243
9:45AM	8	81	10	1	100	0		2	131	10	0	143	0		4	0	5	0	9	1		12	0	0	0	12	1		264
Hourly Total	33	369	27	1	430	1		3	449	21	0	473	0		14	0	10	0	24	1		38	1	3	0	42	1		969
10:00AM	20	125	6	0	151	0		0	133	3	0	136	1		7	0	4	0	11	1		11	0	1	0	12	1		310
10:15AM	13	126	3	0	142	0		2	141	5	0	148	0		4	1	10	0	15	0		11	0	1	0	12	0		317
10:30AM	11	113	4	0	128	0		1	141	7	0	149	0		3	0	6	0	9	0		9	0	2	0	11	0		297
10:45AM	17	156	13	0	186	0		0	145	10	0	155	1		5	3	12	0	20	1		15	0	0	0	15	0		376
Hourly Total	61	520	26	0	607	0		3	560	25	0	588	2		19	4	32	0	55	2		46	0	4	0	50	1		1300
11:00AM	10	166	12	0	188	0		3	160	7	0	170	0		1	0	6	0	7	0		8	1	3	0	12	1		377
11:15AM	24	154	7	0	185	0		0	175	11	0	186	0		7	0	20	0	27	0		12	1	4	0	17	0		415
11:30AM	13	177	15	0	205	1		2	149	8	0	159	0		8	1	19	0	28	0		7	0	0	0	7	1		399
11:45AM	18	156	5	0	179	0		4	138	14	0	156	1		7	2	24	0	33	0		12	1	4	0	17	0		385
Hourly Total	65	653	39	0	757	1		9	622	40	0	671	1		23	3	69	0	95	0		39	3	11	0	53	2		1576
12:00PM	22	169	7	0	198	1		3	168	10	0	181	0		6	0	24	0	30	0		7	0	1	0	8	1		417
12:15PM	20	156	10	1	187	0		2	162	9	0	173	1		4	0	13	0	17	3		4	0	1	0	5	0		382
12:30PM	15	148	8	0	171	0		2	186	5	0	193	0		12	0	23	0	35	0		12	0	3	0	15	1		414
12:45PM	14	157	10	0	181	0		2	167	8	0	177	0		5	2	16	0	23	0		9	0	2	0	11	0		392
Hourly Total	71	630	35	1	737	1		9	683	32	0	724	1		27	2	76	0	105	3		32	0	7	0	39	2		1605
1:00PM	13	156	15	0	184	1		3	172	11	0	186	0		7	1	20	0	28	0		11	0	2	0	13	0		411
1:15PM	18	176	7	0	201	0		2	163	9	0	174	0		9	0	17	0	26	0		10	0	1	0	11	0		412
1:30PM	20	199	12	0	231	0		4	147	5	0	156	2		6	0	13	0	19	0		6	1	3	0	10	0		416
1:45PM	16	163	14	0	193	0		1	167	19	0	187	0		12	0	32	0	44	2		11	2	2	0	15	0		439
Hourly Total	67	694	48	0	809	1		10	649	44	0	703	2		34	1	82	0	117	2		38	3	8	0	49	0		1678
2:00PM	13	179	6	0	198	0		0	201	8	0	209	1		6	1	21	0	28	0		14	0	3	0	17	0		452
2:15PM	23	184	9	0	216	0		0	188	8	0	196	0		4	1	13	0	18	0		5	0	3	0	8	0		438
2:30PM	16	168	8	0	192	1		4	175	8	0	187	0		19	1	21	0	41	1		5	0	5	0	10	1		430
2:45PM	10	191	9	0	210	0		1	173	14	0	188	0		8	1	22	0	31	0		11	0	5	0	16	1		445
Hourly Total	62	722	32	0	816	1		5	737	38	0	780	1		37	4	77	0	118	1		35	0	16	0	51	2		1765
3:00PM	11	168	8	0	187	0		0	154	12	0	166	1		12	1	14	0	27	2		9	0	2	0	11	1		391
3:15PM	12	190	9	0	211	1		2	175	3	0	180	0		7	0	20	0	27	1		10	0	0	0	10	0		428
3:30PM	14	198	18	0	230	0		3	174	11	0	188	0		8	0	15	0	23	0		6	0	0	0	6	0		447
3:45PM	10	137	14	0	161	0		2	150	8	0	160	0		8	0	12	0	20	0		15	0	3	0	18	0		359
Hourly Total	47	693	49	0	789	1		7	653	34	0	694	1		35	1	61	0	97	3		40	0	5	0	45	1		1675

Leg Direction	Highway 101 Northbound						Highway 101 Southbound						Lighthouse Dr Eastbound						NE 52nd St Westbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
4:00PM	12	199	3	0	214	0	5	135	12	0	152	0	6	0	14	0	20	0	8	0	2	0	10	0	396
4:15PM	11	173	14	0	198	0	2	131	14	0	147	1	4	0	15	0	19	0	5	0	3	0	8	0	372
4:30PM	13	166	9	0	188	0	4	154	8	0	166	0	6	0	12	0	18	0	8	0	2	0	10	1	382
4:45PM	5	172	10	0	187	0	1	140	11	0	152	0	8	0	15	0	23	0	9	1	5	0	15	0	377
Hourly Total	41	710	36	0	787	0	12	560	45	0	617	1	24	0	56	0	80	0	30	1	12	0	43	1	1527
5:00PM	12	177	5	0	194	0	2	146	7	0	155	0	8	1	14	0	23	0	1	1	0	0	2	0	374
5:15PM	12	135	8	0	155	0	5	99	3	0	107	0	10	0	12	0	22	0	6	0	0	1	7	0	291
5:30PM	1	124	8	0	133	0	3	116	2	0	121	0	9	0	8	0	17	0	8	0	7	0	15	0	286
5:45PM	10	132	6	0	148	0	6	108	4	0	118	0	8	0	20	0	28	0	2	0	3	0	5	0	299
Hourly Total	35	568	27	0	630	0	16	469	16	0	501	0	35	1	54	0	90	0	17	1	10	1	29	0	1250
6:00PM	5	130	13	0	148	1	2	96	2	0	100	1	0	0	10	0	10	0	9	0	3	0	12	0	270
6:15PM	6	111	5	0	122	0	1	96	8	0	105	0	1	1	7	0	9	0	8	1	1	0	10	1	246
6:30PM	6	109	11	0	126	0	4	101	5	0	110	0	2	0	13	0	15	0	6	1	4	0	11	0	262
6:45PM	2	96	11	0	109	0	5	89	2	0	96	1	4	1	8	0	13	0	15	0	2	0	17	0	235
Hourly Total	19	446	40	0	505	1	12	382	17	0	411	2	7	2	38	0	47	0	38	2	10	0	50	1	1013
7:00PM	3	88	13	0	104	0	0	75	2	0	77	0	0	0	9	0	9	0	8	0	5	0	13	1	203
7:15PM	5	81	3	0	89	0	0	71	2	0	73	0	3	0	4	0	7	0	8	0	0	0	8	0	177
7:30PM	1	71	7	0	79	0	0	63	3	0	66	0	1	0	2	0	3	0	7	0	0	0	7	0	155
7:45PM	4	90	10	0	104	0	2	61	2	0	65	0	2	0	5	0	7	0	5	0	2	0	7	0	183
Hourly Total	13	330	33	0	376	0	2	270	9	0	281	0	6	0	20	0	26	0	28	0	7	0	35	1	718
8:00PM	2	68	0	0	70	0	2	58	3	0	63	0	3	0	1	0	4	0	0	0	1	0	1	0	138
8:15PM	4	75	4	0	83	0	3	55	2	0	60	0	0	1	4	0	5	0	4	0	0	0	4	0	152
8:30PM	2	62	4	0	68	0	0	47	0	0	47	0	3	0	6	0	9	0	6	0	0	0	6	0	130
8:45PM	0	52	4	0	56	0	1	41	0	0	42	0	2	0	0	0	2	0	5	0	0	0	5	0	105
Hourly Total	8	257	12	0	277	0	6	201	5	0	212	0	8	1	11	0	20	0	15	0	1	0	16	0	525
Total	569	7083	421	3	8076	11	100	6932	342	0	7374	11	277	21	597	0	895	16	436	14	97	1	548	12	16893
% Approach	7.0%	87.7%	5.2%	0%	-	-	1.4%	94.0%	4.6%	0%	-	-	30.9%	2.3%	66.7%	0%	-	-	79.6%	2.6%	17.7%	0.2%	-	-	-
% Total	3.4%	41.9%	2.5%	0%	47.8%	-	0.6%	41.0%	2.0%	0%	43.7%	-	1.6%	0.1%	3.5%	0%	5.3%	-	2.6%	0.1%	0.6%	0%	3.2%	-	-
Motorcycles	0	12	0	0	12	-	0	16	2	0	18	-	0	0	2	0	2	-	0	0	0	0	0	-	32
% Motorcycles	0%	0.2%	0%	0%	0.1%	-	0%	0.2%	0.6%	0%	0.2%	-	0%	0%	0.3%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0.2%
Cars	477	5675	316	2	6470	-	71	5731	284	0	6086	-	229	15	494	0	738	-	355	9	73	1	438	-	13732
% Cars	83.8%	80.1%	75.1%	66.7%	80.1%	-	71.0%	82.7%	83.0%	0%	82.5%	-	82.7%	71.4%	82.7%	0%	82.5%	-	81.4%	64.3%	75.3%	100%	79.9%	-	81.3%
Light Goods Vehicles	87	1274	100	1	1462	-	27	1079	49	0	1155	-	45	4	87	0	136	-	77	4	23	0	104	-	2857
% Light Goods Vehicles	15.3%	18.0%	23.8%	33.3%	18.1%	-	27.0%	15.6%	14.3%	0%	15.7%	-	16.2%	19.0%	14.6%	0%	15.2%	-	17.7%	28.6%	23.7%	0%	19.0%	-	16.9%
Single-Unit Trucks	4	84	2	0	90	-	2	63	2	0	67	-	3	1	6	0	10	-	4	1	1	0	6	-	173
% Single-Unit Trucks	0.7%	1.2%	0.5%	0%	1.1%	-	2.0%	0.9%	0.6%	0%	0.9%	-	1.1%	4.8%	1.0%	0%	1.1%	-	0.9%	7.1%	1.0%	0%	1.1%	-	1.0%
Articulated Trucks	0	21	0	0	21	-	0	26	0	0	26	-	0	1	0	0	1	-	0	0	0	0	0	-	48
% Articulated Trucks	0%	0.3%	0%	0%	0.3%	-	0%	0.4%	0%	0%	0.4%	-	0%	4.8%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.3%
Buses	1	15	0	0	16	-	0	15	0	0	15	-	0	0	0	0	0	-	0	0	0	0	0	-	31
% Buses	0.2%	0.2%	0%	0%	0.2%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Bicycles on Road	0	2	3	0	5	-	0	2	5	0	7	-	0	0	8	0	8	-	0	0	0	0	0	-	20
% Bicycles on Road	0%	0%	0.7%	0%	0.1%	-	0%	0%	1.5%	0%	0.1%	-	0%	0%	1.3%	0%	0.9%	-	0%	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	-	11	-	-	-	-	-	11	-	-	-	-	-	16	-	-	-	-	-	12	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	100%

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Highway101_LighthouseDr_Sat - TMC

Sat May 1, 2021

Full Length (5 AM-9 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 836247, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 14831

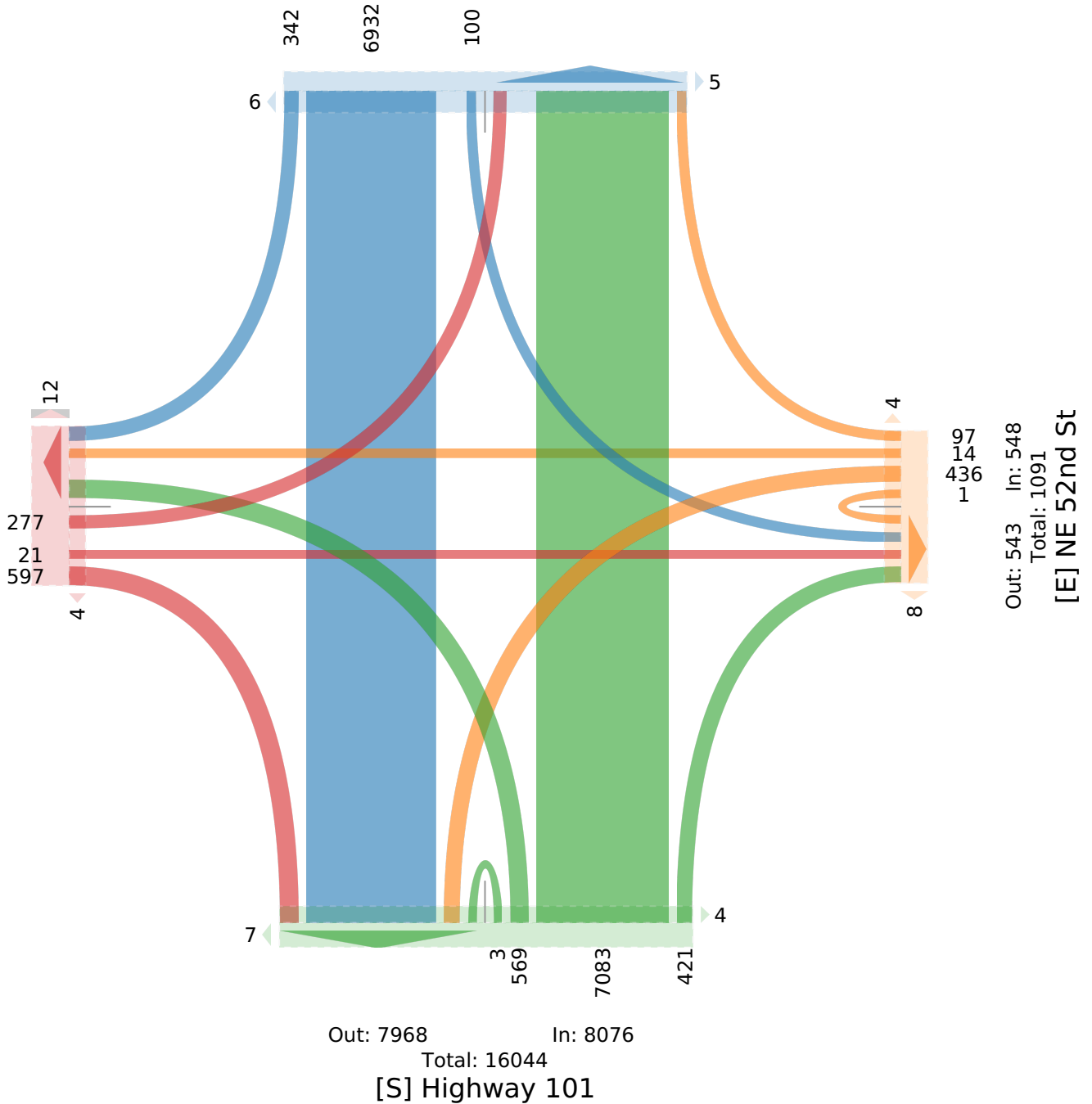
In: 7374

Out: 7457

[W] Lighthouse Dr

Total: 1820

In: 895 Out: 925



Highway101_LighthouseDr_Sat - TMC

Sat May 1, 2021

AM Peak (WKND) (10 AM - 11 AM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 836247, Location: 44.675419, -124.060357



Provided by: Robert Peccia &
Associates
3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound						Highway 101 Southbound						Lighthouse Dr Eastbound						NE 52nd St Westbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-05-01 10:00AM	20	125	6	0	151	0	0	133	3	0	136	1	7	0	4	0	11	1	11	0	1	0	12	1	310
10:15AM	13	126	3	0	142	0	2	141	5	0	148	0	4	1	10	0	15	0	11	0	1	0	12	0	317
10:30AM	11	113	4	0	128	0	1	141	7	0	149	0	3	0	6	0	9	0	9	0	2	0	11	0	297
10:45AM	17	156	13	0	186	0	0	145	10	0	155	1	5	3	12	0	20	1	15	0	0	0	15	0	376
Total	61	520	26	0	607	0	3	560	25	0	588	2	19	4	32	0	55	2	46	0	4	0	50	1	1300
% Approach	10.0%	85.7%	4.3%	0%	-	-	0.5%	95.2%	4.3%	0%	-	-	34.5%	7.3%	58.2%	0%	-	-	92.0%	0%	8.0%	0%	-	-	-
% Total	4.7%	40.0%	2.0%	0%	46.7%	-	0.2%	43.1%	1.9%	0%	45.2%	-	1.5%	0.3%	2.5%	0%	4.2%	-	3.5%	0%	0.3%	0%	3.8%	-	-
PHF	0.763	0.833	0.500	-	0.816	-	0.375	0.966	0.625	-	0.948	-	0.679	0.333	0.667	-	0.688	-	0.767	-	0.500	-	0.833	-	0.864
Motorcycles	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Motorcycles	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Cars	54	403	15	0	472	-	2	462	17	0	481	-	17	4	28	0	49	-	35	0	2	0	37	-	1039
% Cars	88.5%	77.5%	57.7%	0%	77.8%	-	66.7%	82.5%	68.0%	0%	81.8%	-	89.5%	100%	87.5%	0%	89.1%	-	76.1%	0%	50.0%	0%	74.0%	-	79.9%
Light Goods Vehicles	7	109	10	0	126	-	1	92	8	0	101	-	2	0	4	0	6	-	9	0	2	0	11	-	244
% Light Goods Vehicles	11.5%	21.0%	38.5%	0%	20.8%	-	33.3%	16.4%	32.0%	0%	17.2%	-	10.5%	0%	12.5%	0%	10.9%	-	19.6%	0%	50.0%	0%	22.0%	-	18.8%
Single-Unit Trucks	0	6	1	0	7	-	0	4	0	0	4	-	0	0	0	0	0	-	2	0	0	0	2	-	13
% Single-Unit Trucks	0%	1.2%	3.8%	0%	1.2%	-	0%	0.7%	0%	0%	0.7%	-	0%	0%	0%	0%	0%	-	4.3%	0%	0%	0%	4.0%	-	1.0%
Articulated Trucks	0	1	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	2
% Articulated Trucks	0%	0.2%	0%	0%	0.2%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Buses	0	1	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	2
% Buses	0%	0.2%	0%	0%	0.2%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	100%

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Highway101_LighthouseDr_Sat - TMC

Sat May 1, 2021

AM Peak (WKND) (10 AM - 11 AM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 836247, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

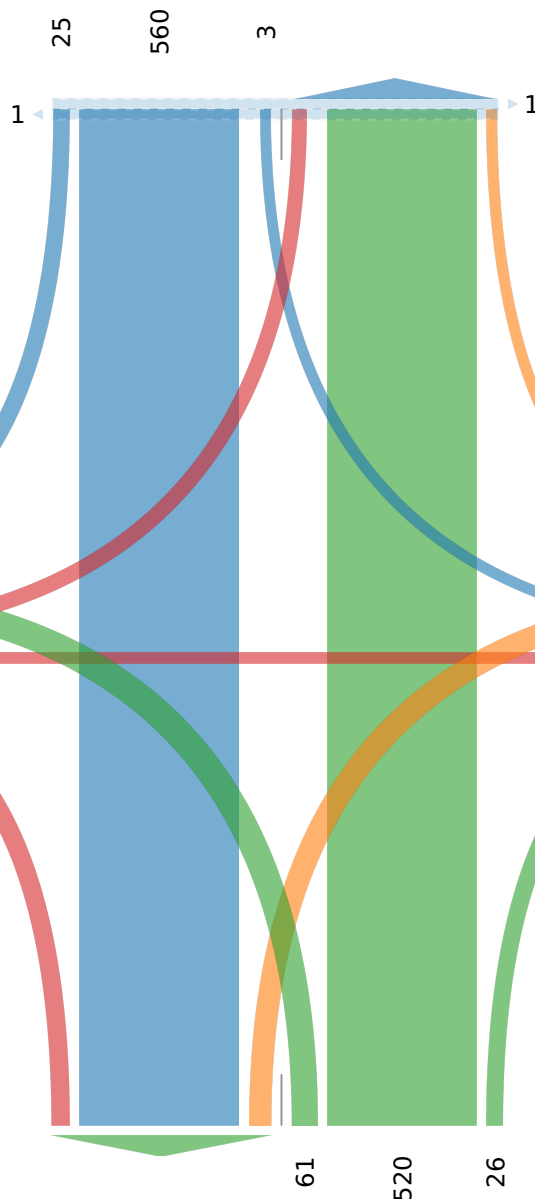
3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 1131

In: 588

Out: 543



[S] Highway 101

Total: 1245

Out: 638

In: 607

[W] Lighthouse Dr

Total: 141

In: 55 Out: 86

[E] NE 52nd St

Out: 33 In: 50

Total: 83

46

Highway101_LighthouseDr_Sat - TMC

Sat May 1, 2021

Midday Peak (WKND) (11:15 AM - 12:15 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 836247, Location: 44.675419, -124.060357



Provided by: Robert Peccia &
Associates
3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound						Highway 101 Southbound						Lighthouse Dr Eastbound						NE 52nd St Westbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-05-01 11:15AM	24	154	7	0	185	0	0	175	11	0	186	0	7	0	20	0	27	0	12	1	4	0	17	0	415
11:30AM	13	177	15	0	205	1	2	149	8	0	159	0	8	1	19	0	28	0	7	0	0	0	7	1	399
11:45AM	18	156	5	0	179	0	4	138	14	0	156	1	7	2	24	0	33	0	12	1	4	0	17	0	385
12:00PM	22	169	7	0	198	1	3	168	10	0	181	0	6	0	24	0	30	0	7	0	1	0	8	1	417
Total	77	656	34	0	767	2	9	630	43	0	682	1	28	3	87	0	118	0	38	2	9	0	49	2	1616
% Approach	10.0%	85.5%	4.4%	0%	-	-	1.3%	92.4%	6.3%	0%	-	-	23.7%	2.5%	73.7%	0%	-	-	77.6%	4.1%	18.4%	0%	-	-	-
% Total	4.8%	40.6%	2.1%	0%	47.5%	-	0.6%	39.0%	2.7%	0%	42.2%	-	1.7%	0.2%	5.4%	0%	7.3%	-	2.4%	0.1%	0.6%	0%	3.0%	-	-
PHF	0.802	0.927	0.567	-	0.935	-	0.563	0.900	0.854	-	0.914	-	0.875	0.375	0.906	-	0.894	-	0.792	0.500	0.563	-	0.721	-	0.968
Motorcycles	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
% Motorcycles	0%	0.2%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
Cars	68	514	26	0	608	-	7	515	37	0	559	-	28	3	73	0	104	-	35	2	8	0	45	-	1316
% Cars	88.3%	78.4%	76.5%	0%	79.3%	-	77.8%	81.7%	86.0%	0%	82.0%	-	100%	100%	83.9%	0%	88.1%	-	92.1%	100%	88.9%	0%	91.8%	-	81.4%
Light Goods Vehicles	9	126	8	0	143	-	2	100	4	0	106	-	0	0	13	0	13	-	3	0	1	0	4	-	266
% Light Goods Vehicles	11.7%	19.2%	23.5%	0%	18.6%	-	22.2%	15.9%	9.3%	0%	15.5%	-	0%	0%	14.9%	0%	11.0%	-	7.9%	0%	11.1%	0%	8.2%	-	16.5%
Single-Unit Trucks	0	13	0	0	13	-	0	10	0	0	10	-	0	0	1	0	1	-	0	0	0	0	0	-	24
% Single-Unit Trucks	0%	2.0%	0%	0%	1.7%	-	0%	1.6%	0%	0%	1.5%	-	0%	0%	1.1%	0%	0.8%	-	0%	0%	0%	0%	0%	-	1.5%
Articulated Trucks	0	1	0	0	1	-	0	3	0	0	3	-	0	0	0	0	0	-	0	0	0	0	0	-	4
% Articulated Trucks	0%	0.2%	0%	0%	0.1%	-	0%	0.5%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Buses	0	1	0	0	1	-	0	2	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	3
% Buses	0%	0.2%	0%	0%	0.1%	-	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Bicycles on Road	0	0	0	0	0	-	0	0	2	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	2
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	4.7%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	0	-	-	-	-	-	100%	

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Highway101_LighthouseDr_Sat - TMC

Sat May 1, 2021

Midday Peak (WKND) (11:15 AM - 12:15 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 836247, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 1375

In: 682

Out: 693

43

630

9

1

[W] Lighthouse Dr

Total: 240

In: 118 Out: 122

28
3
87

38
20

Out: 46 In: 49

Total: 95

[E] NE 52nd St

2

2

77

656

34

Out: 755

In: 767

Total: 1522

[S] Highway 101

Highway101_LighthouseDr_Sat - TMC

Sat May 1, 2021

PM Peak (WKND) (2 PM - 3 PM) - Overall Peak Hour

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 836247, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound						Highway 101 Southbound						Lighthouse Dr Eastbound						NE 52nd St Westbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-05-01 2:00PM	13	179	6	0	198	0	0	201	8	0	209	1	6	1	21	0	28	0	14	0	3	0	17	0	452
2:15PM	23	184	9	0	216	0	0	188	8	0	196	0	4	1	13	0	18	0	5	0	3	0	8	0	438
2:30PM	16	168	8	0	192	1	4	175	8	0	187	0	19	1	21	0	41	1	5	0	5	0	10	1	430
2:45PM	10	191	9	0	210	0	1	173	14	0	188	0	8	1	22	0	31	0	11	0	5	0	16	1	445
Total	62	722	32	0	816	1	5	737	38	0	780	1	37	4	77	0	118	1	35	0	16	0	51	2	1765
% Approach	7.6%	88.5%	3.9%	0%	-	-	0.6%	94.5%	4.9%	0%	-	-	31.4%	3.4%	65.3%	0%	-	-	68.6%	0%	31.4%	0%	-	-	-
% Total	3.5%	40.9%	1.8%	0%	46.2%	-	0.3%	41.8%	2.2%	0%	44.2%	-	2.1%	0.2%	4.4%	0%	6.7%	-	2.0%	0%	0.9%	0%	2.9%	-	-
PHF	0.674	0.945	0.889	-	0.944	-	0.313	0.917	0.679	-	0.933	-	0.487	1.000	0.875	-	0.720	-	0.625	-	0.800	-	0.750	-	0.976
Motorcycles	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	2
% Motorcycles	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
Cars	51	587	21	0	659	-	4	619	35	0	658	-	33	3	67	0	103	-	25	0	12	0	37	-	1457
% Cars	82.3%	81.3%	65.6%	0%	80.8%	-	80.0%	84.0%	92.1%	0%	84.4%	-	89.2%	75.0%	87.0%	0%	87.3%	-	71.4%	0%	75.0%	0%	72.5%	-	82.5%
Light Goods Vehicles	9	123	11	0	143	-	1	111	3	0	115	-	3	1	8	0	12	-	10	0	4	0	14	-	284
% Light Goods Vehicles	14.5%	17.0%	34.4%	0%	17.5%	-	20.0%	15.1%	7.9%	0%	14.7%	-	8.1%	25.0%	10.4%	0%	10.2%	-	28.6%	0%	25.0%	0%	27.5%	-	16.1%
Single-Unit Trucks	1	12	0	0	13	-	0	2	0	0	2	-	1	0	2	0	3	-	0	0	0	0	0	-	18
% Single-Unit Trucks	1.6%	1.7%	0%	0%	1.6%	-	0%	0.3%	0%	0%	0.3%	-	2.7%	0%	2.6%	0%	2.5%	-	0%	0%	0%	0%	0%	-	1.0%
Articulated Trucks	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	2
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
Buses	1	0	0	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	2
% Buses	1.6%	0%	0%	0%	0.1%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Highway101_LighthouseDr_Sat - TMC

Sat May 1, 2021

PM Peak (WKND) (2 PM - 3 PM) - Overall Peak Hour

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 836247, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 1555

In: 780

Out: 775

38

737

5

1

[W] Lighthouse Dr

Total: 218

In: 118 Out: 100

37
4
77

1

1

62

722

32

Out: 849

In: 816

Total: 1665

[S] Highway 101

16
35

Out: 41 In: 51

Total: 92

[E] NE 52nd St



Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 rrandall@rpa-hln.com

Count Name:
Highway101_LighthouseDr_Sun
Site Code:
Start Date: 05/02/2021
Page No: 1

Turning Movement Data

Start Time	Highway 101 Northbound					Highway 101 Southbound					Lighthouse Dr Eastbound					NE 52nd St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
5:00 AM	0	6	0	0	6	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	12
5:15 AM	0	11	0	0	11	0	6	0	0	6	0	0	0	0	0	1	0	0	0	1	18
5:30 AM	0	3	0	0	3	0	10	0	0	10	0	0	0	0	0	1	0	1	0	2	15
5:45 AM	0	6	0	0	6	0	12	0	0	12	0	1	0	0	1	1	0	0	0	1	20
Hourly Total	0	26	0	0	26	0	34	0	0	34	0	1	0	0	1	3	0	1	0	4	65
6:00 AM	0	11	0	0	11	1	23	1	0	25	0	0	0	0	0	1	0	0	0	1	37
6:15 AM	0	11	0	0	11	0	17	1	0	18	0	0	0	0	0	0	0	0	0	0	29
6:30 AM	0	18	0	0	18	0	30	1	0	31	1	0	0	0	1	1	0	0	0	1	51
6:45 AM	0	22	1	0	23	0	27	1	0	28	0	0	0	0	0	1	0	0	0	1	52
Hourly Total	0	62	1	0	63	1	97	4	0	102	1	0	0	0	1	3	0	0	0	3	169
7:00 AM	1	26	1	1	28	0	31	2	0	33	1	0	0	0	1	3	0	1	0	4	66
7:15 AM	0	30	1	1	31	0	34	1	0	35	1	0	1	0	2	4	0	0	0	4	72
7:30 AM	2	21	0	0	23	0	37	2	0	39	0	0	1	0	1	4	0	0	0	4	67
7:45 AM	5	35	1	0	41	0	31	2	0	33	2	0	0	0	2	0	0	0	0	0	76
Hourly Total	8	112	3	2	123	0	133	7	0	140	4	0	2	0	6	11	0	1	0	12	281
8:00 AM	6	36	5	0	47	1	40	3	0	44	0	0	1	0	1	2	0	1	0	3	95
8:15 AM	0	51	2	0	53	0	50	0	0	50	2	0	1	0	3	8	0	0	0	8	114
8:30 AM	17	58	6	0	81	1	73	1	0	75	2	0	2	0	4	8	0	3	0	11	171
8:45 AM	6	46	9	0	61	1	77	4	0	82	0	0	3	0	3	6	0	1	0	7	153
Hourly Total	29	191	22	0	242	3	240	8	0	251	4	0	7	0	11	24	0	5	0	29	533
9:00 AM	5	68	3	0	76	0	71	3	1	74	3	0	2	0	5	2	0	1	0	3	158
9:15 AM	9	72	4	0	85	1	90	4	0	95	2	0	2	0	4	4	0	3	0	7	191
9:30 AM	5	83	7	1	95	2	95	3	0	100	4	0	4	0	8	8	0	0	1	8	211
9:45 AM	8	84	3	0	95	1	104	8	0	113	4	0	5	1	9	7	0	1	1	8	225
Hourly Total	27	307	17	1	351	4	360	18	1	382	13	0	13	1	26	21	0	5	2	26	785
10:00 AM	12	106	5	0	123	1	109	5	0	115	2	0	0	0	2	4	0	1	0	5	245
10:15 AM	13	113	6	0	132	0	126	9	1	135	6	1	0	0	7	8	0	0	0	8	282
10:30 AM	13	124	6	0	143	2	139	8	2	149	4	0	0	1	4	11	1	4	0	16	312
10:45 AM	17	141	9	0	167	3	119	11	1	133	7	0	0	0	7	13	0	0	0	13	320
Hourly Total	55	484	26	0	565	6	493	33	4	532	19	1	0	1	20	36	1	5	0	42	1159
11:00 AM	13	146	5	3	164	0	121	11	0	132	6	0	5	0	11	7	0	2	1	9	316
11:15 AM	22	143	12	0	177	0	135	7	2	142	6	0	1	0	7	6	0	0	1	6	332
11:30 AM	16	148	10	0	174	0	147	10	0	157	3	0	11	0	14	2	1	2	0	5	350
11:45 AM	13	162	10	0	185	0	146	11	0	157	3	0	9	0	12	12	0	2	0	14	368
Hourly Total	64	599	37	3	700	0	549	39	2	588	18	0	26	0	44	27	1	6	2	34	1366
12:00 PM	18	141	8	0	167	1	151	11	1	163	8	0	13	0	21	7	1	2	0	10	361
12:15 PM	22	159	6	1	187	1	139	10	1	150	5	0	22	0	27	4	2	0	0	6	370
12:30 PM	11	162	9	0	182	0	137	8	0	145	6	1	13	1	20	9	0	1	0	10	357
12:45 PM	15	146	9	3	170	0	116	15	1	131	9	0	17	0	26	8	0	1	1	9	336
Hourly Total	66	608	32	4	700	2	543	44	3	589	28	1	65	1	94	28	3	4	1	35	1424
1:00 PM	17	152	10	0	179	1	142	6	0	149	11	1	20	0	32	7	0	1	0	8	368
1:15 PM	16	121	9	0	146	0	138	10	0	148	10	0	16	0	26	12	0	0	0	12	332
1:30 PM	13	148	8	0	169	4	141	8	2	153	6	0	15	2	21	9	1	3	0	13	356
1:45 PM	15	164	10	0	189	0	135	11	0	146	7	0	15	1	22	13	0	0	0	13	370
Hourly Total	61	585	37	0	683	5	556	35	2	596	34	1	66	3	101	41	1	4	0	46	1426
2:00 PM	12	127	10	1	149	3	161	8	0	172	13	0	17	0	30	6	0	0	0	6	357
2:15 PM	8	158	7	0	173	3	154	8	0	165	6	0	14	0	20	7	0	0	0	7	365
2:30 PM	16	171	9	0	196	1	145	9	2	155	3	0	27	0	30	9	0	1	0	10	391
2:45 PM	14	124	2	0	140	3	146	9	2	158	11	0	22	0	33	9	0	0	0	9	340
Hourly Total	50	580	28	1	658	10	606	34	4	650	33	0	80	0	113	31	0	1	0	32	1453
3:00 PM	9	131	12	0	152	1	127	7	0	135	8	0	14	1	22	9	0	2	0	11	320
3:15 PM	10	151	4	0	165	0	131	8	0	139	4	0	15	0	19	8	0	2	0	10	333
3:30 PM	8	120	6	0	134	2	154	5	0	161	5	0	14	0	19	13	0	1	0	14	328
3:45 PM	15	144	12	0	171	2	131	3	1	136	4	0	9	0	13	6	0	1	0	7	327
Hourly Total	42	546	34	0	622	5	543	23	1	571	21	0	52	1	73	36	0	6	0	42	1308
4:00 PM	7	153	11	0	171	0	123	7	2	130	5	1	7	0	13	6	2	0	1	8	322
4:15 PM	11	156	7	0	174	1	135	7	1	143	10	0	3	0	13	9	0	1	0	10	340
4:30 PM	16	127	4	0	147	2	131	2	0	135	9	0	6	0	15	4	1	3	0	8	305
4:45 PM	13	138	13	0	164	1	122	2	1	125	4	0	9	0	13	4	0	0	1	4	306
Hourly Total	47	574	35	0	656	4	511	18	4	533	28	1	25	0	54	23	3	4	2	30	1273

