

munk-saxali náṁsčáć

Shoalwater Bay Indian Tribe Rising

May 2025



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"Salmon and Human Face" this piece represents the "sChowt" or King Salmon also known as Tyee or chief of the salmon people. – Earl Davis

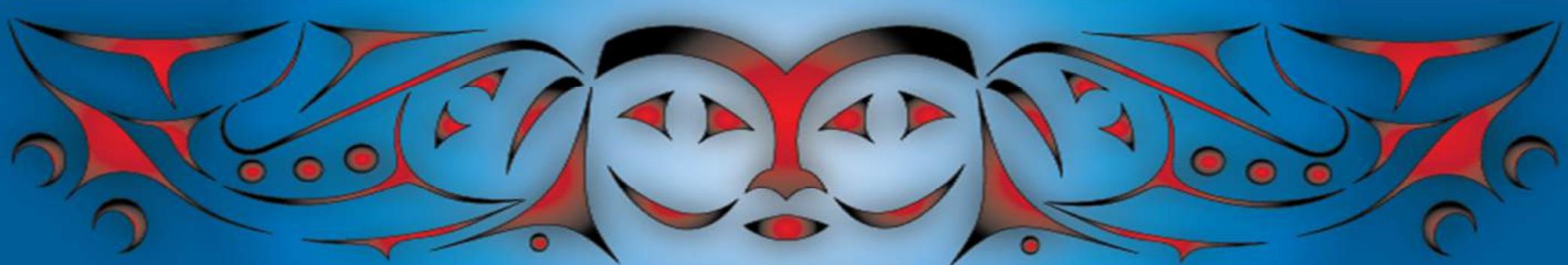


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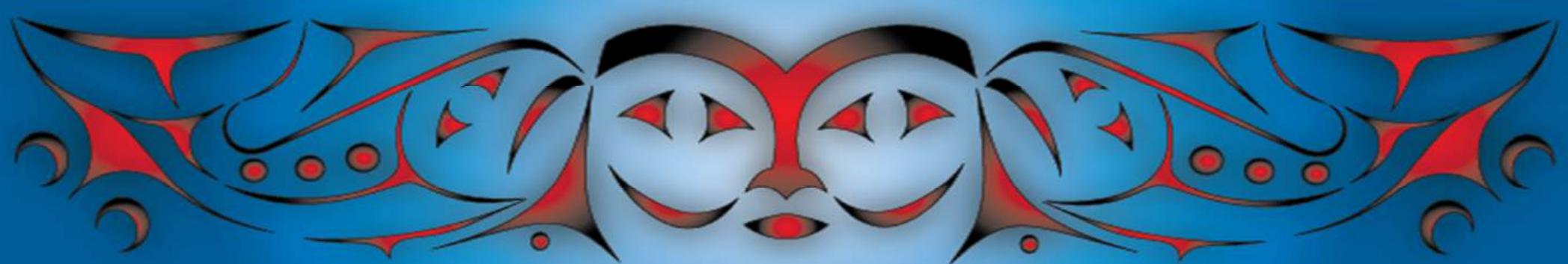


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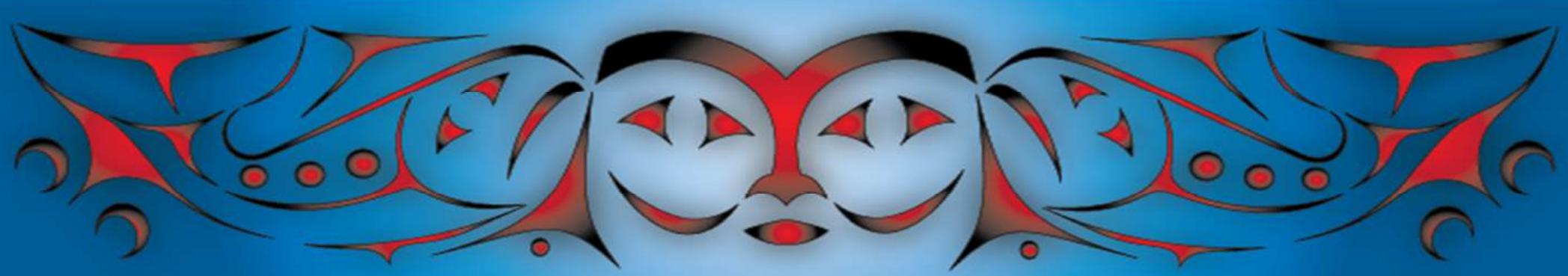


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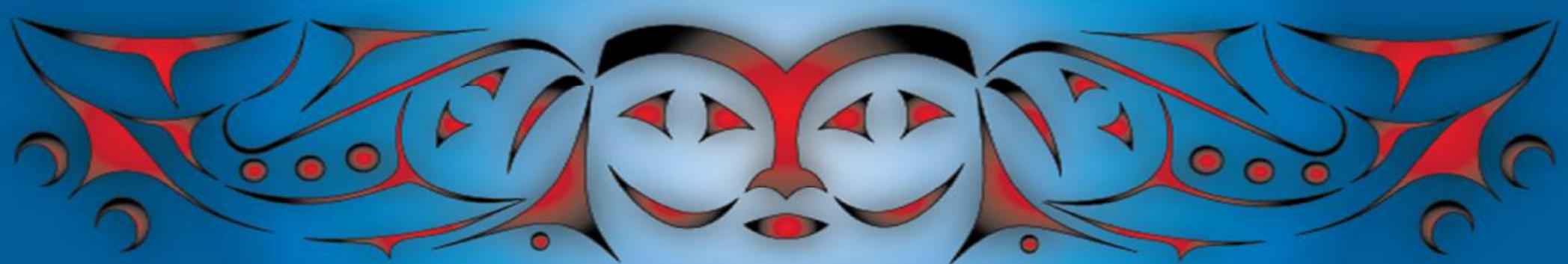


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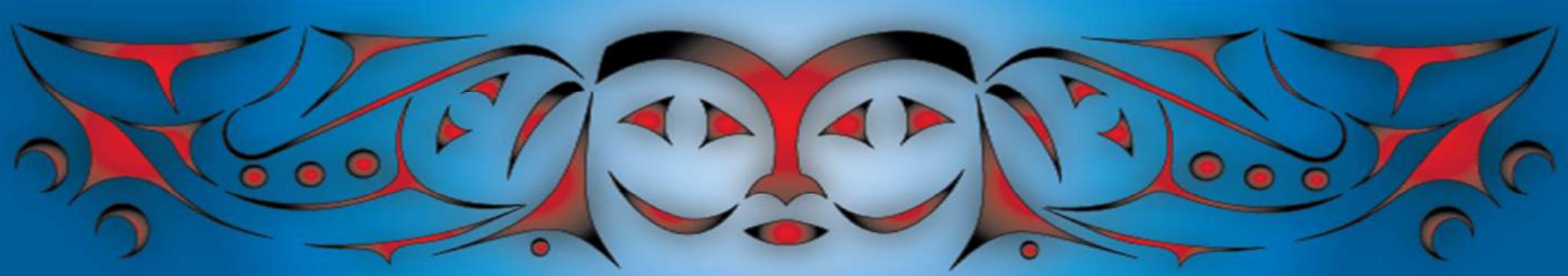


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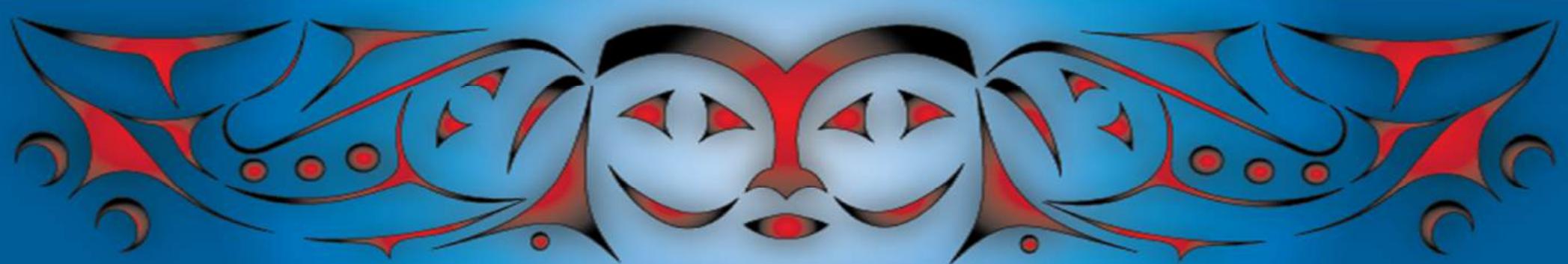


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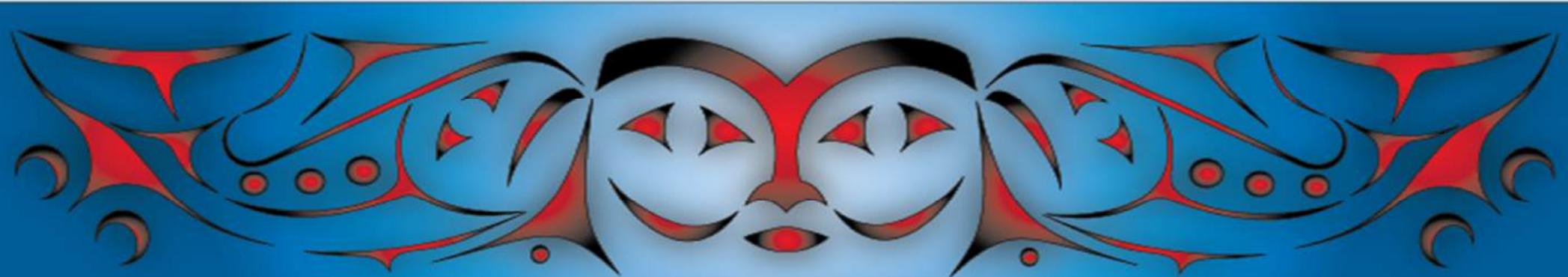


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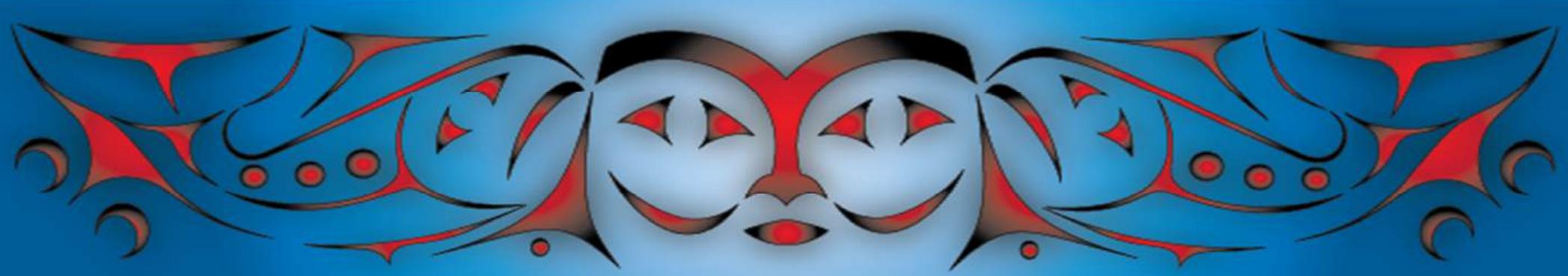
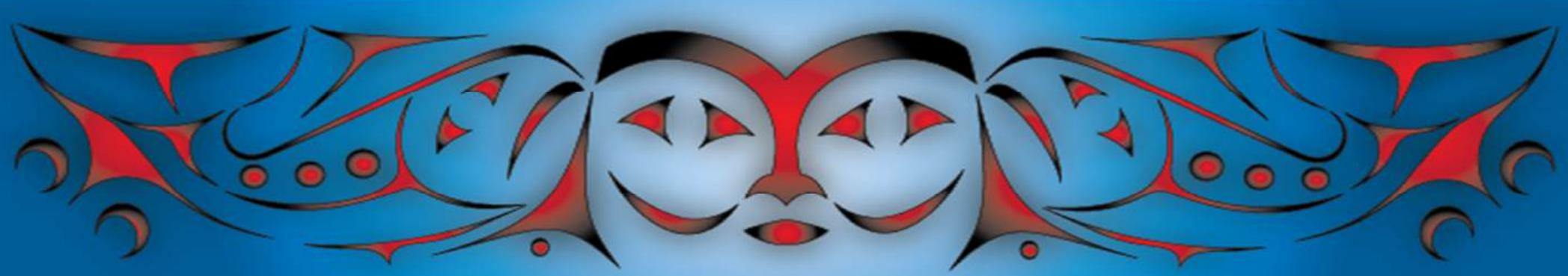


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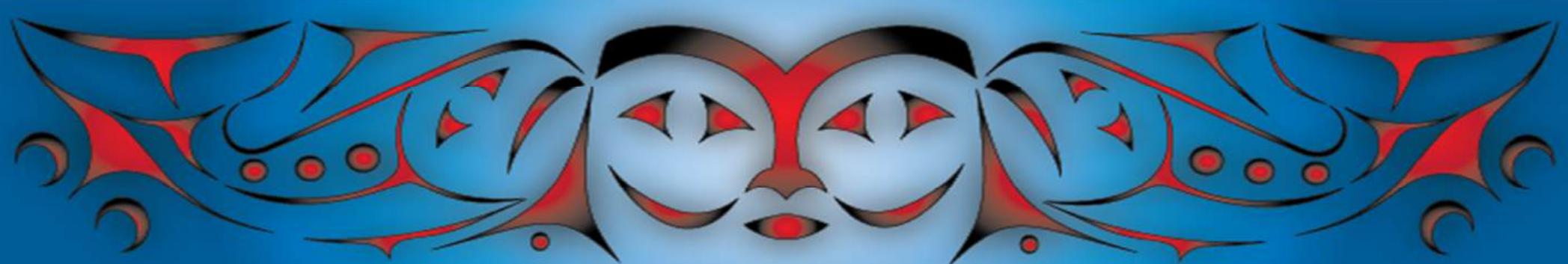


The Chinuk wawa and Thlwaltmish (Lower Chehalis) words appear in the Master Plan and have been collected here for reference and translation.

<i>Chinuk Wawa</i>	<i>English</i>
<i>munk-saxali náṁsčáć</i>	The rise of Shoalwater Bay Indian Tribe
<i>mulak</i>	Elk
<i>kitəp-san iliʔi</i>	East
<i>t̑tip-san iliʔi</i>	West
<i> nanich</i>	View
<i>kwi'kwit</i>	Huckleberry
<i>qáqəsút</i>	Sweetgrass or the Cedar River
<i>Kalak</i>	Alder
<i>seetop</i>	Nettles
<i>k'iksu</i>	Ferns
<i>mushum</i>	Mushrooms
<i>táq</i>	Salal
<i>tsi'k</i>	Hemlock

Numbers

<i>Chinuk wawa</i>	<i>English</i>	<i>Thlwaltmish</i>
<i>ixt</i>	One	<i>paw</i>
<i>makwst</i>	Two	<i>sal</i>
<i>tuṇ</i>	Three	<i>čaʔt</i>
<i>lakit</i>	Four	<i>mús</i>
<i>qwinəm</i>	Five	<i>sílač</i>
<i>taxam</i>	Six	<i>sitac</i>
<i>sinamakwst</i>	Seven	<i>sups</i>
<i>stuxtkin</i>	Eight	<i>təxám</i>
<i>k'wayts</i>	Nine	<i>tuʔúxʷ</i>
<i>taɬlam</i>	Ten	<i>pánəč</i>
<i>taɬlam pi ixt</i>	Eleven	<i>talpaw</i>



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Shane Thomas - Vice Chairman
Lynn Clark - Secretary
Joel Blake - Treasurer
Gordy Shipman – Member-at-Large

Special Thanks to Charlene Nelson, former SBIT Chairwoman

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University of Washington College of the Built Environment
Willapa Bay Enterprises

*and all the members of the community who participated in
Community Meetings, surveys and interviews!*



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munk-saxali náṁsčáć

The cover art by Madison Judkins portrays an eagle leaving the water and flying to the higher ground of the forested hills. An eagle depends on the water for nourishment, but nests high in trees. This is similar to the experience of the Shoalwater Bay Indian Tribe, as the community remains close to the historic village of náṁsčáć at the water's edge, but moves to the higher ground of the hills north of the mouth of Shoalwater Bay. munk-saxali náṁsčáć translates to the rise of the village.

Madison also provided the icons associated with the individual chapters.



The pages separating the chapters were designed by Earl Davis.
Earl created designs based on important cultural concepts, such as myths and inspirational figures.



"Ancestors". Two humans backed by the night sky and stars representing all those that came before us, their teachings and paying respect to those that gave us life. – Earl Davis



CHAPTER

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SHOALWATER BAY INDIAN TRIBE
AND
RELOCATION PROJECT HISTORY



SHOALWATER BAY TRIBE AND RELOCATION PROJECT HISTORY

Shoalwater Bay Tribe Background

Water has played a pivotal role in the history and survival of the Shoalwater Bay Indian Tribe (SBIT). The Shoalwater Bay area has been inhabited since time immemorial by people who have lived off the bounty of the waters of the bay, nearby inlets, rivers and creeks, and forestlands. The copious rainfall supported salmon and other fish in the rivers, while the waters of the bay and its shores provided opportunities for fishing, whaling, and harvesting shellfish. Tribal members plied the waterways in their canoes. However, water, in the form of a rising sea, coastal flooding and erosion, and tsunami now threaten the community. The community has made the difficult decision to relocate to higher ground for their safety and the safety of future generations.

Prior to contact with Europeans, our ancestors, the Lower Chinook and Lower Chehalis peoples wintered along Shoalwater Bay. The Shoalwater Bay Reservation site was selected as it was the location of the Lower Chehalis village of námsčać (nahms-chahts)¹. This area was the southern reach of the Lower Chehalis territory, which stretched to Westport and inland to Satsop². Lower Chehalis peoples occupied the northern portion of Willapa Bay and Willapa Chinook peoples to the south³. The abandoned village site of Nukaunlh is located near námsčać, across Teal Duck Slough from Tokeland on Kindred Island.

The Shoalwater Bay chiefs decided not to sign a treaty at the Chehalis River Treaty Council of 1855. Since they did not sign the treaty, the Tribe continued to practice traditional hunting, fishing and shellfish harvesting in and around the Bay and its tributaries. The Reservation is located near the mouth of Willapa Bay on the Washington Coast, approximately 14 miles south of Westport and 19 miles west of Raymond. The Reservation shares the spit of land known as Toke Point with the unincorporated town of Tokeland (named for Chief Toke).

The reservation was first established by Presidential Executive Order on September 22, 1866. A 355-acre piece of land was set aside by President Johnson for "miscellaneous Indian purposes". Our lands are currently comprised of 1,034 acres of trust land (increased from the original 334 acres set aside for the Tribe) and three additional fee parcels for a total of 3,207 acres. Please refer to Figure 1

¹ Good Bones: Zooarchaeological Data as Legal Evidence for the Shoalwater Bay Indian Tribe Anna Antoniou (American Philosophical Society) and Earl Davis (Shoalwater Bay Indian Tribe)

² <https://www.shoalwaterbay-msn.gov/about-the-tribe/history/>

³ <https://www.npaihb.org/member-tribes/shoalwater-bay-tribe/#:~:text=Shoalwater%20Bay%20was%20originally%20the,they%20became%20Quinault%20Tribal%20members.>



SHOALWATER BAY TRIBE AND RELOCATION PROJECT HISTORY

for a map of SBIT lands north of SR 105. SBIT started acquiring lands beyond the reservation for the purpose of relocation in 2009. In 2010, the Tribe embarked on a community-based land use planning effort, which culminated in the preparation of the 2012 Land Use Plan. In 2016, SBIT purchased a 212-acre parcel to the west of the previously identified relocation area and added this site to the relocation area, which is now trust land. There are approximately 480 enrolled members in SBIT, approximately 82 of which live on the Shoalwater Bay Reservation⁴. SBIT members are descended from 35 Lower Chehalis and Chinookan families.

According to the Tribe's website, "in the 1960s, negotiations were held with the United States government to have the Shoalwater Bay Indian Tribe recognized. On March 10, 1971 this recognition came after the membership ratified and amended our constitution to secure the rights and powers inherent in our sovereign status and guaranteed to us by the laws of the United States, develop and protect the Shoalwater Bay Indian Reservation, and all other Tribal resources, preserve peace and order in our community, promote the general welfare of our people and our descendants, protect the rights of the Tribe and of its members, and preserve our land base, culture and identity, do hereby establish our Constitution⁵."

Although SBIT is a federally recognized tribe, because their chiefs did not sign the treaty, the Tribe does not have a recognized Usual and Accustomed Area and the state will not recognize off-Reservation rights to hunt, gather, and fish on their traditional territory. Therefore, thoughtful management of the lands that SBIT controls is essential. This plan for a move to the uplands is a means to do so; however, the move involves more than solely land management. A Tribal member stated for the Housing Needs Assessment that was completed in conjunction with this plan that, "we're not just moving houses—we're moving our history, our stories, and our children's chances to thrive.⁶"

The following is a brief history of the events leading to this master plan.

⁴ *Good Bones: Zooarchaeological Data as Legal Evidence for the Shoalwater Bay Indian Tribe* Anna Antoniou (American Philosophical Society) and Earl Davis (Shoalwater Bay Indian Tribe)

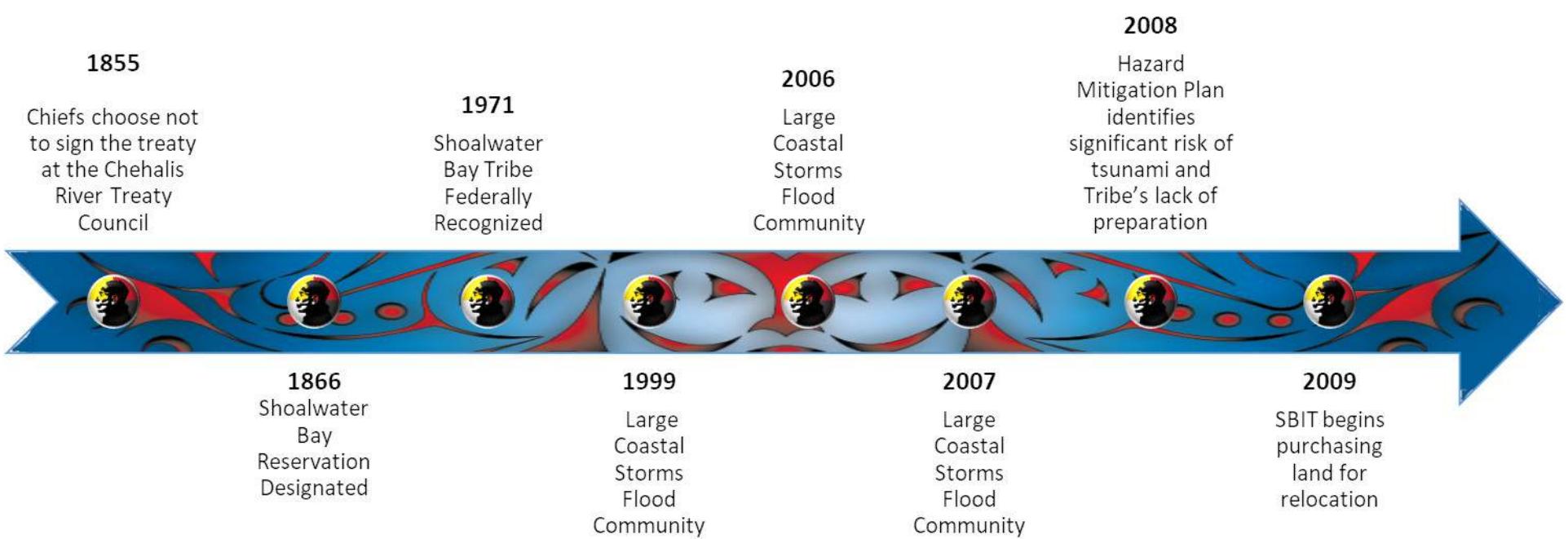
⁵ *Shoalwater Bay Indian Tribe.* (n.d.). History. Retrieved February 17, 2025 from <https://www.shoalwaterbay-nsn.gov/about-the-tribe/history/>

⁶ SEVA Workshop. (2025). *Shoalwater Bay Relocation Master Plan Housing Needs Assessment*.



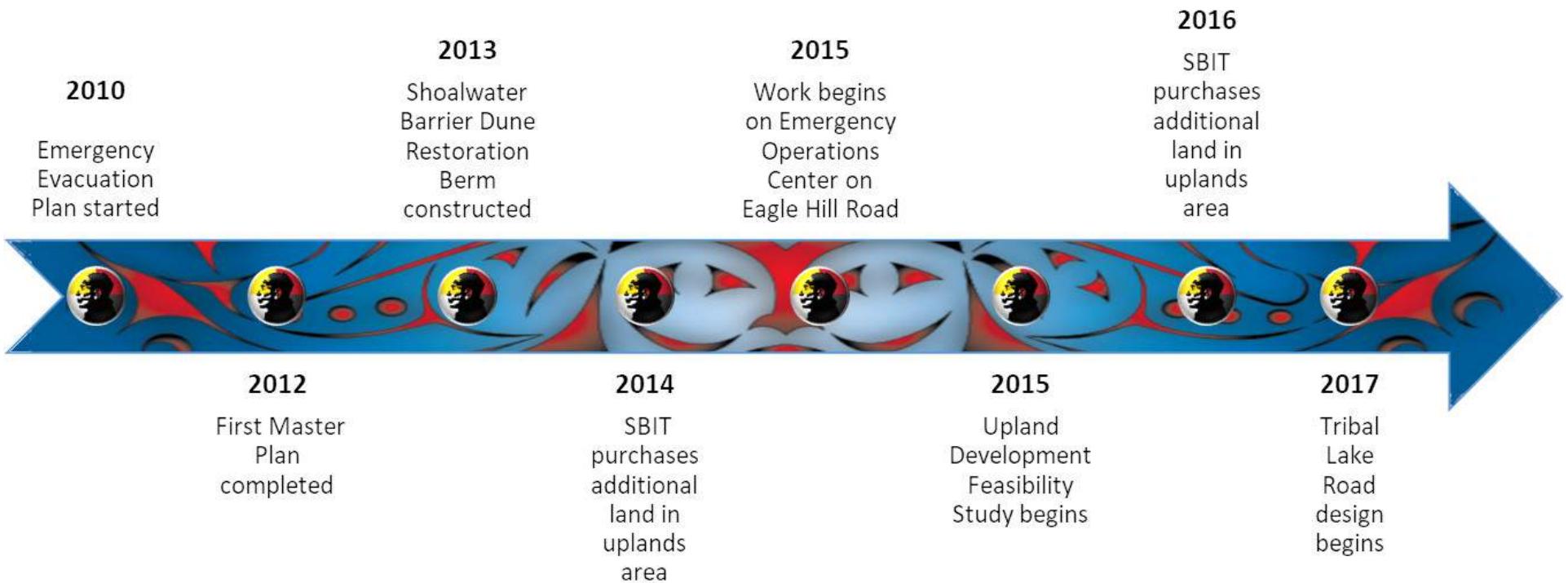
SHOALWATER BAY TRIBE AND RELOCATION PROJECT HISTORY

Timeline 1855 - 2009



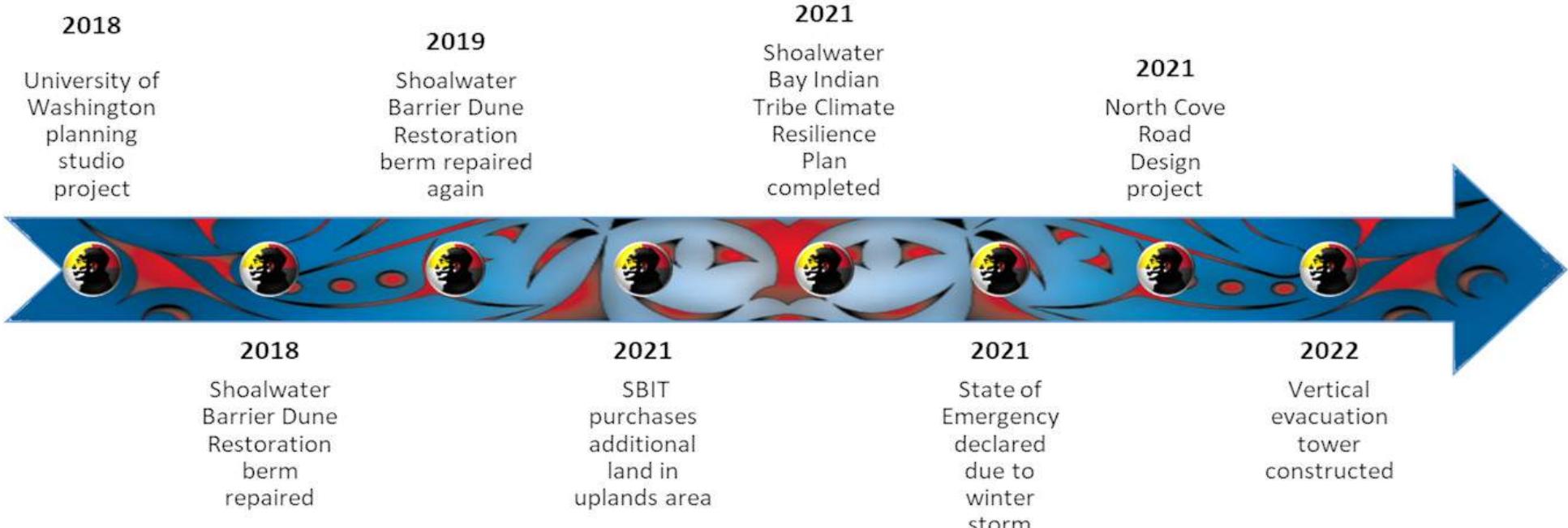
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Timeline 2010 - 2017



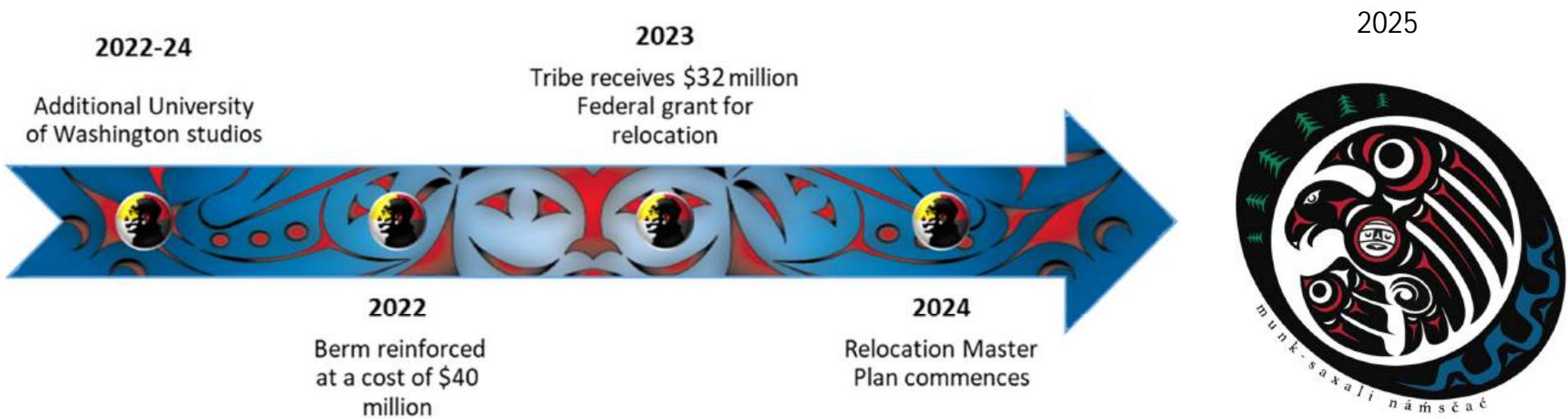
SHOALWATER BAY TRIBE AND RELOCATION PROJECT HISTORY

Timeline 2018 - 2022



SHOALWATER BAY TRIBE AND RELOCATION PROJECT HISTORY

Timeline 2022 - 2025



SHOALWATER BAY TRIBE AND RELOCATION PROJECT HISTORY

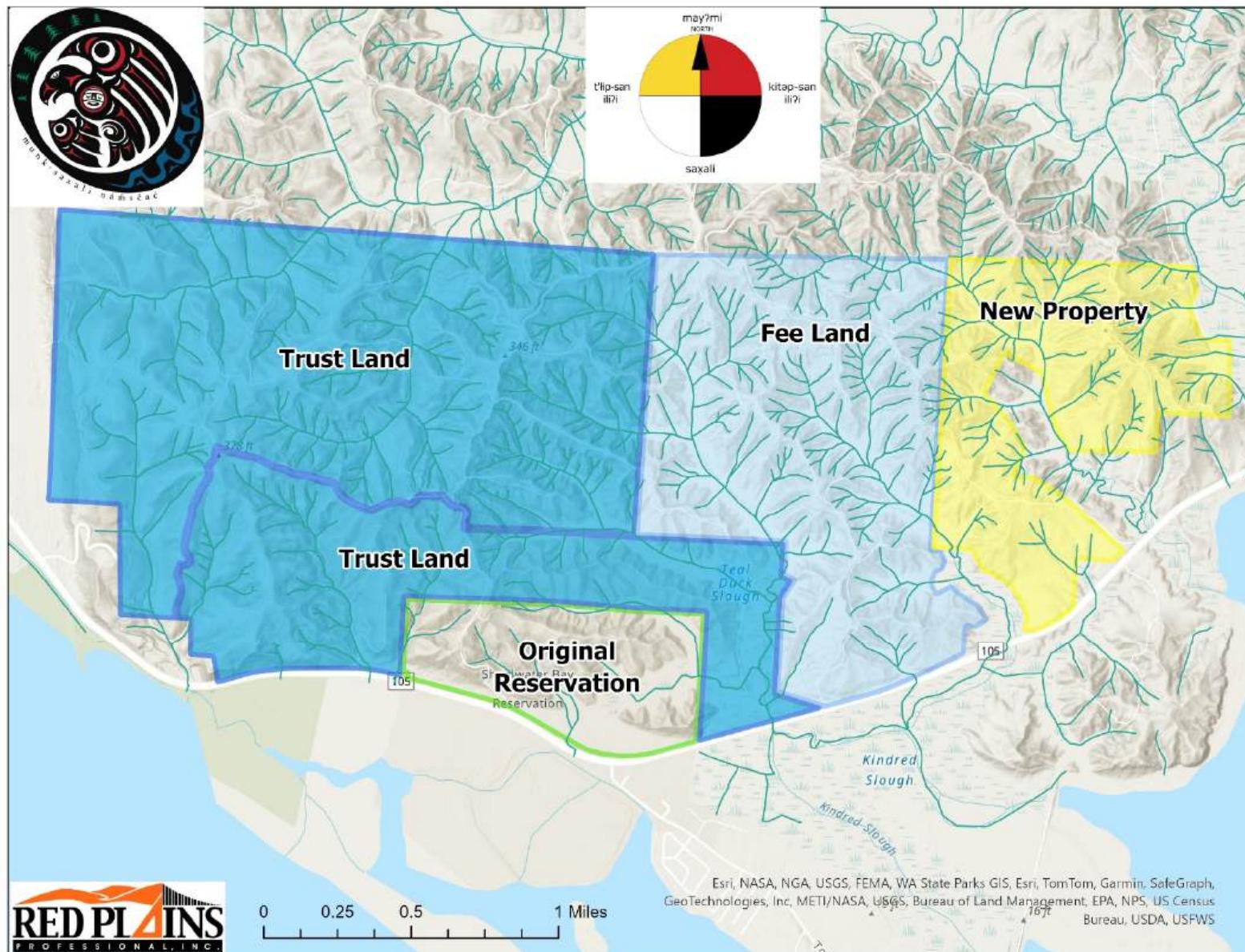


Figure 1: SBIT Lands North of SR105 and Land Status (New property is fee status)



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*"Canoes" Is a reminder of our traditional mode of transportation and our connection to the bay. – Earl Davis*



CHAPTER  
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THE NEED TO RELOCATE





## THE NEED TO RELOCATE

### Erosion and Sea Level Rise

Erosion and sea level rise threaten the low-lying SBIT community. Cape Shoalwater used to protect the entrance to Willapa Bay, but it has regressed 2.16 miles since 1876. This has led to increased vulnerability of the Shoalwater Bay community. The sand spits and shoals protecting the community are regressing as well. Almost 500 acres of the Reservation is below Mean High Water level. The community's homes and public facilities are located between elevation 13 and 17 feet.

According to the 2019 SBIT Climate Impact Assessment, the area at the mouth of Willapa Bay experiences the most rapid rates of erosion on the Pacific Coast of the United States (about 100 feet per year over the last century<sup>7</sup>). Erosion and a lack of sediment replenishment has left the barrier spits west of the community (Graveyard and Empire Spits) in sediment deficit. The Army Corps of Engineers has constructed a berm along the sand spit (Empire Spit) west of the community to reduce erosion. This has required two repairs, including importation of sediment to maintain the spit. The spits provide protection for the community by reducing erosion and storm surge along the shoreline immediately adjacent to the community. Coastal erosion can result in the loss of the barrier beaches, which can mitigate the inundation and velocity of a tsunami.

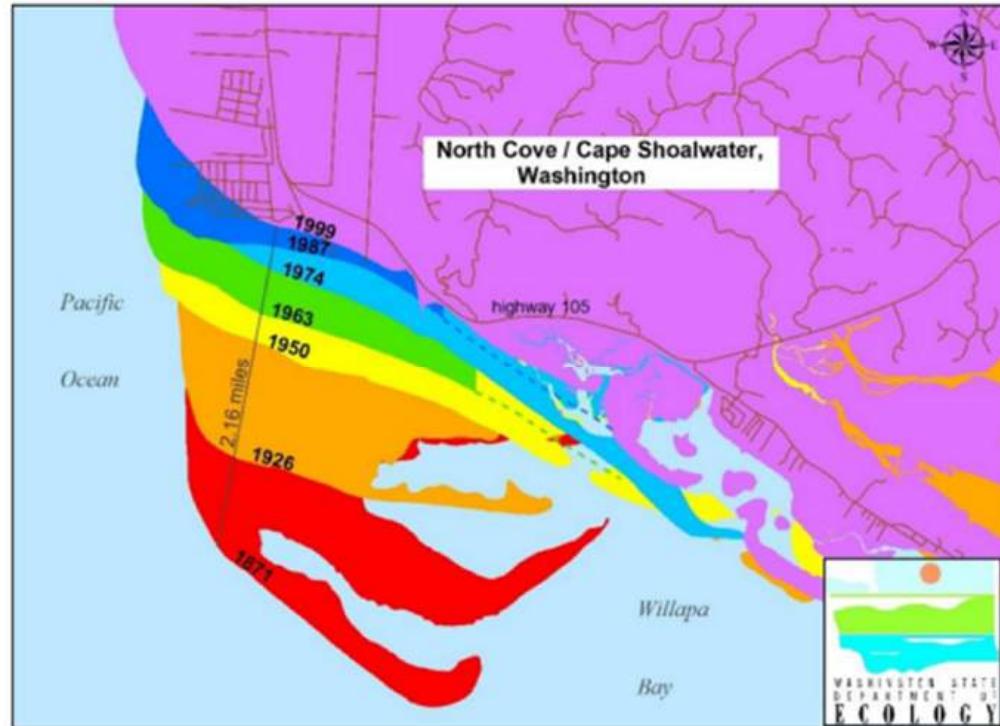


Figure 2: Map taken from the 2020-2025 Hazard Mitigation Plan showing the former location of Cape Shoalwater

<sup>7</sup> Shoalwater Bay Indian Tribe. 2021. Part I: Climate Impacts Assessment. Prepared for the Shoalwater Bay Indian Tribe by the Oregon Climate Change Research Institute and Adaptation International. [Contributors: Pfleeger-Ritzman, L., Judkins, J., Davis, E., Ashley, R., Dalton, M., Petersen, S., Russell, N., Chisholm-Hatfield, S., Ruggiero, P., Basaraba, A., Even, T.]



