



WELCOME TO THE

TSUNAMI RESILIENCE PLAN OPEN HOUSE

TONIGHT, WE INVITE YOU TO....

- 1 Learn about the proposed Tsunami Hazard Overlay Zone
- 2 Explore the recommendations for the Tsunami Evacuation Facilities Improvement Plan
- 3 Ask questions and share your thoughts - members of the planning team will be available for one-on-one and small group conversations after the presentation
- 4 Stay involved! Sign up to receive information on ongoing preparedness efforts and volunteer opportunities

SHARE YOUR
FEEDBACK!

WRITE YOUR
COMMENTS ON A
COMMENT CARD! Tell
us your thoughts on the
recommendations and
any general comments
you may have

NEDONNA BEACH + NORTH ROCKAWAY BEACH

Walking speeds required to reach safety in this area range from a slow walk to a jog, assuming no loss of evacuation facilities during the earthquake. However, the areas east of Highway 101 have been identified to be at risk of landslides, and the trails at the top of Riley Street and Section Line Street may not be able to withstand earthquake shaking.

While the Nedonna Beach neighborhood has a good amount of existing signage, some of it is not up to the design standards recommended by the Oregon Office of Emergency Management.

One critical facility, Neah-Kah-Nie Middle School & High School, is located within this area.

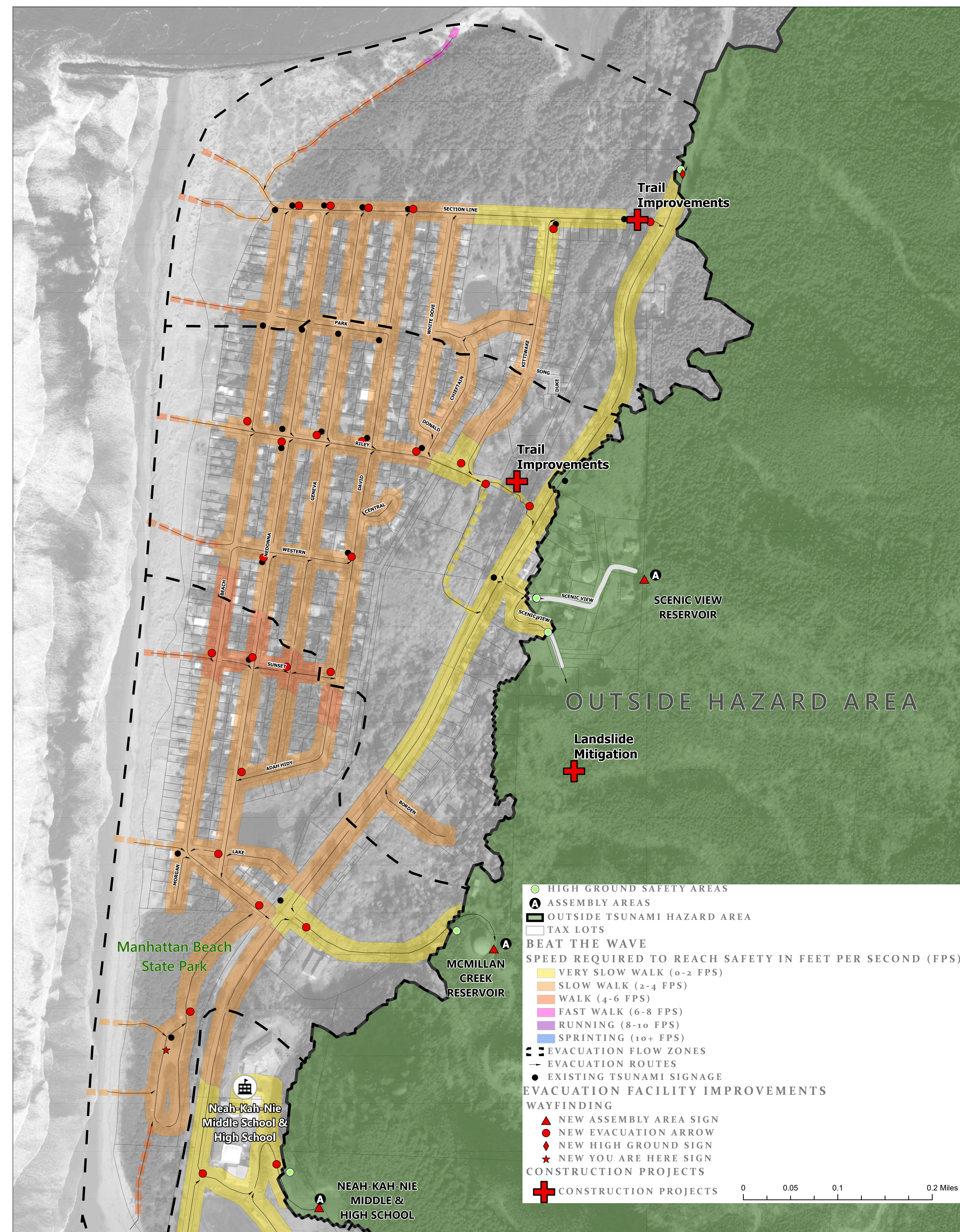
WAYFINDING PROJECTS

- ▶ Add signage identifying assembly areas at Scenic View Reservoir, McMillan Creek Reservoir, and the Neah-Kah-Nie Middle & High School Assembly Areas.
- ▶ Expand Evacuation Route Signage in Nedonna Beach neighborhood
- ▶ Add signage directing evacuees up trail towards McMillan Creek Reservoir
- ▶ Add signage at school directing towards evacuation trail in parking lot and at Highway 101 entrance