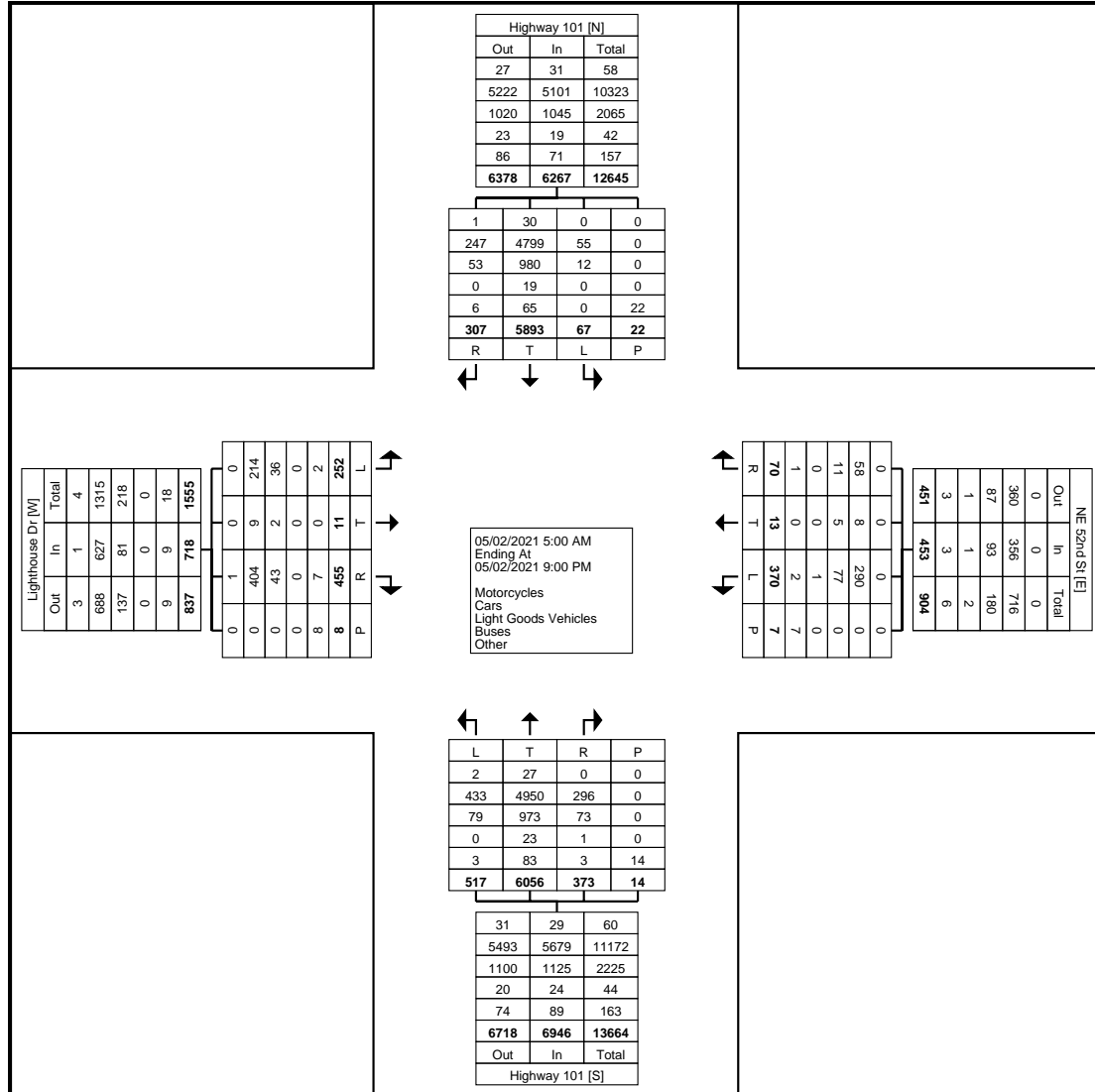
5:00 PM	12	138	7	0	157	3	107	6	0	116	10	2	10	0	22	8	1	3	0	12	307
5:15 PM	7	135	10	1	152	5	126	9	1	140	5	1	8	1	14	13	0	1	0	14	320
5:30 PM	5	117	7	0	129	0	108	5	0	113	3	0	20	0	23	6	0	0	0	6	271
5:45 PM	4	115	12	0	131	1	90	4	0	95	5	1	9	0	15	5	0	2	0	7	248
Hourly Total	28	505	36	1	569	9	431	24	1	464	23	4	47	1	74	32	1	6	0	39	1146
6:00 PM	5	98	9	0	112	4	82	0	0	86	6	0	9	0	15	5	0	2	0	7	220
6:15 PM	2	99	6	1	107	4	95	1	0	100	5	0	7	0	12	4	0	3	0	7	226
6:30 PM	4	79	6	0	89	2	91	3	0	96	2	0	3	0	5	6	0	4	0	10	200
6:45 PM	7	84	8	0	99	1	69	5	0	75	2	0	5	0	7	9	0	1	0	10	191
Hourly Total	18	360	29	1	407	11	337	9	0	357	15	0	24	0	39	24	0	10	0	34	837
7:00 PM	4	81	9	0	94	1	57	4	0	62	5	0	9	0	14	3	0	2	0	5	175
7:15 PM	4	74	8	0	86	2	67	1	0	70	3	2	6	0	11	8	1	0	0	9	176
7:30 PM	6	74	6	0	86	0	69	1	0	70	0	0	3	0	3	7	0	3	0	10	169
7:45 PM	2	74	7	1	83	1	63	0	0	64	2	0	7	0	9	1	2	3	0	6	162
Hourly Total	16	303	30	1	349	4	256	6	0	266	10	2	25	0	37	19	3	8	0	30	682
8:00 PM	2	52	2	0	56	1	49	2	0	52	1	0	4	0	5	2	0	2	0	4	117
8:15 PM	0	54	1	0	55	1	48	1	0	50	0	0	9	0	9	3	0	1	0	4	118
8:30 PM	1	56	1	0	58	1	56	1	0	58	0	0	8	0	8	1	0	1	0	2	126
8:45 PM	3	52	2	0	57	0	51	1	0	52	0	0	2	0	2	5	0	0	0	5	116
Hourly Total	6	214	6	0	226	3	204	5	0	212	1	0	23	0	24	11	0	4	0	15	477
Grand Total	517	6056	373	14	6946	67	5893	307	22	6267	252	11	455	8	718	370	13	70	7	453	14384
Approach %	7.4	87.2	5.4	-	-	1.1	94.0	4.9	-	-	35.1	1.5	63.4	-	-	81.7	2.9	15.5	-	-	-
Total %	3.6	42.1	2.6	-	48.3	0.5	41.0	2.1	-	43.6	1.8	0.1	3.2	-	5.0	2.6	0.1	0.5	-	3.1	-
Motorcycles	2	27	0	-	29	0	30	1	-	31	0	0	1	-	1	0	0	0	-	0	61
% Motorcycles	0.4	0.4	0.0	-	0.4	0.0	0.5	0.3	-	0.5	0.0	0.0	0.2	-	0.1	0.0	0.0	0.0	-	0.0	0.4
Cars	433	4950	296	-	5679	55	4799	247	-	5101	214	9	404	-	627	290	8	58	-	356	11763
% Cars	83.8	81.7	79.4	-	81.8	82.1	81.4	80.5	-	81.4	84.9	81.8	88.8	-	87.3	78.4	61.5	82.9	-	78.6	81.8
Light Goods Vehicles	79	973	73	-	1125	12	980	53	-	1045	36	2	43	-	81	77	5	11	-	93	2344
% Light Goods Vehicles	15.3	16.1	19.6	-	16.2	17.9	16.6	17.3	-	16.7	14.3	18.2	9.5	-	11.3	20.8	38.5	15.7	-	20.5	16.3
Buses	0	23	1	-	24	0	19	0	-	19	0	0	0	-	0	1	0	0	-	1	44
% Buses	0.0	0.4	0.3	-	0.3	0.0	0.3	0.0	-	0.3	0.0	0.0	0.0	-	0.0	0.3	0.0	0.0	-	0.2	0.3
Single-Unit Trucks	3	72	2	-	77	0	54	3	-	57	1	0	6	-	7	1	0	1	-	2	143
% Single-Unit Trucks	0.6	1.2	0.5	-	1.1	0.0	0.9	1.0	-	0.9	0.4	0.0	1.3	-	1.0	0.3	0.0	1.4	-	0.4	1.0
Articulated Trucks	0	8	0	-	8	0	7	0	-	7	0	0	1	-	1	0	0	0	-	0	16
% Articulated Trucks	0.0	0.1	0.0	-	0.1	0.0	0.1	0.0	-	0.1	0.0	0.0	0.2	-	0.1	0.0	0.0	0.0	-	0.0	0.1
Bicycles on Road	0	3	1	-	4	0	4	3	-	7	1	0	0	-	1	1	0	0	-	1	13
% Bicycles on Road	0.0	0.0	0.3	-	0.1	0.0	0.1	1.0	-	0.1	0.4	0.0	0.0	-	0.1	0.3	0.0	0.0	-	0.2	0.1
Pedestrians	-	-	-	14	-	-	-	-	22	-	-	-	-	8	-	-	-	-	7	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



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Turning Movement Data Plot



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Turning Movement Peak Hour Data (11:00 AM)

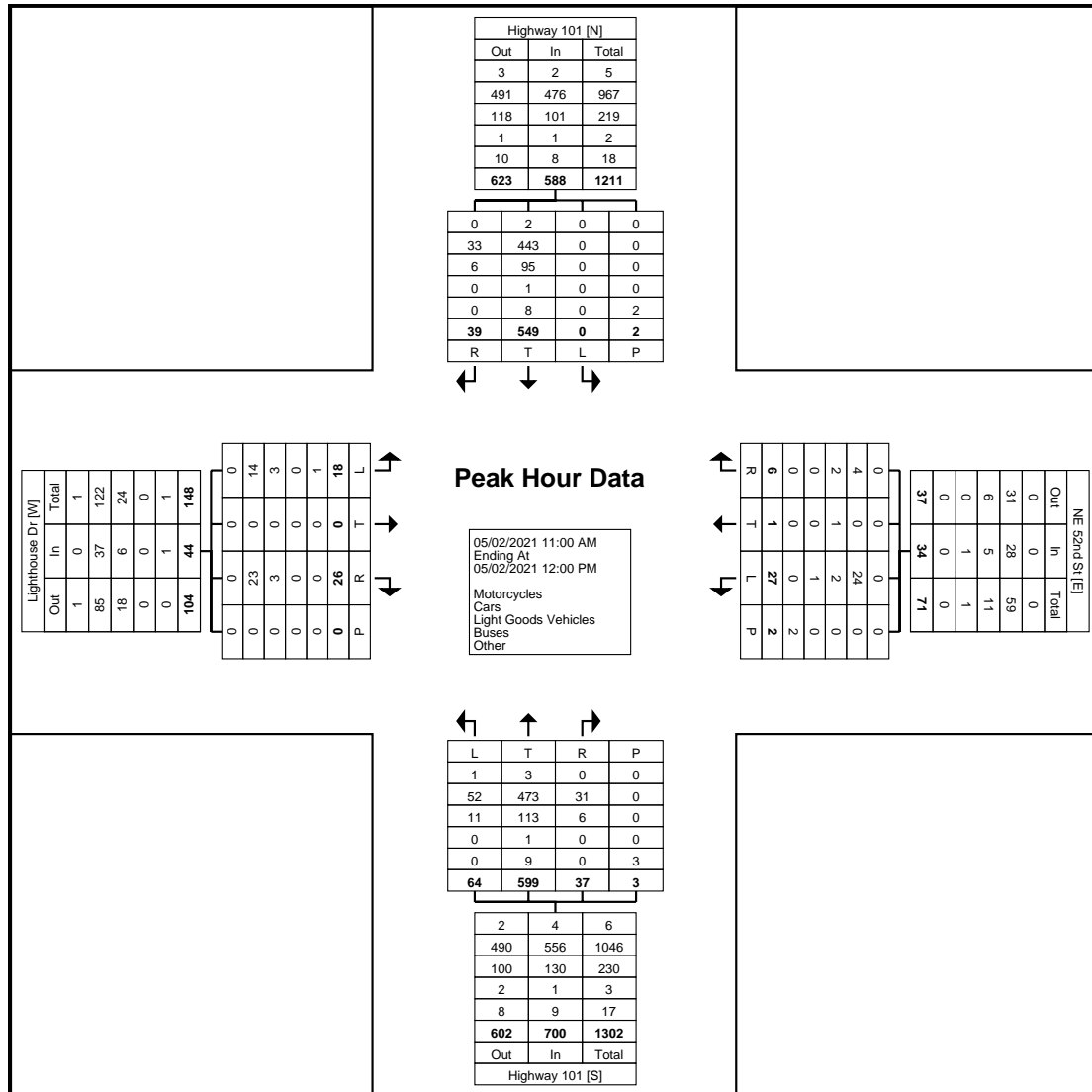
Start Time	Highway 101 Northbound					Highway 101 Southbound					Lighthouse Dr Eastbound					NE 52nd St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
11:00 AM	13	146	5	3	164	0	121	11	0	132	6	0	5	0	11	7	0	2	1	9	316
11:15 AM	22	143	12	0	177	0	135	7	2	142	6	0	1	0	7	6	0	0	1	6	332
11:30 AM	16	148	10	0	174	0	147	10	0	157	3	0	11	0	14	2	1	2	0	5	350
11:45 AM	13	162	10	0	185	0	146	11	0	157	3	0	9	0	12	12	0	2	0	14	368
Total	64	599	37	3	700	0	549	39	2	588	18	0	26	0	44	27	1	6	2	34	1366
Approach %	9.1	85.6	5.3	-	-	0.0	93.4	6.6	-	-	40.9	0.0	59.1	-	-	79.4	2.9	17.6	-	-	-
Total %	4.7	43.9	2.7	-	51.2	0.0	40.2	2.9	-	43.0	1.3	0.0	1.9	-	3.2	2.0	0.1	0.4	-	2.5	-
PHF	0.727	0.924	0.771	-	0.946	0.000	0.934	0.886	-	0.936	0.750	0.000	0.591	-	0.786	0.563	0.250	0.750	-	0.607	0.928
Motorcycles	1	3	0	-	4	0	2	0	-	2	0	0	0	-	0	0	0	0	-	0	6
% Motorcycles	1.6	0.5	0.0	-	0.6	-	0.4	0.0	-	0.3	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.4
Cars	52	473	31	-	556	0	443	33	-	476	14	0	23	-	37	24	0	4	-	28	1097
% Cars	81.3	79.0	83.8	-	79.4	-	80.7	84.6	-	81.0	77.8	-	88.5	-	84.1	88.9	0.0	66.7	-	82.4	80.3
Light Goods Vehicles	11	113	6	-	130	0	95	6	-	101	3	0	3	-	6	2	1	2	-	5	242
% Light Goods Vehicles	17.2	18.9	16.2	-	18.6	-	17.3	15.4	-	17.2	16.7	-	11.5	-	13.6	7.4	100.0	33.3	-	14.7	17.7
Buses	0	1	0	-	1	0	1	0	-	1	0	0	0	-	0	1	0	0	-	1	3
% Buses	0.0	0.2	0.0	-	0.1	-	0.2	0.0	-	0.2	0.0	-	0.0	-	0.0	3.7	0.0	0.0	-	2.9	0.2
Single-Unit Trucks	0	8	0	-	8	0	8	0	-	8	1	0	0	-	1	0	0	0	-	0	17
% Single-Unit Trucks	0.0	1.3	0.0	-	1.1	-	1.5	0.0	-	1.4	5.6	-	0.0	-	2.3	0.0	0.0	0.0	-	0.0	1.2
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.2	0.0	-	0.1	-	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	3	-	-	-	-	2	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-



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Turning Movement Peak Hour Data Plot (11:00 AM)



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3147 Saddle Drive

Helena, Montana, United States 59601
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Turning Movement Peak Hour Data (1:45 PM)

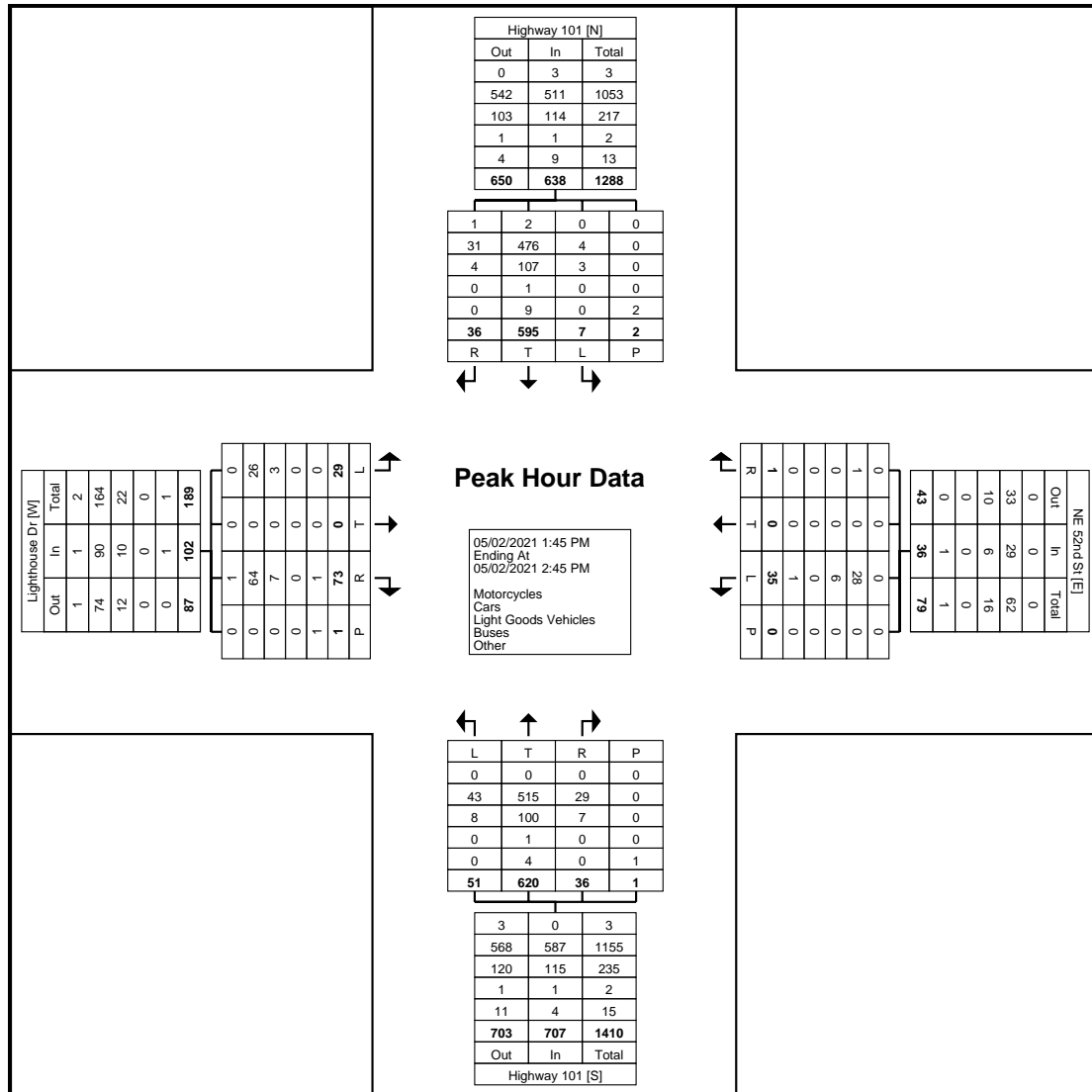
Start Time	Highway 101 Northbound					Highway 101 Southbound					Lighthouse Dr Eastbound					NE 52nd St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
1:45 PM	15	164	10	0	189	0	135	11	0	146	7	0	15	1	22	13	0	0	0	13	370
2:00 PM	12	127	10	1	149	3	161	8	0	172	13	0	17	0	30	6	0	0	0	6	357
2:15 PM	8	158	7	0	173	3	154	8	0	165	6	0	14	0	20	7	0	0	0	7	365
2:30 PM	16	171	9	0	196	1	145	9	2	155	3	0	27	0	30	9	0	1	0	10	391
Total	51	620	36	1	707	7	595	36	2	638	29	0	73	1	102	35	0	1	0	36	1483
Approach %	7.2	87.7	5.1	-	-	1.1	93.3	5.6	-	-	28.4	0.0	71.6	-	-	97.2	0.0	2.8	-	-	-
Total %	3.4	41.8	2.4	-	47.7	0.5	40.1	2.4	-	43.0	2.0	0.0	4.9	-	6.9	2.4	0.0	0.1	-	2.4	-
PHF	0.797	0.906	0.900	-	0.902	0.583	0.924	0.818	-	0.927	0.558	0.000	0.676	-	0.850	0.673	0.000	0.250	-	0.692	0.948
Motorcycles	0	0	0	-	0	0	2	1	-	3	0	0	1	-	1	0	0	0	-	0	4
% Motorcycles	0.0	0.0	0.0	-	0.0	0.0	0.3	2.8	-	0.5	0.0	-	1.4	-	1.0	0.0	-	0.0	-	0.0	0.3
Cars	43	515	29	-	587	4	476	31	-	511	26	0	64	-	90	28	0	1	-	29	1217
% Cars	84.3	83.1	80.6	-	83.0	57.1	80.0	86.1	-	80.1	89.7	-	87.7	-	88.2	80.0	-	100.0	-	80.6	82.1
Light Goods Vehicles	8	100	7	-	115	3	107	4	-	114	3	0	7	-	10	6	0	0	-	6	245
% Light Goods Vehicles	15.7	16.1	19.4	-	16.3	42.9	18.0	11.1	-	17.9	10.3	-	9.6	-	9.8	17.1	-	0.0	-	16.7	16.5
Buses	0	1	0	-	1	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	2
% Buses	0.0	0.2	0.0	-	0.1	0.0	0.2	0.0	-	0.2	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.1
Single-Unit Trucks	0	4	0	-	4	0	8	0	-	8	0	0	1	-	1	1	0	0	-	1	14
% Single-Unit Trucks	0.0	0.6	0.0	-	0.6	0.0	1.3	0.0	-	1.3	0.0	-	1.4	-	1.0	2.9	-	0.0	-	2.8	0.9
Articulated Trucks	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.2	0.0	-	0.2	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	1	-	-	-	-	2	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-



Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name:
Highway101_LighthouseDr_Sun
Site Code:
Start Date: 05/02/2021
Page No: 7



Turning Movement Peak Hour Data Plot (1:45 PM)

Hwy101_LighthouseDr - TMC

Fri Aug 13, 2021

Full Length (5 AM-9 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863293, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound							Highway 101 Southbound							Lighthouse Drive Eastbound							NE 52nd Street Westbound							
Time	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*	Int	
2021-08-13 5:00AM	0	20	1	0	21	0		0	15	0	0	15	0		0	0	0	0	0	0		0	0	0	0	0	0	36	
5:15AM	1	15	1	0	17	0		0	16	1	0	17	0		0	0	0	0	0	0		1	0	0	0	1	0	35	
5:30AM	1	20	0	0	21	0		1	26	0	0	27	0		0	0	3	0	3	0		3	1	1	0	5	0	56	
5:45AM	0	23	0	0	23	0		0	26	0	0	26	0		1	0	0	0	1	0		2	0	0	0	2	0	52	
Hourly Total	2	78	2	0	82	0		1	83	1	0	85	0		1	0	3	0	4	0		6	1	1	0	8	0	179	
6:00AM	1	25	1	0	27	0		1	21	1	0	23	0		0	0	0	0	0	0		0	0	1	0	1	0	51	
6:15AM	1	28	4	0	33	2		0	44	0	0	44	0		1	0	0	0	1	0		1	0	0	0	1	0	79	
6:30AM	0	26	0	0	26	2		0	56	1	0	57	0		0	0	0	0	0	0		3	0	0	0	3	0	86	
6:45AM	3	61	1	0	65	1		0	73	1	0	74	0		0	0	2	0	2	0		1	0	0	0	1	0	142	
Hourly Total	5	140	6	0	151	5		1	194	3	0	198	0		1	0	2	0	3	0		5	0	1	0	6	0	358	
7:00AM	1	59	1	0	61	0		0	75	0	0	75	1		2	0	0	0	2	2		8	0	0	0	8	0	146	
7:15AM	1	77	2	0	80	0		0	90	1	0	91	1		0	0	2	0	2	0		8	1	1	0	10	0	183	
7:30AM	3	55	4	0	62	0		4	140	2	0	146	1		0	0	2	0	2	0		13	2	1	0	16	0	226	
7:45AM	5	96	6	0	107	0		0	149	0	0	149	0		1	0	1	0	2	1		10	0	2	0	12	0	270	
Hourly Total	10	287	13	0	310	0		4	454	3	0	461	3		3	0	5	0	8	3		39	3	4	0	46	0	825	
8:00AM	8	70	5	0	83	0		4	99	3	0	106	0		0	0	3	0	3	0		3	0	1	0	4	1	196	
8:15AM	7	97	3	0	107	0		0	92	5	0	97	0		3	1	3	0	7	1		9	1	0	0	10	0	221	
8:30AM	6	80	6	0	92	0		0	112	2	0	114	0		1	0	4	0	5	0		11	1	1	0	13	0	224	
8:45AM	4	85	6	0	95	0		2	140	8	0	150	0		2	0	4	0	6	1		13	1	1	0	15	0	266	
Hourly Total	25	332	20	0	377	0		6	443	18	0	467	0		6	1	14	0	21	2		36	3	3	0	42	1	907	
9:00AM	14	111	7	0	132	0		3	135	6	0	144	0		1	0	3	0	4	0		10	0	0	0	10	0	290	
9:15AM	11	95	6	0	112	0		2	116	6	0	124	0		4	0	2	0	6	0		6	0	2	0	8	0	250	
9:30AM	8	126	4	0	138	0		2	122	5	0	129	0		5	1	5	0	11	0		14	0	1	0	15	0	293	
9:45AM	22	134	13	0	169	0		2	178	8	0	188	0		6	0	8	0	14	1		7	0	1	0	8	0	379	
Hourly Total	55	466	30	0	551	0		9	551	25	0	585	0		16	1	18	0	35	1		37	0	4	0	41	0	1212	
10:00AM	16	117	5	0	138	0		0	144	7	0	151	0		4	1	8	0	13	0		23	0	1	0	24	0	326	
10:15AM	16	139	18	0	173	0		0	217	3	0	220	0		6	0	13	0	19	0		13	0	1	0	14	0	426	
10:30AM	25	149	8	0	182	0		0	232	6	0	238	0		5	0	6	0	11	0		13	0	3	0	16	0	447	
10:45AM	21	161	17	0	199	0		3	241	5	0	249	0		12	0	6	0	18	1		8	0	3	0	11	0	477	
Hourly Total	78	566	48	0	692	0		3	834	21	0	858	0		27	1	33	0	61	1		57	0	8	0	65	0	1676	
11:00AM	17	182	10	1	210	0		1	208	11	0	220	0		3	1	14	0	18	0		10	0	1	0	11	0	459	
11:15AM	17	177	18	0	212	0		2	210	12	0	224	0		6	1	18	0	25	0		16	0	2	0	18	1	479	
11:30AM	22	167	7	0	196	0		1	176	3	0	180	0		12	1	12	0	25	0		8	0	4	0	12	0	413	
11:45AM	14	192	13	0	219	0		0	209	3	0	212	0		13	0	15	0	28	7		16	0	2	0	18	1	477	
Hourly Total	70	718	48	1	837	0		4	803	29	0	836	0		34	3	59	0	96	7		50	0	9	0	59	2	1828	
12:00PM	19	171	12	0	202	0		2	162	9	0	173	0		7	0	33	0	40	0		10	0	4	0	14	0	429	
12:15PM	15	166	9	0	190	0		2	197	7	0	206	0		13	1	23	0	37	0		7	1	1	0	9	0	442	
12:30PM	15	165	14	0	194	0		4	167	7	0	178	0		3	1	19	0	23	0		11	1	0	0	12	0	407	
12:45PM	13	173	14	0	200	0		1	233	7	0	241	0		5	0	22	0	27	0		7	2	2	0	11	0	479	
Hourly Total	62	675	49	0	786	0		9	759	30	0	798	0		28	2	97	0	127	0		35	4	7	0	46	0	1757	
1:00PM	9	199	12	0	220	1		1	148	5	0	154	0		5	1	15	0	21	0		7	2	2	0	11	0	406	
1:15PM	15	191	7	0	213	0		1	165	7	0	173	0		8	0	14	0	22	0		17	0	2	0	19	0	427	
1:30PM	11	178	14	0	203	0		0	196	5	0	201	0		2	1	11	0	14	0		11	0	1	0	12	0	430	
1:45PM	11	202	6	0	219	0		0	190	7	0	197	0		7	2	11	0	20	0		19	0	1	0	20	2	456	
Hourly Total	46	770	39	0	855	1		2	699	24	0	725	0		22	4	51	0	77	0		54	2	6	0	62	2	1719	
2:00PM	12	202	11	0	225	0		0	213	2	0	215	0		6	0	9	0	15	0		8	2	3	0	13	0	468	
2:15PM	19	214	8	0	241	0		4	206	10	0	220	0		5	0	14	0	19	0		8	2	3	0	13	0	493	
2:30PM	18	223	11	0	252	0		2	225	13	0	240	0		4	0	20	0	24	0		13	0	3	0	16	0	532	
2:45PM	10	239	12	0	261	0		2	198	12	0	212	0		7	1	18	0	26	0		12	1	3	0	16	0	515	
Hourly Total	59	878	42	0	979	0		8	842	37	0	887	0		22	1	61	0	84	0		41	5	12	0	58	0	2008	
3:00PM	18	213	16	0	247	1		1	193	16	0	210	0		4	0	10	0	14	0		5	1	4	0	10	0	481	
3:15PM	17	224	11	0	252	0		3	191	7	0	201	0		15	0	28	0	43	0		5	0	3	0	8	1	504	
3:30PM	15	231	12	0	258	0		2	199	14	0	215	0		6	1	17	0	24	0		15	0	4	0	19	0	516	
3:45PM	15	218	7	0	240	0		4	176	7	0	187	0		5	3	11	0	19	0		8	2	2	0	12	0	450	

Leg Direction	Highway 101 Northbound							Highway 101 Southbound							Lighthouse Drive Eastbound							NE 52nd Street Westbound							
Time	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		Int
Hourly Total	65	886	46	0	997	1		10	759	44	0	813	0		30	4	66	0	100	0		33	3	13	0	49	1		1959
4:00PM	12	215	13	0	240	0		2	161	15	0	178	0		10	2	17	0	29	0		6	0	0	0	6	0		453
4:15PM	16	217	11	0	244	0		3	165	10	0	178	1		11	1	19	0	31	0		13	0	0	0	13	0		466
4:30PM	16	223	9	0	248	0		0	178	16	0	194	0		9	1	16	0	26	0		12	0	5	0	17	0		485
4:45PM	19	212	13	0	244	0		2	175	4	0	181	0		11	0	23	0	34	0		14	0	2	0	16	0		475
Hourly Total	63	867	46	0	976	0		7	679	45	0	731	1		41	4	75	0	120	0		45	0	7	0	52	0		1879
5:00PM	8	201	19	0	228	1		3	165	8	0	176	1		7	0	18	0	25	0		4	1	1	0	6	0		435
5:15PM	11	207	12	0	230	0		5	183	6	0	194	0		3	0	10	0	13	0		6	0	1	0	7	0		444
5:30PM	12	174	11	0	197	0		4	176	8	0	188	1		6	0	13	0	19	0		9	0	5	0	14	0		418
5:45PM	15	188	17	0	220	0		9	133	9	0	151	0		6	1	22	0	29	0		9	1	6	0	16	0		416
Hourly Total	46	770	59	0	875	1		21	657	31	0	709	2		22	1	63	0	86	0		28	2	13	0	43	0		1713
6:00PM	10	185	12	0	207	0		3	143	8	0	154	0		5	2	15	0	22	0		9	1	2	0	12	0		395
6:15PM	10	168	9	0	187	0		4	132	7	0	143	0		7	0	10	0	17	0		8	0	2	0	10	0		357
6:30PM	12	142	12	0	166	0		2	129	5	0	136	0		7	0	12	0	19	0		9	0	0	0	9	2		330
6:45PM	10	144	12	0	166	0		1	146	3	0	150	0		5	0	11	0	16	0		9	1	0	0	10	0		342
Hourly Total	42	639	45	0	726	0		10	550	23	0	583	0		24	2	48	0	74	0		35	2	4	0	41	2		1424
7:00PM	3	102	8	0	113	0		1	126	7	0	134	0		3	0	6	0	9	0		5	0	2	0	7	0		263
7:15PM	6	101	13	0	120	0		3	85	2	0	90	0		4	1	9	0	14	0		4	0	5	0	9	0		233
7:30PM	7	95	6	0	108	0		1	85	3	0	89	0		4	0	10	0	14	0		5	0	2	0	7	0		218
7:45PM	4	86	2	0	92	0		2	102	2	0	106	0		4	0	9	0	13	0		3	0	2	0	5	0		216
Hourly Total	20	384	29	0	433	0		7	398	14	0	419	0		15	1	34	0	50	0		17	0	11	0	28	0		930
8:00PM	3	85	3	0	91	0		0	85	2	0	87	0		4	0	10	0	14	0		8	1	5	0	14	0		206
8:15PM	5	80	7	0	92	0		2	82	2	0	86	0		4	0	7	0	11	0		11	0	2	0	13	0		202
8:30PM	4	76	7	0	87	0		0	78	1	0	79	0		1	0	4	0	5	1		5	1	0	0	6	0		177
8:45PM	3	78	4	0	85	0		1	70	0	0	71	2		2	0	8	0	10	0		9	0	1	0	10	0		176
Hourly Total	15	319	21	0	355	0		3	315	5	0	323	2		11	0	29	0	40	1		33	2	8	0	43	0		761
Total	663	8775	543	1	9982	8		105	9020	353	0	9478	8		303	25	658	0	986	15		551	27	111	0	689	8		21135
% Approach	6.6%	87.9%	5.4%	0%	-	-		1.1%	95.2%	3.7%	0%	-	-		30.7%	2.5%	66.7%	0%	-	-		80.0%	3.9%	16.1%	0%	-	-		-
% Total	3.1%	41.5%	2.6%	0%	47.2%	-		0.5%	42.7%	1.7%	0%	44.8%	-		1.4%	0.1%	3.1%	0%	4.7%	-		2.6%	0.1%	0.5%	0%	3.3%	-		-
Motorcycles	0	58	2	0	60	-		0	81	3	0	84	-		0	0	5	0	5	-		2	0	0	0	2	-		151
% Motorcycles	0%	0.7%	0.4%	0%	0.6%	-		0%	0.9%	0.8%	0%	0.9%	-		0%	0%	0.8%	0%	0.5%	-		0.4%	0%	0%	0%	0.3%	-		0.7%
Cars	551	6686	442	1	7680	-		73	6881	285	0	7239	-		259	19	542	0	820	-		448	18	76	0	542	-		16281
% Cars	83.1%	76.2%	81.4%	100%	76.9%	-		69.5%	76.3%	80.7%	0%	76.4%	-		85.5%	76.0%	82.4%	0%	83.2%	-		81.3%	66.7%	68.5%	0%	78.7%	-		77.0%
Light Goods Vehicles	105	1708	92	0	1905	-		27	1718	49	0	1794	-		40	5	94	0	139	-		96	5	32	0	133	-		3971
% Light Goods Vehicles	15.8%	19.5%	16.9%	0%	19.1%	-		25.7%	19.0%	13.9%	0%	18.9%	-		13.2%	20.0%	14.3%	0%	14.1%	-		17.4%	18.5%	28.8%	0%	19.3%	-		18.8%
Single-Unit Trucks	1	224	5	0	230	-		4	227	8	0	239	-		1	0	7	0	8	-		4	3	2	0	9	-		486
% Single-Unit Trucks	0.2%	2.6%	0.9%	0%	2.3%	-		3.8%	2.5%	2.3%	0%	2.5%	-		0.3%	0%	1.1%	0%	0.8%	-		0.7%	11.1%	1.8%	0%	1.3%	-		2.3%
Articulated Trucks	1	69	2	0	72	-		1	73	0	0	74	-		0	0	2	0	2	-		1	1	1	0	3	-		151
% Articulated Trucks	0.2%	0.8%	0.4%	0%	0.7%	-		1.0%	0.8%	0%	0%	0.8%	-		0%	0%	0.3%	0%	0.2%	-		0.2%	3.7%	0.9%	0%	0.4%	-		0.7%
Buses	1	27	0	0	28	-		0	25	0	0	25	-		1	0	0	0	1	-		0	0	0	0	0	-		54
% Buses	0.2%	0.3%	0%	0%	0.3%	-		0%	0.3%	0%	0%	0.3%	-		0.3%	0%	0%	0%	0.1%	-		0%	0%	0%	0%	0%	-		0.3%
Bicycles on Road	4	3	0	0	7	-		0	15	8	0	23	-		2	1	8	0	11	-		0	0	0	0	0	-		41
% Bicycles on Road	0.6%	0%	0%	0%	0.1%	-		0%	0.2%	2.3%	0%	0.2%	-		0.7%	4.0%	1.2%	0%	1.1%	-		0%	0%	0%	0%	0%	-		0.2%
Pedestrians	-	-	-	-	-	8		-	-	-	-	-	8		-	-	-	-	-	15		-	-	-	-	-	8		
% Pedestrians	-	-	-	-	-	100%		-	-	-	-	-	100%		-	-	-	-	-	100%		-	-	-	-	-	100%		-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hwy101_LighthouseDr - TMC