## THE NEED TO RELOCATE

Near the SR105-North Cove Road intersection, the proposed Graveyard Spit Restoration and Resilience Project will include a nature-based dune and cobble berm to restore and protect the spit. However, even with the Empire and Graveyard Spit projects, there is no renourishment cycle for the spits.

A 2018 assessment of projected sea level rise indicated that relative sea level rise in the Shoalwater Bay area is likely to rise by 0.3 to 0.7 feet by 2050 or by 1.0 to 2.4 feet by 2100 under a higher emissions scenario<sup>8</sup>. Sea level rise will exacerbate coastal flooding. The 50% (2-year) flood, 10% (10-year) flood and 1% (100-year) flood levels are 3.44 feet, 4.59 feet and 5.74 feet above sea level, respectively. A six-foot or 1% flood, as shown in the Climate Impacts Assessment, inundates a portion of Toke Point. While most of the community remains above the flooding in this scenario, portions of SR105 are inundated, potentially cutting the community off from surrounding areas. If sea level rise is added to the 1% flood, for a total of approximately 8 feet, the community is flooded. Even if the community is not flooded, sea level rise will also raise the water table under the community, which will negatively impact wastewater systems, potentially making homes in the area uninhabitable.

Loss of land or inundation due to sea level rise or tsunami (discussed in the next section) would destroy housing, as well as the Tribal Center, Gym, Casino, Cannabis Shop, and Tribal Wellness Center. The Climate Impacts Analysis estimated the loss of these facilities at over \$14.5 million<sup>9</sup>, not including the cost of replacement. Members indicated that they will miss being by the water and the memories and connections to the existing community. However, after the move to higher ground, there will not be a fear of the water coming.

## Tsunami And Earthquake Risk

Geologic records indicate that large earthquakes and tsunamis occur on the Washington coast, due generally to the Cascadia Subduction Zone (CSZ), which lies approximately 50 miles offshore. According to geologists, 8.0 or greater magnitude earthquakes along the CSZ occur, on average, approximately every 500 years. Historical records from Japan and a ghost forest along the Copalis

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<sup>8</sup> Miller, I.M., Morgan, H., Mauger, G., Newton, T., Weldon, R., Schmidt, D., Welch, M., Grossman, E. 2018. *Projected Sea Level Rise for Washington State – A 2018 Assessment*. A collaboration of Washington Sea Grant, University of Washington Climate Impacts Group, University of Oregon, University of Washington, and US Geological Survey. Prepared for the Washington Coastal Resilience Project. updated 07/2019

<sup>9</sup> Shoalwater Bay Indian Tribe. 2021. Part I: Climate Impacts Assessment. Prepared for the Shoalwater Bay Indian Tribe by the Oregon Climate Change Research Institute and Adaptation International. [Contributors: Pfleeger-Ritzman, L., Judkins, J., Davis, E., Ashley, R., Dalton, M., Petersen, S., Russell, N., Chisholm-Hatfield, S., Ruggiero, P., Basaraba, A., Even, T.]



## THE NEED TO RELOCATE

River, approximately 25 miles to the north of the Reservation, indicate that the most recent of these quakes occurred in January 1700. Tsunamis may be triggered by events thousands of miles away, as well.

In the case of a possible tsunami, the community would experience tremendous casualties and loss of infrastructure. The 2020 – 2025 Hazard Mitigation Plan estimates that the community will be under between 16 and 25 feet of water in case of tsunami, with the Tribal Center under 17 feet and the casino under 22 feet, though inundation depths could reach 40 to 50 feet<sup>10</sup>. No buildings in the community are tall enough to provide refuge in case of tsunami other than the Auntie Lee Vertical Evacuation Structure and there is only one road (Tokeland Road) for most of the community to escape the peninsula. Tokeland Road would likely be severely damaged in case of a large quake and the Vertical Evacuation structure is over a half hour walk away from the main community. The Washington Geological Survey has published maps indicating evacuation times from areas in the tsunami zone. Residents of the main community are predicted to take 15 minutes to escape to higher ground and those at Blackberry Lane can quickly reach the Auntie Lee vertical evacuation structure. the wave is expected to arrive within 35 minutes. The 2024 Multi-Hazard Mitigation Plan states that “the tsunami threat is the primary reason that the Tribe is currently executing its Managed Retreat project to move all infrastructure off of the Tokeland Peninsula and into the Willapa Hills<sup>11</sup>”, as there will be no infrastructure intact after a large tsunami.



Figure 3: Auntie Lee Vertical Evacuation Structure

<sup>10</sup> Wise Oak Consulting, LLC. (2024, June). SBIT Multi-Hazard Mitigation Plan Update

<sup>11</sup> Wise Oak Consulting, LLC. (2024, June). SBIT Multi-Hazard Mitigation Plan Update



## THE NEED TO RELOCATE

According to the 2020 – 2025 Hazard Mitigation Plan<sup>12</sup>, the ground may drop up to 8.5 feet in the case of a CSZ earthquake, rendering the community extremely vulnerable to coastal flooding and storm surge, even if there is no tsunami. The existing community is in a "Moderate to High" Liquefaction zone other than the Emergency Operations Center on Eagle Hill Road.

The triple threats of sea level rise, coastal erosion, and tsunami make the relocation of the SBIT community a necessity. This plan lays out the current conditions in the community, forecasts the needs of the community based on feedback from members and staff for housing and public buildings, identifies where in the uplands are best suited for development, and includes preliminary layouts and sizing for infrastructure.



Figure 4: Tsunami Evacuation Sign

## Current Projects

Due to the urgency to relocate homes and facilities to higher ground and the need to take advantage of funding opportunities when they occur, SBIT has already started undertaking design and construction projects that will influence this Master Plan. In 2024, SBIT received a \$25 million RAISE grant award from the Department of Transportation to design and construct the backbone infrastructure for the new development. This infrastructure includes improvement of a Loop Road which consists of North Cove Road providing access up the hill on the western portion of the site, an existing forest road along the ridge to the east, and Eagle Hill Road providing access back to SR105.

A second project is being funded by the US Department of Housing and Urban Development through an Indian Housing Block Grant. This grant is funding two duplexes at Forest Road and will contribute to the cost of design and construction of a portion of Forest Road and Eagle Hill Road.

<sup>12</sup> Coil, Glenn B. 2019. Shoalwater Bay Tribe Tribal Hazard Mitigation Plan Effective March 20, 2020 – March 19, 2025



## THE NEED TO RELOCATE

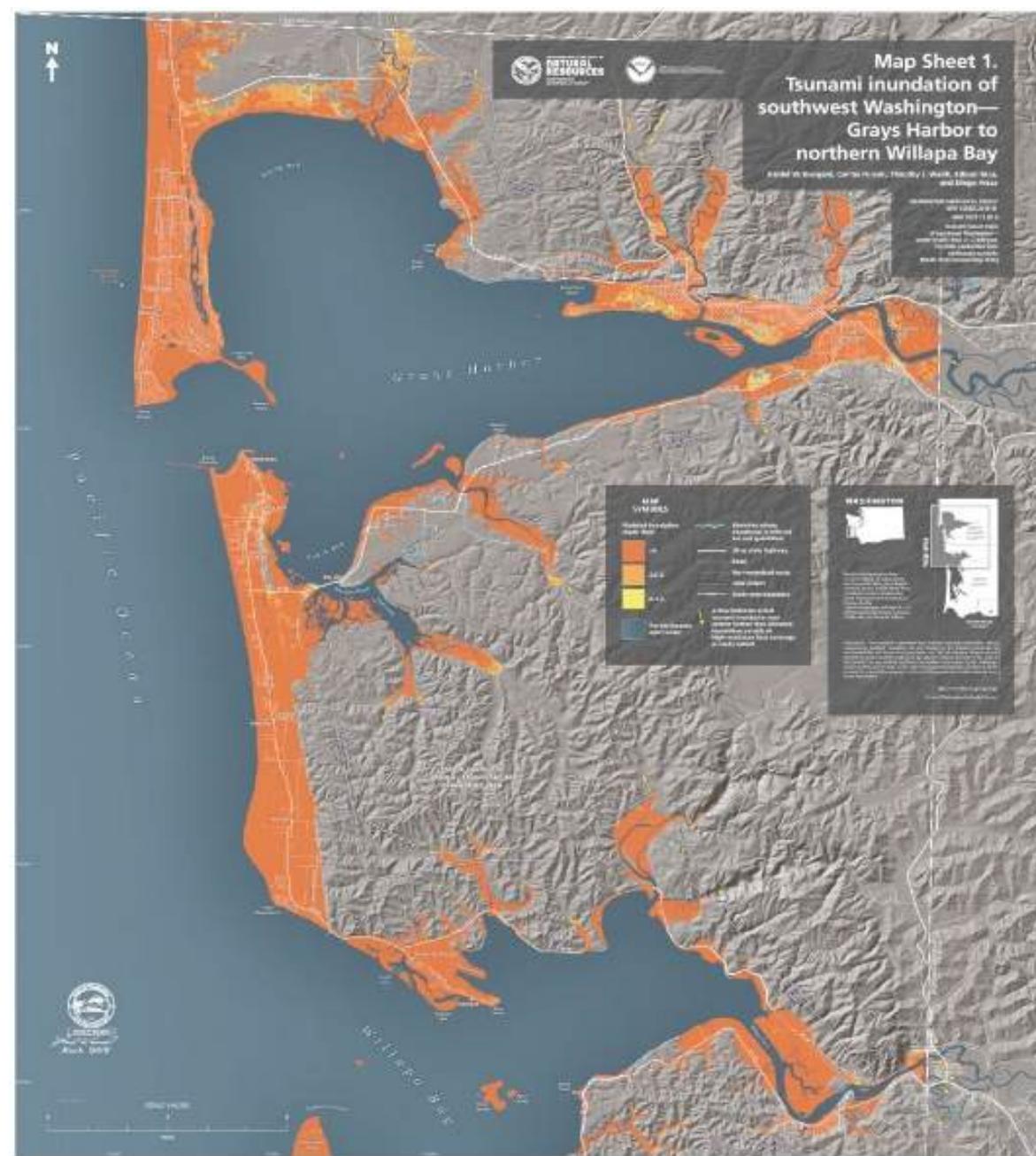


Figure 5: Tsunami Inundation Map of Southwest Washington – Grays Harbor to northern Willapa Bay from WA Department of Natural Resources

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## THE NEED TO RELOCATE



Figure 6: Inundation of the Tokeland area from Tsunami Inundation Map of Southwest Washington – Grays Harbor to northern Willapa Bay from WA Department of Natural Resources



## THE NEED TO RELOCATE

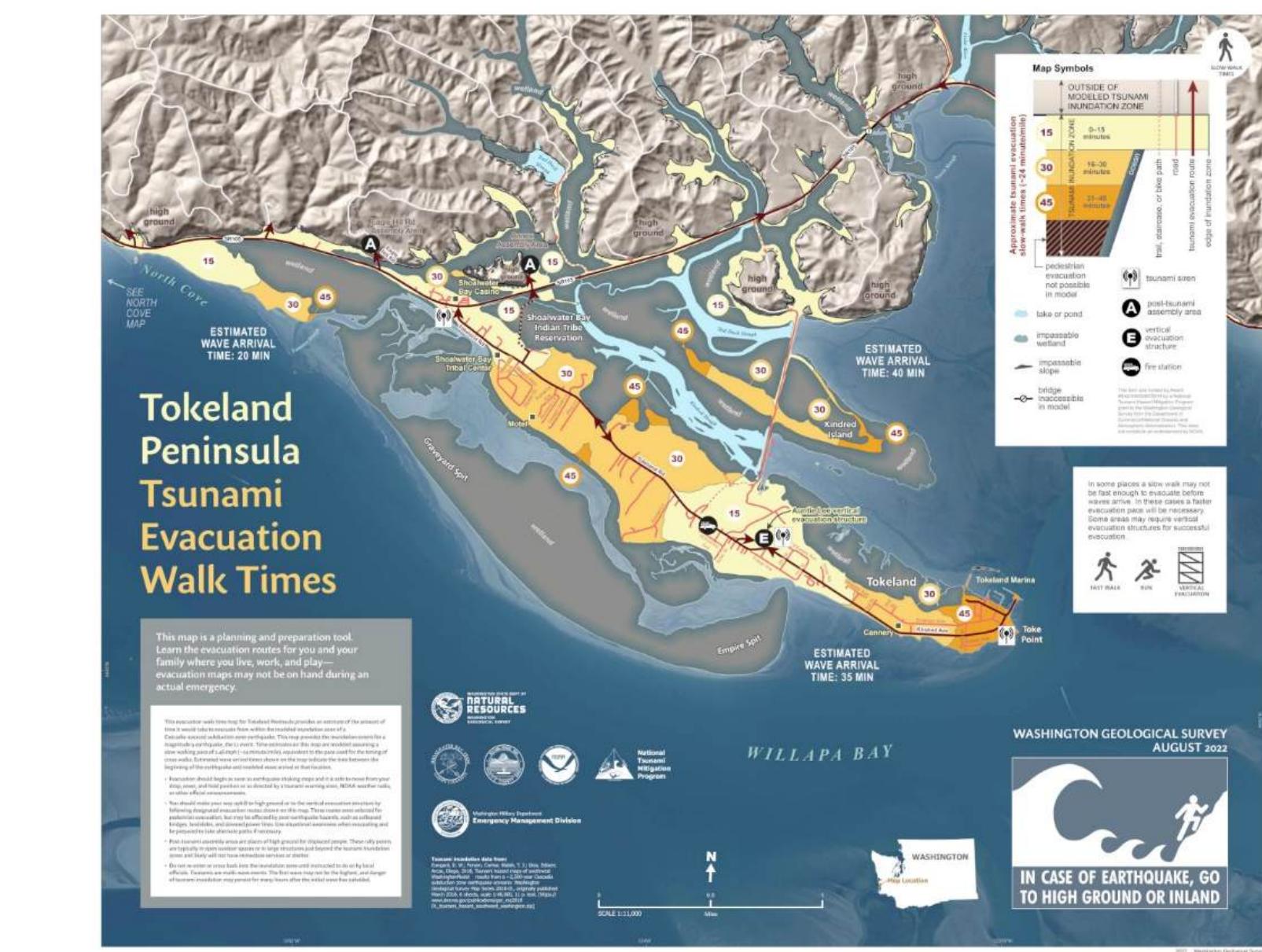


Figure 7: Washington Geological Survey Tokeland Peninsula Tsunami Evacuation Walk Times Map, August 2022



"Thunderbird and Whale" This design is an homage to our creation story and our first ancestor.

In our creation story the first peoples are said to have come from the eggs of thunderbird on top of Saddle Mountain. – Earl Davis



CHAPTER

# 3 ḫun ča?†

## EXISTING CONDITIONS





## EXISTING CONDITIONS

### Project Site

The proposed project site is located on the Trust lands of the Shoalwater Bay Indian Tribe and lands in the process of being placed in to Trust. The lands include the former Pacific County Tax Parcels listed below:

|             |             |             |
|-------------|-------------|-------------|
| 14110210000 | 14110311000 | 15113433000 |
| 14110122000 | 14110312000 | 15113344001 |
| 14110411047 | 14110317000 | 15113500000 |
| 14110223000 | 14110323001 | 15113360000 |
| 14110221300 | 14110350001 | 15113460000 |
| 14110222008 | 14110421048 | 15113689000 |

The parcels are all in Township 14 N, Range 11W, Sections 2, 3, 4, and in Township 15 N, Range 11 W, Sections 34 & 35. The overall Property is bordered to the south by SR105 and the community of Tokeland, including portions of the Reservation. This site is bounded to the north by Cedar River Timberlands-owned forest land, to the east by newly acquired parcels owned by the Tribe, and to the west by many landowners along Smith-Anderson Road.

The lands along the northern side of SR105 near the Tokeland Road intersection are comprised of commercial uses, such as the casino, cannabis shop and four homes. There are four homes west of Eagle Hill Road and the Natural Resources Complex three-tenths of a mile east of Tokeland Road. The remainder of the lands are wetlands with riverine and fresh water wetlands east of Eagle Hill Road and depressional and flats wetlands to the west.

The uplands relocation site is hilly in nature with slope in places reaching 75-100%. The site ranges in elevation from sea level to 460 feet. Drainages in the area are generally ravines. Development is slated along the ridgelines, so all development is above the floodplain and tsunami zone, with the exception of road improvements to Eagle Hill Road and North Cove Beach Road near SR105. The entirety of the area has been logged with new growth of firs, hemlocks, and alders the majority of the vegetation. Older trees remain along drainages in riparian buffers.



## EXISTING CONDITIONS

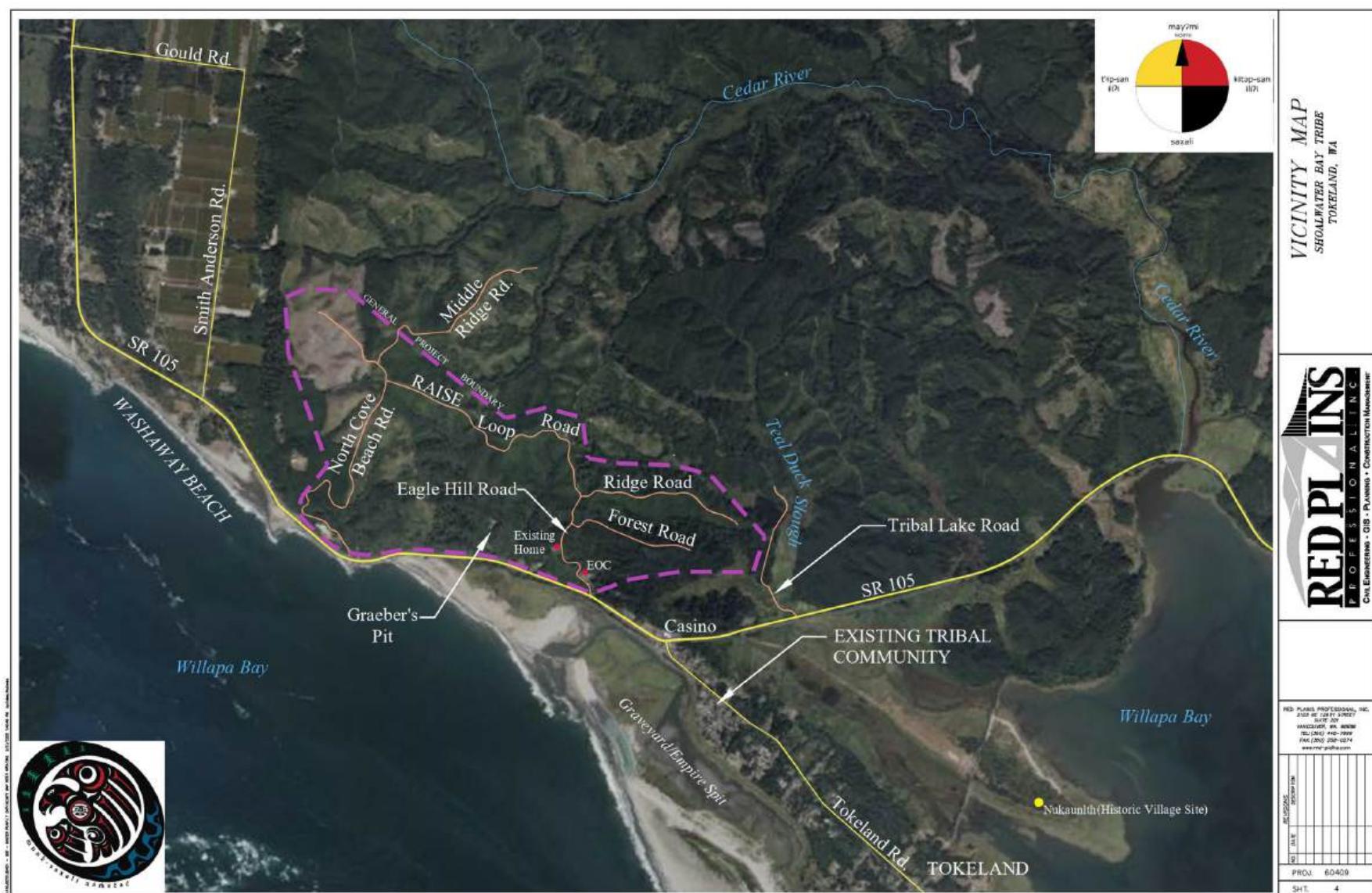


Figure 8: Vicinity Map



## EXISTING CONDITIONS

Access to the site is gained via two roads from the south. Eagle Hill Road climbs from SR105 four-tenths of a mile west of Tokeland Road for approximately six-tenths of a mile. There is one existing residence along Eagle Hill Road, as well as the Emergency Operations Center (EOC), which houses the police/Emergency Management, and IT. North Cove Road, a 1.4-mile gravel road 1.5 miles west of Tokeland Road, serves the project site from the west. The south end of North Cove Road crosses County-owned property on which there is a likely brownfield site, which may hinder development of the road. Both Eagle Hill Road and North Cove Road will require significant upgrades as a part of this project, as both are one-lane roads. There are existing small logging roads along the ridgelines.

A possible access to the site could be provided by constructing a new road from the existing Tribal Lake Road/SR105 intersection. This road would closely follow the existing alignment through the lowland slough area, then turn northeasterly along a new alignment to gain access to the top of the existing ridgeline. However, the road traverses wetland areas, which makes this a less attractive access option, given the costs of mitigation.

There are franchise utilities (power and telephone) as well as a site specific water system that serve the EOC. These are the only utilities serving the project site. The Eagle Hill Road improvement project currently underway provides access to the Water Tank Reservoir that provides water to the entire reservation development along SR 105 and Tokeland Road. The water source is a well located along SR 105 adjacent to the commercial development which is pumped to this tank reservoir. The water system for the new development will have a line that will connect to the existing tank, providing system redundancy.

The proposed project involves the development of approximately 2,117 acres of land on property north of SR 105 owned by the Shoalwater Bay Indian Tribe or held in Trust for the Tribe. The Tribe is working to complete the process to convert the new property's status from Fee to Trust on some of the property and is still in process with the northwestern areas.



Figure 9: Eagle Hill Road just uphill from SR105



## EXISTING CONDITIONS

### Existing Climate and Coming Changes

The climate is characterized by coastal marine tendencies in the Pacific Northwest, such as cool wet winters with high levels of precipitation, alternating with drier, moderately warm summer months. The average annual precipitation is approximately 76 inches with very little snowfall. Temperatures vary between low- to mid-30s and low to mid-70s.



Figure 10: Graveyard Spit

By the end of the 21st Century, average temperatures are expected to increase between four and seven and a half degrees, with warmer summers. The number of warm days (with a maximum temperature of greater than 86 degrees) is expected to increase above the historical baseline of a day or two to over two weeks. This may affect those most sensitive to heat, such as children and Elders, if air conditioned spaces or cooling shelters are not in the community.

Both droughts and heavy rainfall events associated with atmospheric rivers are anticipated to increase. Droughts will put pressure on water sources and increase the likelihood of wildfires, a concern as the new development will be in wooded areas. Stormwater infrastructure should be designed to manage more intense storms.

Per the SBIT Climate Impacts Assessment (2021)<sup>13</sup>, climate change is anticipated to bring about a change in local ecosystems as well.

Historically, the Willapa Bay area flora has been a largely a maritime evergreen needleleaf forest type (spruce, cedar, hemlock, Douglas fir). It is transitioning to a temperate cool mixed forest type dominated by conifer species, which is projected to remain the dominant forest type until at least 2039. A change to temperate warm mixed forest and subtropical mixed forest types is projected to occur by mid-21<sup>st</sup> century or the end of the 21<sup>st</sup> century depending on the emissions modeled in various scenarios. The forest types include more oaks and fewer evergreens and are similar to areas further south on the Pacific coast, such as California.

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<sup>13</sup> Shoalwater Bay Indian Tribe. 2021. Part I: Climate Impacts Assessment. Prepared for the Shoalwater Bay Indian Tribe by the Oregon Climate Change Research Institute and Adaptation International. [Contributors: Pfleeger-Ritzman, L., Judkins, J., Davis, E., Ashley, R., Dalton, M., Petersen, S., Russell, N., Chisholm-Hatfield, S., Ruggiero, P., Basaraba, A., Even, T.]



## EXISTING CONDITIONS

### Environmental

Ridgetop development may impact some small wetlands. There is a 0.08-acre wetland at the southwestern corner of the Forest Road-Eagle Hill Road intersection which may be impacted by development along Eagle Hill Road. A 0.2-acre wetland will likely need to be filled to develop the area around this intersection as a community node. A wetland near the Emergency Operations Center will be avoided through construction of a retaining wall along Eagle Hill Road. Several wetlands lie in the vicinity of RAISE Loop Road which may be affected by building the road and may affect some single family housing lots. Grading for RAISE Loop Road may impact small wetlands, as well. Additional impact to wetlands may come with widening access roads near SR105 or improvement of Tribal Lake Road to serve the new development, as it passes through the Teal Duck Slough wetland complex. Proper wetlands protocols will need to be followed throughout the course of this development. The aquifer underlying this property is not in a critical aquifer protection area according to the National Summary of Sole Source Aquifer Designation as determined by the U.S. EPA. (An informal assessment performed by Russell and Associates, dated October 30, 2015)

According to the 2019 Draft Environmental Assessment for the project, development is not anticipated to adversely affect threatened or endangered species including the bull trout, northern spotted owl, the North American green sturgeon, or the protected bald eagle<sup>14</sup>. The area was logged in 2005 and the remaining tree stands are along drainages. There is a 26.7-acre area on the southern slopes of the Relocation Area between Eagle Hill Road and North Cove Road that has been set aside as a marbled murrelet conservation area. No murrelets are known to inhabit this area, but the proximity to the ocean and the size of the trees could be suitable nesting habitat. There is a 300-foot buffer around the 26.7-acre conservation area. No structures can be built within this buffer; however, road construction is permitted. The western slope of the Relocation Area is also being investigated as possible murrelet habitat. This area has not been recently logged. If the area is found to be murrelet habitat, a buffer will need to be established to prevent development adjacent to the habitat.

The Department is unaware of any active Bald Eagle or Murrelet nesting sites on the property; although the area to the east/northeast of the proposed development may provide eagle roosting habitat as eagles are common surrounding the Teal Duck Slough (2014 Preliminary Environmental Assessment). Eagles are also known to frequent the area near Chief Charley's on SR105 at the west end of the Reservation<sup>15</sup>.

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<sup>14</sup> *Draft Environmental Assessment for the Shoalwater Bay Tribe: Moving to Higher Ground Proposed Relocation Plan, May 13, 2019.*

<sup>15</sup> Interview with Larissa Pfleeger-Ritzman, August 19, 2024



## EXISTING CONDITIONS

In the Draft Environmental Assessment for the Shoalwater Bay Tribe: Moving to Higher Ground Proposed Relocation Plan, the Tribe's Heritage Department recommended "that a good faith effort be made to transplant the three species of plants mentioned above (Red Elder Berry, Thimble berry and Salmon Berry (sic)). These three species are not as common as other on the reservation and their preservation is of cultural importance. It (was) also recommended that the trees to be felled during the project be utilized in a culturally sensitive manner, (i.e. firewood for tribal people, carving materials etc.<sup>16</sup>)".

As the Relocation area is generally hilly terrain, there are many streams found within the area. There are fish bearing streams, some of which are the upper reaches of the Cedar River watershed, as well as Teal Duck Slough, and some small drainages that empty directly to the bay. The fish bearing stretches are found at lower elevations and are not likely to be affected directly by upland development. However, non-fish and non-fish seasonal streams which feed the fish bearing streams do originate in some areas that may be affected by grading for development. Care must be taken during the design process to minimize adverse effects on these streams from pollution from stormwater coming from new development and increased sediment from grading.

### Contamination

A Phase I Environmental Site Assessment was performed on a portion of the property in 2014. No further investigation was recommended regarding the environmental integrity of the land for that portion, but further investigation of the remainder of the project area will be necessary., though contamination on the remainder of the uplands development site is not anticipated. There is a likely contaminated site near the southern terminus of North Cove Road by SR 105. This is on Pacific County property and not within the project area. Cooperation from the State, County, and Federal officials will be necessary to ensure that the road project can be completed.

### Drainage

Water drains either to the bay or to the Cedar River, depending on which side of the ridgeline in which an area is situated, though almost all of the development site drains to the ocean through unnamed streams. Culverts toward the west end of the area along SR 105 already contribute to drainage problems, backing up water on the north side of the highway. These drainage problems may be exacerbated by future sea level rise.

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<sup>16</sup> Draft Environmental Assessment for the Shoalwater Bay Tribe: Moving to Higher Ground Proposed Relocation Plan, May 13, 2019



## EXISTING CONDITIONS

### Geotechnical

From a geotechnical soils standpoint, the project is feasible. There will be further investigation required through the roadway design project and during the first phases of construction. The project involves a significant amount of cut along the main middle ridge (along the current logging road). It is the geotechnical engineer's recommendation to move forward with the project and monitor the excavation process. Once the desired development elevation is reached, the geotechnical consultant will perform testing along the proposed alignment of the road and in certain areas of the graded site.

The site is underlain generally by soils of the Newskah loam series. The Newskah series consists of well-drained soils formed in material weathered from sandy marine sediments. The soil has moderate permeability, a high water capacity, and slow runoff with a low risk of erosion, except on slopes of greater than 30 percent. In some areas near creeks (upper reaches of Kindred and Teal Duck Sloughs), there is Ocosta Silty Clay loam, which has a higher clay content and poor drainage and permeability. At the eastern end of the project area (east of Teal Duck Slough), Willapa Silt Loam is common. This soil is characterized by moderate drainage and permeability. Red huckleberry, evergreen huckleberry, and vine maple are vegetation associated with this soil.

There are no signs of past, recent, or incipient slope instability, such as scarps, tension cracks, jack-strawed trees, or hummocky terrain throughout the Ridge Road area. However, there have been minor slides on hillsides at other sites of the project area. Geotechnical reports indicated that soils at the site are not prone to liquefaction during a large seismic event.

Landslide hazards are not mapped on the Reservation according to the 2020-2025 Hazard Mitigation Plan. The plan noted that there have not been significant landslide events in the past. Geotechnical investigation did not identify seismic and/or landslide hazards within eastern portion of the project area, but did note steep slopes in the project area. However, there have been minor slides at three locations in the project area. A slide occurred at Graebers' Pit, which is outside of the area designated for roads of structures and a minor slide occurred along the ridge road for which plans have already been prepared to remediate. A third slide occurred in the north of the project area in an area not included in the development area. A geotechnical report<sup>17</sup> for a portion of the development site recommended that new structures should maintain a minimum setback from these regions as outlined in Section 1808.7.2 of the 2015 International Building Code (IBC). There are many areas in the relocation area over of 40% slope, which Pacific County criteria would classify as a landslide hazard area. These areas are most prominent at the west of the project site on the hillside sloping to North Cove and the hillsides sloping down to the ocean on the southwest portion of the site. Other steep areas are

<sup>17</sup> Red Plains Professional, Inc. – Fee to Trust Property Residential Area Feasibility Study – Phase II December 5, 2016, Geotechnical Engineering Report P793-T16



## EXISTING CONDITIONS

distributed throughout the project site. There will be significant grading associated with development and many of these areas may be greatly modified, reducing slide danger. The Hazard Mitigation Plan suggests that landslide risk and mitigation should be considered when developing the relocation area.

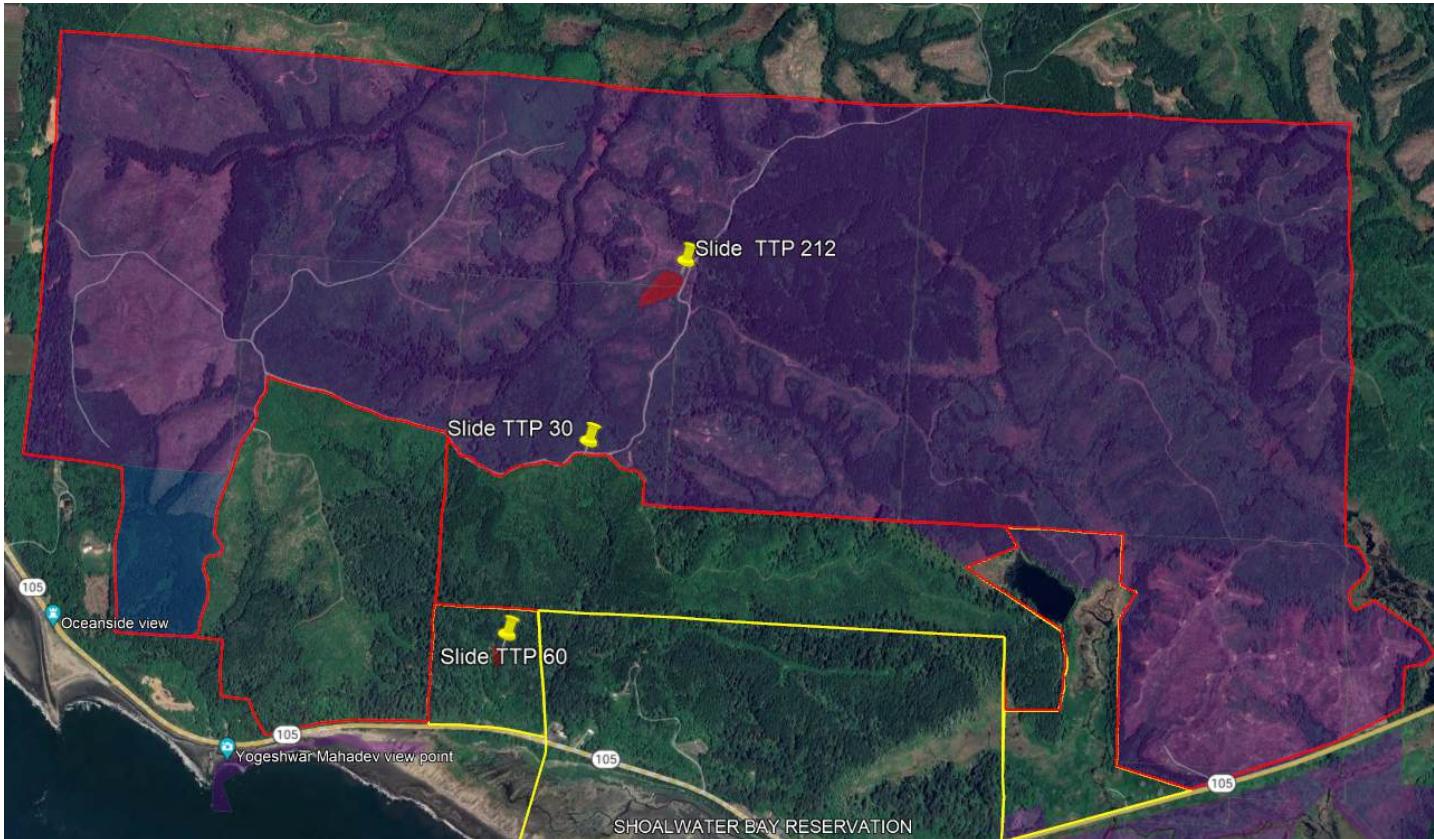


Figure 11: Locations of Past Slide Activity

Geotechnical investigation did not observe groundwater seepage within the main project area; however, it was noted that there would be a possible presence of perched groundwater. Infiltration was deemed likely to be marginal after the completion of grading cuts.



## EXISTING CONDITIONS

### Existing Development at Shoalwater Bay

The Shoalwater Bay community is located on Reservation lands interspersed with fee lands at the northern end of the Tokeland Peninsula. The two main roads serving the community are SR105, a highway running from Aberdeen to Raymond, and Tokeland Road, the lone road serving the length of the peninsula. The community is bounded on the north by the relocation site, to the south by fee lands, to the west by sand spits at the mouth of Shoalwater Bay and the east by wetlands associated with Kindred and Teal Duck Sloughs.



Figure 12: Georgetown Station

### Community Facilities

Community facilities along the northern side of SR105 near the Tokeland Road intersection include commercial uses, such as the casino, cannabis shop and some homes. There are two homes west of Eagle Hill Road north of SR105. The Natural Resources Complex (Annex Property) is located three-tenths of a mile east of Tokeland Road. On the southwest corner of the SR-105-Tokeland Road intersection, the Tribe owns a commercial complex (Georgetown Station) comprised of gas station/convenience store and a two story building housing a restaurant space (vacant) and the Tribe's námsčać Heritage Museum and Library.



