

**WALDPORT PLANNING COMMISSION
SEPTEMBER 28, 2020
MEETING NOTICE AND AGENDA**

THE WALDPORT PLANNING COMMISSION WILL MEET ON MONDAY, SEPTEMBER 28th, 2020 AT 2:00 P.M. IN THE CITY COUNCIL MEETING ROOM, 125 ALSEA HIGHWAY, TO TAKE UP THE FOLLOWING AGENDA:

1. CALL TO ORDER AND ROLL CALL
2. MINUTES: June 22, 2020 (P. 2)
3. CITIZEN COMMENTS AND CONCERNS
4. DISCUSSION / ACTION ITEMS:
 - A. Waldport Development Code Amendments
 - a. Current Parking Standards (P. 6)
 - b. Downtown District (D-D) (P. 7)
 - c. Notifications of Land Use Applications (P. 15)
 - B. Tsunami Evacuation Facilities Plan (P. 17)
 - C. Planner's Report (P. 87)
 - D. Other Issues*
5. ADJOURNMENT

*Denotes no material in packet

The City Council Meeting Room is accessible to all individuals. Note that due to Covid-19 distancing requirements it will be necessary to call (541)563-3561 if you plan on attending, as seating will be very restricted. The meeting will be recorded, and the mp3 recording will be made available to interested parties by contacting the City at the above-noted phone number. Comments may be mailed to PO Box 1120, Waldport, OR 97394 or emailed to reda.eckerman@waldport.org and will be forwarded to the Commission at their next scheduled meeting for consideration.

Notice given this 24th day of September 2020
City of Waldport

1 **WALDPORT PLANNING COMMISSION**

2 **JUNE 22, 2020**

3 **MEETING MINUTES**

4
5 1. CALL TO ORDER AND ROLL CALL: Chair Barham called the meeting to order at 2:00
6 p.m. Chair Barham and Commissioners Woodruff, Stole, Phillips and Lambert answered
7 the roll. Commissioner Schlosser was excused. A quorum was present.

8
9 2. MINUTES: The Commission considered the minutes from the February 24, 2020
10 meeting. Commissioner Woodruff moved to approve the minutes as presented.
11 Commissioner Phillips seconded, and the motion carried unanimously.

12
13 3, CITIZEN COMMENTS AND CONCERNS: Hollis Lundeen addressed the Commission,
14 noting that in regard to notifications for land use applications, the Commission should
15 consider basing the notification on the type of application, where factors such as the
16 volume of proposed structures and their impact on the transportation system may affect
17 a larger area.

18
19 4. DISCUSSION/ACTION ITEMS:

20 A. Waldport Development Code Amendments:

21 1) Off-Street Parking: Contract Planner Peterson noted that he had included all
22 Code standards in reference to parking in his memo in the packet. One of the recent issues
23 involved the current interpretation of the code requirement for construction of a garage or
24 carport in conjunction with new single-family dwellings. There had been several garage
25 conversion approvals given, based on the fact that once that condition had been satisfied,
26 there was nothing in the Code to prevent the structure from being utilized as living space.
27 Commissioner Barham distributed a proposed clarification, which removed the word "new"
28 from the requirement and added the date of adoption of the code amendment to the first
29 line. It then added the following: "If a property owner desires to remodel an existing garage
30 or carport to a different purpose of use, a new garage or carport must be constructed as
31 part of the remodel, if necessary to meet the requirement of a garage or carport for single

1 family homes built after (date of ordinance adoption).” Mr. Peterson noted the wording he
 2 was considering was similar. Discussion ensued. Consensus of the Commission was
 3 favorable to the proposal. The Commission also confirmed that this standard should be
 4 applicable to any new single-family dwelling, regardless of zone. Mr. Peterson will draft a
 5 revision to the language for consideration at the next meeting.

6 2) Downtown District (D-D): Mr. Peterson explained that there were no new revisions
 7 to present, though some may be proposed during the public hearing process.

8 Commissioner Stole noted another concern in her review of the parking standards
 9 memo, regarding the definition of “truck” under the off-street parking and off-street loading
 10 requirements, item “E”. Staff pointed out that this standard was with regard to required
 11 parking, if additional space was available, then storage of vehicles or materials or trucks
 12 used in conducting the business or use could be allowed. Following further discussion, Mr.
 13 Peterson offered to review the definitions in the code and the standards and provide
 14 clarifying language at the next meeting.

15 3) Tsunami Hazard: Mr. Peterson reviewed the changes implemented by House Bill
 16 2209 with regard to tsunami regulations. Discussion ensued. Commissioner Lambert
 17 indicated that she was under the impression that a lot of discussion has already taken
 18 place regarding tsunami concerns and how they related to development and transportation.
 19 Commissioner Barham clarified that tsunami preparedness was one topic, while regulating
 20 building in a tsunami zone was another. DLCD Coastal Shores Specialist Meg Reed
 21 agreed, noting that the Commission and former Planner Lewis had been working on
 22 proposed Code revisions as well as the City’s Transportation Plan prior to his retirement.
 23 Planner Peterson indicated that both items will be on the agenda for the next meeting for
 24 further discussion.

25 4) Notifications of Land Use Applications: Commissioner Barham noted that the
 26 revisions had been prepared for public hearing previously, but had been removed from
 27 consideration because there had been some concern about the wording. He distributed a
 28 proposed clarification that would expand the notification to property owners whose property
 29 fronts a local street that may be directly affected, as well as active homeowner’s
 30 associations in the immediate area. A lengthy discussion ensued regarding identification

1 of affected properties and quasi-judicial hearings in general. It was determined that staff
2 would further review the issue and provide draft language at the next meeting.

3 5) Continuous Partitioning: Discussion ensued about the current code language and
4 whether it was adequate to prevent potential problems. Consensus of the Commission was
5 that it was.

6 B. Planner's Report: Mr. Peterson reviewed his written report.

7 C. Other Issues: None.

8
9 5. ADJOURNMENT: At 4:01 p.m., there being no further business to come before the
10 Commission, the meeting was adjourned.

11
12 Respectfully submitted,

13
14
15 Reda Q Eckerman, City Recorder

16
17 APPROVED by the Planning Commission this _____ day of _____, 2020.

18
19 SIGNED by the Chair this _____ day of _____, 2020.

20
21
22 _____
23 Steve Barham, Chair

September 24, 2020

To: Waldport Planning Commission
cc: Dann Cutter, City Manager
Reda Eckerman, City Recorder

From: Justin Peterson / Holly Hamilton - OCWCOG

Re: Update of Waldport Development Code Amendments

	Code Amendment	Status
A	Downtown District Zone (D-D)	Consensus at Dec. 16, 2019 City Council/Planning Commission work session: 1) insert four standards, as drafted, regarding yard setbacks, screening outdoor storage, and drainage; 2) allow residential-only uses on properties fronting some minor streets; 3) maintain general purpose/public parking. Initiate discussion with Chamber of Commerce/businesses re: compliance. Additional Comments by PC? Ready for public hearings.
B	Tsunami Resilience Land Use Measures	Planning Commission recommended to move forward with public hearings on the draft Tsunami Evacuation Facilities Improvement Plan (an amendment to the Comprehensive Plan) and 2) the draft Tsunami Hazard Overlay Zone (an amendment to the Development Code). Additional Comments by PC? Ready for public hearings.
C	Notification of Land Use Applications	PC proceed w/ review
D	Continuous Partitioning	PC proceed w/ review
E	Parking	Proceed to Public Hearings
F	Planned Development Zone P-D – Review and Update	Proceed w/Review to 26OCT20
G	Planned Industrial Zone I-P Review Standards	Proceed w/Review to 26OCT20
H	Vacation Rental Dwellings	Proceed w/Review to 26OCT20
I	Livestock Regulations	Proposal to remove livestock regulations from Title 16 Development Code. This requires Planning Commission and City Council public hearings. Revise Title 6 Animals. This requires City Council action. Review with City Manager
J	Accessory Dwelling Units (ADUs)	Planning Commission discussion to table this due to the State's mandate (to cities with population >2,500) to not require ADU parking space or require owner-occupancy.

September 24, 2020

To: Waldport Planning Commission

From: Justin Peterson, City Planner

Re: 2020 Waldport Development Code Amendments
Updated Draft Amendment for
~~NOTIFICATION OF LAND USE APPLICATIONS~~ Parking Standards

The Issue and Current Parking Standards

On the January 27, 2020, Planning Commission meeting members asked about a Garage Conversion. The R-1 standard for single family residences states: "All new single-family homes are required to have a garage or carport constructed of like materials" (WMC 16.12.030(B)(6)). As discussed in the previous Planning Commission meeting the interpretation of new single-family dwelling has led to the conversion of garages to living space in single-family residences that are not "new".

The Planning Commission members expressed interest in exploring a clarification in the existing code standard. The purpose of this memo is to continue the conversation about the above mentioned standard and other parking standards. The proposed code standards related to parking are listed below for reference.

Code Language to Consider

WMC 16.12.030(B)(6)

Single family dwellings built after XXXX are required to have a garage or carport constructed of like materials. A garage may only be converted to living space if another garage or carport is provided on the parcel.

WMC 16.72.020 (E)

Required parking spaces shall be available for the parking of operable passenger automobiles of residents, customers, patrons and employees only, and shall not be used for storage of vehicles or materials or for the parking of trucks ~~vehicles~~ used in conducting the business or use. (WDC 16.72.20(E)).

Commented [JP1]: Review Planning Commission Member Steve Barham's language from last meeting. The meeting packet is under the right computer monitor.

Need Data

Plain Text: Existing language to remain

~~Strike Through Text~~: Text to be deleted

Bold, Underlined, Italicized Text: Text to be added

Chapter 16.30

DOWNTOWN DISTRICT ZONE DD

Sections:

- 16.30.010 Uses Permitted Outright
- 16.30.020 Conditional Uses Permitted
- 16.30.030 Building Setbacks
- 16.30.040 Lot Coverage
- 16.30.050 Building Orientation
- 16.30.060 Building Height
- 16.30.070 Architectural Guidelines and Standards
- 16.30.080 Pedestrian Amenities
- 16.30.090 Special Standards for Certain Uses
- 16.30.100 Parking Requirements

16.30.010 Uses Permitted Outright

In a DD zone, the following uses and their accessory uses are permitted outright, subject to the applicable provisions of Chapters 16.72 (Supplementary Standards), 16.76 (Signs), 16.80 (Exceptions), 16.84 (Conditional Uses), and 16.96 (Development Guidelines for Natural Hazards) of this title:

- A. Retail store or shop, such as food store, drug store, apparel store, hardware store, furniture store or similar establishment;
- B. Mixed commercial and residential use;
- C. Residential uses in accordance with Section 16.30.090;
- D. Repair shop for the type of goods offered for sale in retail trade establishments permitted in a C-1 zone, provided all repair and storage shall occur entirely within an enclosed building;
- E. Personal or business service establishments such as barber or beauty shop, tailor shop, laundry or dry cleaning establishment, or similar establishment;
- F. Clinic;
- G. Club, lodge or fraternal organization;
- H. Financial institution;
- I. Hotel, motel or resort;
- J. Indoor commercial amusement or recreation establishment such as bowling alley, theater or pool hall;
- K. Newspaper office, print shop;
- L. Office;
- M. Private museum, art gallery or similar facility;
- N. Restaurant, bar or tavern;
- O. Laundromat.

16.30.020 Conditional Uses Permitted

In a DD zone, the following uses and their accessory uses may be conditionally permitted, subject to the applicable provisions of Chapters 16.72 (Supplementary Standards), 16.76 (Signs), 16.80 (Exceptions), 16.84 (Conditional Uses), and 16.96 (Development Guidelines for Natural Hazards) of this title:

- A. Governmental structure or use of land for necessary public utility facilities;
- B. Parks;
- C. Schools or other instructional institution;
- D. Animal hospital;
- E. Automobile oriented uses and facilities;
- F. Other uses similar to the above, subject to meeting applicable criteria listed in Section 16.72.070 (Authorization of Undefined Uses) of this title.

16.30.030 Building Setbacks

In the Downtown District, buildings are placed close to the street to create a vibrant pedestrian environment, to slow traffic down, provide a storefront character to the street, and encourage walking. The setback standards are flexible to encourage public spaces between sidewalks and building entrances (e.g., extra-wide sidewalks, plazas, squares, outdoor dining areas, and pocket parks). The standards also encourage the formation of solid blocks of commercial and mixed use buildings for a walkable downtown.

The setback standards apply to primary structures as well as accessory structures. The standards may be modified only by approval of a variance in accordance with Chapter 16.92, Variances.

A. Front Yard Setbacks.

- 1. Minimum Setback. There is no minimum front yard setback required.
- 2. Maximum Setback. The maximum allowable front yard setback is 20 feet. This standard is met when a minimum of 75 percent of the front building elevation (façade) is placed no more than 20 feet back from the front property line. In any event, a building must be within the required setback and cover a minimum 75% of lot width. The setback standard may be increased when a usable public space with pedestrian amenities (e.g., extra-wide sidewalk, plaza, pocket park, outdoor dining area or town square with seating) is provided between the building and front property line. (See also, Pedestrian Amenities Standards and Architectural Standards in this Chapter).

B. Rear Yard Setbacks. There is no minimum rear yard setback.

C. Side Yard Setbacks. There is no minimum side yard setback required, except that buildings shall conform to the clear vision standards in Chapter 16.72.010 and the applicable fire and building codes for attached structures, fire walls, and related requirements.

16.30.040 Lot Coverage

There is no maximum lot coverage requirement, except that compliance with other sections of this code may preclude full (100 percent) lot coverage for some land uses.

16.30.050 Building Orientation

This section is intended to promote the walkable, storefront character of Downtown Waldport by orienting (placing or locating) buildings close to streets. Placing buildings close to the street not only slows vehicular traffic, but also provides more "eyes on the street", increasing the safety of public spaces. The standards, as listed below, compliment the front yard setback standards in Section 16.30.030.

Building Orientation Standard. All development shall be oriented to a street, i.e. arterial if the property has frontage on an arterial. The building orientation standard is met when all of the following criteria are met:

- A. The minimum and maximum setback standards in Section 16.30.030 are met;
- B. Buildings have their primary entrance(s) oriented to (facing) the street. Building entrances may include entrances to individual units, lobby entrances, entrances oriented to pedestrian plazas, or breezeway/courtyard entrances (i.e., to a cluster of units or commercial spaces). Alternatively, a building may have its entrance facing a side yard when a direct pedestrian walkway not exceeding 20 feet in length is provided between the building entrance and the street right-of-way.
- C. New land divisions and developments may be configured to provide a driveway or interior parking court. If parking courts are created, then pedestrian pathways shall be provided from the street right-of-way to interior parking courts between buildings, as necessary to ensure reasonably safe, direct, and convenient access to building entrances and off-street parking. Off-street parking, driveways or other vehicular circulation shall not be placed between a building and the street. On corner lots, buildings shall be oriented to the street corner. Parking, driveways and other vehicle facilities shall be prohibited between buildings and street corners.

16.30.060 Building Height

All buildings in the Waldport Downtown District shall comply with the following building height standards. The standards are intended to allow for development of appropriately-scaled buildings incorporating a storefront character:

Maximum Height. Buildings shall not exceed a height of 35 feet. The maximum building height may be increased by 10 feet when residential housing is provided above the ground floor ("vertical mixed use"). The building height increase for housing shall apply only to that portion of the building that contains residential housing.

16.30.070 Architectural Guidelines and Standards

- A. Purpose and Applicability. These architectural guidelines and standards are intended to encourage innovative design and be of human-scale while affording flexibility to use a variety of building styles and materials complementary to and with materials used in existing downtown buildings. This section applies to all building types as listed in Section 16.30.050.
- B. Building Elevation Design Standards. All buildings shall contribute to the storefront character and visual relatedness of Downtown Waldport buildings. This criterion may be met by providing architectural features as listed in items 1-4 below, in the front or "main street" façade or elevation, as applicable. Buildings situated on corners shall

include the stated criteria in the side street elevation or façade as well. Buildings on through-lots (lots that face a street along the front and rear of the property) shall treat the secondary street façade in a manner similar to that as the main street façade is treated. Additionally, if the architectural character along the secondary street is other than commercial, that façade should be compatible with the architectural character of that neighborhood as much as possible while maintaining the architectural integrity of the main building.

1. Building entrances on corner lots. A building entrance may be located away from the corner when the building corner is beveled or incorporates other design aspects or features to reduce the angular appearance of the building at the street corner.
2. Fenestration and decoration. Appropriately spaced and/or shaped windows with window hoods, cornices and/or canopies or special trim at all windows on all building stories.
3. Display windows. Large display windows on the ground-floor should be setoff by extended mullions, applied columns, or a storefront cornice to separate the ground floor from upper stories. Display windows are not for residential use.
4. Decoration. Decorative cornices and/or fascias on street facades at top of building (flat roof), or eaves on buildings with pitched roofs and/or expressions of roof structure such as projected roof trusses or decorative roof overhangs.

16.30.080 Pedestrian Amenities

- A. Purpose and Applicability. This section is intended to complement the building orientation standards in Section 16.30.050 by providing comfortable and inviting pedestrian spaces within the Waldport Downtown District. Pedestrian amenities serve as informal gathering places for socializing, resting, and enjoyment of the Downtown, and contribute to a walkable district. This section applies to all building types as listed in Section 16.30.050.
- B. Guidelines and Standards. Every development shall provide one or more of the "pedestrian amenities" listed in subsections 1-3 below. Pedestrian amenities may be provided within a public right-of-way when approved by the agency having jurisdiction over the right-of-way.
 1. A plaza, courtyard, square or recessed area next to the building;
 2. Sitting space (i.e., dining area, benches or ledges between the building and sidewalk (minimum of 16 inches in height and 30 inches in width);
 3. Building canopy, awning, pergola, or similar weather protection (minimum projection of 4 feet over a sidewalk or other pedestrian space).

16.30.085 Standards

- A. All yards abutting a residential zone shall have a minimum ten (10) feet setback.**
- B. Outdoor storage shall be screened with either a sight-obscuring fence or a buffer strip of vegetation.**

- C. In areas where a side or rear yard is not required and a new structure is to be erected, it shall be set back either zero (0) feet or three (3) feet in order to eliminate narrow and unsightly gaps that are difficult to maintain.**
- D. Drainage: A plan shall be submitted showing width, depth, and direction of flow of all drainage on and from the property. In addition, the location, size and type of conduit used in drainage channels and driveway accesses shall be clearly delineated. Water from roof drains and other nonimpervious surfaces shall not be concentrated and directed so as to cause damage to other properties. Pipes draining water from roof drains and other nonimpervious surfaces shall not be allowed to connect to any sanitary sewer facilities.**

16.30.090 Special Standards for Certain Uses

This section supplements the standards contained in Sections 16.30.030 through 16.30.070 providing standards for the following land uses in order to control the scale and compatibility of those uses within the Downtown District:

- * Residential Uses
- * Accessory Uses and Structures
- * Automobile-Oriented Uses and Facilities
- * Outdoor Storage and Display
- * Light Manufacture

- A. **Residential Uses.** Higher density residential uses, such as multi-family buildings and attached townhomes, are permitted to encourage housing near employment, shopping and services. All residential developments shall comply with the standards in items 1-6, below, which are intended to require **encourage multi-family residential and** mixed use development; conserve the community's supply of commercial land for commercial uses **on primary streets**; provide for designs which are compatible with a storefront character; avoid or minimize impacts associated with traffic and parking; and ensure proper management and maintenance of common areas. Residential uses which existed prior to the effective date of this code are exempt from this Section.