Fri Aug 13, 2021

Full Length (5 AM-9 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863293, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 18667

In: 9478

Out: 9189

353

9020

105

5

3

[W] Lighthouse Drive

Total: 2029

In: 986 Out: 1043

303
255
658

3

12

5

1

663

8775

543

Out: 10230

In: 9982

Total: 20212

[S] Highway 101

111
27
551

Out: 673 In: 689

Total: 1362

[E] NE 52nd Street

3

5

Hwy101_LighthouseDr - TMC

Fri Aug 13, 2021

AM Peak (10 AM - 11 AM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863293, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates
3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound						Highway 101 Southbound						Lighthouse Drive Eastbound						NE 52nd Street Westbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-08-13 10:00AM	16	117	5	0	138	0	0	144	7	0	151	0	4	1	8	0	13	0	23	0	1	0	24	0	326
10:15AM	16	139	18	0	173	0	0	217	3	0	220	0	6	0	13	0	19	0	13	0	1	0	14	0	426
10:30AM	25	149	8	0	182	0	0	232	6	0	238	0	5	0	6	0	11	0	13	0	3	0	16	0	447
10:45AM	21	161	17	0	199	0	3	241	5	0	249	0	12	0	6	0	18	1	8	0	3	0	11	0	477
Total	78	566	48	0	692	0	3	834	21	0	858	0	27	1	33	0	61	1	57	0	8	0	65	0	1676
% Approach	11.3%	81.8%	6.9%	0%	-	-	0.3%	97.2%	2.4%	0%	-	-	44.3%	1.6%	54.1%	0%	-	-	87.7%	0%	12.3%	0%	-	-	-
% Total	4.7%	33.8%	2.9%	0%	41.3%	-	0.2%	49.8%	1.3%	0%	51.2%	-	1.6%	0.1%	2.0%	0%	3.6%	-	3.4%	0%	0.5%	0%	3.9%	-	-
PHF	0.780	0.879	0.667	-	0.869	-	0.250	0.865	0.750	-	0.861	-	0.563	0.250	0.615	-	0.789	-	0.620	-	0.667	-	0.677	-	0.878
Motorcycles	0	3	0	0	3	-	0	8	0	0	8	-	0	0	0	0	0	-	1	0	0	0	1	-	12
% Motorcycles	0%	0.5%	0%	0%	0.4%	-	0%	1.0%	0%	0%	0.9%	-	0%	0%	0%	0%	0%	-	1.8%	0%	0%	0%	1.5%	-	0.7%
Cars	68	438	36	0	542	-	1	607	17	0	625	-	22	1	26	0	49	-	45	0	6	0	51	-	1267
% Cars	87.2%	77.4%	75.0%	0%	78.3%	-	33.3%	72.8%	81.0%	0%	72.8%	-	81.5%	100%	78.8%	0%	80.3%	-	78.9%	0%	75.0%	0%	78.5%	-	75.6%
Light Goods Vehicles	9	106	10	0	125	-	2	174	3	0	179	-	4	0	5	0	9	-	11	0	1	0	12	-	325
% Light Goods Vehicles	11.5%	18.7%	20.8%	0%	18.1%	-	66.7%	20.9%	14.3%	0%	20.9%	-	14.8%	0%	15.2%	0%	14.8%	-	19.3%	0%	12.5%	0%	18.5%	-	19.4%
Single-Unit Trucks	0	15	2	0	17	-	0	35	1	0	36	-	0	0	0	0	0	-	0	0	1	0	1	-	54
% Single-Unit Trucks	0%	2.7%	4.2%	0%	2.5%	-	0%	4.2%	4.8%	0%	4.2%	-	0%	0%	0%	0%	0%	-	0%	0%	12.5%	0%	1.5%	-	3.2%
Articulated Trucks	1	3	0	0	4	-	0	9	0	0	9	-	0	0	1	0	1	-	0	0	0	0	0	-	14
% Articulated Trucks	1.3%	0.5%	0%	0%	0.6%	-	0%	1.1%	0%	0%	1.0%	-	0%	0%	3.0%	0%	1.6%	-	0%	0%	0%	0%	0%	-	0.8%
Buses	0	1	0	0	1	-	0	1	0	0	1	-	1	0	0	0	1	-	0	0	0	0	0	-	3
% Buses	0%	0.2%	0%	0%	0.1%	-	0%	0.1%	0%	0%	0.1%	-	3.7%	0%	0%	0%	1.6%	-	0%	0%	0%	0%	0%	-	0.2%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	1	-	0	0	0	0	0	-	1
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	3.0%	0%	1.6%	-	0%	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hwy101_LighthouseDr - TMC

Fri Aug 13, 2021

AM Peak (10 AM - 11 AM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863293, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 1459

In: 858

Out: 601

21

834

3

[W] Lighthouse Drive

Total: 160

In: 61 Out: 99

27
1
33

1

8
57

Out: 52 In: 65

Total: 117

[E] NE 52nd Street

Out: 924

In: 692

Total: 1616

[S] Highway 101

78

566

48

Hwy101_LighthouseDr - TMC

Fri Aug 13, 2021

Midday Peak (11 AM - 12 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863293, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates
3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound							Highway 101 Southbound							Lighthouse Drive Eastbound							NE 52nd Street Westbound							
Time	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		Int
2021-08-13 11:00AM	17	182	10	1	210	0		1	208	11	0	220	0		3	1	14	0	18	0		10	0	1	0	11	0		459
11:15AM	17	177	18	0	212	0		2	210	12	0	224	0		6	1	18	0	25	0		16	0	2	0	18	1		479
11:30AM	22	167	7	0	196	0		1	176	3	0	180	0		12	1	12	0	25	0		8	0	4	0	12	0		413
11:45AM	14	192	13	0	219	0		0	209	3	0	212	0		13	0	15	0	28	7		16	0	2	0	18	1		477
Total	70	718	48	1	837	0		4	803	29	0	836	0		34	3	59	0	96	7		50	0	9	0	59	2		1828
% Approach	8.4%	85.8%	5.7%	0.1%	-	-		0.5%	96.1%	3.5%	0%	-	-		35.4%	3.1%	61.5%	0%	-	-		84.7%	0%	15.3%	0%	-	-		-
% Total	3.8%	39.3%	2.6%	0.1%	45.8%	-		0.2%	43.9%	1.6%	0%	45.7%	-		1.9%	0.2%	3.2%	0%	5.3%	-		2.7%	0%	0.5%	0%	3.2%	-		-
PHF	0.795	0.935	0.667	0.250	0.955	-		0.500	0.956	0.604	-	0.933	-		0.654	0.750	0.819	-	0.857	-		0.781	-	0.563	-	0.819	-		0.954
Motorcycles	0	0	0	0	0	-		0	7	0	0	7	-		0	0	1	0	1	-		0	0	0	0	0	-		8
% Motorcycles	0%	0%	0%	0%	0%	-		0%	0.9%	0%	0%	0.8%	-		0%	0%	1.7%	0%	1.0%	-		0%	0%	0%	0%	0%	-		0.4%
Cars	56	548	39	1	644	-		3	623	23	0	649	-		30	1	50	0	81	-		40	0	4	0	44	-		1418
% Cars	80.0%	76.3%	81.3%	100%	76.9%	-		75.0%	77.6%	79.3%	0%	77.6%	-		88.2%	33.3%	84.7%	0%	84.4%	-		80.0%	0%	44.4%	0%	74.6%	-		77.6%
Light Goods Vehicles	14	146	8	0	168	-		1	145	5	0	151	-		4	2	7	0	13	-		10	0	4	0	14	-		346
% Light Goods Vehicles	20.0%	20.3%	16.7%	0%	20.1%	-		25.0%	18.1%	17.2%	0%	18.1%	-		11.8%	66.7%	11.9%	0%	13.5%	-		20.0%	0%	44.4%	0%	23.7%	-		18.9%
Single-Unit Trucks	0	21	0	0	21	-		0	18	1	0	19	-		0	0	1	0	1	-		0	0	0	0	0	-		41
% Single-Unit Trucks	0%	2.9%	0%	0%	2.5%	-		0%	2.2%	3.4%	0%	2.3%	-		0%	0%	1.7%	0%	1.0%	-		0%	0%	0%	0%	0%	-		2.2%
Articulated Trucks	0	2	1	0	3	-		0	6	0	0	6	-		0	0	0	0	0	-		0	0	1	0	1	-		10
% Articulated Trucks	0%	0.3%	2.1%	0%	0.4%	-		0%	0.7%	0%	0%	0.7%	-		0%	0%	0%	0%	0%	-		0%	0%	11.1%	0%	1.7%	-		0.5%
Buses	0	1	0	0	1	-		0	4	0	0	4	-		0	0	0	0	0	-		0	0	0	0	0	-		5
% Buses	0%	0.1%	0%	0%	0.1%	-		0%	0.5%	0%	0%	0.5%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0.3%
Bicycles on Road	0	0	0	0	0	-		0	0	0	0	0	-		0	0	0	0	0	-		0	0	0	0	0	-		0
% Bicycles on Road	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0%
Pedestrians	-	-	-	-	-	0		-	-	-	-	-	0		-	-	-	-	-	7		-	-	-	-	-	2		
% Pedestrians	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	100%		-	-	-	-	-	-		-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hwy101_LighthouseDr - TMC

Fri Aug 13, 2021

Midday Peak (11 AM - 12 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863293, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 1597

In: 836

Out: 761

29

803

4

[W] Lighthouse Drive

Total: 195

In: 96 Out: 99

34
3
59

7

50

1

Out: 55 In: 59

Total: 114

[E] NE 52nd Street

Out: 913

In: 837

Total: 1750

[S] Highway 101

1

70

718

48

Hwy101_LighthouseDr - TMC

Fri Aug 13, 2021

PM Peak (2:30 PM - 3:30 PM) - Overall Peak Hour

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863293, Location: 44.675419, -124.060357



Provided by: Robert Peccia &
Associates
3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound							Highway 101 Southbound							Lighthouse Drive Eastbound							NE 52nd Street Westbound							
Time	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		Int
2021-08-13 2:30PM	18	223	11	0	252	0		2	225	13	0	240	0		4	0	20	0	24	0		13	0	3	0	16	0		532
2:45PM	10	239	12	0	261	0		2	198	12	0	212	0		7	1	18	0	26	0		12	1	3	0	16	0		515
3:00PM	18	213	16	0	247	1		1	193	16	0	210	0		4	0	10	0	14	0		5	1	4	0	10	0		481
3:15PM	17	224	11	0	252	0		3	191	7	0	201	0		15	0	28	0	43	0		5	0	3	0	8	1		504
Total	63	899	50	0	1012	1		8	807	48	0	863	0		30	1	76	0	107	0		35	2	13	0	50	1		2032
% Approach	6.2%	88.8%	4.9%	0%	-	-		0.9%	93.5%	5.6%	0%	-	-		28.0%	0.9%	71.0%	0%	-	-		70.0%	4.0%	26.0%	0%	-	-		-
% Total	3.1%	44.2%	2.5%	0%	49.8%	-		0.4%	39.7%	2.4%	0%	42.5%	-		1.5%	0%	3.7%	0%	5.3%	-		1.7%	0.1%	0.6%	0%	2.5%	-		-
PHF	0.875	0.940	0.781	-	0.969	-		0.667	0.897	0.750	-	0.899	-		0.500	0.250	0.661	-	0.610	-		0.673	0.500	0.813	-	0.781	-		0.954
Motorcycles	0	6	1	0	7	-		0	7	2	0	9	-		0	0	0	0	0	-		1	0	0	0	1	-		17
% Motorcycles	0%	0.7%	2.0%	0%	0.7%	-		0%	0.9%	4.2%	0%	1.0%	-		0%	0%	0%	0%	0%	-		2.9%	0%	0%	0%	2.0%	-		0.8%
Cars	53	718	45	0	816	-		5	620	39	0	664	-		25	0	62	0	87	-		28	1	9	0	38	-		1605
% Cars	84.1%	79.9%	90.0%	0%	80.6%	-		62.5%	76.8%	81.3%	0%	76.9%	-		83.3%	0%	81.6%	0%	81.3%	-		80.0%	50.0%	69.2%	0%	76.0%	-		79.0%
Light Goods Vehicles	10	147	4	0	161	-		3	158	7	0	168	-		5	1	10	0	16	-		5	1	4	0	10	-		355
% Light Goods Vehicles	15.9%	16.4%	8.0%	0%	15.9%	-		37.5%	19.6%	14.6%	0%	19.5%	-		16.7%	100%	13.2%	0%	15.0%	-		14.3%	50.0%	30.8%	0%	20.0%	-		17.5%
Single-Unit Trucks	0	22	0	0	22	-		0	16	0	0	16	-		0	0	2	0	2	-		1	0	0	0	1	-		41
% Single-Unit Trucks	0%	2.4%	0%	0%	2.2%	-		0%	2.0%	0%	0%	1.9%	-		0%	0%	2.6%	0%	1.9%	-		2.9%	0%	0%	0%	2.0%	-		2.0%
Articulated Trucks	0	2	0	0	2	-		0	2	0	0	2	-		0	0	0	0	0	-		0	0	0	0	0	-		4
% Articulated Trucks	0%	0.2%	0%	0%	0.2%	-		0%	0.2%	0%	0%	0.2%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0.2%
Buses	0	4	0	0	4	-		0	4	0	0	4	-		0	0	0	0	0	-		0	0	0	0	0	-		8
% Buses	0%	0.4%	0%	0%	0.4%	-		0%	0.5%	0%	0%	0.5%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0.4%
Bicycles on Road	0	0	0	0	0	-		0	0	0	0	0	-		0	0	2	0	2	-		0	0	0	0	0	-		2
% Bicycles on Road	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0%	0%	2.6%	0%	1.9%	-		0%	0%	0%	0%	0%	-		0.1%
Pedestrians	-	-	-	-	-	1		-	-	-	-	-	0		-	-	-	-	-	0		-	-	-	-	-	1		
% Pedestrians	-	-	-	-	-	100%		-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hwy101_LighthouseDr - TMC

Fri Aug 13, 2021

PM Peak (2:30 PM - 3:30 PM) - Overall Peak Hour

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863293, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 1805

In: 863

Out: 942

48

807

8

[W] Lighthouse Drive

Total: 220

In: 107 Out: 113

30
1
76

13
2
35

Out: 59 In: 50

Total: 109

[E] NE 52nd Street

1

63

899

50

Out: 918

In: 1012

Total: 1930

[S] Highway 101

Hwy101_LighthouseDr_Sat - TMC

Sat Aug 14, 2021

Full Length (5 AM-8:30 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863294, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates
3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound							Highway 101 Southbound							Lighthouse Drive Eastbound							NE 52nd Street Westbound							
Time	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		Int
2021-08-14																													
5:00AM	0	12	0	0	12	0		0	11	0	0	11	0		0	0	0	0	0	0		0	0	0	0	0	0	0	23
5:15AM	0	10	0	0	10	0		0	22	0	0	22	0		0	0	0	0	0	0		0	0	0	0	0	0	0	32
5:30AM	1	12	1	0	14	0		0	23	0	0	23	0		0	0	1	0	1	0		1	0	1	0	2	0	40	
5:45AM	0	17	1	0	18	0		0	22	0	0	22	0		0	0	0	0	0	0		4	0	0	0	4	0	44	
Hourly Total	1	51	2	0	54	0		0	78	0	0	78	0		0	0	1	0	1	0		5	0	1	0	6	0	139	
6:00AM	0	14	0	0	14	0		0	19	0	0	19	0		0	0	0	0	0	0		0	0	0	0	0	0	33	
6:15AM	1	19	0	0	20	0		0	24	0	0	24	0		1	0	0	0	1	0		2	0	0	0	2	0	47	
6:30AM	1	22	1	0	24	0		1	51	3	0	55	0		1	0	0	0	1	0		3	0	0	0	3	0	83	
6:45AM	1	29	2	0	32	0		0	45	0	0	45	0		0	0	2	0	2	0		2	0	0	0	2	0	81	
Hourly Total	3	84	3	0	90	0		1	139	3	0	143	0		2	0	2	0	4	0		7	0	0	0	7	0	244	
7:00AM	2	33	1	0	36	3		0	40	1	0	41	0		1	0	1	0	2	0		0	0	0	0	0	1	79	
7:15AM	3	41	0	0	44	0		0	48	2	0	50	0		1	0	0	0	1	1		5	0	0	0	5	0	100	
7:30AM	1	49	1	0	51	0		0	60	2	0	62	0		1	0	1	0	2	0		3	1	0	0	4	0	119	
7:45AM	3	60	2	0	65	2		2	64	3	0	69	0		1	0	3	0	4	0		7	1	1	0	9	0	147	
Hourly Total	9	183	4	0	196	5		2	212	8	0	222	0		4	0	5	0	9	1		15	2	1	0	18	1	445	
8:00AM	3	64	3	0	70	1		2	75	0	0	77	0		1	0	1	0	2	0		2	0	0	0	2	1	151	
8:15AM	2	70	2	0	74	0		2	75	4	0	81	0		2	0	1	0	3	0		4	0	1	0	5	0	163	
8:30AM	2	68	6	0	76	0		2	101	5	0	108	0		2	0	3	0	5	0		12	1	0	0	13	0	202	
8:45AM	14	73	7	0	94	0		1	121	3	0	125	4		5	1	5	0	11	3		10	0	2	0	12	2	242	
Hourly Total	21	275	18	0	314	1		7	372	12	0	391	4		10	1	10	0	21	3		28	1	3	0	32	3	758	
9:00AM	4	88	4	0	96	0		0	126	2	0	128	0		1	0	5	0	6	0		3	0	1	0	4	0	234	
9:15AM	11	112	5	0	128	0		1	121	6	0	128	0		2	0	4	0	6	0		13	0	2	0	15	0	277	
9:30AM	14	108	7	0	129	0		0	152	7	0	159	0		4	0	5	0	9	0		9	0	0	0	9	0	306	
9:45AM	15	137	6	0	158	0		3	166	5	0	174	4		1	0	8	0	9	5		6	0	0	0	6	0	347	
Hourly Total	44	445	22	0	511	0		4	565	20	0	589	4		8	0	22	0	30	5		31	0	3	0	34	0	1164	
10:00AM	17	151	6	0	174	0		4	169	11	0	184	1		4	3	8	0	15	0		6	1	3	0	10	0	383	
10:15AM	20	139	8	0	167	0		1	172	16	0	189	4		2	0	12	0	14	0		9	0	1	0	10	1	380	
10:30AM	17	169	9	0	195	0		2	181	8	0	191	1		4	1	12	0	17	0		8	0	2	0	10	0	413	
10:45AM	20	163	10	0	193	2		1	179	12	0	192	0		8	0	10	0	18	0		12	0	2	0	14	0	417	
Hourly Total	74	622	33	0	729	2		8	701	47	0	756	6		18	4	42	0	64	0		35	1	8	0	44	1	1593	
11:00AM	18	159	16	0	193	1		0	202	12	0	214	3		5	0	10	0	15	0		6	0	6	0	12	0	434	
11:15AM	14	188	11	0	213	0		2	187	10	0	199	1		8	0	12	0	20	0		9	0	3	0	12	0	444	
11:30AM	27	199	9	0	235	0		4	182	21	0	207	0		10	1	14	0	25	0		13	1	3	0	17	0	484	
11:45AM	16	176	7	0	199	0		3	232	12	0	247	0		7	0	19	0	26	0		8	1	6	0	15	0	487	
Hourly Total	75	722	43	0	840	1		9	803	55	0	867	4		30	1	55	0	86	0		36	2	18	0	56	0	1849	
12:00PM	20	157	8	0	185	2		4	177	11	0	192	0		10	0	28	0	38	0		8	1	3	0	12	0	427	
12:15PM	20	194	7	0	221	0		2	158	13	0	173	0		7	1	19	0	27	0		8	0	3	0	11	0	432	
12:30PM	31	199	2	0	232	0		2	170	17	0	189	0		12	0	19	0	31	0		7	0	2	0	9	0	461	
12:45PM	22	173	9	0	204	0		3	186	14	0	203	0		13	1	26	0	40	0		14	0	6	0	20	0	467	
Hourly Total	93	723	26	0	842	2		11	691	55	0	757	0		42	2	92	0	136	0		37	1	14	0	52	0	1787	
1:00PM	25	197	8	0	230	0		2	204	12	0	218	0		6	0	21	0	27	0		6	0	3	0	9	1	484	
1:15PM	21	176	9	0	206	4		1	199	10	0	210	0		21	0	15	0	36	0		7	0	2	0	9	0	461	
1:30PM	17	215	12	0	244	0		2	190	14	0	206	0		9	1	17	0	27	0		8	0	1	0	9	0	486	
1:45PM	19	229	12	0	260	0		1	175	21	0	197	0		13	0	35	0	48	1		8	1	3	0	12	0	517	
Hourly Total	82	817	41	0	940	4		6	768	57	0	831	0		49	1	88	0	138	1		29	1	9	0	39	1	1948	
2:00PM	23	216	7	0	246	0		2	187	11	0	200	1		6	1	29	0	36	0		6	0	2	0	8	0	490	
2:15PM	15	210	10	0	235	0		3	201	8	0	212	0		6	0	24	0	30	0		10	0	7	0	17	0	494	
2:30PM	22	228	9	0	259	0		2	188	14	0	204	2		10	0	25	0	35	0		4	0	3	0	7	0	505	
2:45PM	20	219	15	0	254	0		2	192	3	0	197	0		14	1	17	0	32	0		12	0	2	0	14	0	497	
Hourly Total	80	873	41	0	994	0		9	768	36	0	813	3		36	2	95	0	133	0		32	0	14	0	46	0	1986	
3:00PM	27	219	13	1	260	0		0	198	15	0	213	0		10	2	26	0	38	0		9	0	1	0	10	0	521	
3:15PM	26	217	12	0	255	0		0	185	14	0	199	0		14	1	20	0	35	0		8	1	1	0	10	0	499	
3:30PM	17	209	7	0	233	0		2	221	11	0	234	0		10	0	19	0	29	0		17	0	3	0	20	0	516	
3:45PM	23	198	12	0	233	0		4	201	7	1	213	1		10	0	21	0	31	0		6	0	1	0	7	1	484	
Hourly Total	93	843	44	1	981	0		6	805	47	1	859	1		44	3	86	0	133	0		40	1	6	0	47	1	2070	

Leg Direction	Highway 101 Northbound						Highway 101 Southbound						Lighthouse Drive Eastbound						NE 52nd Street Westbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
4:00PM	17	194	14	0	225	0	1	162	10	0	173	0	13	0	29	0	42	0	6	0	2	0	8	0	448
4:15PM	19	203	17	0	239	2	4	178	8	0	190	0	8	0	19	0	27	1	14	0	6	0	20	1	476
4:30PM	19	189	7	0	215	0	0	188	8	0	196	0	10	1	15	0	26	0	7	2	1	0	10	0	447
4:45PM	12	194	14	0	220	0	2	161	10	0	173	1	17	0	23	0	40	0	14	0	5	0	19	0	452
Hourly Total	67	780	52	0	899	2	7	689	36	0	732	1	48	1	86	0	135	1	41	2	14	0	57	1	1823
5:00PM	8	182	4	0	194	1	1	180	8	0	189	0	4	1	19	0	24	0	7	1	2	0	10	0	417
5:15PM	13	207	18	0	238	0	4	166	6	0	176	0	4	0	17	0	21	0	9	0	1	0	10	0	445
5:30PM	21	193	15	0	229	0	2	147	5	0	154	0	11	2	12	0	25	0	14	2	5	0	21	0	429
5:45PM	14	165	13	0	192	0	3	153	13	0	169	0	4	1	19	0	24	0	8	2	2	0	12	0	397
Hourly Total	56	747	50	0	853	1	10	646	32	0	688	0	23	4	67	0	94	0	38	5	10	0	53	0	1688
6:00PM	15	162	14	0	191	0	1	136	6	0	143	0	7	2	11	0	20	2	7	2	1	0	10	0	364
6:15PM	9	168	12	0	189	0	0	142	9	0	151	0	6	2	16	0	24	0	6	1	2	0	9	0	373
6:30PM	9	137	9	0	155	2	2	122	4	0	128	0	3	1	12	0	16	0	2	0	1	0	3	0	302
6:45PM	1	115	9	0	125	0	1	98	4	0	103	0	2	0	15	0	17	0	13	1	1	0	15	0	260
Hourly Total	34	582	44	0	660	2	4	498	23	0	525	0	18	5	54	0	77	2	28	4	5	0	37	0	1299
7:00PM	11	118	5	0	134	0	1	100	1	0	102	0	1	0	14	0	15	0	2	0	4	0	6	0	257
7:15PM	8	101	7	0	116	0	1	94	4	0	99	0	6	0	17	0	23	0	7	0	0	0	7	0	245
7:30PM	8	100	9	1	118	0	0	71	0	0	71	0	3	1	4	0	8	0	5	0	7	0	12	0	209
7:45PM	8	92	7	0	107	0	0	58	4	0	62	0	3	0	7	0	10	0	5	0	1	0	6	0	185
Hourly Total	35	411	28	1	475	0	2	323	9	0	334	0	13	1	42	0	56	0	19	0	12	0	31	0	896
8:00PM	6	78	2	0	86	0	0	82	2	0	84	0	3	0	7	0	10	0	2	0	0	0	2	1	182
8:15PM	5	74	4	0	83	0	0	59	3	0	62	0	4	1	12	0	17	0	7	2	2	0	11	0	173
Hourly Total	11	152	6	0	169	0	0	141	5	0	146	0	7	1	19	0	27	0	9	2	2	0	13	1	355
Total	778	8310	457	2	9547	20	86	8199	445	1	8731	23	352	26	766	0	1144	13	430	22	120	0	572	9	19994
% Approach	8.1%	87.0%	4.8%	0%	-	-	1.0%	93.9%	5.1%	0%	-	-	30.8%	2.3%	67.0%	0%	-	-	75.2%	3.8%	21.0%	0%	-	-	-
% Total	3.9%	41.6%	2.3%	0%	47.7%	-	0.4%	41.0%	2.2%	0%	43.7%	-	1.8%	0.1%	3.8%	0%	5.7%	-	2.2%	0.1%	0.6%	0%	2.9%	-	-
Motorcycles	4	83	1	0	88	-	0	94	6	0	100	-	1	0	4	0	5	-	0	0	1	0	1	-	194
% Motorcycles	0.5%	1.0%	0.2%	0%	0.9%	-	0%	1.1%	1.3%	0%	1.1%	-	0.3%	0%	0.5%	0%	0.4%	-	0%	0%	0.8%	0%	0.2%	-	1.0%
Cars	647	6672	376	1	7696	-	67	6496	362	1	6926	-	299	22	634	0	955	-	344	20	95	0	459	-	16036
% Cars	83.2%	80.3%	82.3%	50.0%	80.6%	-	77.9%	79.2%	81.3%	100%	79.3%	-	84.9%	84.6%	82.8%	0%	83.5%	-	80.0%	90.9%	79.2%	0%	80.2%	-	80.2%
Light Goods Vehicles	123	1389	77	1	1590	-	17	1417	68	0	1502	-	51	4	116	0	171	-	81	2	23	0	106	-	3369
% Light Goods Vehicles	15.8%	16.7%	16.8%	50.0%	16.7%	-	19.8%	17.3%	15.3%	0%	17.2%	-	14.5%	15.4%	15.1%	0%	14.9%	-	18.8%	9.1%	19.2%	0%	18.5%	-	16.9%
Single-Unit Trucks	2	123	1	0	126	-	2	137	6	0	145	-	1	0	4	0	5	-	4	0	1	0	5	-	281
% Single-Unit Trucks	0.3%	1.5%	0.2%	0%	1.3%	-	2.3%	1.7%	1.3%	0%	1.7%	-	0.3%	0%	0.5%	0%	0.4%	-	0.9%	0%	0.8%	0%	0.9%	-	1.4%
Articulated Trucks	0	21	0	0	21	-	0	21	0	0	21	-	0	0	0	0	0	-	0	0	0	0	0	-	42
% Articulated Trucks	0%	0.3%	0%	0%	0.2%	-	0%	0.3%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Buses	0	17	0	0	17	-	0	21	0	0	21	-	0	0	0	0	0	-	0	0	0	0	0	-	38
% Buses	0%	0.2%	0%	0%	0.2%	-	0%	0.3%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Bicycles on Road	2	5	2	0	9	-	0	13	3	0	16	-	0	0	8	0	8	-	1	0	0	0	1	-	34
% Bicycles on Road	0.3%	0.1%	0.4%	0%	0.1%	-	0%	0.2%	0.7%	0%	0.2%	-	0%	0%	1.0%	0%	0.7%	-	0.2%	0%	0%	0%	0.2%	-	0.2%
Pedestrians	-	-	-	-	-	20	-	-	-	-	-	23	-	-	-	-	-	13	-	-	-	-	-	9	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hwy101_LighthouseDr_Sat - TMC

Sat Aug 14, 2021

Full Length (5 AM-8:30 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863294, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 17514

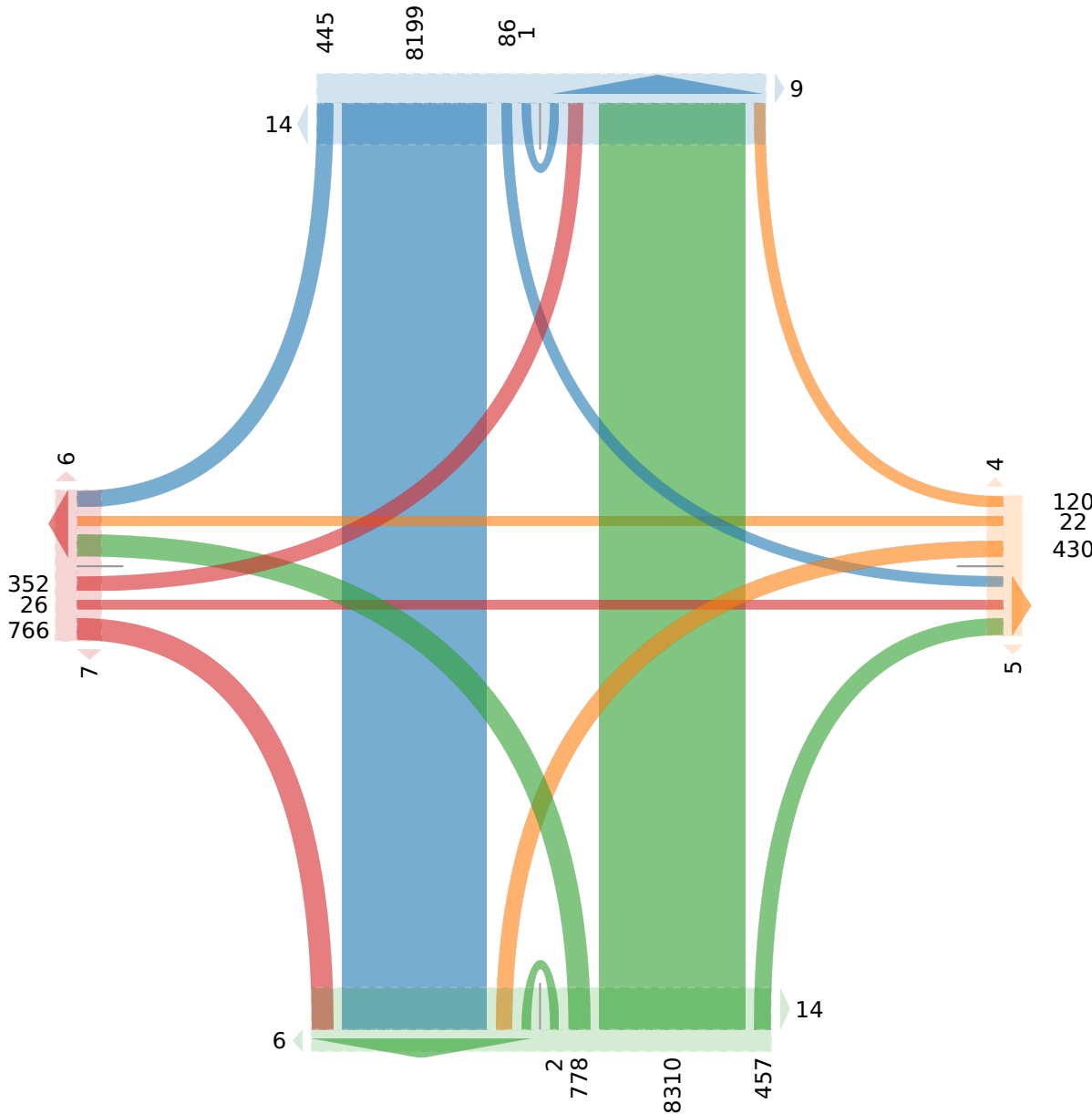
In: 8731

Out: 8783

[W] Lighthouse Drive

Total: 2389

In: 1144 Out: 1245



[S] Highway 101

Total: 18944

Out: 9397

In: 9547

[E] NE 52nd Street

Out: 569 In: 572

Total: 1141

Hwy101_LighthouseDr_Sat - TMC

Sat Aug 14, 2021

AM Peak (WKND) (10 AM - 11 AM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863294, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound							Highway 101 Southbound							Lighthouse Drive Eastbound							NE 52nd Street Westbound							
Time	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		Int
2021-08-14 10:00AM	17	151	6	0	174	0		4	169	11	0	184	1		4	3	8	0	15	0		6	1	3	0	10	0		383
10:15AM	20	139	8	0	167	0		1	172	16	0	189	4		2	0	12	0	14	0		9	0	1	0	10	1		380
10:30AM	17	169	9	0	195	0		2	181	8	0	191	1		4	1	12	0	17	0		8	0	2	0	10	0		413
10:45AM	20	163	10	0	193	2		1	179	12	0	192	0		8	0	10	0	18	0		12	0	2	0	14	0		417
Total	74	622	33	0	729	2		8	701	47	0	756	6		18	4	42	0	64	0		35	1	8	0	44	1		1593
% Approach	10.2%	85.3%	4.5%	0%	-	-		1.1%	92.7%	6.2%	0%	-	-		28.1%	6.3%	65.6%	0%	-	-		79.5%	2.3%	18.2%	0%	-	-		-
% Total	4.6%	39.0%	2.1%	0%	45.8%	-		0.5%	44.0%	3.0%	0%	47.5%	-		1.1%	0.3%	2.6%	0%	4.0%	-		2.2%	0.1%	0.5%	0%	2.8%	-		-
PHF	0.925	0.920	0.825	-	0.935	-		0.500	0.968	0.734	-	0.984	-		0.563	0.333	0.854	-	0.926	-		0.729	0.250	0.667	-	0.786	-		0.957
Motorcycles	0	24	0	0	24	-		0	6	2	0	8	-		0	0	0	0	0	-		0	0	0	0	0	-		32
% Motorcycles	0%	3.9%	0%	0%	3.3%	-		0%	0.9%	4.3%	0%	1.1%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		2.0%
Cars	63	497	26	0	586	-		8	559	37	0	604	-		15	3	33	0	51	-		27	1	8	0	36	-		1277
% Cars	85.1%	79.9%	78.8%	0%	80.4%	-		100%	79.7%	78.7%	0%	79.9%	-		83.3%	75.0%	78.6%	0%	79.7%	-		77.1%	100%	100%	0%	81.8%	-		80.2%
Light Goods Vehicles	11	91	7	0	109	-		0	121	8	0	129	-		3	1	8	0	12	-		7	0	0	0	7	-		257
% Light Goods Vehicles	14.9%	14.6%	21.2%	0%	15.0%	-		0%	17.3%	17.0%	0%	17.1%	-		16.7%	25.0%	19.0%	0%	18.8%	-		20.0%	0%	0%	0%	15.9%	-		16.1%
Single-Unit Trucks	0	8	0	0	8	-		0	10	0	0	10	-		0	0	0	0	0	-		1	0	0	0	1	-		19
% Single-Unit Trucks	0%	1.3%	0%	0%	1.1%	-		0%	1.4%	0%	0%	1.3%	-		0%	0%	0%	0%	0%	-		2.9%	0%	0%	0%	2.3%	-		1.2%
Articulated Trucks	0	2	0	0	2	-		0	2	0	0	2	-		0	0	0	0	0	-		0	0	0	0	0	-		4
% Articulated Trucks	0%	0.3%	0%	0%	0.3%	-		0%	0.3%	0%	0%	0.3%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0.3%
Buses	0	0	0	0	0	-		0	3	0	0	3	-		0	0	0	0	0	-		0	0	0	0	0	-		3
% Buses	0%	0%	0%	0%	0%	-		0%	0.4%	0%	0%	0.4%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0.2%
Bicycles on Road	0	0	0	0	0	-		0	0	0	0	0	-		0	0	1	0	1	-		0	0	0	0	0	-		1
% Bicycles on Road	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0%	0%	2.4%	0%	1.6%	-		0%	0%	0%	0%	0%	-		0.1%
Pedestrians	-	-	-	-	-	2		-	-	-	-	-	6		-	-	-	-	-	0		-	-	-	-	-	1		
% Pedestrians	-	-	-	-	-	100%		-	-	-	-	-	100%		-	-	-	-	-	-		-	-	-	-	-	-		-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hwy101_LighthouseDr_Sat - TMC

