**Community Annex A Barview/Twin Rocks**

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# 1 Community Overview

The Twin Rocks and Barview area extends from south of the Rockaway Beach UGB boundary to the Three Graces. There are only a handful of commercial uses along Highway 101, and some clusters of residential uses in the Twin Rocks area west of the highway, and in Barview near the highway and to the east on the hill. This area is home to popular destinations such as Barview Jetty Park and the Three Graces. Twin Rocks Friends Camp, Camp Magruder, the Barview Jetty campground, and Shorewood RV Park are areas likely to be hosting a high concentration of visitors to the area.

*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.*

# 2 Existing Evacuation Facilities Analysis

#### Tsunami Wave Arrival Time

In the XXL scenario, waves will begin to arrive at the beach approximately 16-18 minutes after the earthquake begins. The wave crosses the area fairly uniformly from west to east, though it arrives more quickly on the Tillamook Bay side of Barview. The wave will arrive at the eastern most area of the inundation zone 24-26 minutes after the earthquake begins.

*See Appendix B for maps.*

#### Existing Evacuations Routes and Signage

The TEFIP relies on the presence of existing infrastructure and signage to inform improvement planning. While most of the existing signage is accurate, several communities have infrastructure and signage that is either inaccurate or requiring enhancement. Such sites have been denoted in the following table. The area has existing signage at the following locations (see Figure 1 for location of signs plotted on map):

|  |  |  |  |
| --- | --- | --- | --- |
| **Type** | **Description** | **Recommended Enhancements? (X)**  | **Location** |
| Blue Line | Existing “Entering Zone” sign on Highway 101 at Three Graces.  |  | [45.55809, -123.921](https://www.google.com/maps/place/45%C2%B033%2729.1%22N%2B123%C2%B055%2715.6%22W/%4045.5580937%2C-123.9231887%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.55809%214d-123.921) |
| Route Sign | Existing route sign on Highway 101 north of Harborview Dr pointing north.  |  | [45.56466, -123.937](https://www.google.com/maps/place/45%C2%B033%2752.8%22N%2B123%C2%B056%2713.2%22W/%4045.5646637%2C-123.9391887%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.56466%214d-123.937) |
| Route sign on Highway 101 north of Cedar St pointing east onto unnamed gated road.  |  | [45.57108, -123.943](https://www.google.com/maps/place/45%C2%B034%2715.9%22N%2B123%C2%B056%2734.8%22W/%4045.5710837%2C-123.9451887%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.57108%214d-123.943) |
| Green route sign on Old Pacific Hwy in Camp Magruder pointing south toward dune hill. It is recommended to verify that these signs provide enough guidance to reach the hill.  | X | [45.58009, -123.95](https://www.google.com/maps/place/45%C2%B034%2748.3%22N%2B123%C2%B057%2700.0%22W/%4045.5800937%2C-123.9521887%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.58009%214d-123.95) |
| Route sign on Highway 101 pointing east onto Minnehaha St but no further direction. Additional signage is needed to direct evacuees north toward Victoria Ave. | X – See Project 1204 | [45.59745, -123.947](https://www.google.com/maps/place/45%C2%B035%2750.8%22N%2B123%C2%B056%2749.2%22W/%4045.5974537%2C-123.9491887%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.59745%214d-123.947) |
| Route sign on 1st Ave and Victoria Ave pointing east onto Victoria Ave. |  | [45.59812, -123.945](https://www.google.com/maps/place/45%C2%B035%2753.2%22N%2B123%C2%B056%2742.0%22W/%4045.5981237%2C-123.9471887%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.59812%214d-123.945) |
| Vertical Evacuation | Existing sand dune could be used for vertical evacuation east of Barview Jetty County Park.  | X – See Project 1207 | [45.57174, -123.947](https://www.google.com/maps/place/45%C2%B034%2718.3%22N%2B123%C2%B056%2749.2%22W/%4045.5717437%2C-123.9491887%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.57174%214d-123.947) |

Figure 1 Existing Evacuation Signage

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#### Evacuation Speeds

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.