1. **Mixed Use Development Required.** Residential uses shall be permitted **on properties fronting the following streets** only when part of a mixed use development (residential with commercial or public/institutional use):

Hwy 101

Hwy 34 (Alder St. to Maple St.)

Spring Street

Willow Street (Hwy 101 to Verbena St.)

Verbena Street (Hwy 34 to Willow St.)

John Street (Spring St. to Hwy 34)

Cedar Street (Spring St. to Hwy 34)

Both "vertical" mixed use (housing above the ground floor), and "horizontal" mixed use (housing on the ground floor) developments are allowed, subject to the standards in items 2-6 below.

Properties fronting other streets (not identified above) are allowed to have residential-only uses, commercial uses, or mixed uses.

2. Limitation on street-level housing. Residential uses are not permitted at street-level on arterials (Hwy. 34 and Hwy. 101). This standard is intended to reserve storefront space for commercial uses and public/institutional uses. It does not limit residential uses above the street level on upper stories, or behind street-level storefronts.
 3. Density. There is no residential density standard.
 4. Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots, garages, and parking structures, shall be oriented to alleys, or in parking areas located behind or to the side of the building; except that side yards facing a street (i.e., corner yards) shall not be used for surface parking. All garage entrances facing a street shall be recessed behind the front building elevation by a minimum of 4 feet. On corner lots, garage entrances shall be oriented to a side-street (i.e. away from Highway 101 or Highway 34) when access cannot be provided from an alley.
 5. Creation of Alleys. When a subdivision (e.g., four or more townhome lots) is proposed, a public or private alley shall be created for the purpose of vehicle access. Alleys are not required when existing development patterns make construction of an alley impracticable. As part of a subdivision, the City may require dedication of right-of-way or easements, and construction of pathways between townhome lots (e.g., between building breaks) to provide pedestrian connections through a development site.
 6. Common Areas. All common areas (e.g., walkways, drives, courtyards, private alleys, parking courts, etc.) and building exteriors shall be maintained by a homeowners association or other legal entity. Copies of any applicable covenants, restrictions and conditions shall be recorded and provided to the city prior to building permit approval.
- B. Accessory Uses and Structures. Accessory uses and structures are of a nature customarily incidental and subordinate to the principal use or structure on the same lot. Typical accessory structures in the Waldport Downtown District may include small workshops, studios, storage sheds, and similar structures. Accessory uses and structures are allowed for all permitted land uses within the Waldport Downtown District. Accessory structures shall comply with the following standards:
1. Primary use required. An accessory structure shall not be allowed before or without a primary use.
 2. Setback standards. Accessory structures shall comply with the setback standards in Section 16.30.030, except that the maximum setback provisions shall not apply.

3. Design guidelines. Accessory structures shall comply with the Downtown design guidelines, as provided in Section 16.30.070.
 4. Restrictions. A structure shall not be placed over an easement that prohibits such placement. No structure shall encroach into the public right-of-way.
 5. Compliance with subdivision standards. The owner may be required to remove an accessory structure as a condition of land division approval when removal of the structure is necessary to comply with setback standards.
- C. Automobile-Oriented Uses and Facilities. Automobile-oriented uses and facilities, as defined below, shall conform to all of the following standards in the Waldport Downtown District. The standards are intended to provide a vibrant storefront character, slow traffic down, and encourage walking.
1. Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots and garages, shall be accessed from alleys, placed in structures above the ground floor, or located in parking areas located behind or to the side of a building; except that side-yards on corner lots shall not be used for surface parking. All garage entrances facing a street (e.g., structured parking) shall be recessed behind the front elevation by a minimum of 4 feet. On corner lots, garage entrances shall be oriented to a side-street (i.e., away from Highway 101 or Highway 34 when vehicle access cannot be provided from an alley. Individual surface parking lots shall not exceed a total of 50 parking spaces, or one-half city block, whichever is smaller.
 2. Automobile-Oriented Uses. "Automobile-oriented use" means automobiles and/or other motor vehicles are an integral part of the use. These uses are restricted because, when unrestricted, they detract from the pedestrian-friendly, storefront character of the district and can consume large amounts of land relative to other permitted uses.
- D. Sidewalk Displays. Sidewalk display of merchandise is permitted, however a minimum clearance of 6 feet shall be maintained.
- E. Light Manufacture. Light manufacture uses, i.e. manufacturing of small-scale goods, such as crafts, electronic equipment, bakery products, printing and binderies, furniture, and similar goods shall conform to all of the following standards which are intended to protect the pedestrian-friendly, storefront character of Downtown Waldport:
1. Retail or Service Use Required. Light manufacture is allowed only when it is in conjunction with a permitted retail or service use.
 2. Location. The light manufacture use shall be enclosed within a building.
- 16.30.100 Parking Requirements
- A. Parking Requirements: Parking requirements within the Downtown District shall conform to Section 16.72.020 with the following exception:
- * Retail Store: One (1) space for each 500 square feet of floor area.

- B. On-Street Parking: On-street parking spaces that front the lot and is adjacent (on the same side of the street) may be counted in the required parking.
- C. Parking Restrictions: No person who works or resides in the Downtown District shall park a vehicle on arterials (Hwy. 34 and Hwy. 101) while in his/her place of employment, or in his/her residence between nine a.m. and five p.m. on any day.
- D. General Purpose/Public Parking: Within the Downtown District, all parking shall be general purpose parking/public parking with the exception of Subsection C above. Residential uses may have designated off-street parking spaces. (Ord. 710, 2006)

September 24, 2020

To: Waldport Planning Commission

From: Justin Peterson and Holly Hamilton

**Re: 2020 Waldport Development Code Amendments
Updated Draft Amendment for
NOTIFICATION OF LAND USE APPLICATIONS**

The Issue and Current Procedure for Public Hearing Notification

The City has received complaints that the notice of the Planning Commission public hearing is not distributed to as many property owners as it should be. For Quasi-Judicial Hearings (land use applications requiring a public hearing with the Planning Commission) State law requires notices of the public hearing be sent to property owners within 100' of the perimeter of the subject property. The City sends notices to property owners within 250' of the subject property.

The complaints have occurred for subdivision and planned development applications. However, there are additional quasi-judicial land use applications where notices of the Planning Commission public hearing are required, e.g. conditional uses and variances.

The Planning Commission discussed the notice requirements at the June Planning Commission meeting. Staff had concerns about creating discretionary notice criteria based on impacted streets and the cost of additional noticing. Below are two other cities examples of notice requirements.

Current Code Language

Waldport Development Code (WDC) Section 16.108.020 identifies review procedures for land use applications. Subsection D.2 identifies noticing requirements for Quasi-Judicial Hearings stating, in part, that *.....the applicant and the owners of record of property on the most recent tax assessment roll of Lincoln County within two hundred fifty (250) feet of the subject property shall be notified in writing.....* This paragraph continues to state *Said notice shall also be provided to any neighborhood or community organization recognized by the City Council and whose boundaries include the subject property.*

Other Code Examples

City of Toledo:

- All property owners of record within three hundred (300) feet of the site;
- Any neighborhood or community organization recognized by the city council and whose boundaries include the property proposed for development;

City of Albany:

- The Director shall notify all persons who own property within 300 feet of the subject property and any neighborhood association recognized by the City and whose boundaries include the site and other neighborhood association recognized by the City within 300 feet

of the site. The Director shall have discretion to increase the notice area up to 1,000 feet due to land use or transportation patterns or an expected level of public interest.

Proposed Code Language

In addition, for subdivision and planned development applications said notice shall be provided to any neighborhood or community organization registered with the City.

The planner shall have the discretion to increase the notice area up to 1,000 feet due to the land use or transportation patterns or an expected level of public interest.

Last, the city could increase the standard notice distance to 300 feet.

Chapter 16.66.**Tsunami Hazard (TH) Overlay Zone**

Sections

- 16.66.010 Purpose.
- 16.66.020 Definitions.
- 16.66.030 Applicability of Tsunami Hazard Overlay Zone.
- 16.66.040 Uses.
- 16.66.050 Prohibited Uses.
- 16.66.060 Use Exceptions.
- 16.66.070 Evacuation Route Improvement Requirements.

16.66.010 Purpose.

The purpose of the Tsunami Hazard Overlay Zone is to increase the resilience of the community to a local source (Cascadia Subduction Zone) tsunami by establishing standards, requirements, incentives, and other measures to be applied in the review and authorization of land use and development activities in areas subject to tsunami hazards. The standards established by this section are intended to limit, direct and encourage the development of land uses within areas subject to tsunami hazards in a manner that will:

- A. Reduce loss of life;
- B. Reduce damage to private and public property;
- C. Reduce social, emotional, and economic disruptions; and
- D. Increase the ability of the community to respond and recover.

Significant public and private investment has been made in development in areas which are now known to be subject to tsunami hazards. It is not the intent or purpose of this section to require the relocation of or otherwise regulate existing development within the Tsunami Hazard Overlay Zone. However, it is the intent of this section to control, direct and encourage new development and redevelopment such that, over time, the community's exposure to tsunami risk will be reduced.

16.66.020 Definitions

"Essential Facilities" means:

- A. Hospitals and other medical facilities having surgery and emergency treatment areas;
- B. Fire and police stations;
- C. Tanks or other structures containing, housing or supporting water or fire-suppression materials or equipment required for the protection of essential or hazardous facilities or special occupancy structures;

- D. Emergency vehicle shelters and garages;
- E. Structures and equipment in emergency preparedness centers; and
- F. Standby power generating equipment for essential facilities.

“Hazardous facility” means structures housing, supporting or containing sufficient quantities of toxic or explosive substances to be of danger to the safety of the public if released.

“Special occupancy structures” means

- A. Covered structures whose primary occupancy is public assembly with a capacity greater than 300 persons;
- B. Buildings with a capacity of greater than 250 individuals for every public, private or parochial school through secondary level;
- C. Child care centers as defined in ORS 414-300;
- D. Buildings for colleges or adult education schools with a capacity of greater than 500 persons;
- E. Medical, assisted, and senior living facilities with resident, incapacitated persons;
- F. Jails and detention facilities; and
- G. All structures and occupancies with a capacity of greater than 5,000 persons.

Note: The City has definitions for “day care facility” and “family day care provider” but not child care center. Child care center is defined in state rule: “Child Care Center” means a child care facility that is certified to care for thirteen or more children, or a facility that is certified to care for twelve or fewer children and located in a building constructed as other than a single family dwelling.

“Tsunami Inundation Map (TIM)” means the map in the DOGAMI Tsunami Inundation Map (TIM) Series, published by the Oregon Department of Geology and Mineral Industries, which covers the area within the City of Waldport.

16.66.030 Applicability of Tsunami Hazard Overlay Zone.

All lands identified as subject to inundation from the XXL magnitude local source tsunami event as set forth on the applicable Tsunami Inundation Map (TIM) published by the Oregon Department of Geology and Mineral Industries (DOGAMI) are subject to the requirements of this section.

Note: The overlay zone should include all of the area subject to inundation by the highest local source tsunami event, XXL, depicted on the DOGAMI TIMs. By using the limits of the XXL event, all of the area subject to tsunami risk will be included. However, the regulatory and other standards may be applied differentially within the overlay,

based on the different levels of risk for the five modeled events, the purpose of the standard, and overall community objectives.

16.66.040 Uses.

In the Tsunami Hazard Overlay Zone, except for the prohibited uses set forth in subsection (5), all uses permitted pursuant to the provisions of the underlying zone may be permitted, subject to the additional requirements and limitations of this section.

16.66.050 Prohibited Uses.

Unless authorized in accordance with subsection (6), the following uses are prohibited in the specified portions of the Tsunami Hazard Overlay Zone:

- A. In areas identified as subject to inundation from the XXL magnitude local source tsunami event as set forth on the Tsunami Inundation Map (TIM), the following uses are prohibited:
 - 1. Hospitals and other medical facilities having surgery and emergency treatment areas.
 - 2. Fire and police stations.
 - 3. Structures and equipment in government communication centers and other facilities required for emergency response.
 - 4. Buildings with a capacity greater than 250 individuals for every public, private or parochial school through secondary level.
 - 5. Child care centers.
 - 6. Buildings for colleges or adult education schools with a capacity of greater than 500 persons.
 - 7. Jails and detention facilities.
 - 8. Tanks or other structures containing, housing or supporting water or fire-suppression materials or equipment required for the protection of essential or hazardous facilities or special occupancy structures.
 - 9. Emergency vehicle shelters and garages.
 - 10. Structures and equipment in emergency preparedness centers.
 - 11. Standby power generating equipment for essential facilities.
 - 12. Covered structures whose primary occupancy is public assembly with a capacity of greater than 300 persons.
 - 13. Medical, assisted, and senior living facilities with resident, incapacitated patients.
- B. In areas identified as subject to inundation from the M (medium) magnitude local source tsunami event as set forth on the Tsunami Inundation Map (TIM), the following uses are prohibited:
 - 1. Residential uses, including manufactured home parks, of a density exceeding

- 10 units per acre.
 - 2. Hotels or motels with more than 50 units.
- C. Notwithstanding the provisions of Section 16.88, the requirements of this subsection shall not have the effect of rendering any lawfully established use or structure nonconforming.

16.66.060 Use Exceptions.

A use listed in subsection 16.66.050 of this section may be permitted upon authorization of a Use Exception in accordance with the following requirements:

- A. Auxiliary fire or police stations may be permitted upon findings that there is a need for a strategic location.
- B. Other uses prohibited by subsection 16.66.050 of this section may be permitted upon the following findings:
 - 1. Adequate evacuation measures will be provided such that life safety risk to building occupants is minimized; and,
 - 2. The buildings will be designed and constructed in a manner to minimize the risk of structural failure during the design earthquake event.
- C. Applications, review, decisions, and appeals for Use Exceptions authorized by this subsection shall be in accordance with the requirements for a Conditional Use procedure as set forth in Section 16.84.

16.66.070 Evacuation Route Improvement Requirements.

Except single family dwellings on existing lots and parcels, all new development, substantial improvements and land divisions in the Tsunami Hazard Overlay Zone shall incorporate evacuation measures and improvements, including necessary vegetation management, which are consistent with and conform to the adopted Tsunami Evacuation Facilities Improvement Plan, or Transportation System Plan. Such measures shall include:

- A. On-site improvements:
 - 1. Improvements necessary to ensure adequate pedestrian access from the development site to evacuation routes designated in the Tsunami Evacuation Facilities Improvement Plan in all weather and lighting conditions.
 - 2. Frontage improvements to designated evacuation routes that are located on or contiguous to the proposed development site, where such improvements are identified in the Tsunami Evacuation Facilities Improvement Plan. Such improvements shall be proportional to the evacuation needs created by the proposed development.
- B. Evacuation route improvements and measures required by this subsection shall include, at a minimum, improved streets and/or all-weather surface paths of sufficient width and grade to ensure pedestrian access to designated evacuation

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routes in all weather and lighting conditions.



Appendices

1. [Identified Tsunami Evacuation Facility Improvement Projects](#)
2. [Evacuation Improvements Project Identification Maps](#)
3. [Potential Financing Strategies](#)
4. [Comprehensive Plan Policies](#)

Appendix 1: Identified Tsunami Evacuation Facility Improvement Projects

These lists are a starting point and can be modified, added to, or deleted based on community needs and desires into the future.

Project ID	Project Name	Priority	Potential Project Partners	Potential Funding Sources
Citywide Recommendations – Administration and Policy				
W1	Identify staff member to lead implementation.	Medium	Waldport City Manager and city staff (planning, public works, fire, etc.)	City General Funds
W2	Increase interdepartmental coordination	High	Waldport City Manager and city/county staff (planning, public works, fire, etc.)	City General Funds
W3	Integrate evacuation facilities improvements with ongoing planning efforts	High	Waldport City Manager and city staff (planning, public works, fire, etc.), DLCD, ODOT	
W4	Adopt recommended Comprehensive Plan Policies	Medium	Planning staff, planning commission, city council, DLCD	DLCD Technical Assistance Grants, FEMA RiskMAP CTP grants
W5	Require tsunami education and mapping in short-term rentals and hotels/motels	Medium	Planning staff, planning commission, city council, DLCD, business/tourism representatives	DLCD Technical Assistance Grants, FEMA RiskMAP CTP grants

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Project ID	Project Name	Priority	Potential Project Partners	Potential Funding Sources
Citywide Recommendations – Education/Outreach				
W6	“Stay Alive. Walk. Don’t Drive!” Marketing Campaign	High	City manager, business community, school district	Oregon Office for Emergency Management (OEM)
W7	Create a pedestrian trail evacuation map	High	City staff from various departments, DLCD, GIS/map-making expertise	City General Funds
Citywide Recommendations – Evacuation Facilities and Preparedness				
W8	Establish supply caches and emergency shelters in strategic areas outside of the tsunami zone	High	City staff, school district, golf course, DLCD, OEM, Lincoln County Emergency staff, food bank, church groups, etc.	FEMA Hazard Mitigation Assistance grants
W9	Continue to pursue acquisition of land for relocation of critical facilities.	High	City staff, city council, community stakeholder groups	FEMA Hazard Mitigation Assistance grants
W10	Create trail connectivity between high ground and assembly areas	Medium	City staff from various departments, DLCD, GIS/map-making expertise	
Old Town Recommendations – Wayfinding				
OT1	Add signage or blue lines to indicate arrival at high ground along major evacuation routes	Medium	City staff from various departments, DLCD, DOGAMI, community groups	OEM & DOGAMI
OT2	Add evacuation arrow signage directing people to the Woodlands Trail (behind the baseball field)	High	City staff	OEM & DOGAMI
OT3	Expand Evacuation Route Signage	High	City staff from various departments, DLCD, DOGAMI, community groups	OEM & DOGAMI