## EXISTING CONDITIONS

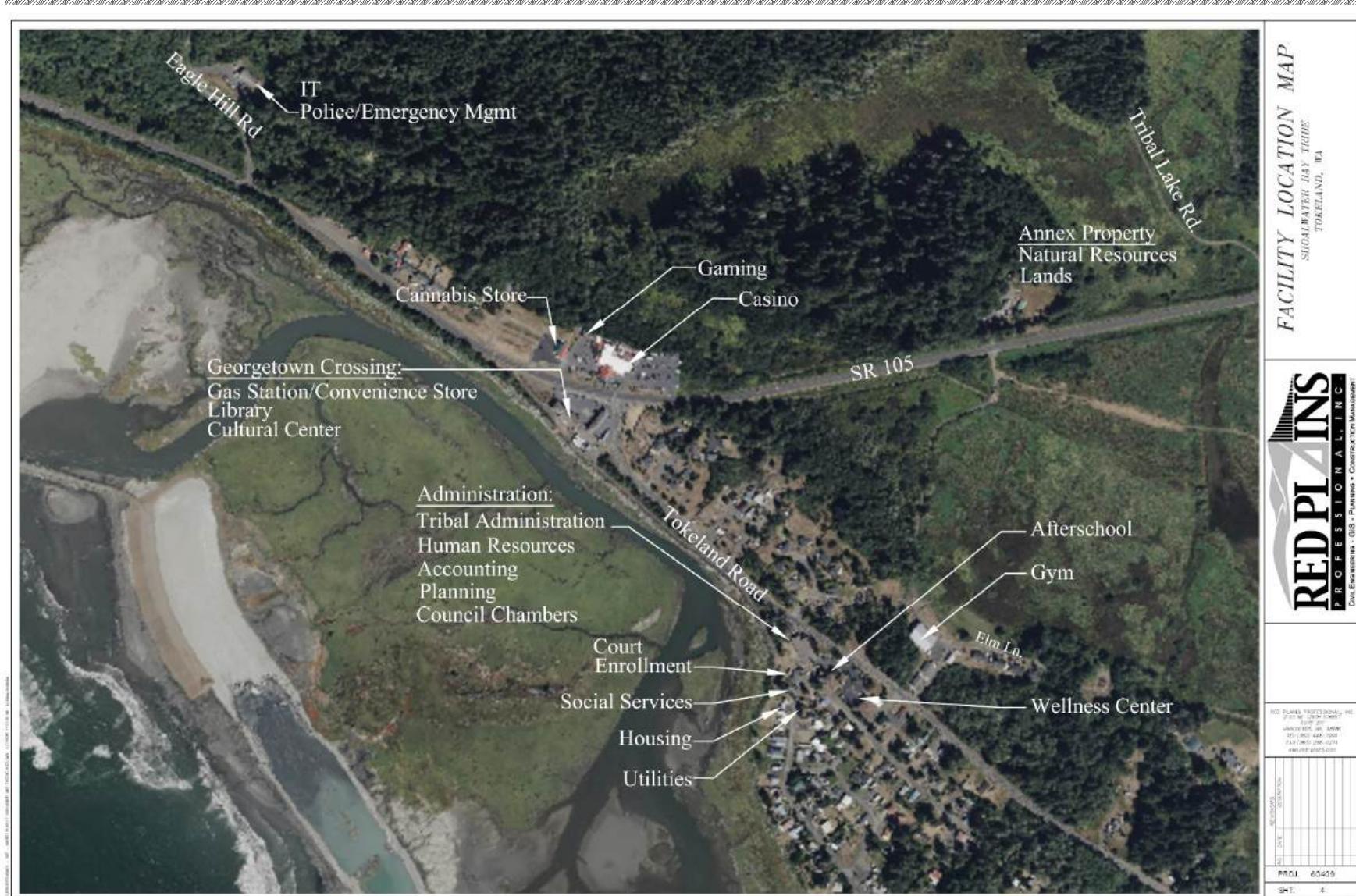


Figure 13: Existing Locations of SBIT Departments



## EXISTING CONDITIONS

East of Tokeland Road, there are residential areas on Shoalwater Bay Drive, Davis Drive, and Georgetown Street on the Reservation, and Elm Lane on Off-Reservation Trust land. One-quarter mile south of Georgetown Station lie the Administration Building, the Multi-purpose Building (youth recreation and early education), and the Wellness Center on Off-reservation Trust land. The 1.5-acre cemetery is located across Tokeland Road from the Administration Building. The gym is on Elm Lane on Off-reservation Trust land. There are two additional off-Reservation Trust properties in the vicinity of the Wellness Center and two properties a mile south on the peninsula at Blackberry Lane and at Fisher Avenue. There are five single-family homes and the tsunami evacuation tower on Blackberry Lane and three single-family homes on the Fisher Avenue property.



Figure 14: Administration Building

### Residential Development in the Existing Community

There are a total of 41 housing units on Shoalwater Bay Indian Reservation. As of 2024, the Tribe owns and manages 23 homes on trust land. There are four single-family homes on the north side of SR105 west of Eagle Hill Road, four single-family homes to the west of the casino, 25 units near the Administration Building and Wellness Center (including 22 single-family homes, a tiny home, and two duplexes), and nine single-family homes on trust land further south in Tokeland on Fisher Avenue and Blackberry Lane.

### What Will Be Relocated

The Tribe owns many public facilities on trust land in the Tokeland Area. These facilities will be discussed in further detail in the Community Facilities Section of this plan. Not all of these facilities will be relocated to higher ground as a part of this project. Some facilities, such as the convenience store/gas station and cannabis store, need to remain along SR105 to attract customers. When fee land was converted to trust in the highlands, gaming was expressly prohibited on these lands. The casino is not planned to be relocated to the area of the original reservation on Eagle Hill, so it will remain in its current location along SR105. There are no plans to reinter those buried in the cemetery on higher ground at this time, so the cemetery will remain in its current location. The vertical evacuation facility will remain in the tsunami zone, for the safety of the Tokeland community. The following table shows whether facilities will remain in the lowland area or will be reconstructed on higher ground.



## EXISTING CONDITIONS

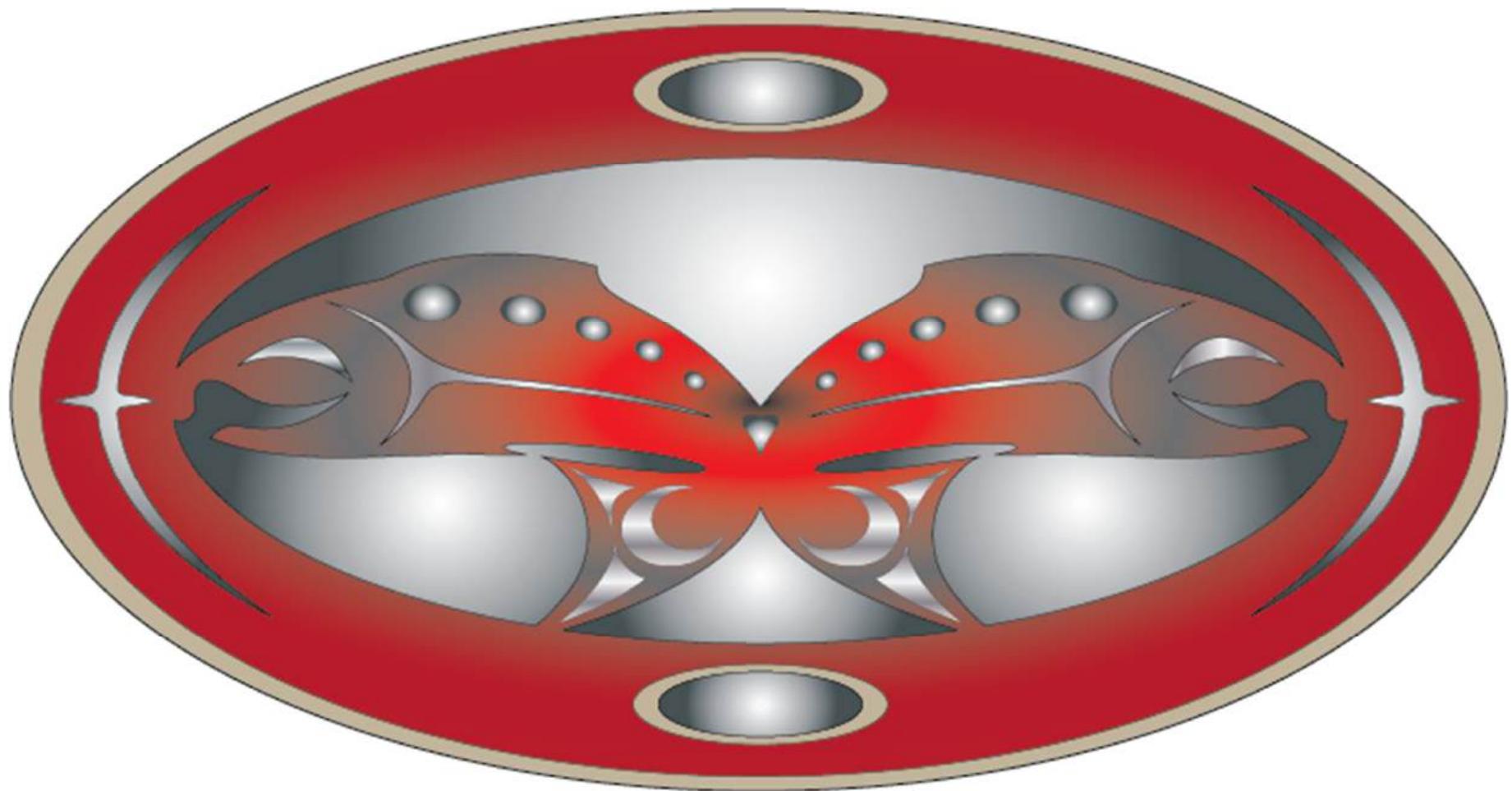
| Facility                           | To Be Relocated? |
|------------------------------------|------------------|
| Administration Building            | Yes              |
| Wellness Center                    | Yes              |
| Tribal Court                       | Yes              |
| Multipurpose Building              | Yes              |
| Gym                                | Yes              |
| Gas Station/Convenience Store      | No               |
| Restaurant (vacant)                | No               |
| Museum and Library                 | Yes              |
| Casino                             | No               |
| Cannabis Store                     | No               |
| Annex (Natural Resources) Property | No               |
| Cemetery                           | No               |
| Vertical Evacuation Facility       | No               |
| Emergency Connex                   | Yes              |
| Wood Shed                          | Yes              |

*Table 1: SBIT-owned Facilities in Existing Community*

The Grays Harbor PUD provides power to the area. Wastewater is treated in individual septic tanks. Water is provided via a water system with a tank on Eagle Hill Road in the relocation area.



"Salmon" Salmon are not just the life blood of the people dietarily and financially they are also said to be connected to the ancestors and are said to have human form and are of high rank when they are deep in the ocean. Because of this there are many traditional customs and taboos meant to honor these people so that they will continue to return to us. They also symbolize the ultimate form of community sacrifice as every salmon sacrifices its own life so that the next generation may feed off of it and prosper. – Earl Davis





CHAPTER 4 mús  
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THE PLANNING PROCESS





## THE PLANNING PROCESS

The planning for this project has been ongoing for over fifteen years. The project has included community engagement and working with the Uplands Development Committee for input and decisions. From these activities, key issues and principles for the project were identified. Simultaneously, civil engineers and planners have studied the development site and prepared road layouts and grading plans that suit the needs of the Tribe, while working with the topography of the site. These parallel efforts are described in this chapter.

### Engaging the Community and Staff

Community engagement has included on-line and written surveys and community meetings. A survey regarding relocation was conducted in 2021 and a survey was posted on-line with hard copies distributed at General Council on August 3, 2024. This General Council survey focused on housing issues. A community meeting and dinner was held on September 17, 2004 to introduce the community to the Master Plan Project. A community meeting was held on the Reservation on November 14, 2024, which was restricted to Tribal members only.



Figure 15: Photos from community meetings and the Uplands Development Team meeting examining public facility placement

The Master Plan team considered the community feedback and input from SBIT staff and commenced land planning. The team's engineers created four potential grading plans for the upland areas as part of the RAISE Loop project, which funded the redesign of North Cove Beach Road, Eagle Hill Road and the ridgeline road connecting the two roads. The Tribe was asked to select a preferred grading strategy. The preferred grading strategy is shown in Figure 16. The areas shown in yellow are areas that could be lowered



## THE PLANNING PROCESS

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through excavation (cut). The blue areas are areas that could be filled with soils that have been cut or imported from off-site. The areas shown in these colors are assumed to be graded to generally be flat and able to support residential or public buildings.

After the Tribe selected a preferred grading plan, various lotting yields studies were created and community nodes, where the public buildings will go, were located. The yield studies examined how many housing lots would be available and their potential locations based on the buildable areas identified in the grading studies. Acre lots, half-acre lots, and 7,500 square foot were chosen as the residential lot sizes for the studies. The acre and half-acre lots were selected as the size of the lots allows for ample distance between houses to maintain a rural feel. The 7,500 square foot lots were studied in case the community wanted a more suburban feel and to see where denser units might be desirable to get more number of homes for the same amount of infrastructure cost, given the limited funding opportunities to build the community.

Three locations for community nodes were identified. The West Node would be located in the westernmost portion of the Tribe's lands on the bluff overlooking Washaway Beach and Grayland. This area has the most available flat space and presents the best opportunity to create a walkable community center surrounded by housing. However, this option will require a second access and none of the necessary infrastructure will be constructed as part of the RAISE Loop project. The site is also the furthest from SR105 and the Tribal community.

The Middle Node is located at the intersection of the RAISE Loop Road and North Cove Beach Road. This location is more central to the project than the West Node. The two roads serving the area will be developed as part of the RAISE Loop Project, reducing the cost of future development. However, there are not many housing lots in the immediate vicinity, so the node won't serve as well as the West Node for a walkable neighborhood. The elk herd that inhabits SBIT lands uses this area as it moves from the hills to the lowland wetlands and ocean, so more intense development may adversely affect the elk.

The East/Eagle Hill Node is located at the intersection of Eagle Hill Road and the Ridge Road/RAISE Loop Road. This location is the closest to SR105 and the existing community. The main infrastructure will be constructed as part of the RAISE Loop Road. The area would require the most earthwork, as there is a hilltop that would need to be removed to flatten the area enough to place the public buildings. Even with lowering the hill, public buildings may need to be placed along Forest or Ridge Roads. However, there is ample potential buildable land reasonably close to the node. There will be a water tank to the east of Eagle Hill Road to serve early development at the site, such as the two HUD-funded duplexes at the intersection of Eagle Hill and Forest Roads. To place public buildings in this area, the water tank will need to be replaced elsewhere and is slated for relocation directly north of the RAISE Loop Road to a higher ground midpoint to better facilitate and support a gravity fed system with booster pumps, as needed.



## THE PLANNING PROCESS



Figure 16: Potentially Buildable Areas. Yellow is potential cut and blue is potential fill



## THE PLANNING PROCESS

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A second community meeting was held around midday on January 24, 2025 to present and review the lotting studies, community nodes, and programming for the public buildings. The following day, SBIT planning staff made a presentation about the progress of the plan at the Winter General Council meeting. The following Thursday the Uphill Development Team met with the design team and indicated a preference for acre lots and the East/Eagle Hill Node. These plans are the basis for the location of uses, phasing, and utility loads included in this master plan.

A survey for SBIT staff was conducted in the summer in 2023. The results are as follows:

*Commercial/Economic:*

- Desire for Free clothing/household needs space – free store
- Series of little shops rather than one bigger store
- Grocery store run by Tribe
- Ecotourism – horse riding, bike riding, resources for non-Tribal members
- Tribal credit union
- Tool rental business

*Social:*

- Elders and kids are the highest priority

*Facilities:*

- Youth or multi-generations building – gym, pool, outdoor basketball courts, baseball field, soccer fields, teen hangout spot
- Alternative energy sources
- Transitional housing for youth, treatment, 4-plex, apt buildings
- Multiple house designs
- Large community garden, permaculture
- Healing Garden
- Multi-use building – maintenance hub, building maintenance, construction, road maintenance. Could use as evacuation, sleeping area, triage
- Dual purpose warehouse shop for emergency use



## THE PLANNING PROCESS

### *Urban Design:*

- Minimize wind exposure, mudslide damage, all utilities in utilidors
- Don't put all low-income housing in one spot
- Buildings that blend into the scenery
- Secure –by-design structures, green buildings, water quality, walkable community, inclusion of culture
- Don't pay to have dirt hauled off the site

### *Cultural:*

- Some outbuildings for processing fish and game as well as smokers
- Firepit for communal food preparation
- Plankhouse
- Canoe shed
- Culture camps, outdoor school
- Community spaces with drumming and language practice
- Lots of edible spaces
- Large craft/cultural/gathering space

### *Health and Wellness:*

- Pharmacy, chiropractic, massage, acupuncture, pediatric services
- Storage for medical records, PODS, larger labs, larger procedure room
- Single story wellness center or clinic on bottom offices above
- Behavioral health is growing – meeting spaces and offices

### *Natural Resources:*

- Design game trails and hunting opportunities



## THE PLANNING PROCESS

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Meetings were held throughout the planning process with the Uplands Development Team. At these meetings the team decided that public facilities should be consolidated in the community nodes at Eagle Hill and at the top of North Cove Beach Road. Eagle Hill Road was identified as the first of the nodes to be developed. The Administration Building, Wellness Center, cultural center/museum, and Justice Center were chosen to be at the Eagle Hill Node. The gym and education/afterschool facilities were assigned to the Middle Node, as more community focused and less focused on visitors coming into the community. One early proposal for the gym was to combine it with the education/afterschool and library facilities. This structure would be potentially over 40,000 square feet. Because of its size, a desire to separate youth activities from adult activities, and to reduce noise in study areas, the Team thought that these uses should be housed in separate facilities.

### Principles and Key Issues

From the feedback that was received from community members, and elected officials, principles and key issues were identified to guide the formation of the plan. These principles and key issues include:

#### Promote Resilience

Because Tokeland is away from major population centers and relief efforts and power restoration may take a long time, the village should be prepared to be as resilient as possible. Even small events, such as storms, can isolate the area. Planning for safe havens in case of disaster and alternative energy sources is a must when determining facility siting, sizing, orientation, and programming. The development is in the wildland-urban interface, so strategies to reduce the threat of wildfire have been included in the plan.

#### Integrate Culture

The inclusion of SBIT culture in the Master Plan will help create a unique village that provides residents and guests with a sense of being in some place special. Culture can be manifested visually in art and traditional architecture, planting traditionally-used species, and through the provision of facilities like salmon baking pits in open space areas.

#### Remember that the Community Will Be Two Separate Development Areas Working as One

The SBIT will not force its members to relocate to higher ground. This likely means that there will be a significant number of members who will remain in the existing community for decades, unless rising waters make living in the low-lying areas impossible. The Tribe will need to locate facilities and staff in a way that both uplands and existing community received adequate services.



## THE PLANNING PROCESS

### Coordinate Infrastructure

The Master Plan provides a detailed guide to development phasing, including infrastructure. The Master Plan includes street sections detailing the location of future sewer, water, stormwater, and communications infrastructure. The Plan lists which infrastructure improvements must be completed before others can begin.

### Maintain a Rural Feel

The community has expressed a desire to avoid suburban-style development, with small lots tightly-packed together, but rather to blend in with the surrounding forest. This vision for the community led to the choice to develop acre lots to provide separation between homes. The acre lots in many places may not have an acre of flat land to build on. The lots will extend downhill, providing a sizable "yard". The Tribe will need to determine ways to work with landowners to reduce fire danger through the removal of woody debris and other fuels.

### Create a Walkable Community

Adequate pedestrian facilities and trails, as well as thoughtfully-placed public buildings and pedestrian infrastructure, such as high-visibility crosswalks need to be designed and constructed to encourage walking in the community. Walkable neighborhoods should enhance the feeling of community, reduce greenhouse gas emissions, and improve public health through increased levels of exercise. The topography of the site makes construction of pedestrian ways difficult; however, sidewalks will parallel at least one side of each street (with minor exceptions) and trails to harvesting areas and connecting various parts of the development have been suggested in the plan.

### Strive for a Mixed-income Community

The Master Plan has laid out potential residential areas. It is a goal that these areas will be mixed-income and the Tribe will avoid concentrating housing for specific income levels in specific places. This situation could be avoided if adjacent lots are set aside for a mix of SBIT-owned housing and owner-built and -occupied homes. Some smaller units and apartments should also be constructed to help younger and single residents; these units are not prevalent in the existing community, representing a gap in the housing supply.



## THE PLANNING PROCESS

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### Protect Water Quality

SBIT has long depended on the estuary of the Cedar River and the shores of Shoalwater Bay for staple foods and the bay still provides food and economic gain for Tribal members. Therefore, maintaining water quality in the area is of great importance. The stormwater runoff generated by new development must minimize pollution of the river. To this end, Low Impact Development stormwater facilities should be used throughout new development, including vegetated filter strips and infiltration.

### Prepare for New Challenges

The move to higher ground will necessitate changes for the Tribal government. New infrastructure systems will need to be developed and maintained in addition to existing systems. Conflicts with wildlife may increase, as will the chances of wildfire. There will be an increased need to seek funding from Federal, state, and other sources. Staff will need to serve those in the uplands and those who remain in the existing community. These changes may require hiring (and funding) new staff, as well as training existing staff.



"Crab Wheel" qay-xuch in our language is crab's name. It means many or abundant. Crab was and are an important dietary and economic staple of people. Representing food and wealth. – Earl Davis

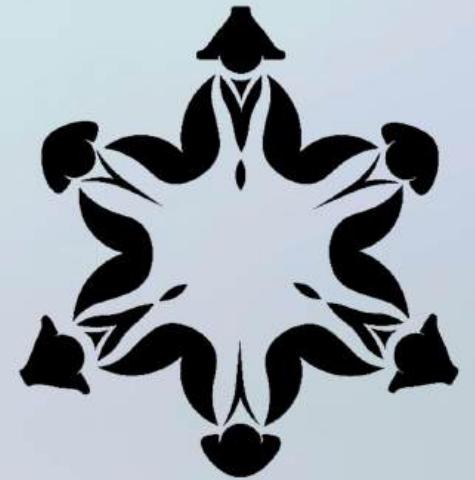






# síləč qwinəm<sup>5</sup>

CHAPTER



CULTURE



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## CULTURE

Culture can be manifested through the community in a variety of ways, including art, architecture, language, places for coming together, and the harvest of traditionally important foods. These are examined in more detail in this chapter with examples of similar projects, community comments, a review of culturally significant species, and a map of gathering/hunting areas within the uplands.

### Traditional Foods

The harvesting of traditional foods occurs on the lands owned by the Tribe. Until recently, most of these lands were owned by a lumber company, not the Tribe, so access was limited. There are elk, cougar, and black bear on SBIT lands. The community would like to preserve habitat for these animals. Hunting for *mulak* (elk) is the prime gathering activity in the uplands. Elk cross the western portion of the site between the forest and the ocean. While development will cause disturbance, elk generally adapt to development and will likely remain traversing the community. There are plans to set aside areas for new habitat bedding down areas for elk, refugios, and salmonberry patches, but no sites have yet been definitively identified. Speed limits may need to be set low to avoid collisions with elk. Outdoor trash facilities may require bear-proofing. Fishing occurs on the bay and at Teal Duck Slough.

During the community engagement process, several species of plants and fungi were identified as being culturally-important to the Tribe. These include salmonberry, *kwi'kwit* (huckleberry), *qáqasot* (sweetgrass), *Kalak* (alder), *seetop* (nettles), *k'iksu* (ferns) and *mushum* (mushrooms), though data on harvesting locations was not available for all the species. There are salmonberries along the road along the ridge, approximately 0.4 miles west of the Ridge Road-Eagle Hill Road intersection and huckleberries grow along Ridge Road and downhill of the Eagle Hill Road/Ridge Road intersection. Sweetgrass grows along the beach and will not be affected by the uplands development and would not be appropriate for planting in landscapes in the uplands. Alder is aged for cultural use. Mushrooms are harvested to the northeast of the development area and fiddleheads (ferns) along SR105 east of the Annex Property. Harvest and habitat areas are shown in Figure 17.



## CULTURE

In the book *The Northwest Coast*<sup>18</sup>, James Swan provides additional information about plants in use by the population living around Shoalwater Bay in mid-1800s. In addition to the previously noted species, Swan wrote that raspberry, sweet licorice fern, *táq* (salal), Chamomile, yarrow, mint, marsh rosemary, *tsi'k* (hemlock), and spruce were used.

Use of native plants in landscape areas is encouraged. A list of plant species that could be potentially placed in landscaped areas is included in the chapter. Native plants can be planted in formal Tribally-owned gardens. Additionally, native plants can be planted in forested areas, especially if the species is shade tolerant. If these are food plants, harvesting may augment healthy eating in the community and be utilized in case of emergency, especially if preserved or freeze dried by the Emergency Management Department. The planting of traditional and native plants and efforts to limit the impact of invasive species supports goals outlined in the Climate Resilience Plan.

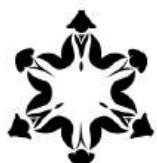
Leatta Anderson was quoted in the Part III of the Climate Resilience Plan (Page 11) as saying "*You can't find a single huckleberry bush. I've even taken walks in the back roads, but it's all logged. And there's nothing at all.*"

A concerted effort to establish culturally-used species as the land transitions from commercial timberlands to a community would benefit the ecosystem and tribal members. Additionally, Traditional forest management practices included strategic or cultural burning that would promote succession process and create space for important roots (camas), grasses (sweetgrass), and berry plants (huckleberry, blackberry, salmonberries) to thrive. This in turn would draw in and create additional habitat for mammals, birds, and other species. In the future, some wood piles in the upland area could be used for cultural burning<sup>19</sup>; this would also require further discussion within the community in terms of location and timing of the cultural burnings.

Because there will be residents moving to the uplands area, there may need to be changes to hunting rules. Hunting may need to shift away from the SBIT-owned lands and be concentrated on land leased from American Forest Management. The Tribe currently leases several sections; this land is subject to state jurisdiction and seasons. An allowance for bow hunting closer to the development may be possible, but this issue will need to be discussed in depth in the community.

<sup>18</sup> Swan, James G. (1857). *The Northwest Coast; or Three Years' Residence in Washington Territory*. Harper & Brothers.

<sup>19</sup> Interview with Larissa Pfleeger-Ritzman, August 19, 2024.



## Cultural Uses

At the September 2024 meeting, a canoe shed, fire pit, museum, plank house, gathering spaces, traditional plantings and a cultural center/museum were suggested as desired cultural uses in the new development. Members suggested at the November 2024 meeting that archival space in the library or museum, gathering spaces and maker spaces would be appropriate ways to promote culture in the relocation area, as well as inclusion of language in buildings, the use of traditional architecture, places to harvest and process traditional food, traditionally-used plants in planter boxes, and lots of art throughout the community. Programs at a cultural center/museum, such as culture camps, could lead to shared learning experiences through adult and youth classes that focus on traditional arts, crafts, foods, and language.

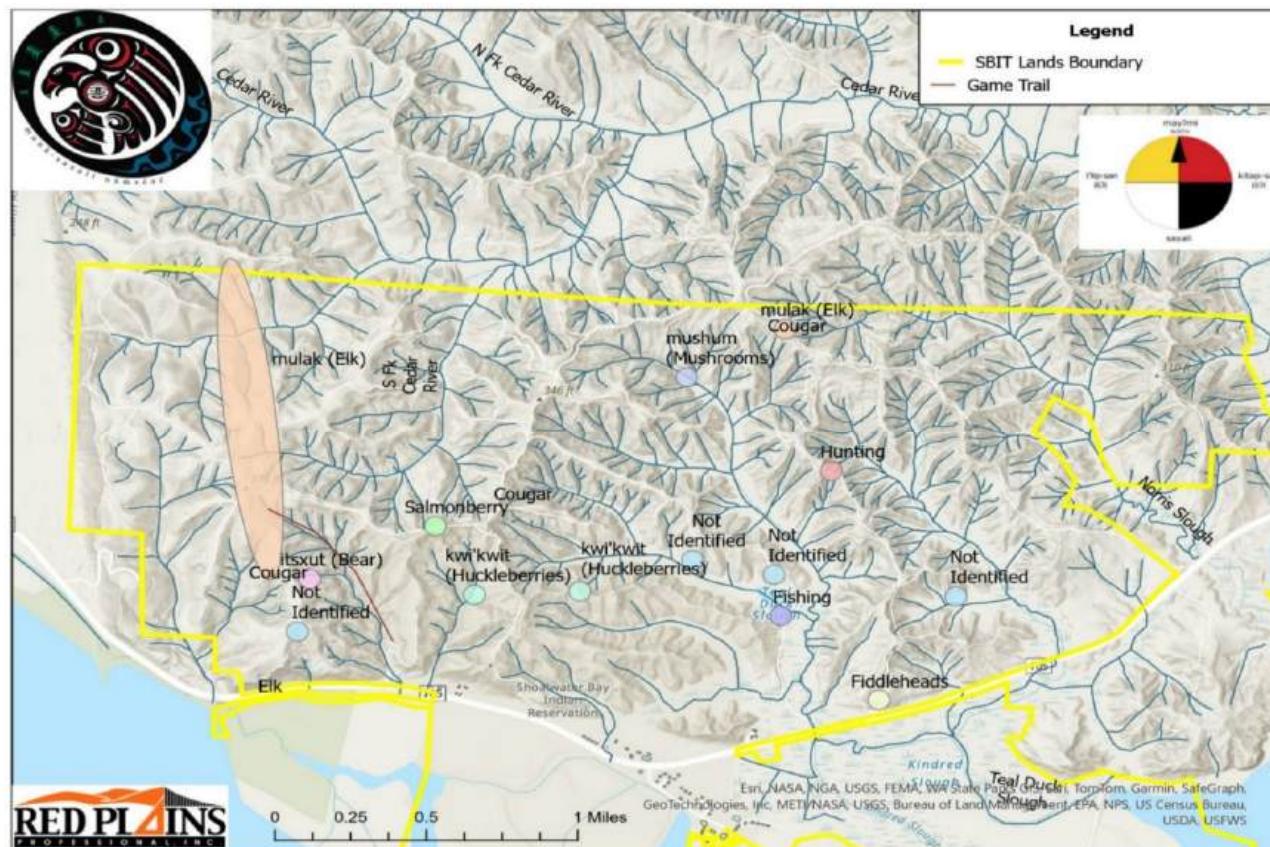


Figure 17: Harvest Locations Identified During Community Engagement and Discussions with SBIT Staff



## CULTURE

### Art and Culture Integration in the Community

Art and culture can be infused in the landscape and built environment in the uplands development. This plan identifies several locations for art installations at prominent locations within the community. The inclusion of art will help create a place identifiable as SBIT lands and provide economic opportunities for artists. These locations are at the main intersections of the upland areas and near North Cove Beach Road and Eagle Hill Road intersect SR 105. The installations near SR 105 would be gateways welcoming residents and visitors to the upland development. These installations would likely be welcome poles, but ultimately the community and selected artist would have to decide.



Figure 18: Examples of Gateways

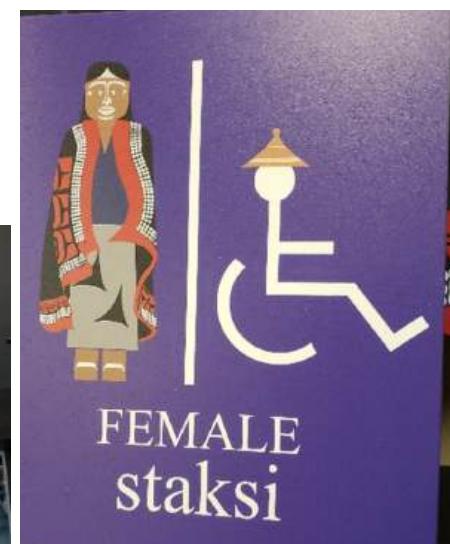


## CULTURE

Art can be integrated into buildings in the upland area, similar to the art on the Emergency Operations Center, or installations within the building or in the landscape. This can be in the form of materials, art installations, signage, or roof and siding materials can mirror traditional design.



*Figure 19: Cultural Integration  
in the Built Environment*



## CULTURE

Designs can also be integrated into the streetscape as well. Street names, art, and signage can incorporate Chinuk wawa or Thl'waltmish. Crosswalks can be painted in a traditional design.



*Figure 20: Examples of Cultural Integration in Streetscapes*



## CULTURE

Park and gathering spaces are an opportunity for cultural facilities, as well as an appropriate location for art and architecture that reflects the culture.



*Figure 21: Examples of Cultural Integration in Recreation Spaces*



## CULTURE

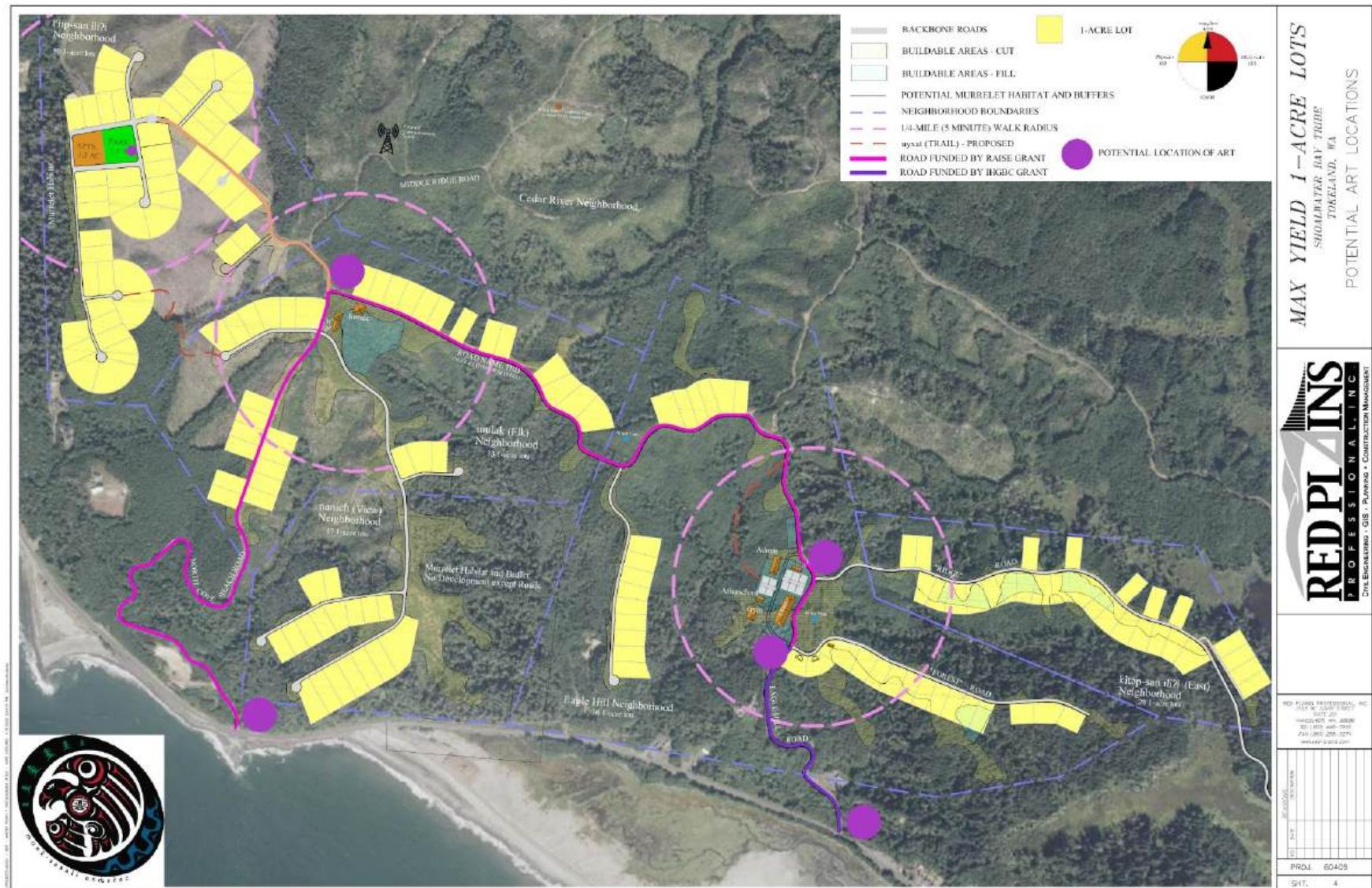
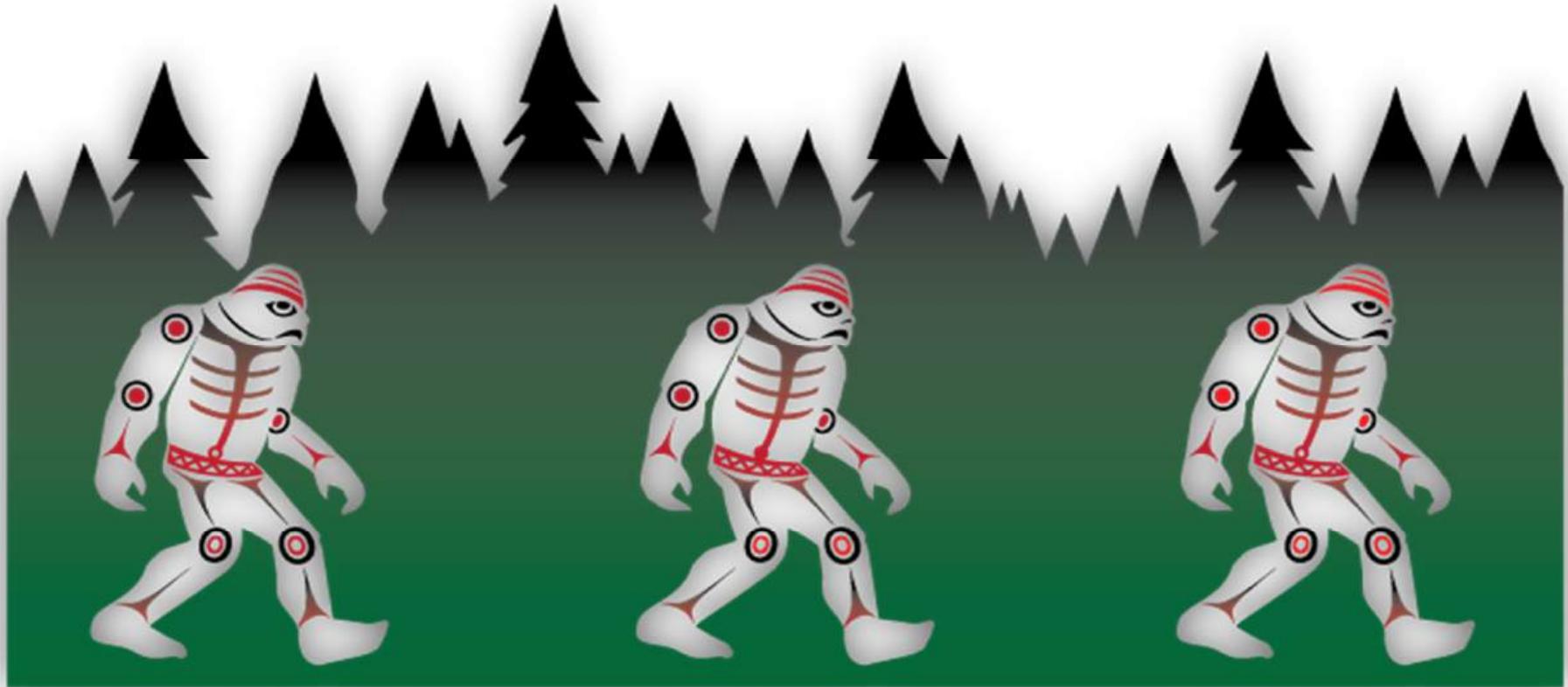


Figure 22: Potential Locations for Art Installations



"Ciatqou" AKA Bigfoot aka Sasquatch. Is also sometimes known locally as stick Indians. The keeper of the forest and guardian of the woods.  
Said to be a fan of salmon and a shapeshifter able to turn into trees making it a master of hiding in plain sight. – Earl Davis





CHAPTER

6

# taxam təxám

INFRASTRUCTURE





# INFRASTRUCTURE

## Existing Infrastructure

### Power

There is 3-phase power available in Smith Anderson Road west of the project location and along SR 105 to the south. The closest substation is at Grayland (Udell Hanson Road). The substation will likely need to be upgraded as development occurs. Any costs associated with the upgrade would be borne by the Grays Harbor PUD per a conversation with the PUD staff on August 9, 2024. No new station would be necessary. If an emergency road is developed in the future extending from the uplands to Smith-Anderson Road, this could be an alternate alignment for PUD lines, as well. In order for PUD vehicles to repair lines along this road, room for service vehicles to park would need to be included in road design.