- ▶ Add signage to Manhattan Beach State Park access road directing out of park towards Highway 101
- ▶ Add signage to indicate arrival at safety at high ground areas
- ▶ Replace existing signs that are not consistent with state design standards with new signs that are consistent with state design standards

CONSTRUCTION PROJECTS

- ▶ Landslide mitigation measures East of Highway 101 and Nedonna Beach
- ▶ Improvements to trail on Section Line Street to increase seismic resilience
- ▶ Improvements to trail on Riley Street to increase seismic resilience

Open House: March 26, 2019



LAKE LYTLE + CRESCENT LAKE

Two bridges in this area, on NE 12th and on Highway 101 crossing Crescent Creek, are expected to fail during a Cascadia Subduction Zone earthquake. The loss of these bridges creates the need for significant evacuation speeds to clear the area safely in the event of a tsunami. There are a number of construction projects that can address this issue, including retrofitting or reconstructing the existing bridges, constructing new pedestrian bridges that are seismically sound, or building a vertical evacuation structure.

There are very few existing evacuation route signs in this area.

WAYFINDING PROJECTS

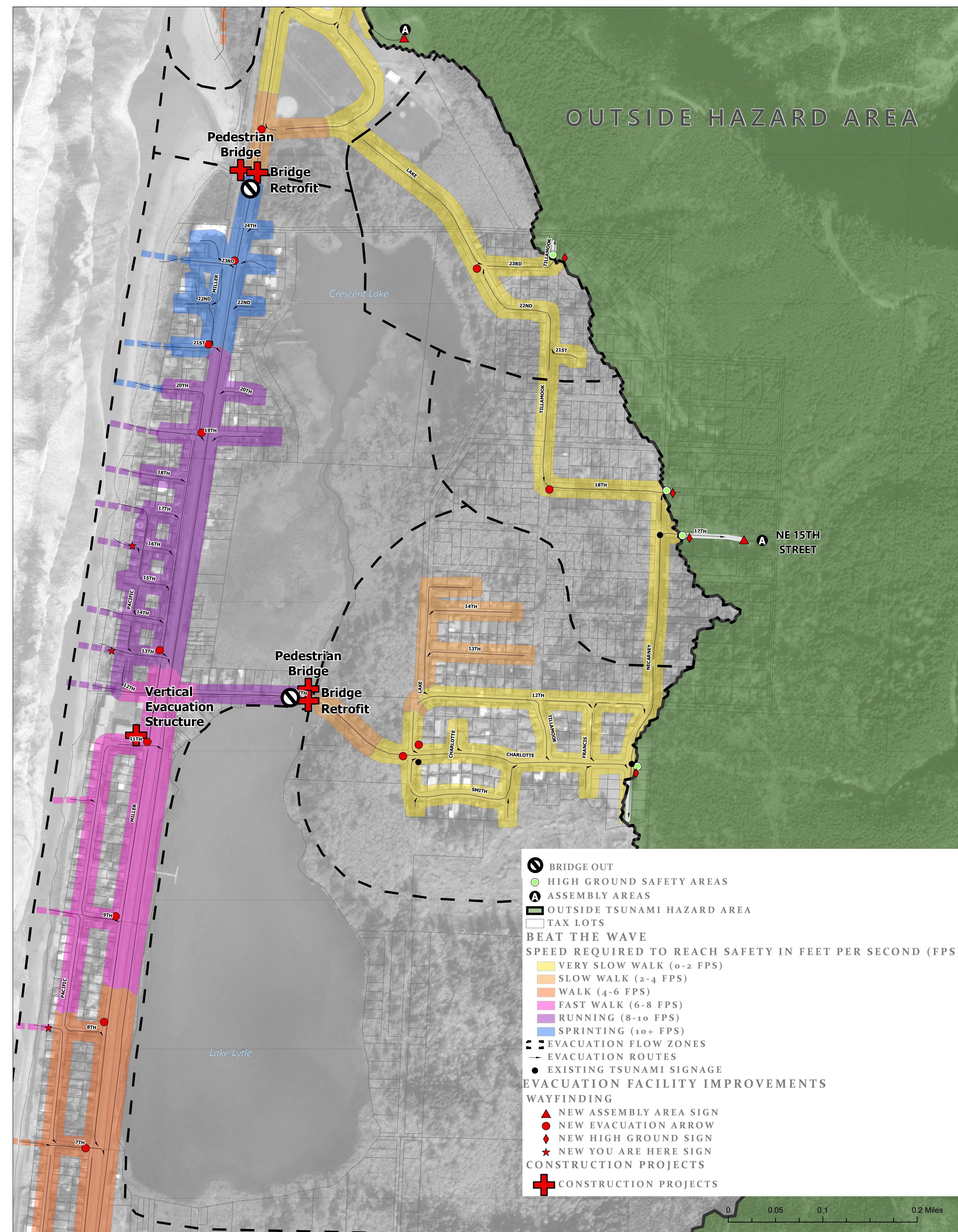
- ▶ Add signage identifying assembly area at NE 15th Street.
- ▶ Expand Evacuation Route Signage along Highway 101
- ▶ Expand Evacuation Route Signage in neighborhood east of Highway 101
- ▶ Add additional signage at NE Charlotte and NE Lake Boulevard. Signage is currently behind a stop sign and is only visible from the north, and not visible to evacuees as they head uphill
- ▶ Add signage to indicate arrival at safety at high ground areas