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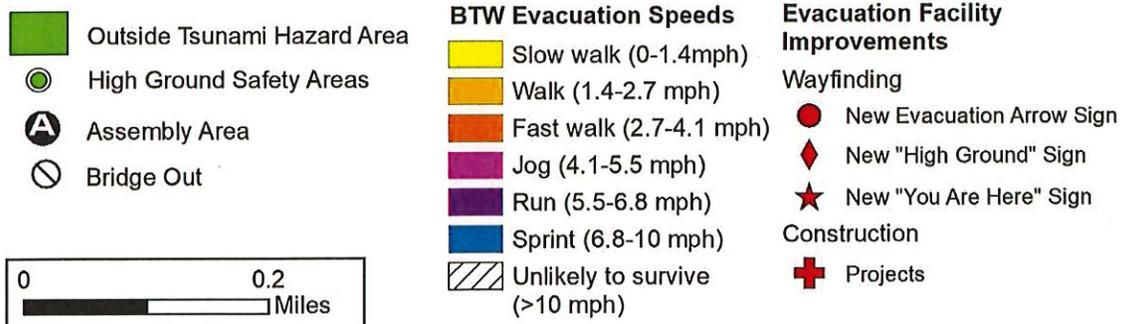
Project ID	Project Name	Priority	Potential Project Partners	Potential Funding Sources
OT4	Add "You Are Here" map signs at major water access points	Medium	City staff, Port of Alsea, Oregon State Parks, DOGAMI	OEM & DOGAMI
Old Town Recommendations – Construction				
OT5	New pedestrian evacuation trail between Crestline and Cedar	High	Public works, DOGAMI	
OT6	Improvements to Woodland Trail	High	Public works, DOGAMI	
OT7	Improvements to trail behind the wastewater treatment facility off NE Lint Slough Road	High	Public works, DOGAMI	
OT8	Bury Powerlines	Medium	Public works, DOGAMI	ODOT
OT9	Vertical Evacuation Structure	Low	Public works, DOGAMI	FEMA Hazard Mitigation Assistance grants
Old Town Recommendations – Planning				
OT10	Landslide mitigation measures	High	City staff from various departments, city council, DLCD, DOGAMI, community groups	FEMA Hazard Mitigation Assistance grants
Waldport East – Wayfinding				
WE1	Add signage or blue lines to indicate arrival at high ground along major evacuation routes	Medium	City staff from various departments, DLCD, DOGAMI, community groups	OEM & DOGAMI
WE2	Expand evacuation route signage	Medium	City staff from various departments, DLCD, DOGAMI, community groups	OEM & DOGAMI

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Project ID	Project Name	Priority	Potential Project Partners	Potential Funding Sources
WE3	Add assembly area to water treatment facility	Medium	Public works, DOGAMI, OEM	OEM & DOGAMI
Waldport East – Construction				
WE4	Bridge retrofit or replacement at Lint Slough (Highway 34)	Medium	ODOT, public works	ODOT
Waldport South – Wayfinding				
WS1	Add signage or blue lines to indicate arrival at high ground along major evacuation routes	Medium	City staff from various departments, DLCD, DOGAMI, community groups	OEM & DOGAMI
WS2	Expand evacuation route signage	High	City staff from various departments, DLCD, DOGAMI, community groups	OEM & DOGAMI
WS3	Add "You Are Here" map signs at major beach access points	Low	Public works, DOGAMI, Oregon State Parks	OEM & DOGAMI
Waldport South – Construction				
WS4	Develop a post-disaster community shelter in partnership with Crestview Golf Club.	High	City staff, school district, golf course, DLCD, OEM, Lincoln County Emergency staff, food bank, church groups, etc.	ODOT

Appendix 2: Evacuation Improvements Project Identification Maps

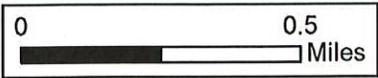
Old Town



Waldport East



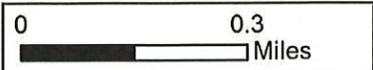
<ul style="list-style-type: none"> Outside Tsunami Hazard Area High Ground Safety Areas A Assembly Area ⊘ Bridge Out 	<p>BTW Evacuation Speeds</p> <ul style="list-style-type: none"> Slow walk (0-1.4mph) Walk (1.4-2.7 mph) Fast walk (2.7-4.1 mph) Jog (4.1-5.5 mph) Run (5.5-6.8 mph) Sprint (6.8-10 mph) Unlikely to survive (>10 mph) 	<p>Evacuation Facility Improvements</p> <p>Wayfinding</p> <ul style="list-style-type: none"> A New Assembly Area New Evacuation Arrow Sign New "High Ground" Sign <p>Construction</p> <ul style="list-style-type: none"> + Projects
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Waldport South



<ul style="list-style-type: none"> Outside Tsunami Hazard Area High Ground Safety Areas A Assembly Area / Bridge Out 	<p>BTW Evacuation Speeds</p> <ul style="list-style-type: none"> Slow walk (0-1.4mph) Walk (1.4-2.7 mph) Fast walk (2.7-4.1 mph) Jog (4.1-5.5 mph) Run (5.5-6.8 mph) Sprint (6.8-10 mph) Unlikely to survive (>10 mph) 	<p>Evacuation Facility Improvements</p> <p>Wayfinding</p> <ul style="list-style-type: none"> New Evacuation Arrow Sign New "High Ground" Sign New "You Are Here" Sign
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Appendix 3: Potential Financing Strategies

Potential funding sources identified to finance evacuation improvements:

- FEMA has three funding programs under their Hazard Mitigation Assistance program. The application process and grant administration of these funding programs can be onerous but are worthwhile. Sign up for updates regarding these grant sources through the Oregon Office of Emergency Management Hazard Mitigation Officer who can help guide communities through the application process. DLCD coastal and natural hazard staff can also be used as resources in the development of projects and applications.
 - The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds. Eligible Applicants include states, local governments, and Indian tribes or other tribal organizations.
 - The Hazard Mitigation Grant Program (HMGP) provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. Eligible Applicants include States, local governments, Indian tribes or other tribal organizations, and private non-profit organizations.
 - The Flood Mitigation Assistance (FMA) program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to assist States and communities who implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insured under NFIP. Eligible Applicants include states, local governments and Indian tribes or other tribal organizations.
- National Tsunami Hazard Mitigation Program (NTHMP) Funds: Distributed through the Oregon Office for Emergency Management (OEM) and the Oregon Department of Geology and Mineral Industries (DOGAMI), these funds could be used for a variety of tsunami evacuation improvements, including for signage and wayfinding, and outreach and education. DOGAMI and OEM develop a funding request to NTHMP every year for a variable amount of money. If a jurisdiction is interested in using these funds for a project, talk to staff at DOGAMI or OEM to see if the project can be written into the next funding request. Projects are typically one year in duration. Examples of how this funding has benefited communities in the past: “You are Here” signs, tsunami evacuation route signs, lighted informational kiosks, evacuation drills, and Beat the Wave modeling.

- Urban renewal is a public financing tool to improve local infrastructure for tsunami evacuation and could facilitate new improvements or the redevelopment of existing improvements. It is a valuable tool for those with existing urban renewal programs and those contemplating developing one. Urban renewal is funded through a strategy called tax increment financing. When an urban renewal district is established, the county assessor determines the current assessed value of all property within the district, and freezes that tax base. Once the base is frozen, the property tax revenue local jurisdictions receive from all property within the district is likewise set at a fixed amount until the urban renewal area is terminated. Over time, as property values increase, all tax revenues generated by the “increment” between the frozen value and the current real market value of all properties in the district are directed to improvement projects within the urban renewal district. Assessed values can increase yearly at the 3% maximum allowed amount by state statute, or by more than this if new development occurs within the area. When the urban renewal area expires, the frozen base also expires, and the local taxing jurisdictions resume receiving taxes on the full assessed value of the area.

Tax increment financing can be used to fund a variety of improvement projects including projects that help mitigate tsunami risk. Projects such as multi-use paths and green spaces that can double as tsunami evacuation routes and assembly areas, infrastructure upgrades (water, sewer, and utility), and the relocation of critical facilities outside of tsunami hazard areas are examples of work that could be accomplished through urban renewal financing.

For more information about urban renewal visit the following websites:

- State of Oregon - Urban Renewal Webpage:
www.oregon.gov/DOR/PTD/Pages/IC_504_623.aspx
 - Urban Renewal in Oregon: History, Case Studies, Policy Issues, and Latest Developments:
www.rockawaybeachor.us/Portals/56/urOregon.pdf
 - An Overview of Urban Renewal:
www.oregon.gov/oprd/HCD/PROGRAMS/docs/omsc_2011_ur101_main_street.pdf
- System Development Charges (SDCs) are one-time charges on new development, and certain types of redevelopment, to help pay for existing and planned infrastructure to serve the development. SDCs are one means available to local governments for financing growth. State law creates a framework for local SDCs and specifies how, when, and for what improvements they can be imposed. Under ORS 223.297-223.314, SDCs may be used for capital improvements for:
 - Water supply, treatment, and distribution;
 - Wastewater collection, transmission, treatment, and disposal;
 - Drainage and flood control;
 - Transportation; and
 - Parks and recreation.

System development charges may be charged to new development based on a fee to reimburse for unused infrastructure capacity and/or to make planned improvements that increase

infrastructure capacity. System development charge revenues may only be used for capital costs. They cannot be used for ongoing system or facility maintenance or projects that fix existing system deficiencies or replace existing capacity.

Local governments must establish their SDCs by ordinance. They must have a methodology to calculate a reimbursement fee and/or an improvement fee and provide credit if a developer finances a qualified capital improvement. Prior to imposing an SCD based on an improvement fee for capital facilities, the local government must have in place: 1) a capital improvement plan; 2) a public facilities plan or comparable plan that lists improvements to be funded with the improvement fee portion of the SDC; and an estimate of the cost and timing for each improvement.

System development charges could be utilized for evacuation route component financing if those components are directly related to capital improvements that SDCs can legally fund (e.g. transportation, parks, and recreation) and the charges are developed consistent with ORS 223-297. These SDCs should be directly linked to the local government's capital improvement plan and the TEFIP which has comparable components to a public facilities plan. The plan must include specific associated standards for evacuation route paths, bridges and other related improvements (i.e. size, width, seismic capacity, and cost for each listed improvement). As indicated in the applicable statute, development of a legal formula to apply system development charges to these improvements is required and addresses rough proportionality as necessary. Improvements may be evacuation route facilities associated with the transportation system (e.g. streets/bridges). They may also be associated with multi-use paths or trails that would fall within the transportation, park, or recreation systems of the community.

The local government should seek guidance and direction from its legal counsel and other qualified professionals to assist in the use of this option and in potential development of this tool. Local government organizations (LOC, AOC) may also have information on this option. For more information about system development charges, visit the following websites:

- ORS 223-297(SDCs):
www.leg.state.or.us/ors/223.html
www.oregonlaws.org/ors/223.302
- Legal Exactions refers to a broad range of regulatory techniques used by local governments to require developers to contribute to the cost of community public facilities. Specifically, exactions require contributions toward public improvements that fall outside the boundary of the development (such as access roads or off-site drainage easements), or will serve larger segments of the community in addition to the specified development (such as new parks or a new evacuation route needed to adequately serve the area where the development is located).

The underlying and common legal issue with respect to fees, dedications, and exactions is the connection, also referred to as the "nexus," to the impact of land development. Without this nexus, land development regulations that impose exactions may be deemed unconstitutional takings of property without just compensation.

The United States Supreme Court has held that under limited circumstances, a government may have the right to limit certain uses, and invoke certain permit conditions and exactions if they are necessary to limit or avoid specific public harms threatened by the development. The Court has set forth a three part test to determine whether an exaction results in an unconstitutional taking. To avoid resulting in a taking, an exaction must:

- Substantially advance a legitimate public purpose;
- Be based on an essential nexus between that purpose and the harm threatened by the proposed use; and
- Be roughly proportional to the degree of threatened harm.

The public purpose advanced by exactions for tsunami evacuation improvements is to reduce life safety risk. New or intensified development within the tsunami hazard area will, by definition, place more people at risk from tsunami; thus the clear nexus for evacuation related exactions is to mitigate the harm presented by this increased risk. Proportionality can be addressed by establishing a process for evaluating the impacts of new development in terms of increased risk exposure, and identifying evacuation improvements or other measures that are roughly proportional to those impacts.

In adopting regulations that establish evacuation system related exactions, jurisdictions should incorporate findings that address these three requirements. Such findings should clearly articulate the purpose of the regulations, the essential nexus between new development and increased risk, and the process for determining proportionality. The TEFIP provides a key foundation for these findings and the establishment of regulation based exactions.

The local government should seek guidance and direction from its legal counsel and other qualified professionals to assist in development of this option. Local government organizations such as the League of Oregon Cities and Association of Oregon Counties also may have helpful information on this topic.

- Local improvement districts, or special assessment districts, function as mainstays of local improvement financing. A local improvement district is a geographic area in which real property is taxed to defray all or part of the cost of a public improvement. The distinctive feature of a special assessment is that its costs are apportioned according to the established benefit that will accrue to each property. In Oregon, local improvement districts are governed by local ordinances, but the Bancroft Bonding Act (ORS 223.205-295) addresses the means by which local governments may finance public improvements.

In the case of tsunami evacuation route improvements, a local government can use this financing mechanism to work with neighborhoods lacking needed route facilities to help them overcome those deficiencies in their portion of the evacuation route system. The costs of the needed evacuation route improvements would be apportioned to each property owner according to the direct benefit of the route improvement to the property.

The local government should seek guidance and direction from its legal counsel and other qualified professionals to assist in development of this tool. Local government organizations (LOC, AOC) may also have information on this option.

- A land trust is a nonprofit organization that, as all or part of its mission, actively works to conserve land by undertaking or assisting in land or conservation easement acquisition, or by its stewardship of such land or easements. Land trusts work with landowners and the community to conserve land by accepting donations of land, purchasing land, negotiating private, voluntary conservation agreements on land, and stewarding conserved land through the generations to come. Land trusts can be used in tsunami mitigation to:
 - Acquire developable land in high risk areas;
 - Create buffer zones to protect urban development from tsunami impacts;
 - Acquire open space for community assembly areas.

For more information about land trusts, visit the following websites:

- Oregon Land Trust Contacts:
www.opb.org/programs/oregonstory/land_trusts/resources/page_2.html
 - Land Trust Alliance: www.landtrustalliance.org/
-
- A conservation easement, which is a legal agreement between a landowner and a land trust or government agency, can be used to permanently limit the use of land in order to protect its conservation value. It allows landowners to continue to own, use, or sell their land.

When a conservation easement is put in place by a landowner, some of the rights associated with the land are given up. For example, in high-risk tsunami inundation areas, the right to build certain types of structures could be given up, while retaining some or all of the land as open space. Conservation easements are permanent, and future owners are also bound by the easement terms. The easement holder is responsible for making sure the easement's terms are followed. Easement holders are typically a land trust or other conservation oriented NGO, but may also be governmental entities.

While conservation easement are typically focused on preserving important natural resource or open space values, as voluntary, non-regulatory mechanisms for limiting development, conservation easements may also serve to help reduce exposure to tsunami risk. For more information, see:

 - Conservation Easements Oregon:
www.nature.org/about-us/private-lands-conservation/conservation-easements/
 - Southern Oregon Land Conservancy:
www.landconserve.org/content/conservation-easements
 - Cannon Beach Conservation Easement:
www.ci.cannon-beach.or.us/News/EcolaCreek/OWEBease.pdf
 - Land Trust Alliance – Conservation Easements Webpage:
www.landtrustalliance.org/conservation/landowners/conservation-easements
 - National Park Service: www.nps.gov/tps/tax-incentives/taxdocs/easements-historic-properties.pdf

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- Transferable Development Credits (TDC) is more widely known as “Transfer of Development Rights” or TDR. Currently this option has limited utility as current Oregon statute (ORS 94.531-538) on “TDR” sending areas is limited to “resource lands.” The term “resource lands” is defined in a way that would not allow sending areas to be designated based solely on tsunami hazard/risk; sending areas would have to possess other defined natural resource/conservation values in order to qualify. However, if a jurisdiction has an existing TDR program it may be able to provide secondary hazard mitigation value in addition to its primary purpose of conserving “resource lands.”

In cases where qualifying resource land sending areas are within a tsunami hazard area, Transfer Development Rights (TDR) would be another incentive-based approach that could be used to limit development in high risk inundation zones and encourage development outside of inundation zones. For more information about this strategy visit the following website: ORS 94.531-538: www.leg.state.or.us/ors/094.html

- ODOT Bicycle & Pedestrian Program Grants: Multi-use paths and transportation facilities can also serve a dual purpose as evacuation routes when these transportation facilities are also identified as necessary routes within the community’s TEFIP. Information for this funding source is located at: www.oregon.gov/ODOT/HWY/BIKEPED/pages/grants1.aspx.
- Recreation Related Funding Sources:
Recreation District: ORS 198.010 and 198.335 authorize 28 types of districts, including “park and recreation” districts. Special Districts are financed through property taxes, fees for services, or a combination of these. Recreation districts in Oregon are directed by OAR 226 and may provide for a variety of recreational facilities. If the community has a recreation district, or is contemplating developing one, which includes or would include hiking and biking trails and other multi-use facilities, it may be possible to utilize these funds to further develop evacuation routes if the primary purpose of these routes is recreation. The Special Districts Association of Oregon (SDAO) provides support services to member districts throughout the state in the areas of research and technical assistance, legislative representation, training programs, insurance services, information and reference materials, financing services, and employee benefits programs.

OPRD Recreation Trails Program (RTP) Grants: These federally funded grants provide awards for recreation trail-related projects such as hiking, running, bicycling, off-road motorcycling and all- terrain vehicle riding. Information for this funding source is located at: www.oregon.gov/OPRD/GRANTS/pages/about_us.aspx.

- Purchase Strategies: Local governments can purchase property, through fee simple acquisitions for a variety of public purposes. A number of communities have implemented programs to acquire land to conserve critical ecosystems or natural features, as well as to provide open space for recreational benefits to their communities. In some cases, such

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acquisitions may also serve to remove properties at risk from tsunami hazard from the private market; alternatively, a community could specifically identify tsunami hazard mitigation as an objective for a land acquisition program or strategy. Some communities have successfully used purchase strategies for negotiating/purchasing easements and acquiring new right-of-ways. Other specific tools and strategies may include fee simple purchases, acquisition of development and easement rights, and relocation of existing structures in the hazardous areas pre-disaster. These programs can be costly for local governments; although in certain cases, significant life safety benefits may be realized.

Local governments should seek guidance and direction from legal counsel and other qualified professionals to assist in development of this tool. Local government organizations (LOC, AOC) may also have information on this option.

Appendix 4: Comprehensive Plan Policies

This section includes a set of sample (model) plan policies related to tsunami resilience planning and a sample (model) tsunami related text section that can be included within the Goal 7 (Natural Hazards) section of the community's comprehensive plan. The comprehensive plan text section can be used as it is or modified and tailored to better meet the needs of the community. The comprehensive set of draft plan policies can be reviewed, tailored, and used to support development code provisions identified for community use.

Sample Comprehensive Plan Natural Hazards Chapter Text

This section includes sample tsunami related text that can be included as a tsunami-oriented subsection within the Goal 7 (Natural Hazards) section of the local comprehensive plan. Its intent is to provide general information related to community tsunami risk, preface the applicable tsunami plan policies, and support the community's land use resilience program. Sample text follows.

0.0 TSUNAMI

0.01 Description of the Hazard: The Oregon coast is well known for its spectacular scenery and natural resources. However, because the coast lies at the interface between land and the Pacific Ocean, it also is a zone of great instability and vulnerability. Over time, we have gained a greater awareness of our coast's geologic hazards and its risks to people and property.

Coastal Oregon is not only vulnerable to chronic coastal hazards such as coastal erosion from winter storms and sea level rise, but it is also subject to the potentially catastrophic effects of a Cascadia earthquake event and related tsunami. These types of powerful and devastating earthquakes of magnitude 9+ are generated at the Cascadia Subduction Zone where the eastward-moving Juan de Fuca tectonic plate dives under the westward-moving North American plate just off the Oregon coast. These large earthquakes will occur under the ocean just offshore of our coast and will produce extremely destructive tsunamis that can strike the coast as soon as 15 minutes after the earthquake, leaving devastation in their path. It is likely that in most Oregon coast communities, including Waldport, the only warning of an approaching tsunami will be the earthquake itself.