Sat Aug 14, 2021

AM Peak (WKND) (10 AM - 11 AM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863294, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 1404

In: 756

Out: 648

[W] Lighthouse Drive

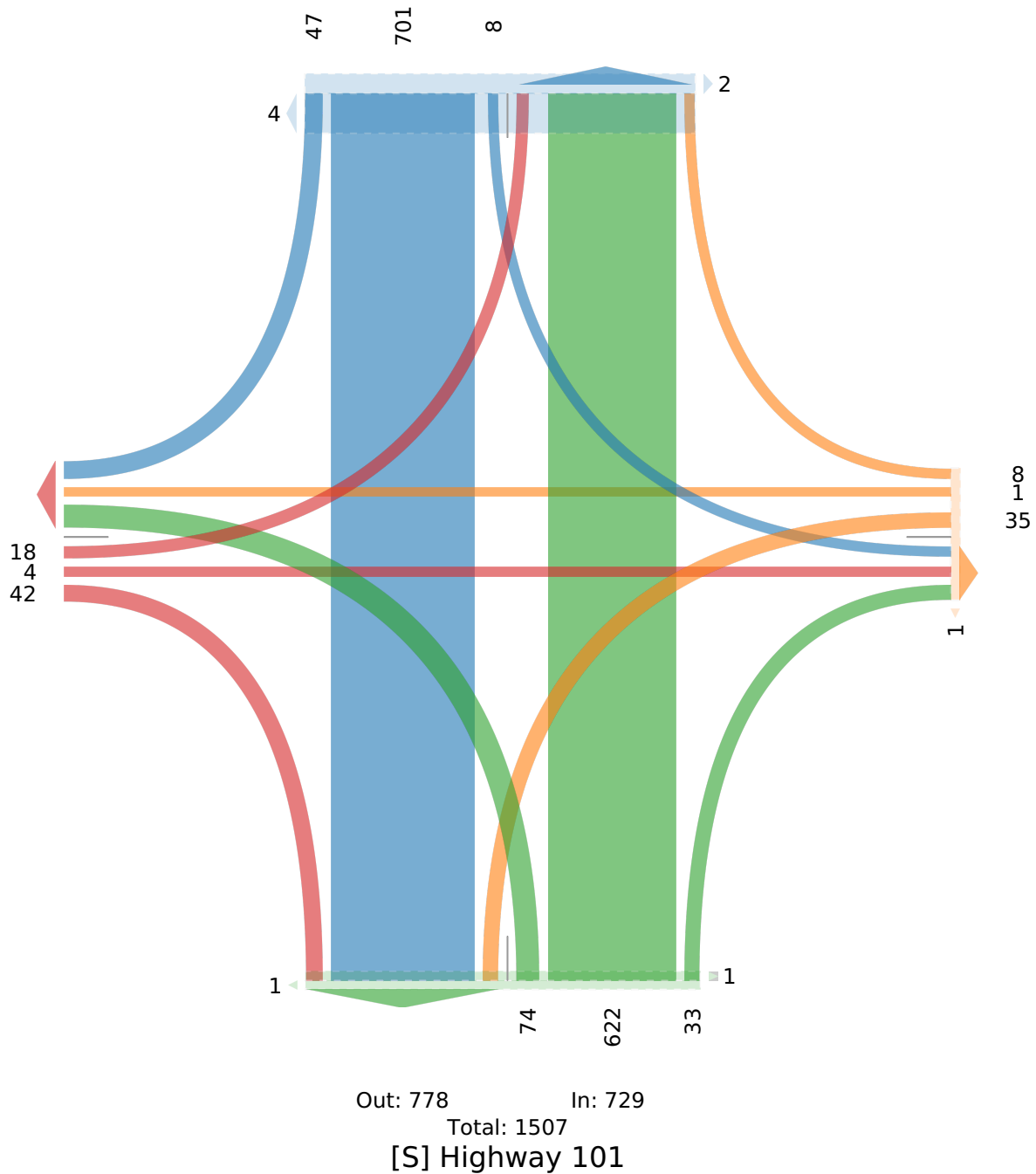
Total: 186

In: 64 Out: 122

[E] NE 52nd Street

Out: 45 In: 44

Total: 89



Hwy101_LighthouseDr_Sat - TMC

Sat Aug 14, 2021

Midday Peak (WKND) (11 AM - 12 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863294, Location: 44.675419, -124.060357



Provided by: Robert Peccia &
Associates
3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound						Highway 101 Southbound						Lighthouse Drive Eastbound						NE 52nd Street Westbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2021-08-14 11:00AM	18	159	16	0	193	1	0	202	12	0	214	3	5	0	10	0	15	0	6	0	6	0	12	0	434
11:15AM	14	188	11	0	213	0	2	187	10	0	199	1	8	0	12	0	20	0	9	0	3	0	12	0	444
11:30AM	27	199	9	0	235	0	4	182	21	0	207	0	10	1	14	0	25	0	13	1	3	0	17	0	484
11:45AM	16	176	7	0	199	0	3	232	12	0	247	0	7	0	19	0	26	0	8	1	6	0	15	0	487
Total	75	722	43	0	840	1	9	803	55	0	867	4	30	1	55	0	86	0	36	2	18	0	56	0	1849
% Approach	8.9%	86.0%	5.1%	0%	-	-	1.0%	92.6%	6.3%	0%	-	-	34.9%	1.2%	64.0%	0%	-	-	64.3%	3.6%	32.1%	0%	-	-	-
% Total	4.1%	39.0%	2.3%	0%	45.4%	-	0.5%	43.4%	3.0%	0%	46.9%	-	1.6%	0.1%	3.0%	0%	4.7%	-	1.9%	0.1%	1.0%	0%	3.0%	-	-
PHF	0.694	0.907	0.672	-	0.894	-	0.563	0.868	0.655	-	0.880	-	0.750	0.250	0.724	-	0.827	-	0.692	0.500	0.750	-	0.824	-	0.951
Motorcycles	0	1	1	0	2	-	0	2	0	0	2	-	0	0	1	0	1	-	0	0	1	0	1	-	6
% Motorcycles	0%	0.1%	2.3%	0%	0.2%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	1.8%	0%	1.2%	-	0%	0%	5.6%	0%	1.8%	-	0.3%
Cars	58	567	31	0	656	-	6	648	46	0	700	-	26	1	45	0	72	-	30	2	13	0	45	-	1473
% Cars	77.3%	78.5%	72.1%	0%	78.1%	-	66.7%	80.7%	83.6%	0%	80.7%	-	86.7%	100%	81.8%	0%	83.7%	-	83.3%	100%	72.2%	0%	80.4%	-	79.7%
Light Goods Vehicles	17	140	11	0	168	-	3	134	9	0	146	-	4	0	9	0	13	-	6	0	4	0	10	-	337
% Light Goods Vehicles	22.7%	19.4%	25.6%	0%	20.0%	-	33.3%	16.7%	16.4%	0%	16.8%	-	13.3%	0%	16.4%	0%	15.1%	-	16.7%	0%	22.2%	0%	17.9%	-	18.2%
Single-Unit Trucks	0	12	0	0	12	-	0	14	0	0	14	-	0	0	0	0	0	-	0	0	0	0	0	-	26
% Single-Unit Trucks	0%	1.7%	0%	0%	1.4%	-	0%	1.7%	0%	0%	1.6%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	1.4%
Articulated Trucks	0	1	0	0	1	-	0	2	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	3
% Articulated Trucks	0%	0.1%	0%	0%	0.1%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Buses	0	1	0	0	1	-	0	2	0	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	3
% Buses	0%	0.1%	0%	0%	0.1%	-	0%	0.2%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Bicycles on Road	0	0	0	0	0	-	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	1
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hwy101_LighthouseDr_Sat - TMC

Sat Aug 14, 2021

Midday Peak (WKND) (11 AM - 12 PM)

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863294, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 1637

In: 867

Out: 770

[W] Lighthouse Drive

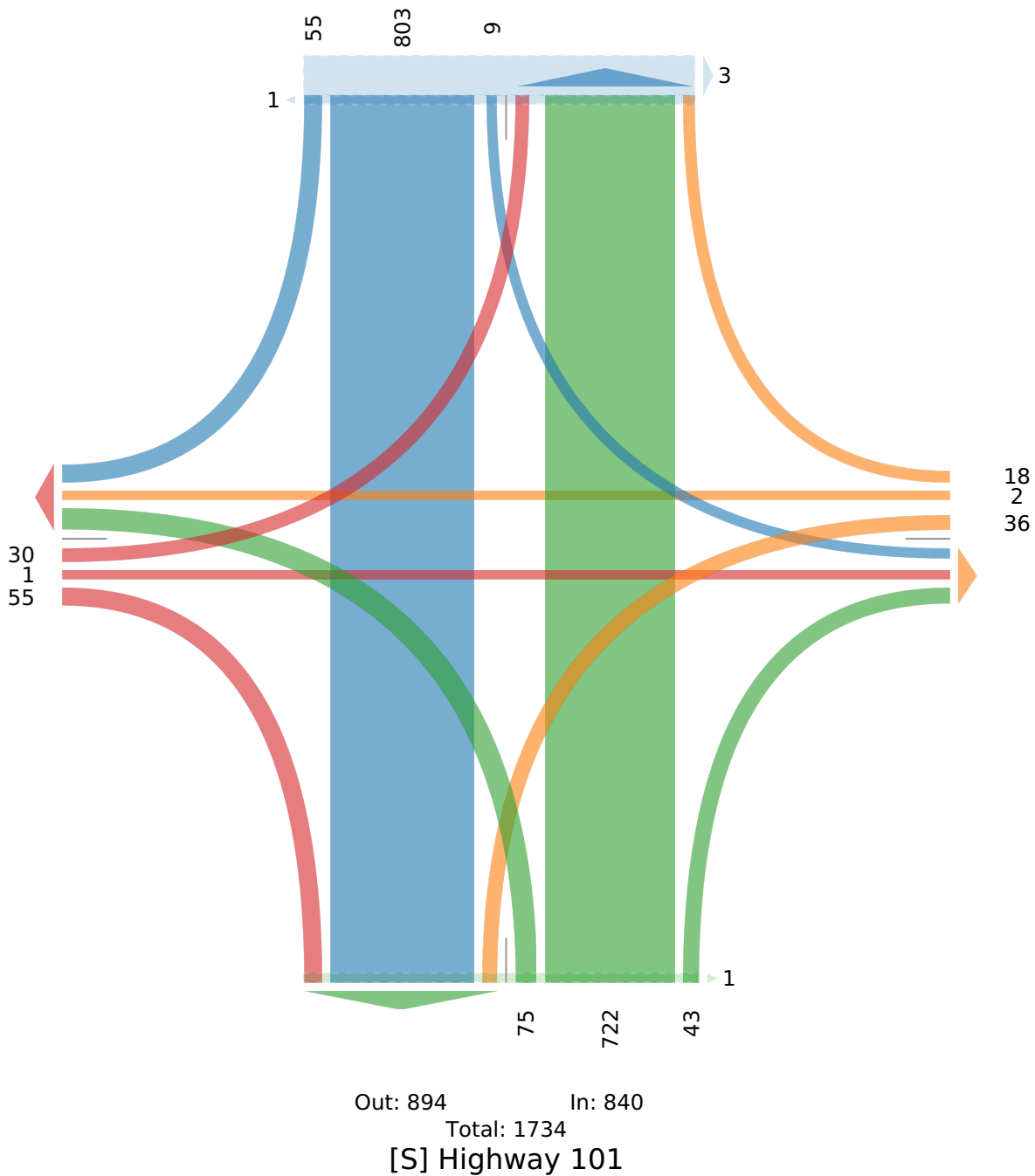
Total: 218

In: 86 Out: 132

[E] NE 52nd Street

Out: 53 In: 56

Total: 109



Hwy101_LighthouseDr_Sat - TMC

Sat Aug 14, 2021

PM Peak (WKND) (2:45 PM - 3:45 PM) - Overall Peak Hour

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863294, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates
3147 Saddle Drive,
Helena, MT, 59601, US

Leg Direction	Highway 101 Northbound							Highway 101 Southbound							Lighthouse Drive Eastbound							NE 52nd Street Westbound							
Time	L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		L	T	R	U	App	Ped*		Int
2021-08-14 2:45PM	20	219	15	0	254	0		2	192	3	0	197	0		14	1	17	0	32	0		12	0	2	0	14	0		497
3:00PM	27	219	13	1	260	0		0	198	15	0	213	0		10	2	26	0	38	0		9	0	1	0	10	0		521
3:15PM	26	217	12	0	255	0		0	185	14	0	199	0		14	1	20	0	35	0		8	1	1	0	10	0		499
3:30PM	17	209	7	0	233	0		2	221	11	0	234	0		10	0	19	0	29	0		17	0	3	0	20	0		516
Total	90	864	47	1	1002	0		4	796	43	0	843	0		48	4	82	0	134	0		46	1	7	0	54	0		2033
% Approach	9.0%	86.2%	4.7%	0.1%	-	-		0.5%	94.4%	5.1%	0%	-	-		35.8%	3.0%	61.2%	0%	-	-		85.2%	1.9%	13.0%	0%	-	-		-
% Total	4.4%	42.5%	2.3%	0%	49.3%	-		0.2%	39.2%	2.1%	0%	41.5%	-		2.4%	0.2%	4.0%	0%	6.6%	-		2.3%	0%	0.3%	0%	2.7%	-		-
PHF	0.833	0.986	0.821	0.250	0.963	-		0.500	0.898	0.717	-	0.899	-		0.857	0.500	0.788	-	0.882	-		0.703	0.250	0.583	-	0.697	-		0.974
Motorcycles	0	3	0	0	3	-		0	10	0	0	10	-		0	0	0	0	0	-		0	0	0	0	0	-		13
% Motorcycles	0%	0.3%	0%	0%	0.3%	-		0%	1.3%	0%	0%	1.2%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0.6%
Cars	79	713	38	1	831	-		3	640	34	0	677	-		40	4	64	0	108	-		38	1	5	0	44	-		1660
% Cars	87.8%	82.5%	80.9%	100%	82.9%	-		75.0%	80.4%	79.1%	0%	80.3%	-		83.3%	100%	78.0%	0%	80.6%	-		82.6%	100%	71.4%	0%	81.5%	-		81.7%
Light Goods Vehicles	11	137	7	0	155	-		1	130	9	0	140	-		8	0	16	0	24	-		7	0	2	0	9	-		328
% Light Goods Vehicles	12.2%	15.9%	14.9%	0%	15.5%	-		25.0%	16.3%	20.9%	0%	16.6%	-		16.7%	0%	19.5%	0%	17.9%	-		15.2%	0%	28.6%	0%	16.7%	-		16.1%
Single-Unit Trucks	0	8	1	0	9	-		0	13	0	0	13	-		0	0	2	0	2	-		0	0	0	0	0	-		24
% Single-Unit Trucks	0%	0.9%	2.1%	0%	0.9%	-		0%	1.6%	0%	0%	1.5%	-		0%	0%	2.4%	0%	1.5%	-		0%	0%	0%	0%	0%	-		1.2%
Articulated Trucks	0	1	0	0	1	-		0	0	0	0	0	-		0	0	0	0	0	-		0	0	0	0	0	-		1
% Articulated Trucks	0%	0.1%	0%	0%	0.1%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0%
Buses	0	2	0	0	2	-		0	1	0	0	1	-		0	0	0	0	0	-		0	0	0	0	0	-		3
% Buses	0%	0.2%	0%	0%	0.2%	-		0%	0.1%	0%	0%	0.1%	-		0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	-		0.1%
Bicycles on Road	0	0	1	0	1	-		0	2	0	0	2	-		0	0	0	0	0	-		1	0	0	0	1	-		4
% Bicycles on Road	0%	0%	2.1%	0%	0.1%	-		0%	0.3%	0%	0%	0.2%	-		0%	0%	0%	0%	0%	-		2.2%	0%	0%	0%	1.9%	-		0.2%
Pedestrians	-	-	-	-	-	0		-	-	-	-	-	0		-	-	-	-	-	0		-	-	-	-	-	0		-
% Pedestrians	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Hwy101_LighthouseDr_Sat - TMC

Sat Aug 14, 2021

PM Peak (WKND) (2:45 PM - 3:45 PM) - Overall Peak Hour

All Classes (Motorcycles, Cars, Light Goods Vehicles, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road)

All Movements

ID: 863294, Location: 44.675419, -124.060357



Provided by: Robert Peccia & Associates

3147 Saddle Drive,
Helena, MT, 59601, US

[N] Highway 101

Total: 1762

In: 843

Out: 919

43

796

4

[W] Lighthouse Drive

Total: 268

In: 134 Out: 134

48
4
82

7
1
46

Out: 55 In: 54

Total: 109

[E] NE 52nd Street

Out: 925

In: 1002

Total: 1927

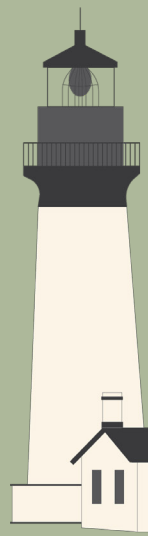
[S] Highway 101

1

90

864

47



YAQUINA HEAD

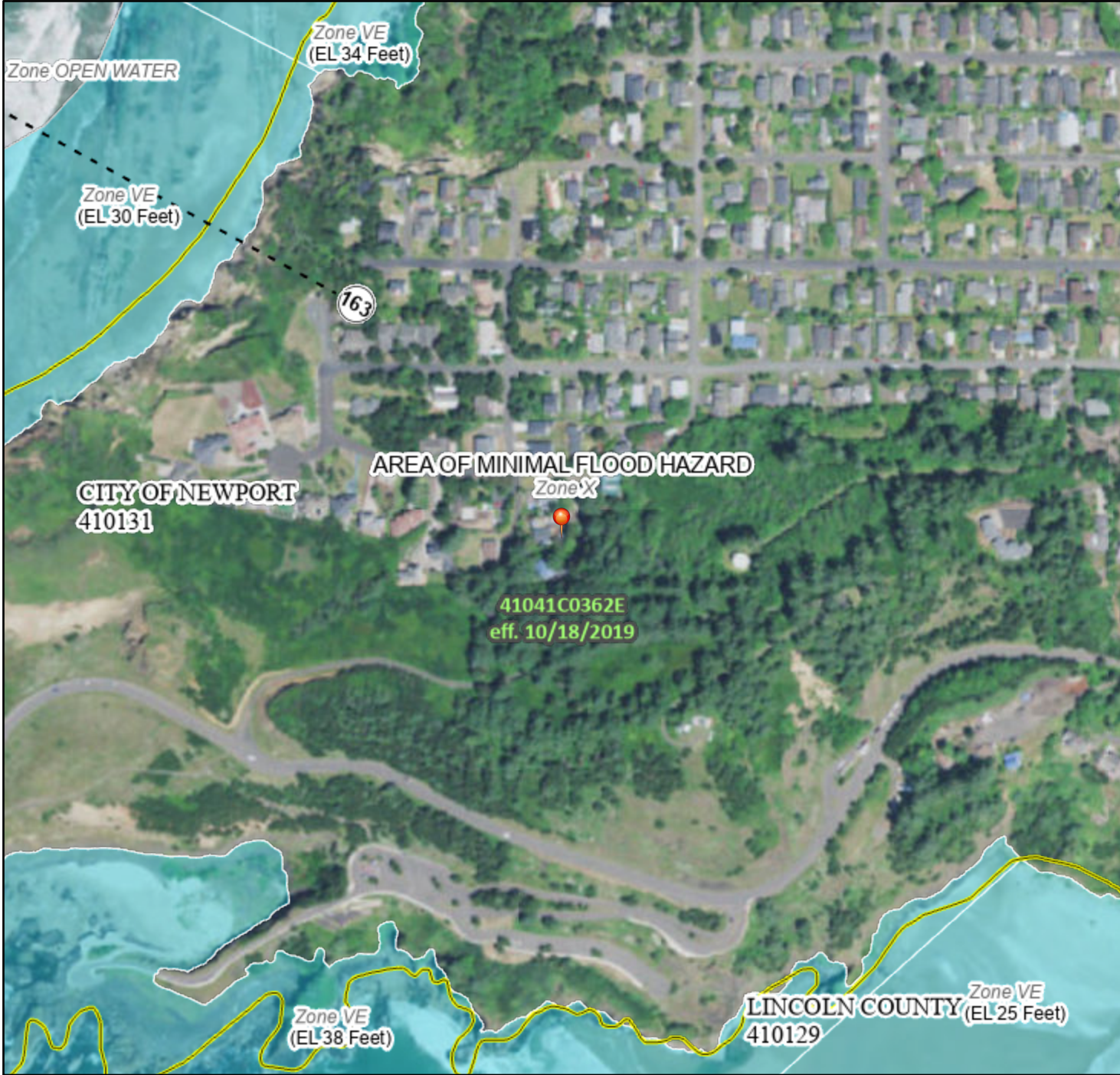
Traffic Study

Appendix B4: Environmental Figures

National Flood Hazard Layer FIRMette



124°4'24"W 44°40'47"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000
Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/22/2021 at 2:01 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMMette



124°2'48"W 44°40'8"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

124°2'10"W 44°39'42"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.







This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

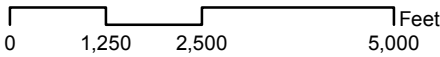
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This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

**North Newport
Natural Hazard Overlay Zones**
June 29, 2016

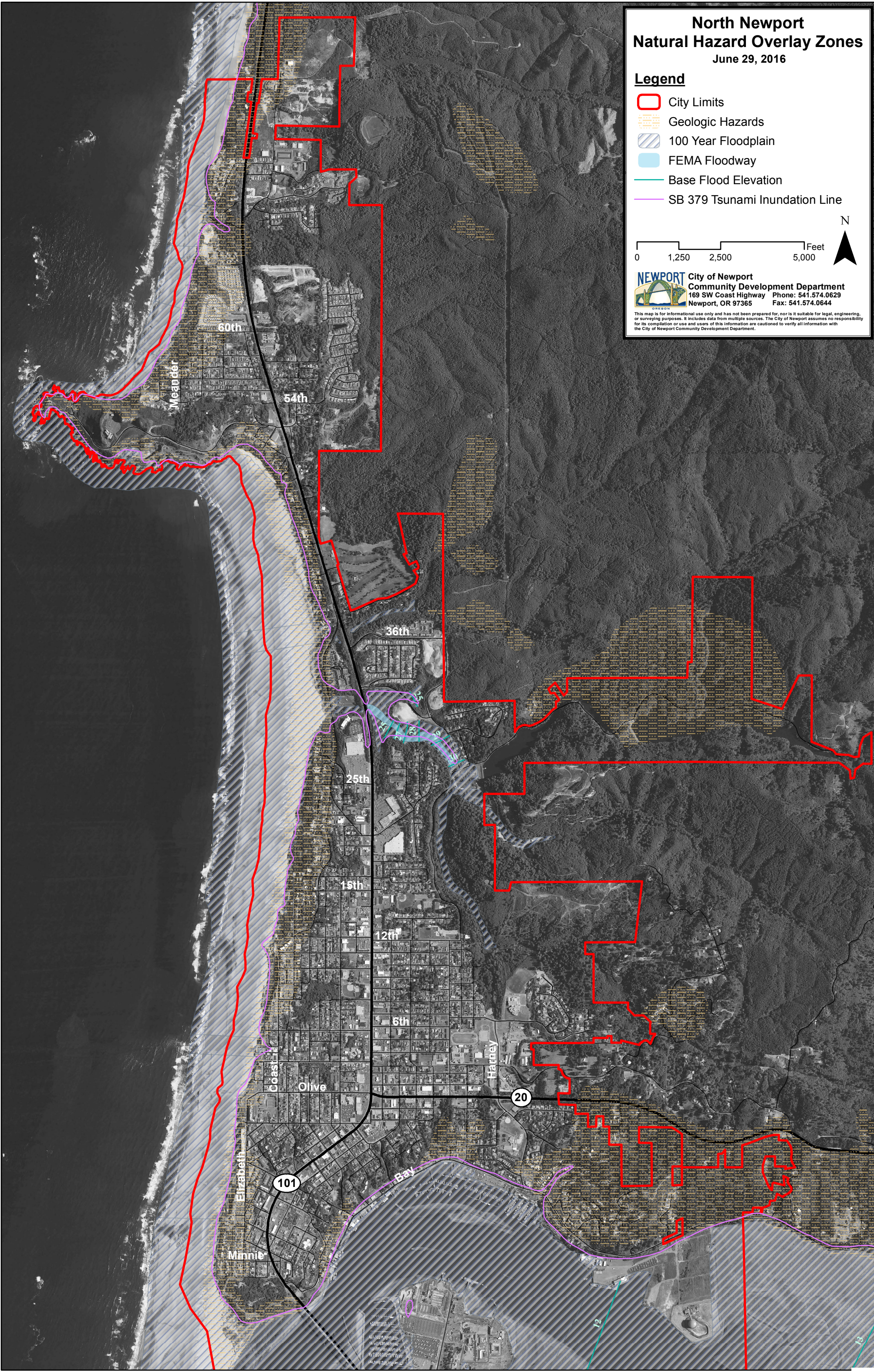
Legend

-  City Limits
-  Geologic Hazards
-  100 Year Floodplain
-  FEMA Floodway
-  Base Flood Elevation
-  SB 379 Tsunami Inundation Line



**City of Newport
Community Development Department**
169 SW Coast Highway Phone: 541.574.0629
Newport, OR 97365 Fax: 541.574.0644

This map is for informational use only and has not been prepared for, nor is it suitable for legal, engineering, or surveying purposes. It includes data from multiple sources. The City of Newport assumes no responsibility for its compilation or use and users of this information are cautioned to verify all information with the City of Newport Community Development Department.



STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

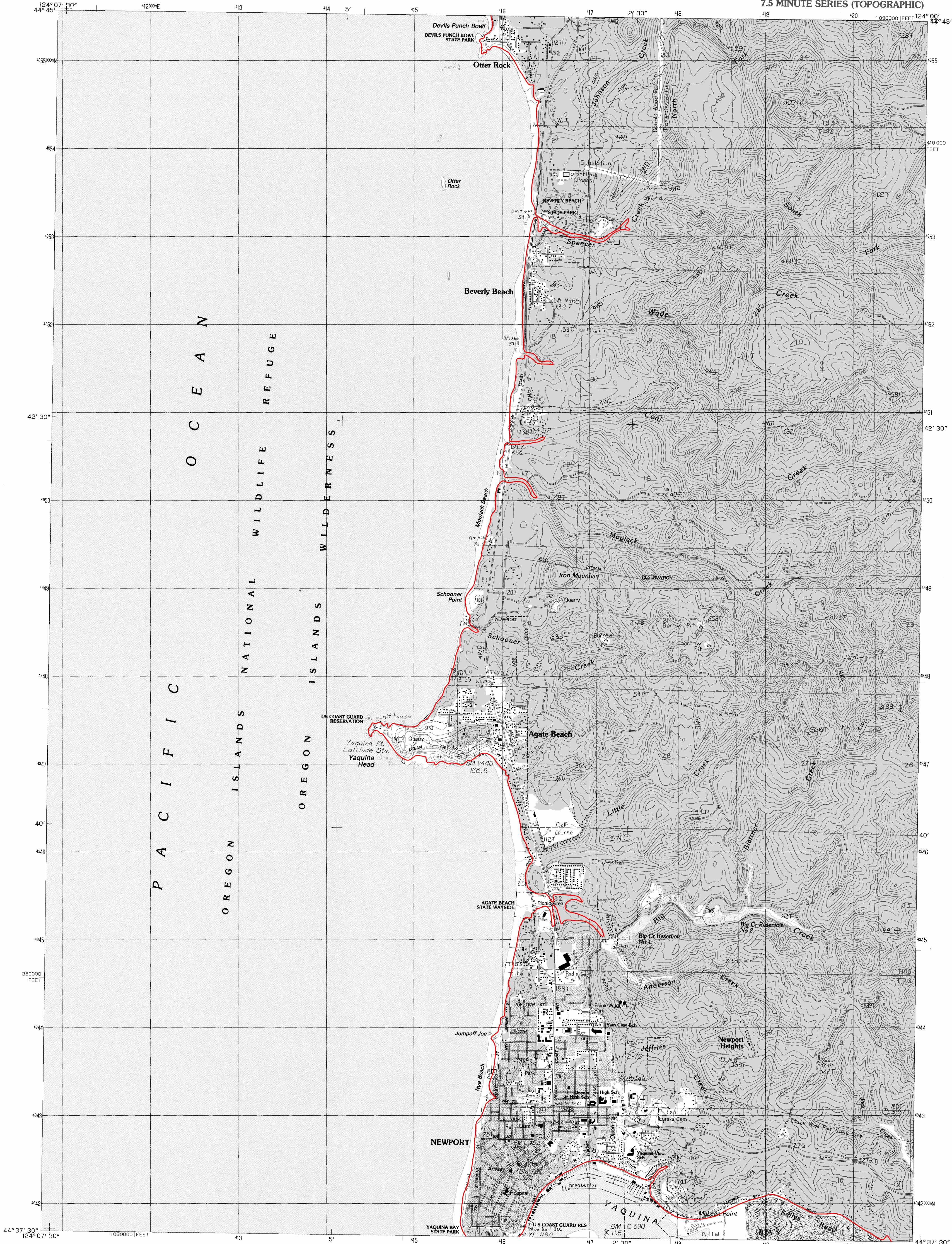
NEWPORT NORTH QUADRANGLE
OREGON—LINCOLN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

**Open File Report
O-95-28
Tsunami Hazard Map of
the Newport North Quadrangle,
Lincoln County, Oregon**

Tsunami inundation boundary
upper limit of area expected to be covered by
flood water from a tsunami caused by a
magnitude 8.8 undersea earthquake

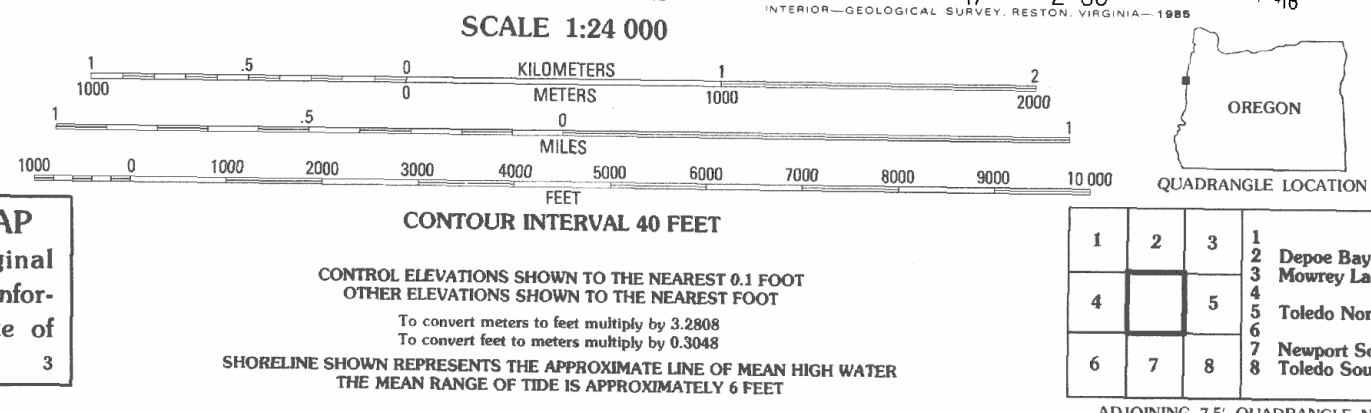
See accompanying text for use of this map, mapping
methodology, and acknowledgments.

Mapping by:
George R. Priest, Oregon Department of Geology
and Mineral Industries, October-November, 1995.



PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY
CONTROL BY USGS, NOS/NOAA, STATE OF OREGON
COMPILED FROM AERIAL PHOTOGRAPHS TAKEN 1975-76
FIELD CHECKED 1990. MAP EDITED 1994
PROJECTION LAMBERT CONFORMAL CONIC
GRID: 1000-METER UNIVERSAL TRANSVERSE MERCATOR ZONE 10
8000-FOOT STATE GRID TICKS OREGON, NORTH ZONE
UTM GRID DECLINATION 1947 WEST
1980 MAGNETIC NORTH DECLINATION 13°59' EAST
VERTICAL DATUM NATIONAL GEODESIC VERTICAL DATUM OF 1929
HORIZONTAL DATUM 1927 NORTH AMERICAN DATUM
To place on the predicted North American Datum of 1983,
move the projection lines as shown by dashed corner ticks
(23 meters north / 98 meters east)
There may be private inholdings within the boundaries of any
Federal and State Reservations shown on this map
Grey tint indicates area in which selected buildings are shown

PROVISIONAL MAP
Produced from original
manuscript drawings. Infor-
mation shown as of date of
field check.



ROAD LEGEND
Improved Road.....
Unimproved Road.....
Trail.....
○ Interstate Route ○ U.S. Route ○ State Route

NEWPORT NORTH, OREG.
PROVISIONAL EDITION 1984

ADJOINING 7.5' QUADRANGLE NAMES
44124-F1-TF-024

FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092



TSUNAMI EVACUATION MAP NEWPORT-NORTH, OREGON

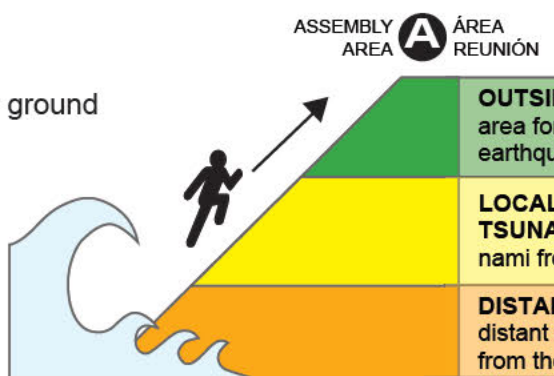


IF YOU FEEL AN EARTHQUAKE:

- Drop, cover, and hold
- Move immediately inland to higher ground
- Do not wait for an official warning

SI USTED SIENTE EL TEMBLOR:

- Tírese al suelo, cúbrase, y espere
- Diríjase de inmediato a un lugar más alto que el nivel del mar
- No espere por un aviso oficial



OUTSIDE HAZARD AREA: Evacuate to this area for all tsunami warnings or if you feel an earthquake.

LOCAL CASCADIA EARTHQUAKE AND TSUNAMI: Evacuation zone for a local tsunami from an earthquake at the Oregon coast.

DISTANT TSUNAMI: Evacuation zone for a distant tsunami from an earthquake far away from the Oregon coast.

ZONA DE PELIGRO EXTERIOR: Evacue a esta área para todas las advertencias del maremoto o si usted siente un temblor.

MAREMOTO LOCAL (terremoto de Cascadia): Zona de evacuación para un tsunami local de un temblor cerca de la costa de Oregon.

MAREMOTO DISTANTE: Zona de evacuación para un tsunami distante de un temblor lejos de la costa de Oregon.