CONSTRUCTION PROJECTS

These projects have been recommended to address the potential bridge failures in the area, and associated evacuation difficulties. However, not all will need to be completed to successfully address this issue. The city may either improve or construct new bridges, or construct a vertical evacuation structure.

- ▶ New pedestrian bridge at Highway 101 Crescent Creek crossing
or
Existing bridge retrofit or replacement at Highway 101 Crescent Creek Crossing
- And
- ▶ New pedestrian bridge at NE 12th Avenue
or
Existing bridge retrofit or replacement at NE 12th Avenue
- Or
- ▶ Vertical evacuation structure at Highway 101 and NW 11th Avenue

Open House: March 26, 2019



CENTRAL ROCKAWAY BEACH

Evacuation speeds required to reach safety in the area range from a slow walk in much of the neighborhood east of Highway 101, to a jog from some parts of the beach and the N 6th Avenue and Highway 101 area. There is a risk of landslides on the north and west slopes of the Pacific View neighborhood hill, where many high ground areas are located.

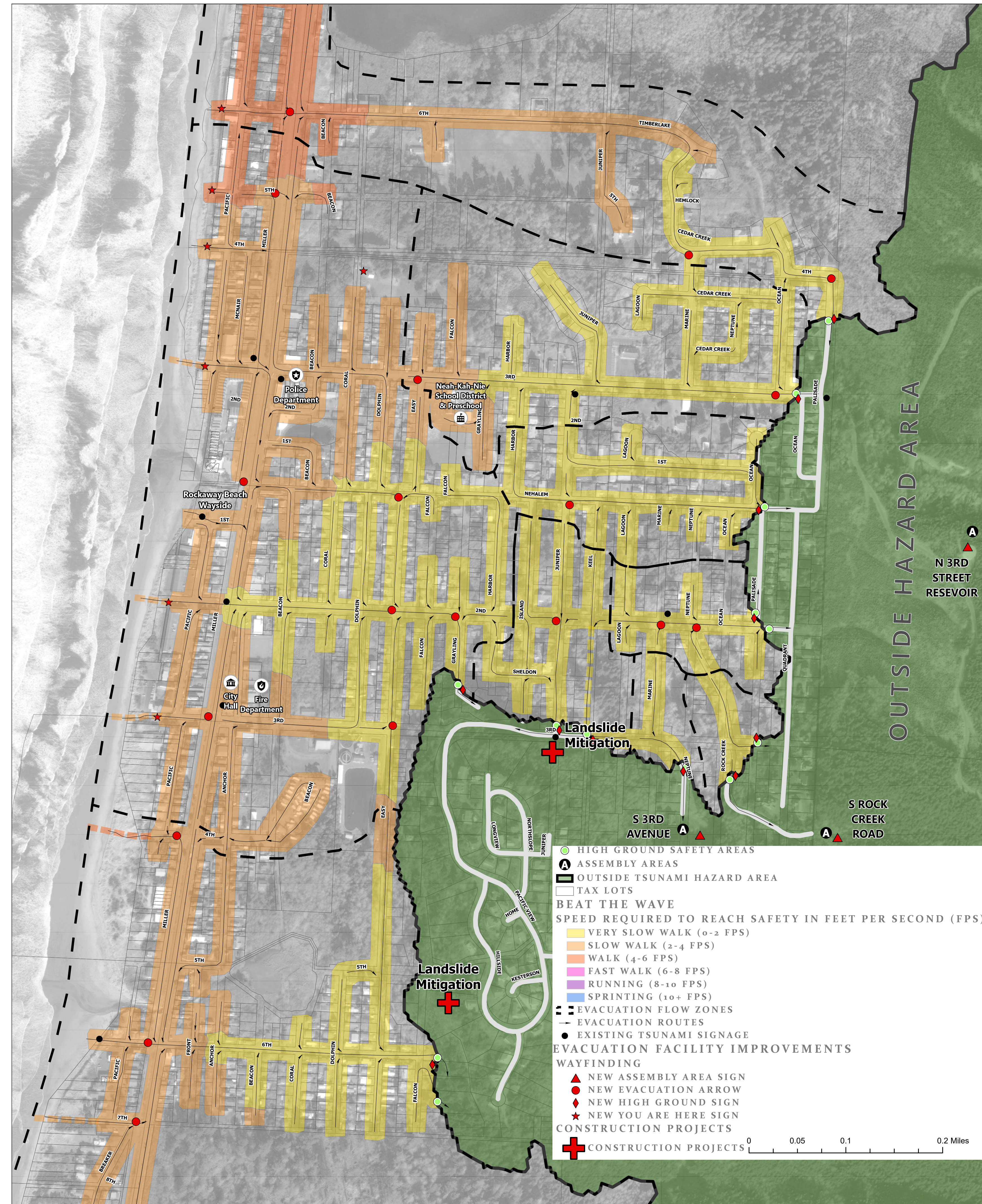
This area is home to the majority of critical facilities in Rockaway Beach: City Hall, Public Works, Police Department, Fire Department, Neah-Kah-Nie School District and Preschool, and the water treatment plant. Popular destinations such as downtown, the Wayside, and Phyllis Baker City Park are also located here.

WAYFINDING PROJECTS

- ▶ Add signage identifying assembly areas at N 3rd Street Reservoir, S Rock Creek Road, and S 3rd Avenue.
- ▶ Expand Evacuation Route Signage along Highway 101
- ▶ Expand Evacuation Route Signage in neighborhood east of Highway 101
- ▶ Add signage to indicate arrival at safety at high ground areas. Explore using a blue painted line or other asphalt coloring techniques to indicate arrival at safety at high ground areas located on paved roads
- ▶ Add tsunami evacuation route map and information sign at Phyllis Baker City Park

CONSTRUCTION PROJECTS

- ▶ Landslide mitigation on north and west sides of Pacific View neighborhood



TWIN ROCKS + BARVIEW

Evacuation speeds required to reach safety range from a slow walk and walk in much of the area, though a fast walk is required in areas closer to the beach. There is a landslide risk in the slopes above Highway 101, though evacuees will be able to reach alternate high ground areas nearby if landslides do occur.

This area is home to popular destinations such as Barview Jetty Park and the Three Graces. Twin Rocks Friends Camp, Camp Magruder, and Shorewood RV Park are areas likely to be hosting a high concentration of visitors to the area.