The geologic record shows that the largest of these large Cascadia Subduction Zone earthquakes and accompanying tsunamis occur about every 500 years, plus or minus 200 years. The last such earthquake and tsunami occurred over 300 years ago, on the evening of January 26th, 1700. This means that we are in the time window where a destructive Cascadia earthquake and tsunami could occur and the probability of that occurrence will continue to increase over time. This time the stakes are much higher as the great earthquake and catastrophic tsunami could occur when tens of thousands of Oregonians and visitors are enjoying coastal beaches and towns. To address this increasing risk and substantially increase resilience within our community, the City of Waldport is proactively addressing tsunami preparedness and mitigation within its land use program. Land use planning that addresses tsunami risk is an essential tool to help increase resilience to a potentially catastrophic tsunami event within the City.

City of Waldport
Tsunami Evacuation Facilities Improvement Plan

0.02 Tsunami Hazard Maps: The Department of Geology and Mineral Industries (DOGAMI) has developed Tsunami Inundation Maps (TIMs) which provide the essential information for defining tsunami risk along the Oregon coast. The City of Waldport has adopted the TIM's applicable to Waldport, and its urban growth boundary, as a part of its comprehensive plan hazard inventory. These maps are also referenced within this natural hazards element of the comprehensive plan and are the basis for establishing the boundaries of Waldport's Tsunami Hazard Overlay Zone. The TIMs are referenced in the tsunami related plan policies and within the overlay zone for purposes of differentiating between areas of higher versus lower risk.

0.03 Tsunami Related Policies: The City has adopted a set of comprehensive plan policies related to tsunami preparedness and recovery that are included within this and other applicable sections of the comprehensive plan. These policies have been developed to address the resilience goals of Waldport. They are designed to support the City's resilience efforts within the comprehensive plan and implementing codes.

0.04 Zoning: Tsunami Hazard Overlay Zone (THOZ): Waldport has adopted an overlay zone which utilizes the applicable DOGAMI Tsunami Inundation Maps (TIMs). The overlay zone includes all areas identified as subject to inundation by the largest (XXL) local source tsunami event which ensures that life safety and evacuation route planning and development are adequately addressed. Other land use resilience strategies and requirements included within the overlay zone, which are not life safety or evacuation related, are applied within a subset of the overlay to smaller inundation scenario areas. These measures are included within the overlay zone provisions and reflect the community's risk tolerance, application of mitigation measures, and ORS 455.446-447 requirements. The overlay zone boundary has been adopted as an amendment to the official zoning map for Waldport.

0.05 Evacuation Route Plan Maps: The City, as part of its land use program for tsunami preparedness, has also adopted a comprehensive Tsunami Evacuation Facilities Improvement Plan (TEFIP). The TEFIP identifies designated evacuation routes, assembly areas and other components of the local evacuation system. The plan is a key component of the City's efforts to reduce risk to life safety by planning for a comprehensive evacuation system and developing the detailed information necessary to establish land use requirements to implement evacuation measures and improvements. This plan and associated map(s) have been incorporated into the City [*comprehensive plan natural hazard element/ transportation system plan*].

Sample Comprehensive Plan Tsunami Related Policies

This section includes a set of sample comprehensive plan policies related to tsunami preparedness and recovery that can be included within the Goal 7 (Natural Hazards) section, and other applicable sections of the community's comprehensive plan. The sample comprehensive plan policies should be used and tailored to meet the needs of a specific community. They are designed to be used with and support the sample development code provisions and/or other strategies within the Tsunami Land Use Guide. The sample policies are as indicated below.

Goal 7: Areas Subject to Natural Hazards

General Policies

1. Support tsunami preparedness and related resilience efforts.
2. Take reasonable measures to protect life and property to the fullest extent feasible, from the impact of a local source Cascadia tsunami.
3. Use the Oregon Department of Geology and Mineral Industries (DOGAMI) Tsunami Inundation Maps applicable to Waldport to develop tsunami hazard resiliency measures.
4. Adopt a Tsunami Hazard Overlay Zone for identified tsunami hazard areas to implement land use measures addressing tsunami risk.
5. Implement land division provisions to further tsunami preparedness and related resilience efforts.
6. Consider potential land subsidence projections to plan for post Cascadia event earthquake and tsunami redevelopment.
7. Identify and secure the use of appropriate land above a tsunami inundation zone for temporary housing, business and community functions post event.
8. As part of a comprehensive pre-disaster land use planning effort, consistent with applicable statewide planning goals, identify appropriate locations above the tsunami inundation for relocation of housing, business and community functions post event.

Evacuation Policies

1. Adopt a Tsunami Evacuation Facilities Improvement Plan that identifies current and projected evacuation needs, designates routes and assembly areas, establishes system standards, and identifies needed improvements to the local evacuation system.
2. Identify and secure the use of appropriate land above a tsunami inundation zone for evacuation, assembly, and emergency response.
3. Ensure zoning allows for adequate storage and shelter facilities.
4. Provide development or other incentives to property owners that donate land for evacuation routes, assembly areas, and potential shelters.
5. Require needed evacuation route improvements, including improvements to route demarcation (wayfinding in all weather and lighting conditions) and vegetation management, for new development and substantial redevelopment in tsunami hazard areas.
6. Work with neighboring jurisdictions to identify inter-jurisdictional evacuation routes and assembly areas where necessary.
7. Provide for the development of vertical evacuation structures in areas where reaching high ground is impractical.
8. Evaluate multi-use paths and transportation policies for tsunami evacuation route planning.
9. Encourage suitable structures to incorporate vertical evacuation capacity in areas where evacuation to high ground is impractical.
10. Install signs to clearly mark evacuation routes and implement other way finding technologies (e.g. painting on pavement, power poles and other prominent features) to ensure that routes can be easily followed day or night and in all weather conditions.
11. Prepare informational materials related to tsunami evacuation routes and make them easily

available to the public.

Policies Related to Reducing Development Risk in High Tsunami Risk Areas

1. Prohibit comprehensive plan or zone map amendments that would result in increased residential densities or more intensive uses in tsunami hazard areas unless adequate mitigation is implemented. Mitigation measures should focus on life safety and tsunami resistant structure design and construction.
2. Encourage open space, public and private recreation and other minimally developed uses within the tsunami inundation zone area.
3. Prohibit the development of specified essential facilities and special occupancy structures within the XXL tsunami inundation area.
4. Consider the use of transferrable development credits as authorized by ORS 94-531-94.538 to facilitate development outside of tsunami inundation zones.
5. Encourage, through incentives, building techniques that address tsunami peak hydraulic forces which will minimize impacts and increase the likelihood that structures will remain in place.

Hazard Mitigation Planning

1. Address tsunami hazards and associated resilience strategies within the community's FEMA approved natural hazard mitigation plan.
2. Incorporate and adopt relevant sections of the natural hazard mitigation plan by reference into the comprehensive plan.
3. Ensure natural hazard mitigation plan action items related to land use are implemented through the comprehensive plan and implementing ordinances.

Tsunami Awareness Education and Outreach

1. Encourage and support tsunami education and outreach, training, and practice.
2. Implement a comprehensive and ongoing tsunami preparedness community education and outreach program.
3. Collaborate with local, state and federal planners and emergency managers for the purpose of developing a culture of preparedness supporting evacuation route planning and other land use measures that minimize risk and maximize resilience from tsunami events.

Debris Management

1. Identify and work to secure the use of suitable areas within the tsunami inundation zone for short and long-term, post-disaster debris storage, sorting and management.
2. Work with other public and private entities to establish mutual aid agreements for post-disaster debris removal and otherwise plan for needed heavy equipment in areas which may become isolated due to earthquake and tsunami damage.

Hazardous Materials

1. Limit or prohibit new hazardous facilities within tsunami inundation zones. Where limiting or prohibiting such facilities is not practical, require adequate mitigation measures consistent with

state and federal requirements.

Goal 11: Public Facility and Services

1. Consider and address tsunami risks and evacuation routes and signage when planning, developing, improving, or replacing public facilities and services.
2. Update public facility plans to plan, fund, and locate future facilities outside of the tsunami inundation zone, whenever possible.

Goal 12: Transportation

1. Develop multi-use paths that both enhance community livability and serve as tsunami evacuation routes.
2. Coordinate evacuation route and signage planning in conjunction with existing or proposed transportation system plan pedestrian and bicycle route planning efforts.
3. Locate new transportation facilities outside the tsunami inundation zones where feasible.
4. Where feasible design and construct new transportation facilities to withstand a Cascadia event earthquake and be resistant to the associated tsunami.

Goal 14: Urbanization

1. Limit the allowable uses on property in the tsunami hazard area vacated as the result of an urban growth boundary expansion to relocate existing development. Such limitations shall include permitting only low risk uses, or requiring uses which implement adequate protection or mitigation measures for seismic and tsunami hazards.
2. Restrict the development of lodging facilities and higher density residential housing in tsunami inundation zones or require the implementation of protective measures.
3. Plan for the location or relocation of critical facilities outside of tsunami hazard area when conducting the land needs analysis.
4. Include pre- and post-tsunami disaster planning as part of urban reserve planning processes.

City of Waldport, Oregon



Tsunami Evacuation Facilities Improvement Plan (TEFIP)

September 2019

Plan Development

This plan was developed by the City of Waldport and the Oregon Department of Land Conservation and Development. Input was received from: Oregon Department of Land Conservation and Development, Waldport City Council, Waldport Planning Commission, Waldport city staff, and Central Coast Fire & Rescue District.

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OREGON
Department of
Land Conservation
& Development



OCMP
Oregon Coastal
Management Program

Waldport Tsunami Evacuation Facilities Improvement Plan (TEFIP)

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List of Acronyms and Abbreviations

BTW	Beat the Wave
CERT	Community Emergency Response Team
City	City of Waldport
County	Lincoln County
CSZ	Cascadia Subduction Zone
DLCD	Oregon Department of Land Conservation and Development
DOGAMI	Oregon Department of Geology and Mineral Industries
FEMA	Federal Emergency Management Agency
fps	feet per second
HMA	Hazard Mitigation Assistance
mph	miles per hour
NTHMP	National Tsunami Hazard Mitigation Program
RV	recreational vehicle
TEFIP	Tsunami Evacuation Facilities Improvement Plan
TIM	Tsunami Inundation Map

1. Introduction

1.1 General Introduction

The City of Waldport (the City) is vulnerable to the effects of a Cascadia Subduction Zone (CSZ) earthquake and tsunami event. In addition to the potentially catastrophic damage caused by the earthquake event itself, the resultant tsunami could inundate portions of the community, and a risk-based and community-specific approach to evacuation will be critical to saving lives. This Tsunami Evacuation Facilities Improvement Plan (TEFIP) is a comprehensive look at existing and potential evacuation routes and needed improvements for this community, and includes identified facility and infrastructure improvement projects and potential financing strategies. This TEFIP is essential to the implementation of evacuation route development and improvement in conjunction with the land use review and approval process.

The Oregon Department of Geology and Mineral Industries (DOGAMI) has identified and mapped the tsunami inundation hazard along the Oregon coast since 1994. DOGAMI developed a series of Tsunami Inundation Maps (TIMs) in 2013 to assist residents and visitors along the coast to prepare for the next CSZ earthquake and tsunami. The TIMs display five scenarios, labeled as “T-shirt sizes” (i.e., S, M, L, XL, and XXL), showing the impact of a CSZ tsunami that reflects the full range of possible inundation. The geologic record shows that the amount of time that has passed since the last great CSZ earthquake (January 26, 1700) is not a reliable indicator of the size of the next one, so the size ranges are intended to be inclusive of the range of scenarios that a community might expect during a CSZ event.

1.2 Limitations and Constraints

The purpose of this TEFIP is to provide guidance and recommendations for methods so that all areas within the XXL scenario can be effectively evacuated to protect life safety. This local tsunami is generated by a high magnitude earthquake just off the Oregon Coast and, thus, the inundation area is much larger than for a distant tsunami event. In addition, unlike a distant tsunami that can be predicted several hours prior to its arrival (4 or more hours), this local CSZ tsunami can arrive at coastal beaches within 15 to 25 minutes after the start of earthquake shaking.

For the purposes of this plan, tsunami evacuation means the immediate movement of people from the tsunami inundation zone to high ground or safety following a local CSZ earthquake. Comprehensive disaster planning for a CSZ earthquake and tsunami event requires a phased and scalable approach to planning and coordination; immediate evacuation for the purposes of life safety is only one phase (albeit a very important one). While this TEFIP does not include planning for earthquake shaking damage mitigation or post-event disaster response and recovery, it is important to note that ground shaking will have an immediate impact on the ability to evacuate due to debris on roadways and sidewalks and damage to critical infrastructure. Other entities at the local, state, and federal level continue to prepare for these additional phases.

1.3 Definitions

Horizontal evacuation is the preferred response for tsunami evacuation, which is the movement of people to high ground and/or inland away from tsunami waters. In some locations, high ground may not exist, or tsunamis triggered by a local event may not allow sufficient time for communities to evacuate low-lying areas. Where horizontal evacuation out of the tsunami inundation zone is neither possible nor

practical, a potential solution is **vertical evacuation**¹ into the upper levels of structures designed to resist the effects of an earthquake as well as a tsunami. A **vertical evacuation structure** is a building or earthen mound that has sufficient height to elevate evacuees above the level of tsunami inundation, and is designed and constructed with the strength and resiliency needed to resist the expected earthquake shaking and the loading due to tsunami waves.

This TEFIP identifies and discusses **tsunami evacuation facilities**, which are defined as places, amenities, infrastructure, or equipment that can be used to assist in tsunami evacuation (horizontally or vertically). Tsunami evacuation facilities generally include (but are not limited to) roads, trails, wayfinding elements (signs, kiosks, trail markers), supply caches, assembly areas, bridges, and vertical evacuation structures. Evacuation improvements for a community may also include education and outreach activities.

1.4 Coordination with the Tsunami Hazard Overlay Zone (Chapter 16.66)

Waldport has adopted land use regulations addressing tsunami risk for certain types of new development and substantial improvements. These regulations are implemented through the Tsunami Hazard Overlay Zone, Chapter 16.66 of the Waldport Zoning Ordinance. Except single family dwellings on existing lots and parcels, all new development, substantial improvements and land divisions in the Tsunami Hazard Overlay Zone (everything within the XXL tsunami scenario) are required to incorporate evacuation measures and improvements which are consistent with and conform to this adopted Tsunami Evacuation Facilities Improvement Plan.

For purposes of compliance with this TEFIP and the THOZ, applicants should review the entire plan, particularly the following sections as they relate to the proposed development and related evacuation improvements:

- **Section 3: Evacuation Facility Assessments and Recommendations** – this section is organized into discrete geographic areas, as well as citywide recommendations. Review the subsection applicable to the proposed project location for evacuation routes and identified improvement projects.
- **Section 4: Implementation Resources for Evacuation Projects** – this section describes resources related to different types of evacuation improvements. In particular, the *Oregon Tsunami Evacuation Wayfinding Guidance* (Version 05-13-2019) developed by the Oregon Office of Emergency Management and the Department of Geology and Mineral Industries should be reviewed for compliance with evacuation signage standards.
- **Section 5: Education, Outreach, and Training** – this section describes resources related to education, outreach, and training materials and activities for tsunami evacuation. If an applicant is proposing evacuation improvements related to this topic, this section should be consulted for consistency.
- **Appendices as needed**

¹ Applied Technology Council. 2012. *FEMA Guidelines for Design of Structures for Vertical Evacuation from Tsunamis*, Second Edition. Prepared for the Federal Emergency Management Agency, National Oceanic and Atmospheric Administration. FEMA P-646. April 2012.

1.5 Whole Community

Every person who lives in, works in, or visits the City shares responsibility for minimizing tsunami risks and vulnerability. These individual responsibilities include tsunami awareness, knowledge of appropriate protective actions, and preparations for personal and family safety. Knowledgeable residents and visitors who are prepared to take care of themselves and their families, and to assist neighbors in the early phases of a tsunami flooding event can make a significant contribution towards survival and community resiliency.

The development of this TEFIP involved a range of stakeholders, including the public, scientific community, local government, and community-based organizations.

Summary of Community Involvement

The Waldport Planning Commission acted as the Project Advisory Committee (PAC) throughout this project. The PAC was used to audit current zoning and comprehensive plan language, review tsunami hazard maps and data, and provide input to shape the overall outcome of the project.

A workshop was held on August 6, 2019 with planning commission members and others as identified (such as emergency personnel in the city and county) to discuss evacuation facility improvements in Waldport. After a brief presentation, Committee members and meeting attendees participated in a mapping activity and discussion to identify shortcomings in existing evacuation facilities and recommend potential improvements. This group also reviewed and provided feedback on the finalized TEFIP.

2. Tsunami Risk and Vulnerability

2.1 Hazard Identification

The hazard being addressed by this TEFIP is a tsunami event that results in the need for community evacuation. A tsunami affecting the City would be the result of an earthquake from one of two categories:

- **Local Tsunami:** Generated by an earthquake immediately offshore of the Oregon Coast (e.g., a CSZ earthquake) and would result in a tsunami coming onshore within 15 to 25 minutes following the earthquake.
- **Distant Tsunami:** Generated by a distant earthquake (e.g., large event occurring off a distant coastline, such as Japan) and would result in a tsunami coming onshore 4 hours or more following an earthquake on another subduction zone.

A local earthquake resulting in a tsunami is likely to generate additional hazards that may further hinder an individual's ability to evacuate and may increase the time needed to evacuate. Such examples include:

- **Damage to buildings:** Severe shaking, especially in areas of poor soils, will damage buildings, making it difficult to evacuate. Homes built before 1974 may not be tied to foundations and can shift off foundations. Unreinforced masonry buildings and under-reinforced concrete buildings will be severely damaged or collapsed. Furnishings and equipment not securely fastened can cause injuries. Mobile homes may be heavily damaged.²
- **Damage to infrastructure:** Severe shaking and areas of poor soils will result in infrastructure failures. Infrastructure systems that may cause barriers to evacuation are water, wastewater, and stormwater facilities; liquid fuel and natural gas tanks and lines; electrical systems; bridges; and embankments and roads. Shaking damage may result in fallen electrical lines, damaged gas lines, tank and pipeline failures and leaks, and bridge failures, as well as physical interruptions in the surface transportation system due to slope failures and ground failures.
- **Landslides:** Landslides and ground movement may present added barriers to evacuation resulting in blocked roads, bridges, and walking trails.
- **Fires:** Fires from damaged electrical lines or propane may result in injuries that hinder an individual's ability to evacuate.
- **Liquefaction:** Similar to landslides, liquefied soils may result in damaged and unstable roads, bridges, and walking trails that present added barriers to an individual's ability to evacuate, especially those who experience access and functional needs.
- **Vehicular accidents and traffic jams:** Individuals may attempt to evacuate in personal vehicles en masse and push their vehicles to cover unusual terrain either due to damaged infrastructure or in an attempt to bypass typical infrastructure to save time. This may result in accidents and traffic jams that prevent individuals from reaching higher ground. Vehicular evacuation is not recommended and likely will not be possible following a local earthquake and tsunami event.