### Wastewater

Wastewater produced in the existing development in the lowland area is processed by septic tanks with secondary treatment for 17 homes being provided by a treatment plant on Elm Street. The Wellness Center has a system that provides primary treatment. There are approximately thirty septic tanks and three septic drainfields in the community. Nine tanks are located north of SR105; only one of the tanks is above the tsunami zone. The emergency center is also served by a septic system; this is the sole system in the uplands.

### Water

The water and wastewater systems in the existing development at the north end of the Tokeland Peninsula are not anticipated to be connected to the new development in the uplands. There is currently one well in the Relocation Area near the Emergency Operations Center, which serves the existing one existing home. This well has a two-inch line and will need to be upgraded for other development. Additional tanks will be necessary to serve the community at full build-out. To achieve adequate pressure in the water system for service to homes and building, as well as providing adequate fire flow, booster pumps will need to be included in the design of water tanks.

Fire hydrants will be constructed as part of future development. It is estimated that a firetruck would take fifteen to twenty minutes to go down the hill and back to obtain water without hydrants. There are no official standards for fire flow for SBIT.



## INFRASTRUCTURE

Utility systems should have a source of power that is not dependent on delivery from the areas by sea level that could be destroyed in case of a tsunami. This would most likely be generators, but could incorporate renewable systems in the Relocation Area to increase resilience.

### Future Infrastructure

#### Road and Street Infrastructure

Because the site is located at the top of hills with steep side slopes, it is necessary to construct narrow streets. Streets will be 24-feet-wide (asphalt surface) throughout the development. All streets, except for a portion of North Cove Beach Road (south of all proposed lots), will have a five-foot-wide sidewalk on one side of the street to allow for safe pedestrian circulation. There will not be sidewalk along North Cove Beach Road downhill of development, as the steep terrain and required grading for a wider typical section is cost prohibitive relative to the benefit. Additionally, at the North Cover Beach Road and SR 105 intersection and area of Washaway Beach, there are no pedestrian facilities to connect to.

Stormwater infrastructure along the Eagle Hill Road and North Cove Beach Road should be located to the side of the street that is not adjacent to the downhill/bay-facing slopes. These streets should not have a crown, as runoff should be directed to that side of the street to reduce the changes of erosion and landslides. Along RAISE Loop Road, the street should drain to the north, toward the Cedar River drainage, as the bay-facing slopes are more prone to slides. Sidewalks will be located on the opposite side of these streets; the existing utilities/vault infrastructure along Eagle Hill Road are currently placed on the uphill side of the road, so sidewalk construction should not require relocation of this equipment.

In areas of steep slope, retaining walls may be necessary. Two areas along North Cove Beach Road have been identified already as requiring walls.



Figure 23: Future Retaining Wall Locations (Yellow lines) Along North Cove Beach Road



## INFRASTRUCTURE

The typical street section is as follows:

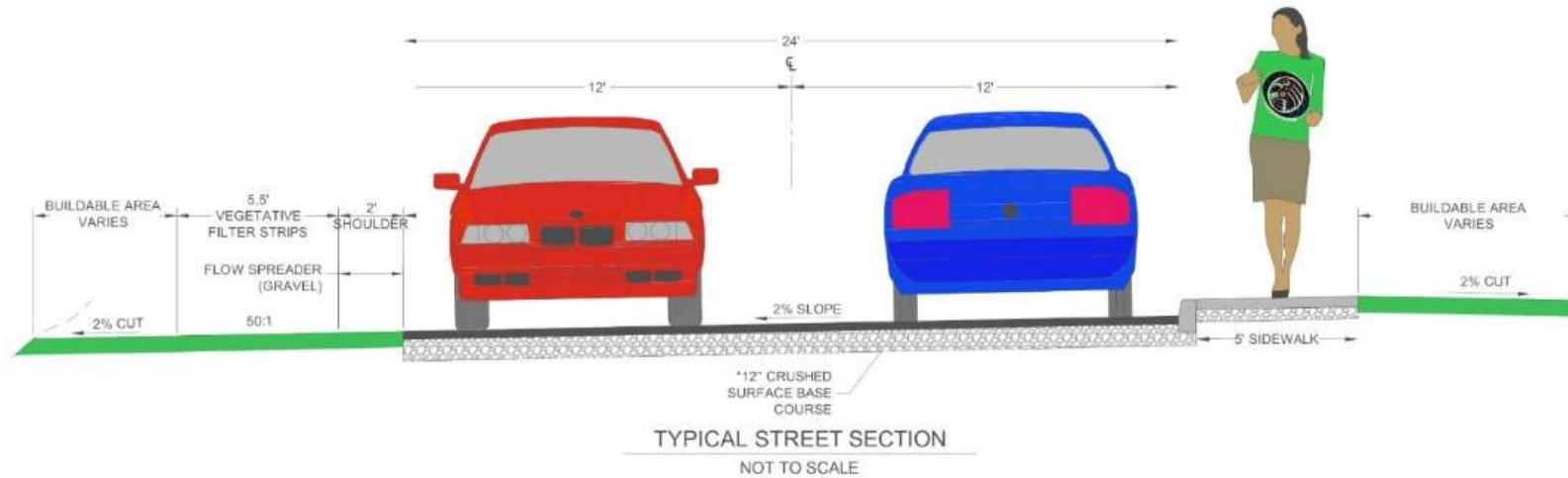


Figure 24: Typical Street Section



## INFRASTRUCTURE

A traffic study was performed for the development in May 2025. According to the study, "at full occupancy and operation, the project is estimated to generate approximately 273 new-to-network trip ends during the PM peak hour. An evaluation of the existing 2025 and projected 2026 and 2046 horizon years with and without the project traffic was performed. All the study area intersections are projected to operate within the Level of Service standard"<sup>20</sup>. Therefore, no mitigation is needed or modifications to existing intersections.

At the time of this Master Plan the Tribe is initiating a feasibility study and analysis of a secondary access road that would connect to this area and provides the entire development a second or third access point. The Feasibility Study will analyze three potential alignments that have been identified in early analysis, connecting the RAISE Loop and this neighborhood to the north and west, eventually descending the bluffs and connecting to the Smith Anderson Road Area. The feasibility study will identify the needed land acquisition and land owner coordination needed for any proposed easements/rights-of-way. This connection would also be key in providing a third access point to the entire upland development that is further away from the North Cove/Washaway Beach access point, which is threatened long term by continued erosion despite the many efforts by WSDOT to preserve SR 105 in that area. Power infrastructure could also connect to the Grayland Substation on Udell Hanson Road. Please refer to Figure 25 for more detail on the future road alignment.

The Tribe received funds from the Climate Commitment Act to design the Northwest Utility Road (Middle Ridge Road) and Development Area. Middle Ridge Road is intended to remain a gravel road until all utility development is complete. Please refer to Figure 26 for more detail on the future road alignment.

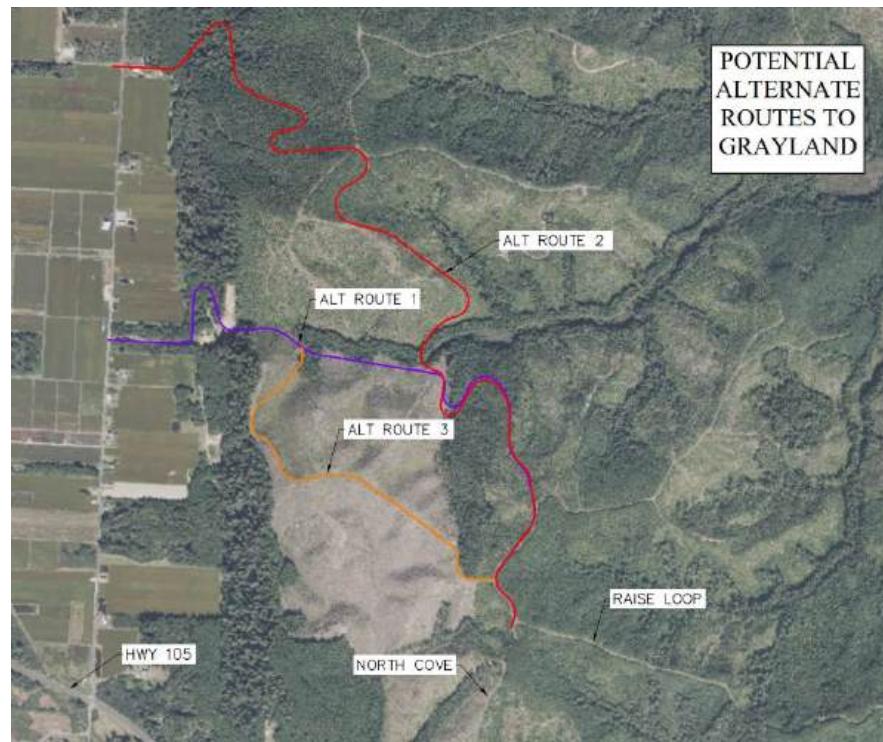


Figure 25: Potential Alternate Routes Connecting to Grayland to the North

<sup>20</sup> GVC Transportation Solutions. (2025). *Traffic Impact Analysis, Shoalwater Bay Tribe Upland Trust Property Development*. Page 19.



## INFRASTRUCTURE

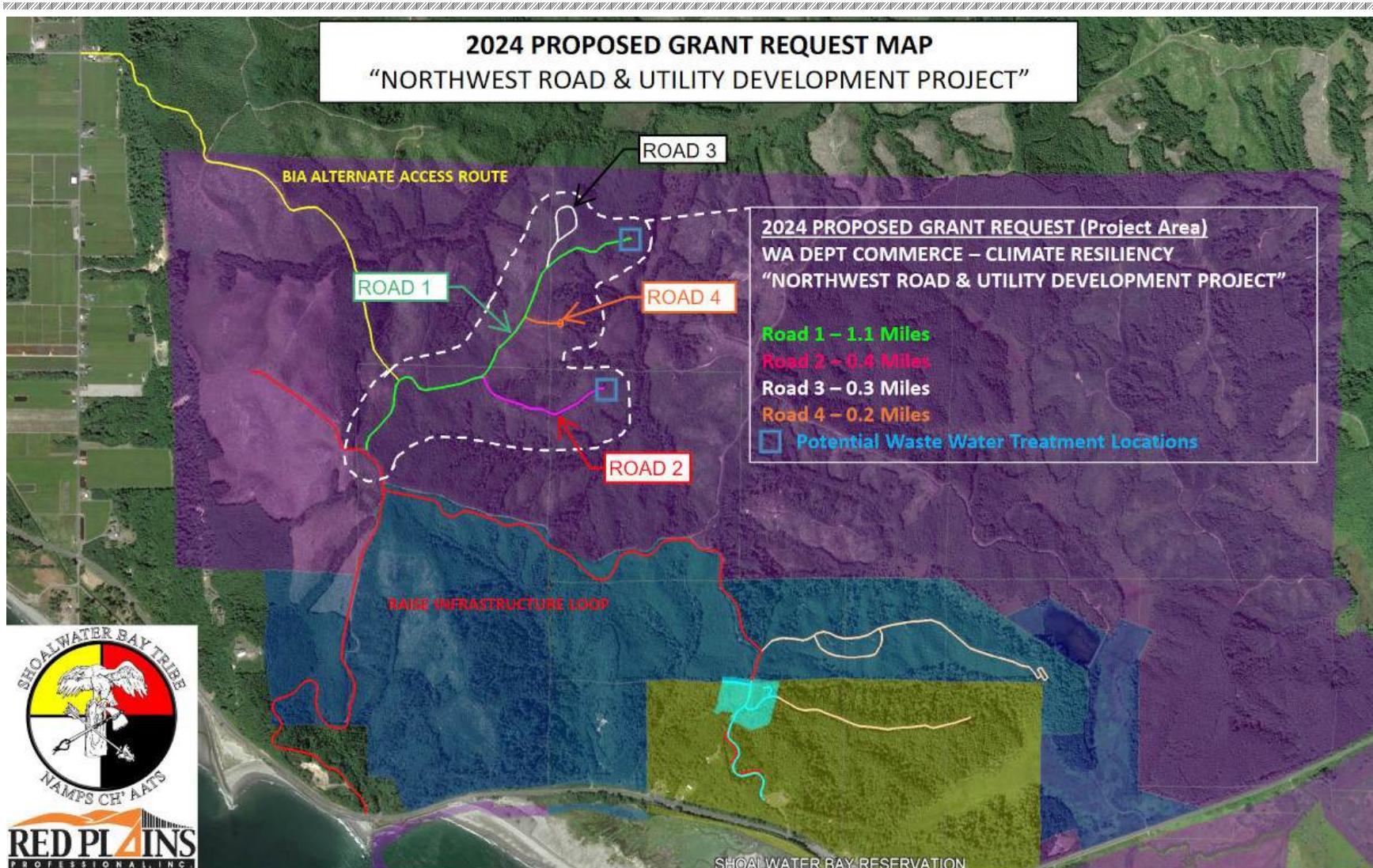


Figure 26: Northwest Utility Road (along Middle Ridge Road) Potential Alignment



## INFRASTRUCTURE

### Trails

Trails can play a role in fitness, lowering carbon emissions as people walk instead of using cars for short trips, relaxation, and connecting members to the natural world in the upland areas, wetlands, and the shore. The terrain of the uplands and the expanse of wetlands at the base of the hills near the casino and to the east somewhat limit the potential for trails. Most pedestrian activity will be along sidewalks paralleling streets; however, there are opportunities for new trails in the area.

Currently a gravel path/one land road traverses the area along the top of the dike from Lagoon Road to SR105 on the west side of the Georgetown Crossing Development. This path could be extended along the west side of the highway towards Chief Charley's or the intersection with Eagle Hill Road. This path would then provide a connection between the existing community and the new development in the uplands, as well as providing better access to the shoreline. Patrons and employees of the Casino could use it as an escape route to reach Eagle Hill. Constraints on extending the trail include the need to work with the state, limited area south and west of the highway for the trail, US Army Corps of Engineers requirements relative to wetland and shoreline environmental impacts, and the need for a crossing of SR105 at Eagle Hill Road.

There is an identified huckleberry patch downhill to the west of the Eagle Hill community node. The terrain to reach the patch is steep, however a foot trail could be established to allow members access to the patch. At build-out of the western neighborhood a trail connecting the southern end of the neighborhood with the community node at North Cove Beach Road would create a shortcut between the two areas. This trail would be steep as well as it traverses a small creek. A trail could be extended from Graeber's Pit uphill to future development, but it would not be likely used as there would not be a connection to a place that would draw members.

For several years, a vehicular connection between Tribal Lake Road and Ridge Road was envisioned as a secondary access for the upland development. Due to the costs of potential mitigation for affecting wetlands, this idea was tabled. However, this would be an ideal location for pedestrian access. This would connect development along Ridge Road to Teal Duck Slough and could be



*Figure 27: Trail along the dike*



## INFRASTRUCTURE

part of a loop walk extending the forest roads north of the development. There is currently a path connecting Tribal Lake and Ridge Roads; this trail may need upgrading were it to receive more use.

North of the development there are several forest roads that could be utilized as trails in place of building new trails, such as Middle Ridge Road. The forest road network accesses potential hunting areas, as well as Teal Duck Slough. If members sought to drive quads, it is recommended that these roads be the primary routes.

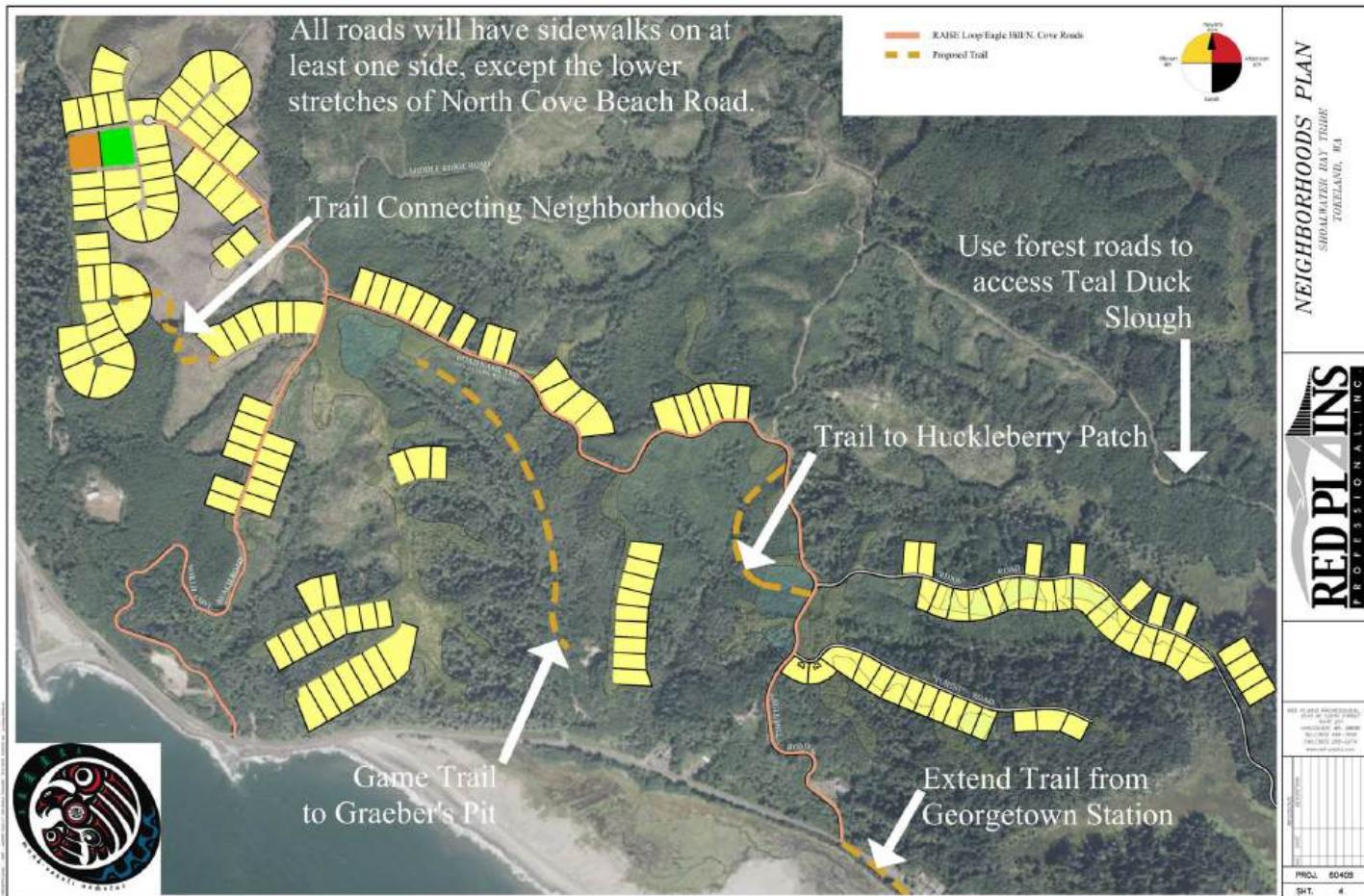


Figure 28: Proposed Trail Network



## **INFRASTRUCTURE**

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### **Utility Infrastructure**

SBIT-owned utilities (water and sewer) are to be placed under streets nine-feet from centerline with sewer lines on one side of the street and the water line on the other. In some cases, the Utilities Department may permit these utilities to be placed in utility corridors. This situation may occur if there is not adequate room for both utilities to be installed with adequate separation distance under a street. This may also be permitted if construction phasing requires the utilities to be installed prior to street construction which might risk damage to the pipes during construction.

#### **Stormwater**

SBIT road projects will have Compost-amended Vegetative Filter Strips (CAVFS) running the entire length of the proposed roadway. The roadways will be sloped in one direction to have all the water sheet flow across the CAVFS to allow the necessary treatment for the proposed roadway. The stormwater, after it has been treated, will flow into ditches and then discharge along the existing hillside. Stormwater along RAISE Loop Road, Forest Road, and Ridge Road should be directed to the north. The Hillside outfalls must be designed in a manner to prevent erosion impacts undermining the hillside stability. It is recommended that frequent and low volume outfalls are installed to limit water accumulation to minimize flow rates, pressure and force related impacts.

Future Tribal buildings will need to have a bio-retention facility to treat the additional impervious areas. If CAVFS is capable of treating the water, then that BMP will be used. To significantly reduce bioretention size, an underdrain will be needed because there is little to no infiltration on the SBIT projects.

#### **Dry Utilities**

Joint trench utilities (power, fiber optic cable, telephone and other dry utilities) are to be placed in shared trenches. These utilities are to be installed beneath the sidewalk on each street. Placement of underground vaults and structures, such as transformers, pull boxes, and splice boxes, should be at the back of the sidewalk. In instances where these cannot be placed underground, landscaping should be used for visual screening. If the vaults and other structures are owned by the Grays Harbor PUD, cable company or another non-SBIT entity, public utility easements may need to be created around these facilities. The joint trench will connect to existing utilities at the Emergency Operation Center on the east side of the development. To the west, the joint trench will connect to infrastructure at the intersection of North Cove Beach Road and SR 105.



## INFRASTRUCTURE

### Lighting

Lighting selection should be made emphasizing the need to reduce glare, preserve dark skies, and minimize effects on wildlife. Exterior lighting can adversely affect wildlife behavior, including circadian rhythms, foraging, mating, and migration. Lighting along streets and outside buildings should be directed downward, recessed, or shielded. Fixtures should conceal bulbs. Lighting should only be used to illuminate special architectural features and should avoid lighting expansive wall planes, towers, or roofs. Landscape lighting should not face neighboring properties.

Lighting will be installed along all new roads in the uplands to WSDOT standards. Lighting selected for the RAISE Loop project will be on 20-foot poles at approximately 120-foot intervals (125-foot maximum) and is dark sky compliant. The lighting can be dimmed after installation if they are deemed to be too bright and shields can be installed if light is spilling too far. The poles will be hinged for ease of maintenance.

### Water

The new development will not be served by water lines in the existing community. A feasibility study has been conducted as part of the Master Plan project to determine the best design for the reservoir and distribution systems. Please refer to the Shoalwater Bay Indian Tribe Upland Relocation Master Plan Water System Feasibility Report for a full description of the recommended system. The recommended strategy to develop the water system is as follows<sup>21</sup>:

Based off the information in the Feasibility Report, the water system should be developed in four phases.

Phase 1A: Develop the system for the two duplexes at Eagle Hill and Forest Roads using the existing well uphill from the Emergency Operations Center.

Phase 1B: Replace pump at the existing well to increase capacity

Phase 2: Drill a new 8-inch groundwater well adjacent to the existing well to provide enough capacity (70 to 90 gallons per minute) to serve the full build-out of the community. Minimum well flow production should be 100 gallons per minute to meet the system's Maximum Daily Demand. Construct a 185,000-gallon reservoir (tank) at the highest elevation in the development

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<sup>21</sup> Northwest Water Systems. (2025). Shoalwater Bay Indian Tribe Upland Relocation Master Plan Water System Feasibility Report.



## INFRASTRUCTURE

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area, approximately 2300 feet northwest of the Eagle Hill Road-Ridge Road intersection on the north side of RAISE Loop Road. This would require installation of approximately 4,500 linear feet of transmission line.

Phase 3: Drill a new 8-inch groundwater well in the western portion of the development area. Minimum well flow production should be 100 gallons per minute to meet the system's Maximum Daily Demand. The location of the well would be determined based on future well testing. This second well will provide a substantial improvement to system reliability and redundancy in the event of a catastrophic failure of the original well. A second tank 185,000-gallon tank would also improve resilience. The placement of the second tank would likely be to the northwest of the North Cove Beach Road-RAISE Loop Road intersection, near Middle Ridge Road at an elevation of approximately 400 feet. Note that there is a contaminated site at the base of North Cove Beach Road, so wells in that area may be subject to contamination; use of that area as a water source would be subject to testing. Any well would need a 100-foot radius sanitary control area.

Due to the significant elevation changes, the water system would require a combination of Pressure Reduction Valves (PRV) stations and individual private PRV's to prevent pressures from exceeding 80 psi. The combined reservoir storage and combination of 8- and 12-inch distributions mains would support the residential, commercial, and fire flow demand requirements for the proposed upland water system.

The new system will be connected to the existing well to provide redundancy and ensure that there is water available for the existing development, if needed. The above estimates were based on an assumption of 175 residential units and eight public buildings. The Tribe does not have an adopted fire flow requirement; the system above will satisfy the requirement of the 2021 International Fire Code. The report estimates a need for 36 fire hydrants.



## INFRASTRUCTURE

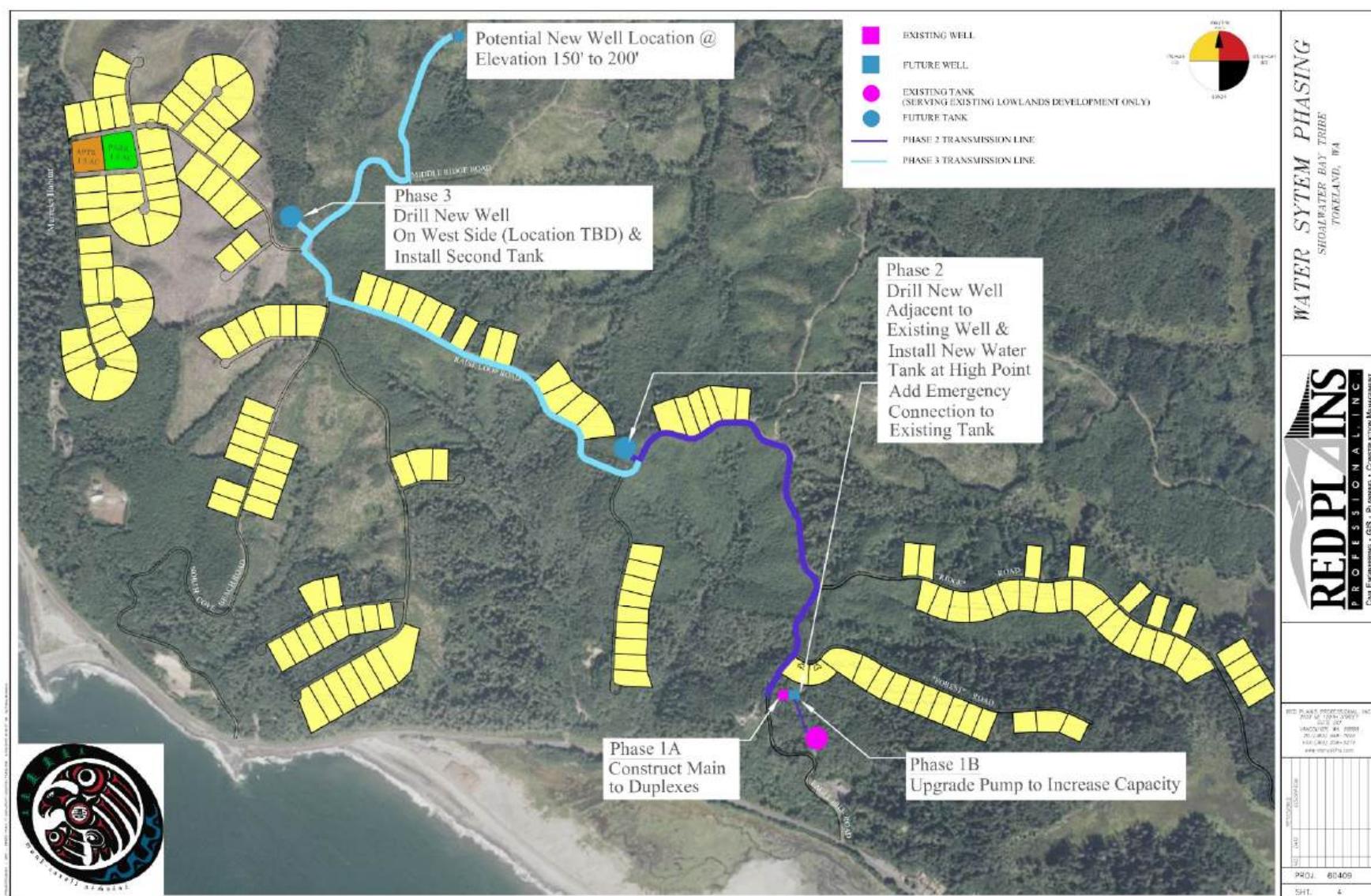


Figure 29: Proposed Water Supply System and Phasing



## INFRASTRUCTURE

The development will be served by 8-inch C900 PVC (or HDPE) water mains placed beneath the roads. There may be some 12-inch lines in the vicinity of the Eagle Hill Road-Forest Road intersection, where development is expected to be greatest. The general location of water mains is shown in Figure 30.

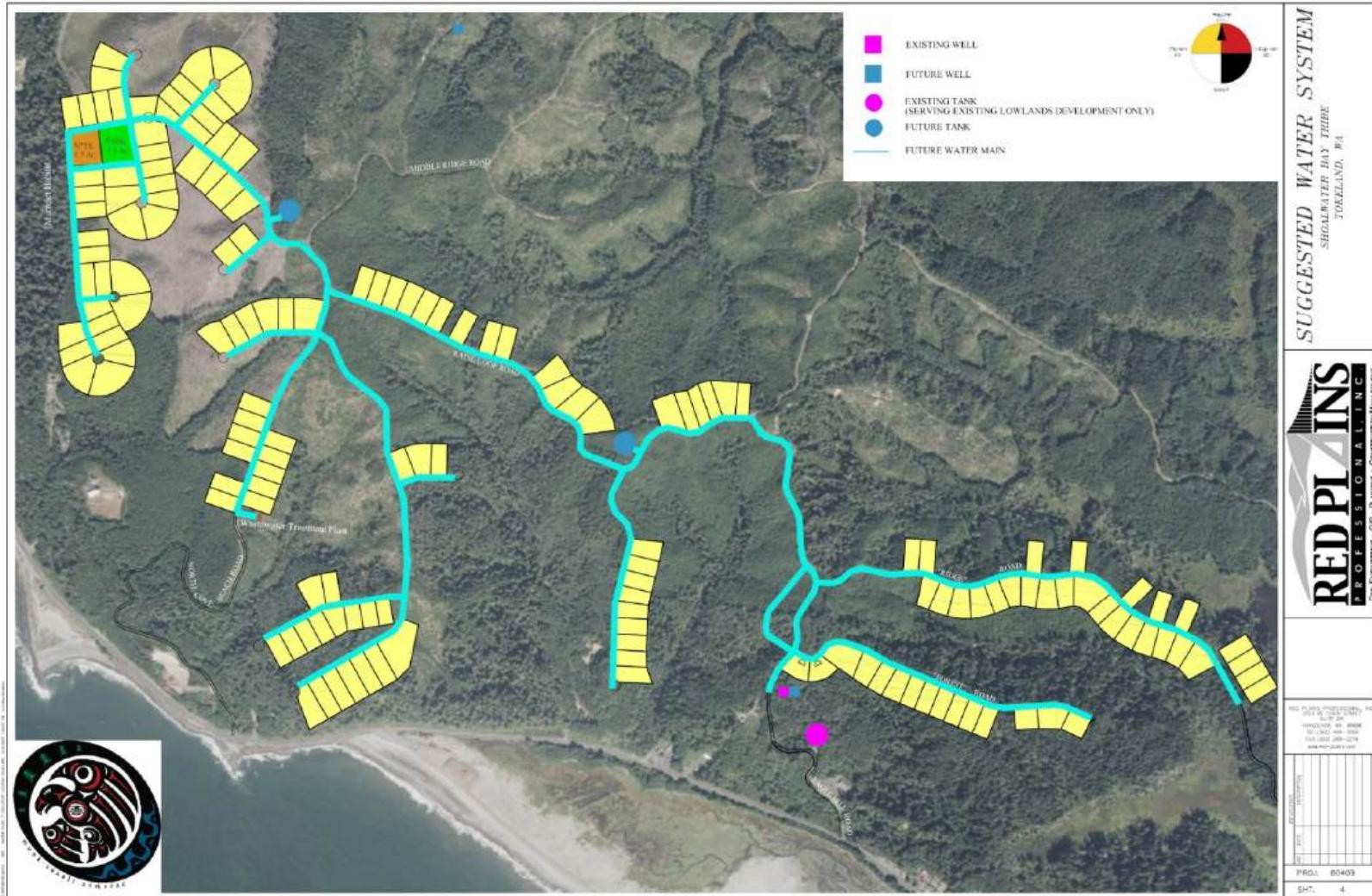


Figure 30: Proposed Water Distribution System



## Wastewater

There is no wastewater infrastructure at the site currently and the system that will serve the uplands will not connect to the system in the existing community. Wastewater in the short term will be treated in septic systems at the duplexes at the Forest Road and Eagle Hill Road intersection. Given the steep terrain and lot configurations, hillside or sloped septic designs will be required in many areas. Associated costs of these systems reinforces the need for a centralized sewer system to a centralized treatment facility or series of treatment facilities.

There are two options for wastewater treatment and discharge being studied at this time. Wastewater treatment plants would likely be located north of the development area off of Middle Ridge Road or at the eastern end of Ridge road or Forest Road. The treated water from a plant off of Middle Ridge Road would be discharged to the Cedar River watershed. Treated water from a plant along Forest or Ridge Roads would be discharged to the wetlands near the Natural Resources complex, perhaps in concert with wetlands enhancement. This would be downstream from Teal Duck Slough, likely reducing necessary environmental permitting. Discharging treated water from the east end of Ridge Road would mean conveying the water down gentler slopes than doing so from Forest Road. Release of treated water to the ocean near North Cove was examined. Although environmental permitting costs would likely be lower than releasing water elsewhere, SBIT chose not to discharge the treated water there, because of the location off of Trust land, habitat concerns, and public perception. The use of drain fields is not being explored at this time, as the area necessary for such a system has been deemed infeasible at the site.



## INFRASTRUCTURE

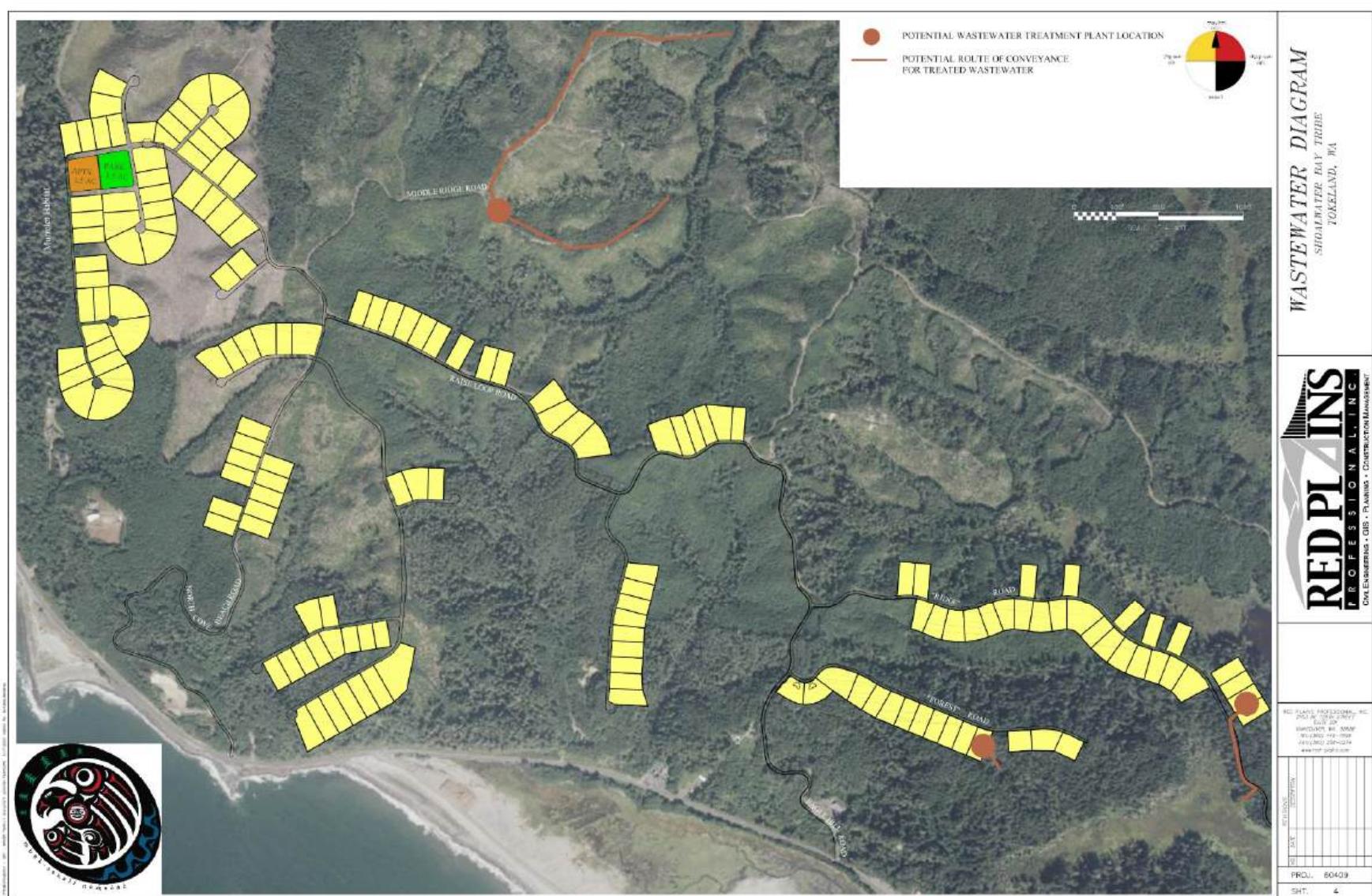


Figure 31: Potential Wastewater Treatment and Discharge Locations



## Earth and Organic Materials

Because of the hilly topography of the development site, there will be a significant amount of grading to prepare the site for homes, public buildings, and infrastructure. Much of the cut material can be retained on-site and used as fill material to produce larger flat areas for development. The main areas that will take the fill will be the community centers at the Ridge Road-Eagle Hill Road and North Cove Beach Road-RAISE Loop Road intersections. Excess fill and organic materials which cannot be used safely as construction fill will need to be retained on-site so that there is not added cost of transporting the materials off-site. Three areas in the western part of the development site have been identified as potential locations for these materials (subject to environmental review). All three sites are northwest of the North Cove Beach Road-RAISE Loop Road intersection, bordering development in the *t'ip-san iliʔi* (West) Neighborhood. The sites are shown in Figure 32. These materials may also be moved to sites in the *qáqasot* (Cedar River) Neighborhood north of the development area. However, at this time, those areas have not yet been environmentally-cleared.