Figure 2 Minimum Walking Speeds

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#### Critical Facilities

There are no critical facilities located within this area.

#### Conclusions

Twin Rocks and Barview are at a somewhat high risk during a CSZ tsunami event, due to the high concentration of visitors likely to be in the area at any given time. These risks are amplified during weekends and summer months, when the two camps may be fully occupied, along with the Barview Jetty campground and Shorewood RV Park. Recommendations in this area aim to increase awareness among residents and visitors and improve the wayfinding and signage network.

# 3 Evacuation Improvements Project Identification

## 3.1 Wayfinding

#### The following wayfinding projects have been grouped together under a singular problem statement, as they all attempt to solve a similar issue.

Problem Statement: Limited existing signage and knowledge of priority evacuation routes may present difficulty to residents and visitors in evacuating from the inundation zone.

Prioritized Project Alternatives:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Project ID** | **Type** | **Description** | **Location** | **Priority** | **Potential Project Partners** | **Estimated Cost** |
| 1205 | Assembly Point Sign | Existing route signs direct evacuees east on Victoria Ave. It is recommended that the community place an Assembly Point sign at the eastern extent of the road to indicate high ground.  | [45.59806214, -123.9373536](https://www.google.com/maps/search/45.59806214%2C%2B-123.9373536?sa=X&ved=2ahUKEwjHlbOX67TiAhXNY98KHSN9Bf4Q8gEwAHoECAAQAQ) | High | County Community Development, County Public Works, DLCD, DOGAMI | $60 per sign plus labor and installation costs |
| 1608 | Map  | Recommend placement of tsunami inundation zone map at parking lot at the intersection of Trailer Park Rd and Cedar St.  | [45.56900311, -123.9451382](https://www.google.com/maps/place/45%C2%B034%2708.4%22N%2B123%C2%B056%2742.5%22W/%4045.5690031%2C-123.9473269%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.5690031%214d-123.9451382) | Low | County Community Development, County Public Works, DLCD, DOGAMI | $500  |
| 1209 | Recommend placement of tsunami inundation zone map at parking lot for the Barview Jetty. Map should indicate nearest high ground is at the dune east of Barview Jetty Park.  | [45.57027989, -123.9572512](https://www.google.com/maps/place/45%C2%B034%2713.0%22N%2B123%C2%B057%2726.1%22W/%4045.5702799%2C-123.9594399%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.5702799%214d-123.9572512) | Medium | County Community Development, County Parks, DLCD, DOGAMI |
| 1208 | Recommend placement of inundation zone map at registration kiosk for Barview Jetty Park.  | [45.57137853, -123.9464744](https://www.google.com/maps/place/45%C2%B034%2717.0%22N%2B123%C2%B056%2747.3%22W/%4045.5713785%2C-123.9486631%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.5713785%214d-123.9464744) | High | County Community Development, County Parks, DLCD, DOGAMI |
| 7201 | Recommend placement of tsunami inundation zone map at showers/restrooms at northern extent of RV park.  | [45.573091, -123.951446](https://www.google.com/maps/search/45.573091%2C%2B-123.951446?sa=X&ved=2ahUKEwjHipD61ZnkAhWPylkKHcLoCJEQ8gEwAHoECAoQAQ) | High | County Community Development, County Parks, DLCD, DOGAMI | $500 |
| 7202 | Recommend placement of tsunami inundation zone map at structures and/or parking lot north of RV park.  | [45.573541, -123.950963](https://www.google.com/maps/place/45%C2%B034%2724.8%22N%2B123%C2%B057%2703.5%22W/%4045.5735447%2C-123.9531517%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.573541%214d-123.950963) | Medium | County Community Development, County Parks, DLCD, DOGAMI | $500 |
| 7206 | Recommend placement of tsunami inundation zone map at western extent of Barview Jetty Park Rd (at beach access point).  | [45.575674, -123.954579](https://www.google.com/maps/place/45%C2%B034%2732.4%22N%2B123%C2%B057%2716.5%22W/%4045.5756777%2C-123.9567677%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.575674%214d-123.954579) | High | County Community Development, County Parks, DLCD, DOGAMI | $500 |
| 1204 | Route Sign | Existing route signage directs evacuees east onto Minnehaha St. Additional mapping is required at Minnehaha St and 1st Ave to ensure wayfinding toward route sign at 1st Ave and Victoria Ave.  | [45.59747407, -123.9451684](https://www.google.com/maps/place/45%C2%B035%2750.9%22N%2B123%C2%B056%2742.6%22W/%4045.5974741%2C-123.9473571%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.5974741%214d-123.9451684) | High | County Community Development, County Public Works, DLCD, DOGAMI | $61 per sign plus labor and installation costs |
| 8401 | Add route signage at intersection of Barview Jetty Park Rd and Trailer Park Rd directing evacuees east along Barview Jetty Park Rd.  | [45.575644, -123.951918](https://www.google.com/maps/place/45%C2%B034%2732.3%22N%2B123%C2%B057%2706.9%22W/%4045.5756477%2C-123.9541067%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.575644%214d-123.951918) | Medium |
| 8001 | Add route signage on unnamed road at northern extent of Barview Jetty County Park directing evacuees east toward restroom and shower facilities.  | [45.573158, -123.954064](https://www.google.com/maps/place/45%C2%B034%2723.4%22N%2B123%C2%B057%2714.6%22W/%4045.5731617%2C-123.9562527%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.573158%214d-123.954064) |