² US Department of Housing and Urban Development, Office of Policy Development and Research. Minimizing damage and repair costs to manufactured homes during an earthquake. 1995.
<https://www.huduser.gov/publications/pdf/pdrbrch.pdf>

2.2 Mapping

Mapping produced by DOGAMI is the primary source of information for the identification of areas subject to tsunami inundation, evacuation routes, and impacts of the earthquake that may affect tsunami evacuation. DOGAMI produced a number of products depicting tsunami inundation for the City, including the TIMs, Tsunami Evacuation Brochures, and, more recently, the “Beat the Wave” (BTW) maps. Throughout this plan, these products are referenced, and they identify areas within the City that are subject to potential life safety risk and that need to be evacuated during a local CSZ tsunami event.

Tsunami Inundation Maps

The TIM series depicts the projected tsunami inundation zone from five different magnitude seismic events. These events are categorized as small, medium, large, extra-large, and extra extra-large (S, M, L, XL, XXL) tsunami inundation events. These different modeled events reflect the full range of earthquake and tsunami events experienced in the past and what will be encountered in the future. The amount of time that has passed since the last great Cascadia earthquake (January 26, 1700) is not a reliable indicator of the size of the next one, so the size ranges are intended to fully bracket what might happen next.

See <http://www.oregongeology.org/tsuclearinghouse/pubs-inumaps.htm> for more information.

Tsunami Evacuation Brochures

The Tsunami Evacuation Brochures are public products designed to direct visitors and residents away from low-lying areas in the event of a tsunami. They depict three color zones: orange for the largest expected distant tsunami, yellow for the largest expected local tsunami, and green for safety (or high ground).

See <http://nvs.nanoos.org/TsunamiEvac> and www.oregontsunami.org for more information.

Beat the Wave Maps

DOGAMI has also recently completed (in 2018) BTW tsunami evacuation modeling for the City, which provides additional detail on estimated pedestrian evacuation clearance times and evacuation needs. The results of this mapping have been used in this plan to identify evacuation deficiencies, as well as potential evacuation improvements. These maps will be discussed in greater detail in Section 3.

The focus of this TEFIP is primarily an XXL tsunami event. See DOGAMI's [Tsunami Evacuation Analysis of Unincorporated Lincoln County](#), OFR O-19-06, for more information.

Earthquake Damage Maps

Studies completed by DOGAMI provide detailed risk assessments for natural hazards affecting Lincoln County (the County), including a CSZ earthquake and tsunami. Results include estimates of building damage and loss as well as population impacts (i.e., displacement of permanent residents) due to earthquake shaking, earthquake liquefaction, and tsunami inundation.

See DOGAMI's *Natural Hazard Risk Report for Lincoln County, Oregon*, for more information.

2.3 Populations at Risk

The purpose of this section is to determine the overall numbers of people and assets within the tsunami inundation zone. The goal is estimate how many people will need to be evacuated and sheltered, and to

identify the characteristics and locations of populations that may have specific additional needs or requirements for evacuation.

Overall, the City has moderate vulnerability to tsunami risk. Some of the City’s critical facilities are located within the inundation zone, while many have been relocated to outside of the tsunami zone (such as the schools and public works). Most areas of the City can be evacuated to high ground at a walk (2-4fps) or slower. However, the landslide potential of a few key evacuation roads and high numbers of manufactured housing in the inundation zone may create evacuation difficulties for the Old Town area³. There is a sharp change of elevation in the landscape from the most exposed inundation areas (Old Town) to high ground, which may cause evacuation difficulties, especially for mobility-challenged populations.

Critical/Essential Facilities

Critical Facilities, or facilities that present a high life safety risk or are necessary for response and recovery post-disaster, are considered to be at risk if they are located within the potential tsunami inundation zone. Some critical facilities in Waldport are within the XXL tsunami inundation zone. There are ~700 total buildings in the XXL tsunami inundation zone.

There are also some important public facilities outside of the tsunami zone that may still be functioning after a CSZ event. These facilities include the Waldport School Campus (high school, middle school, and elementary school), the Oregon Coast Community College, the Waldport Public Works Department, the Waldport Water Treatment Plant, and others. These facilities could be used for emergency sheltering for displaced residents and tourists, locating supply caches, and providing equipment for use after an event. These areas could also be used to receive air drops of supplies from outside aid groups.

Table 1 – Critical Facilities in the XXL Tsunami Inundation Zone

Category	Locations	Within Inundation Zone?
Public Facilities and Infrastructure	City Hall	Yes
	Central Oregon Coast Fire & Rescue station 7200	Yes
	Airport	Yes
	Public Library	Yes
	Community Center	Yes

Demographics

According to the US Census, 2,200 people lived in the City of Waldport in 2018⁴. There is expected to be a slight increase in the average annual growth rates (0.9%) for the City through 2035⁵.

³ Gabel, LLS, O’Brien, FE, Bauer, JM, and Allan, JC. *Tsunami Evacuation Analysis of Unincorporated Lincoln County: Building Community Resilience on the Oregon Coast*. State of Oregon, Oregon Department of Geology and Mineral Industries. Open-File Report O-19-06. <https://www.oregongeology.org/pubs/>

⁴ US Census Bureau. American Community Survey 2013-2017 (5-year estimates). Waldport, Oregon.

⁵ Portland State University, College of Urban & Public Affairs: Population Research Center. 2017. *Coordinated Population Forecast 2017 through 2067, Lincoln County*. https://www.pdx.edu/prc/sites/www.pdx.edu/prc/files/Lincoln_Report_2017_Final.pdf

The following demographic characteristics of Waldport may have implications for tsunami evacuation improvements in the community.⁶

Mobility Challenges

Certain members of the community, including young children, older adults, and people with disabilities, may have difficulty reaching or maintaining the speeds required for tsunami evacuation, and may have a harder time navigating steep or unimproved roads and trails.

- Percent 65 and older: 31% of permanent residents in the XXL inundation area (27% coast-wide)⁷
- Persons with a reported disability (hearing, vision, cognitive, ambulatory): 33%

Economic Indicators

Renters, people experiencing poverty, and those who are unemployed may face difficulties in ensuring their preparedness. It may be financially out of reach for people with lower incomes to purchase and maintain the recommended two-week supply of food and water for use post-disaster. Additionally, renters may be left out of outreach and education that is targeted towards homeowners or property owners with regard to preparedness and evacuation plans.

- Poverty rate: 13.8% (State 16.2%)
- Unemployment rate: 4.7% (State 4.2%)
- Rate of homeownership: 63% (State 61.7%)

Note – Demographic analysis only includes the population within Waldport City limits. Census data only includes people who indicate that their primary residence is in Waldport, therefore this analysis does not reflect second home owners, vacationers, part-time residents, etc.

Population Estimates

Tsunami evacuation is of greatest concern to populations residing or working within the inundation zone. Less than half of the permanent resident population of Waldport lives within the hazard area, with ~680 (30%) permanent residents within the urban growth boundary living within the XXL inundation zone.⁸ Another 27% of employers and 28% of employees work in the XXL tsunami zone.

Access and Functional Needs Populations

Access and functional needs populations (also referred to as vulnerable populations and special needs populations) are members of the community who experience physical, mental, or medical care needs and who may require assistance before, during, and after an emergency incident after exhausting their usual resources and support network. In the case of evacuations, examples of individuals who have access and functional needs that may make evacuation challenging include, but are not limited to:

- Individuals who experience mobility challenges (e.g. those with physical disabilities, older adults, children)
- Individuals who are blind or have low vision
- Individuals with limited-English proficiency

⁶ US Census Bureau. American Community Survey 2013-2017 (5-year estimates). Waldport, Oregon.

⁷ DOGAMI Socioeconomic Analysis of the Oregon coast.

⁸ DOGAMI

- Individuals who are deaf or hard of hearing
- Individuals who have been injured during the earthquake

Tsunami evacuation requires the ability to move from the inundation zone to high ground (or safety) in a timely matter. Due to this short onset time, individuals who experience access and functional needs may lack the resources to travel such distances. There are access and functional needs facilities in Waldport that are located within the inundation zone. However, the location of these facilities can only serve as a proxy for the presence of access and functional needs populations.

Using Key Locations as a Proxy

Specific information about where or how many access and functional needs individuals would need assistance in an evacuation is not available; however, by identifying key locations that can be used as a proxy for access and functional needs populations, we can extrapolate where those individuals may be in a CSZ event (see Table 2).

Table 2 – Access and Functional Needs Populations Locations within the XXL Tsunami Hazard Zone

Category	Proxy For	Facilities in XXL Tsunami Zone
Schools, Youth Organizations, and Childcare Facilities	Children	
Hospitals and Medical Centers	Medically-fragile individuals	
Senior Facilities	Elderly	Sa Da Munn Apartments Vandehaven by the Bay Apartments
Impoverished/Homelessness Facilities	Individuals who experience poverty or homelessness	
Hotels, Second Homes, and Vacation Lodging	Out of area visitors and tourists	The Waldport Inn Numerous Vacation Rentals Bayview Mobile Home Park McKinley’s Marina & RV Park
Damaged Buildings (projected)	Individuals injured during the earthquake	

Housing

According to the US Census Bureau, 55% of the occupied housing stock in Waldport were built before seismic standards were put into place in Oregon.⁹ This could have implications both for difficulty of evacuation in damaged structures within the inundation zone, and for sheltering needs after a CSZ earthquake and tsunami event. More people could be displaced following an event beyond those in the tsunami inundation zone due to extensive earthquake damage in the communities. There are 758 buildings (all types) within the XXL tsunami zone in Waldport, which is about 45% of the total buildings within the City.

⁹ Williams, M.C. and Appleby, C.A. 2018. Natural Hazard Risk Report for Lincoln County, Oregon. DOGAMI. Not yet published, but available by request.

The relatively large number of manufactured homes in Waldport could also present evacuation difficulties, as these homes are more likely to sustain damage in an earthquake. Older manufactured homes can slide from their foundations during an earthquake event and provide challenges for egress.

Another challenge for successful evacuation in Waldport is the large number of second homes, vacation homes, and short-term rentals in the community. A large percent of the population of the city at any given time is made up of people who are not residents and may be unfamiliar with tsunami risks and evacuation procedures.

Community Sheltering

Permanent and temporary residents who successfully evacuate out of the tsunami zone will very likely require short- to medium-term shelter, given that their residences are presumed destroyed or rendered uninhabitable. Temporary residents will likely not be able to return to their permanent homes for at least several weeks, given the anticipated disruption to the regional transportation network and fuel supply and that their personal vehicles were likely destroyed or damaged in the tsunami. It is important to note that those displaced and in need of sheltering includes both those displaced from the tsunami and those displaced from earthquake damage.

2.4 Conclusions

Vulnerability related to loss of life to a tsunami in Waldport is moderate. Much of the city's commercial area is within the hazard area, though most of those that occupy the zone will likely have enough time to reach high ground before the first tsunami wave. Landslides and steep terrain may make evacuation challenging, especially for the high populations of older adults and people with disabilities. It will be important to address these concerns to the extent practical.

Some of Waldport's critical and public facilities have been relocated to high ground (schools, public works). City Hall and police/fire departments remain in the inundation zone, but there are plans to move forward with a relocation strategy for those facilities as well. The Port of Alsea, as well as a few other important public facilities are inside the inundation zone. There are also several bridges connecting the community to other areas that will likely fail or be destroyed by the tsunami.

The City experiences high numbers of visitors and tourists, who are unfamiliar with the landscape and tsunami hazards and may need additional assistance in evacuating effectively. Successful evacuations will be challenging because visitors and tourists need to understand the threat, recognize signs of imminent waves, and take self-protective action. Evacuees will also need to overcome sudden obstacles that arise as a result of the earthquake (e.g., fallen trees or buildings, liquefaction, landslides).

3. Evacuation Facility Assessments and Recommendations

The process of evaluating existing evacuation facilities and identifying prioritized improvement recommendations involved three phases:

1. **Existing facility assessments:** The project team engaged in discussions with the PAC, emergency management personnel, and City staff to discuss existing evacuation facilities and potential improvements.
2. **Identification of needed improvements:** DOGAMI's Beat the Wave results for the City, as well as the local knowledge of city stakeholders served to assess gaps in existing facilities to determine locations requiring improvements.
3. **Prioritization of needed improvements:** Following the identification of needed improvements, the planning team reviewed the list of proposed projects and prioritized them (high, medium, low) based upon the project's perceived effectiveness and feasibility (measured by capacity, administrative control, and political considerations). This resulted in the prioritized project alternatives identified in the rest of this section.

Considering Co-Benefits

The most cost-effective and successful projects generate benefits outside of their intended purpose. For example, a tsunami evacuation route sign provides lifesaving guidance following an earthquake, but it also increases overall hazard awareness and personal preparedness. Sections 3.1 to 3.4 below highlight recommended evacuation improvement projects throughout the City. Identifying co-benefits created through the implementation of each project may support the identification of additional partners and funding opportunities. Some of the co-benefits relevant to this plan are as follows:

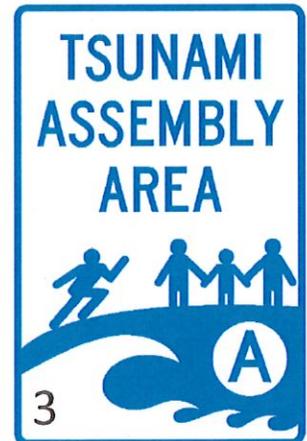
- Hazard Awareness and Education
- Personal Preparedness
- Health and Wellness
- Transportation Effectiveness
- Asset Protection
- Economic Development
- Environmental Protection

More information on potential project partners and potential funding sources can be found in Appendix 3. For maps of recommended project locations, see Appendix 2.

Figure 1 - Types of Tsunami Evacuation Wayfinding and Signage

The recommendations within the plan reference the following types of signs and wayfinding for use in the Waldport Tsunami Evacuation Facilities network:

Clockwise from top left: 1. Evacuation Route Arrow, 2. You Are Here map, 3. Assembly Area sign, 4. Blue Line, 5. High Ground Safety Area sign, 6. Entering/Leaving Hazard Zone sign



3.1 Citywide Recommendations

There are a number of steps that the City of Waldport should take in order to increase tsunami resilience in the community, beyond location-specific recommendations for wayfinding and construction projects. These citywide recommendations include administration and policies, education, and projects that deal with increasing the effectiveness of the entire network of tsunami evacuation facilities in the community.

Administration and Policy Recommendations

- W1. **Identify staff member to lead implementation.** Implementation of the recommendations within this plan will be a years-long process, requiring coordination between the City and many other stakeholders and organizations. Identifying a staff member who can lead this effort will help the city improve evacuation facilities in an efficient and timely manner. **Priority - Medium**
- W2. **Increase interdepartmental coordination.** Maintain and improve communication between the City Manager, Planning, Public Works, and Emergency Management leaders to increase efficiency and effectiveness of resilience efforts. **Priority - High**
- W3. **Integrate evacuation facilities improvements with ongoing planning efforts.** Tsunami resilience and evacuation facilities improvements should be incorporated into other ongoing planning efforts, as appropriate. Such ongoing projects may include the Natural Hazard Mitigation Plan update, Transportation System Plan update, and others. **Priority - High**
- W4. **Adopt recommended Comprehensive Plan policies.** DLCD has created a set of model Comprehensive Plan policies that support increasing resilience through goals related to hazard planning, transportation, and urbanization. The project team has customized these model policies to meet the needs of the Waldport community. These policies should be reviewed, customized, and incorporated into the Comprehensive Plan upon its next update. For the full text of the model policies, see Appendix 2. **Priority – Medium**
- W5. **Require tsunami education and mapping in short-term rentals and hotels/motels.** Adopt a City ordinance that requires posting tsunami info in hotels/motels/STRs. Tillamook County has adopted a Short Term Rental Ordinance that requires tsunami evacuation information be posted in all short term rentals within the evacuation zone. The ordinance reads as follows:
A copy of an Oregon Department of Geology and Mineral Industries (DOGAMI) Tsunami Evacuation Brochure furnished by the Tillamook County Department of Community Development at the time of Short-Term Rental Permit issuance and renewal shall be posted in a visible location of a short term rental located within a DOGAMI mapped area susceptible to tsunami hazards.
Priority – Medium

Education/Outreach: See Section 5 for additional education, outreach, and training options.