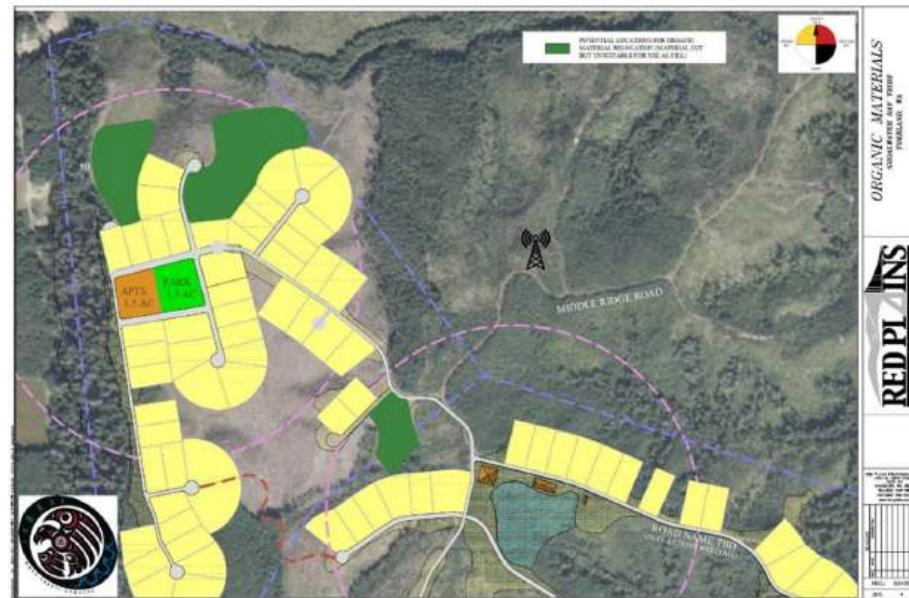


Figure 32: Potential Locations for Excess Fill and Organic Materials

## Infrastructure Costs

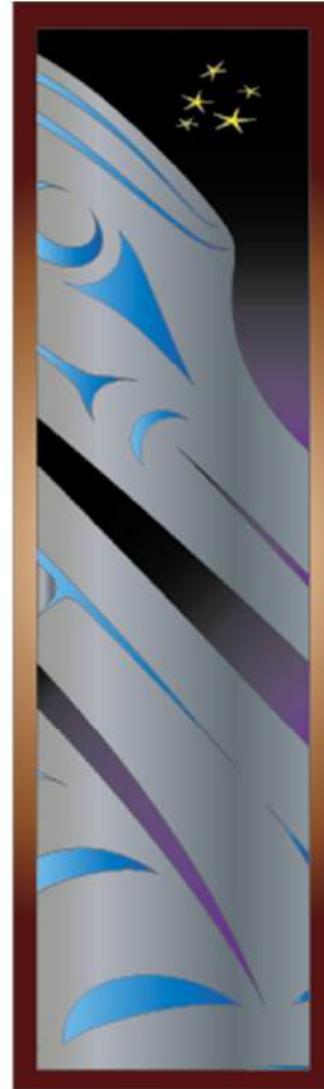
Infrastructure will be the costliest portion of the development of the uplands. Please refer to the Project Phasing section of Chapter 9 for project cost estimates.



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"Heron and Moon" Heron is a wise hunter who once had thick legs that made too much noise through the water.

He used his intellect and solved the problem by whittling down his legs to a point where he could successfully wade through the water silently making him an expert and efficient hunter. – Earl Davis





CHAPTER

7

sitəc sinamakwst

COMMUNITY
FACILITIES

COMMUNITY FACILITIES

Community facilities will need to be constructed in the Relocation Area so that services are convenient for the members that have moved to higher ground and service can be maintained in case of natural disaster. Tribal departments were surveyed in September 2024 to gauge their future space needs, so that adequate space will be provided to the programs to cover their needs today and in the future. Department staff were also asked to identify other departments that would sensibly share buildings based on shared administration and similar needs. The surveys also informed the schematic design of future facilities found in this plan. The space needs of the departments and possible adjacencies are discussed below.

Staff was asked about prioritizing which public facilities should move to higher ground first; the consensus was that funding would dictate which projects would proceed at which time.

Departmental Needs

Accounting

The Accounting Department has eight employees. They will need seven private offices and one open office space. There is a need for a conference room that can serve as a meeting room for the staff, other meetings the Chief Financial Officer holds, and for auditors to use. The Accounting Department is currently housed in the Administration Building and would be housed in a new Administration Building on higher ground.

Administration

Tribal Administration is currently located in the Administration Building and is comprised of the Tribal Administrator and an Executive Assistant. Future space needs will include two offices, preferably soundproof, a conference room large enough for 25 people, and a lobby with six seats. Tribal Administration would be housed in a new Administration Building on higher ground. Council chambers are also located within the Administration Building and would require facilities in a new Administration Building.

IT

The IT Department is currently located in Emergency Operations Center. The IT department has a staff of six and would require a facility with six offices, and a server room/data center. The department suggested a need for a Tribally-owned communications tower that would be leased to communications companies and could house SBIT emergency equipment, as well. Based on



COMMUNITY FACILITIES

similar facilities along the Washington coast, a tower and a secured building would fit on a flat area of 7,000 to 10,000 square feet. The tower would likely be at a higher elevation. The goal of the tower would be to provide improved service to both the upland and lowland communities. A second tower is also planned for the Tribe's property east of Teal Duck Slough. The IT department currently stores its supplies in a 40-foot container. The IT Department would be housed in a new Administration Building on higher ground.

In addition to its space in the Administration Building, the IT Department will require a facility adjacent to the planned communications tower off Middle Ridge Road. This facility would likely be a 900 square foot building housing:

1. A central office: WAN Handoffs from ISP/Telecommunications.
2. Main Distribution Frame (MDF): Our side of the ISP handoff (LAN). Perimeter devices (routers and firewalls) and CORE switches would be housed here. This would be the primary hub (ingress/egress) for all our connections. However, since we still have infrastructure in the lowlands, we might have to have another MDF (currently have one in the Wellness Center) unless we run another higher count fiber between the Wellness Center and fiber cabinet at current MPB.
3. Datacenter/server room to house all our servers and storage arrays.
4. Communications tower. If there is a tower at the site, it will require associated data and communications (Police/Emergency Management) equipment
5. Storage. This could be just IT equipment or also include document storage. This could be housed elsewhere, if necessary.
6. ISSO (security) and NSA (network/sys admin) have direct responsibility for the equipment, so offices (2) for this staff could be located here. This staff could be housed in the Administration Building. If there are staff offices in this building, then bathrooms would also need to be included.

This facility would require resiliency and redundancy in power and connectivity, as well as security (surveillance, access control, fencing). Office functions would need to be separated from telecommunications equipment so that so ISPs would not have to enter staff space to work on their equipment.

Wellness

The current Wellness Center is located adjacent to the Administration Building along Tokeland Road. The facility is approximately 15,000 square feet over two stories and receives approximately 7,000 visits for medical/behavioral health appointments and 3,500 dental appointments. Parking is located outside the building and is shared with other programs; 11 new spaces have been



COMMUNITY FACILITIES

added as the clinic grew. The facility is woefully undersized. The clinic director estimates that a building between 45,000 and 60,000 square feet is necessary.

There is currently one reception area for medical, behavioral health, and dental. Ideally, each department would have its own separate reception areas that would be accessed after patients pass through a centralized check-in. The single entry point of a centralized check-in will increase privacy and reduce stigma for behavioral health program clients, as other people waiting to check in will not know to which department a client is going.

A community kitchen is utilized by the nutrition program. A kitchen separate from the lunchroom space would be a plus. Additional secure storage space for records will be necessary. Restrooms are shared by patients and staff. In a new facility, there should be separate facilities.

Other requirements include:

- Laundry room
- A dedicated lunchroom
- Larger laboratory
- More rooms and an additional procedure room
- Area for ultrasound
- Pod-like space for medical assistants
- Additional provider offices
- Additional dental and hygienist operators
- Additional behavioral health offices and one telehealth office
- Additional group rooms
- Covered, drive-through ambulance bay
- Additional billing team offices
- Flex space for Tribal Foundation public health employee
- Additional space for supplies



COMMUNITY FACILITIES

Housing Department

The Housing Department manages 34 properties, serving 50 tribal members. There are 39 members on the primary housing waiting list and 34 people on the secondary list (non-member Indians and Alaska Natives). The housing maintenance staff perform routine and non-routine maintenance on the Housing Department's rental properties, building maintenance on other Tribal buildings, and remodel Tribal member homes.

The Housing Department is located in an approximately 600 square foot building on Lagoon Drive and currently has a staff of two. The Housing Department's main focus regarding the relocation will be to develop approximately 40 homes. However, there is still a need for a new facility for the department on higher ground. Housing would ideally add more staff, including an accountant and a counselor to discuss homebuying financial ramifications to members.

Housing staff indicated that their facility should be near the maintenance and Utilities Departments, as the Housing Director is also in charge of those programs. The facility should include office space for three staff and a conference room. Housing would be located in a new building specifically for the department on higher ground.

Maintenance

The Maintenance Department will need space to store supplies, such as construction equipment and supplies. Maintenance should be located near the Housing Department in the new development in the uplands.

Utilities

The Utilities Department manages the water and wastewater utilities in the community. The two employees will require space for storage of their work outfits and equipment, including gas tools, one office, shower facilities for use after septic system work.

According to Utilities Director Mike Hermon, the main priorities for the Tribe's uphill move are water and wastewater systems designed for longevity, redundancy and ease of maintenance. The Department desires hydrants and other access points with adequate fire flow for protecting the community from brush fires and structure fires and to flush sediments and contamination from the distribution system. The area is hit by frequent power outages, so the Department emphasizes redundancy in power systems, through the use of standby gensets and solar power. The Department's emphasis on ease of maintenance suggests use of materials that have long life spans, such as brick, concrete, and heavy gauge metals. These materials generally require little



COMMUNITY FACILITIES

man-time to keep well-maintained. There should be blow-off pipes at every dead end and isolation valves well-placed to maintain water flow during modification and upgrade of the water system.

The Department expressed a preference for top fill reservoirs, when possible, to improve water quality and mixing of chlorination. Sampling stations should be strategically located to ease testing and reduce the number of visits staff makes to homes. A sample tap should be placed on or near each reservoir. There should be a barrier installed to protect the existing tribal water storage tank due to increased traffic along Eagle Hill Road. Electrical control panels. To increase the lifespan of electrical control panels, those exposed to direct weather should be designed with a rain guard or enclosure.

Police/Emergency Management/Fire

The police department has recently moved to a trailer adjacent to the Emergency Operations Center, so is above the tsunami zone. However, a new space for the police would need to include additional meeting spaces. A sally port, backup power, secure access, an IT room, changing rooms, and a fitness area would need to be included in designs for a new facility. Vehicles will need secure parking.

The police department could be included in a Justice Center, a concept that has been discussed in the past. This building would include the Police, Fire, Social Services, and Enrollment departments, as well as the court. Within such a facility, the Police Department will require back corridors, which are not accessible to the public that allows employees to move from one office to office. This corridor would be a safety corridor for employees to escape if an emergency occurred. A holding facility adjacent to the court would be necessary.

Emergency management needs will require a large storage space (10,000 square feet) for emergency supplies and, potentially, bodies to be used in case of disaster. This space would be a warehouse. The Tribe would additionally need a place to temporarily house up to 100 people. The Emergency Operations Center is currently not usable as a mass sheltering location. A community center, gym, or other building could be designed with a dual purpose of disaster shelter in proximity to the warehouse or could include storage space for cots, tents, and other supplies. Ideally, such a facility would also have a commercial kitchen for meal service. Department equipment and vehicles, such as the Mobile Command Center and response equipment, should be provided a secure location with equipment under cover. The gym will be housed in its own building and the storage space in a separate facility.



COMMUNITY FACILITIES

The South Beach Regional Authority provides fire service to the Tribe. The Authority has asked to have a place to keep a truck in the area, so that they can provide a quicker response to a large fire. There should be a place for a fire engine to be stored with a small office in the upland area.

Court

The court will require a courtroom with space for the judge, prosecutor, defense, bailiff, clerk, witness stand, metal detector, and space for an audience. Additionally, there needs to be office space for the prosecutor and the defense, where sensitive conversations may occur. These offices should be equipped with panic buttons and the facility should have cameras at the front and backdoors. The judge's chambers should have an exterior exit door in case of hostile people. The courtroom is not frequently used, so it has been suggested that the room serve as a multi-purpose meeting room for departments, the Election Board, and Tribal Council executive meetings. A new court facility would be adjacent to the Police Department in a new Justice Center.

Enrollment

The Enrollment Department is one of the smallest within SBIT government. Staff suggested that new facilities be included with the court in a proposed Justice Center, as staff also serve as Court Administrator and Court Clerk. The department will need two or three offices and secure access if the Department is asked to issue Enhanced Tribal IDs.

Social Services

The Social Services Department has 11 staff and serves the community in a variety of ways. Social Services provides child and Elder protection services and emergency assistance, runs the LIHEAP program, and helps veterans, crime victims, and those with legal issues. The department also distributes firewood to members and runs the monthly foodbank. A new facility for the department should include eight offices and a confidential interview room. The department should be housed within a future Justice Center with a commercial kitchen facility with walk-in refrigerators and freezers located elsewhere for the department to continue to provide the daily Elders Lunch Program.

Planning

The Planning Department needs space for three desks. The department will be housed in the new Administration Building.



COMMUNITY FACILITIES

Museum/Library

The museum and library are currently combined in the Georgetown Station commercial complex at the intersection of Tokeland Road and SR105. These uses may stay together after relocation, though the library could also be combined with the afterschool program in an Education/Fitness Building. The new museum should have maker space for artists, classroom space for arts and crafts and the passing of traditional knowledge to younger generations. Some of the space of the museum should be conditioned for the specific needs of preservation of cultural artifacts, as the building would be the likely repository for these irreplaceable items. Museum staff indicated a desire for expanded tribal archives to support record keeping, museum displays, programs and storage of historical items.

Gym

The Gym will need to serve both as a recreational facility and a gathering space and may also serve as a disaster shelter. Thus a new facility should have a basketball court and weight and other fitness equipment. Outdoor fitness space was also identified as a need by Staff. As the Gym host General Council meetings, the facility will need to be adequately sized to host the meeting.

Staff also require office space.

The Gym could be designed to include storage space for emergency supplies, such as cots, tents, and other supplies. If the gym served as the disaster shelter, a commercial kitchen for meal service would likely need to be added. If the gym served as a disaster shelter, it would be consistent with Strategy I-16 of the 2021 Climate Impact Analysis, which suggests to "identify additional opportunities to enhance the capacity of facilities (such as the casino) to become resilience hubs, evacuation and clean air centers, cooling centers, and charging stations, during extreme heat or weather events."

Education

The Education Program currently oversees the afterschool and summer programs for SBIT. Existing facilities include a teen lounge, four offices, and an arts and crafts room. The existing space should be adequate for the future, except for a strong need for additional storage space and additional food preparation space (not a full kitchen, but counter space for appliances and setting out food). If a cultural immersion program were added, the existing space would be adequate to incorporate the program's needs. The department interacts frequently with the library and cultural programs, so proximity to these programs would be beneficial. This program will be located in an Education along with the complementary uses of the library.



COMMUNITY FACILITIES

Natural Resources

The Natural Resources Department is located at the Annex Property. While this area is not in the uplands, there are adjacent areas that are above the tsunami zone and could be used for evacuation. The Department is not planning to relocate to the uplands area. The Natural Resources Department is housed in a trailer which doesn't provide enough space and is currently trying to get a better facility at the annex property, for its 12 staff members. The Department does need a 40'x84' shop for vehicle storage, crab pots, and other gear with a walk-in freezer and a 40'x 60' office to accommodate 12 to 14 offices.

Land Department

The Land Department includes two staff members. The department is housed at the Annex Property. Like Natural Resources, the Land Department is likely to stay in its current location and relocate to higher ground.

Projected Development

Building programs for the future development of public buildings in the uplands is based on the expressed needs of the Tribe's departments. Architects and planners contracted by the Tribe determined which programs would be complimentary and be served well by sharing a building. This determination was made after surveys were distributed to Tribal Departments and reviewed by the Tribal Upland Development Team. The plans were developed to support the intended operational structure of the Tribe as provided by the Tribe.

Six public buildings have been designed at a conceptual level to house the offices, storage, kitchen and other spaces requested by the departments. These buildings are detailed in the following section. Departments included in the buildings, facilities, and square footages are subject to change. However, this information will be useful to the Tribe when pursuing funding and site planning buildings in the future. Please note that the cost of the building when they are constructed will not match the assumed construction budget, as this estimates are based off conceptual design and several years will pass before the buildings are constructed. They have been included to provide planning level cost estimates for the tribe to seek funding. Funding application should take into consideration inflation with additional estimated contingencies when applying for supporting grant funds.



COMMUNITY FACILITIES

Envisioned Public Buildings

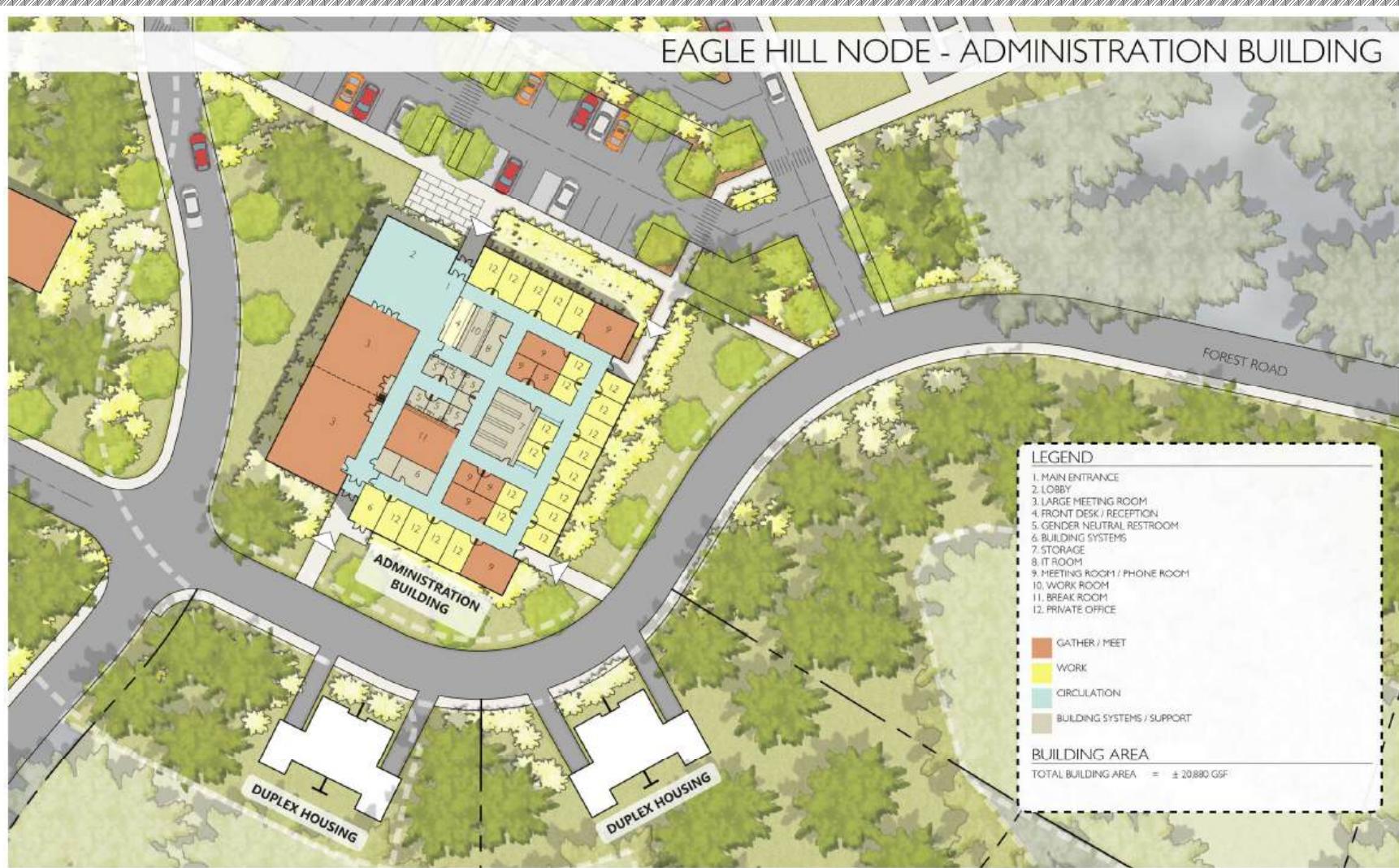
Administration Building

Several departments, including Tribal Administration, Human Resources, Planning, IT, Utilities, and Accounting, will be located in the Administration Building, which will be approximately 21,000 square feet. The Council Chambers will be housed in the building as well. The total assumed construction cost for the building is projected to be approximately \$15 million.

Programs/Uses	<ul style="list-style-type: none">• Accounting• IT• Planning• Utilities• Tribal Administration• Council Chambers
Estimated Size (sf)	20,880
Estimated Cost	\$14.6 million



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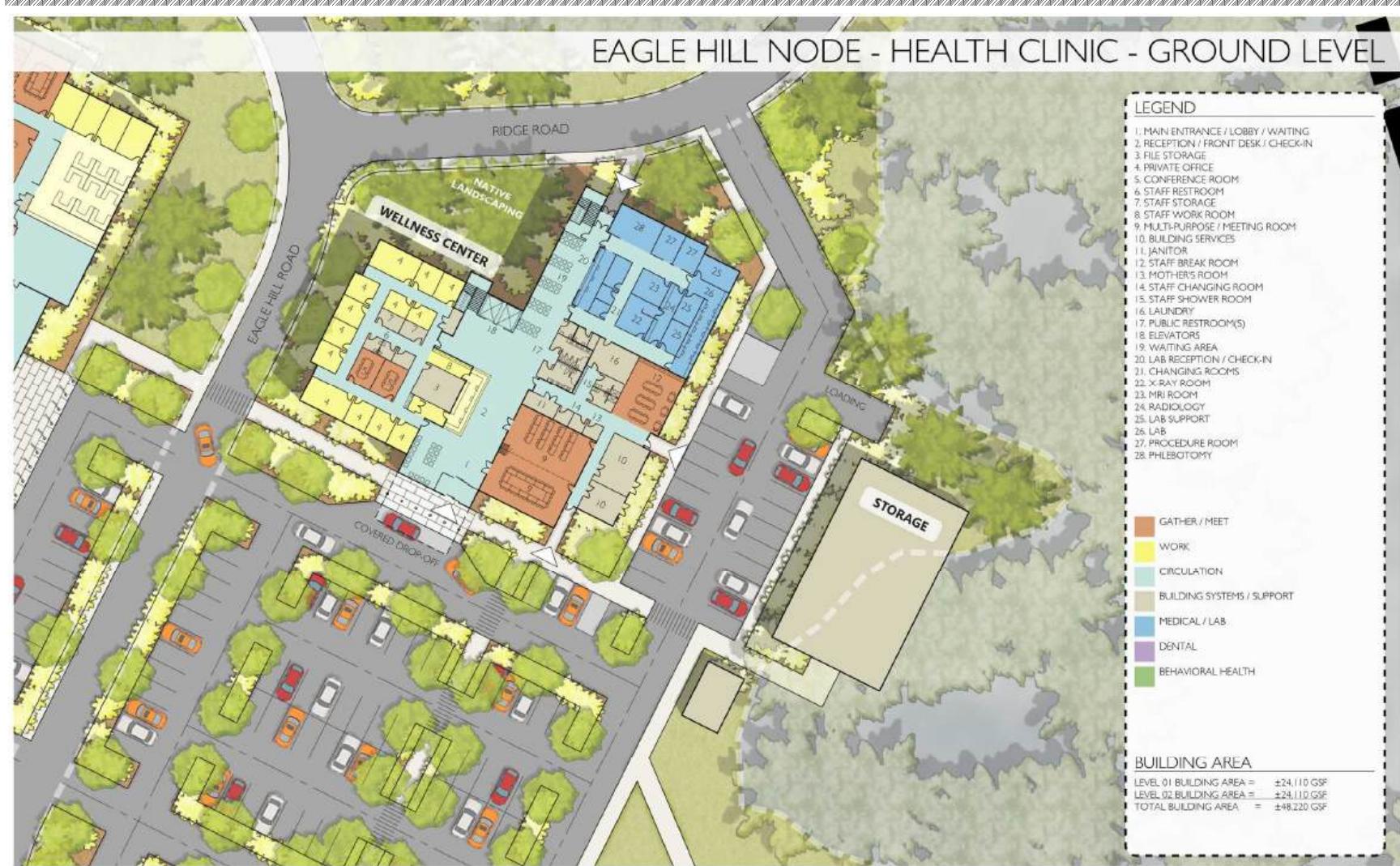
Wellness Center

The Wellness Center would be a facility approximately twice as large as the current facility, including a central check-in lobby, more laboratory space, an additional procedure room, addition exam rooms, a dedicated space for ultrasound, additional provider offices, offices and meeting space, more space for dentistry and behavioral health, additional offices for billing, and telehealth facilities. The clinic director's estimates that a building between 45,000 and 60,000 square feet would be necessary was assessed by the project architect for this plan. The project architect analyzed the feedback and needs for the building and estimates that roughly 48,000 square feet should meet the department's needs. This building, per the Director, should be one-story. The total assumed construction cost for the building is projected to be approximately \$38 million.

Programs/Uses	<ul style="list-style-type: none">• Health and Wellness
Estimated Size (sf)	48,220
Estimated Cost	\$38.5 million



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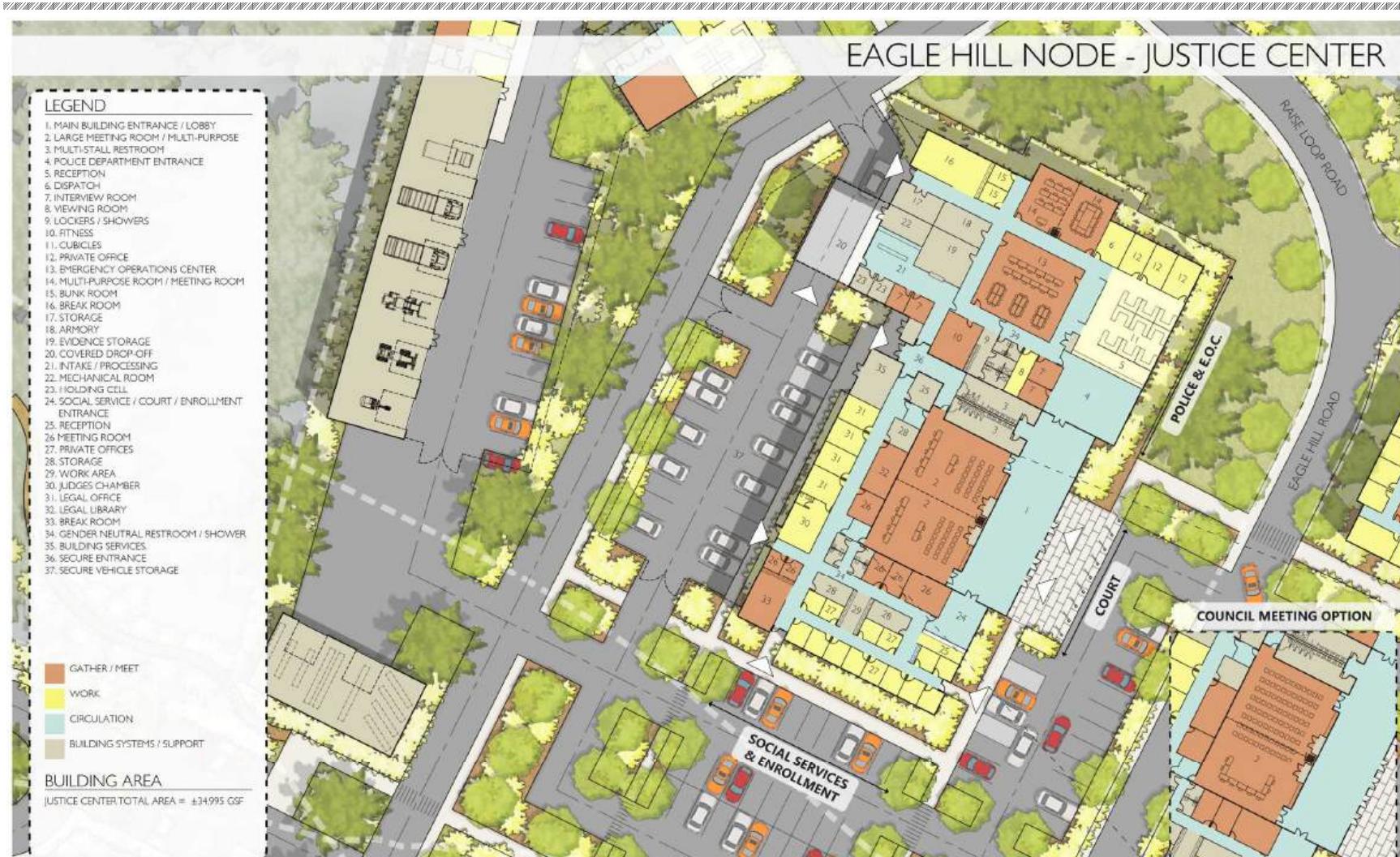
Justice Center

The Justice Center would house the Police Department/Emergency Management, Tribal Court, Social Services, and Enrollment departments in an approximately 35,000 square foot building. The total assumed construction cost for the building is projected to be approximately \$30 million.

Programs/Uses	<ul style="list-style-type: none">• Police• Emergency Management• Tribal Court• Social Services• Enrollment
Estimated Size (sf)	34,995
Estimated Cost	\$29.7 million



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Emergency Operations Storage

The Emergency Operations Storage Building would be shared with the Police Department and would include storage space for the departments and a morgue (in case of disasters). Department equipment and vehicles, such as the Mobile Command Center and response equipment would be stored in this facility, as well as emergency supplies. The total assumed construction cost for the building is projected to be approximately \$6 million.

Programs/Uses	<ul style="list-style-type: none">• Emergency Management• Police
Estimated Size (sf)	19,200
Estimated Cost	\$6 million

Fire Station

The fire station would include up to two bays for vehicles and area for staff and storage. It is assumed at this time that the South Beach Regional Authority would be responsible for construction of this facility. (See Public Works for Illustrative).

Programs/Uses	<ul style="list-style-type: none">• Fire (South Beach Regional Authority)
Estimated Size (sf)	5,600
Estimated Cost	\$2.8 million



COMMUNITY FACILITIES

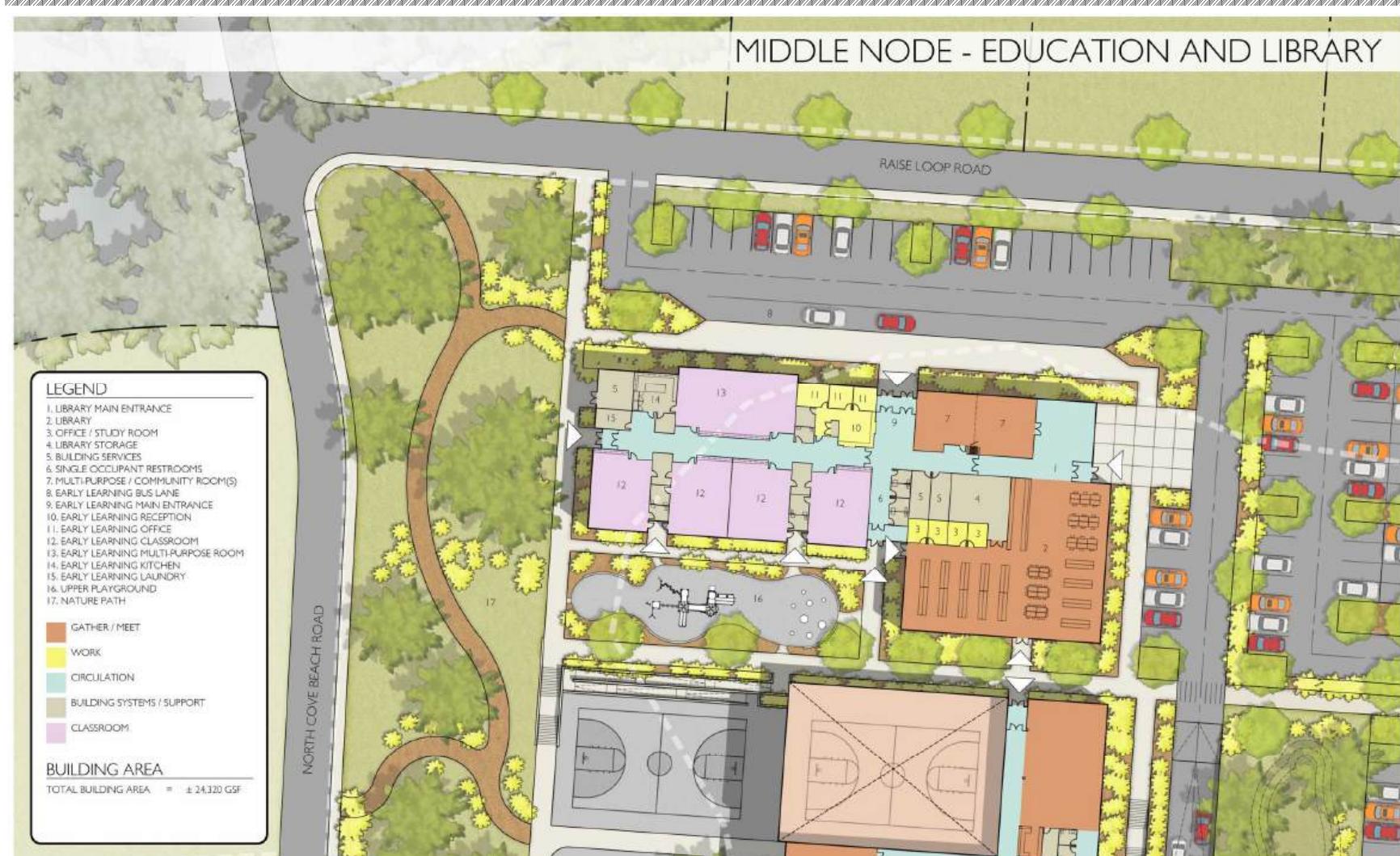
Education/Afterschool Building

The Education/Afterschool Building would serve as a community center library and classrooms, and offices for education staff. The total assumed construction cost for the building is projected to be approximately \$10 million. During the planning process, the planning team considered combining this use with the gym. However, due to concerns with noise from the gym disturbing studying in classrooms, mixing of youth and adults, and the building's size, it was decided to house these uses in separate, but nearby, buildings.