WAYFINDING PROJECTS

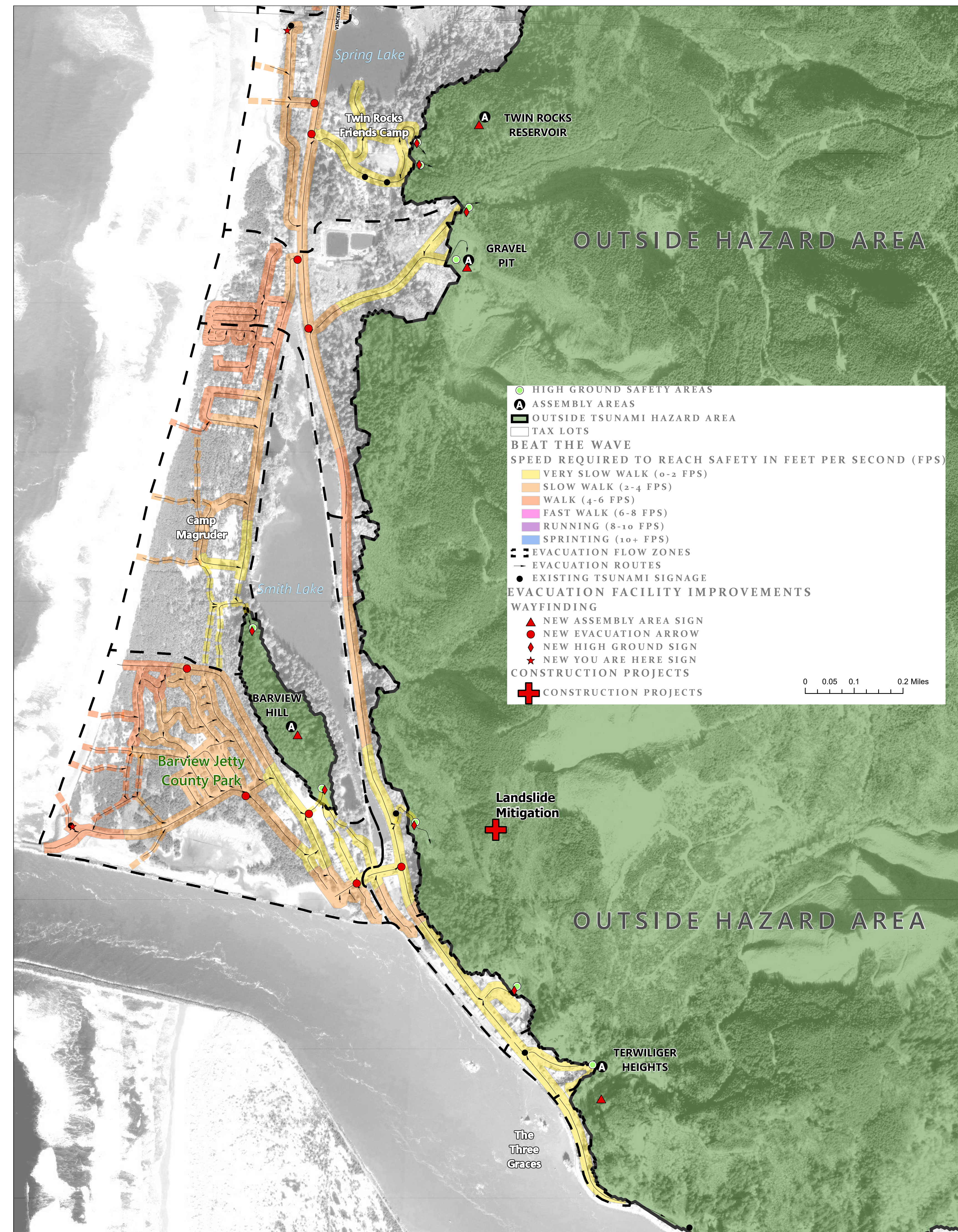
- ▶ Add signage identifying assembly areas at the Twin Rocks Reservoir, the Gravel Pit, Barview Hill, and Terwiliger Heights
- ▶ Expand Evacuation Route signage along Highway 101
- ▶ Expand Evacuation Route signage in Barview
- ▶ Add signage to indicate arrival at safety at the high ground areas
- ▶ Add tsunami evacuation route map and information sign at Barview Jetty Park

CONSTRUCTION PROJECTS

- ▶ Landslide mitigation east of Highway 101

Note - although the City of Rockaway Beach does not have jurisdiction in these areas, this plan recommends coordination with these communities and Tillamook County in their tsunami evacuation facilities improvement efforts, as these communities are closely linked to Rockaway Beach

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CITYWIDE RECOMMENDATIONS

These recommendations are not tied to a specific location. Instead, they should be enacted on a city wide level. Some recommendations are related to City policies and administration, while others make improvements to evacuation facilities and preparedness for the whole community.

POLICY + ADMINISTRATION

- ▶ Adopt recommended Comprehensive Plan policies when Comprehensive Plan is next updated
- ▶ Identify staff member to lead implementation of TEFIP recommendations
- ▶ Explore hiring a City Emergency Manager to oversee implementation of TEFIP and lead emergency preparedness efforts
- ▶ Increase coordination between Community Development Department, Public Works, and Emergency Management leaders
- ▶ Integrate evacuation facilities improvements with other ongoing planning efforts, such as the Salmonberry Trail, Safe Routes to School, Local Improvement Districts, etc.
- ▶ Coordinate with neighborhood groups already working on tsunami preparedness

EVACUATION FACILITIES AND PREPAREDNESS

- ▶ Create trail connectivity between high ground and assembly areas for safe movement post-disaster
- ▶ Map logging roads that may be used for evacuation and movement post-disaster. Coordinate with timber companies and/or the Oregon Department of Forestry for data on logging roads for mapping and educational purposes.
- ▶ Pursue acquisition of land outside of hazard area for relocation of critical facilities
- ▶ Establish supply caches and emergency shelters outside of inundation zone
Note- 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. This information can be used as a starting point.
 - Questions to ask when assessing a 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?
 - 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 supplies at Scenic View, McMillan Creek, and N 3rd Street
 - Coordinate with DLCD as they continue to research supply cache best practices

EDUCATION, TRAINING, AND OUTREACH

In tsunami areas, it is crucial to support an ongoing sustained tsunami public education program in order to ensure effective evacuation and save lives.