- W6. **“Stay Alive. Walk. Don’t Drive!”** The planning committee recognizes that many residents of Waldport believe that they will be able to utilize their cars to evacuate in a local CSZ event. In order to remind people to evacuate by foot and not vehicle, the committee recommends using this slogan in a targeted and constant public service advisory campaign. See *Section 5* for additional education, outreach, and training options. **Priority – High**
- W7. **Create a pedestrian trail evacuation map.** To emphasize the need to evacuate by foot and not by vehicle, create a trail map that identifies all the trails in Waldport that can get pedestrians to high ground from the tsunami zone and publish as an outreach and education product. As new trails are reinforced or built, they can be added to the map. **Priority – High**

Evacuation Facilities and Preparedness

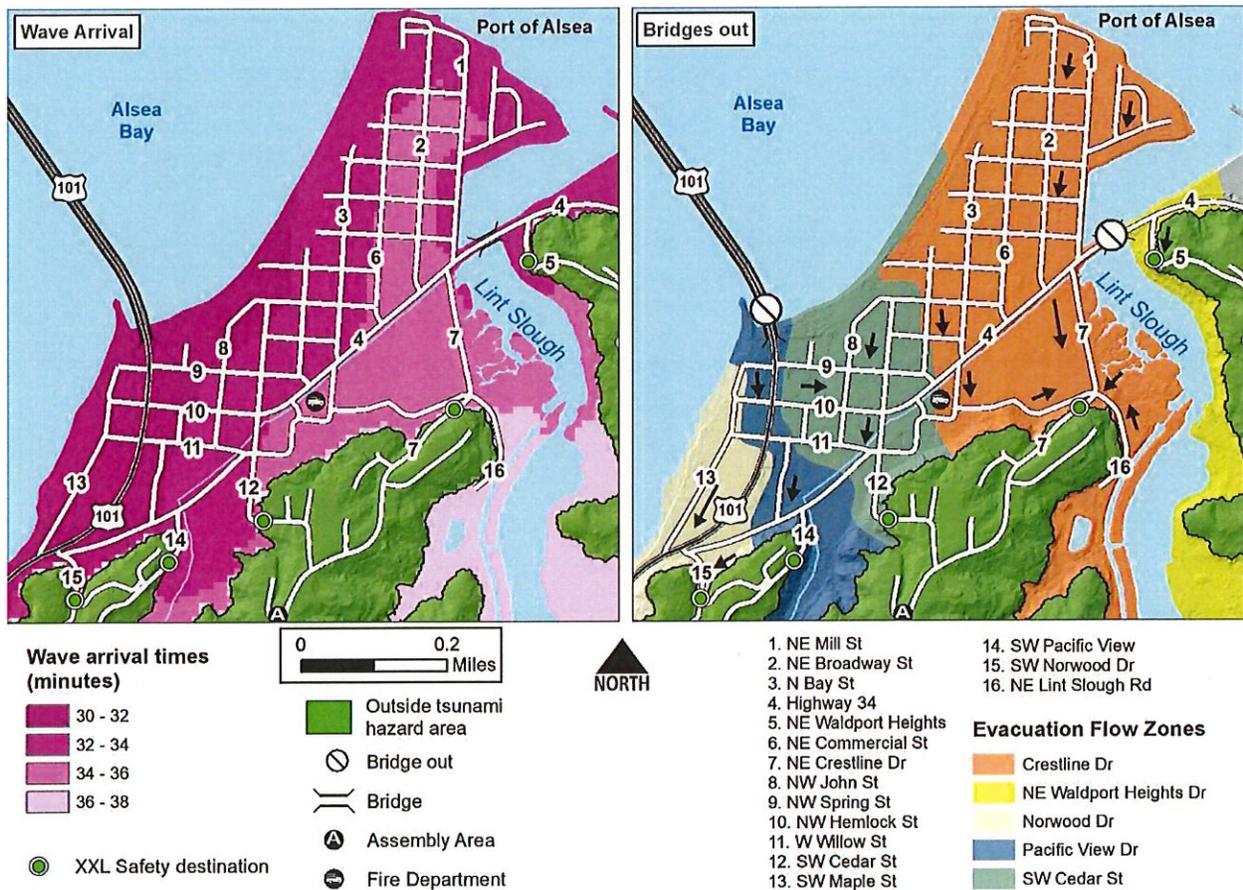
- W8. **Establish supply caches and emergency shelters in strategic areas outside of the inundation zone.** The availability of supplies and shelter will be absolutely essential to survival post-disaster. Determining the best locations for supply caches and amount and types of supplies and shelter to provide will require further study. However, the following recommendations can be used as a starting point when considering where and how to establish these resources:
- The City should ask the following questions when determining the suitability of a potential site for a supply cache:
 - Who owns the land?
 - Is there good access to the site for establishing and maintaining supplies?
 - Is the site susceptible to other hazards, such as landslides?
 - How will the caches be maintained, monitored and secured?
 - Will the City purchase and maintain supplies, or will residents?
 - Consider a phased approach – create one cache in each sub area to start, then expand to all appropriate sites as resources and funding allow
 - Maintain already established supply caches
 - Coordinate with DLCD and DOGAMI as they continue to research supply cache best practices
- Priority - High**
- W9. **Continue to pursue acquisition of land for relocation of critical facilities.** Currently, the fire station and city hall are within the inundation zone. The City may want to pursue re-locating these facilities or having a second fire station location outside of the inundation zone. **Priority - High**
- W10. **Create trail connectivity between high ground and assembly areas.** Post-disaster movement may be difficult in the inundation zone, due to damage and debris. Many trails already exist above the inundation zone. These trails could be mapped and connected to help evacuees move more easily from high ground safety areas to assembly areas post-tsunami. This map could be combined with the evacuation trail map identified in **W7** above. **Priority - Medium**

3.2 Old Town

Community Overview

This area is roughly defined as the northern peninsula of the city bordered by the Alsea River on the west and north, Lint Slough on the east, and the rapid transition from low to high ground on the southern edge (Figure 2). It is comprised primarily of commercial and residential uses, the intersection of Highway 101 and Highway 34 (which includes 2 bridges), and the Port of Alsea. It is a predominantly low lying area, backed by steeply rising hills to the south.

Figure 2 – The image on the left shows wave arrival times for Old Town, Waldport in minutes from the start of earthquake shaking. The image on the right shows evacuation flow zones - where people in a particular area should evacuate. Green areas indicate high ground. Green dots indicate when a road reaches high ground (outside of the XXL tsunami zone).



Existing Evacuation Facilities Analysis

Tsunami Wave Arrival Time

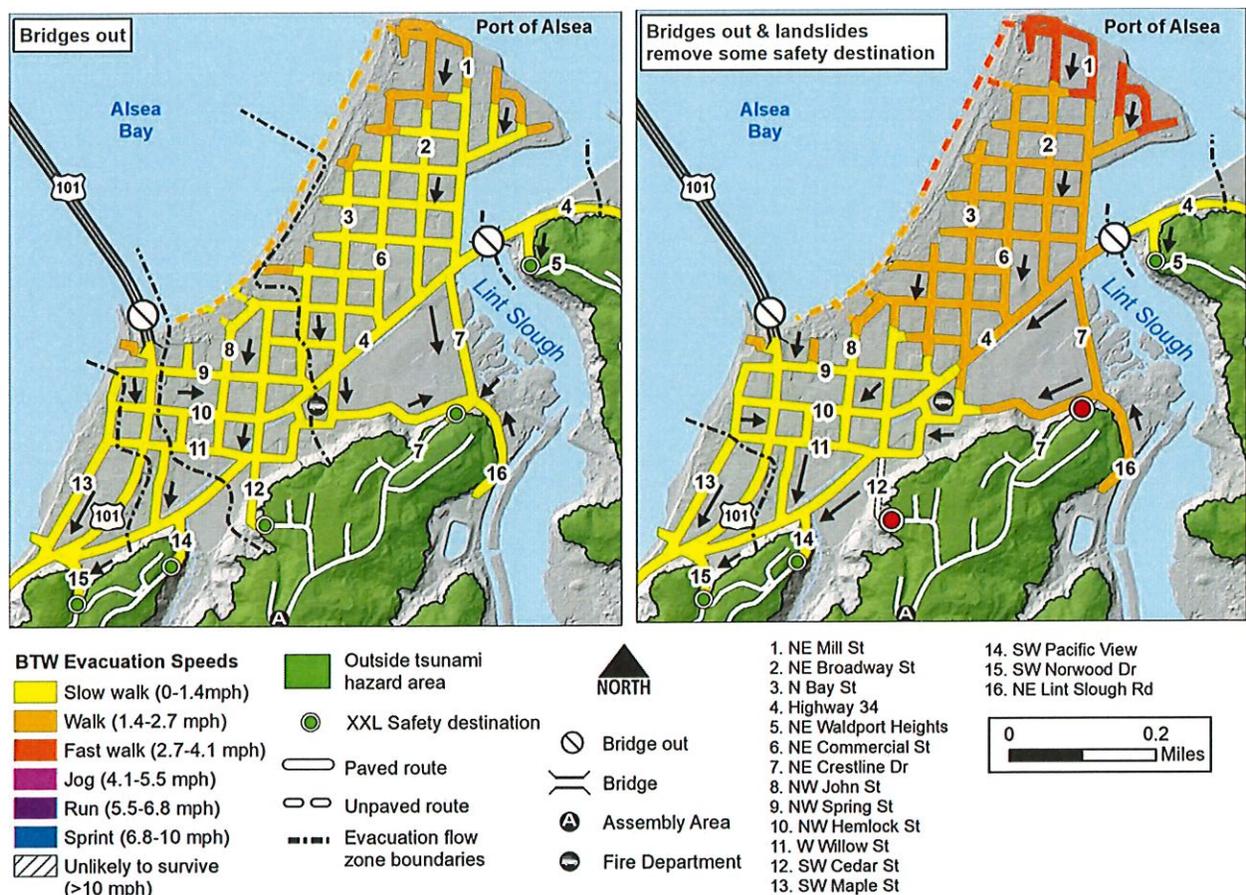
In the XXL scenario, waves will begin to arrive in this area approximately 30 minutes after the earthquake begins (Figure 2). The wave crosses the area fairly uniformly from west to east. The area is inundated within 36-38 minutes after the earthquake begins. It is important to remember that tsunami

waves will continue to arrive for 12-24 hours after the earthquake and the first wave is not always the biggest.

Existing Evacuation Routes and Signage

Generally, people in the Old Town area evacuate to the south and up the hill. There are several roads that can take evacuees to high ground: Crestline Drive, Cedar Street, Pacific View Drive, and Norwood Drive. If a landslide were to take out one of these roads, there are several others to try as alternatives. However, there is concern from the community that this whole hillside is prone to sliding and may provide challenges for evacuees in this area. If the bridge over Lint Slough were to be retrofitted, that route (over the bridge and up Waldport Heights) would become a major evacuation route alternative, instead of Crestline.

Figure 3 – Required Pedestrian Evacuation Speeds in Old Town, Waldport



Source: DOGAMI Tsunami Evacuation Analysis Report¹⁰

¹⁰ Gabel, LLS, O'Brien, FE, Bauer, JM, and Allan, JC. DOGAMI. Open-File Report O-19-06. <https://www.oregongeology.org/pubs/>

Evacuation Speeds

Walking speeds required to reach safety in the area range from a slow walk (0-2fps; yellow-colored roads) to a fast walk (4-6fps; dark orange-colored roads) on the northern edges of the peninsula if landslides prevent or impede evacuation in certain areas (Figure 3).

Critical Facilities

This area has two critical facilities within the XXL inundation area: City Hall and the Fire Station.

Conclusions

While walking speeds for this area are moderate, there is high concern for landslide impediments to the existing evacuation routes. Additionally, there are vulnerable populations in this zone (low-income housing areas, mobility-challenged populations, people over 65 years, tourists) and high numbers of manufactured homes (which can slide off their foundations and trap people inside during an earthquake). These populations may experience high levels of evacuation difficulty, especially with landslide potential.

Evacuation Improvement ProjectsWayfinding

- OT1. **Add signage or blue lines to indicate arrival at high ground** (not the same as assembly areas) **along major evacuation routes:** Crestline Drive, Cedar Street, Pacific View Drive, Woodland Trail, and Norwood Drive. This is to show when evacuees have reached a high ground safety area outside of the XXL inundation zone. Use the existing tsunami maps for locations along these routes. DOGAMI staff can be consulted for coordinates. **Priority – Medium**
- OT2. **Add evacuation arrow signage directing people to the Woodlands Trail (behind the baseball field).** If landslides block some roads to high ground, an alternative pedestrian route may be important for the Old Town area. Add evacuation route signs directing people to the Woodlands Trail.
- OT3. **Expand Evacuation Route Signage.** Add directional route signage on major north/south streets in Old Town (e.g. NW Cedar St, NW Alder St, N Bay St, NE Commercial St, NE Broadway St), directing people to Crestline Drive, Cedar Street, Pacific View Drive, the Woodland Trail, or Norwood Drive. Due to the number of signs required, this work may need to be accomplished in several phases. It is important to focus signage at intersections so that people know the correct direction to travel. **Priority – High**
- OT4. **Add "You Are Here" map signs at major water access points.** "You Are Here" map signs in high-traffic locations can help raise awareness and inform water users of the nearest evacuation routes. These signs should be installed at boat launches, public restrooms, and other high trafficked public locations. **Priority – Low**

Construction

- OT5. **New pedestrian evacuation trail between Crestline and Cedar.** Build a new pedestrian trail to withstand earthquake shaking in this area (behind old school site) to offset potential impacts of landslides to the existing roads and offer a more stable solution for evacuation from Old Town. **Priority – High**
- OT6. **Improvements to Woodland Trail.** There is an existing pedestrian trail behind the baseball field in Old Town. This route could be improved to withstand earthquake shaking and to allow many

people to evacuate at once. A geotechnical report for this trail could investigate alternative routes (to shorten the distance to high ground) and ways to make the trail as accessible as possible for people who experience access and functional needs. **Priority – High**

- OT7. **Improvements to trail behind the wastewater treatment facility off NE Lint Slough Road.** There is a trail that leads away from the Waldport Wastewater Plant and up into high ground. This trail could be further signed for people to know to use this route for evacuation, as well as improved to ensure its accessibility after a CSZ earthquake. **Priority – High**
- OT8. **Bury Powerlines.** In order to mitigate the potential for powerlines to fall and cause damage and electrocution to pedestrians during an evacuation, it is recommended that the powerlines be buried underground in key locations in Old Town, SW Range Drive, and Crestline Drive. **Priority – Medium**
- OT9. **Vertical Evacuation Structure.** Though there is plenty of high ground to the south of this area, the potential for landslides, steep terrain, and the presence of vulnerable populations does cause some concern for effective evacuation of the area. A vertical evacuation structure built in the downtown area is an option to reduce evacuation speeds. Such a structure could be built with co-benefits to justify its cost and potential height. This option would need much more exploration and community support in order to move forward. A location has not yet been suggested. **Priority – Low**

Planning

- OT10. **Landslide mitigation measures.** The community has determined that there is a risk of landslides in the hills to the south of Old Town in the event of a CSZ earthquake. Landslides in this area could potentially block access to high ground safety areas and assembly areas that area evacuees rely on, increasing the minimum evacuation speeds required to reach safety ahead of a tsunami. Because there are potentially several roads impacted (Crestline Drive, Cedar Street, Pacific View Drive, and Norwood Drive), a landslide evaluation analysis should be performed by a professional. This analysis could help to prioritize problem areas and suggest mitigation measures to new route improvements to ensure pedestrian evacuation success in a CSZ event. **Priority – High**

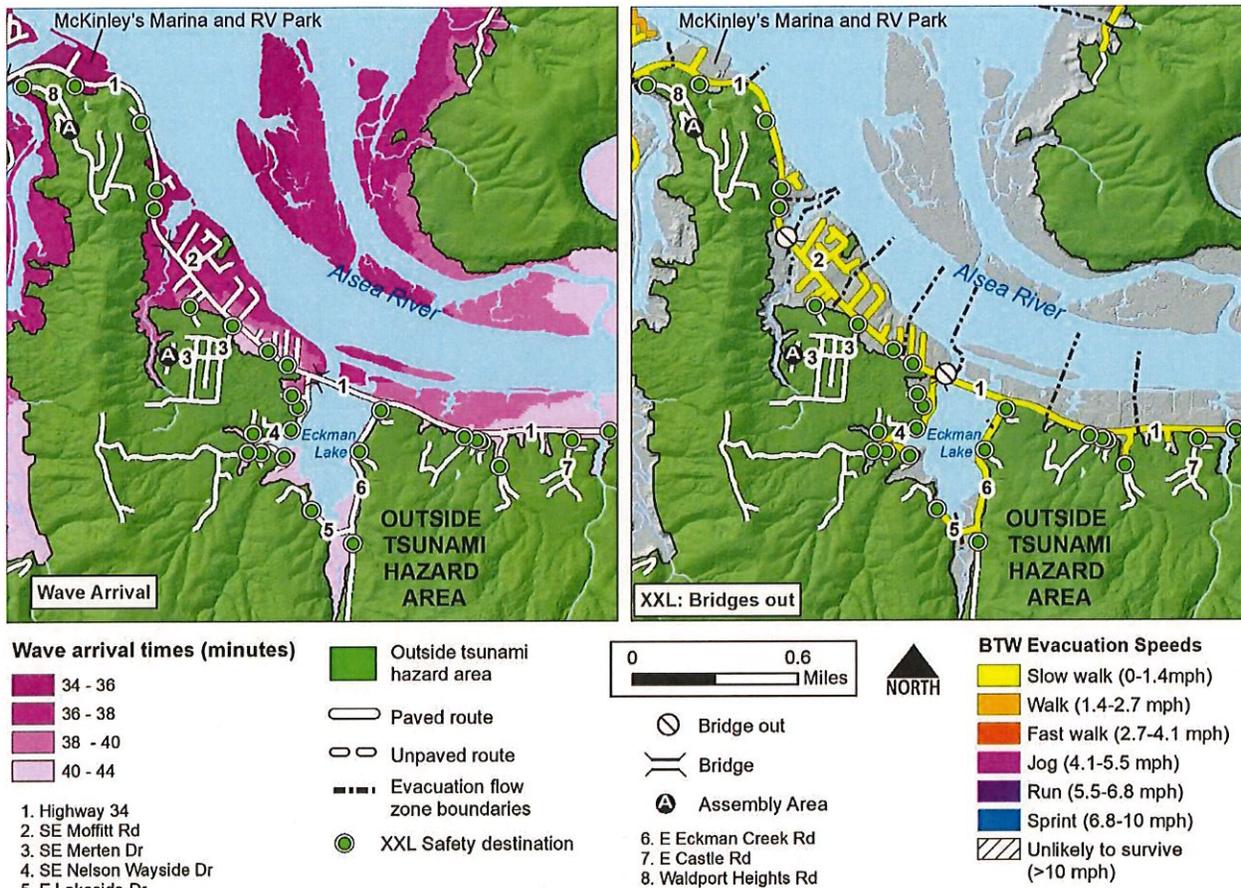
See *Appendix 2* for a map of all identified improvement projects. See also WE4 for related improvement project for this area.

3.3 Waldport East

Community Overview

This area is roughly defined as the eastern part of the city bordered by Lint Slough on the west and Alsea River to the north, out to E Castle Road on the east. Some of this area is not within the city limits. It is a predominantly a low lying area, dominated by residential uses.

Figure 4 – The image on the left shows wave arrival times for Waldport East in minutes from the start of earthquake shaking. The image on the right shows pedestrian walking speeds needed to evacuate the area. Green areas indicate high ground outside of the tsunami zone.



Source: DOGAMI Tsunami Evacuation Analysis Report¹¹

Existing Evacuation Facilities Analysis

Tsunami Wave Arrival Time

In the XXL scenario, waves will begin to arrive in this area approximately 34 minutes after the earthquake begins (Figure 4). The wave travels upriver along Highway 34 and gets into Eckman Lake by

¹¹ Gabel, LLS, O'Brien, FE, Bauer, JM, and Allan, JC. DOGAMI. Open-File Report O-19-06.

<https://www.oregongeology.org/pubs/>

about 40 minutes. It is important to remember that tsunami waves will continue to arrive for 12-24 hours after the earthquake and the first wave is not always the biggest.

Existing Evacuation Routes and Signage

Generally, people located within the tsunami zone in Waldport East should head to the south and uphill. There are several north/south roads that can take evacuees outside of the tsunami zone: NE Waldport Heights Drive, SE Clover Lane, SE Merten Drive, SE Nelson Wayside Drive, E Lakeside Drive, E Eckman Creek Road, and E Castle Road (Figure 4). The bridge over Lint Slough is likely to fail, though there are evacuation routes on either side of the bridge.

Evacuation Speeds

Walking speeds required to reach safety in the area is a slow walk (0-2fps; yellow-colored roads) as seen in Figure 4. For the most part, there are multiple options to access high ground from the tsunami zone and if one option is blocked, another one is usually not far away.

Critical Facilities

There are no critical facilities within the inundation zone in this area.

Conclusions

Walking speeds for this area are moderate and there are many roads to high ground. There are a few mobile home and RV parks in the area that may experience evacuation difficulties. Therefore, signage and education may be of most benefit in this area.