MAP SYMBOLS / SÍMBOLOS DEL MAPA

- Evacuation route / Ruta de evacuación
- Vertical evac. structure
- Assembly area / Área reunión
- Bridge / Puente
- School / Escuela
- Fire Department / Bomberos
- Law enforcement / Policía
- Hospital / Hospital
- Lighthouse / Faro
- U.S. Coast Guard Station
- Trail / Sendero
- + 35' Elevation, in feet / Elevación, en pies
- SCALE / ESCALA: 0.25 mile, 0.25 km

NOTICE

This tsunami evacuation zone map was developed by DOGAMI for the purpose of evaluating the most effective means to guide the public in the event of a tsunami evacuation. The map is based on preliminary data and should not be used for site-specific planning. This map adopts recommendations from the Oregon Tsunami Advisory Council. The evacuation routes were developed by local emergency officials and reviewed by the Oregon Department of Emergency Management.

MAP REVISED 10-30-20








This information could
save your life —
Please read it and share it
with your family and friends.



Newport North



CONTACTS

- Newport Fire Department**
245 NW 10th Street
Newport, OR 97365
(541) 265-9461
<https://www.newportoregon.gov/dept/ncfd/>
- Newport Police Department**
169 SW Coast Highway
Newport, OR 97365
(541) 574-3348
<https://www.newportoregon.gov/dept/npd/>
- Lincoln County Sheriff's Office**
Emergency Management
225 West Olive Street, Room 203
Newport, OR 97365
(541) 265-4199
<https://www.co.lincoln.or.us/emergencymanagement>
- Oregon Office of Emergency Management**
3225 State Street, Room 115
Salem, OR 97301
(503) 378-2911
<https://www.oregon.gov/OBM/>
- Oregon Department of Geology and Mineral Industries**
800 NE Oregon Street, Suite 965
Portland, OR 97232
(971) 673-1555
<https://www.oregongeology.org>
<http://oregontsunami.org>
- National Tsunami Warning Center (NTWC)**
910 S. Felton St.
Palmer, AK 99645
(907) 745-4212
<https://www.tsunami.gov/>
- 
- Funded by the National Oceanic and Atmospheric Administration under a NOAA contract award NA17NWS470013 through the Oregon Department of Geology and Mineral Industries. Published by the Oregon Department of Geology and Mineral Industries. For information, visit www.oregon.gov/DM/.

If you feel an earthquake, a tsunami may be coming...

WHAT TO DO:

- **DROP, COVER, HOLD** until the earthquake is over; protect yourself
- **MOVE IMMEDIATELY INLAND** to high ground and away from low-lying coastal areas
- **FOLLOW EVACUATION ROUTE SIGNS**
- **DO NOT WAIT** for an official warning
- **GO ON FOOT** if at all possible
- **DO NOT PACK** or delay
- **DO NOT RETURN** to the beach – large waves may continue to come onshore for several hours
- **WAIT** for an "all clear" from local emergency officials before returning to low-lying areas



www.OregonTsunami.org

- BE PREPARED!**
- Assemble **emergency kits** with at least a 2-week supply for each family member:
- Local map showing safe evacuation routes to high ground
 - First-aid supplies, prescriptions and non-prescription medication
 - Water bottle and filtration or treatment supplies capable of providing 1 gallon per person per day
 - Non-perishable food (ready-to-eat meals,
 - Canned food, baby food, energy bars)
 - Cooking and eating utensils, can opener, Sterno* or other heat source
 - Matches in water-proof container or lighter
 - Shelter (tent), sleeping bags, blankets
 - Portable radio, NOAA weather radio, flashlight and extra batteries
 - Rain gear, sturdy footwear, extra clothing
 - Personal hygiene items (toilet paper, soap, toothbrush)
 - Tools and supplies (pocket knife, shut-off wrench, duct tape, gloves, whistles, plastic bags)
 - Cash
- How to help with tsunami awareness in your community**
- start a tsunami buddy system
 - make and distribute emergency packs
 - initiate or participate in a local preparedness program
 - visit OregonTsunami.org to find more great resources!

WHAT TO KNOW about tsunamis

A **tsunami** is a series of sea waves, usually caused by a displacement of the ocean floor by an undersea earthquake. As tsunamis enter shallow water near land, they increase in height and can cause great loss of life and property damage.

Recent research suggests that tsunamis have struck the Oregon coast on a regular basis. They can occur any time, day or night. Typical wave heights from tsunamis occurring in the Pacific Ocean over the last 500 years have been 20–65 feet at the shoreline. However, because of local conditions a few waves may have been much higher — as much as 100 feet.

We distinguish between a tsunami caused by an undersea earthquake near the Oregon coast (a **local tsunami**) and an undersea earthquake far away from the coast (a **distant tsunami**).

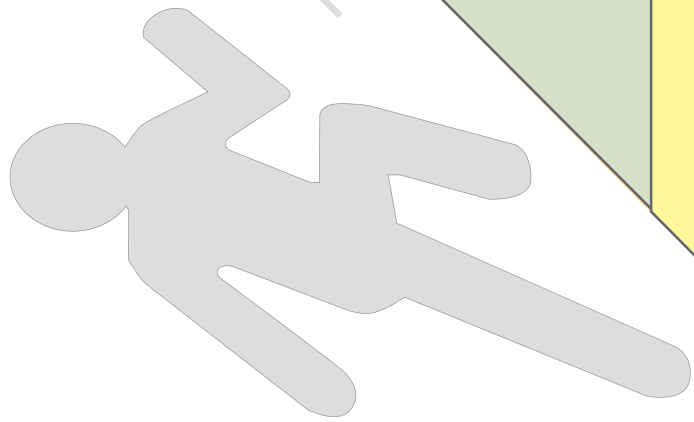
WHAT TO DO for both local and distant tsunamis

1. Evacuate on foot, if at all possible. Follow evacuation signs and arrows to an Assembly Area.*
2. If you need help evacuating, tie something **white** (sheet or towel) to the front door knob. Make it large enough to be visible from the street. If the emergency is a distant tsunami, then help may arrive. In the event of a local tsunami, it is unlikely that anyone will help you, so make a plan and be prepared!
3. Stay away from potentially hazardous areas until you receive an **ALL CLEAR** from local officials. Tsunamis often follow river channels, and dangerous waves can persist for several hours. Local officials must inspect all flooded or earthquake-damaged structures before anyone can go back into them.
4. After evacuation, check with local emergency officials if you think you have special skills and can help, or if you need assistance locating lost family members.

*Assembly areas **A** are shown on the map. Do not confuse Assembly Areas with Evacuation Centers, which are short-term help centers set up *after* a disaster occurs.



Climb to Assembly Area



Local tsunamis

A **local tsunami** can come onshore within 15 to 20 minutes after the earthquake — before there is time for an official warning from the national warning system. Ground shaking from the earthquake may be the only warning you have. Evacuate quickly!

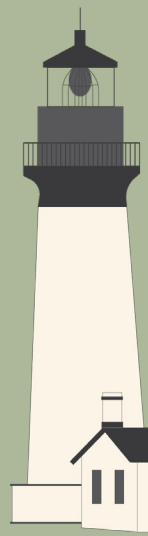


Look for these hazard zone signs and be ready to leave the area by following evacuation route signs.

Distant tsunamis

A **distant tsunami** will take 4 hours or more to come ashore. You will feel no earthquake, and the tsunami will generally be smaller than that from a local earthquake. Typically, there is time for an official warning and evacuation to safety.

Evacuation for a distant tsunami will generally be indicated by an announcement over NOAA weather radio that the local area has been put into an official TSUNAMI WARNING. If you do not hear an announcement, a **sudden change of sea level** should prompt you to move immediately to high ground. If you see a sudden sea level change, first evacuate away from shoreline areas, then turn on your local broadcast media or NOAA weather radio for more information.



YAQUINA HEAD Traffic Study

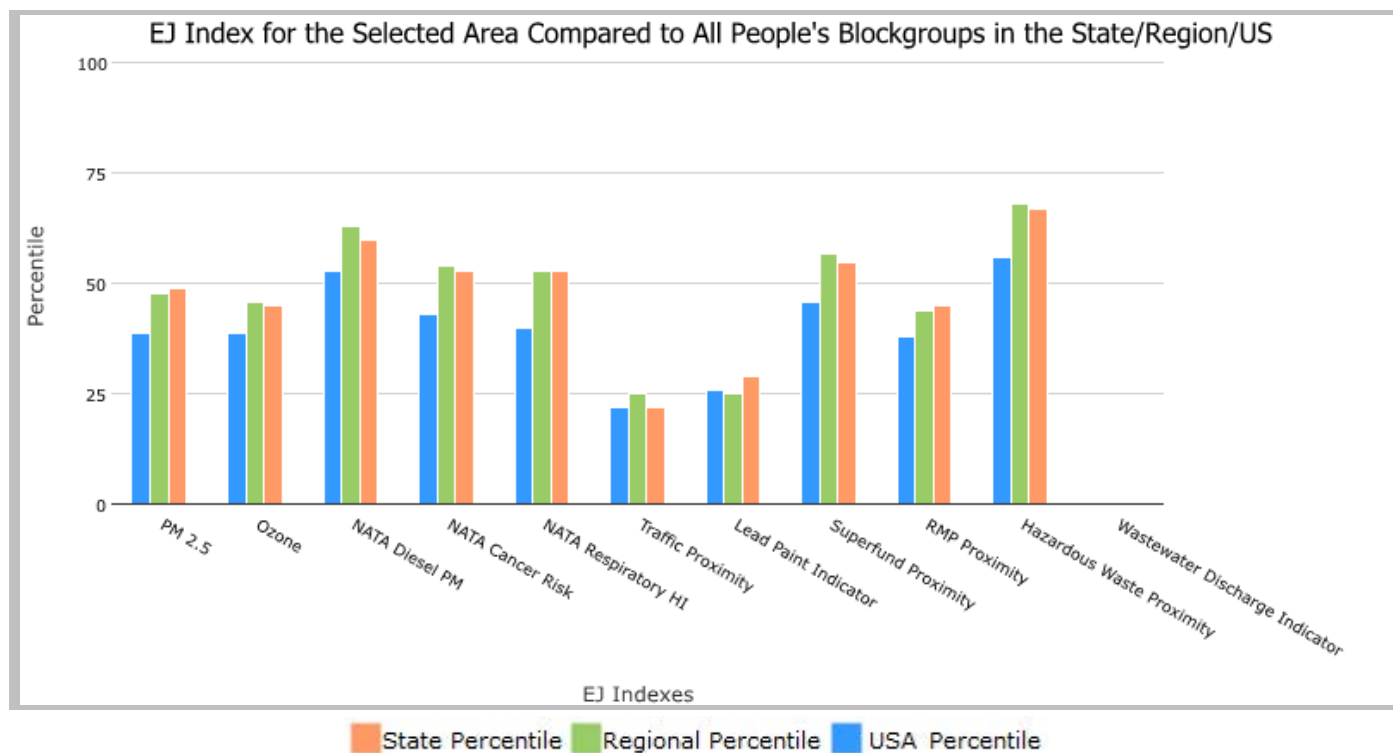
Appendix B5: EJSCREEN Report

the User Specified Area, OREGON, EPA Region 10

Approximate Population: 241

Input Area (sq. miles): 0.76

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM _{2.5}	49	48	39
EJ Index for Ozone	45	46	39
EJ Index for NATA* Diesel PM	60	63	53
EJ Index for NATA* Air Toxics Cancer Risk	53	54	43
EJ Index for NATA* Respiratory Hazard Index	53	53	40
EJ Index for Traffic Proximity and Volume	22	25	22
EJ Index for Lead Paint Indicator	29	25	26
EJ Index for Superfund Proximity	55	57	46
EJ Index for RMP Proximity	45	44	38
EJ Index for Hazardous Waste Proximity	67	68	56
EJ Index for Wastewater Discharge Indicator	N/A	N/A	N/A

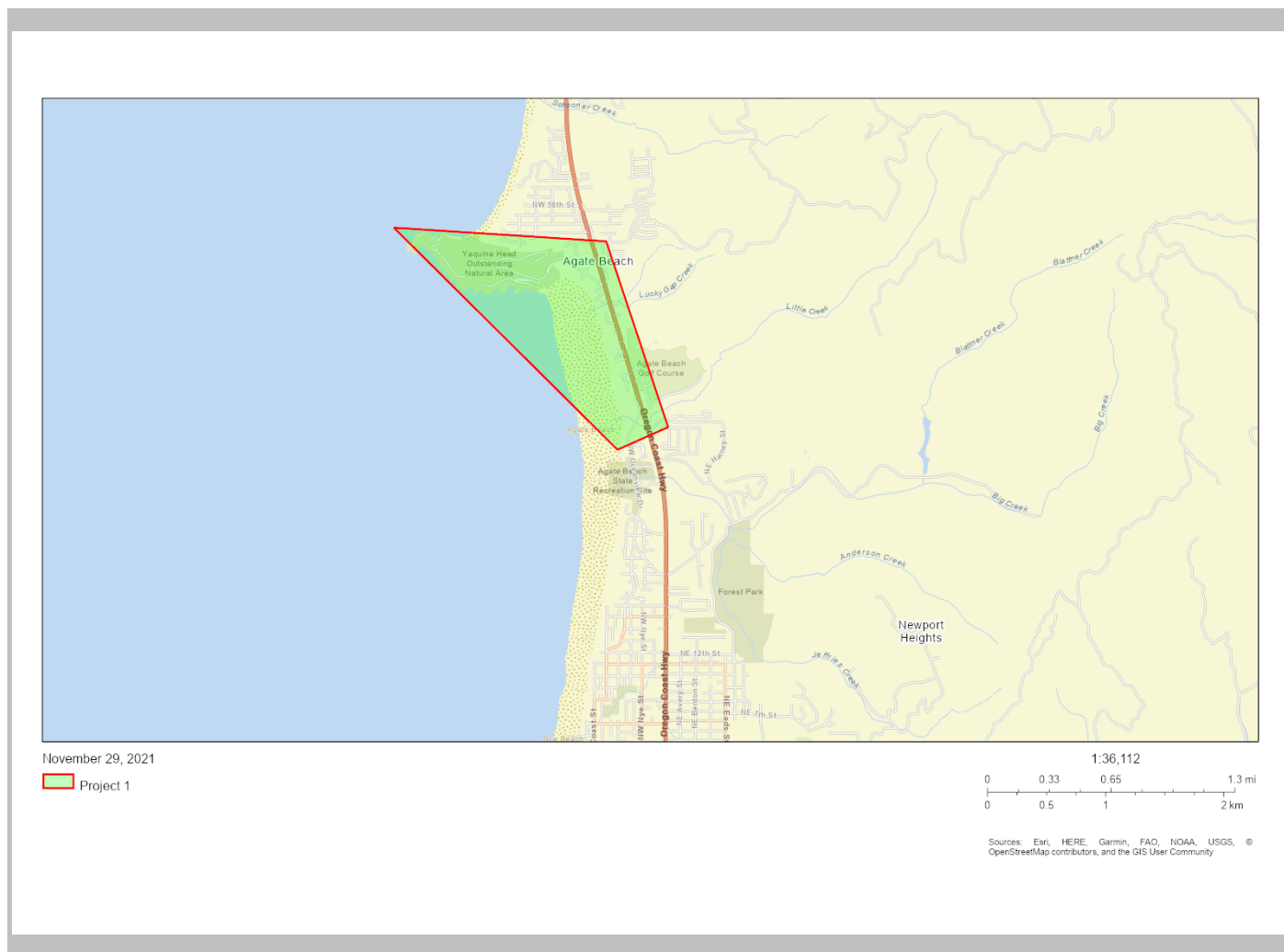


This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

the User Specified Area, OREGON, EPA Region 10

Approximate Population: 241

Input Area (sq. miles): 0.76



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2020)

the User Specified Area, OREGON, EPA Region 10

Approximate Population: 241

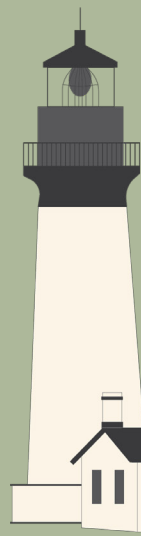
Input Area (sq. miles): 0.76

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	6.03	8.83	2	8.52	3	8.55	4
Ozone (ppb)	30.5	38.7	1	39.1	2	42.9	3
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	0.0499	0.393	8	0.481	<50th	0.478	<50th
NATA* Cancer Risk (lifetime risk per million)	16	31	2	31	<50th	32	<50th
NATA* Respiratory Hazard Index	0.25	0.48	2	0.46	<50th	0.44	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	230	480	55	510	55	750	51
Lead Paint Indicator (% Pre-1960 Housing)	0.18	0.25	50	0.22	58	0.28	50
Superfund Proximity (site count/km distance)	0.016	0.083	10	0.13	16	0.13	12
RMP Proximity (facility count/km distance)	0.15	0.78	33	0.65	34	0.74	27
Hazardous Waste Proximity (facility count/km distance)	0.016	1.5	2	1.5	2	5	0
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	N/A	0.0022	N/A	3.1	N/A	9.4	N/A
Demographic Indicators							
Demographic Index	22%	28%	39	29%	40	36%	35
People of Color Population	18%	24%	43	28%	37	39%	33
Low Income Population	27%	33%	42	30%	50	33%	47
Linguistically Isolated Population	0%	3%	50	3%	47	4%	45
Population With Less Than High School Education	3%	10%	21	9%	24	13%	19
Population Under 5 years of age	4%	6%	29	6%	25	6%	26
Population over 64 years of age	25%	17%	83	15%	87	15%	87

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.



YAQUINA HEAD

Traffic Study

Appendix B6: Photo Log



1. Entrance station configuration (entrance lane) - Looking West

IMG_0013.jpg



5. Lighthouse Drive, approaching Yaquina Head ONA boundary - looking west

IMG_0021.jpg



2. Entrance station configuration (exit lane) - Looking West

IMG_0015.jpg



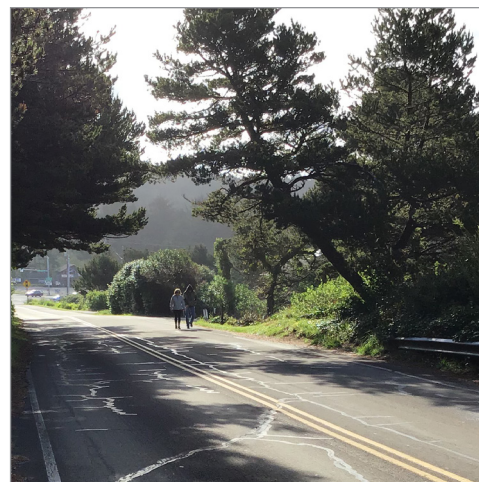
6. Pedestrian crossing roadway near Yaquina Head ONA boundary - looking west

IMG_0023.jpg



3. Entrance station configuration (entrance/exit lanes) - Looking West

IMG_0017.jpg



7. Pedestrians walking on Lighthouse Drive approaching Highway 101 - Looking East

IMG_0025.jpg



4. Entrance station configuration - Looking East

IMG_0018.jpg



8. Pedestrians walking on Lighthouse Drive approaching Yaquina Head ONA boundary - looking west

IMG_0029.jpg



9. Pedestrian running on Lighthouse Drive approaching Highway 101. Pavement patch. - Looking East

IMG_0031.jpg



13. Entrance fees sign

IMG_0050.jpg



10. Pedestrians walking on Lighthouse Drive between Highway 101 and Yaquina Head ONA boundary. Poor pavement condition. - Looking West

IMG_0041.jpg



14. Vehicles waiting at self-pay station - looking west

IMG_0051.jpg



11. Curve approaching entrance station configuration - Looking West

IMG_0043.jpg



15. Truck with RV leaving Yaquina Head ONA - Looking East

IMG_0055.jpg



12. Line of traffic waiting at entrance station - Looking West

IMG_0049.jpg



16. Site map and hillside at entrance station - Looking West

IMG_0065.jpg



17. Entrance station configuration from back, two exit lanes - Looking East

IMG_0067.jpg



21. Gate after fee booth, closed after hours

IMG_0084.jpg



18. Self pay station for credit card payments - Looking West

IMG_0069.jpg



22. Scenic view of Agate Beach - looking south

IMG_0088.jpg



19. Fee, site hours, and other information at self pay station

IMG_0073.jpg



23. Directional sign pointing to Quarry Cove, Lighthouse, and Tidepools - Looking West

IMG_0089.jpg



20. Pedestrians walking on Lighthouse Drive just past gate closure - Looking West

IMG_0080.jpg



24. Signs and sidewalk at Quarry Cove access - Looking South

IMG_0090.jpg



25. "No Parking" paint at turnaround of lower (overflow) Quarry Cove parking lot - Looking South

IMG_0097.jpg



29. Sign on gate for ADA access at Quarry Cove: "Visitors with physical disabilities may request a gate opener from the entrance station"

IMG_0105.jpg



26. Firefighters rappelling from cliffs above Quarry Cove lower parking lot for training exercise - Looking West

IMG_0098.jpg



30. ADA ramp and sitting area at Quarry Cove - Looking East

IMG_0116.jpg



27. Crosswalk at Quarry Cove to restrooms

IMG_0101.jpg



31. ADA access road to Quarry Cove - Looking West

IMG_0127.jpg



28. Gate for ADA access to Quarry Cove - Looking Southwest

IMG_0104.jpg



32. Access to beach at Quarry Cove, concrete barriers blocking vehicle access - Looking North

IMG_0135.jpg



33. Walls of Quarry Cove - Looking North

IMG_0139.jpg



37. Upper parking lot at Quarry Cove and crosswalk through lot - Looking East

IMG_0163.jpg



34. Roadside hazard, no barrier at small parking area at Quarry Cove beach access - Looking South

IMG_0150.jpg



38. Upper parking lot at Quarry Cove - Looking West

IMG_0165.jpg



35. Trail sign for Quarry Cove Trail (Quarry Cove to Interpretive Center)

IMG_0157.jpg



39. Entrance to Quarry Cove configuration - Looking East

IMG_0168.jpg



36. Erosion control retaining wall "cages" at Quarry Cove - Looking East

IMG_0161.jpg



40. Quarry Cove exit configuration and intersection with overflow parking lot - Looking East

IMG_0169.jpg



41. Entrance/exit configuration to Quarry Cove overflow parking lot - Looking South

IMG_0170.jpg



45. Plastic "STOP" sign in roadway. Pedestrian on shoulder along curve with vehicle passing - Looking East

IMG_0179.jpg



42. Entrance road configuration to Quarry Cove with small shoulder - Looking West

IMG_0172.jpg



46. Bicyclist on shoulder approaching curves - Looking West

IMG_0184.jpg



43. Additional retaining wall cages along entrance road to Quarry Cove - Looking West

IMG_0173.jpg



47. Trail sign - Communications Hill Trail

IMG_0200.jpg



44. Entrance/Exit configuration to Quarry Cove. Pullout on right with space for 5-6 vehicles. Sidewalk ends. - Looking East

IMG_0174.jpg



48. Crosswalk connecting Quarry Cove Trail to Communications Hill. Gate across Communications Hill Trail. Pedestrian crossing sign at crosswalk. Small parking area. - Looking North

IMG_0202.jpg



49. Hillside next to Communications Hill Trail. Pedestrian crossing sign in advance of crosswalk. - Looking North

IMG_0203.jpg



53. Entrance to Interpretive Center - Looking West

IMG_0215.jpg



50. Bicyclists on shoulder approaching curve on Lighthouse Drive - Looking East

IMG_0204.jpg



54. Interpretive Center parking lot. Quarry walls. - Looking North

IMG_0216.jpg



51. Curve on Lighthouse Drive, hillside along curve. View of dog walking trail. - Looking Northeast

IMG_0211.jpg



55. One-way circulation in Interpretive Center parking lot. Maintenance building. - Looking North

IMG_0217.jpg



52. Interpretive Center parking lot and maintenance building. Quarry wall. Dog walking trail. - Looking North

IMG_0213.jpg



56. Cones at entrance to Interpretive Center, set up when Lighthouse Circle parking lot is full. - Looking West

IMG_0220.jpg



57. Entrance/exit configuration to Interpretive Center parking lot - Looking Northeast

IMG_0223.jpg



61. “No Parking” paint along one-way entrance to Interpretive Center parking lot. Maintenance building. - Looking North

IMG_0233.jpg



58. Parking lane for buses and RVs - Looking Northeast

IMG_0225.jpg



62. Visitors watching birds on cliffs. - Looking North

IMG_0237.jpg



59. “No Parking” paint along one-way entrance to Interpretive Center parking lot - Looking Northeast

IMG_0227.jpg



63. One-way circulation around Interpretive Center parking lot. Quarry walls. - Looking Northwest

IMG_0245.jpg



60. Dog walking area at Interpretive Center. - Looking East

IMG_0231.jpg



64. Authorized access to Interpretive Center - Looking Northeast

IMG_0251.jpg



65. Exit configuration at Interpretive Center parking lot - Looking South

IMG_0254.jpg



69. Trail through Interpretive Center parking lot - Looking Northeast

IMG_0264.jpg



66. ADA parking stalls at Interpretive Center - Looking South

IMG_0256.jpg



70. Unmarked crossing from parking lot trail to Interpretive Center - Looking West

IMG_0266.jpg



67. Bike rack in front of Interpretive Center

IMG_0259.jpg



71. Interpretive Center/Lighthouse Drive intersection - Looking South

IMG_0270.jpg



68. Preserve Vegetation sign, No bicycles on trail from Interpretive Center through tunnel

IMG_0263.jpg



72. Pedestrians (with dog) walking on shoulder along Lighthouse Drive at Interpretive Center/Lighthouse Drive intersection - Looking Northeast

IMG_0272.jpg



73. Striping on Lighthouse Drive approaching intersection to Interpretive Center - Looking West

IMG_0276.jpg



77. Bicyclists on Lighthouse Drive. 25 mph speed limit sign. - Looking North

IMG_0295.jpg



74. Quarry Cove Trail with view of Quarry Cove ADA access road. Topology of hills/cliffs. - Looking Southwest

IMG_0281.jpg



78. Trail connection between Lighthouse Trail, Interpretive Center/tunnel, and Quarry Cove Trail. - Looking East

IMG_0300.jpg



75. Lighthouse Drive approaching Interpretive Center intersection, widened shoulder. - Looking East

IMG_0286.jpg



79. Pedestrians (with dog) on Lighthouse Trail and pedestrians on shoulder of Lighthouse Drive. - Looking West

IMG_0304.jpg



76. Beginning of Lighthouse Trail. Pedestrians on trail and bicyclist on roadway (no shoulder). - Looking West

IMG_0289.jpg



80. Weather tracking/monitoring equipment - Looking South

IMG_0310.jpg



81. Pedestrians on Lighthouse Trail. Pullout on Lighthouse Drive. - Looking West

IMG_0312.jpg



85. Steep stairway on Quarry Cove Trail approaching Quarry Cove parking lot. - Looking South

IMG_0333.jpg



82. View of Quarry Cove ADA access road and beach. Topology of hills/cliffs. - Looking Southwest

IMG_0316.jpg



86. Quarry Cove upper parking lot, restroom, one-way configuration. - Looking South

IMG_0335.jpg



83. Quarry Cove Trail - Looking East

IMG_0320.jpg



87. Stairway to Cobble Beach from Lighthouse Circle. - Looking West

IMG_0339.jpg



84. Quarry Cove Trail. Edge of retaining wall cages. - Looking East

IMG_0331.jpg



88. Stairway to Cobble Beach, Lighthouse Circle parking lot. - Looking West

IMG_0342.jpg



89. Pedestrians on Lighthouse Trail. Pullout on Lighthouse Drive. - Looking East

IMG_0345.jpg



93. "Official Vehicles Only" parking spots by restrooms at Lighthouse Circle - Looking West

IMG_0364.jpg



90. Lighthouse Trail, Lighthouse Drive, Keeper's Garden. Pedestrian crossing sign but no crosswalk. - Looking West

IMG_0348.jpg



94. Culvert extending from Lighthouse Circle to cliffs - Looking West

IMG_0367.jpg



91. Begin one-way circulation around Lighthouse Circle. BLM visitor signs. - Looking West

IMG_0351.jpg



95. Cove on North side of headland - Looking North

IMG_0369.jpg



92. RV/Bus parking spots at Lighthouse Circle, occupied by personal vehicle - Looking Southeast

IMG_0353.jpg



96. Sidewalk around Lighthouse Circle. Railing rusted/deteriorating - Looking West

IMG_0372.jpg



97. ADA curb ramp blocked by a parked vehicle in Lighthouse Circle parking lot - Looking West

IMG_0375.jpg



101. Trail sign - Lighthouse Trail to Interpretive Center

IMG_0415.jpg



98. Bike rack at Lighthouse Circle

IMG_0384.jpg



102. View of Cobble Beach - Looking Southeast

IMG_0418.jpg



99. Path to Lighthouse, recently resurfaced - Looking West

IMG_0406.jpg



103. Retaining wall supporting Lighthouse Trail above Cobble Beach stairway - Looking North

IMG_0444.jpg



100. Ernest Bloch Memorial Wayside parking lot along Highway 101 - Looking North

IMG_0408.jpg



104. View of Keeper's Garden, Lighthouse Circle, and lighthouse - Looking West

IMG_0447.jpg



105. View of Lighthouse Drive and Interpretive Center parking lot - Looking Southeast

IMG_0458.jpg



109. Communications equipment at the top of Communications Hill Trail - Looking South

IMG_0491.jpg



106. View of Lighthouse Drive and tunnel along trail from Interpretive Center - Looking South

IMG_0459.jpg



110. Upper parking lot at Quarry Cove, RV parking spot occupied by truck with trailer - Looking East

IMG_0497.jpg



107. View of Moolack Beach and Agate Beach Neighborhood. Cliffs above Interpretive Center - Looking North

IMG_0472.jpg



111. Roadway configuration leaving Entrance Fee Booth - Looking West

ATT106_Photo2.jpg



108. Communications Hill Trail - Looking Southwest

IMG_0480.jpg



112. Roadway configuration leaving Entrance Fee Booth - Looking East

ATT108_Photo2 464



113. Crosswalks at Highway 101/ Lighthouse Drive intersection. Sidewalk does not continue past corners. - Looking South

ATT3_Photo2.jpg



117. Private driveway on south side of Lighthouse Drive (city-owned section) - Looking West

ATT38_Photo1.jpg



114. Pullout on Lighthouse Drive (city-owned section), 10-12 spots delineated in faded paint. Pavement deteriorated with patches. - Looking South

ATT12_Photo2.jpg



118. NW Rocky Way intersecting Lighthouse Drive (city-owned section) on north side- Looking West

ATT41_Photo2.jpg



115. Mowed strip of grass on south side of Lighthouse Drive (city-owned section), 3 feet wide - Looking West

ATT22_Photo1.jpg



119. Pavement width on north side of Lighthouse Drive (city-owned section), overgrown shoulder estimated 3ft width - Looking West

ATT42_Photo2.jpg



116. Private driveway on south side of Lighthouse Drive (city-owned section) - Looking West

ATT29_Photo1.jpg



120. Pavement width on south side of Lighthouse Drive (city-owned section), 39" fog line to pavement edge - Looking West

ATT44_Photo1.jpg



121. Pinch point on Lighthouse Drive (city-owned section), no fog line on north side, 21' pavement width, with 2.5ft shoulder on south side - Looking West

ATT48_Photo2.jpg



125. Gate blocking access to site after hours, west of fee booth. Pavement width 35.5' - Looking West

ATT111_Photo2.jpg



122. Lighthouse Drive approaching BLM boundary, 21.5' pavement width, 30" visible shoulder north side, 54" visible shoulder south side - Looking West

ATT66_Photo3.jpg



126. Lighthouse Drive between Gate and Quarry Cove, 30" paved shoulder plus 30" mowed strip north side, 6' paved shoulder south side - Looking West

ATT116_Photo1.jpg



123. Lighthouse Drive approaching fee booth, 24' pavement width, 4' median, 1.5' shoulder south side, 3.5' shoulder north side with 5.5' usable space - Looking West

ATT78_Photo1.jpg



127. Lighthouse Drive between Gate and Quarry Cove, 30" paved shoulder plus 30" mowed strip north side, 6' paved shoulder south side - Looking West

ATT117_Photo2.jpg



124. "Official Vehicles Only" paint and pullout on south side of fee booth, 9.5' width (pavement plus gravel) - Looking East

ATT97_Photo3.jpg



128. ADA stalls in Quarry Cove overflow parking lot, 31 regular stalls plus 2 ADA stalls. Sidewalk entire length of lot, 58" wide - Looking South

ATT123_Photo2



129. ADA stalls in Quarry Cove overflow parking lot, 31 regular stalls plus 2 ADA stalls. Sidewalk entire length of lot, 58" wide - Looking South

ATT124_Photo5.jpg



133. Crosswalk across upper parking lot at Quarry Cove, no curb ramps - Looking North

ATT145_Photo2.jpg



130. Small lot at Quarry Cove by restrooms, 3 regular stalls, 2 ADA stalls - Looking Southwest

ATT129_Photo1.jpg



134. Crosswalk across upper parking lot at Quarry Cove, no curb ramps - Looking South

ATT146_Photo4.jpg



131. Quarry Cove ADA access road, 12' pavement, 32" sidewalk, - Looking Southwest

ATT134_Photo1.jpg



135. Upper parking lot at Quarry Cove, 12 regular stalls - Looking East

ATT147_Photo1.jpg



132. Quarry Cove ADA access road, 21' pavement, 6' sidewalk, - Looking Northeast

ATT136_Photo2.jpg



136. Upper parking lot at Quarry Cove, 3 RV parking spots, not marked, used for circulation (confusing layout) - Looking East

ATT148_Photo1 467



137. Crosswalk across Quarry Cove Road, no connecting pedestrian facilities - Looking West

ATT184_Photo2.jpg



141. Lighthouse Drive approaching S-curves, 3' shoulder fog line to edge of visible pavement on north side, 4.5' shoulder fog line to edge of pavement on south side - Looking West

ATT198_Photo3.jpg



138. Crosswalk across Quarry Cove Road, no connecting pedestrian facilities - Looking East

ATT185_Photo1.jpg



142. Pullout on south side of Lighthouse Drive approaching Communications Hill crossing, 12' width with space for about 6 vehicles - Looking West

ATT206_Photo1.jpg



139. Pullout/enlarged shoulder (not signed) on south side of Lighthouse Drive west of Quarry Cove intersection, 15' width edge of pavement to edge of mowing - Looking East

ATT187_Photo1.jpg



143. Guardrail buried in vegetation (typical of most guardrail ends) - Looking West

ATT219_Photo2.jpg



140. Lighthouse Drive approaching S-curves, 3' shoulder fog line to edge of visible pavement on north side, 4.5' shoulder fog line to edge of pavement on south side - Looking West

ATT197_Photo2.jpg



144. Lighthouse Trail begins, 5' width of paved walkway behind guardrail - Looking East

ATT258_Photo2



145. Pullout on south side of Lighthouse Drive, 11.5' width, space for about 3 vehicles, parting in guardrail - Looking East

ATT264_Photo1.jpg



149. Lighthouse Circle parking lot, one-way configuration, 35 regular stalls, 3 ADA stalls, 2 official vehicle only stalls, 2 stalls labeled for compact vehicles, 2 RV stalls, 1 RV/Bus Only stall - Looking West

ATT303_Photo5.jpg



146. Pullout on south side of Lighthouse Drive, 18' width, space for about 5 vehicles, parting in guardrail - Looking East

ATT273_Photo1.jpg



150. Lighthouse Circle parking lot, one-way configuration, 35 regular stalls, 3 ADA stalls, 2 official vehicle only stalls, 2 stalls labeled for compact vehicles, 2 RV stalls, 1 RV/Bus Only stall - Looking East

ATT304_Photo6.jpg



147. Lighthouse Trail transitions to sidewalk, no parting in guardrail to cross to Keeper's Garden, 15 mph speed limit facing away from Lighthouse Circle parking lot - Looking East

ATT284_Photo2.jpg



151. Lighthouse Circle parking lot, one-way configuration, 35 regular stalls, 3 ADA stalls (bollards blocking curb ramp), 2 official vehicle only stalls, 2 stalls labeled for compact vehicles, 2 RV stalls, 1 RV/Bus Only stall - Looking West

ATT307_Photo2.jpg



148. Lighthouse Circle parking lot, one-way configuration, 35 regular stalls, 3 ADA stalls, 2 official vehicle only stalls, 2 stalls labeled for compact vehicles, 2 RV stalls, 1 RV/Bus Only stall - Looking West