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.

NEWS AND SOCIAL MEDIA

- ▶ Work with local newspapers and radio stations to announce tsunami awareness events and provide community education information and resources. Utilize City website and social media accounts to disseminate tsunami awareness and evacuation information to the community.

COMMUNITY ACTIVITIES

- ▶ 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
- ▶ Host a run/walk event that has participants race a tsunami evacuation route as a fun awareness event.
- ▶ Set up a booth about tsunami preparedness at local community events
- ▶ Create a tsunami quest - a series of clues that lead participants to higher ground and increase familiarity with evacuation routes

SCHOOLS AND CHILDCARE FACILITIES

- ▶ Work with teachers to develop tsunami curriculum that is age appropriate.
- ▶ Encourage schools to incorporate tsunami information into their back-to-school nights or other gatherings where parents/guardians are present.
- ▶ Encourage schools and childcare facilities to conduct evacuation drills, in conjunction with their earthquake drills, in the mapped tsunami evacuation zone.

BUSINESSES

- ▶ Work with the Chamber of Commerce to host regular training sessions for business owners.
- ▶ Develop Volunteer Educators to conduct in-house trainings at local businesses for staff
- ▶ Encourage businesses to perform seismic upgrades.

VISITORS & RECREATIONISTS

- ▶ Place materials at the following locations:
 - Visitor centers
 - Information kiosks
 - Trail markers
 - Signs on beaches (particularly areas that are hard to evacuate from or in which the direction you need to evacuate to is not obvious)
- ▶ Provide tsunami evacuation literature to local hospitality businesses, including vacation rental property managers. Request that they be permanently displayed in the hotel lobbies, hotel rooms, and short-term/vacation rentals, informing tourists of evacuation routes and general earthquake/tsunami awareness.
- ▶ Adopt a City ordinance that requires posting tsunami information in hotel/motel rooms and vacation rentals

ACCESS AND FUNCTIONAL NEEDS POPULATIONS

- ▶ Encourage residents to get to know their neighbors and whether they will need assistance evacuating.
- ▶ Incorporate evacuation planning into CERT training.
- ▶ Incorporate lighting and reflective material on evacuation signs.
- ▶ Produce community information in larger text options.
- ▶ Incorporate communication education materials, in appropriate native languages, into community events and websites.
- ▶ 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.

TRAINING AND EXERCISES

- ▶ 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.
- ▶ Conduct trainings to ensure City staff and volunteers are able to operate communications equipment.