Evacuation Improvement Projects

Wayfinding

- WE1. **Add signage or blue lines to indicate arrival at high ground** (not the same as assembly areas) **along major evacuation routes:** NE Waldport Heights Drive, SE Clover Lane, SE Merten Drive, SE Nelson Wayside Drive, E Lakeside Drive, E Eckman Creek Road, and E Castle Road. This is to show when evacuees have reached a high ground safety area outside of the XXL inundation zone. Use the existing tsunami maps for locations along these routes. DOGAMI staff can be consulted for coordinates. Prioritize routes for signage based on traffic and need. **Priority – Medium**
- WE2. **Expand Evacuation Route Signage.** Add directional route signage (arrows) at key intersections along Highway 34 to indicate evacuation routes and direction of evacuation travel. Major evacuation routes include: NE Waldport Heights Drive, SE Clover Lane, SE Merten Drive, SE Nelson Wayside Drive, E Lakeside Drive, E Eckman Creek Road, and E Castle Road. Due to the number of signs required, this work may need to be accomplished in several phases or prioritized based on need. It is important to focus signage at intersections so that people know the correct direction to travel. **Priority – Medium**
- WE3. **Add assembly area to water treatment facility.** At the end of SE Nelson Wayside Drive is a new wastewater treatment facility that will likely survive an earthquake event and is well-above the tsunami zone. This could be a good assembly area for people evacuating from the area around Eckman Lake. Add signage directing people to high ground here and an assembly area sign to the end of the road. **Priority – Medium**

Construction

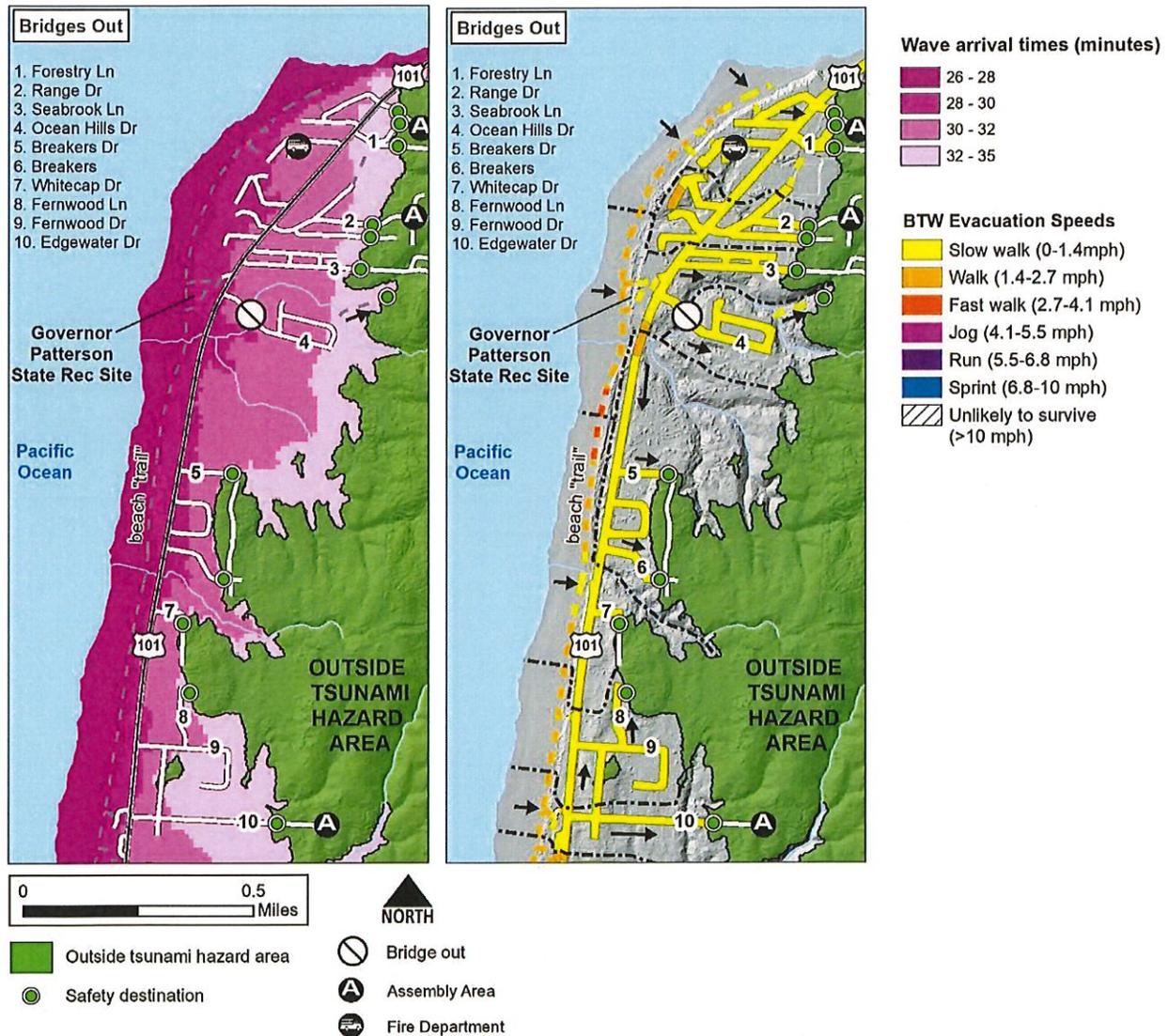
WE4. **Bridge retrofit or replacement at Lint Slough (Highway 34).** This road could help people at the RV Park and other areas of Old Town to evacuate over Lint Slough and up Waldport Heights Drive as an alternative to Crestline Drive. Depending on the height of the bridge, this retrofit could have additional benefits for community connectivity post-disaster as well, if it can also withstand tsunami loads. **Priority – Medium**

See *Appendix 2* for a map of all identified improvement projects.

3.4 Waldport South Community Overview

This area is roughly defined as the intersection of Highway 101 and SW Wazyata Avenue on the north through Highway 101 and SW Edgewater Drive to the south and east to about S Crestline Drive (Figure 5). This area is a mix of residential and industrial uses. Not all of the area is within the city limits – though this plan focuses on the city limits boundary for jurisdictional purposes.

Figure 5 – The image on the left shows wave arrival times for Waldport South in minutes from the start of earthquake shaking. The image on the right shows pedestrian walking speeds. Green areas indicate high ground outside of the tsunami zone.



Source: DOGAMI Tsunami Evacuation Analysis Report¹²

¹² Gabel, LLS, O'Brien, FE, Bauer, JM, and Allan, JC. DOGAMI. Open-File Report O-19-06. <https://www.oregongeology.org/pubs/>

Existing Evacuation Facilities Analysis

Tsunami Wave Arrival Time

In the XXL scenario, waves will begin to arrive in this area approximately 26 minutes after the earthquake begins (Figure 5). The wave inundates Highway 101 between 28 and 32 minutes. The area is inundated within 35 minutes after the earthquake begins. It is important to remember that tsunami waves will continue to arrive for 12-24 hours after the earthquake and the first wave is not always the biggest.

Existing Evacuation Routes and Signage

Generally, people located within the tsunami zone in Waldport South should head to the east and uphill. There are several east/west roads that can take evacuees to high ground: Forestry Lane, Range Drive, Seabrook Lane, Breakers Drive, Whitecap Drive, Fernwood Drive, and Edgewater Drive. There is one bridge on Sailfish Loop Drive that is likely to fail, though people in this area can instead go north and then east on Seabrook Lane. There are also several beach access points in this area that will be important for people on the beach, such as Governor Patterson Recreation Site.

Evacuation Speeds

Walking speeds required to reach safety in the area on the existing road and trail network are generally a slow walk (0-2fps; yellow-colored roads) as shown in Figure 5. Areas on the beach will need to be evacuated at a walk (2-4fps; orange) or fast walk (4-6fps; dark orange) in most areas.

Critical Facilities

The Yachats Rural Fire Protection District has a substation in this area on Corona Ct.

Conclusions

Walking speeds for this area are moderate and there are many roads to high ground. This area does have vacation rentals and beach access points, which means there is potential for tourists to be in this area. Signage and education may be of most benefit in this area.

Evacuation Improvement Projects

Wayfinding

- WS1. **Add signage or blue lines to indicate arrival at high ground** (not the same as assembly areas) **along major evacuation routes:** Forestry Lane, Range Drive, Seabrook Lane, Breakers Drive, Whitecap Drive, Fernwood Drive, and Edgewater Drive. This is to show when evacuees have reached a high ground safety area outside of the XXL inundation zone. Use the existing tsunami maps for locations along these routes. DOGAMI staff can be consulted for coordinates. Prioritize routes for signage based on traffic and need. **Priority – Medium**
- WS2. **Expand Evacuation Route Signage.** Add directional route signage at the intersection of Highway 101 and major evacuation routes, as listed above, directing people in the direction of high ground/safety. Due to the number of signs required, this work may need to be accomplished in several phases. It is important to focus signage at intersections so that people know the correct direction to travel. **Priority – High**
- WS3. **Add "You Are Here" map signs at major beach access points.** "You Are Here" map signs in high-traffic locations can help raise awareness and inform beach goers of the nearest evacuation routes. These signs should be installed at high trafficked beach access points, such as Governor

Patterson State Recreation Site. DOGAMI can create the signs for the City or other partners to install. ***Priority – Low***

Construction

WS4. **Develop a post-disaster community shelter in partnership with Crestview Golf Club.** This area is a prime location for sheltering and post-disaster operations for the community after a CSZ event. Develop a partnership with the golf course to utilize this space for community caches and sheltering supplies. ***Priority – High***

See *Appendix 2* for a map of all identified improvement projects.

4. Implementation Resources for Evacuation Projects

4.1 Design and Construction Standards

Below is a list of resources related to Evacuation Facility Design and Construction Standards, applicable for a variety of projects suggested in the sections above:

- Bicycle and pedestrian design:
 - Oregon Department of Transportation. 2011. Oregon Bicycle and Pedestrian Design Guide, 3rd Edition. Oregon Highway Design Manual Appendix L.
- Design requirements and ideas for wayfinding signage:
 - OEM & DOGAMI. 2019. Version 05-13-2019. Oregon Tsunami Evacuation Wayfinding Guidance.
 - Portland Urban Architecture Research Lab. 2014. "Up and Out" Oregon Tsunami Wayfinding Research Project: Final Project Report and Guidance Document.
 - Portland Urban Architecture Research Lab. 2015. "Up and Out 2" Oregon Tsunami Wayfinding Research Project: A Study in Seaside and Warrenton.
 - DOGAMI. 2003. OFR-03-06 Tsunami Sign Placement Guidelines.
- Vertical evacuation structures:
 - Applied Technology Council. 2012. [FEMA Guidelines for Design of Structures for Vertical Evacuation from Tsunamis, Second Edition](#). Prepared for the Federal Emergency Management Agency and National Oceanic and Atmospheric Administration. FEMA P-646. April 2012.
 - Chock, G. 2016. [Design for Tsunami Loads and Effects in the ASCE 7-16 Standard](#). Journal of Structural Engineering: 142 (11). (International Building Code standards)
 - Washington State Emergency Management Division. November 2018. [Manual for Tsunami Vertical Evacuation Structures](#).

4.2 Tsunami Evacuation and Wayfinding Signage

Any proposed tsunami evacuation wayfinding signage proposed for the City of Waldport should conform to the publication: **OEM & DOGAMI. Version 05-13-2019. Oregon Tsunami Evacuation Wayfinding Guidance.**

A tsunami escape wayfinding system informs people what to do and when to do it. The system is designed to make the process clear and efficient before, during, and after a tsunami. Prime elements to include in wayfinding improvements are:

- Awareness kiosks
- Tsunami hazard zone signs
- Tsunami evacuation route signs
- Zone thresholds (entering/leaving)
- Assembly areas

For different populations, such as people with disabilities and the many unprepared tourists during the spring and summer seasons, special escape sequences and patterns provide innovative wayfinding

solutions for tsunami evacuation. These populations include elderly, disabled, children, visitors in hotels, RV park visitors, etc.

Sign Type Selection

Signage can be two-dimensional, but also can include technological/sensory signals (e.g., sound, light)—an important concept when considering access and functional needs populations. When selecting a sign as a part of a signage system, the following elements should be considered:

- Basic function and visibility of signage
- Signage technology applied
- Position in space, method of fixing
- Size in relation to reading distance
- Illumination
- Requirements for impaired users
- Level of vandal resistance

4.3 Financing Strategies

Cost estimates for the tsunami evacuation improvement projects identified in this plan are general and may not reflect precise costs. Appendix A of the 2019 OEM/DOGAMI Tsunami Signage Guidance document has a list of typical tsunami evacuation route signage and their estimated costs. Resources to develop facility improvement cost estimates can be found at the following links:

- American Association of Cost Engineers – requires membership or payment (<https://web.aacei.org/resources>)
- Whole Building Design Guide – Cost Estimating (http://www.wbdg.org/design/dd_costest.php)
- American Association of State Highway and Transportation Officials - Practical Guide to Cost Estimating, requires membership or payment (https://bookstore.transportation.org/collection_detail.aspx?ID=122)
- FEMA Cost Estimating Format (<https://www.fema.gov/public-assistance-cost-estimating-format-standard-operating-procedure>)
- Disaster Recovery Reform Act (<https://www.fema.gov/news-release/2018/10/05/disaster-recovery-reform-act-2018-transforms-field-emergency-management>)

Questions to Ask

- In identifying projects to move forward with, it is important to bear in mind the following questions:
- Do citizens consider this to be an important public issue that requires a public remedy?
- Who directly benefits from the design, construction, and operation of these assets?
- Who indirectly benefits from the presence of these assets when not needed for an emergency?
- Do citizens have a preference among the various options available to finance the infrastructure investment?
- Is the scale of the need within the means of the community to finance or is outside assistance necessary?
- Should different strategies be used to elicit funding from seasonal vs. year-round residents?

- Is needed infrastructure within the jurisdiction/control of the community, or is there a need to engage other units or levels of government?
- Is there a way to fit improvements into existing programs or needs?

The following tools are most likely to succeed for enhancing a community's evacuation route system¹³:

- Using existing rights-of-way,
- Negotiating/purchasing easements, and
- Purchasing new rights-of-way.

In addition, the construction of evacuation facilities should consider the following:

- Determining the most effective location,
- Determining co-benefits to access additional funding streams, and
- Determining design and construction standards applicable to specific project.

More information on potential financing sources can be found in Appendix 3.

¹³ Oregon Department of Land Conservation and Development. 2018. *Tsunami Land Use Guide, Chapter 5, Tip*. https://www.oregon.gov/LCD/OCMP/docs/Publications/TsunamiLandUseGuide_FINAL_062718.pdf

5. Education, Outreach, and Training

In tsunami areas, it is crucial to support an ongoing sustained tsunami public education program in order to ensure effective evacuation and save lives. This section presents guidance for creating pre-disaster education and outreach activities to educate the public about appropriate actions to take when natural signs (i.e., ground shaking) indicate a tsunami is imminent or when a tsunami warning message has been issued.

Residents, homeowners, business owners, and tourists alike benefit from educational activities that increase their awareness of local hazards. These educational activities can and should be combined with other, existing hazard education programs, such as earthquake preparedness, when possible.

There are generally two messages to share with the public regarding evacuation from an impending tsunami: 1) Walk/run to the nearest high ground on foot (not in a vehicle), and 2) after the tsunami event is over (typically 12-24 hours after an earthquake), make your way to a designated assembly area or shelter.

5.1 News and Social Media

Traditional local media outlets (TV, radio, newspaper, etc.), public social media accounts, and other local websites (e.g., the Chamber of Commerce) should be utilized as appropriate to announce community training events and provide public service announcements (PSAs) regarding tsunami evacuation.

News Organizations

Many community members rely on local news sources for information about their community. Developing a working relationship with local newspapers and radio is an effective mode of communicating with the public.

Recommended Action

- Work with local newspapers and radio stations to announce tsunami awareness events and provide community education information and resources. Local service providers include:
 - Newport News Times

Resources

- Tsunami Emergency Guidebook for Oregon Mass Media, Oregon Emergency Management, September 2007:
http://www.oregongeology.org/tsuclearinghouse/resources/pdfs/OregonTsunamiMediaBinder_final_6_20_07.pdf

Social Media

Social media's role in emergency communication has grown over the past several years, not only as a major channel for broadcasting emergency information but also as a means of engaging and conversing with the public during all emergency mission phases (i.e. protection, preparedness, mitigation, response, and recovery).

The city has two Facebook pages – the City of Waldport and Waldport Community.

Recommended Action

- Consistently incorporate tsunami education information into social media accounts, including the graphics used on tsunami evacuation signs. Social media accounts should be monitored to manage misinformation and rumor control.
- Develop working relationships with local bloggers and businesses to utilize their social media presence to retweet or copy posts so they reach a larger audience.
- Link social media accounts to OEM, FEMA, other County and City sites so that there is continued information and feeds that help with keeping posts new and relevant.

Resources

- FEMA Social Media and Emergency Preparedness Press Release: <https://www.fema.gov/news-release/2018/04/16/social-media-and-emergency-preparedness>
- FEMA Social Media in Emergency Management Training: <https://training.fema.gov/is/courseoverview.aspx?code=IS-42>
- The Department of Homeland Security's Innovative Uses of Social Media in Emergency Management: https://www.dhs.gov/sites/default/files/publications/Social-Media-EM_0913-508_0.pdf

Sample Social Media Posts

The following sample social media posts have been developed by the National Weather Service and edited for use by the City.

Facebook

- A tsunami can strike our coast at any time throughout the year. While they don't happen very often, they pose a major threat to coastal communities like Waldport. Check out this video for things you can do to prepare: https://youtu.be/xOGX_kc7JZo #TsunamiPrep
- A tsunami can be very dangerous to life and property on the coast. It can produce strong and dangerous currents, rapidly flood the land and cause great destruction. Even small tsunamis can be dangerous. Strong currents can injure and drown swimmers and damage and destroy boats in harbors. Visit <http://www.nws.noaa.gov/om/Tsunami/about.shtml> #TsunamiPrep
- Because tsunamis are a threat in our community, you should include tsunami-specific preparations in your emergency plan. Learn the evacuation routes, identify safe places and practice evacuating. Visit <http://www.nws.noaa.gov/om/Tsunami/before.shtml> #TsunamiPrep
- Do you live, work or play on the coast? Do you know our community's tsunami risk? Our community has identified and mapped tsunami hazard and evacuation zones. Check out links to tsunami maps on this page <http://nws.weather.gov/nthmp/maps.html> or ask your local/state emergency management office or your local NWS forecast office for more info. #TsunamiPrep
- Official tsunami warnings are broadcast through local radio and TV, marine radio, wireless emergency alerts, NOAA Weather Radio, and National Oceanic and Atmospheric Administration (NOAA) websites. They may also come through outdoor sirens, local officials, text message alerts and telephone notifications. Learn about the four levels of tsunami alerts for the U.S. at: <http://www.nws.noaa.gov/om/Tsunami/alerts.shtml>. #TsunamiPrep

Twitter

- If you live, work or play on the coast, you should prepare for a #tsunami
https://youtu.be/xOGX_kc7JZo #TsunamiPrep
- A #tsunami, which may resemble a fast-rising flood, can be very dangerous to life & property
<http://www.nws.noaa.gov/om/Tsunami/about.shtml> #TsunamiPrep
- At risk from #tsunamis? Plan for and practice evacuation.
<http://www.nws.noaa.gov/om/Tsunami/before.shtml> #TsunamiPrep
- Live, work or play on the coast? Know your #tsunami risk & evacuation zones
<https://nws.weather.gov/nthmp/maps.html> #TsunamiPrep
- Tsunami alerts come from many sources like @NOAA websites & @NOAA Weather Radio
<http://www.nws.noaa.gov/om/Tsunami/alerts.shtml> #TsunamiPrep

Websites

Websites continue to play a large role in providing information and outreach activities to residents and tourists. The City of Waldport website shares information on official City events and shares information on emergency preparedness.