Programs/Uses	<ul style="list-style-type: none">• Library• Education/Afterschool
Estimated Size (sf)	24,320
Estimated Cost	\$9.7 million



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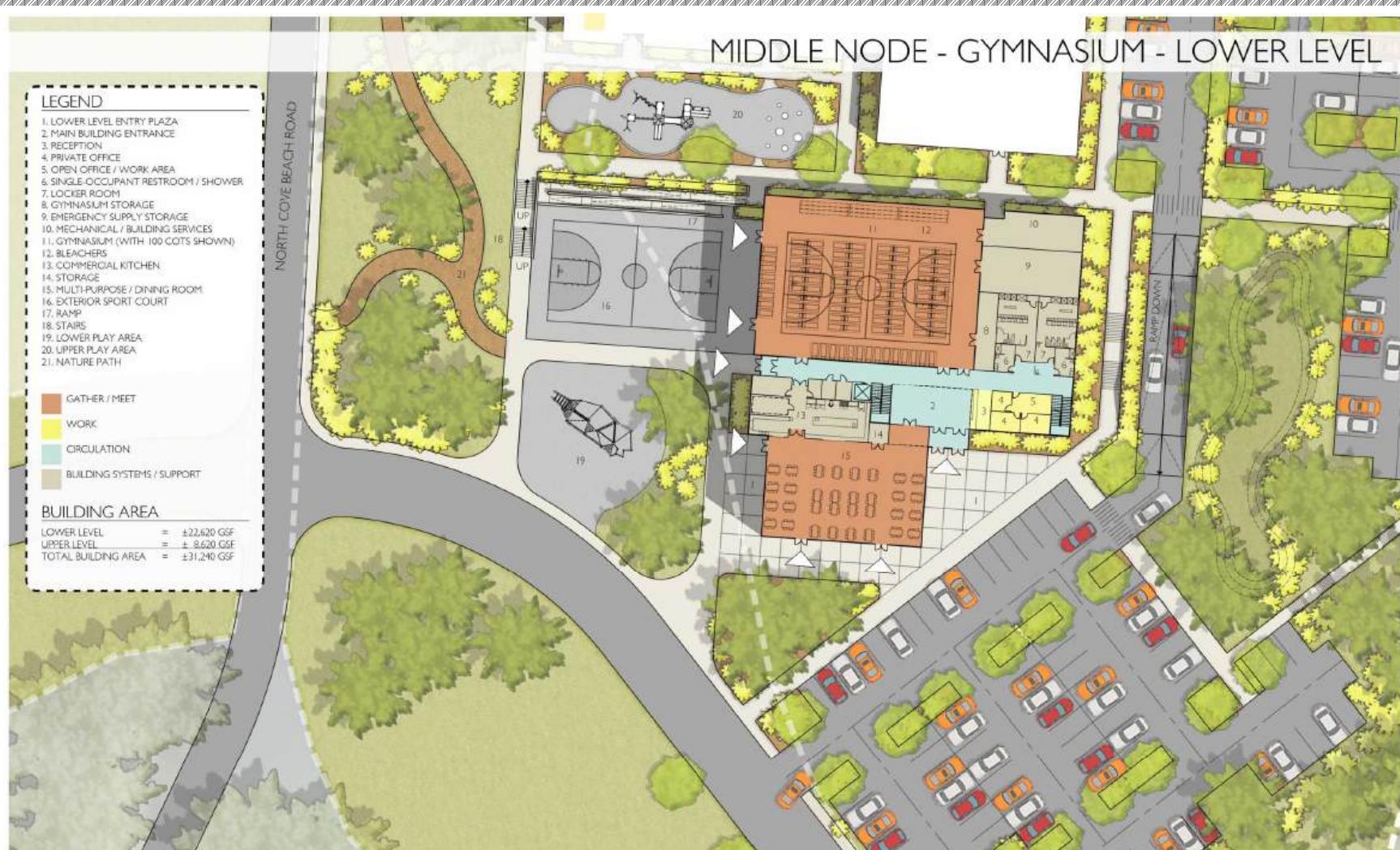
Gym

The Gym would serve as a community center and host a mix of uses, including the gym sports facilities and gym staff. Additionally, a commercial kitchen would be incorporated into the building for use during community meetings and other events. The kitchen would also be open for the Social Services program to prepare meals. The gym would serve as the shelter space for the community in the event of disaster. Storage for disaster supplies is also included. The total assumed construction cost for the building is projected to be approximately \$19 million

Programs/Uses	<ul style="list-style-type: none">• Gym• Storage for Disaster• Commercial Kitchen
Estimated Size (sf)	31,240
Estimated Cost	\$18.7 million



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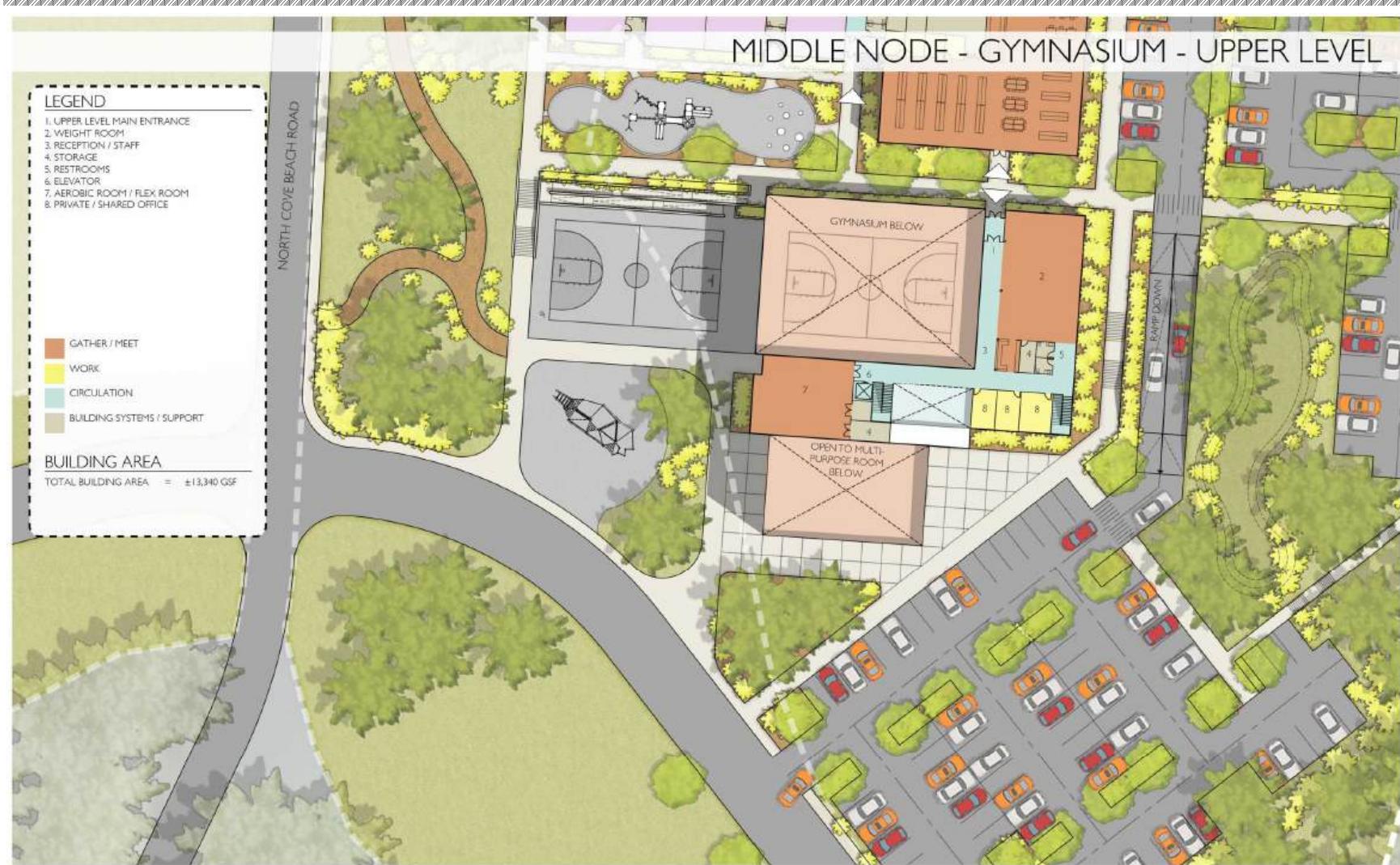


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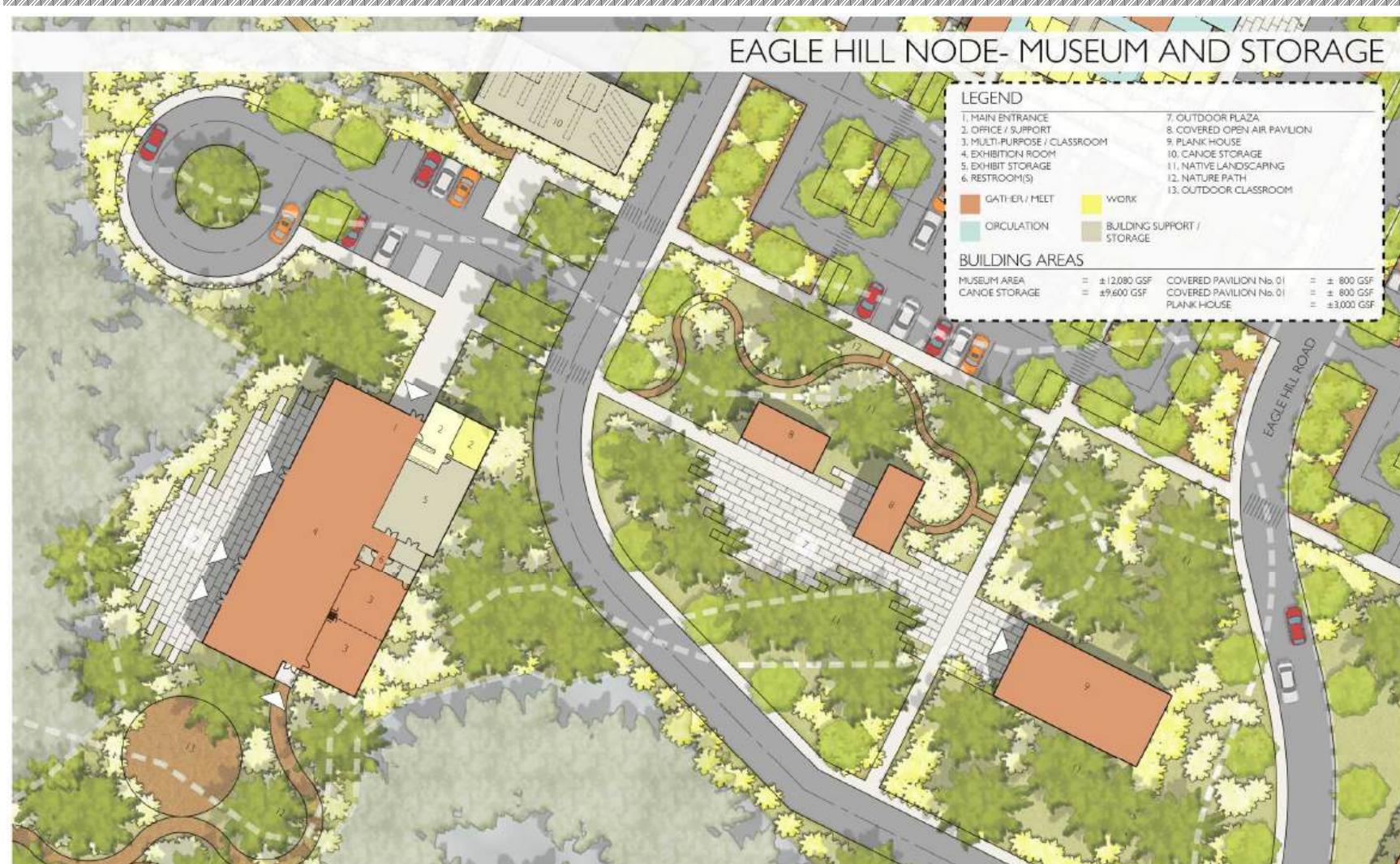
Cultural Center/Museum

The museum would house the cultural center, as it does now and is conceived to require approximately 12,000 square feet. Most of the space would be comprised of display area and offices. The conceptual layout assumes that, in addition to its current program, the museum would have maker space for artists to create art in or for classes. The Staff identified a need for conditioned storage space for artifacts and documents. Additional floor space was set aside for this in the conceptual plan. Construction of such space would support Action 2.4.5 of the Multi-Hazard Mitigation Plan. The total assumed construction cost for the building is projected to be approximately \$7 million. The existing Emergency Operations Center on Eagle Hill Road could be repurposed into a visitor's center that with limited exhibits for tourists, while artifacts, storage, and other exhibits could be housed in a separate cultural center/museum facility. The location of this building is convenient to SR105 and would provide a gateway to the community, while retaining tourists outside of the neighborhoods. This building has kitchen facilities that could be used to fulfill the needs of the café.

Programs/Uses	• Museum
Estimated Size (sf)	12,080
Estimated Cost	\$7.2 million



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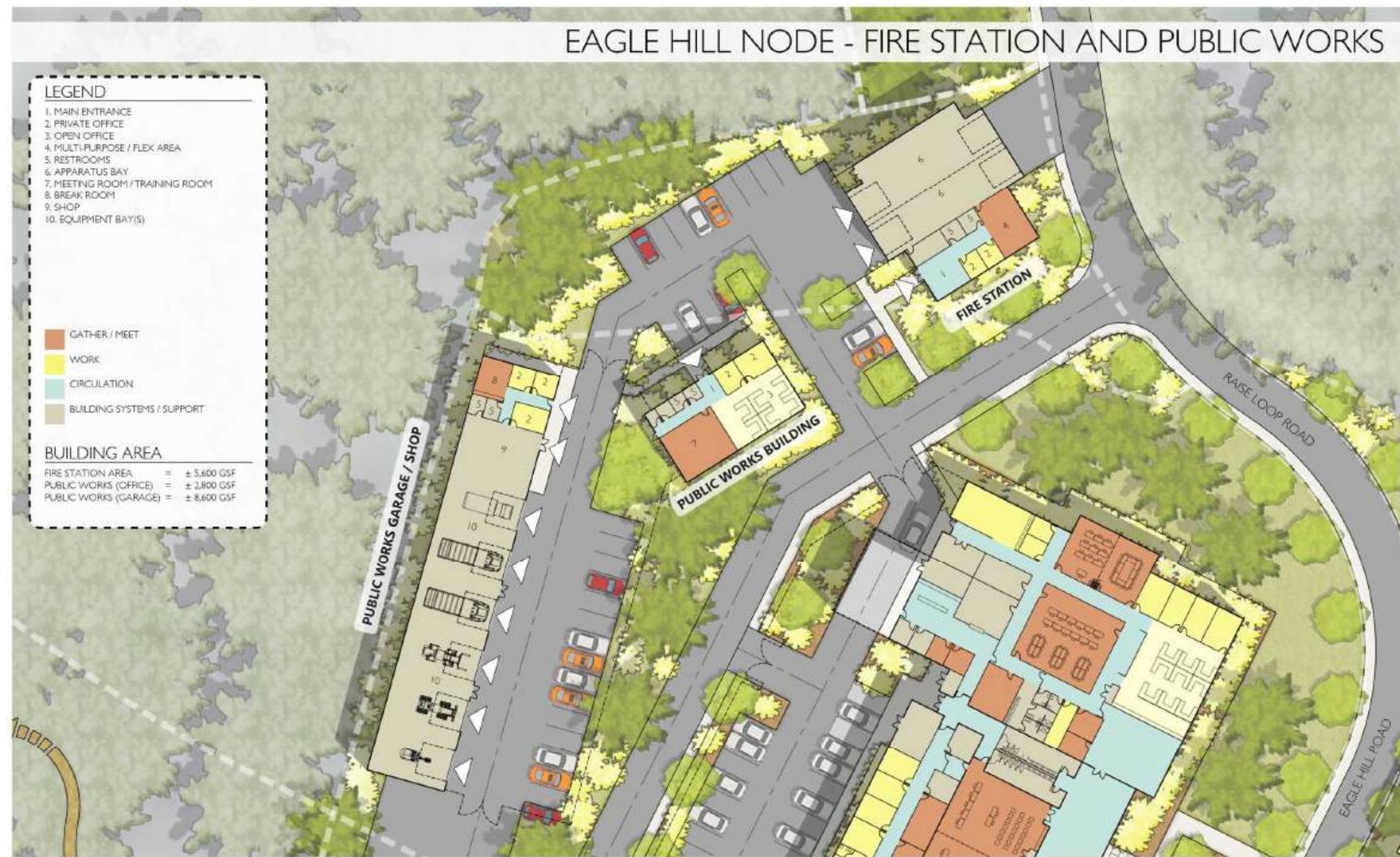
COMMUNITY FACILITIES

Public Works Shop

Programs/Uses	Vehicle, Material, and Equipment Storage for: <ul style="list-style-type: none">• Housing (Maintenance)• Natural Resources• Utilities
Estimated Size (sf)	2,800 (offices) 8,600 (garage and shop)
Estimated Cost	\$1.2 million (offices) \$3.4 million (garage and shop)



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COMMUNITY FACILITIES

Housing Department

The Housing Department facility is envisioned as slightly over twice the area of the existing facility and consist of offices and storage. Storage for maintenance would be adjacent to the building. The total assumed construction cost for the building would likely be around \$1 million. The Housing Department would likely be housed at the Middle Node with a secured yard facility shared among its Maintenance staff, Utilities, and Natural Resources.

Programs/Uses	• Housing
Estimated Size (sf)	2,300
Estimated Cost	\$1 million

Economic Development

Willapa Bay Enterprises did not indicate a need for space in the uplands area. A new casino will not be constructed in the uplands due to gaming restrictions agreed upon when the SBIT lands transitioned from fee to trust lands. While community members indicated a desire for shopping in the community, there is not a large enough population to support such a facility in the uplands. The convenience store/gas station is best positioned for customers on SR105 in its current location.

Parking

The development is located in a rural area. There is a lack of transit routes and many employees drive to work. Because of the site's topography, the development will be spread among the hills over one-and-one-half miles. Even after the community develops in the highlands, there will be Tribal members living in the existing community. Therefore, even with the inclusion of sidewalks and trails, most people will drive to the public facilities and there will be a need for ample parking. Parking lots at existing facilities are often full and there is a desire for more parking to be provided in the upland development. Minimum parking ratios for public facilities, including those in nearby jurisdictions, are five spaces per 1,000 square feet of building. Even with the high number of people driving to these buildings, this amount of parking is likely more than is needed. The previous section identified a need for 177,700 square feet of buildings. At the 5 spaces/1000 feet ratio, this would require 885 spaces. That would accommodate almost twice as many cars as there are Tribal members and staff. Even accounting for future growth, this would be excessive. Parking for each building should be determined at the time of design to meet the needs of that building and should not be tied to a mandated minimum parking ratio. Where feasible and practical, shared parking lots should be designed to support multiple facilities within the nodes to conserve and reduce the required development footprints given the terrain and anticipated high cost of upland site development.



COMMUNITY FACILITIES

Public Building Locations

The Uplands Development Team and the planning team identified preferred locations within the Eagle Hill and Middle Nodes for specific public buildings. These plans are included below as a guide for future development. It is very likely that these configurations may change, as the Tribe's needs evolve over time and as the Tribe obtains funding for the many building projects. Note that building have been laid out to avoid the projected intersections of cut soil and fill soil to best avoid varying settling rates of the different soils.

The Wellness, Administration, and Justice Center anchor the community node, with the Wellness and Administration Buildings sharing parking on the east side of Eagle Hill Road. The Uplands Development Team thought that it was important to have these services above the tsunami zone, yet still as close to the existing community as possible. This is because the Tribe realizes that the move uphill will take many years and many of the members in the existing community will remain there. The Justice Center is to the west of Eagle Hill Road. A loop road serves the Museum, Storage for the Police and Emergency Management, and parking for the Justice Center. The Justice Center has been located in the Eagle Hill Community Node, as staff has indicated a need to be near the Behavioral health facilities of the Wellness Center. The museum/cultural center is located at the southwest of the node, as the area to the west of the building will provide pleasant outdoor space for activities and for cultural activities, such as carving. Garden and park space have been located in the node to be central gathering areas. If necessary, these areas could instead be used for parking and the park or garden located elsewhere in the Eagle Hill Neighborhood.

The Uplands Development Team preferred that the gym and education/afterschool building be away from the main center and located in the Middle Community Node. The layout below shows the facilities sharing a parking lot that could also serve future public building development. Alternatively, apartments could be located at the node, as there will more flat area available for building than in the residential areas. The Uplands Development Team suggested that the Housing Department share a work yard with Utilities and that some Natural Resources vehicles be stored there, as they may be needed in an earthquake/tsunami emergency and the Annex Property would not be accessible at such a time.



Figure 33: The planning, engineering, and architectural teams worked with the Upland Development Team to assign locations and configurations of public facilities at the nodes.



COMMUNITY FACILITIES



Figure 34: Preferred layout for Eagle Hill Community Node. Note that this is conceptual and that locations may change. Grading at the site will affect layout and parking, as well.



COMMUNITY FACILITIES

MIDDLE NODE - OVERALL



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FAX: 503.226.1289
WWW.EXPECIAC.COM

SHOALWATER BAY INDIAN TRIBE - munk-saxali námsčáć
TOKELAW, WASHINGTON

CONCEPT DESIGN DEPICTED REFLECTS GENERAL DESIGN INTENT ONLY. FINAL DESIGN MAY VARY FROM WHAT IS SHOWN.



REVISION: 01
DATE: 2/10/2005
PROJECT #: 24900-61

Figure 35: Preferred layout for Middle Community Node. Note that this is conceptual and that locations may change. Grading at the site will affect layout and parking, as well.



COMMUNITY FACILITIES

Public Building Design

During community engagement events, precedent image surveys were set up around the room for attendees to provide their input on the architectural preferences. The survey consisted of over twenty boards each with six to ten images. Attendees were asked to use green and red stickers to indicate whether the architectural style and feel was compatible with their vision for the new development (green = yes, red = no). Some of the feedback and popular images are included below. Full survey results are in Appendix B.



Civic Images Feedback

- Respondents favored exterior building facades with primarily wood siding, modern forms buildings positioned to be integrated with the surrounding natural landscaping and forest. In addition, exterior concrete walls balanced with wood siding and modern forms were favored.
- Respondents were not drawn to a traditional building shape with pitched roof and panel siding.
- Natural wood finishes, exposed wood structure, open spaces with large windows and natural light were popular.
- Respondents seemed to prefer a warm inviting Council Chamber with a focalized dais and large windows for natural light, but oriented as not to distract from the dais.
- Respondents appeared to heavily discourage open-office spaces with cubicles for Staff and Law Enforcement.
- Warm and inviting spaces were preferred over modern minimalistic spaces.

Community Images Feedback

- Interest was high in buildings with high ceilings, expansive windows, and natural materials such as stone and exposed wood structure.
- Interactive outdoor spaces including community gathering spaces, venues with terraced seating, large playgrounds integrated into the natural landscaping and including natural play, and accessible paths through green space or gardens were well received.

Hospitality Images Feedback

- Natural building materials, display of Tribal artifacts, views of the ocean were popular among Tribal members and Staff.
- Camping areas were well received, while parking for camping trailers was discouraged from both groups.



COMMUNITY FACILITIES

Learning Images Feedback

- Tribal members and Staff favored outdoor learning spaces, buildings with natural wood columns and wood plank siding, large windows, and interior spaces round tables.
- Tribal members and Staff agreed on the above as well as seemed open to metal siding with exposed wood framing and wood accents, paved gathering spaces such as courtyards, and colorful interior finishes.

Nature Images Feedback

- Pedestrian paths through forests made or defined by natural materials, wood pedestrian bridges, and lookout points large enough to gather were widely popular.
- Respondents appreciated wide wooden walkways navigating through natural landscape, and elevated bridges connecting pedestrian areas.

Tribal/Cultural Images Feedback

- Precedent imagery that emphasized the use of natural wood building materials and finishes including wood columns, flooring, and exposed wood beams, we well as totem poles and tribal signage, was favored.
- Building with a steep sloped shed roof and vertical wood siding were discouraged.

Wellness Images Feedback

- Tribal members and Staff highlighted imagery with exterior wood siding and columns, interior wood wall paneling and screen dividers, large windows overlooking interior landscaped courtyards with native art or wall coverings in circulation areas, sliding doors at private exam rooms and indicate a more natural color pallet.
- They also seem to prefer a series of smaller, distributed waiting areas outside wellness areas and an efficient well-laid-out break room with varied seating options.
- Colorful mosaics or murals were discouraged.
- Meeting room privacy was emphasized.



COMMUNITY FACILITIES

Work Images Feedback

- Respondents seemed to prefer office buildings with lap or panel siding and large windows, as well as exposed wood framing and wood ceilings, private nooks, and larger open areas for seating.
- Warm inviting spaces are preferred while work areas feeling cold or industrial were discouraged.



Figure 36: Examples of Image Survey Boards from Initial Meetings



"Triangle pattern with 2 critters and human face."

This design represents the hill and the goal of having tribal people living up there with the critters. – Earl Davis



The background image shows a coastal scene at sunset. The sky is filled with large, billowing clouds illuminated from behind by the setting sun, casting a warm orange glow. Below the horizon, the ocean waves gently wash onto a sandy beach. In the lower right foreground, there is a graphic overlay consisting of a black silhouette of a house with a chimney and a green stylized evergreen tree to its right.

CHAPTER

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HOUSING

HOUSING

Providing people a place to live free of the threat of tsunami is the impetus for this project. Therefore, planning for housing in the upland development is key. This chapter delves into current demographics and housing stock, issues with finding housing, community feedback received regarding housing, different housing types, and projections of housing needs until 2100. The chapter finishes with a discussion of design preferences of the community.

Demographics

The Tribe had a 2024 enrollment of 478. There were an estimated 82 members living on-Reservation in 2023. The Tribe's on-reservation population is growing. According to Decennial Census population counts from 2000 to 2020, Shoalwater Reservation's population has grown by an average of 1.5% per year in the period of 2000 to 2020 surpassing the growth rates of Tokeland (-0.9%) and Pacific County as a whole (0.6%). Were this trend to continue over the coming three generations, the on-Reservation population would nearly double²². Overall membership is increasing by 3.5% annually; this is over twice the rate of Shoalwater Reservation's population growth of 1.5%. While the Tribe has grown, the percentage of members living on the Reservation has dropped. In 2014, 22% of enrolled members lived on Reservation, while in 2024 this figure was about 18%. Enrollment is projected at 1,417 by 2100.

²² SEVA Workshop (2025). *Housing Needs Assessment*.



HOUSING

Existing Housing Stock

There are approximately 40 member owned homes in the vicinity. SBIT currently owns 34 units, all of which are subsidized²³. Two additional units are planned, a duplex on Elm Land and a tiny home on Breezy Way. Five of the units are under mortgage or mutual help and the rest are rental units. There are two duplexes (four units total), which are designed for use by elders. Tribally-owned member housing units are spread throughout the lowland area. Most units are located near the north end of the Tokeland Peninsula. Housing units on Shoalwater Bay Drive were built in 1986, in Georgetown in 1992, and Elm Street in 1999 and 2000. Homes on the north side of SR105 west of the casino were constructed in 1999-2000. The five homes on Blackberry Lane, closer to the southern end of the peninsula, were developed in 2011. Two duplexes are being designed at the intersection of Eagle Hill Road and Forest Road. There is not much turnover in units – people tend to stay in their units for decades. The Housing Department is currently concentrating on the installation of tiny homes, as they are easier to relocate to higher ground than standard homes.



Figure 37: New tiny home on Elm Ln.

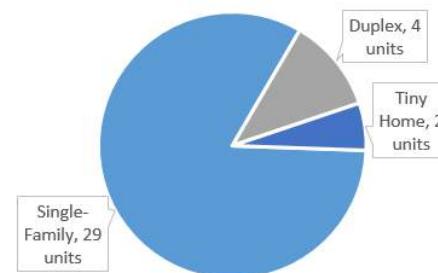


Figure 38: Existing Housing Inventory
(from Housing Needs Assessment)

²³ Interview with Joel Blake, September 4, 2024



Difficulty in Finding Housing On and Near the Reservation

Housing is difficult to find near the Shoalwater Bay Reservation. There is a waiting list for SBIT housing; the priority waiting list currently has 37 Tribal members and the secondary list has 34 applicants. 80% of the waiting list is between ages 18 and 24. Currently, telecommuting is discouraged for SBIT government jobs, which means that employees need to live near the Reservation. The Tribe owns 33 subsidized rentals, which are available to Tribal members at a flat rate far below market rents. Generally, once a family moves in, the family remains in the house until death, limiting turnover in the housing market and opportunities for others seeking housing. The current waitlist for tribal housing is 25 applicants long, mostly younger adults. Existing policy gives those on the waiting list the longest the first choice of available homes, unless there is someone facing homelessness or is transferring from a Tribally-owned house to another Tribally-owned house. Therefore, per the existing policy, those moving into new units on higher ground would have priority over others (except those facing homelessness) for new housing, as they would be transferring to a unit in the SBIT Housing inventory.

The difficulty in finding housing locally has forced younger working-age Tribal members to live off-reservation in search of better employment and housing, despite feeling the draw to be close to family and Tribal culture on the reservation. There are members who leave the Reservation for college or employment and then want to return to the Reservation, but cannot because of the lack of housing opportunities.

Most SBIT staff commute for work along SR 105 corridor, between Westport and Raymond. The lack of available, affordable housing limits SBIT's ability to recruit new staff. Willapa Bay Enterprises employees struggle to live near Tokeland. Willapa Bay Enterprises manages seven housing units for workers. Very few Tribal members work for the Enterprises, so it is unlikely that the move to higher ground will increase the number of Willapa Bay Enterprises employees living in proximity to the Reservation. There has not been an impetus to provide housing for non-members in the upland area.

Community Feedback

In 2021 and 2024, members were surveyed about their needs and vision for housing in the uplands area. Results of the surveys are as follows:

- In 2021, members identified additional housing, environmental preservation, and cultural development as the most important future land use needs.



HOUSING

- The small proportion (approximately 17%) of members living on-Reservation is driven partly by choice, but also by the lack of local employment and housing options.
- The cost of housing is the top housing-related challenge that Tribal members see in their community
- 45% rented and 45% owned a home in 2021. The cost of a new home was cited as the most important factor in deciding whether to move to higher ground.
- Over half of survey takers had relatives who would move to the Reservation if there was housing available.
- 85% of respondents indicated that relocation to higher ground is very important for the longevity of the Tribe. Three-quarters of respondents indicated that climate change is a threat to the community. 58% would consider relocation for themselves to the upland area. If homeowners could sell their homes at fair market value, approximately 60% of homeowners would consider relocating to higher ground.
- More than half of respondents indicated no preference for having the same neighbors as they do now if they were to relocate.
- Approximately one-quarter of respondents indicated that they had people in their homes that had difficulty climbing stairs and that they would want a home equipped with accommodations for a disabled person.
- Over 80% of respondents listed a single family home as a preferred living arrangement rather than an apartment. If respondents were to relocate, 41% would prefer a 3-bedroom house, 24% would prefer a 2-bedroom house, 18% percent would prefer a 4-bedroom house, 8% would prefer a 1-bedroom house, and 3%, a house with five or more bedrooms. Six percent were unsure of the needed number of bedrooms. Over three-quarters of respondents indicated a desire for a garage. Two-thirds of respondents said that a yard was very important, even when presented with an option for shared community space.
- Two-thirds of respondents had between 1 and 3 vehicles and/or boats on their properties, 10% had 4 and 14% had five or more.
- 80% of respondents were happy with their current lot size and living arrangement.
- Seven percent of respondents an ideal lot size of less than one-eighth of an acre. 17% desired a lot one-eighth to one-third of an acre, 16%, a lot one-third to one-half acre, 25% a lot one-half to one acre, 19% a lot one to five acres, 4% a lot five to ten acres. Ten percent preferred a lot ten acres or larger. Half of the respondents said that they would pay an additional fee to lease a lot greater than five acres with half of those respondents indicating that they would use the larger lot for non-residential purposes.



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The survey responses show strong support for the relocation effort. However, only around 60% respondents indicated that they would move to higher ground. This information suggests that not all residents are looking to move to the uplands in the short-term, so lots do not need to be allocated for all families in the existing community in early phases of the project. The responses and the information provided by staff indicate that housing in the upland development should be mostly single-family homes.

Single-Family Homes

There is a general desire for larger lots, as almost 80% of respondents preferred lots greater than one-third of an acre. An unidentified tribal member is quoted in the 2025 Housing Needs Assessment as saying “people don’t want to be right next to each other”²⁴, indicating a desire for larger-lot, single family development, rather than cottage homes or townhomes. Half acre to acre lots would meet the lot size preferences of a large portion of the community and be able to support 2-, 3-, and 4-bedroom homes.

Given the topography of the site and the need to move many families to higher ground, lots larger than one acre are likely infeasible, at least in the earlier phases of development. One-acre lots would meet the Pacific County requirements for septic systems that the Tribe is choosing to follow; this is important as some phases may be constructed before completion of a wastewater treatment system for the new development. There is a high number of families with disabled members. This should encourage the Housing Department to consider universal design principles in design of the homes for which it will be responsible (e.g., ramps, a bedroom on the ground floor). Homes provided by the Tribe should be designed for intergenerational living. Director Blake indicated that an additional 40 units would be ideal and would absorb the current waiting list.

Apartments

The Housing Director indicated that an apartment complex is needed, but the Housing Department is not sure how well received it would be in the community. Apartments for singles or small families could provide an opportunity to demonstrate that they will be good renters of single family homes in the future. Other members asked for housing beyond single family homes to accommodate a wider range of family units; this includes a greater number of single occupancy units. These smaller units can provide younger people and families a chance to prove themselves to be responsible home renters or buyers. Multi-family housing, such as apartments, will be difficult to fit on most of the residential lots given the amount of buildable areas on many of the lots. Likely locations for these units will be at the Eagle Hill, Middle, or West nodes, where there would be ample flat space or perhaps along Forest Road near the Eagle Hill node. These units would preferably single story to be available for housing those with accessibility

²⁴ SEVA Workshop (2025). *Housing Needs Assessment*.



HOUSING

issues. Multi-family units may attract younger people to return to the reservation. The Place of Hidden Waters townhouse development on the Puyallup Reservation could serve as a model.

Elders and Aging-in-Place

Given the importance of elders to the community, there have been past discussions of an assisted living facility in the uplands. During a September 2024 interview, Housing Director Joel Blake suggested that a 10 to 15-room assisted living facility could be an asset to the community²⁵. A Tribal member interviewed for the 2025 Housing Needs Assessment indicated that many elders would not want to leave their homes for an assisted living facility, as they would be leaving the same plots of land as their ancestors lived on. The Social Services Department provides in-home care services to these elders staying in their homes. Due to this sentiment and no previous efforts to build an assisted living facility, one has not been included in the plan. However, because of Elders' desires to stay in their homes, the Housing Department should design homes for residents to be able to age-in-place.

Transitional Housing

Housing Director Joel Blake also suggested that a 5- to 10-unit transitional housing development of tiny homes or small cottages with space for meeting with a counselor could be a useful facility in the uplands²⁶. This type of facility is becoming more common across the country. A facility could help members who may be coming back to the community after drug rehabilitation or other separation from the community and may not be ready to take care of a home or live with others. This facility would likely be placed on a single family lot with adequate flat area. Lots fitting these criteria are found in the *t'ip-san iliʔi* (West) neighborhood or along Ridge or Forest Roads.

Ownership

Director Blake indicated a desire that there should be a mix of owner-owned and Tribal-owned homes in each area, perhaps even on alternating lots, to create mixed-income areas throughout the new development and reduce chances of certain areas becoming stigmatized. There was interest in the community for people to build their own homes, rather than relying on the Tribe. Although 41 SBIT members surveyed for this plan are interested in building upland if lots are available and affordable, most of these members would need additional financial support to do so, according to the Housing Needs Assessment.

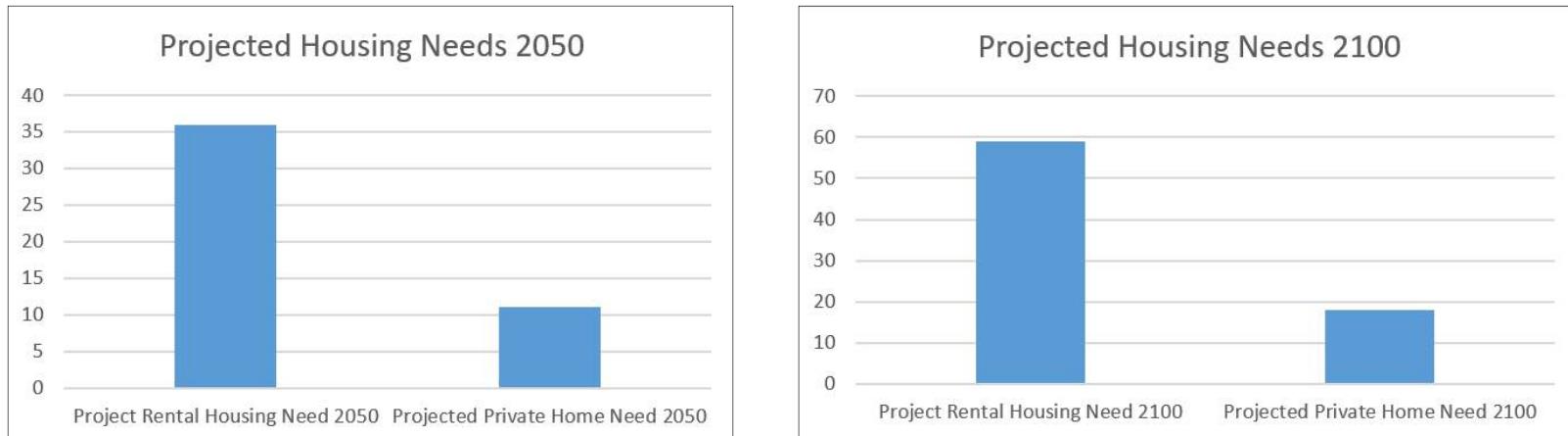
²⁵ Interview with Joel Blake, September 4, 2024

²⁶ Interview with Joel Blake, September 4, 2024



Future Demand

Per the Housing Needs Assessment, the population of SBIT members living on Shoalwater Bay Reservation and off-Reservation trust land is projected to rise from 82 members, or 48 households in 2025, to 158 members, or 79 households in 2100. The Housing Needs Assessment also projects a need for 50 units (39 rental units and privately developed 11 lots) within the next 25 years and 59 rental units and 18 privately developed lots for homebuyers by 2100. Please refer to the Housing Needs Assessment for further detail. Looking ahead three generations, the 2025 Housing Needs Assessment indicates a need for 77 houses by 2100.



Housing Board

A new Housing Board is being set up currently. The Committee will make suggestions to Council regarding housing. The Committee will make recommendations regarding policy and rental increases. In the future, the Department may need to add staff for maintenance and to assist the Housing Director, preferably to assist with home ownership counseling and loan opportunities.

Design

Conceptual design for multifamily housing was been completed as part of this Master Plan. The plans are conceptual and will change at the time of project planning. The multi-family units were placed in the Middle Node near the Housing Department. A mix of one- and two-unit apartments have been depicted (24 total). The units shown are single-story, as these units would be more easily accessible to a range of residents. However, if there were sufficient demand, additional floors could be added. The placement and programming of the units is shown in the following illustrative diagrams.



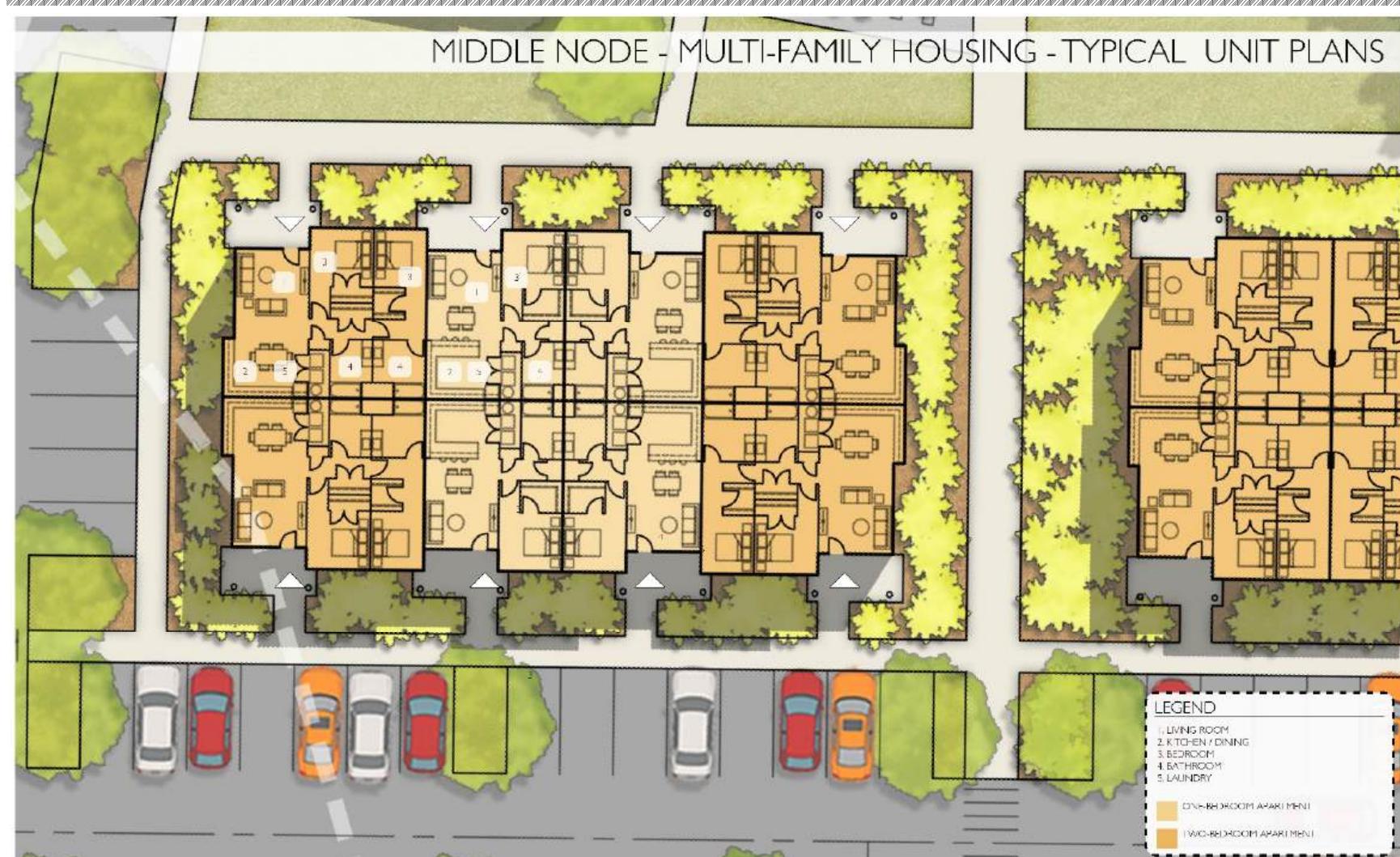
HOUSING



Figure 39: Potential layout of Multi-family Housing



HOUSING



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TOKELAU, WASHINGTON

CONCULTURE CONSULTING GROUP INC. | DRAKE DESIGN GROUP INC. | LEEDERS PLANNING INC. | BENTON HALL INC.