| 7205 | Add route signage near western extent of Jetty Rd directing evacuees east along Jetty Rd.  | [45.57074, -123.95563](https://www.google.com/maps/place/45%C2%B034%2714.7%22N%2B123%C2%B057%2720.3%22W/%4045.5707437%2C-123.9578187%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.57074%214d-123.95563) | High |
| 7203 | Add route signage on Jetty Rd at southern extent of Barview Jetty County Park directing evacuees east along Jetty Rd.  | [45.571626, -123.951027](https://www.google.com/maps/place/45%C2%B034%2717.9%22N%2B123%C2%B057%2703.7%22W/%4045.5716297%2C-123.9532157%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.571626%214d-123.951027) |
| 7601 | Add route signage on Jetty Rd at western most north-south intersection of RV park directing evacuees. | [45.571844, -123.950587](https://www.google.com/maps/place/45%C2%B034%2718.6%22N%2B123%C2%B057%2702.1%22W/%4045.5718477%2C-123.9527757%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.571844%214d-123.950587) |
| 7602 | Add route signage on Jetty Rd at middle most north-south intersection of RV park directing evacuees. | [45.571987, -123.950169](https://www.google.com/maps/place/45%C2%B034%2719.2%22N%2B123%C2%B057%2700.6%22W/%4045.5719907%2C-123.9523577%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.571987%214d-123.950169) | High | County Community Development, County Public Works, DLCD, DOGAMI | $61 per sign plus labor and installation costs |
| 7204 | Add route signage at intersection of Jetty Rd and Trailer Park Rd directing evacuees southeast along Jetty Rd toward dune to the east of Barview Jetty Park Rd for vertical evacuation. | [45.572092, -123.949225](https://www.google.com/maps/place/45%C2%B034%2719.5%22N%2B123%C2%B056%2757.2%22W/%4045.5720957%2C-123.9514137%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.572092%214d-123.949225) |
| 8402 | Add route signage on Barview Jetty Park Rd directing evacuees south toward dune for vertical evacuation. | [45.572572, -123.948013](https://www.google.com/maps/place/45%C2%B034%2721.3%22N%2B123%C2%B056%2752.9%22W/%4045.5725757%2C-123.9502017%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.572572%214d-123.948013) |
| 8801 | Add route sign at southeastern extent of Jetty Rd directing evacuees directly east onto dune for vertical evacuation (action should be co-located with map identified as Project ID 1208) | [45.571431, -123.946725](https://www.google.com/maps/place/45%C2%B034%2717.2%22N%2B123%C2%B056%2748.2%22W/%4045.5714347%2C-123.9489137%2C17z/data%3D%213m1%214b1%214m5%213m4%211s0x0%3A0x0%218m2%213d45.571431%214d-123.946725) | Medium |
|  | Assembly Point Sign | Add signage identifying assembly areas at the Twin Rocks Reservoir, the Gravel Pit, the hill south of Smith Lake, and at Terwilliger Heights. These areas do not currently have any signage indicating when you have arrived, which may cause confusion among evacuees.  | Twin Rocks Reservoir, the Gravel Pit, hill south of Smith Lake, Terwilliger Heights | High | County Community Development, County Public Works, DLCD, DOGAMI | $60 per sign plus labor and installation costs |
|  | Route Sign | Expand Evacuation Route Signage along Highway 101. There is currently very little signage to aid evacuees traveling east from the beach and along Highway 101. Due to the number of signs required, this work may need to be accomplished in several phases. Signs should be added where every east/west route crosses the highway, at identified locations. | * Highway 101 and Shand Avenue
* Highway 101 at the Twin Rocks Friends Camp entrance
* Highway 101 at the Gravel Pit access road
* Highway 101 at the Old Pacific Highway
* Highway 101 at Cedar Street
 | High | County Community Development, County Public Works, DLCD, DOGAMI | $61 per sign (five total signs) plus labor and installation costs |
|  | Route Sign | Expand Evacuation Route Signage in Barview – There is a need for additional signage in the Barview area. The road network in the area is somewhat confusing, and the direction of travel to the nearest high ground area may not be immediately apparent to evacuees. Signs should be added at identified locations.  | * Cedar Street and Oceanview Avenue
* Barview Jetty Park Road at hill access trail
* Jetty Road and Trailer Park Road
* Barview Jetty Park Road and Trailer Park Road
 | High | County Community Development, County Public Works, DLCD, DOGAMI | $61 per sign (four total signs) plus labor and installation costs |
|  | Blue Line | Add signage to indicate arrival at safety at high ground areas. There is currently no signage that indicates when evacuees have reached a high ground safety area outside of the inundation zone. Signage should be added at identified locations. | * The eastern edge of the Twin Rocks Friends Camp property
* The north and south points of the hill south of Smith Lake
* East of Highway 101 just north of the Cedar Street intersection
* East of Highway 101 near Lifesaving Creek
 | High | County Community Development, County Public Works, DLCD, DOGAMI | $138.80 per Blue Line (four Blue Lines) or $147 per aluminum sign plus labor and installation costs |