Recommended Actions

- Include tsunami awareness information on the City's website in a prominent location and use the website to announce tsunami-related community activities. Consider linking to relevant webpages from Lincoln County Emergency Management, DOGAMI, Oregon Department of Land Conservation and Development (DLCD), NOAA, etc., rather than recreating the information.
- Develop working relationships with local businesses and organizations to include a link back to the City's tsunami information to increase the website's reach.

5.2 Community Activities

Community activities are a vital part of public education and outreach. These activities and events not only build awareness and familiarity with tsunami preparedness and evacuation facilities, but also allow the opportunity for neighbors to build important community connections that will be vital in the event of a disaster.

Recommended Actions

- Hold at least one community-wide outreach or education activity annually.
- Provide educational and evacuation information at every State, County, and City park.
- Develop community outreach materials, such as the following, to be distributed at community events:
 - Brochures containing zone and route information
 - Refrigerator magnets with preparedness information
 - Maps to be printed in phonebooks
 - Permanent posted material for hotels, rentals, restaurants, and other businesses

Door-to-Door Education and Community-wide Evacuation Drills

The National Tsunami Hazard Mitigation Program studied which educational strategies work best for tsunami awareness in Seaside, Oregon (Connor 2005). Door-to-door outreach and evacuation drills were the most effective techniques according to polls for this study. This has been confirmed during recent events in Japan and Mexico where earthquake and evacuation drills are routinely used as a training technique.

Recommended Action

- Develop Volunteer Educators who can go door-to-door to discuss tsunami awareness and safety with residents. These volunteers would be trained by the City and given brochures to hand out to residents.
- Conduct a community-wide tsunami evacuation drill using the Oregon Office for Emergency Management Tsunami Evacuation Drill Guidebook as a reference.

Resources

- The Oregon Office for Emergency Management's Tsunami Evacuation Drill Guidebook: [https://www.oregon.gov/oem/Documents/Tsunami Evacuation Drill Guidebook.pdf](https://www.oregon.gov/oem/Documents/Tsunami_Evacuation_Drill_Guidebook.pdf)

Run/Walk Event

Events like the Cannon Beach “Race the Wave” provided an opportunity to build awareness of tsunami routes. Participants in the 5K and 10K Race the Wave fun run/walk/roll started on the beach, followed a scenic tsunami evacuation route through the city, and reached the finish line out of the tsunami inundation zone. A preparedness fair was held near the finish line for all participants and included food, games, and giveaways.

Recommended Action

- Host a run/walk event that has participants race a tsunami evacuation route as a fun awareness event.
- Hold a preparedness fair at the end of the race. See below for additional information on preparedness fairs.



Participants in the Cannon Beach “Race the Wave” event in 2015. Source: Race the Wave Facebook page.

Resources

- <https://www.fema.gov/news-release/2015/09/08/know-your-tsunami-evacuation-routes-race-wave-cannon-beach-or-sept-13>
- Up and Out Oregon Tsunami Wayfinding Research Project Final Project Report & Guidance Document: https://www.oregon.gov/oem/Documents/Up_And_Out_Phase1.pdf

Preparedness Fairs/Booth

An emergency preparedness fair or a tsunami preparedness-focused booth at a community event can help educate community members and visitors about tsunami evacuation. A preparedness fair can feature many booths and activities. It can be held separately or combined with another event, such as a 5K run/walk, farmers market, or festival.

Recommended Action

- Work with the Emergency Preparedness leaders to ensure that they have the information and resources they need to communicate tsunami preparedness information with the public
- Identify additional community events where a preparedness booth may be appropriate, or community groups and organizations willing to host a preparedness fair.

Resources

- The American Red Cross and California Emergency Management Agency’s Disaster Preparedness Event Toolkit: https://www.redcross.org/content/dam/redcross/atg/Chapters/Division_2_-_Media/Bay_Area/Bay_Area_-_PDFs/Preparedness_Event_Toolkit.pdf

Tsunami Quests

A Tsunami Quest is an educational activity for families and children to learn about tsunamis and tsunami evacuation routes in a clue-directed hunt format. The Oregon Sea Grant is already using Tsunami Quests in Clatsop, Lincoln, and Coos Counties to help residents and visitors prepare for a major earthquake and tsunami. The “hunt” culminates in discovery of a box that holds a guest book so participants can record their achievement at completing the Quest. The goal is to encourage people to explore these routes for fun, so that they will be familiar with them in the event of a tsunami.



Tsunami Quest participants. Source: OSU Oregon Sea Grant.

Recommended Action

- Invite the Oregon Sea Grants Quest Coordinator to hold a workshop like the one highlighted in this video: <https://youtu.be/TQvgSMiby7k>.
- Develop a map and a series of educational clues that, when followed, lead the walkers to higher ground.
- Engage elementary or middle school students to develop the clues as a class exercise.
- Consider incorporating geocaches with preparedness information.

Resources

- The 2017-18 Oregon Coast Quests Book: <https://seagrants.oregonstate.edu/sgpubs/2017-18-oregon-coast-quests-book>
- A video that describes the quest concept and how quests are used to teach coastal visitors and locals what to do in the event of a tsunami: <https://youtu.be/TQvgSMiby7k>.

5.3 Schools and Childcare Facilities

Empowering children with knowledge about tsunami hazards and evacuation routes can be an excellent motivator for families to become more aware and prepared. Tsunami education efforts can be incorporated into existing emergency exercises and trainings.

Child Appropriate Trainings

Many materials are available online for teachers to use in educating children about tsunamis. The Tommy Tsunami Coloring Book from the National Tsunami Warning Center is one example.



Students from Seaside High School participate in a tsunami evacuation drill. Source: <https://www.knkx.org/post/coastal-schools-drill-tsunami-would-rather-relocate>

Recommended Action

- Work with teachers to develop tsunami curriculum that is age appropriate.
- Coordinate with Waldport School District to ensure they have the information and educational resources they need to ensure that their students and staff are prepared
- Encourage school children to get ham radio training and offer trainings through the school.

Resources

- The Washington Military Department, Emergency Management Division’s booklet “How the Smart Family Survived a Tsunami” for elementary children (K-6): <https://www.mil.wa.gov/uploads/pdf/Publications/HowtheSmartFamilySurvivedaTsunami.pdf>
- The Tommy Tsunami Coloring Book from the National Tsunami Warning Center: https://www.tsunami.noaa.gov/pdfs/tommy_tsunami_coloring_book.pdf
- San Diego County used an animated short film to educate kids about tsunamis: <https://www.youtube.com/watch?v=UzR0Rt3i4kc>
- NOAA’s Tsunami Education website: <https://www.tsunami.noaa.gov/education.html#kids>
- OEM’s Without Warning: <https://www.oregon.gov/newsroom/pages/NewsDetail.aspx?newsid=1396>
- Lincoln County Amateur Radio Club – N7OY: http://www.n7oy.org/?page_id=133.

Parent/Guardian Trainings and Workshops

Children are not the only audience that can be reached through school activities—parents and guardians attend many events at schools, providing ample opportunities to reach them with the tsunami preparedness message.

Recommended Action

Encourage schools to incorporate tsunami information into their back-to-school nights or other gatherings where parents/guardians are present.

5.4 Seniors

Empowering seniors and their caregivers with knowledge about tsunami hazards and evacuation routes is important to ensure those who may have a tougher time evacuating due to physical limitations understand the importance of evacuating without delay and connecting with their neighbors for support.

Senior Workshops

Seniors and their caregivers need tsunami evacuation education and training to ensure everyone knows when and how to evacuate in the event of a local earthquake and tsunami.

Recommended Action

- Work with existing senior groups to host regular training sessions on tsunami preparedness and evacuation measures.

Resources

- Natural Disaster Awareness for Caregivers of Senior Citizens: Building Senior Resilience: <http://centennialadultcare.com/wp-content/uploads/2015/03/Natural-Disaster-Awareness-for-Caregivers-of-Senior-Citizens.pdf>
- Disaster Preparedness Guide for Seniors and Caregivers: <https://www.seniorliving.org/research/disaster-preparedness/>

5.5 Businesses

Businesses in the hazard zones may be owned, staffed, or frequented by customers who, like visitors, live outside the city limits and may not have been reached by the local outreach activities. Therefore, employers and their employees need tsunami evacuation education and training to ensure everyone knows when and how to evacuate in the event of a local earthquake and tsunami.

Recommended Action

- Work with the Chamber of Commerce to host regular training sessions for business owners, sharing information with them, so they, in turn, could return to their businesses and host in-house training.
- Develop Volunteer Educators to conduct in-house trainings at local businesses for staff.
- Encourage businesses to perform seismic upgrades.
- Recommend training for employees in the tsunami zone using DOGAMI's Tsunami Safe online training module: <https://www.oregon.gov/tsunamisafe/Pages/default.aspx>.

Resources

How to Prepare Your Business for the Next Tsunami (Hawaii specific, but useful information):
http://tsunami.org/about/pdfs/how_to_prepare_your_business_for_the_next_tsunami.pdf.

Tsunami Quests for Businesses

Tsunami Quest activities are not just for families and children, they can be used by businesses to educate their employees about tsunami preparedness.

Recommended Action

- Encourage local businesses to utilize the Tsunami Quest activity (described above) as a “wellness event” for their employees. The activity may need to be adapted to be more appropriate for businesses.

Resources

- The 2017-18 Oregon Coast Quests Book: <https://seagrant.oregonstate.edu/sgpubs/2017-18-oregon-coast-quests-book>.
- A video that describes the quest concept and how quests are used to teach coastal visitors and locals what to do in the event of a tsunami: <https://youtu.be/TQvgSMiby7k>.
- Effective Emergency Preparedness Planning: Addressing the Needs of Employees with Disabilities: <https://www.dol.gov/odep/pubs/fact/effective.htm>.

- Provide training and education opportunities to hotel, motel, B&B, and short-term rental owners who wish to provide preparedness supplies (such as go-bags) for their employees or guests.
- Adopt City ordinance that requires posting tsunami info in hotels/motels/STRs. Tillamook County has adopted a Short Term Rental Ordinance that requires tsunami evacuation information be posted in all short term rentals within the evacuation zone. The ordinance reads as follows:

A copy of an Oregon Department of Geology and Mineral Industries (DOGAMI) Tsunami Evacuation Brochure furnished by the Tillamook County Department of Community Development at the time of Short-Term Rental Permit issuance and renewal shall be posted in a visible location of a short term rental located within a DOGAMI mapped area susceptible to tsunami hazards.

Resources

- A glossy brochure is available in many languages from UNESCO, at: http://itic.ioc-unesco.org/index.php?option=com_content&view=article&id=1169&Itemid=2017.
- Disaster Response Guidebook for Hotels and Motels on Washington's Coast: https://www.mil.wa.gov/uploads/pdf/emergency-management/haz_hotelmotel_guidebook.pdf
- Manzanita Hotel owner stocked guest room with go-bags: https://www.dailyastorian.com/news/local/manzanita-hotel-stocks-every-room-with-go-bags/article_19c85034-315f-11e9-bc95-031bca675e7e.html.
- DOGAMI's Tsunami Safe online training module for hospitality industry: <https://www.oregon.gov/tsunamisafe/Pages/default.aspx>.

5.7 Access and Functional Needs Populations

Access and Functional Needs populations (also referred to as vulnerable populations and special needs populations) are members of the community who experience physical, mental, or medical care needs and who may require assistance before, during, and after an emergency incident. Targeted education, outreach, and training can help inform and prepare these populations to evacuate successfully in the event of a CSZ tsunami.

Mobility Challenges

Within mobility disabilities, there are several subcategories that should be considered when planning for tsunami evacuations, including: wheelchair users, ambulatory mobility disabilities, respiratory issues, and young children.

Recommended Action

- Encourage residents to get to know their neighbors and whether they will need assistance evacuating.
- Encourage hospitals, doctors, and clinics to provide tsunami evacuation materials to their patients.
- Incorporate evacuation planning into CERT training.

Resources

- To Define, Locate, and Reach Special, Vulnerable, and At-risk Populations in an Emergency: This CDC workbook is intended to provide public health and emergency preparedness planners with better ways to communicate health and emergency information to at-risk individuals with access and functional needs for all-hazards events through step-by-step instructions, resources guides and templates. https://emergency.cdc.gov/workbook/pdf/ph_workbookfinal.pdf
- This guidance from the U.S. Department of Health & Human Services Office of the Assistant Secretary for Preparedness and Response will introduce and connect you to available resources and inclusive strategies for integrating the access and functional needs of at-risk individuals into emergency preparedness, response, and recovery planning at all jurisdictional levels. <https://www.phe.gov/Preparedness/planning/abc/Pages/afn-guidance.aspx>
- Preparing for Disaster for People with Disabilities and other Special Needs <https://www.fema.gov/media-library/assets/documents/897>

Vision Impairment

Individuals who experience partial or total vision loss, including night vision challenges, rely on their sense of touch and hearing to perceive their environment. After a CSZ event, when physical obstructions such as debris, road or sidewalk damage, and liquefaction changes the lay of the land, those who experience vision impairment may find it difficult to navigate to a location outside the tsunami zone without assistance.

Recommended Action

- Incorporate lighting and reflective material on evacuation signs.
- Produce community information in larger text options.

Resources

- American Council for the Blind: <http://www.acb.org/large-print-guidelines>

- American Foundation for the Blind: <http://www.afb.org/info/reading-and-writing/making-print-more-readable/35>

Limited-English Proficiency

Key to an individual's ability to evacuate is access to information. Individuals with limited English proficiency may require additional guidance in their native language.

Recommended Action

- Incorporate communication education materials, in appropriate native languages, into community events and websites.

Resources

- The U.S. Department of Justice's 2016 Tips and Tools for Reaching Limited English Proficient Communities in Emergency Preparedness, Response, and Recovery: <https://www.justice.gov/crt/file/885391/download>
- The U.S. Department of Health & Human Services' Emergency Preparedness Resources for Persons with Limited English Proficiency (LEP): <https://www.hhs.gov/civil-rights/for-individuals/special-topics/emergency-preparedness/limited-english-proficiency/index.html>

Deaf or Hard of Hearing

Individuals who are deaf or hard of hearing may not respond to verbal direction or hear warning sirens.

Recommended Action

- Work with organizations who provide services to those who are deaf or hard of hearing to recognize the signs of a possible tsunami (i.e., ground shaking) and the necessity of evacuating immediately after the ground stops shaking.
- Encourage residents to get to know their neighbors and whether they will need non-verbal communication assistance.

Resources

- Emergency Preparedness for Individuals with Hearing Loss: A Family Guide, from the Vanderbilt Kennedy Center for Excellence in Developmental Disabilities: <https://vkc.mc.vanderbilt.edu/assets/files/tipsheets/emprephearinglosstips.pdf>
- The American Red Cross and NTID's Disaster Preparedness and the Deaf Community — For the Deaf, Hard of Hearing and Latened Deaf: http://www.cidrap.umn.edu/sites/default/files/public/php/332/332_brochure.pdf

5.8 Training and Exercises

Trainings and exercises are an excellent tool to help solidify provided educational materials into action.

Recommended Action

- Conduct yearly exercises with City staff to encourage awareness around their responsibilities during and after a tsunami event.
- Conduct community exercises.
- Offer frequent trainings to local businesses and community organizations.

5.9 Measuring Success

Learning what the community's awareness is about tsunamis through community surveys is an informative way to help guide education efforts.

Recommended Action

- Distribute questionnaires bi-annually to measure the baseline of public awareness and preparedness and subsequent changes to determine program effectiveness and to revise efforts. Consider encouraging participation by utilizing a raffle prize related to emergency preparedness.

Resources

- A sample Community Tsunami Awareness Survey is available here:
<http://kejian1.cmatc.cn/vod/comet/emgmt/community/media/documents/survey.pdf>



1400 Queen Ave SE • Suite 201 • Albany, OR 97322
 (541) 967-8720 • FAX (541) 967-6123

MEMORANDUM

DATE: September 4, 2020
TO: City of Waldport, OR

FROM: Holly G Hamilton
 OCWCOG - Contract Planner for Waldport, OR

RE: Planner's Report for August 2020

Overview

The new planner, Holly Hamilton started August 3rd. Justin Pederson overlapped on-site services for two weeks and has begun scaling back his presence in Waldport, functioning primarily as a remote resource for questions, and long-term planning projects.

Building Permits and Process

Since the start of August, the City of Waldport has received/processed four (4) building permits.

A Flood Plain Development Permit was returned by Lincoln County with a request for Valuation which would accurately reflect the scope of work contracted, and potentially trigger a requirement for construction above Base Flood Elevations. Documentation was updated and resubmitted within the triggering criteria.

Administrative Change - for future Flood Plain development in the City of Waldport, Planning will coordinate with Lincoln County, complete an on-site pre-approval inspection, and request that accurate drawings, reflective of the scope of work, accompany the Permit Request.

City of Waldport Permit List											
Application Date	Application	Lincoln County Permit #	Applicant/ Business / PUD	Zoning	Tax Lot ID	Site Address	City	State	Zip Code	Detailed Description	Building Demolished
<i>for 2020</i>											
2020											
7/2/2020	Building Permit	519.20.00.1197-STR	Glasgow LLC	D-D	13-11-198D /2700	120 NW John Street	Waldport	OR	97394	Foundation Repair	No
7/6/2020	Floodplain Permit	519.20.00.1197-STR	Glasgow LLC	D-D	13-11-198D /2700	120 NW John Street	Waldport	OR	97394	Foundation Repair- Floodplain Permit- Permit withdrawn. Evaluation recalculated and resubmitted.	No
8/13/2020											No
8/10/2020	Septic Repair Permit	510.20.000662.PRN	Lawrence Barker	R-3	13-11-29-AB-03100	1420 Rio Vista SE	Waldport	OR	97394	Septic System Replace	n/a
8/14/2020	Building Permit	519.20.00.1569	Dahl & Dahl	I-P	13-11-31-80-00200	150 SW Dahl Ave	Waldport	OR	97394	Cellular Tower	n/a
8/17/2020	Building Permit	519-20-001501-MD	Crestview Golf Course	R-1	13-11-30-BD-02800	2150 SW Green Lane	Waldport	OR	97394	Manufactured Home and Attached Garge	No
8/17/2020	Building Permit	519.20.001502-STR	Crestview Golf Course	R-1	13-11-30-BD-02800	2150 SW Green Lane	Waldport	OR	97394	Manufactured Home and Attached Garge	No



Current Planning:

- Field Planning Desk Inquiries – Walk-Ins and Phone Calls
- Ongoing building permit review
- Variance Application for Fencing on Alder Street, expired August 2020
- LUBA – Vista View Remand. Records submitted to the Land Use Board of Appeals, awaiting determination.

Long Range Planning

For inclusion / discussion at the September Planning Commission meeting.

- Ordinance Development
- National Hazards Mitigation Plan (NHMP) Adoption
- Urban Growth Boundary Expansion