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munk-saxali námsčáć

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As with the public buildings, during community engagement events, precedent image surveys were set up around the room for attendees to provide their input on the architectural preferences. The survey consisted of over twenty boards each with six to ten images. Attendees were asked to use green and red stickers to indicate whether the architectural style and feel was compatible with their vision for the new development (green = yes, red = no). Some of the feedback and popular images are included below. Full survey results are in Appendix B.

Multi-family Residential Images Feedback

- Inspiration-celebrating exterior community spaces with buildings overlooking centralized activity space and gardens were favored.
- Responses more balanced between manicured and natural landscaping.

Residential Interior Images Feedback

- Living and kitchen spaces with counter seating, natural light and wood burning furnace were favored. Color, either though cabinetry or accent paint, was welcomed, though respondents seemed to favor a slightly more natural palette.

Single Family Residential Images Feedback

- Tribal members and Staff appreciated a more modern building form and an attached deck.
- More traditional building form with modern accents were preferred.
- Large windows and green space were favored.



HOUSING



Figure 41: Examples of Image Survey Boards from Initial Meetings



"Coyote". Coyote often appears as both the hero and villain or buffoon. A great reminder of our teachings of balance and also that humanity and individuals are complicated and never all good or all bad. – Earl Davis



CHAPTER
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k'wayts



NEIGHBORHOODS
AND PHASING

NEIGHBORHOODS AND PHASING

The uplands area can be broken up into several neighborhoods to help describe the preferred locations of development and phasing of development. These neighborhoods are shown in Figure 41 and are described below.

Eagle Hill

The Eagle Hill Neighborhood includes the area of the hill at the northern end of Eagle Hill Road, excluding Ridge Road. The eastern stretch of RAISE Loop Road and lands to its south and all of Forest Road are within this neighborhood. Existing structures in the neighborhood include the Emergency Operations Center and one home. Two duplex units are currently in design for the intersection of Eagle Hill Road and Forest Road. The area along Forest Road has the potential for some of the deepest lots for development in the entire upland area.

The Eagle Hill Neighborhood is the closest area to SR105 and the existing community. There is also the potential for a village center with community buildings within this neighborhood, given a fair amount of grading. This village center may not be large enough to house all of the public facilities and these facilities may need to be located along Forest Road as well, lowering potential housing lots. Preliminary one-acre lot layouts indicate that with site grading, it may be possible to develop 13 one-acre lots along Forest Road in addition to the two duplexes already under design at the intersection of Forest Road and Eagle Hill Road. Six one-acre lots may be developable along RAISE Loop Road and nine lots along the ridge to the south of RAISE Loop Road approximately 1700 feet west of Eagle Hill Road.

kitəp-san iliʔi (East)

The *kitəp-san iliʔi*, or East, Neighborhood is the area along Ridge Road, east of Eagle Hill Road. The area runs along the ridgeline with access to the west via Eagle Hill Road and to the east via a trail down the hill to Tribal Lake Road. The terrain is steep on both sides of Ridge Road; however, there are some areas that can be graded to allow for fair sized lots. Preliminary one-acre lot layouts indicate that with site grading, it may be possible to develop 28 one-acre lots along Ridge Road.

mulak (Elk)

The *mulak* (Elk) Neighborhood surrounds the intersection of the RAISE Loop Road and North Cove Beach Road. The area at the intersection of RAISE Loop Road and North Cove Beach Road presents an opportunity for a village center of public buildings. There are few residential opportunities along North Cove Beach Road and RAISE Loop Road. This limits the potential for a walkable neighborhood around the village center. Preliminary one-acre lot layouts indicate that with site grading, it may be possible to develop 11 one-acre lots along North Cove Beach Road as it comes up the hill from the shore. These lots would be along a steep section of the road and may not be desirable for development. Additionally, three lots could be developed on a potential road to the nanich neighborhood to the south. It



NEIGHBORHOODS AND PHASING

would not be advisable to develop these lots until the infrastructure to the *nanich* neighborhood is developed, given the cost of developing the road to yield only three lots. The area most amenable to development is along a short ridge due west of the potential village center, which may be able to support up to six one-acre lots.

nanich (View)

The *nanich* Neighborhood is on a promontory overlooking North Cove. The area is encumbered by potential murrelet habitat and a 100-meter buffer around the potential habitat. In the encumbered area, roads can be built, but no structures. The site offers potential views across Shoalwater Bay and the ocean below (depending on future tree cover). To access the *nanich* neighborhood, an approximately 0.5-mile road will need to be upgraded. Preliminary one-acre lot layouts indicate that with site grading, it may be possible to develop 17 one-acre lots in this phase.

Given the limited development potential for the neighborhood and the cost of extensively upgrading the existing 0.5-mile-long dirt road, it should be considered a low priority for residential development. Given the views from the neighborhood, commercial development for tourism may be possible and may warrant development of the road. However, gaming is not permitted in the neighborhood, as part of the fee-to-trust agreement with the federal Government. Cultural use of the site would also be appropriate and might need fewer upgrades to the existing dirt road.

t'ip-san iliʔi (West)

The west neighborhood is on the bluffs overlooking Washaway Beach and Grayland. It is the flattest area in the uplands. And as a result was at one point the Tribe's preferred development site. Unfortunately, it is also the furthest from accessibility to existing infrastructure (transportation and utility). Any direct roads to this development are challenged by the steep south and west facing slopes with the west facing slope also environmental sensitive murrelet habitat. As a result, this flat area providing the largest and flattest area is recommended for later phased development.

A series of logging roads serves the site. However, no infrastructure serving the site will be constructed during the RAISE Loop project, increasing potential costs for development of the neighborhood. There is no existing second access to the neighborhood; a second access would be necessary for development, in case damage occurred to the one access road. This second access could be as basic as a one-lane gravel road.

The size of the flat area presents the best opportunity in the uplands to create a walkable village center surrounded by housing. There is space for a campus of public buildings as well as a park of greater than two acres in the central part of the neighborhood. Homes would stretch to the south along the ridge, as well. Preliminary one-acre lot layouts indicate that with site grading, it may be possible to develop 50 one-acre lots along Ridge Road with 1.5 acres apiece set aside for park space and apartments.



qáqəsút (Cedar River)

This neighborhood encompasses the lands north of the RAISE Loop Road and will remain undeveloped, except for utility facilities, such as the wastewater treatment plant, communications tower, a larger main water system tank reservoir, and renewable energy facilities and storage. The area drains to the headwaters of qáqəsút (the Cedar River).

Project Phasing

In order to develop the upland properties in a cost effective manner, it is recommended that development be carried out in many phases. There are several reasons to do so. These include:

- Lesser initial capital expenditure, requiring more manageable grant requests
- Manageable construction areas
- Short construction season windows

The most effective way to phase the plan is to develop by neighborhood. Each of the neighborhoods has been further broken down into smaller areas associated with a phase. The suggested phases and order of development are shown in Table 2 and Figure 42. The Tribe's residential demand for the next 25 years (50 units) could be satisfied by the development of Phases 2 and 3. The projected 2100 residential needs of the Tribe (77 units) could be fulfilled through the development of Phases 2, 3, and 4. Alternatively, the need could be fulfilled by the development of Phase 5 with some buildout of Phase 1.



NEIGHBORHOODS AND PHASING

Phase	Neighborhood	Estimated Residential Yield	Estimated Public Building Square Footage
1	RAISE Loop Road and IHBGC (Road Construction only)	N/A	N/A
2A	Eagle Hill Residential #1	15	0
2B	Eagle Hill Public	0	135,900
2C	Eagle Hill Residential #2	9	0
3	<i>kitəp-san iliʔi</i> (East)	30	0
4A	<i>mulak</i> (Elk) Public	6	41,500
4B	<i>mulak</i> (Elk) Residential #1	11	0
4C	<i>mulak</i> (Elk) Residential #2	7	0
4D	<i>mulak</i> (Elk) Residential #3	6	0
4E	<i>mulak</i> (Elk) Residential #4	3	0
5	<i>t'ip-san iliʔi</i> (West)	65	0
6	<i>nanich</i> (View)	17	0
	<i>TOTAL</i>	169	176,150

Table 2: Project Phasing



NEIGHBORHOODS AND PHASING

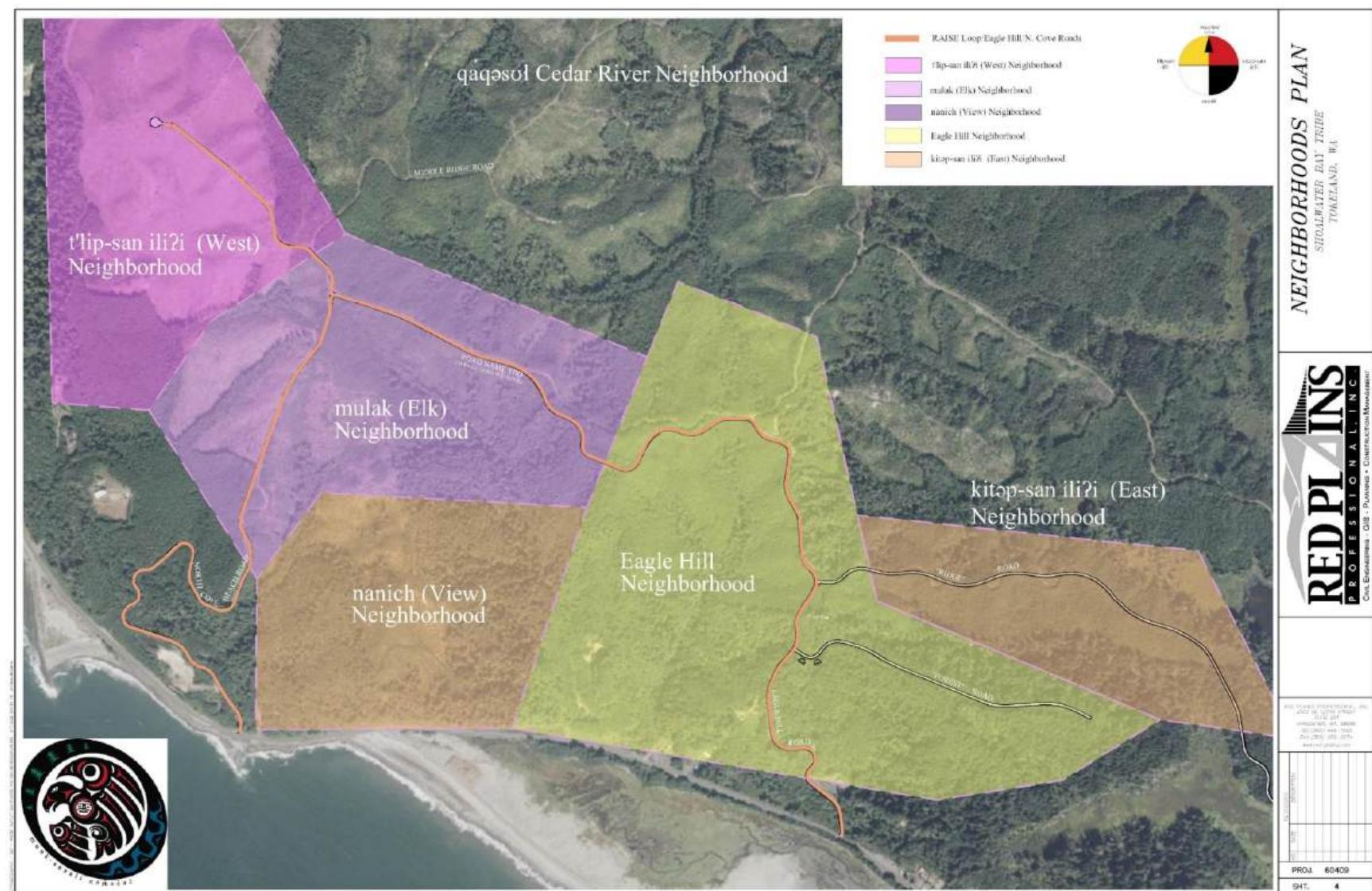


Figure 42: Neighborhoods Map



NEIGHBORHOODS AND PHASING

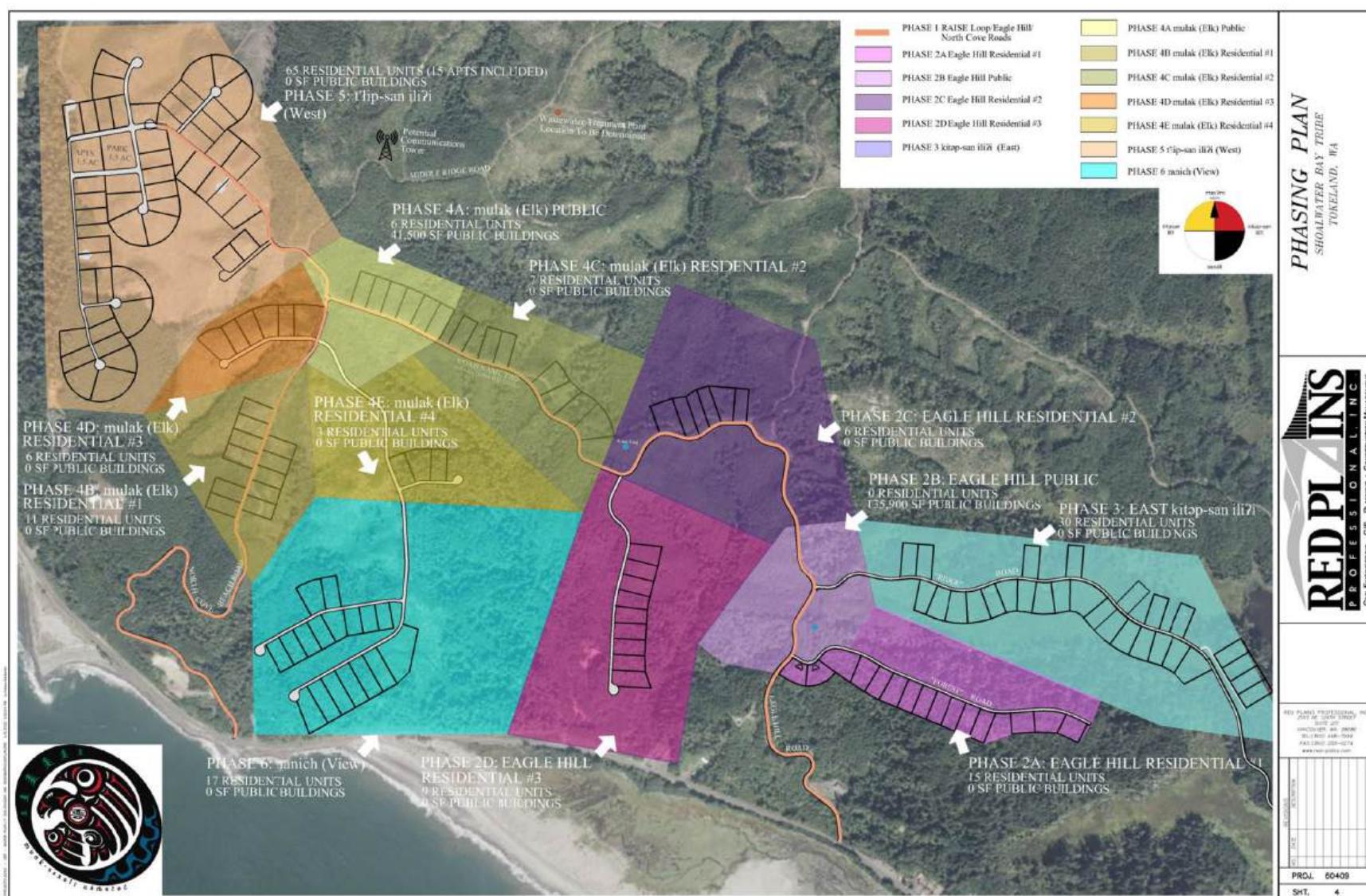


Figure 43: Phasing Plan



NEIGHBORHOODS AND PHASING

Project Costs

Based on a conceptual design prepared in June 2025, Red Plains Professional prepared an Opinion of Probable Cost (OPC) for the infrastructure of the project. The OPC broke down the costs for each phase of the project and each type of infrastructure. The OPC considered water, sewer, and drainage infrastructure. The OPC is an estimate based on a conceptual plan; therefore, the actual project costs will differ from the estimate. Most likely costs will increase as time passes. Earthwork costs include grading and clearing/grubbing. General costs include erosion control, traffic control, and other miscellaneous items. The cost of wastewater infrastructure may change depending on which location or locations are chosen for the treatment plant(s). Please note that Phase 1 will be graded to only for the road construction; grading for homes and community nodes will be independent of this grading and happen when the homes are developed. The costs of Tribal buildings and housing is not included in this estimate.

PHASE 1 INFRASTRUCTURE (RAISE LOOP)	
Infrastructure Type	Estimated Cost
Water	\$619,000
Wastewater	\$360,000
Stormwater	\$257,000
Earthwork	\$2,818,000
Roads	\$1,621,000
Walls	\$0
General	\$48,000
Power/Communications	\$904,750
Streetlights	\$180,000
RAISE LOOP SUBTOTAL	\$6,807,750
15% Mobilization Charge	\$1,021,163
30% Concept Level Contingency Factor of Subtotal	\$2,042,325
RAISE LOOP TOTAL	\$9,871,238

Table 3: Projected Cost of RAISE Loop Road

PHASE 1 INFRASTRUCTURE (EAGLE HILL ROAD)	
Infrastructure Type	Estimated Cost
Water	\$195,000
Wastewater	\$66,000
Stormwater	\$39,000
Earthwork	\$1,050,000
Roads	\$614,000
Walls	\$0
General	\$65,000
Power/Communications	\$255,750
Streetlights	\$60,000
EAGLE HILL SUBTOTAL	\$2,344,750
15% Mobilization Charge	\$351,713
30% Concept Level Contingency Factor of Subtotal	\$703,425
EAGLE HILL TOTAL	\$3,399,888

Table 4: Projected Cost of Eagle Hill Road



NEIGHBORHOODS AND PHASING

PHASE 1 INFRASTRUCTURE (NORTH COVE BEACH ROAD)	
Infrastructure Type	Estimated Cost
Water	\$430,000
Wastewater	\$258,000
Stormwater	\$327,000
Earthwork	\$1,633,000
Roads	\$1,696,000
Walls	\$1,430,000
General	\$48,000
Power/Communications	\$1,204,500
Streetlights	\$124,000
EAGLE HILL SUBTOTAL	\$7,838,500
15% Mobilization Charge	\$1,175,775
30% Concept Level Contingency Factor of Subtotal	\$2,351,550
EAGLE HILL TOTAL	\$11,365,825

Table 5: Projected Cost of North Cove Beach Road

PHASE 2A EAGLE HILL RESIDENTIAL #1	
Infrastructure Type	Estimated Cost
Water	\$286,000
Wastewater	\$131,000
Stormwater	\$107,000
Earthwork	\$5,250,000
Roads	\$359,000
Walls	\$0
General	\$81,000
Power	\$337,500
Streetlights	\$67,000
PHASE 2A SUBTOTAL	\$6,618,500
15% Mobilization Charge	\$992,775
30% Concept Level Contingency Factor of Subtotal	\$1,985,550
PHASE 2A TOTAL	\$9,596,825

Table 6: Estimated Cost of Phase 2A



NEIGHBORHOODS AND PHASING

PHASE 2B EAGLE HILL PUBLIC	
Infrastructure Type	Estimated Cost
Water	\$168,000
Wastewater	\$168,000
Stormwater	\$805,000
Earthwork	\$2,124,000
Roads	\$1,167,000
Walls	\$0
General	\$1,197,000
Power/Communications	\$600,000
Streetlights	\$0
PHASE 2B SUBTOTAL	\$6,229,000
15% Mobilization Charge	\$934,350
30% Concept Level Contingency Factor of Subtotal	\$1,868,700
PHASE 2B TOTAL	\$9,032,050

Table 7: Estimated Cost of Phase 2B

PHASE 2C EAGLE HILL RESIDENTIAL #2	
Infrastructure Type	Estimated Cost
Water	\$0
Wastewater	\$0
Stormwater	\$0
Earthwork	\$661,000*
Roads	\$0
Walls	\$0
General	\$0
Power/Communications	\$0
Streetlights	\$0
PHASE 2C SUBTOTAL	\$661,000
15% Mobilization Charge	\$99,150
30% Concept Level Contingency Factor of Subtotal	\$198,300
PHASE 2C TOTAL	\$958,450

*Earthwork for lots only, as road and utilities are part of Phase 1

Table 8: Estimated Cost of Phase 2C



NEIGHBORHOODS AND PHASING

PHASE 2D EAGLE HILL RESIDENTIAL #3	
Infrastructure Type	Estimated Cost
Water	\$225,410
Wastewater	\$103,247
Stormwater	\$84,332
Earthwork	\$4,137,778
Roads	\$282,945
Walls	\$0
General	\$63,840
Power/Communications	\$266,000
Streetlights	\$53,000
PHASE 2D SUBTOTAL	\$5,216,553
15% Mobilization Charge	\$782,483
30% Concept Level Contingency Factor of Subtotal	\$1,564,966
PHASE 2D TOTAL	\$7,564,001

Table 9: Estimated Cost of Phase 2D

PHASE 3 <i>kitap-san iliipi</i> EAST	
Infrastructure Type	Estimated Cost
Water	\$370,000
Wastewater	\$192,000
Stormwater	\$130,000
Earthwork	\$4,075,000
Roads	\$860,000
Walls	\$0
General	\$29,000
Power/Communications	\$484,750
Streetlights	\$67,000
PHASE 3 SUBTOTAL	\$6,207,750
15% Mobilization Charge	\$931,163
30% Concept Level Contingency Factor of Subtotal	\$1,862,325
PHASE 3 TOTAL	\$9,001,238

Table 10: Estimated Cost of Phase 3



NEIGHBORHOODS AND PHASING

PHASE 4A <i>mulak</i> (PUBLIC)	
Infrastructure Type	Estimated Cost
Water	\$120,000
Wastewater	\$120,000
Stormwater	\$1,430,000
Earthwork	\$1,808,143
Roads	\$1,167,000
Walls	\$0
General	\$428,571
Power/Communications	\$0
Streetlights	\$0
PHASE 4A SUBTOTAL	\$5,073,714
15% Mobilization Charge	\$761,057
30% Concept Level Contingency Factor of Subtotal	\$1,522,114
PHASE 4A TOTAL	\$7,356,886

Table 11: Estimated Cost of Phase 4A

PHASE 4B <i>mulak</i> RESIDENTIAL #1	
Infrastructure Type	Estimated Cost
Water	\$0
Wastewater	\$0
Stormwater	\$0
Earthwork	\$800,000*
Roads	\$0
Walls	\$0
General	\$0
Power/Communications	\$0
Streetlights	\$0
PHASE 4B SUBTOTAL	\$800,000
15% Mobilization Charge	\$120,000
30% Concept Level Contingency Factor of Subtotal	\$240,000
PHASE 4B TOTAL	\$1,160,000

*Earthwork for lots only, as road and utilities are part of Phase 1

Table 12: Estimated Cost of Phase 4B



NEIGHBORHOODS AND PHASING

PHASE 4C <i>mulak</i> RESIDENTIAL #2	
Infrastructure Type	Estimated Cost
Water	\$0
Wastewater	\$0
Stormwater	\$0
Earthwork	\$995,000
Roads	\$0
Walls	\$0
General	\$0
Power/Communications	\$0
Streetlights	\$0
PHASE 4C SUBTOTAL	\$995,000
15% Mobilization Charge	\$149,250
30% Concept Level Contingency Factor of Subtotal	\$298,500
PHASE 4C TOTAL	\$1,442,750

*Earthwork for lots only, as road and utilities are part of Phase 1

Table 13: Estimated Cost of Phase 4C

PHASE 4D <i>mulak</i> RESIDENTIAL #3	
Infrastructure Type	Estimated Cost
Water	\$79,444
Wastewater	\$36,389
Stormwater	\$29,722
Earthwork	\$74,000
Roads	\$99,722
Walls	\$0
General	\$22,500
Power/Communications	\$93,750
Streetlights	\$20,000
PHASE 4D SUBTOTAL	\$435,528
15% Mobilization Charge	\$65,329
30% Concept Level Contingency Factor of Subtotal	\$130,658
PHASE 4D TOTAL	\$631,515

Table 14: Estimated Cost of Phase 4D



NEIGHBORHOODS AND PHASING

PHASE 4E <i>mulak</i> RESIDENTIAL #4	
Infrastructure Type	Estimated Cost
Water	\$227,741
Wastewater	\$104,315
Stormwater	\$85,204
Earthwork	\$74,000
Roads	\$285,870
Walls	\$0
General	\$64,500
Power/Communications	\$268,750
Streetlights	\$54,000
PHASE 4E SUBTOTAL	\$1,164,380
15% Mobilization Charge	\$174,657
30% Concept Level Contingency Factor of Subtotal	\$349,314
PHASE 4E TOTAL	\$1,688,350

Table 15: Estimated Cost of Phase 4E

PHASE 5 <i>t'ip-san ili'i</i> WEST	
Infrastructure Type	Estimated Cost
Water	\$662,037
Wastewater	\$303,241
Stormwater	\$247,685
Earthwork	\$3,400,000
Roads	\$831,019
Walls	\$0
General	\$187,500
Power/Communications	\$781,250
Streetlights	\$155,000
PHASE 5 SUBTOTAL	\$6,567,731
15% Mobilization Charge	\$985,160
30% Concept Level Contingency Factor of Subtotal	\$1,970,319
PHASE 5 TOTAL	\$9,523,211

Table 16: Estimated Cost of Phase 5



NEIGHBORHOODS AND PHASING

PHASE 6 nanich VIEW	
Infrastructure Type	Estimated Cost
Water	\$424,233
Wastewater	\$194,317
Stormwater	\$158,717
Earthwork	\$7,787,500
Roads	\$532,517
Walls	\$0
General	\$120,150
Power/Communications	\$500,625
Streetlights	\$100,000
PHASE 6 SUBTOTAL	\$9,818,058
15% Mobilization Charge	\$1,472,709
30% Concept Level Contingency Factor of Subtotal	\$2,945,418
PHASE 6 TOTAL	\$14,236,185

Table 17: Estimated Cost of Phase 6

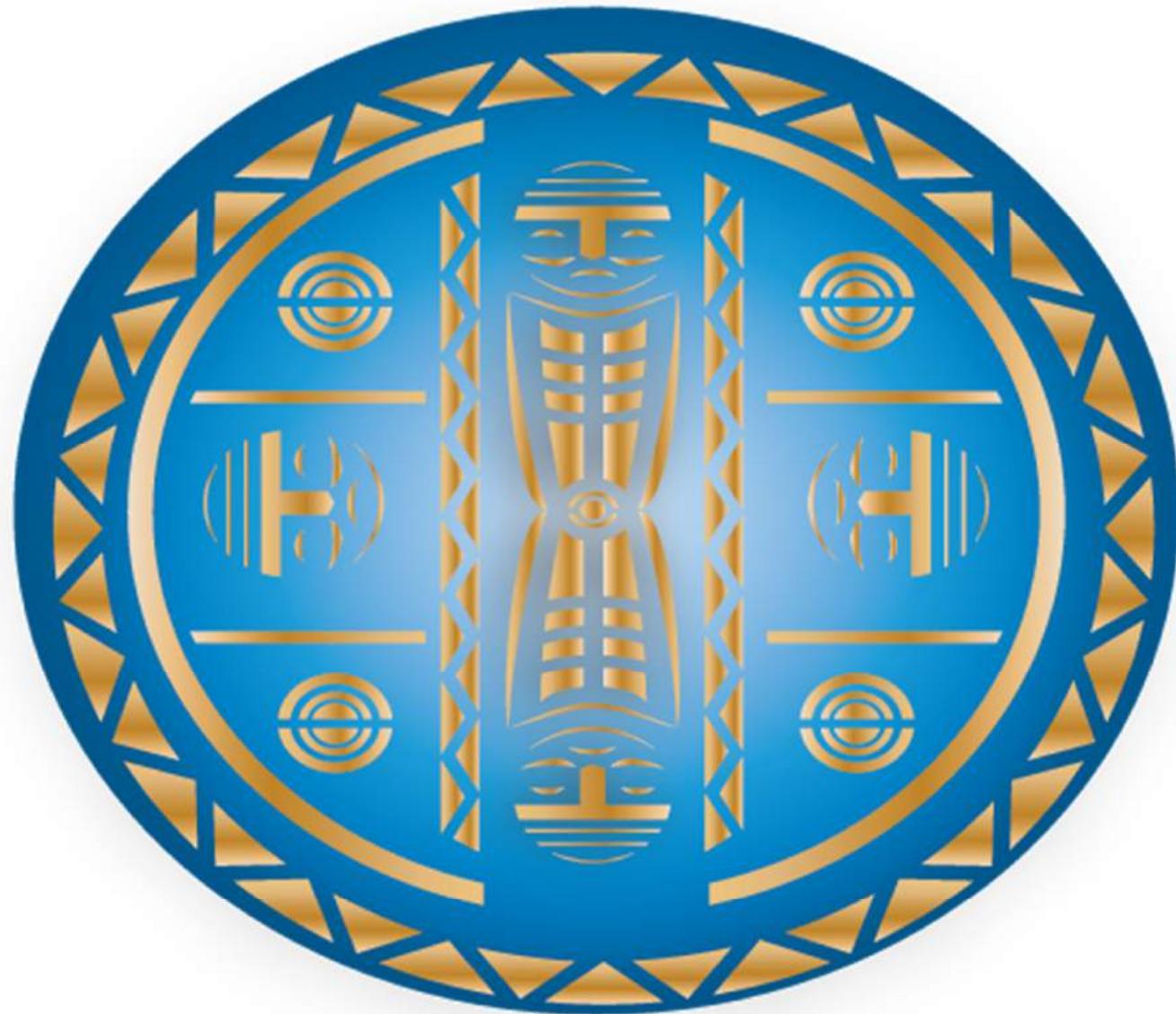
INFRASTRUCTURE COSTS	
Phase	Estimated Cost
Phase 1: RAISE Loop	\$9,871,238
Phase 1: Eagle Hill Rd.	\$3,399,888
Phase 1: North Cove Beach Road	\$11,365,825
Phase 2A	\$9,596,825
Phase 2B	\$9,032,050
Phase 2C	\$958,450
Phase 2D	\$7,564,001
Phase 3	\$9,001,238
Phase 4A	\$7,356,886
Phase 4B	\$1,160,000
Phase 4C	\$1,442,750
Phase 4D	\$631,515
Phase 4E	\$1,688,350
Phase 5	\$9,523,211
Phase 6	\$14,236,185
Wastewater Infrastructure (other than mains, i.e. treatment plant, pump stations)	\$12,581,982
Water Infrastructure (other than mains, i.e. wells, tanks, pumphouse, booster pump station, reservoir, hydrants as identified in Water System Feasibility Report)	\$2,255,000
Power/Communications Infrastructure to Proposed Communications Tower	\$305,079
INFRASTRUCTURE COST TOTAL	\$111,970,473

Table 18: Estimated Cost of All Phases



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"Bowl Design" this type of image is a modern adaptation of an ancient design meant to remind us of our roots and teachings. – Earl Davis



CHAPTER

10 pánəč tałlam

HAZARD RESILIENCE
AND SUSTAINABILITY



HAZARD RESILIENCE AND SUSTAINABILITY

The move to higher ground will not exempt the Tribe from the possibility of natural disaster. While flooding and tsunami risk will be eliminated, landslide, wind and wildfire will still be threats to the community. This Master Plan should help advance goals set aside in other SBIT planning documents. In this section, this Master Plan's relationship to the Tribe's Hazard Mitigation Plan and Climate Resilience Plan, the threats of wind and wildfire, and measures that the Tribe could take to lessen the threat of wildfire are discussed.

Hazard Mitigation Planning

Every five years, SBIT updates its Hazard Mitigation Plan. The SBIT 2020-2025 Multi-Hazard Mitigation Plan Update includes actions to improve safety in the community. This Master Plan incorporates the actions that are applicable to the built environment in the Relocation Area. These actions include:

Action 1.1.1: Develop a plan that identifies alternative sources and needed infrastructure for potable water systems that adequately meet Tribe's future needs and address impacts from drought and sea level rise.

Action 1.1.2: Increase capacity of water storage facilities; obtain alternate sources (wells) and increase capacity to enable ability to utilize fire hydrants without damaging existing infrastructure and reducing capacity for residents.

Objective #1.2: Pursue relocation and future development outside hazard zones (Existing strategy).

Action 1.4.1: Evaluate and adopt tribal policies and codes that increase resiliency to natural hazards, such as stronger building codes, stormwater and potable water management plans, wildfire management programs, and land use & development policies.

Action 1.5.1: Implement sustainable food sovereignty programs that include agriculture, aquaculture, hunting, fishing, etc.

Goal#2 Goal Description: Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to hazards.

Objective #2.3: Ensure continuity of critical economic and public facilities and infrastructure (Existing goal).

Action 2.3.1: Secure funding to acquire additional generators to maintain critical infrastructure on reservation, including for water systems, especially for new facilities being constructed or older facilities being renovated that do not already have generators.



HAZARD RESILIENCE AND SUSTAINABILITY

- Action 2.4.2: Build a tornado and severe weather evacuation shelter and/or saferooms. These shelter locations shall include, at a minimum, back-up power generators, communications, water and heating systems, and kitchen, shower/bathroom facilities. The shelters should meet the access and functional needs of all individuals.
- Action 2.6.1: Develop a forest fuels management program that includes a fuels reduction strategy and promotes forest health, such as the planting of native fire-resistant plants.
- Objective #2.8: Reduce the threat from landslides and erosion.
- Action 2.8.1: Identify and implement hillside stabilization projects where needed to reduce current and future impacts from landslides and erosion, utilizing low impact natural systems.
- Objective #2.9: Protect the water quality and indigenous species.
- Action 5.2.8: Helipad for emergency evacuation and other emergent issues (to be part of uphill development)

Wind

As the Shoalwater Reservation is on the Washington coast, wind will a consideration in building design. Winds regularly exceed 40 miles per hour (mph) and exceed 55 mph at least once annually. Wind speeds exceed 76 mph every 5 years, 83 mph every 10 years, 92 mph every 25 years, 100 mph every 50 years, and 108 mph every 100 years.

Wildfire

As the Tribe moves to higher ground, it will be building in a forest, placing the development in the Wildland-Urban Interface. While the cooler temperatures and wet weather reduce the potential for a large wildfire on the Shoalwater Bay Reservation, the chances for fire will increase with climate change bringing warmer, drier summers and the wetter winters increasing fuels. According to the 2020 Community Wildfire Risk Assessment, 14 fires occurred within a 10-mile radius of the Reservation between 2008 and 2020²⁷. Most were fewer than five acres, but one fire burned 110 acres. Given the small volunteer fire department, distance for support from other departments, logging debris, and the steep hilly terrain which makes fires harder to access, fire resilience should be considered in building and neighborhood design.

²⁷ Blazina, Ashley. (2021). Shoalwater Bay Tribe Community Wildfire Risk Assessment. Washington Department of Natural Resources. Page 15.



HAZARD RESILIENCE AND SUSTAINABILITY

Wildfire Preparedness

As the community is relocated to higher ground, the environment around structures will change to a forested ecosystem. While the relocation will reduce the risk for tsunami, structures will be at greater risk of wildfire. Residents and the Tribe may face higher insurance rates or companies that do not want to insure homes and Tribal buildings. There are some measures that the Tribe and individual homeowners can take to reduce the risk of wildfire when building new structures and later when maintaining their lands. The Tribe might consider adoption of the International Wildland-Urban Interface Code (IWUIC); however, it may be more feasible for the Tribe to work with its Maintenance staff, and Housing, and Natural Resources Departments, as well as individual homeowners to undertake some practices to reduce the likelihood of wildfire damage rather than adopt and enforce a code. Scotch broom, Himalayan blackberry, and gorse are often found in clearcut landscapes and are dangerous fire fuels and that management of those species will be important²⁸.

The SBIT 2020 Community Wildfire Risk Assessment suggested the following measures to reduce risk while developing in the uplands²⁹.

1. Fuel reduction and removal near future homes and building sites
2. Vegetation removal, including shaded fuel breaks and thinning along roads to assist with evacuation. Shaded fuel breaks and additional fuel mitigation along roads should be prioritized along main roads in the new development, as well as
3. Additional reflective signs added to all homes and structures. Due to the limited number of evacuation routes, having reflective signage will help to increase visibility during a wildfire incident, where heavy smoke occurs. Additional signs pointing tribal members in the direction of evacuation routes will also be helpful in reducing evacuation confusion during an emergency situation, as it can be easy to get “turned around” during a stressful wildfire situation.

According to Community Planning Assistance for Wildfire (CPAW)³⁰ and the SBIT Wildfire Risk Assessment, the following measures can be taken to reduce wildfire risk to structures and communities:

²⁸ Interview with Larissa Pfleeger-Ritzman, August 19, 2024.

²⁹ Blazina (2021)

³⁰ Community Planning Assistance for Wildfire, Own Your Zone – Exterior Home Protection poster. https://wildfirerisk.org/wp-content/uploads/2022/09/2022HE-OwnYourZoneHouse-R3_CPAW.jpg



HAZARD RESILIENCE AND SUSTAINABILITY

Materials

- Use Class A roof materials (asphalt or fiberglass shingles, metal panels). Avoid using cedar shake.
- Install flame and ember resistant vents (attic and basement vents). Mesh should be 1/8-inch diameter and metal.
- Use metal trim and casings around windows or skylights
- Use noncombustible fencing materials rather than wood or plastic near homes
- Enclose low decks and areas under bay windows with mesh screening or ventilated noncombustible materials
- Use fire-rated composite materials, metal or lightweight concrete instead of wood for decking
- Enclose eaves with noncombustible soffit materials
- Use dual-paned, tempered glass in windows and doors
- Use fiber cement, stucco, brick or stone siding, especially for the lowest foot of siding. Avoid using cedar shake or any other wood.