MEASURING SUCCESS

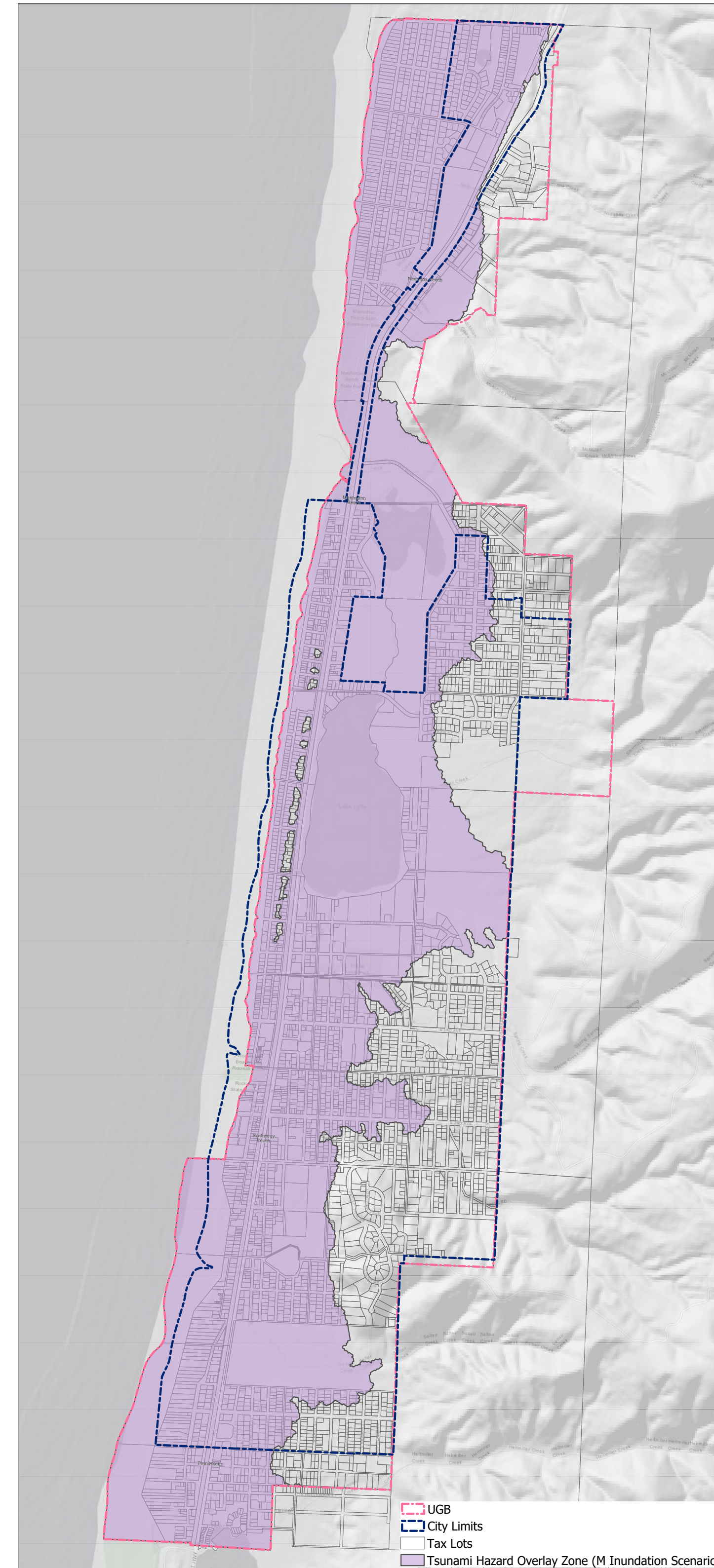
- ▶ Distribute preparedness survey bi-annually to measure the baseline of public awareness and preparedness and subsequent changes to determine program effectiveness and to revise efforts

TSUNAMI HAZARD OVERLAY ZONE

These limitations apply primarily to uses which present a high potential for life safety risk, or to uses which provide an essential function during and after a disaster event. ORS 455, which is implemented through the state building code, currently prohibits certain facilities and structures in the tsunami inundation zone as defined by the Oregon Department of Geology and Mineral Industries (DOGAMI). The overlay incorporates these requirements, and also provides a higher margin of safety for some essential facilities.