ATT302_Photo8.jpg

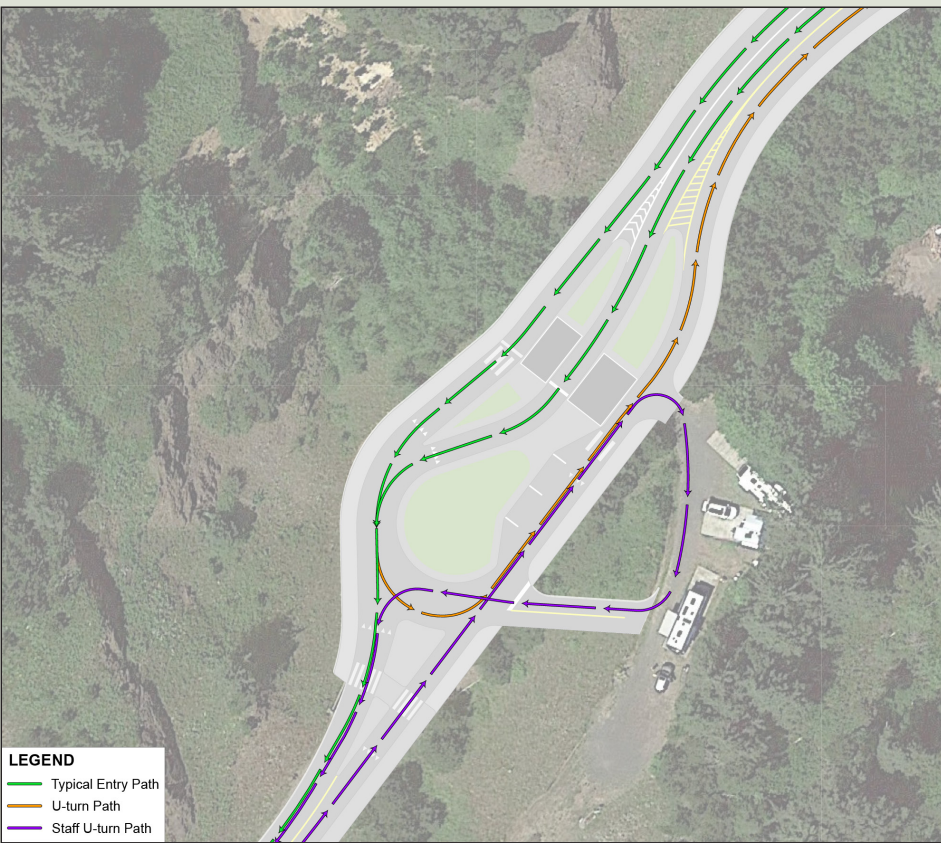
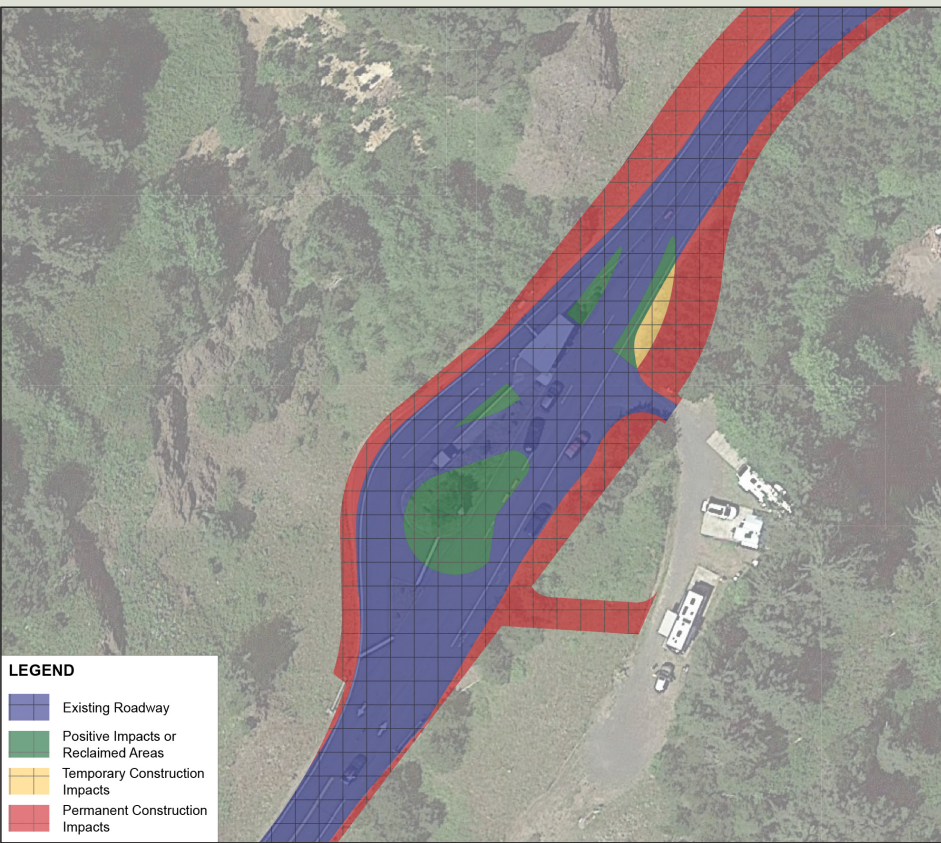
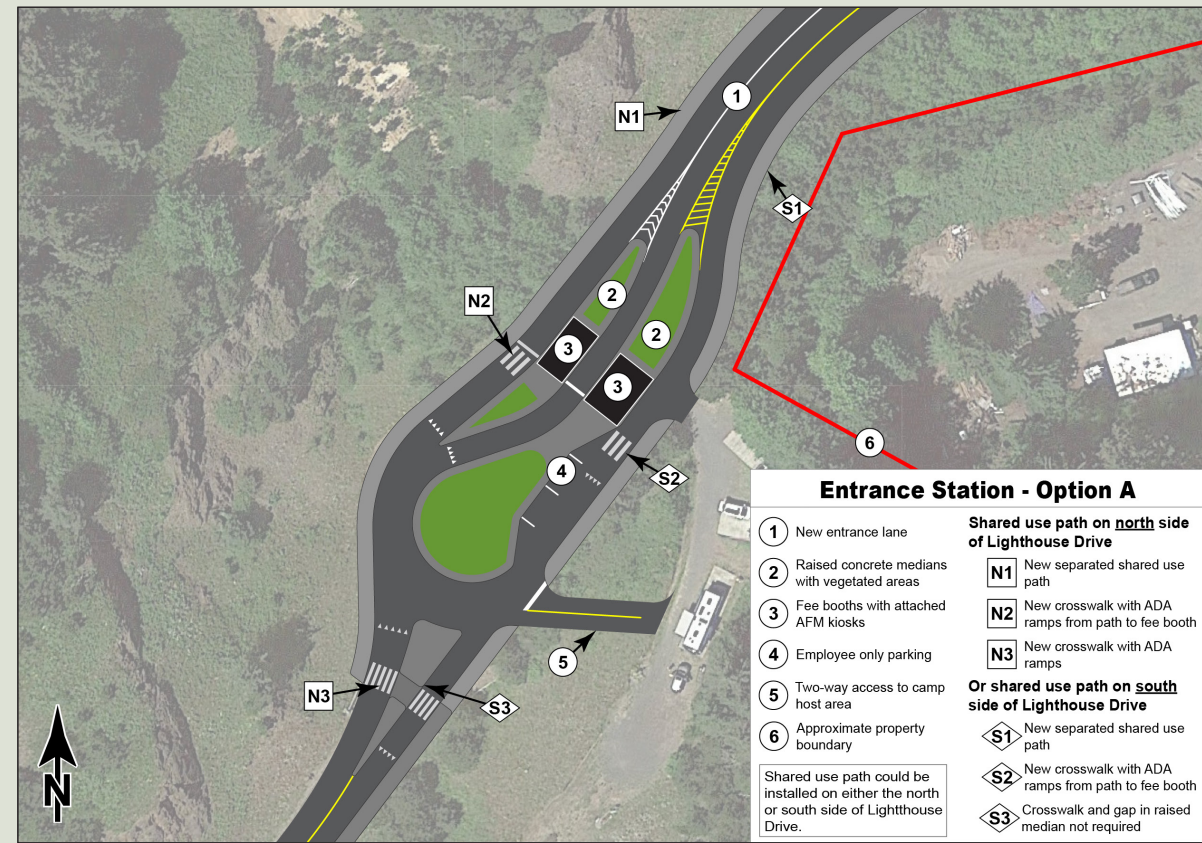


YAQUINA HEAD

Traffic Study

Appendix C: Alternatives Analysis

ENTRANCE STATION – OPTION A



DESCRIPTION:

Entrance station would remain in its existing location. A second entrance lane and second fee station would be provided as well as a separated shared use path (SUP) on either the north or south side of the roadway. A two-way loop through the host area would accommodate turnaround maneuvers for BLM staff and camp hosts.

MANAGEMENT/MAINTENANCE:

ADVANTAGES:

- BLM staff don't have to stand in the roadway to conduct line-busting.
- Two entry lanes provides flexibility based on staffing capacity. One lane could be closed or automated during the off season.

DISADVANTAGES:

- BLM staff must circulate through the camp host area to turn around; potential loss of privacy for hosts.
- Increased maintenance required for SUP.

TRAFFIC PERFORMANCE:

ADVANTAGES:

- Dual entrance lanes with automated fee machine (AFM) kiosks in fee booths would expedite entrance times and reduce queues.
- All attractions would remain located west of entrance station/ within fee area.

DISADVANTAGES:

- Visitors must pass fee booth before turning around to exit the site.
- Lacks area for exiting vehicles to bypass another vehicle stopped to talk with rangers at the entrance station.
- An additional parking space may be necessary if both fee booths are staffed.

SAFETY PERFORMANCE:

ADVANTAGES:

- Separated SUP would provide protection for non-motorists and physical separation from vehicles.
- BLM staff wouldn't have to stand in the roadway to conduct line-busting.
- Visitors wouldn't have to walk to fee booth to collect pass after paying at the AFM kiosk.
- Depending on where SUP is located (north or south side of Lighthouse Drive), pedestrians would have direct access to Ernest Bloch Memorial Wayside or to a potential future SUP connection on NW Rocky Way.

DISADVANTAGES:

- Possible conflicts with the two-way traffic exiting the camp host area and visitors turning around.
- Increased number of merging and diverging conflict points compared to the existing configuration.
- Path on the north side may present a safety concern due to recent landslide/rockfall issues.

ENVIRONMENTAL IMPACTS:

ADVANTAGES:

- Vegetation would be incorporated in medians where feasible.

DISADVANTAGES:

- Expansion of the roadway footprint would be required on north side of the roadway.
- SUP would increase paved area.
- To facilitate the two-way loop through the camp host area, a new approach roadway is needed with significant impacts.

GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTABILITY:

ADVANTAGES:

- Option would use existing power and wastewater utility connections.

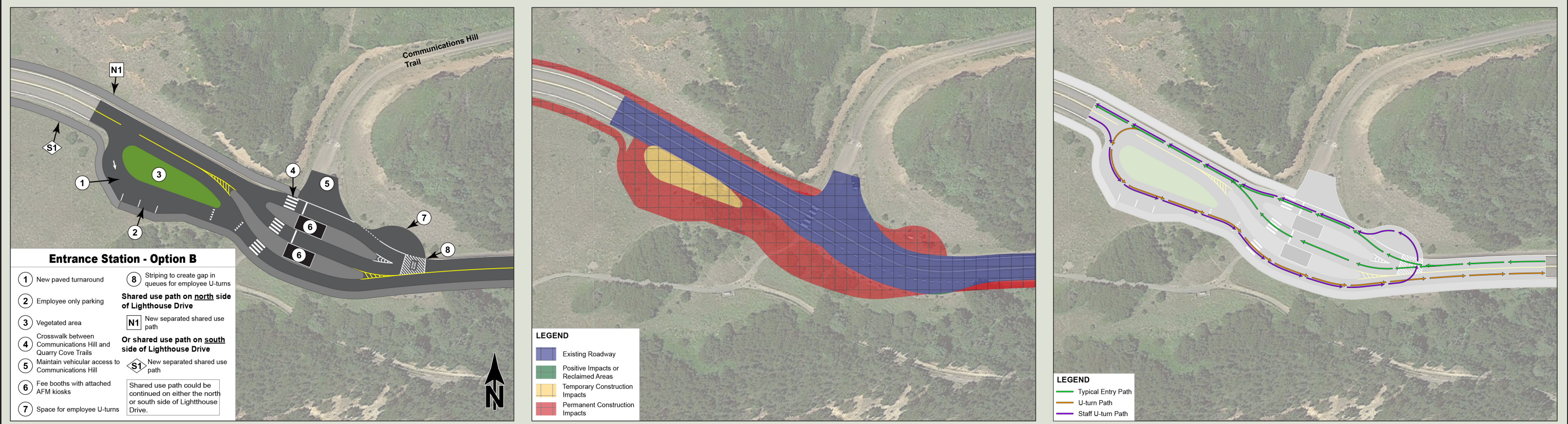
DISADVANTAGES:

- Potential constraint on north side of entrance station due to steep hillsides.
- Limited right-of-way on south side of roadway for expansion.
- Length of second entrance lane may be dictated by geotechnical constraints on north side of the roadway.

RECOMMENDATION: **DO NOT ADVANCE**

New access road to camp host area would be very impactful with little added benefit. Limited space for expansion of roadway footprint may preclude the ability to construct this option.

ENTRANCE STATION – OPTION B

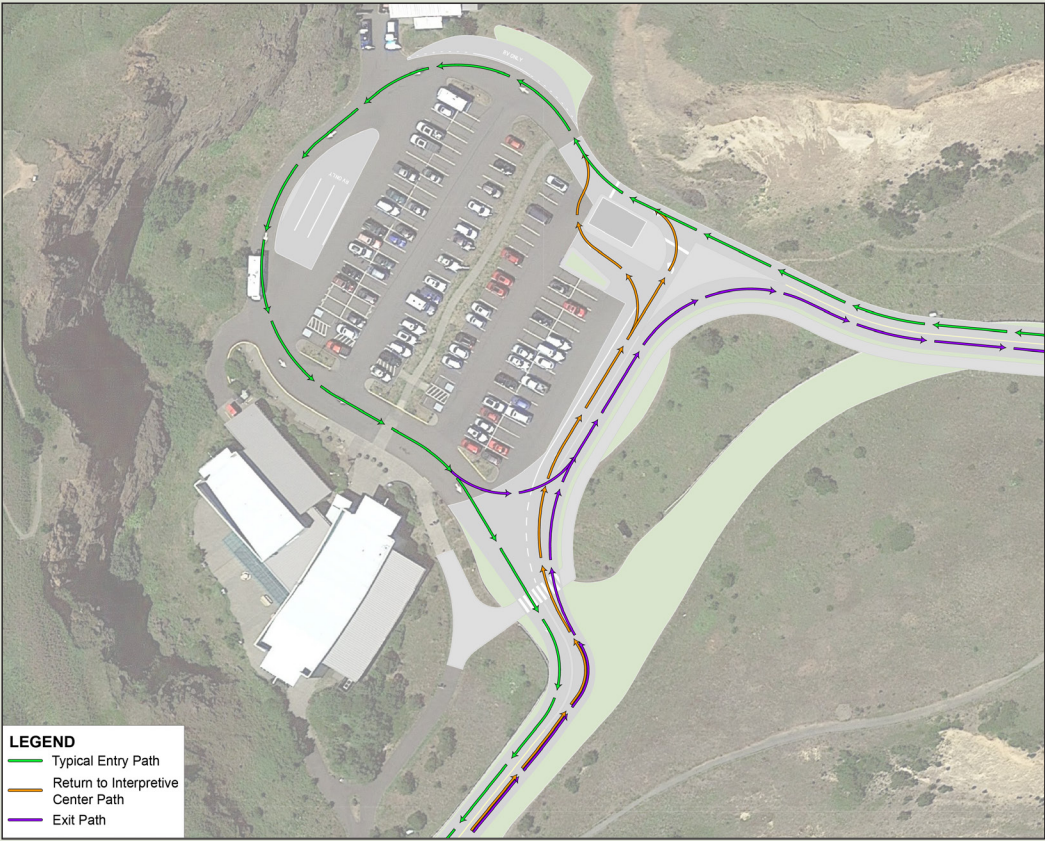
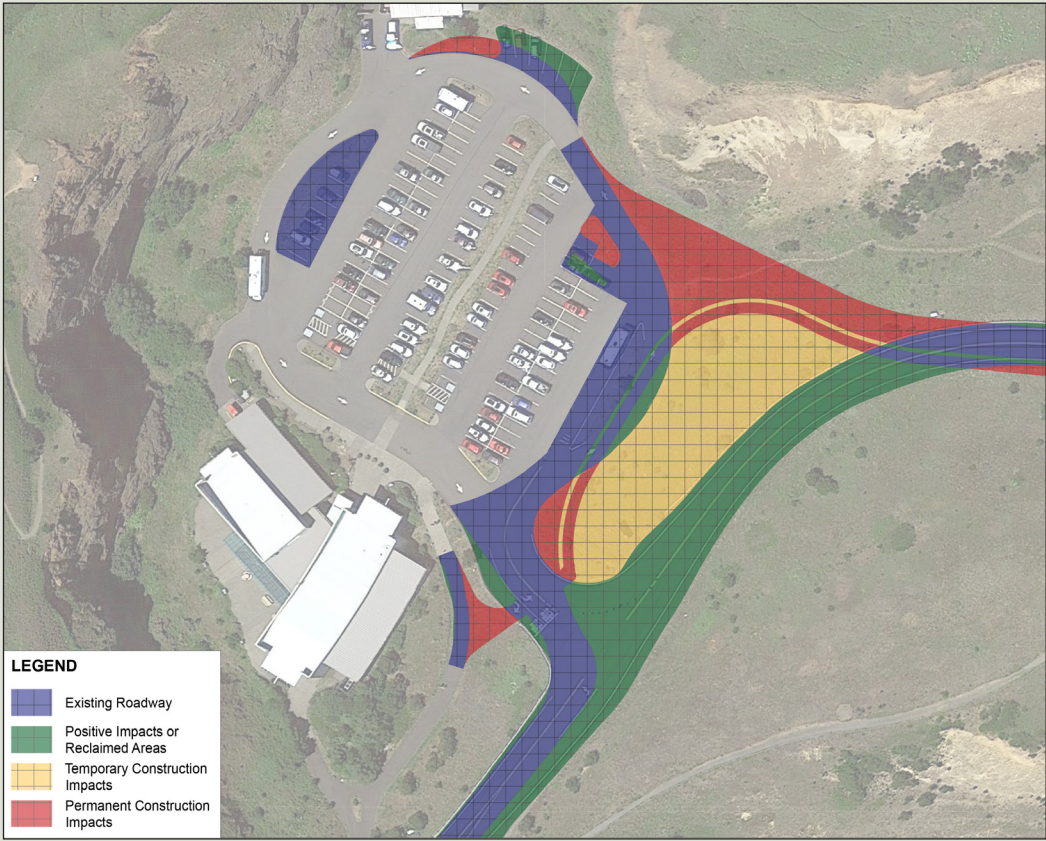


DESCRIPTION:		MANAGEMENT/MAINTENANCE:	
<p>Entrance station would be relocated to Communications Hill Trail. Visitor entry would be accommodated through two fee booths. A separated SUP would be provided on the south side of Lighthouse Drive until just beyond the fee booths, where the path could either continue on the south side of Lighthouse Drive or switch to the north side of the roadway for access to the Interpretive Center.</p>		<p>ADVANTAGES:</p> <ul style="list-style-type: none"> Shortened drive for BLM staff from Interpretive Center compared to the existing entrance station location. BLM staff wouldn't have to stand in the roadway to conduct line-busting. <p>DISADVANTAGES:</p> <ul style="list-style-type: none"> Distance is too far from the Interpretive Center for BLM staff to walk carrying cash. Increased maintenance required for SUP. Quarry Cove located outside fee area, potential for more break-ins and resource degradation. 	
TRAFFIC PERFORMANCE:		SAFETY PERFORMANCE:	
<p>ADVANTAGES:</p> <ul style="list-style-type: none"> Dual fee booths with AFM kiosks would help expedite entrance processing times. Visitors would have multiple opportunities to turn around before approaching the fee booth. Vehicular access to Communications Hill would be maintained. <p>DISADVANTAGES:</p> <ul style="list-style-type: none"> Quarry Cove is located east of the entrance station/outside the fee area. Out-of-direction travel required of visitors needing the ADA clicker for Quarry Cove. Visitors returning ADA clickers would have to wait in line with other vehicles entering the site. To accommodate staff u-turns, entering vehicles must leave space in the queue. Lacks area for exiting vehicles to bypass another vehicle stopped to talk with rangers at the entrance station. 		<p>ADVANTAGES:</p> <ul style="list-style-type: none"> Separated SUP provides protection for non-motorists and physical separation from vehicles. Visitors wouldn't have to walk to fee booth to collect pass after paying at the AFM kiosk. <p>DISADVANTAGES:</p> <ul style="list-style-type: none"> Possible conflicts between entering vehicles and staff completing U-turns. Pedestrians would have to cross three lanes of entering traffic to access Communications Hill Trail or continue on shared use path if installed on the north side, sight lines may be blocked by fee booths. 	
ENVIRONMENTAL IMPACTS:		GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTABILITY:	
<p>ADVANTAGES:</p> <ul style="list-style-type: none"> Vegetation would be incorporated in medians where feasible. <p>DISADVANTAGES:</p> <ul style="list-style-type: none"> Expansion of the roadway footprint would be required on the south side of the roadway to accommodate entrance station. SUP would increase paved area. Queues would build up within the site instead of outside the site. 		<p>ADVANTAGES:</p> <ul style="list-style-type: none"> None anticipated <p>DISADVANTAGES:</p> <ul style="list-style-type: none"> Power and wastewater infrastructure would have to be reconfigured to accommodate AFMs and staff restrooms within the fee booth(s). Feasibility of SUP on south side of Lighthouse Drive would have to be determined through further field surveys and geotechnical analyses. 	

RECOMMENDATION: DO NOT ADVANCE

Location of fee station in relation to Quarry Cove would be undesirable from a management and visitor experience perspective. Considerable impacts and utility costs would be required to accommodate entrance station at this location.

COMBINED INTERPRETIVE CENTER AND ENTRANCE STATION



DESCRIPTION: MANAGEMENT/MAINTENANCE:

Entrance station would be relocated to the parking lot of the Interpretive Center. All traffic would circulate through the Interpretive Center parking lot by an approach road where the existing dog walk is located. The existing roadway between the new approach and the existing entrance/exit would be obliterated and revegetated. The existing RV/bus parking lane would be replaced with travel lanes and relocated to the northwest end of the parking lot. Additional RV/bus parking would be provided by the maintenance building. A SUP would be provided on the south side of Lighthouse Drive which connects to the existing SUP near the Interpretive Center.

- ADVANTAGES:
 - Location of fee booth in Interpretive Center parking lot would simplify operations, allow staff to address issues more quickly, and reduce travel time between the Interpretive Center and the fee booth.
- DISADVANTAGES:
 - Single-lane configuration would not allow the opportunity to expedite/split visitor processing.
 - Increased maintenance required for SUP.

TRAFFIC PERFORMANCE: SAFETY PERFORMANCE:

- ADVANTAGES:
 - All westbound visitors must circulate through the Interpretive Center parking lot, potentially reducing parking concerns at the lighthouse.
 - Net gain of 2 RV parking stalls.
 - AFM kiosk located in fee booth would help expedite processing time.
 - Redirected westbound traffic into the Interpretive Center is potentially more logical to visitors.
- DISADVANTAGES:
 - Potential for increased congestion within the Interpretive Center parking area.
 - Only one fee booth could be accommodated so processing times may not be improved.
 - All westbound vehicles must travel through the fee booth, regardless of whether they already have a pass or not. This could contribute to visitor frustration and long queues on Lighthouse Drive.
 - Quarry Cove and Communications Hill are located east of the entrance station/outside the fee area. Out-of-direction travel required of visitors needing the ADA clicker for Quarry Cove.
 - Net loss of 19 standard parking spaces.
 - New configuration and circulation pattern may be confusing and/or frustrating for visitors.

- ADVANTAGES:
 - Separated SUP provides protection for non-motorists and physical separation from vehicles.
 - Visitors wouldn't have to walk to fee booth to collect pass after paying at the AFM kiosk.
- DISADVANTAGES:
 - Potential conflicts anticipated between eastbound vehicles entering the Interpretive Center parking lot and vehicles leaving the Interpretive Center.
 - Increases traffic through the parking lot and increases the opportunity for pedestrian/vehicle conflicts.

ENVIRONMENTAL IMPACTS: GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTABILITY:

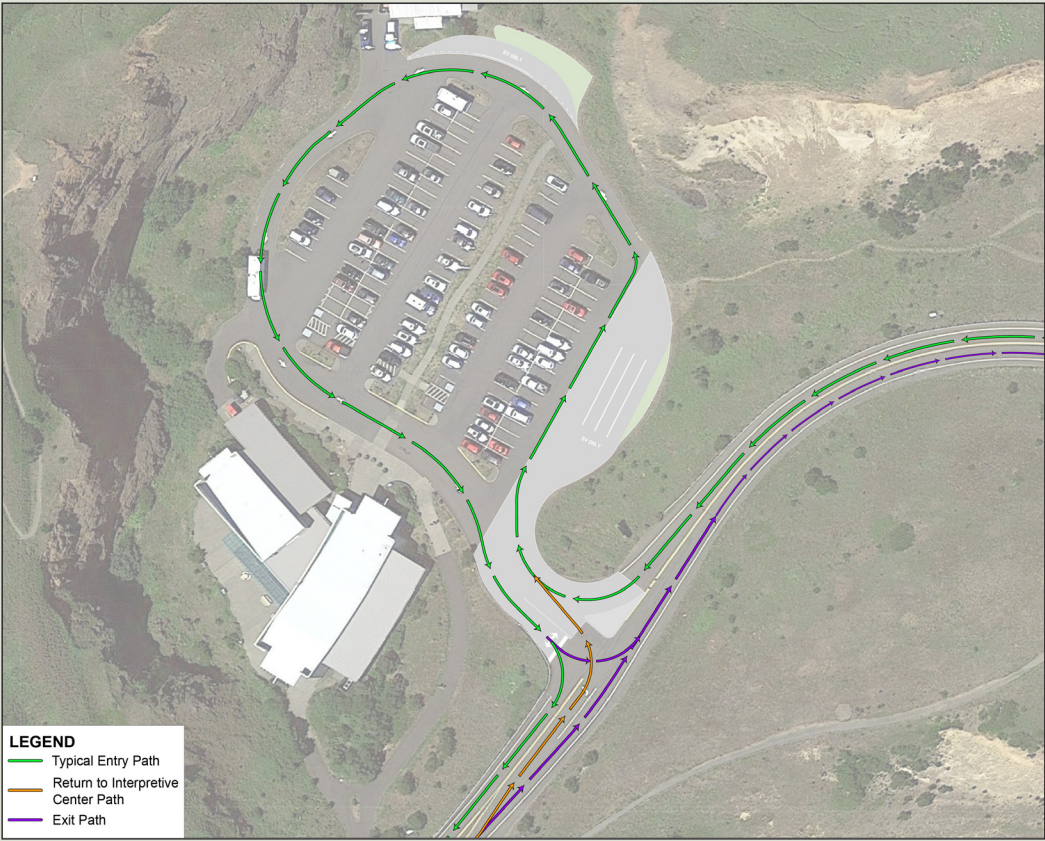
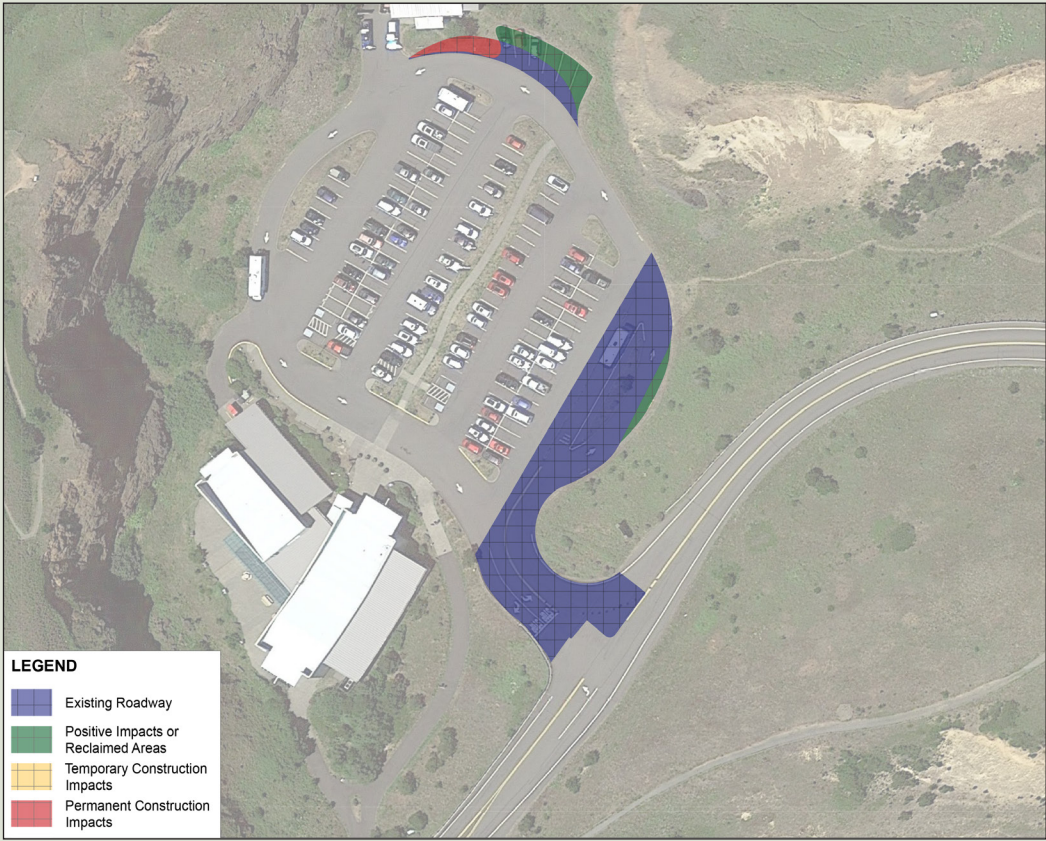
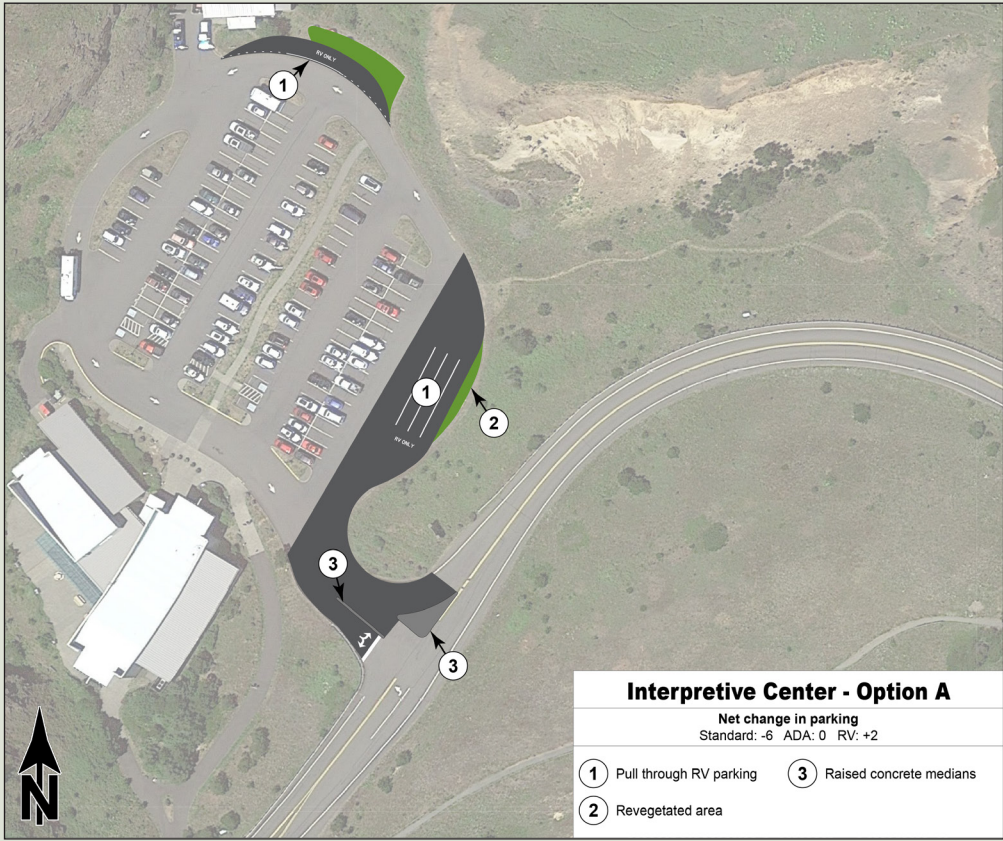
- ADVANTAGES:
 - Although new pavement is added, existing pavement is removed and revegetated.
- DISADVANTAGES:
 - Considerable temporary impacts to hillside during construction.
 - Dog walk area may no longer be safely accessible and usable.
 - Queues would build up within the site instead of outside the site.

- ADVANTAGES:
 - None anticipated
- DISADVANTAGES:
 - Utilities would have to be extended to accommodate the fee booth.
 - Feasibility of new entrance road would have to be determined through further field surveys and geotechnical analyses due to steep slopes and potentially constraining rock faces near the proposed entrance station.

RECOMMENDATION: DO NOT ADVANCE

Although this option simplifies BLM staffing needs for the entrance station, management of facilities outside the fee area would be difficult. Poor traffic performance is anticipated.

INTERPRETIVE CENTER - OPTION A



DESCRIPTION: MANAGEMENT/MAINTENANCE:

The cones placed at the Interpretive Center entrance would be replaced with a raised concrete median channeling visitors into the Interpretive Center. The RV/Bus parking lane and one-way entrance lane would be reconfigured to accommodate additional large vehicle parking stalls. Additional RV/bus parking would be provided by the maintenance building.

- ADVANTAGES:
 - BLM staff would not have to move the cones each day.
- DISADVANTAGES:
 - None anticipated

TRAFFIC PERFORMANCE: SAFETY PERFORMANCE:

- ADVANTAGES:
 - All visitors must circulate through the Interpretive Center parking lot in the westbound direction, potentially reducing parking capacity concerns at the lighthouse.
 - Net gain of 2 RV/bus parking stalls.
- DISADVANTAGES:
 - Visitors may be frustrated by raised median directing traffic into the Interpretive Center parking lot rather than allowing direct access to the lighthouse.
 - Net loss of 6 standard parking spaces.
 - All westbound visitors would have to circulate through the Interpretive Center parking lot, potentially increasing conflicts within the Interpretive Center parking area.
 - Traffic flow within the parking lot is not improved from existing.

- ADVANTAGES:
 - Additional RV/Bus stalls would prevent parking on the outside perimeter of the parking lot allowing proper circulation and reducing potential conflicts.
- DISADVANTAGES:
 - Potential unsafe bypass or u-turn type maneuvers anticipated by westbound vehicles wishing to not circulate the Interpretive Center parking lot.
 - Increased bi-directional traffic and potential for conflicts between RV/bus parking and first row of parking.
 - Increases traffic through the parking lot and increases the opportunity for pedestrian/vehicle conflicts.