Potential Funding Sources: Wayfinding projects can often be implemented at minimal cost by utilizing existing, ineffectively-placed signage. However, the NOAA/NWS National Tsunami Hazard Mitigation Program (NTHMP) also provides grants to fund projects throughout coastal communities.

Project Beneficiaries: Wayfinding projects generally support all stakeholders in helping to promote an efficient evacuation process. In particular, residents and visitors benefit from the presence of maps and route signs to institutionalize knowledge.

## 3.2 Construction

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project ID** | **Type** | **Project Name** | **Location** | **Priority** | **Potential Project Partners** | **Potential Funding Sources** | **Estimated Cost** | **Project** **Beneficiaries** |
|  | Landslide Mitigation | Landslide mitigation east of Highway 101. DOGAMI has determined that there is a risk of landslides in the Barview area east of Highway 101 in the event of a CSZ earthquake. Landslides in this area could potentially block access to some 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. However, the majority of evacuees would be able to reach an alternate area fairly easily. Reinforcing vulnerable slopes could help ensure that evacuees in this area are able to reach safety in a timely manner. | All areas east of Highway 101 | Low | County Community Development, County Emergency Management, DLCD, DOGAMI | DOGAMI, DLCD, FEMA HMA | $1 million | Local residents, tax payers, County government, First responders |