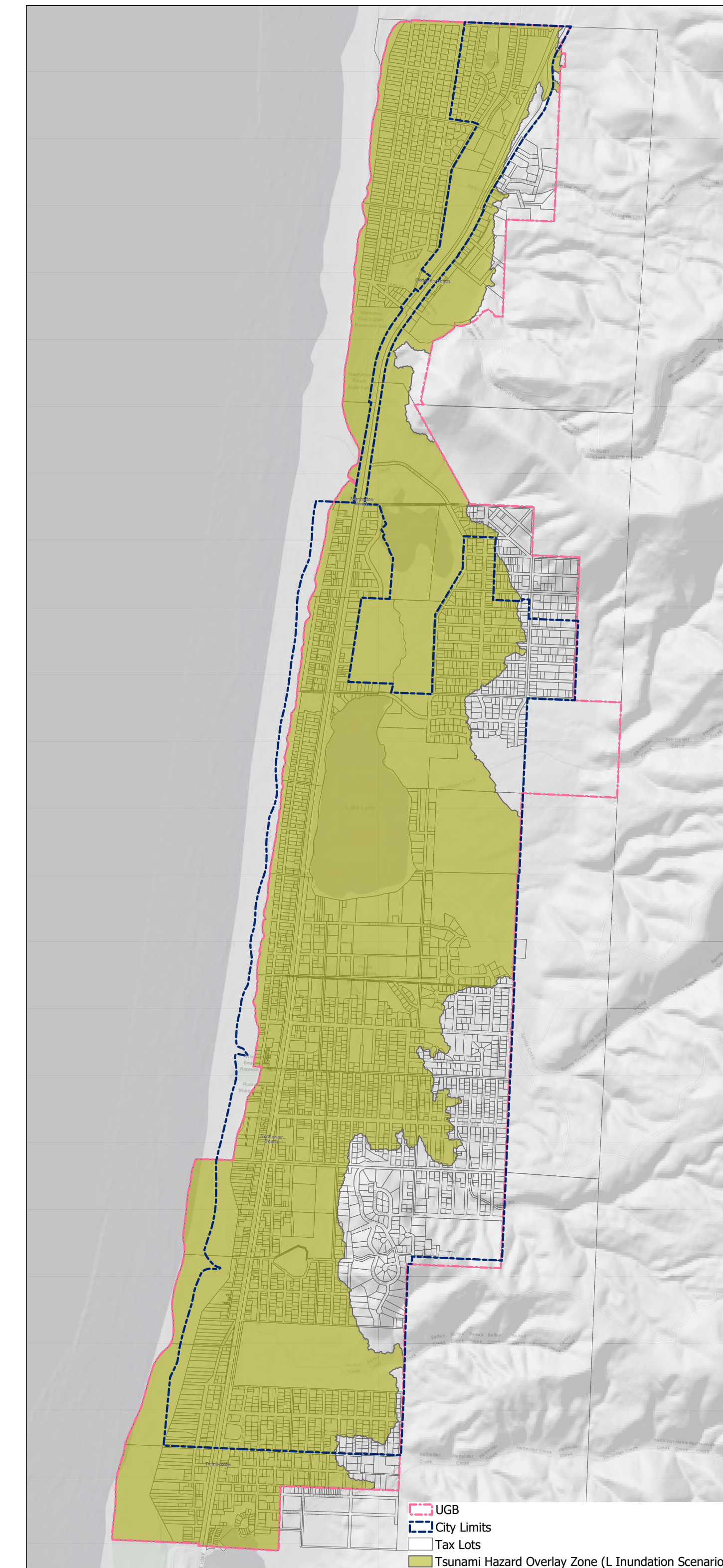
RESTRICTED USES IN M ZONE

- ▶ 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.
- ▶ Emergency vehicle shelters and garages.
- ▶ Structures and equipment in emergency preparedness centers.
- ▶ Standby power generating equipment for essential facilities.
- ▶ Covered structures whose primary occupancy is public assembly with a capacity of greater than 300 persons. Medical facilities with 50 or more resident, incapacitated patients.



RESTRICTED USES IN L ZONE

- ▶ Hospitals and other medical facilities having surgery and emergency treatment areas.
- ▶ Fire and police stations.
- ▶ Structures and equipment in government communication centers and other facilities required for emergency response.
- ▶ Buildings with a capacity greater than 250 individuals for every public, private or parochial school through secondary level or child care centers.
- ▶ Buildings for colleges or adult education schools with a capacity of greater than 500 persons.
- ▶ Jails and detention facilities.



TSUNAMI HAZARD OVERLAY ZONE

The purpose of the Tsunami Hazard Overlay Zone is to increase the resilience of the community to a 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:

- Reduce loss of life;
- Reduce damage to private and public property;
- Reduce social, emotional, and economic disruptions; and
- 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

IMPROVEMENT REQUIREMENTS

Note - these requirements do not apply to single family homes on existing lots.

These provisions establish requirements to incorporate appropriate evacuation measures and improvements in most new development, consistent with an overall evacuation plan for the community. It does not require improvements for single family homes on existing lots. Required improvements would be proportional to the need created by the new development.