ENVIRONMENTAL IMPACTS: GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTABILITY:

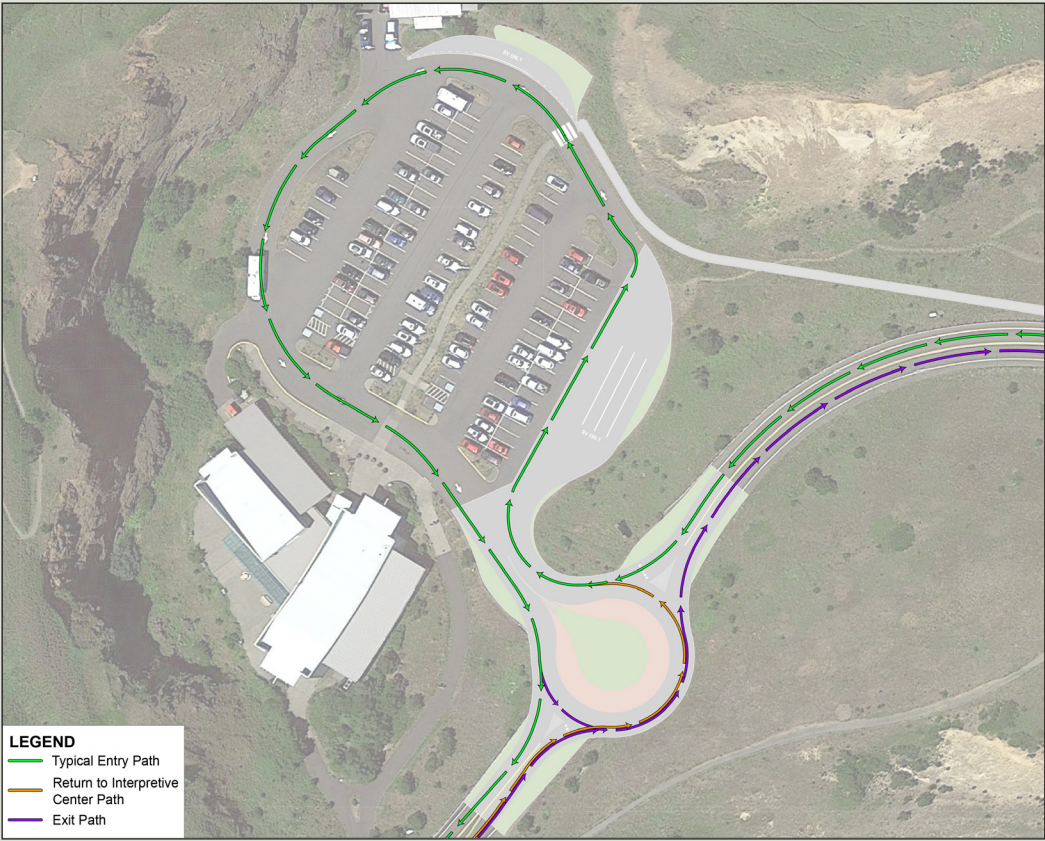
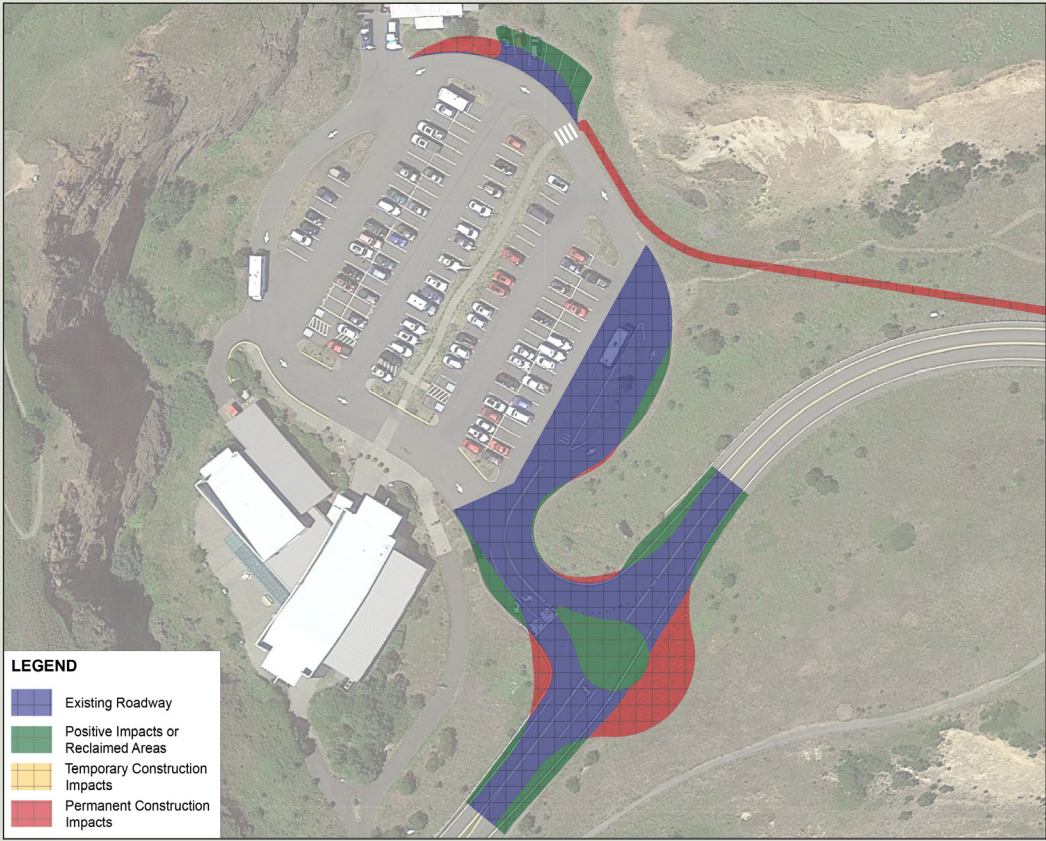
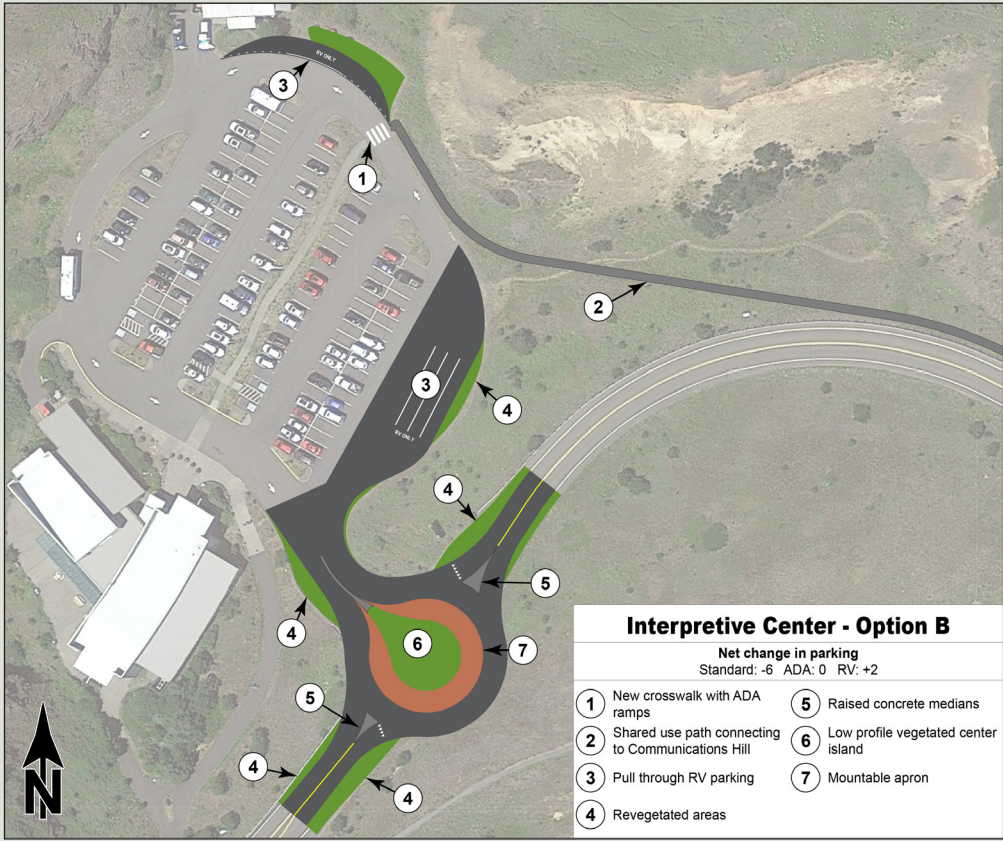
- ADVANTAGES:
 - Net neutral green space.
- DISADVANTAGES:
 - None anticipated

- ADVANTAGES:
 - No barriers to feasibility or constructability anticipated.
- DISADVANTAGES:
 - Impacts to utilities near the maintenance building.

RECOMMENDATION: DO NOT ADVANCE

This option would reduce BLM staffing needs by replacing the temporary cones with a concrete median, however, it offers few added benefits overall.

INTERPRETIVE CENTER - OPTION B



DESCRIPTION: MANAGEMENT/MAINTENANCE:

The Interpretive Center/Lighthouse Drive intersection would be reconfigured as teardrop roundabout. RV/bus parking would be reconfigured as shown in Option A. A SUP would be provided on the north side of Lighthouse Drive, routed down the dog walk area and connecting to the path through the center of the Interpretive Center parking lot.

- ADVANTAGES:
 - BLM staff would not have to move the cones each day.
- DISADVANTAGES:
 - Increased maintenance required for SUP.

TRAFFIC PERFORMANCE: SAFETY PERFORMANCE:

- ADVANTAGES:
 - All westbound visitors must circulate through the Interpretive Center parking lot, potentially reducing parking capacity concerns at the lighthouse.
 - Net gain of 2 RV/bus parking stalls.
- DISADVANTAGES:
 - Visitors may be frustrated by roundabout directing traffic into the Interpretive Center parking lot rather than allowing direct access to the lighthouse.
 - Net loss of 6 standard parking spaces.
 - Traffic flow within the parking lot is not improved from existing.

- ADVANTAGES:
 - Separated SUP provides protection for non-motorists and physical separation from vehicles.
 - Teardrop would be designed to be mountable by emergency vehicles in emergency situations. Bypass of the teardrop in the oncoming lane is also possible.
 - Roundabouts are known to slow travel speeds and reduce the potential for conflicts at intersections.
- DISADVANTAGES:
 - Potential unsafe bypass/u-turn type maneuvers anticipated by westbound vehicles wishing to not circulate the Interpretive Center parking lot.
 - Increased bi-directional traffic and potential for conflicts between RV/bus parking and first row of parking.
 - Increases traffic through the parking lot and increases the opportunity for pedestrian/vehicle conflicts.

ENVIRONMENTAL IMPACTS: GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTABILITY:

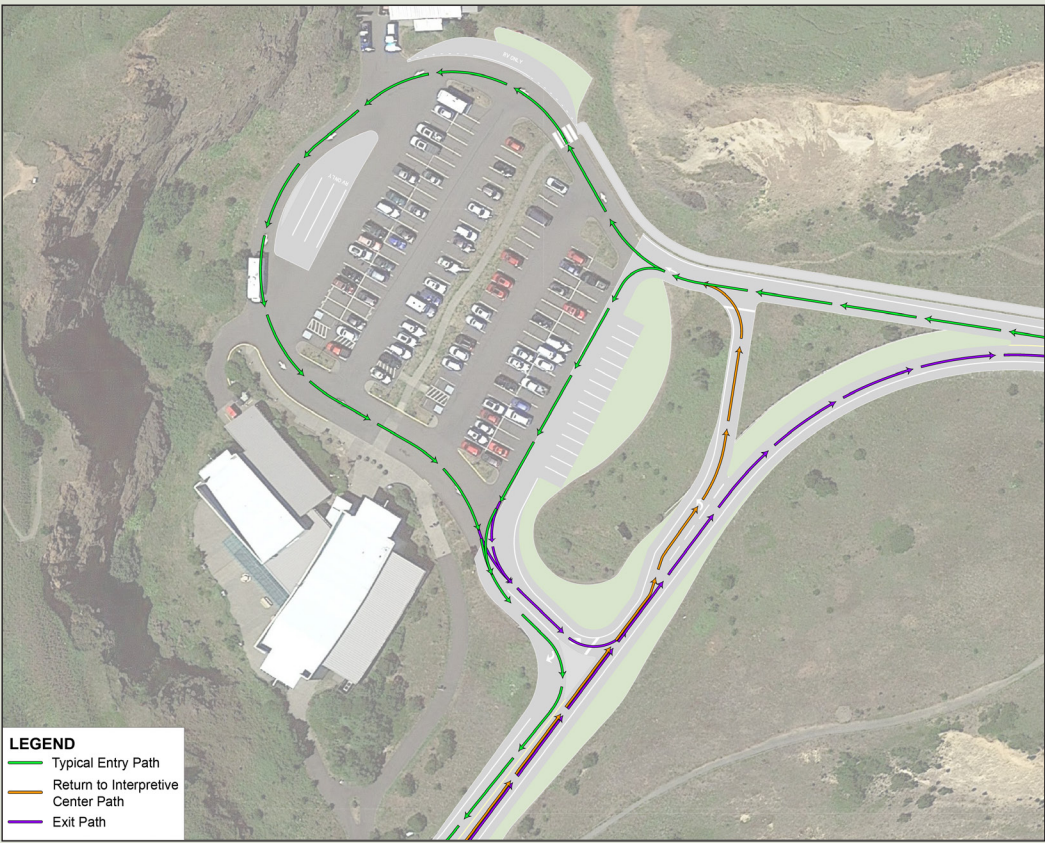
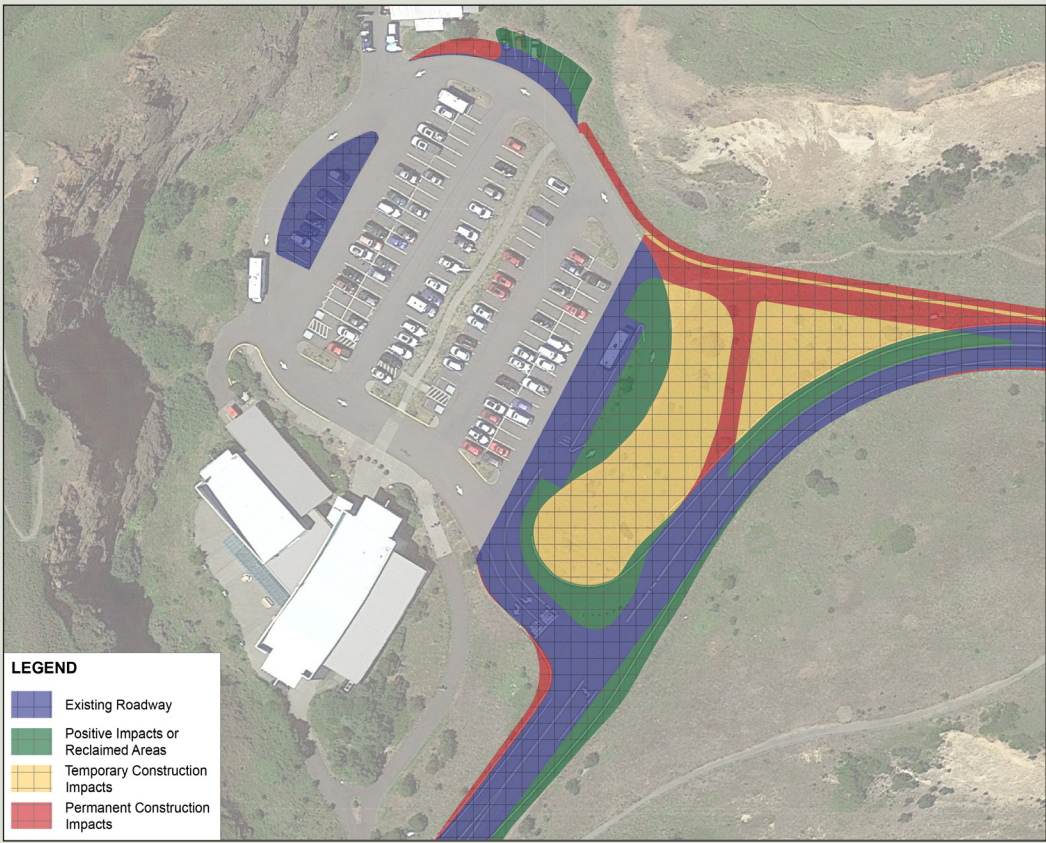
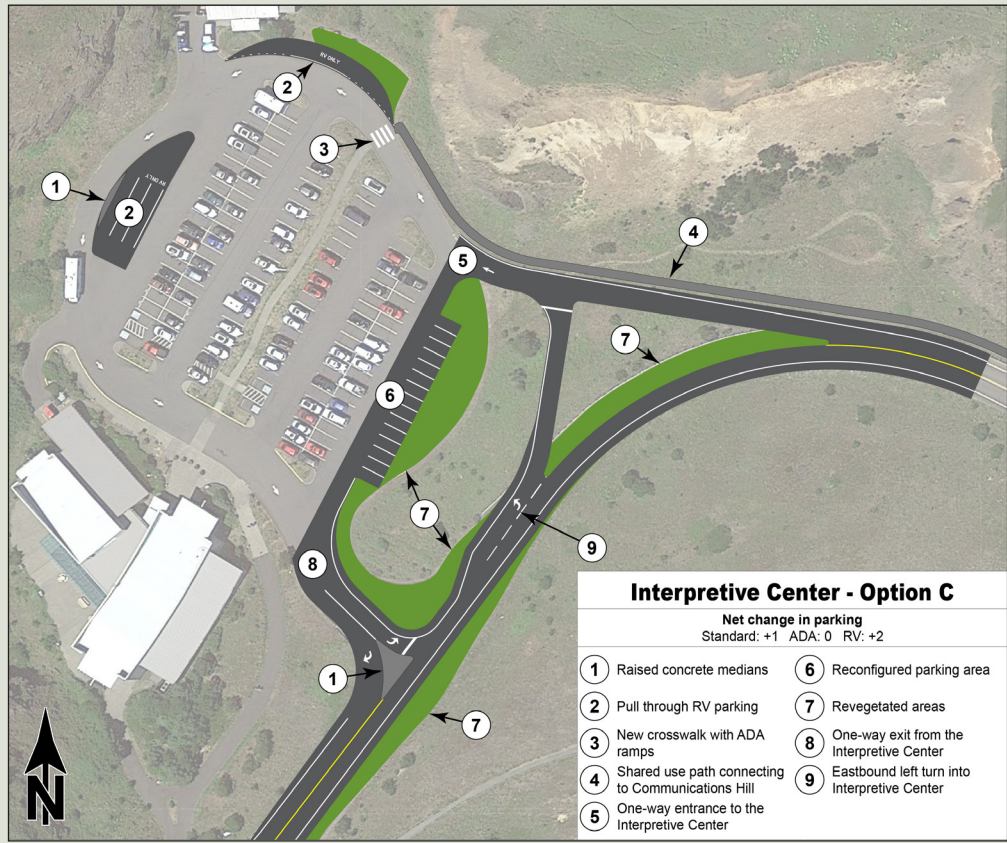
- ADVANTAGES:
 - Vegetation incorporated in center of teardrop roundabout.
 - Lighthouse Drive would be narrowed to allow for revegetation of areas adjacent to the roadway.
- DISADVANTAGES:
 - Expansion of the roadway footprint would be required on the south to accommodate teardrop roundabout.
 - Impacts would result from SUP through dog walk area.

- ADVANTAGES:
 - None anticipated
- DISADVANTAGES:
 - Impacts to utilities near the maintenance building.
 - Slope and alignment of SUP would have to be determined through further field surveys and geotechnical analyses.

RECOMMENDATION: DO NOT ADVANCE

This option addresses the goal of safely directing westbound traffic into the Interpretive Center parking area, however, it does not improve traffic flow through the parking lot and conflicts from the existing intersection are pushed into the lot.

INTERPRETIVE CENTER - OPTION C

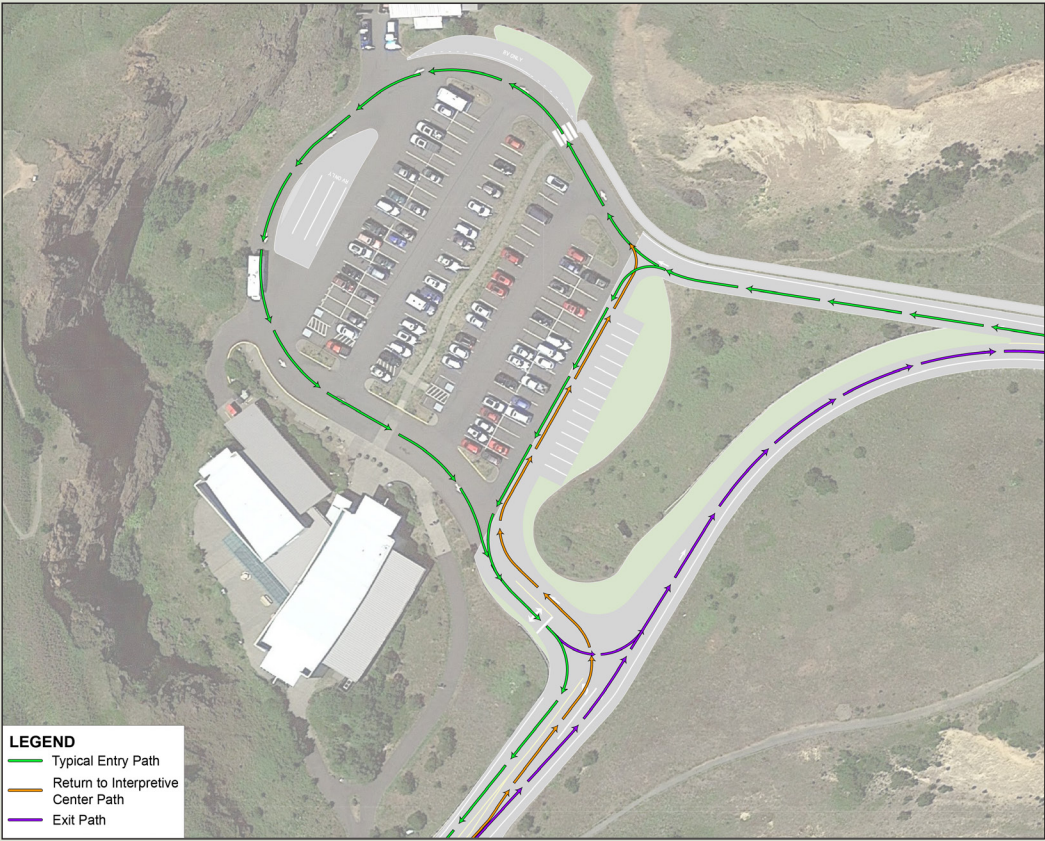
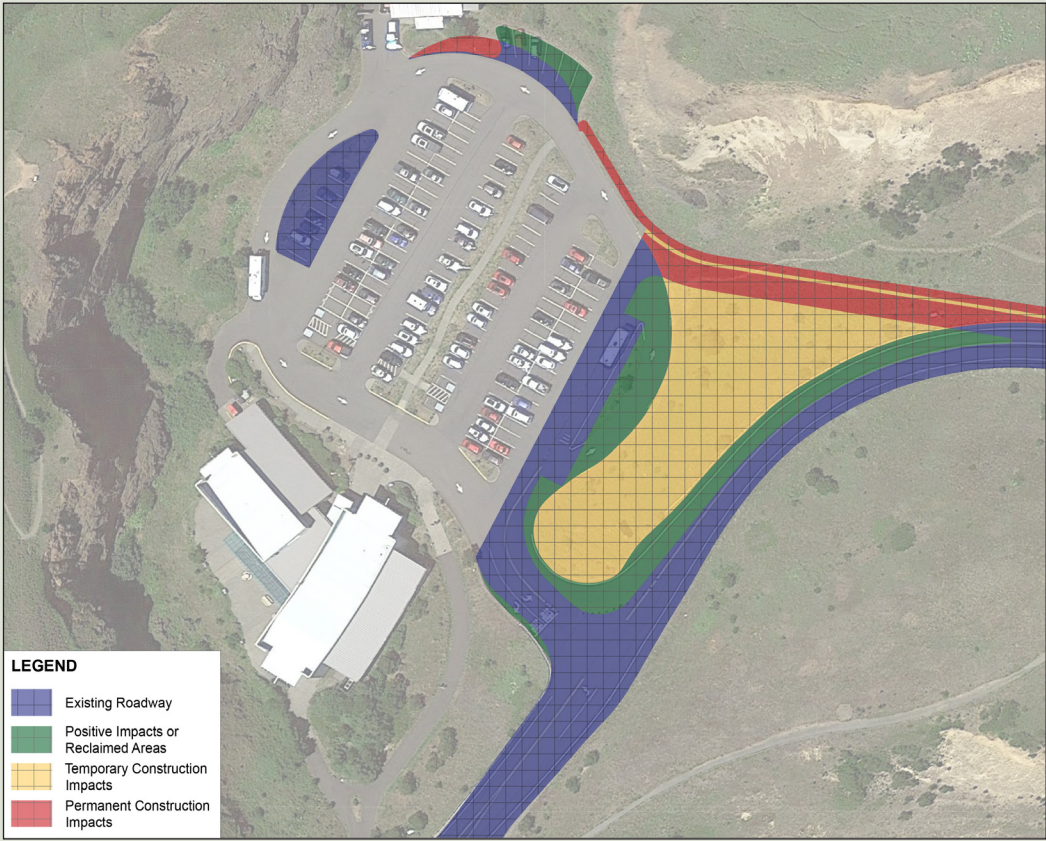
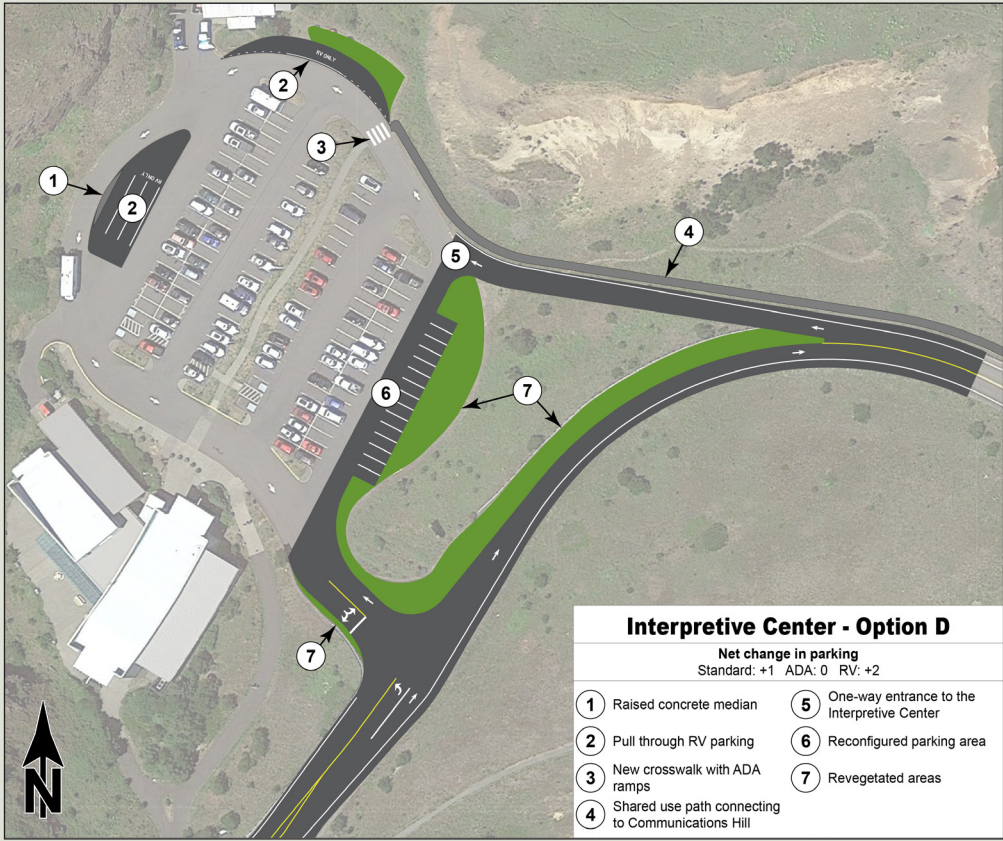


DESCRIPTION:		MANAGEMENT/MAINTENANCE:	
<p>All westbound vehicles must enter the Interpretive Center parking lot through an approach road where the existing dog walk is located. Eastbound vehicles could either bypass the Interpretive Center or make a left turn onto the new approach road. The existing intersection into the Interpretive Center would be converted to accommodate one-way outbound traffic, with a raised median disabling inbound left turns. The existing RV/bus parking lane would be replaced with standard parking stalls and relocated to the northwest end of the parking lot. Additional RV/bus parking would be provided by the maintenance building. A SUP would be provided on the north side of Lighthouse Drive, routed down the dog walk area and connecting to the path through the center of the Interpretive Center parking lot.</p>		<p>ADVANTAGES:</p> <ul style="list-style-type: none">BLM staff would not have to move the cones each day. <p>DISADVANTAGES:</p> <ul style="list-style-type: none">Increased maintenance required for SUP.	
TRAFFIC PERFORMANCE:		SAFETY PERFORMANCE:	
<p>ADVANTAGES:</p> <ul style="list-style-type: none">All westbound visitors must circulate through the Interpretive Center parking lot, potentially reducing parking capacity concerns at the lighthouse.Net gain of 1 standard parking space and 2 RV/bus parking stalls.Redirected westbound traffic into the Interpretive Center is potentially more logical to visitors. <p>DISADVANTAGES:</p> <ul style="list-style-type: none">Eastbound left turn lane into the Interpretive Center parking lot may be potentially confusing to visitors.Out-of-direction travel potentially required for pedestrians wanting to use the SUP along the entire length of Lighthouse Drive, may encourage walking in the roadway.		<p>ADVANTAGES:</p> <ul style="list-style-type: none">Separated SUP would provide protection for non-motorists and physical separation from vehicles.Reduces the potential for unsafe bypass/u-turn type maneuvers executed by westbound vehicles wishing to not circulate the Interpretive Center parking lot. <p>DISADVANTAGES:</p> <ul style="list-style-type: none">Increased bi-directional traffic and potential for conflicts between first two rows of parking.Increases traffic through the parking lot and increases the opportunity for pedestrian/vehicle conflicts.	
ENVIRONMENTAL IMPACTS:		GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTABILITY:	
<p>ADVANTAGES:</p> <ul style="list-style-type: none">Pavement would be narrowed/removed where feasible to allow for revegetation of areas adjacent to the roadway. <p>DISADVANTAGES:</p> <ul style="list-style-type: none">Considerable temporary impacts to hillside during construction.Dog walk area would be shortened to accommodate new approach road and SUP.Net gain of paved area.		<p>ADVANTAGES:</p> <ul style="list-style-type: none">None anticipated <p>DISADVANTAGES:</p> <ul style="list-style-type: none">Impacts to utilities near the maintenance building.Slope and alignment of new approach road and eastbound left turn lane would have to be determined through further field surveys and geotechnical analyses.	

RECOMMENDATION: **DO NOT ADVANCE**

This option results in substantial impacts without sufficient traffic and safety benefits.

INTERPRETIVE CENTER - OPTION D

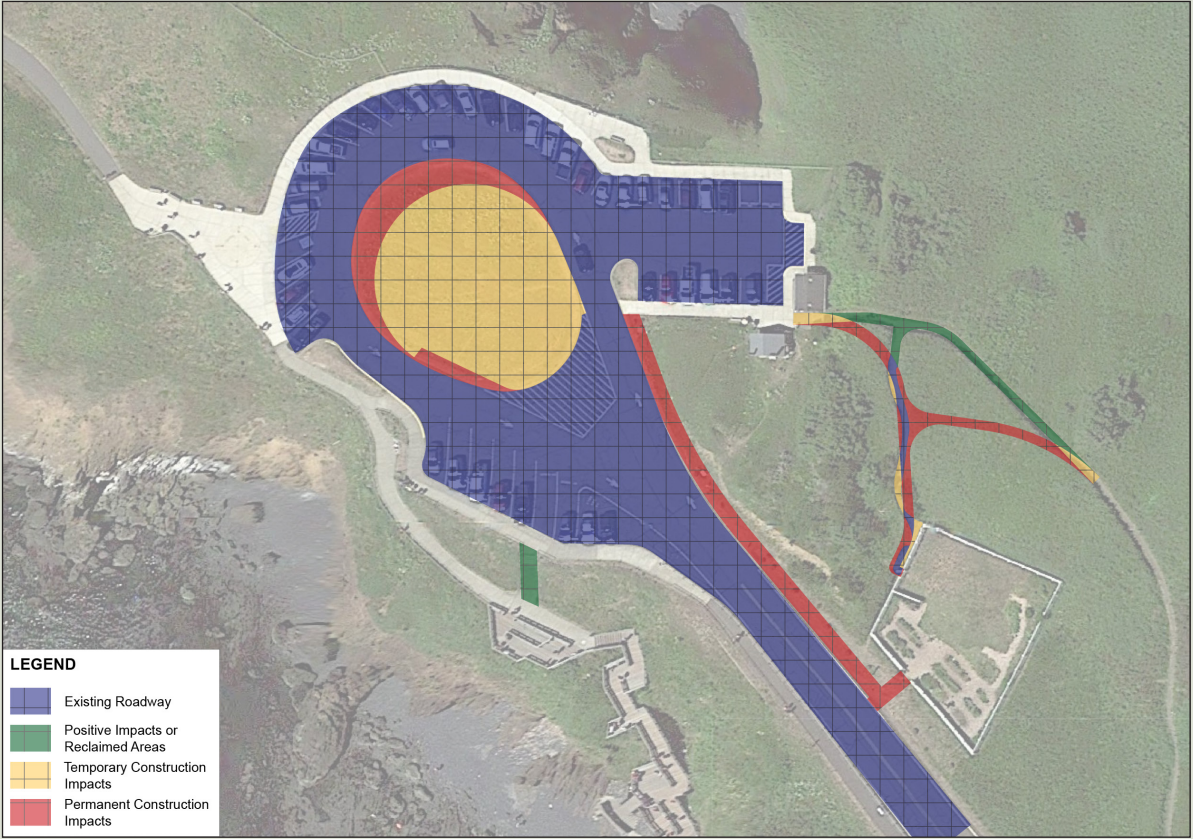
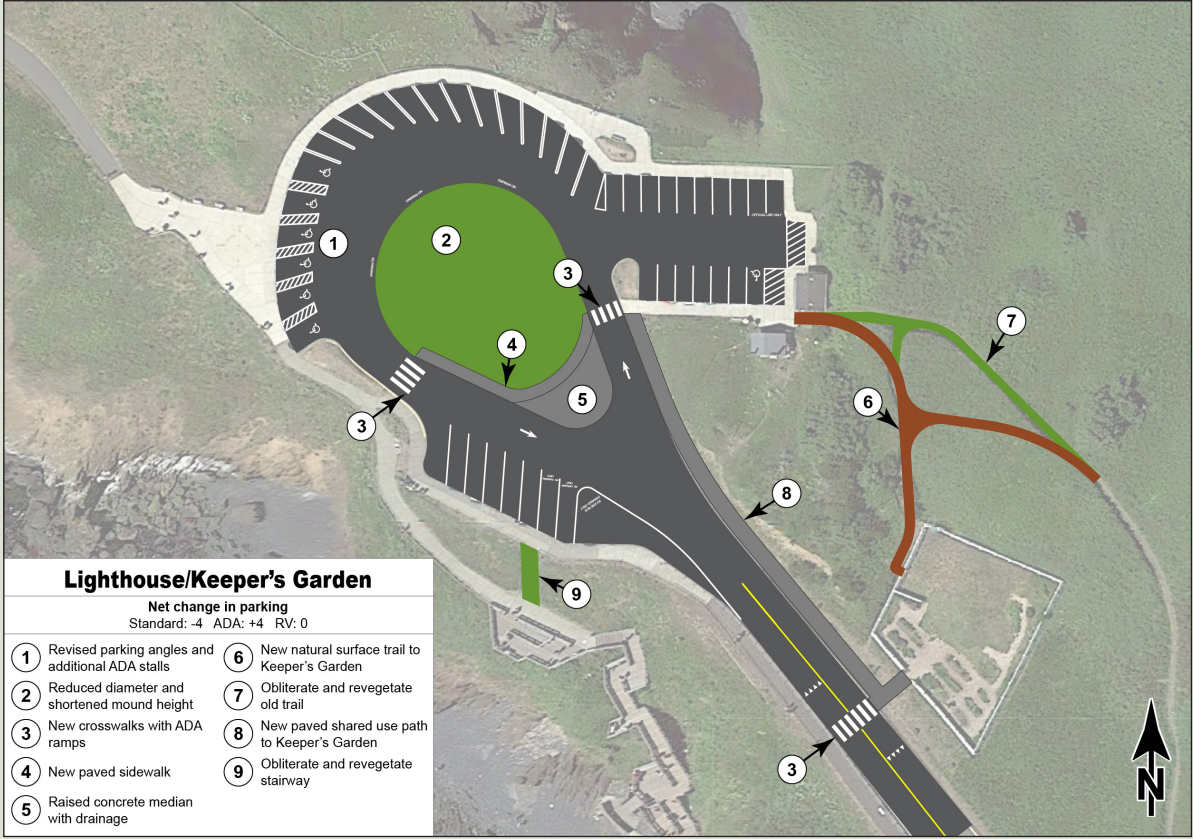


DESCRIPTION:		MANAGEMENT/MAINTENANCE:	
This option is similar to Option C except eastbound vehicles would turn left into the Interpretive Center at the existing intersection.		ADVANTAGES: <ul style="list-style-type: none">• BLM staff would not have to move the cones each day.	DISADVANTAGES: <ul style="list-style-type: none">• Increased maintenance required for SUP.
TRAFFIC PERFORMANCE:		SAFETY PERFORMANCE:	
ADVANTAGES: <ul style="list-style-type: none">• All visitors must circulate through the Interpretive Center parking lot in the westbound direction potentially reducing parking capacity concerns at the lighthouse.• Net gain of 1 standard parking spaces and 2 RV/bus parking stalls.• Redirected westbound traffic into the Interpretive Center is potentially more logical to visitors.	DISADVANTAGES: <ul style="list-style-type: none">• Out-of-direction travel potentially required for pedestrians wanting to use the SUP along the entire length of Lighthouse Drive, may encourage walking in the roadway.	ADVANTAGES: <ul style="list-style-type: none">• Separated SUP would provide protection for non-motorists and physical separation from vehicles.• Reduces the potential for unsafe bypass/u-turn type maneuvers executed by westbound vehicles wishing to not circulate the Interpretive Center parking lot.	DISADVANTAGES: <ul style="list-style-type: none">• Increased bi-directional traffic and potential for conflicts between first two rows of parking.• Increases traffic through the parking lot and increases the opportunity for pedestrian/vehicle conflicts.• More conflicts anticipated at the existing intersection compared to Option C.• Vehicles wishing to not circulate the Interpretive Center parking lot may travel the wrong direction down the eastbound exit lane.
ENVIRONMENTAL IMPACTS:		GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTABILITY:	
ADVANTAGES: <ul style="list-style-type: none">• Pavement would be narrowed/removed where feasible to allow for revegetation of areas adjacent to the roadway.• Approximately net neutral paved area.	DISADVANTAGES: <ul style="list-style-type: none">• Considerable temporary impacts to hillside during construction.• Dog walk area would be shortened to accommodate new approach road and SUP.	ADVANTAGES: <ul style="list-style-type: none">• None anticipated	DISADVANTAGES: <ul style="list-style-type: none">• Impacts to utilities near the maintenance building.• Slope and alignment of new approach road would have to be determined through further field surveys and geotechnical analyses.

RECOMMENDATION: DO NOT ADVANCE

This option results in fewer permanent impacts compared to Option C and operates similarly but does not address all BLM concerns and needs.

LIGHTHOUSE / KEEPER’S GARDEN



DESCRIPTION:

MANAGEMENT/MAINTENANCE:

Reconfigured lighthouse parking lot would include wider stalls with more functional parking angles, more ADA parking spaces, while maintaining the existing number of RV/bus parking spaces. The size of the center island would be reduced to improve circulation. A sidewalk would be constructed through the center of the parking lot with appropriate crosswalks and ADA curb ramps. A SUP would be constructed to the Keeper’s Garden, with a crosswalk from Lighthouse Trail to the Keeper’s Garden, and reconfigured Salal Hill Trail to make access to the Keeper’s Garden more prominent.

- ADVANTAGES:**

 - Better definition of parking and circulation.
- DISADVANTAGES:**

 - Increased enforcement required for use of ADA stalls.
 - Increased maintenance required for SUP.

TRAFFIC PERFORMANCE:

SAFETY PERFORMANCE:

- ADVANTAGES:**

 - Net gain of 4 ADA parking stalls.
 - Circulation through the parking lot would be improved for larger vehicles.
 - Parking angles would be improved for all vehicles.
 - Stairway would be removed to promote use of sidewalk through the parking lot.
 - Shortening the center mound allows better views of available parking and pedestrians in the roadway.
- DISADVANTAGES:**

 - Net loss of 4 standard parking spaces.
 - Reduced parking capacity for standard vehicles may be frustrating for visitors.
 - “Premium” parking stalls for viewing the lighthouse are converted to ADA stalls.

- ADVANTAGES:**

 - Sidewalks and SUP would streamline pedestrian movements and provide protection for non-motorists through the parking lot.
 - Crosswalk at the Keeper’s Garden would increase visibility of pedestrians.
 - Concrete median would reduce the potential for inappropriate parking in the center island.
- DISADVANTAGES:**

 - Reduced parking capacity may influence visitors to circulate the lot multiple times, increasing the potential for conflicts.

ENVIRONMENTAL IMPACTS:

GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTABILITY:

- ADVANTAGES:**

 - None anticipated
- DISADVANTAGES:**

 - Reduction in vegetated area.
 - Shortening the center mound may disturb culturally significant features.

- ADVANTAGES:**

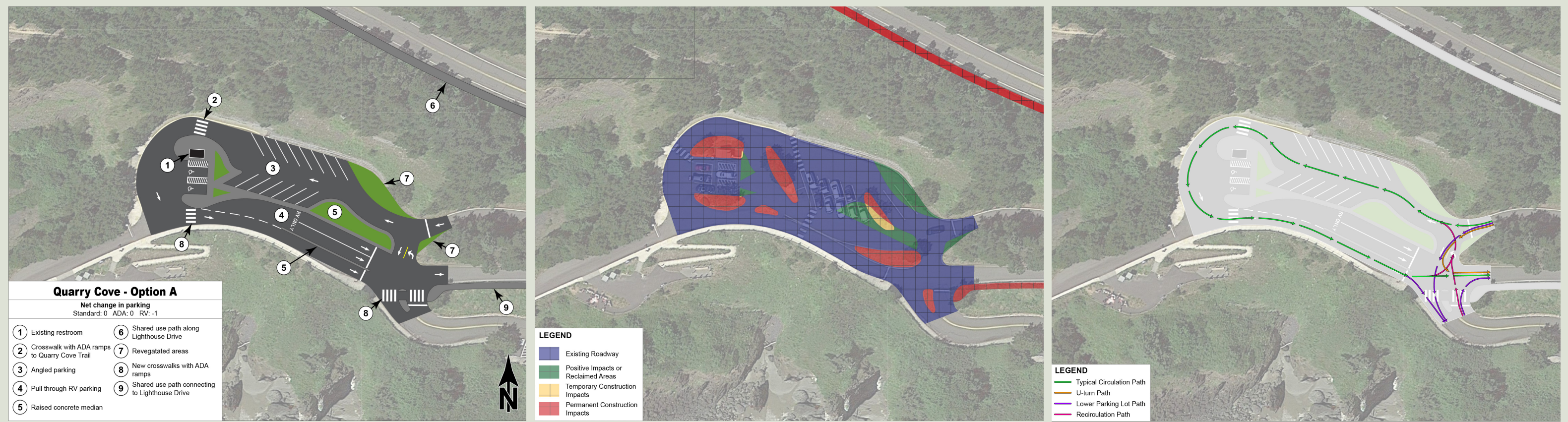
 - None anticipated
- DISADVANTAGES:**

 - Modifications to alignment of Salal Hill trail would need to be investigated further.
 - Feasibility of path on adjacent to Lighthouse Drive between restrooms and Keeper’s Garden unknown due to presence of utilities.

RECOMMENDATION: **DO NOT ADVANCE**

While this option addresses pedestrian safety, circulation, and ADA parking accommodations, adjustments are needed to minimize impacts and optimize the parking configuration.

QUARRY COVE - OPTION A



DESCRIPTION: MANAGEMENT/MAINTENANCE:

This option would reconfigure the upper Quarry Cove parking lot to improve circulation and provide more logical traffic flow. Entering traffic would circulate through a single parking aisle with angled parking stalls on both sides. Two RV/bus parking lanes would be provided on the opposite side of the center island. A SUP would be provided between the lot and Lighthouse Drive.

- ADVANTAGES:**
 - None anticipated
- DISADVANTAGES:**
 - Increased maintenance required for SUP.

TRAFFIC PERFORMANCE: SAFETY PERFORMANCE:

- ADVANTAGES:**
 - No loss in standard or ADA parking stalls. The angled stall closest to the restroom could be converted into an additional ADA stall if desired.
 - Circulation through the parking lot would be more logical and functional. Provides more logical flow into the Quarry Cove overflow parking area.
- DISADVANTAGES:**
 - Net loss of 1 RV/bus parking stalls.
- ADVANTAGES:**
 - Sidewalks and SUP streamline pedestrian movements and provide protection for non-motorists through the parking lot.
 - More logical circulation pattern would reduce the potential for conflict due to driver confusion and unintentional wrong-way driving.
- DISADVANTAGES:**
 - Potential conflicts anticipated in shared area between parking lot and entrance/exit couplet.

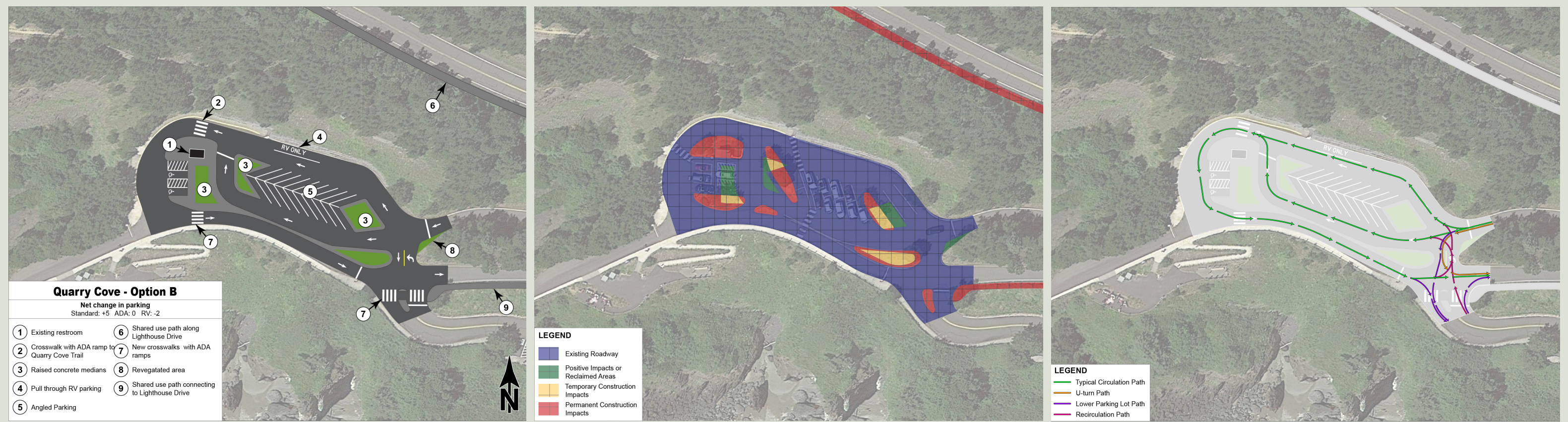
ENVIRONMENTAL IMPACTS: GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTABILITY:

- ADVANTAGES:**
 - Restroom would remain in the same location.
 - Revegetated areas would be provided where feasible.
 - Vegetation would be incorporated in center medians where feasible.
- DISADVANTAGES:**
 - Increased paved area to accommodate SUP between parking lot and Lighthouse Drive.
- ADVANTAGES:**
 - None anticipated
- DISADVANTAGES:**
 - Likely not enough space to feasibly accommodate a SUP adjacent to exit lane. Overall feasibility of a path in this location would have to be determined through further field surveys and geotechnical analyses.

RECOMMENDATION: DO NOT ADVANCE

Although this option addresses pedestrian safety, circulation, and parking accommodations, it is desirable to force entering vehicles to circulate through the parking area to minimize conflicts at the intersection between the entrance/exit couplet and the upper/lower parking areas. The SUP on the exit road is unlikely to be feasible.

QUARRY COVE - OPTION B



DESCRIPTION: MANAGEMENT/MAINTENANCE:

This option would reconfigure the upper Quarry Cove parking lot similar to Option A except providing a “fish-bone”-style parking configuration with angled stalls facing inward and allowing traffic circulation on both sides. An RV/bus parking lane would be provided on the outside edge of the parking lot. A SUP would be provided between the lot and the proposed path on Lighthouse Drive.

ADVANTAGES:

- None anticipated

DISADVANTAGES:

- Increased maintenance required for SUP.

TRAFFIC PERFORMANCE: SAFETY PERFORMANCE:

ADVANTAGES:

- Net gain of 5 standard parking stalls. No loss in ADA parking stalls.
- Circulation through the parking lot would be more logical compared to the existing configuration. Provides more logical flow into the Quarry Cove overflow parking area.

DISADVANTAGES:

- Net loss of 2 RV/bus parking stalls.
- Visitors may have to circle the lot multiple times to find a parking space.
- Circulation is potentially more confusing than Option A.

ADVANTAGES:

- Sidewalks and SUP streamline pedestrian movements and provide protection for non-motorists through the parking lot.
- More logical circulation pattern reduces the potential for conflict due to driver confusion and unintentional wrong way driving.

DISADVANTAGES:

- Potential conflicts anticipated in shared area between parking lot and entrance/exit couplet.

ENVIRONMENTAL IMPACTS: GEOTECHNICAL FEASIBILITY AND OVERALL CONSTRUCTABILITY:

ADVANTAGES:

- Restroom would remain in the same location.
- Vegetation would be incorporated in center medians where feasible.

DISADVANTAGES:

- Increased paved area to accommodate SUP between parking lot and Lighthouse Drive.

ADVANTAGES:

- None anticipated

DISADVANTAGES:

- Feasibility of SUP adjacent to exit lane would have to be determined through further field surveys and geotechnical analyses.

RECOMMENDATION: DO NOT ADVANCE

Although this option provides a greater number of parking spaces compared to Option A, the circulation pattern is more confusing and less efficient.

480



YAQUINA HEAD

Traffic Study

Appendix D: Cost Estimates

APPENDIX A

Planning-Level Cost Estimates

Planning-level cost estimates were developed for preferred improvement concepts. The cost estimates include construction, engineering, and a general contingency to account for unknown factors and anticipated project development risk level. Estimates do not include costs for right-of-way as costs vary considerably with location and additional design details may be needed to determine the amount of right-of-way needed. Cost ranges are provided, indicating a range of variables. The estimates are presented in 2022 dollars and can be expected to increase with inflation depending on the anticipated future year of expenditure.

ENTRANCE STATION IMPROVEMENTS

Entrance Station - Low Estimate						\$	1,900,000	TOT
TYPE	UNITS	QUANTITY	UNIT PRICE	COST	NOTES			
CLEARING AND GRUBBING	ACRE	0.3	\$ 20,000	\$ 6,000				
REMOVAL OF PAVEMENT, ASPHALT	SQYD	2050	\$ 12	\$ 24,600				
ROADWAY EXCAVATION	CUYD	1160	\$ 60	\$ 69,600	12" Depth			
AGGREGATE BASE	CUYD	770	\$ 75	\$ 57,750	8" Thick includes SUP			
ASPHALT CONCRETE PAVEMENT	TON	490	\$ 175	\$ 85,750	4" Thick Roadway 145#/cf			
ASPHALT CONCRETE PAVEMENT	TON	140	\$ 175	\$ 24,500	3" Thick SUP 145#/cf			
CURB, CONCRETE	LNFT	660	\$ 60	\$ 39,600				
SIDEWALK, CONCRETE	SQYD	150	\$ 150	\$ 22,500	4" Thick			
ACCESSIBILITY RAMP, CONCRETE	EACH	2	\$ 400	\$ 800				
REMOVE AND RESET SIGN	EACH	6	\$ 60	\$ 360				
PAVEMENT MARKINGS - STRIPES	LNFT	1920	\$ 3	\$ 5,760	4" stripes			
PAVEMENT MARKINGS - CROSSWALK BARS	LNFT	30	\$ 60	\$ 1,800	Stop bars 24" wide			
PAVEMENT MARKINGS, TYPE A, STRAIGHT ARROW	EACH	4	\$ 350	\$ 1,400				
NEW FEE BOOTHS	LPSM	1	\$ 450,000	\$ 450,000				
REINFORCED CONCRETE RETAINING WALL	SQYD	70	\$ 150	\$ 10,500	6' tall, ~100' long			
MISCELLANEOUS ITEMS			25%	\$ 200,230				
Subtotal 1				\$ 1,001,150				
TRAFFIC CONTROL			10%	\$ 100,115				
Subtotal 2				\$ 1,101,265				
MOBILIZATION			10%	\$ 110,127				
Subtotal 3				\$ 1,211,392				
CONTINGENCY			30%	\$ 363,417				
Subtotal 4				\$ 1,574,809				
CONSTRUCTION ENGINEERING (CE)			10%	\$ 157,481				
PRELIMINARY ENGINEERING (PE)			10%	\$ 157,481				
TOTAL				\$ 1,889,771				
Entrance Station - High Estimate						\$	2,300,000	TOT
TYPE	UNITS	QUANTITY	UNIT PRICE	COST	NOTES			
CLEARING AND GRUBBING	ACRE	0.3	\$ 20,000	\$ 6,000				
REMOVAL OF PAVEMENT, ASPHALT	SQYD	3110	\$ 12	\$ 37,320				
ROADWAY EXCAVATION	CUYD	2010	\$ 60	\$ 120,600	16" Depth			
AGGREGATE BASE	CUYD	1510	\$ 75	\$ 113,250	12" Thick includes SUP			
ASPHALT CONCRETE PAVEMENT	TON	720	\$ 175	\$ 126,000	4" Thick Roadway 145#/cf			
ASPHALT CONCRETE PAVEMENT	TON	140	\$ 175	\$ 24,500	3" Thick SUP 145#/cf			
CURB, CONCRETE	LNFT	660	\$ 60	\$ 39,600				
SIDEWALK, CONCRETE	SQYD	150	\$ 150	\$ 22,500	4" Thick			
ACCESSIBILITY RAMP, CONCRETE	EACH	2	\$ 400	\$ 800				
REMOVE AND RESET SIGN	EACH	6	\$ 60	\$ 360				
PAVEMENT MARKINGS - STRIPES	LNFT	1920	\$ 3	\$ 5,760	4" stripes			
PAVEMENT MARKINGS - CROSSWALK BARS	LNFT	30	\$ 60	\$ 1,800	Stop bars 24" wide			
PAVEMENT MARKINGS, TYPE A, STRAIGHT ARROW	EACH	4	\$ 350	\$ 1,400				
NEW FEE BOOTHS	LPSM	1	\$ 450,000	\$ 450,000				
REINFORCED CONCRETE RETAINING WALL	SQYD	140	\$ 150	\$ 21,000	6' tall, ~200' long			
MISCELLANEOUS ITEMS			25%	\$ 242,723				
Subtotal 1				\$ 1,213,613				
TRAFFIC CONTROL			10%	\$ 121,361				
Subtotal 2				\$ 1,334,974				
MOBILIZATION			10%	\$ 133,497				
Subtotal 3				\$ 1,468,471				
CONTINGENCY			30%	\$ 440,541				
Subtotal 4				\$ 1,909,012				
CONSTRUCTION ENGINEERING (CE)			10%	\$ 190,901				
PRELIMINARY ENGINEERING (PE)			10%	\$ 190,901				
TOTAL				\$ 2,290,815				

INTERPRETIVE CENTER

Interpretive Center - Low Estimate

\$ 1,100,000 TOT

TYPE	UNITS	QUANTITY	UNIT PRICE	COST
CLEARING AND GRUBBING	ACRE	0.3	\$ 20,000	\$ 6,000
REMOVAL OF PAVEMENT, ASPHALT	SQYD	4040	\$ 12	\$ 48,480
ROADWAY EXCAVATION	CUYD	1670	\$ 60	\$ 100,200 12" Depth
AGGREGATE BASE	CUYD	1120	\$ 75	\$ 84,000 8" Thick includes SUP
ASPHALT CONCRETE PAVEMENT	TON	840	\$ 175	\$ 147,000 4" Thick Roadway 145#/cf
ASPHALT CONCRETE PAVEMENT	TON	110	\$ 175	\$ 19,250 3" Thick SUP 145#/cf
CURB, CONCRETE	LNFT	760	\$ 60	\$ 45,600
SIDEWALK, CONCRETE	SQYD	0	\$ 150	\$ - 4" Thick
ACCESSIBILITY RAMP, CONCRETE	EACH	2	\$ 400	\$ 800
REMOVE AND RESET SIGN	EACH	4	\$ 60	\$ 240
PAVEMENT MARKINGS - STRIPES	LNFT	990	\$ 3	\$ 2,970 4" stripes
PAVEMENT MARKINGS - CROSSWALK BARS	LNFT	90	\$ 60	\$ 5,400 Crosswalk Bars 24" wide
PAVEMENT MARKINGS, TYPE A, STRAIGHT ARROW	EACH	7	\$ 350	\$ 2,450
MISCELLANEOUS ITEMS			25%	\$ 115,598
Subtotal 1				\$ 577,988
TRAFFIC CONTROL			10%	\$ 57,799
Subtotal 2				\$ 635,786
MOBILIZATION			10%	\$ 63,579
Subtotal 3				\$ 699,365
CONTINGENCY			30%	\$ 209,809
Subtotal 4				\$ 909,174
CONSTRUCTION ENGINEERING (CE)			10%	\$ 90,917
PRELIMINARY ENGINEERING (PE)			10%	\$ 90,917
TOTAL				\$ 1,091,009

Interpretive Center - High Estimate

\$ 1,900,000 TOT

TYPE	UNITS	QUANTITY	UNIT PRICE	COST
CLEARING AND GRUBBING	ACRE	0.3	\$ 20,000	\$ 6,000
REMOVAL OF PAVEMENT, ASPHALT	SQYD	4040	\$ 12	\$ 48,480
ROADWAY EXCAVATION	CUYD	1840	\$ 60	\$ 110,400 12" Depth
AGGREGATE BASE	CUYD	1230	\$ 75	\$ 92,250 8" Thick includes SUP
REMOVAL OF PAVEMENT, ASPHALT	SQYD	7460	\$ 12	\$ 89,520 2" Mill & Fill
ASPHALT CONCRETE PAVEMENT	TON	820	\$ 175	\$ 143,500 2" Mill & Fill
ASPHALT CONCRETE PAVEMENT	TON	940	\$ 175	\$ 164,500 4" Thick Roadway 145#/cf
ASPHALT CONCRETE PAVEMENT	TON	110	\$ 175	\$ 19,250 3" Thick SUP 145#/cf
CURB, CONCRETE	LNFT	850	\$ 60	\$ 51,000
SIDEWALK, CONCRETE	SQYD	110	\$ 150	\$ 16,500 4" Thick
ACCESSIBILITY RAMP, CONCRETE	EACH	2	\$ 400	\$ 800
REMOVE AND RESET SIGN	EACH	4	\$ 60	\$ 240
PAVEMENT MARKINGS - STRIPES	LNFT	4220	\$ 3	\$ 12,660 4" stripes
PAVEMENT MARKINGS - CROSSWALK BARS	LNFT	90	\$ 60	\$ 5,400 Crosswalk Bars 24" wide
PAVEMENT MARKINGS, TYPE A, STRAIGHT ARROW	EACH	7	\$ 350	\$ 2,450
MISCELLANEOUS ITEMS			25%	\$ 190,738
Subtotal 1				\$ 953,688
TRAFFIC CONTROL			10%	\$ 95,369
Subtotal 2				\$ 1,049,056
MOBILIZATION			10%	\$ 104,906
Subtotal 3				\$ 1,153,962
CONTINGENCY			30%	\$ 346,189
Subtotal 4				\$ 1,500,150
CONSTRUCTION ENGINEERING (CE)			10%	\$ 150,015
PRELIMINARY ENGINEERING (PE)			10%	\$ 150,015
TOTAL				\$ 1,800,181

QUARRY COVE

Quarry Cove - Low Estimate

\$ 600,000 TOT

TYPE	UNITS	QUANTITY	UNIT PRICE	COST	
ROADWAY EXCAVATION	CUYD	150	\$ 60	\$ 9,000	12" Depth under old medians
ASPHALT CONCRETE PAVEMENT	TON	360	\$ 175	\$ 63,000	2" overlay 145#/cf
AGGREGATE BASE	CUYD	100	\$ 75	\$ 7,500	8" under old medians
CURB, CONCRETE	LNFT	1070	\$ 60	\$ 64,200	
SIDEWALK, CONCRETE	SQYD	440	\$ 150	\$ 66,000	4" Thick
ACCESSIBILITY RAMP, CONCRETE	EACH	6	\$ 400	\$ 2,400	
REMOVE AND RESET SIGN	EACH	6	\$ 60	\$ 360	
PAVEMENT MARKINGS - STRIPES	LNFT	740	\$ 3	\$ 2,220	4" stripes
PAVEMENT MARKINGS - CROSSWALK BARS	LNFT	80	\$ 60	\$ 4,800	Crosswalk Bars 24" wide
PAVEMENT MARKINGS, TYPE A, STRAIGHT ARROW	EACH	10	\$ 350	\$ 3,500	
MISCELLANEOUS ITEMS			25%	\$ 55,745	
	Subtotal 1			\$ 278,725	
TRAFFIC CONTROL			10%	\$ 27,873	
	Subtotal 2			\$ 306,598	
MOBILIZATION			10%	\$ 30,660	
	Subtotal 3			\$ 337,257	
CONTINGENCY			30%	\$ 101,177	
	Subtotal 4			\$ 438,434	
CONSTRUCTION ENGINEERING (CE)			10%	\$ 43,843	
PRELIMINARY ENGINEERING (PE)			10%	\$ 43,843	
TOTAL				\$ 526,121	

Quarry Cove - High Estimate

\$ 900,000 TOT

TYPE	UNITS	QUANTITY	UNIT PRICE	COST	
REMOVAL OF PAVEMENT, ASPHALT	SQYD	3010	\$ 12	\$ 36,120	
ROADWAY EXCAVATION	CUYD	1010	\$ 60	\$ 60,600	12" Depth under old medians
ASPHALT CONCRETE PAVEMENT	TON	660	\$ 175	\$ 115,500	4" Thick Roadway 145#/cf
AGGREGATE BASE	CUYD	100	\$ 75	\$ 7,500	8" depth under old medians
CURB, CONCRETE	LNFT	1070	\$ 60	\$ 64,200	
SIDEWALK, CONCRETE	SQYD	440	\$ 150	\$ 66,000	4" Thick
ACCESSIBILITY RAMP, CONCRETE	EACH	6	\$ 400	\$ 2,400	
REMOVE AND RESET SIGN	EACH	6	\$ 60	\$ 360	
PAVEMENT MARKINGS - STRIPES	LNFT	740	\$ 3	\$ 2,220	4" stripes
PAVEMENT MARKINGS - CROSSWALK BARS	LNFT	80	\$ 60	\$ 4,800	Crosswalk Bars 24" wide
PAVEMENT MARKINGS, TYPE A, STRAIGHT ARROW	EACH	10	\$ 350	\$ 3,500	
MISCELLANEOUS ITEMS			25%	\$ 90,800	
	Subtotal 1			\$ 454,000	
TRAFFIC CONTROL			10%	\$ 45,400	
	Subtotal 2			\$ 499,400	
MOBILIZATION			10%	\$ 49,940	
	Subtotal 3			\$ 549,340	
CONTINGENCY			30%	\$ 164,802	
	Subtotal 4			\$ 714,142	
CONSTRUCTION ENGINEERING (CE)			10%	\$ 71,414	
PRELIMINARY ENGINEERING (PE)			10%	\$ 71,414	
TOTAL				\$ 856,970	

LIGHTHOUSE / KEEPER'S GARDEN

Lighthouse / Keeper's Garden - Low Estimate

\$ 300,000 TOT

TYPE	UNITS	QUANTITY	UNIT PRICE	COST	
ROADWAY EXCAVATION	CUYD	80	\$ 60	\$ 4,800	12" DEPTH
GENERAL EXCAVATION	CUYD	370	\$ 60	\$ 22,200	12" Depth on Mound
AGGREGATE BASE	CUYD	50	\$ 75	\$ 3,750	8" Thick
ASPHALT CONCRETE PAVEMENT	TON	50	\$ 175	\$ 8,750	4" Thick Roadway 145#/cf
CURB, CONCRETE	LNFT	377	\$ 60	\$ 22,620	
SIDEWALK, CONCRETE	SQYD	162	\$ 150	\$ 24,300	4" Thick
ACCESSIBILITY RAMP, CONCRETE	EACH	2	\$ 400	\$ 800	
REMOVE AND RESET SIGN	EACH	4	\$ 60	\$ 240	
PAVEMENT MARKINGS - STRIPES	LNFT	2140	\$ 3	\$ 6,420	4" stripes
PAVEMENT MARKINGS - CROSSWALK BARS	LNFT	80	\$ 60	\$ 4,800	Crosswalk Bars 24" wide
PAVEMENT MARKINGS, TYPE A, STRAIGHT ARROW	EACH	6	\$ 350	\$ 2,100	
GUARDRAIL TERMINAL SECTIONS	EACH	2	\$ 4,000	\$ 8,000	
MISCELLANEOUS ITEMS			25% \$	\$ 25,195	
	Subtotal 1		\$	\$ 133,975	
TRAFFIC CONTROL			10% \$	\$ 13,398	
	Subtotal 2		\$	\$ 147,373	
MOBILIZATION			10% \$	\$ 14,737	
	Subtotal 3		\$	\$ 162,110	
CONTINGENCY			30% \$	\$ 48,633	
	Subtotal 4		\$	\$ 210,743	
CONSTRUCTION ENGINEERING (CE)			10% \$	\$ 21,074	
PRELIMINARY ENGINEERING (PE)			10% \$	\$ 21,074	
	TOTAL		\$	\$ 252,891	

Lighthouse / Keeper's Garden - High Estimate

\$ 700,000 TOT

TYPE	UNITS	QUANTITY	UNIT PRICE	COST	
REMOVAL OF PAVEMENT, ASPHALT	SQYD	3330	\$ 12	\$ 39,960	2" Depth for Mill and Fill
ROADWAY EXCAVATION	CUYD	1110	\$ 60	\$ 66,600	12" DEPTH
GENERAL EXCAVATION	CUYD	370	\$ 60	\$ 22,200	12" Depth on Mound
AGGREGATE BASE	CUYD	50	\$ 75	\$ 3,750	8" Thick
ASPHALT CONCRETE PAVEMENT	TON	370	\$ 175	\$ 64,750	4" Thick Roadway 145#/cf
CURB, CONCRETE	LNFT	377	\$ 60	\$ 22,620	
SIDEWALK, CONCRETE	SQYD	162	\$ 150	\$ 24,300	4" Thick
ACCESSIBILITY RAMP, CONCRETE	EACH	2	\$ 400	\$ 800	
REMOVE AND RESET SIGN	EACH	4	\$ 60	\$ 240	
PAVEMENT MARKINGS - STRIPES	LNFT	2140	\$ 3	\$ 6,420	4" stripes
PAVEMENT MARKINGS - CROSSWALK BARS	LNFT	80	\$ 60	\$ 4,800	Crosswalk Bars 24" wide
PAVEMENT MARKINGS, TYPE A, STRAIGHT ARROW	EACH	6	\$ 350	\$ 2,100	
GUARDRAIL TERMINAL SECTIONS	EACH	2	\$ 4,000	\$ 8,000	
MISCELLANEOUS ITEMS			25% \$	\$ 64,635	
	Subtotal 1		\$	\$ 331,175	
TRAFFIC CONTROL			10% \$	\$ 33,118	
	Subtotal 2		\$	\$ 364,293	
MOBILIZATION			10% \$	\$ 36,429	
	Subtotal 3		\$	\$ 400,722	
CONTINGENCY			30% \$	\$ 120,217	
	Subtotal 4		\$	\$ 520,938	
CONSTRUCTION ENGINEERING (CE)			10% \$	\$ 52,094	
PRELIMINARY ENGINEERING (PE)			10% \$	\$ 52,094	
	TOTAL		\$	\$ 625,126	

PEDESTRIAN TRAIL

Pedestrian Trail - Low Estimate (Per Mile)	\$	800,000	TOT
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TYPE	UNITS	QUANTITY	UNIT PRICE	COST	NOTES
CLEARING AND GRUBBING	ACRE	0	\$ 20,000	\$ -	
ASPHALT CONCRETE PAVEMENT	TON	765.6	\$ 175	\$ 133,980	8 foot wide 3" thick 145#/cf
AGGREGATE BASE	CUYD	1043.0	\$ 75	\$ 78,222	8 foot wide 8" thick
ROADWAY EXCAVATION	CUYD	1564.4	\$ 60	\$ 93,867	8 foot wide 12" depth
GUARDRAIL	LNFT	1.0	\$ 35	\$ 35	
MISCELLANEOUS ITEMS (LOWER DIFFICULTY)			25%	\$ 76,517	
Subtotal 1				\$ 382,621	
TRAFFIC CONTROL			10%	\$ 38,262	
Subtotal 2				\$ 420,883	
MOBILIZATION			10%	\$ 42,088	
Subtotal 3				\$ 462,972	
CONTINGENCY			30%	\$ 138,891	
Subtotal 4				\$ 601,863	
CONSTRUCTION ENGINEERING (CE)			10%	\$ 60,186	
PRELIMINARY ENGINEERING (PE)			10%	\$ 60,186	
TOTAL			Per Mile Cost	\$ 722,236	

Pedestrian Trail - High Estimate (Per Mile)	\$	1,100,000	TOT
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TYPE	UNITS	QUANTITY	UNIT PRICE	COST	NOTES
CLEARING AND GRUBBING	ACRE	0	\$ 20,000	\$ -	
ASPHALT CONCRETE PAVEMENT	TON	765.6	\$ 175	\$ 133,980	8 foot wide 3" thick 145#/cf
AGGREGATE BASE	CUYD	1043.0	\$ 75	\$ 78,222	8 foot wide 8" thick
ROADWAY EXCAVATION	CUYD	1564.4	\$ 60	\$ 93,867	8 foot wide 12" depth
GUARDRAIL	LNFT	1.0	\$ 35	\$ 35	
MISCELLANEOUS ITEMS (HIGHER DIFFICULTY)			85%	\$ 260,159	
Subtotal 1				\$ 566,262	
TRAFFIC CONTROL			10%	\$ 56,626	
Subtotal 2				\$ 622,889	
MOBILIZATION			10%	\$ 62,289	
Subtotal 3				\$ 685,178	
CONTINGENCY			30%	\$ 205,553	
Subtotal 4				\$ 890,731	
CONSTRUCTION ENGINEERING (CE)			10%	\$ 89,073	
PRELIMINARY ENGINEERING (PE)			10%	\$ 89,073	
TOTAL			Per Mile Cost	\$ 1,068,877	

Sherri Marineau

From: Derrick Tokos
Sent: Tuesday, August 16, 2022 4:51 PM
To: 'Gail McGreenery'
Cc: Sherri Marineau; Spencer Nebel
Subject: RE: Advisory Board position

Hi Annie... thanks for the note and interest. I'll bring this up with the Commission at their meeting on Monday. While I can't speak for them, I suspect that they would be happy to have you participate on the Advisory Committee.

I'll reach out after the meeting.

Derrick I. Tokos, AICP
Community Development Director
City of Newport
169 SW Coast Highway
Newport, OR 97365
ph: 541.574.0626 fax: 541.574.0644
d.tokos@newportoregon.gov

From: Gail McGreenery [REDACTED]
Sent: Tuesday, August 16, 2022 1:39 PM
To: Derrick Tokos <D.Tokos@NewportOregon.gov>
Cc: Spencer Nebel <S.Nebel@NewportOregon.gov>
Subject: Advisory Board position

[WARNING] This message comes from an external organization. Be careful of embedded links.

Some people who received this message don't often get email from [REDACTED]. [Learn why this is important](#)

Hi Derrick,
CC: Spencer

I have just reviewed the interviewing process (on video) of the City Council and have heard their decision. I would be honored to work on the Planning Commission Advisory Board.

Thank you for this opportunity,
Gail (Annie) McGreenery

--
Annie