Required evacuation measures may include:

- On-site improvements and frontage improvements, such as those that ensure pedestrian access to evacuation routes in all weather and lighting conditions
- Off-site improvements on evacuation routes needed to serve the proposed development, proportional to the need created by the development.

For example, a developer of new multifamily housing may be required to incorporate paths to evacuation routes on their property or add improved signage along the evacuation route residents would use.

FLEXIBLE DEVELOPMENT OPTION

The overlay incorporates an optional development process which would permit modifications to many code standards when an overall design incorporates higher degrees of risk reduction. Similar in concept to a planned development, this approach permits deviation from the standard, prescriptive dimensional requirement of the code in order to encourage designs and development measures that achieve higher levels of risk reduction. Maximum densities will still be enforced.

- The Flexible Development Option may be applied to the development of any lot, parcel, or tract of land that is wholly or partially within the Tsunami Hazard Overlay Zone.
- Yards, setbacks, lot area, lot width and depth, lot coverage, building height and similar dimensional requirements may be reduced, adjusted or otherwise modified as necessary to achieve the design objectives of the development
- The development must provide tsunami hazard mitigation and/or other risk reduction measures at a level greater than would otherwise be provided under conventional land development procedures

For example, the developer of a new subdivision could be allowed to cluster development on an area of their property that is at lower tsunami risk with smaller lot sizes or setbacks than are typically allowed by the code.