Signage

- Install reflective numbers (at least 4 inches in height) next to houses and community buildings³¹
- Install reflective signs that indicate preferred evacuation routes

Maintenance

- Remove branches overhanging structures
- Clear leaves and other combustible materials from roofs, gutters, and fences
- Clear vegetation and other combustible materials from within 5 feet of structures
- Clear invasive, combustible species from around main routes and roads
- Plant fire-resistant species (refer to the "Fire-Resistant Plants for Home Landscapes" publication)
- Use areas that have been recently harvested as fuel breaks, as they will be easier to maintain as fire breaks than other lands

³¹ Blazina, Ashley. (2021). Shoalwater Bay Tribe Community Wildfire Risk Assessment. Washington Department of Natural Resources. Page 15.



HAZARD RESILIENCE AND SUSTAINABILITY

The SBIT 2020 Community Wildfire Risk Assessment suggested that the community should install pressurized hydrants with the ability to pump 500 gpm (gallons per minute) and space hydrants less than 1,000 feet apart. This volume is likely inadequate for the buildings. The fire flow being designed for the uplands development is 3,000 gallons per minute. Hydrants are spaced at 500-foot intervals. The Risk Assessment suggests that roads be at least 20 feet in width, preferably 24 feet. The roads planned for the uplands will have a minimum width of 24 feet of asphalt. For the safety of the community and to minimize insurance issues, the Tribe may want to create a defensible spaces plan.

Climate Resilience Plan

The Shoalwater Bay Indian Tribe Climate Resilience Plan includes various goals that the Master Plan has incorporated in its design for the new development. These are detailed below:

I-3 Ensure that all new construction projects and updates to existing infrastructure on Tribal lands take into consideration current and future climate exposures and are built/updated to climate resilient standards

This plan suggests that new buildings be constructed appropriately to the climate and sea air at the site. Suggestions regarding architecture are made in the Housing chapter.

I-4 Build residential homes and tribal facilities away from current and future hazards

The aim of this plan is to create a new area outside of the areas under threat from tsunami, shoreline erosion, coastal flooding, and sea level rise. The relocation area is well above these vulnerable areas. The new location is more susceptible to landslide and wildfire than the existing developed lands. Measures are mentioned in the plan to mitigate the threat from these hazards.

I-6 Look for opportunities to establish or support cultural connections as new infrastructure is designed or built

Trails will be improved through development as outlined by this plan. These trails will allow members to access harvesting areas and will be landscaped with traditional plants.

I-17 Identify additional opportunities to enhance the capacity of facilities (such as the Casino) to become resilience hubs, evacuation, and clean air centers, cooling centers, and charging stations, during extreme heat and weather events

The new gym identified in this plan will provide a shelter in the new development that will enhance community resilience.



HAZARD RESILIENCE AND SUSTAINABILITY

F-7. Work to support and enhance wildfire resilient forest landscapes by reincorporating fire and traditional practices to manage forests.

By combining current practices with traditional practices and cultural burning to remove understory plants and ladder fuels (where appropriate), the forest can be managed for multiple benefits, supporting hunting, and reduce the risk of catastrophic wildfires.

F-8. Create resilient wildlife populations by maintaining healthy ecosystems and habitat connectivity.

There will not be major roads passing through the uplands development and homes will not be tightly spaced, so habitat connectivity should not be severely adversely affected. Development presents the opportunity to plant native species to help maintain healthy ecosystems.

F-12. Increase drought resilience in forests through management and planting of drought and temperature tolerant species and keeping water on the landscape.

While this goal pertains to the SBIT forest lands, a similar approach should be applied to landscaping planted within the new development. Native plants, especially those that have traditionally been used by SBIT, should be the first choice for landscape plans. When native plants are not used, drought tolerance should be a factor on the choice of plantings.

T-2. Continue to explore ways to ensure continued access by tribal members to traditional resources and harvest areas.

The continued ability to harvest traditional resources, especially in coastal habitats, is important for cultural and health reasons. The traditional harvest of resources involves much more than the act of harvesting and can incorporate aspects of cultural heritage and storytelling that has been around for generations. The first step in preserving these resources is to protect and restore current habitat throughout Tribal lands and throughout the region.

Where possible, traditionally used plants should be retained during development. If these plants must be removed, they should be replaced with new plantings. Trails can access harvest sites and speed limits can be set to protect elk as they cross through the development. These measures will help maintain adequate populations for harvesting on the Tribe's forestlands.

T-7. Encourage planting of traditional and native plant species over non-native species, where appropriate, on Tribal lands.

Traditional and native species provide critical cultural connections to both the landscape and important cultural traditions. They also provide opportunities for intergenerational knowledge sharing. While not all native species are guaranteed to thrive in a climate-altered future, prioritizing their planting and management in appropriate locations will help ensure that these resources are available for many generations. This can be prioritized or re-established during the Relocation efforts as well as in the context of the Community Garden.



HAZARD RESILIENCE AND SUSTAINABILITY

Native plants can be planted throughout the new development, in public spaces and in the landscaping of the Tribe-provided homes. Areas that are in currently clear cut areas that are not subject to development can also be planted with native plants or left to grow back as forest.

T-8. Expand, update, and enhance efforts to limit the impact of invasive species on traditional food resources and ecosystems.

Limiting competition by removing invasive species and reducing barriers for native species population growth can help fish, shellfish, nearshore habitat, and forest ecosystems better withstand extreme weather and changing climate conditions.

Removing invasive species can also encourage traditional native plant growth and provide opportunities for intergenerational knowledge exchange. Careful selection of actions to eradicate or limit invasive species can also ensure the health of ecosystems and wellness of Tribal members who utilize them.

Energy

After the community moves to higher ground, the ramifications of an earthquake/tsunami will be reduced, as inundation will be less of a concern. However, an earthquake/tsunami event would pose longer-term issues to the Tribe, as road and power infrastructure serving the area will likely be damaged or destroyed, as the infrastructure passes through low-lying areas along Shoalwater Bay (road) and Grayland (road and power). This may lead to the community having to shelter-in-place. Food and water needs can be met with supplies stored in the Emergency Operations/Police Storage Building. There will still be a need for power in the community to keep the lights on, maintain communications, and support refrigeration. This backup power could come from smaller systems associated with specific buildings (e.g., generators, solar panels with storage, building-specific microgrids) or from a larger microgrid serving the full community. A community microgrid would likely require 3-phase power, which Grays Harbor PUD has indicated that it can provide.

Initial discussions were held with National Renewable Energy Laboratory (NREL) staff regarding a microgrid. The NREL staff indicated that likely a hybrid energy system will be necessary to maintain power in case of the earthquake/tsunami event. That is, renewable energy sources, such as solar and wind, will likely not produce enough power to sustain the community by themselves and that a system powered by diesel will also be necessary. Getting diesel to the site if the roads are out may be difficult, so some on-site storage for emergency use may need to be included in facility design. Further study and collaboration with NREL or technical assistance providers should be pursued. A community microgrid would be located in the qáqəs̕v̕t (Cedar River) Neighborhood north of the development. Shadowing from trees would additionally be a concern. The terrain in the area is steep and not conducive to large solar arrays, though arrays can be installed on sloped areas. Coastal Community Action Program, a local non-profit, operates



HAZARD RESILIENCE AND SUSTAINABILITY

windmills approximately three miles north of the development site, so wind energy may be a possible power source. This would require additional research to determine its feasibility.

At the time of this Master Plan development, the Tribe is initiating the design of a "northwest utility road (Middle Ridge Road) and investigating a location for a potential alternate energy park.

Sustainability

Sea level rise due to climate change threatens SBIT and surrounding communities, so pursuing a sustainable future that does not exacerbate the situation is a goal of this plan. To this end, goals have been set to reduce the SBIT's environmental effects.

Goals

- Encourage the use of native landscaping to reduce the need for irrigation.
- Construct low impact development facilities for stormwater to reduce pollution in the bay and Cedar River.
- Encourage energy efficiency in the design of and equipment in public buildings and homes. This may more cost-effective than investing in photovoltaics.
- Where possible, site homes on lots to maximize solar potential. This may be difficult, as homes will be in a forested area once the young trees in the area mature and buildable area on lots is limited.
- Develop an energy park north of the development of which a portion is dedicated to renewable energy sources to lessen the carbon footprint of SBIT and increase community resilience
- Increase use of photovoltaic panels on buildings
- Consider grid-tied photovoltaics and design homes to be backup battery ready



Design and Construction

The Shoalwater Bay Reservation receives a significant amount of precipitation. There are almost 200 days of rain annually, with an average rainfall of between 70 and 80 inches. This rain is often accompanied by strong winds during winter storms. Homes and public building should be designed and constructed to withstand this weather. This will reduce the number of structures that are affected by water damage and mold growth, both of which occur frequently on the Washington coast. Materials such as exterior grade plywood (CDX), and fiberglass and rock wool insulation dry out more easily than other materials with similar insulation (R-values) abilities.

The following are suggestions for construction of homes and public buildings to reduce energy use and improve living conditions for residents and are from the Sustainability chapter of the Taholah Village Relocation Master Plan³². These were chosen as Taholah has a similar climate and location as SBIT. These are meant to be advisory, not requirements.

- Aim to construct buildings to reduce air leakage rates (maximum 3.0 air exchanges per hour at 50 pascals). Air leakage tests during construction can help buildings reach leakage targets.
- Consider building R-25 rated slabs to reduce energy use. Make sure that an appropriate vapor barrier is included in construction.
- Consider using triple pane windows with a U-value of 0.15. Keep in mind that these may cost more than double pane windows, so use only if there are adequate funds for building.
- 2" x 6" studs in walls are preferable to 2" x 4"
- Use R-38 cellulose attic insulation
- Design building envelope to a heat load of 5.0 BTU/he/sq. ft
- Spaces in homes that are used during the day can be placed along the south sides of the home to maximize daylighting and passive solar gains, which can reduce energy use.

³² Quinault Indian Nation Planning Department. (2017). Taholah Village Relocation Master Plan. Pages 88-94.

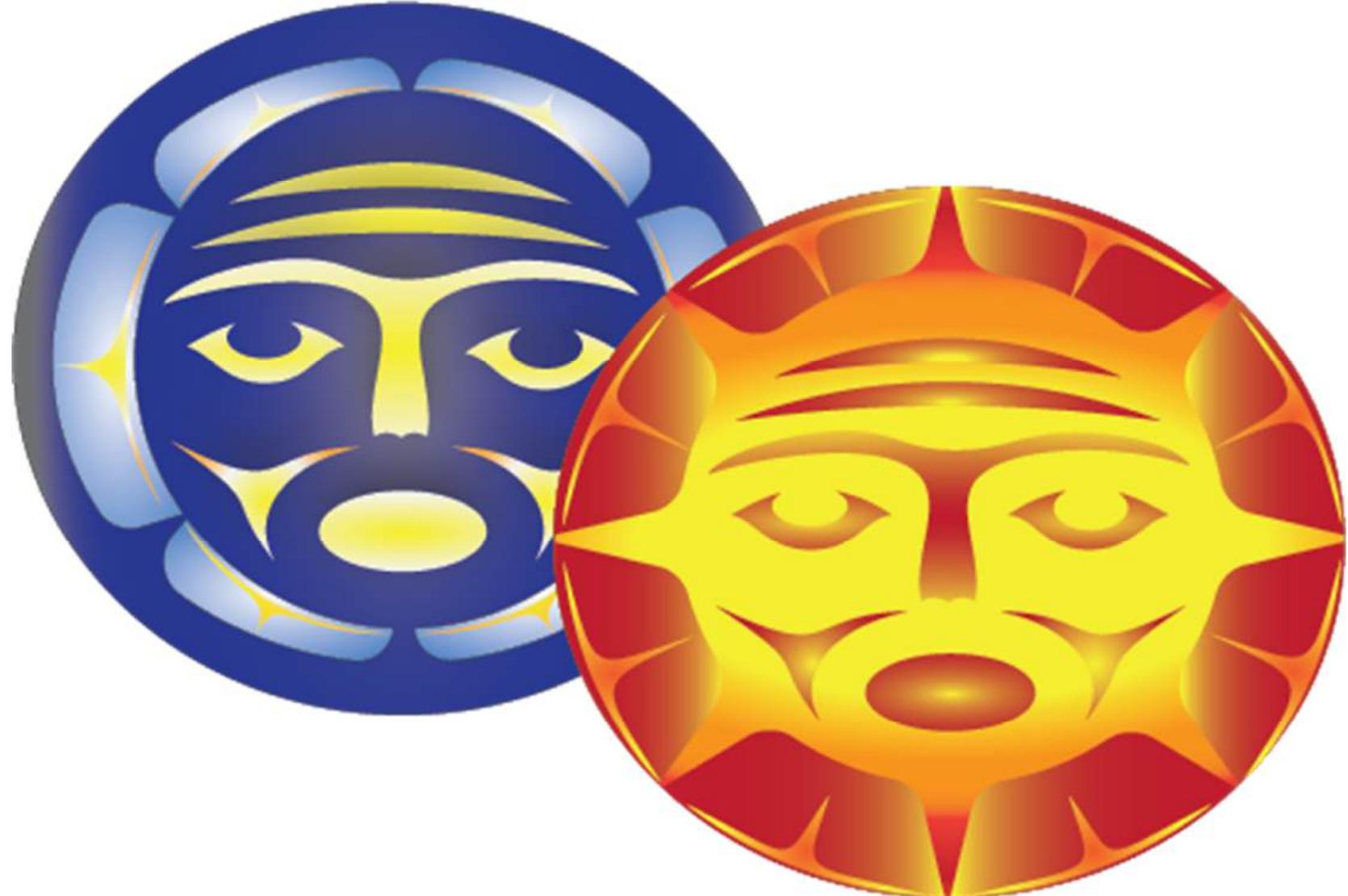


HAZARD RESILIENCE AND SUSTAINABILITY

- Cross ventilation in rooms can be encouraged by installation of operable windows.
- Use of Heat Recovery Ventilation (HRV) can help conserve energy and improve indoor air quality (especially in homes with low air exchange) versus exhaust-only house ventilation. However, HRV can be expensive and requires more maintenance than other ventilation systems.
- Substantial roofs and overhangs should be designed on buildings to reduce that amount of rain getting into walls and window assemblies. To reduce moisture in walls, install rain screens behind exterior cladding.
- Design medium pitch roofs with minimal valleys
- Lap siding is the preferred siding for rainforest conditions.
- Use low emitting chemicals during construction (paints, sealants, etc.)
- Use high efficiency appliances and LEDs to reduce energy use
- Regular maintain buildings
- Educating residents about the mechanical ventilation systems in their homes can lead to improvement in indoor air quality



"Sun and Moon" These too are brothers of high rank that were sent to the sky to keep the people and animals warm during the day and to give a little light at night and control the tides. – Earl Davis



CHAPTER
11

talpaw tatlam pi ixt



GOVERNMENT
ADAPTATION
TO THE MOVE

GOVERNMENT ADAPTATION TO THE MOVE

As development begins in the uplands, the SBIT government will face new challenges as the community begins to encroach on forestlands and new infrastructure and buildings are constructed. Community members currently hunt in the forest and log trucks may travel across the properties. Construction in forestlands brings an increased risk of fire. The increase in the number of buildings, new roads, and utilities will require additional maintenance in the coming years. Policy and staffing decisions will need to be made so that the community can remain safe, maintain hunting, and ensure that buildings and infrastructure remain in operational. Challenges and changes have been identified below:

Natural Resources

- Hunting regulations will need to be updated and areas set aside for hunting that will not put residents in harm's way, while still permitting the cultural harvest of game.
- Log truck traffic currently use North Cove Beach Road. The Tribe should advise logging companies to use alternate routes. With the Tribe owning much of the land in the area now, log truck traffic should not be a big concern.
- Speed limits may need to be set low to avoid collisions with wildlife, especially around the intersection of RAISE Loop Road and North Cove Beach Road.
- Outdoor trash facilities will require bear-proofing. There may be more incidents with animals (cougar in the neighborhood) as development encroaches on habitat. A public outreach effort to discourage the feeding of animals will need to be started.
- Additional staff may need to be hired, including a biologist and wildlife and fisheries officer(s)

Utilities

- Based on additional study, identify a location for renewable energy/microgrid development
- Utilities Department staff should obtain training in microgrid maintenance, if a system(s) is installed
- Utilities Department staff should obtain training on operating new wastewater system
- Engineers on design projects consistently ask for a fire flow to design to. The Tribe has not adopted a standard. In order that projects are designed consistently, the Tribe should identify a standard fire flow.

Communications

- With investment in renewable energy production, the Tribe may consider becoming its own Public Utility District?
- Decisions regarding whether to lease or communications lines (fiber) to companies to use or to let telecom companies install their own infrastructure will need to be discussed.



GOVERNMENT ADAPTATION TO THE MOVE

Fire Protection

- The Housing Department may consider designing homes with fire resistant materials (especially exterior), and the Tribe should encourage individual owners to do the same
- A fuel reduction and removal program for homes should be established to reduce the likelihood of catastrophic fire
- Shaded fuel breaks and additional fuel mitigation along roads should be prioritized along main roads in the new development
- The Tribe should require reflective address signage with structures prior to issuing building permits
- Until a full water system with hydrants is constructed, homes will be required to be sprinklered. This should be adopted as a requirement by SBIT code. Given the location in the forest and likely slow response times, this requirement should be considered even after hydrants are installed. Homes in the *t'ip-san ili?i* (West) are accessible by only one road and the best practice for this situation is to require sprinklering. This will likely cost \$25,000 per home.

Police and Emergency Management

- Expanded disaster resilience training and radio systems training may be needed
- Additional staff, including additional police may need to be hired

Human Resources

- General staffing may increase at SBIT, possibly requiring more HR staffing
- Additional capacity may need to focus on the Tribal Employment Rights Office (TERO)
- Training and programming focused on youth career building to match opportunities afforded by building a new community (construction, etc.)

Administration

- Administration may want to build intergroup dialogue and team-building, as this will be important to realizing this complex effort that involves almost every department.
- Additional resources may need to go toward supporting fundraising, including technical writing and grant writing
- State and federal policy liaison and lobbying may need additional support

Planning

- Someone to oversee permitting and building inspections may need to be hired. This position could be in the Planning Department.



GOVERNMENT ADAPTATION TO THE MOVE

Maintenance

- Increase in housing stock, public buildings, roads, lighting, and park/gathering areas may require additional staffing and funding for maintenance.

Housing

- SBIT's housing relies on IHBG funding and Tribal dollars, without receiving any other funding from the state. As it stands, like many other Tribes and Tribal housing entities, SBIT's Housing Department cannot generate adequate revenue for itself from rent payments, let alone gather the revenue to build, maintain, and manage dozens of additional housing units. This approach may need to be modified in the future to sustain SBIT's ability to maintain and build homes.
- A system to allocate lots to members once they become available in the upland area will need to be developed to establish a clear order of lot assignment and reduce future claims of favoritism in lot allocation
- Decisions about existing stock in the existing community will need to be made regarding tearing down a unit if the occupants relocate uphill or leasing it to a different community member or as rental housing for anyone in Tokeland to raise funds for the relocation project.
- The Tribe may need to increase budget to cover more building inspections as new units are designed and built
- A reliable method to communicate and market upland residential opportunities to tribal members will need to be devised

Health and Wellness

- Additional staff, including, a pharmacist and a traditional healer may need to be hired

Cultural

- Construction may lead to more cultural assessments
- There may be complicated logistics related to moving artifacts as the program moves to higher ground
- If the Emergency Operations Center is converted to a visitor center / museum, additional staff may be needed to staff the facility. Decisions about what artifacts are shared with the general public and which are stored in a more member-facing museum facility will need to be made.
- If there is more maker space and education associated with the cultural center, there may need to be a cultural education program coordinator position created
- A Tribal Historical Preservation Officer position may need to be created



GOVERNMENT ADAPTATION TO THE MOVE

Sovereignty

- It may be necessary to hire a liaison focused on food sovereignty and maintaining/growing rights related to natural resources, aquaculture, agriculture etc.

Who will move first?

The Tribe will need to determine which families will be able to claim lots in the uplands as the area begins to develop. There is no strategy to assign lots in the uplands area. There are no models to follow that match the situation faced by the Tribe. Quinault Indian Nation and Hoh Tribe are both in the midst of relocating, but neither has determined how to assign lots. Jamestown S'Klallam Tribe has developed areas for families facing home loss from erosion and have offered those living nearest the eroding areas preference. However, this strategy would not be applicable at Shoalwater Bay, as the entire community is within the tsunami zone. As part of the community engagement process, members were asked how they would prioritize families relocating to higher ground. The majority of the respondents indicated that families with elders or with children should receive preference. A much smaller number thought that those who had obtained mortgages or others financing and could immediately develop a home should receive preference.

A weighted lottery favoring families with elders or children or including only such families in the first selections could be preferred methods. The development of properties would likely take a couple of years, so the timing of the lottery would need to be carefully thought out, as family situations could change in that time. For instance, children could reach adulthood, and a family without children could be home over a family who didn't have children at the time of the lot assignment, but have had a child in the interim. Clear rules would need to be established or the lot assignments would need to be done very late in the development process.



APPENDICES



APPENDIX A: PLANT PALETTE

Landscaping in public areas in the new village will consist mainly of native plants common to the area. Many of these plants have been utilized by the Shoalwater Bay Indian Tribe historically for baskets, medicine, food and other uses. The plants provide food and habitat to local wildlife, are climatically suited to the area, and will not require much maintenance, fertilizers, or additional watering. Tree locations should be carefully chosen as to not negatively affect solar access on neighboring properties. The list below is suggested plants to be used in the developed areas of the uplands, but is not an exhaustive list.

Plant Palette for Public Areas

*Asterisks indicate traditional use by Shoalwater Bay Indian Tribe and other Northwest Indians

Sun

Camas – *Camassia quamash**

Red elderberry – *Sambucus racemosa* (can cause digestive problems) – (edible when toxic seed is removed)*

Blue elderberry- *Sambucus caerulea* (edible when toxic seed is removed)*

Salal – *Gaultheria shallon**

Blackcap raspberry – *Rubus leucodermis**

Woodland strawberry – *Fragaria vesca**

Coastal strawberry – *Fragaria chiloensis**

Common bearberry / kinnikinnick – *Arctostaphylos uva-ursi**

Golden currant – *Ribes aureum**

Wapato – *Sagittaria latifolia**

Nodding onion – *Allium cernuum**

Tall Oregon-grape – *Mahonia aquifolium*

Creeping Oregon-grape – *Mahonia repens*

Oregon iris – *Iris tenax*

Cascara – *Rhamnus purshiana*

Madrone – *Arbutus menziesii*

Coltsfoot– *Petasites frigidus*

Mock orange – *Philadelphus lewisii*

Big leaf maple – *Acer macrophyllum*

Columbia lily – *Lilium columbianum*

Shade

Mountain huckleberry – *Vaccinium membranaceum**

Evergreen huckleberry – *Vaccinium ovatum**

Coastal strawberry – *Fragaria vesca**

Common bearberry / kinnikinnick – *Arctostaphylos uva-ursi**



Plant Palette

Indian plum – *Oemleria cerasiformis**

Lady fern – *Athyrium filix-femina*

Ostrich fern – *Matteuccia struthiopteris*

Spiny wood fern – *Dryopteris expansa*

Bracken fern – *Pteridium aquilinum**

Miners lettuce – *Claytonia perfoliata*

Redwood violet – *Viola sempervirens*

Wapato – *Sagattaria latifolia**

Beaked hazelnut – *Corylus cornuta**

Pacific Rhododendron – *Rhododendron macrophyllum*

Pacific Dogwood – *Cornus nuttallii*

Coltsfoot – *Petasites frigidus*

Mock orange – *Philadelphus lewisii*

Tall Oregon-grape – *Mahonia aquifolium*

Creeping Oregon-grape – *Mahonia repens*

Cascara – *Rhamnus purshiana*

Madrone – *Arbutus menziesii*

Vine Maple – *Acer circinatum*

Wet

Camas – *Camassia quamash**

Red elderberry – *Sambucus racemosa**

Cranberry – *Vaccinium ovatum**

Springbank clover – *Trifolium wormskoldii**

Pacific silverweed – *Potentilla anserina* ssp. *pacifica**

Salmonberry – *Rubus spectabilis**

Thimbleberry – *Rubus parviflorus**

Lady fern – *Athyrium filix-femina**

Wapato – *Sagattaria latifolia**

Blackcap raspberry – *Rubus leucodermis**

Cattail – *Typha latifolia**

Bog Labrador Tea – *Rhododendron groenlandicum**

Well Drained

Blue elderberry – *Sambucus caerulea**

Mountain huckleberry – *Vaccinium membranaceum**

Evergreen huckleberry – *Vaccinium ovatum**

Serviceberry – *Amelanchier alnifolia**

Soapberry – *Shepherdia canadensis**

Wild blackberry – *Rubus ursinus**

Choke cherry – *Prunus virginiana**

Crabapple – *Malus fusca**

Black gooseberry – *Ribes lacustre**

Indian plum – *Oemleria cerasiformis**



Plant Palette

Nootka rose – *Rosa nutkana**
 Ostrich fern – *Matteuccia struthiopteris**
 Douglas fir – *Pseudotsuga menziesii**
 Western hemlock – *Tsuga heterophylla**
 Miners lettuce – *Claytonia perfoliata**
 Redwood violet – *Viola sempervirens**
 Hooker's onion – *Allium acuminatum**
 Biscuit root (wild carrot) – *Lomatium dissectum**

Dry

Common bearberry / kinnikinnick – *Arctostaphylos uva-ursi**
 Golden currant – *Ribes aureum**
 Licorice fern – *Polypodium glycyrrhiza**
 Bracken fern – *Pteridium aquilinum**
 Hooker's onion – *Allium acuminatum**
 Biscuit root (wild carrot) – *Lomatium dissectum**

Light shade

Salmonberry – *Rubus spectabilis**



Moist

Choke cherry – *Prunus virginiana**
 Crabapple – *Malus fusca**
 Black gooseberry – *Ribes lacustre**

Indian plum- *Oemleria cerasiformis**
 Nootka rose – *Rosa nutkana**
 Spiny wood fern – *Dryopteris expansa**
 Bracken fern – *Pteridium glycyrrhiza**
 Miners lettuce – *Claytonia perfoliata**
 Nodding onion – *Allium cernuum**
 Beaked hazelnut – *Corylus cornuta**



Douglas fir (limited) – *Pseudotsuga menziesii**
 Western hemlock (limited) – *Tsuga heterophylla**

Sitka spruce (limited) – *Picea sitchensis**

Edible Plants

Red elderberry – *Sambucus racemosa**
 Blue elderberry – *Sambucus caerulea**
 Cranberry – *Vaccinium macrocarpon**
 Evergreen huckleberry – *Vaccinium ovatum**
 Mountain huckleberry – *Vaccinium membranaceum**
 Serviceberry – *Amenlanchier alnifolia**
 Salmonberry – *Rubus spectabilis* Berries and Sprouts (bear candy) *
 Blackcap raspberry – *Rubus leucodermis**
 Thimbleberry – *Rubus parviflorus* – Berries/Sprouts (bear candy) *



Plant Palette

Wild blackberry – *Rubus ursinus**
Woodland strawberry – *Fragaria vesca**
Coastal strawberry – *Fragaria chiloensis**
Bitter cherry – *Prunus emarginata**
Choke cherry – *Prunus virginiana**
Common bearberry / kinnikinnick – *Arctostaphylos uva-ursi**
Golden currant – *Ribes aureum**
Black gooseberry – *Ribes lacustre**
Indian plum – *Oemleria cerasiformis**
Nootka rose – *Rosa nutkana**
Cattail – *Typha latifolia**
Fiddlehead ferns (bracken fern) – *Pteridium aquilinum**
Fiddlehead ferns (lady fern) – *Athyrium filix-femina**
Hazelnuts – *Corylus avellana**
Acorns – *Quercus* spp.
Walnuts – *Juglans nigra**
Beaked hazelnuts – *Corylus cornuta**
Bog Labrador Tea – *Ledum groenlandicum**

Fire Resistant³³

Planting native fire resistant plants supports Action 2.6.1 of the Multi-Hazard Mitigation Plan to reduce forest fuels through use of such plants. Keep in mind that fire resistant plants are not fireproof and maintenance is necessary to reduce the risk of fire.

Groundcover

Common bearberry / kinnikinnick – *Arctostaphylos uva-ursi**
Woodland strawberry – *Fragaria vesca*
Oregon stonecrop – *Sedum oreganum*
Broad-leaved stonecrop – *Sedum spathulifolium*

Forbs/Sedges

Red columbine – *Aquilegia formosa*
Lupine – *Lupinus* spp.*
Common yarrow – *Achillea millefolium**
Nodding onion – *Allium cernuum*
Narrowleaf onion – *Allium amplectens*
Sedges – *Carex obnupta, densa, or stipata*



³³ West Multnomah Soil & Water Conservation District. Fire-resistant native plants of western Multnomah County, Oregon.



Shrubs

- Tall Oregon-grape – *Mahonia aquifolium**
- Dwarf Oregon-grape – *Mahonia nervosa**
- Salal – *Gaultheria shallon**
- Pacific rhododendron – *Rhododendron macrophyllum*
- Pacific serviceberry – *Amelanchier alnifolia**
- Red-osier dogwood – *Cornus sericea*
- Oceanspray – *Holodiscus discolor*
- Mockorange – *Philadelphus lewisii*
- Red-flowering currant – *Ribes sanguineum**
- Snowberry – *Symphoricarpos albus*
- Vine maple – *Acer circinatum*
- Douglas spiraea – *Spiraea douglasii*
- Willow – *Salix* species

Trees

- Oregon crabapple – *Malus fusca**
- Oregon white oak – *Quercus garryana* (used for acorns)*
- Choke cherry – *Prunus virginiana**
- Bigleaf maple – *Acer macrophyllum*
- Red alder – *Alnus rubra*
- Black hawthorn – *Crataegus douglasii*



Precedent Image Survey

Appendix B: Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																										
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
WORK - Tribal Members and Staff Only Feedback																														
	1			13	0	●																								
	2			5	1	●	●																							
	3			6	0	●																								
	4			12	0	●																								
	5			8	2	●	●	●																						



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
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WORK - Tribal Members and Staff Only Feedback																											
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	7	3	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	8	10	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9	2	3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	10	3	4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
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WORK - Tribal Members and Staff Only Feedback																											
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	12	5	2	●	●	●																					
	13	6	0	●																							
	14	5	0	●																							
	15	5	0	●																							



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
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WORK - Tribal Members and Staff Only Feedback																											
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	17	10	0	●	●	●	●	●	●	●	●	●															
	18	7	0	●	●	●	●	●	●	●																	
	19	6	6	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	20	2	6	●	●	●	●	●	●	●	●	●	●	●	●	●	●										



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
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WORK - Tribal Members and Staff Only Feedback																											
	21	9	1	●	●																						
	22	8	1	●	●																						
	23	6	0	●																							
	24	13	0	●																							



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
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CIVIC - Tribal Members and Staff Only Feedback																											
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	4	0	11	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	5	0	13	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																								
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CIVIC - Tribal Members and Staff Only Feedback																												
	6	17	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	7	0	11	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	8	21	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9	0	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
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CIVIC - Tribal Members and Staff Only Feedback																											
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Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
CIVIC - Tribal Members and Staff Only Feedback																											
	16			5	4																						
	17			8	6																						
	18			4	8																						



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
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COMMUNITY - Tribal Members and Staff Only Feedback																											
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	4	8	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	5	6	5	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																								
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COMMUNITY - Tribal Members and Staff Only Feedback																												
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Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
COMMUNITY - Tribal Members and Staff Only Feedback																											
	11	10	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	12	16	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	13	16	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	14	6	4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	15	6	4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
COMMUNITY - Tribal Members and Staff Only Feedback																											
	16	13	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	17	10	4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	18	7	5	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HOSPITALITY - Tribal Members and Staff Only Feedback																											
	1			13	0	●																					
	2			11	0	●																					
	3			14	0	●																					
	4			4	7	●	●	●	●	●																	
	5			9	3	●	●																				



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																								
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HOSPITALITY - Tribal Members and Staff Only Feedback																												
	6	16	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	7	15	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	8	16	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9	7	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	10	8	3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HOSPITALITY - Tribal Members and Staff Only Feedback																											
	11			8	3																						
	12			13	0																						



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LEARN - Tribal Members and Staff Only Feedback																											
	1	12	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	2	10	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	3	12	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	4	12	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	5	8	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LEARN - Tribal Members and Staff Only Feedback																											
	6	4	6	●	●	●	●	●	●																		
	7	4	4	●	●	●	●	●	●	●	●																
	8	7	1	●	●																						
	9	4	5	●	●	●	●	●	●	●	●	●															
	10	5	2	●	●	●																					



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LEARN - Tribal Members and Staff Only Feedback																											
	11	13	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	12	12	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	13	8	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	14	9	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	15	4	3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LEARN - Tribal Members and Staff Only Feedback																											
	16	7	1	●	●																						
	17	6	2	●	●	●																					
	18	6	2	●	●	●																					



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																									
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
LIVE: MULTI-FAMILY - Tribal Members and Staff Only Feedback																													
	1			3	3																								
	2			3	3																								
	3			5	1																								
	4			4	1																								
	5			5	2																								



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																								
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
LIVE: MULTI-FAMILY - Tribal Members and Staff Only Feedback																												
	6	6	0	●	●	●	●	●	●																			
	7	4	2	●	●	●	●	●	●	●	●																	
	8	0	5	●	●	●	●	●	●																			
	9	1	4	●	●	●	●	●	●																			
	10	4	0	●	●	●	●	●																				



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																								
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
LIVE: MULTI-FAMILY - Tribal Members and Staff Only Feedback																												
	11	6	1	●	●																							
	12	9	0	●																								
	13	0	5	●																								
	14	3	2	●	●	●		●	●																			
	15	3	2	●	●	●	●	●																				



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LIVE: MULTI-FAMILY - Tribal Members and Staff Only Feedback																											
	16			3	2																						
	17			4	3																						
	18			4	2																						



Precedent Image Survey

Image Reference	Image Number		Yes	No	Results (Green = Yes; Red = No)																								
					1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
LIVE: RESIDENTIAL INTERIOR DESIGN - Tribal Members and Staff Only Feedback																													
	1		7	0	●																								
	2		8	0	●																								
	3		5	2	●	●	●																						
	4		4	4	●	●	●	●	●	●	●	●																	
	5		7	0	●																								



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LIVE: RESIDENTIAL INTERIOR DESIGN - Tribal Members and Staff Only Feedback																											
	6	9	0	●	●	●	●	●	●	●	●	●	●														
	7	8	0	●	●	●	●	●	●	●	●	●	●														
	8	4	1	●	●	●	●	●	●	●	●	●	●	●													
	9	4	1	●	●	●	●	●	●	●	●	●	●	●													
	10	8	0	●	●	●	●	●	●	●	●	●	●	●													



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LIVE: RESIDENTIAL INTERIOR DESIGN - Tribal Members and Staff Only Feedback																											
	11			2	3																						
	12			10	0																						
	13			6	0																						
	14			5	0																						



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																								
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
LIVE: RESIDENTIAL INTERIOR DESIGN - Tribal Members and Staff Only Feedback																												
	15	3	4	●	●	●	●																					
	16	3	1	●	●	●	●																					
	17	8	0	●																								
	18	3	3	●	●	●	●	●	●	●																		



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LIVE: SINGLE-FAMILY - Tribal Members and Staff Only Feedback																											
	1	6	0	●																							
	2	3	2	●	●	●	●	●																			
	3	5	1	●	●																						
	4	7	0	●																							
	5	9	0	●																							



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LIVE: SINGLE-FAMILY - Tribal Members and Staff Only Feedback																											
	6	3	3	●	●	●	●	●	●																		
	7	6	1	●	●																						
	8	2	3	●	●	●	●	●																			
	9	3	4	●	●	●	●	●	●	●																	
	10	8	0	●																							



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																								
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
LIVE: SINGLE-FAMILY - Tribal Members and Staff Only Feedback																												
	11	6	0	●	●	●	●	●	●																			
	12	4	3	●	●	●	●	●	●	●	●	●	●															
	13	6	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
	14	6	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
	15	7	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
LIVE: SINGLE-FAMILY - Tribal Members and Staff Only Feedback																											
	16	8	1	●	●	●	●	●	●	●	●	●	●														
	17	3	2	●	●	●	●	●	●	●																	
	18	9	0	●	●	●	●	●	●	●	●	●	●														



Precedent Image Survey

Image Reference	Image Number		Yes	No	Results (Green = Yes; Red = No)																							
					1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
NATURE - Tribal Members and Staff Only Feedback																												
	1		13	0	●																							
	2		7	0	●																							
	3		15	0	●																							
	4		11	0	●																							
	5		14	0	●																							



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
NATURE - Tribal Members and Staff Only Feedback																											
	6	7	2	●	●	●																					
	7	6	1	●	●																						
	8	6	0	●																							
	9	7	2	●	●	●																					
	10	8	1	●	●																						



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
NATURE - Tribal Members and Staff Only Feedback																											
	11	8	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	12	8	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	13	4	4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	14	10	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	15	7	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
NATURE - Tribal Members and Staff Only Feedback																											
	16	5	1	●	●																						
	17	9	0	●																							
	18	7	0	●																							



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																								
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
TRIBAL- Tribal Members and Staff Only Feedback																												
	1	7	0	●																								
	2	10	1	●	●																							
	3	2	6	●	●	●																						
	4	5	3	●	●	●	●																					
	5	15	0	●																								



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
TRIBAL- Tribal Members and Staff Only Feedback																											
	6	13	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
	7	11	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●										
	8	8	0	●	●	●	●	●	●	●	●	●	●														
	9	8	0	●	●	●	●	●	●	●	●	●															
	10	10	0	●	●	●	●	●	●	●	●	●	●	●	●	●											



Precedent Image Survey

Image Reference	Image Number		Yes	No	Results (Green = Yes; Red = No)																							
					1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
TRIBAL- Tribal Members and Staff Only Feedback																												
	I1		11	0	●	●	●	●	●	●	●	●	●	●														
	I2		12	0	●	●	●	●	●	●	●	●	●	●	●	●	●											



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																								
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
WELLNESS - Tribal Members and Staff Only Feedback																												
	1	13	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	2	6	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	3	5	6	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	4	13	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	5	13	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
WELLNESS - Tribal Members and Staff Only Feedback																											
	6	3	5	●	●	●	●	●	●	●	●	●	●														
	7	11	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	8	5	3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	9	4	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	10	9	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
WELLNESS - Tribal Members and Staff Only Feedback																											
	11	5	4	●	●	●	●	●	●	●	●	●	●														
	12	2	8	●	●	●	●	●	●	●	●	●	●														
	13	9	0	●	●	●	●	●	●	●	●	●	●														
	14	5	1	●	●	●	●	●	●	●	●	●	●														
	15	7	0	●	●	●	●	●	●	●	●																



Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
WELLNESS - Tribal Members and Staff Only Feedback																											
	16	8	0	●	●	●	●	●	●	●	●	●	●														
	17	5	1	●	●	●	●	●	●	●	●	●	●														
	18	6	1	●	●	●	●	●	●	●	●	●	●														
	19	6	0	●	●	●	●	●	●	●	●																
	20	3	5	●	●	●	●	●	●	●	●	●	●														



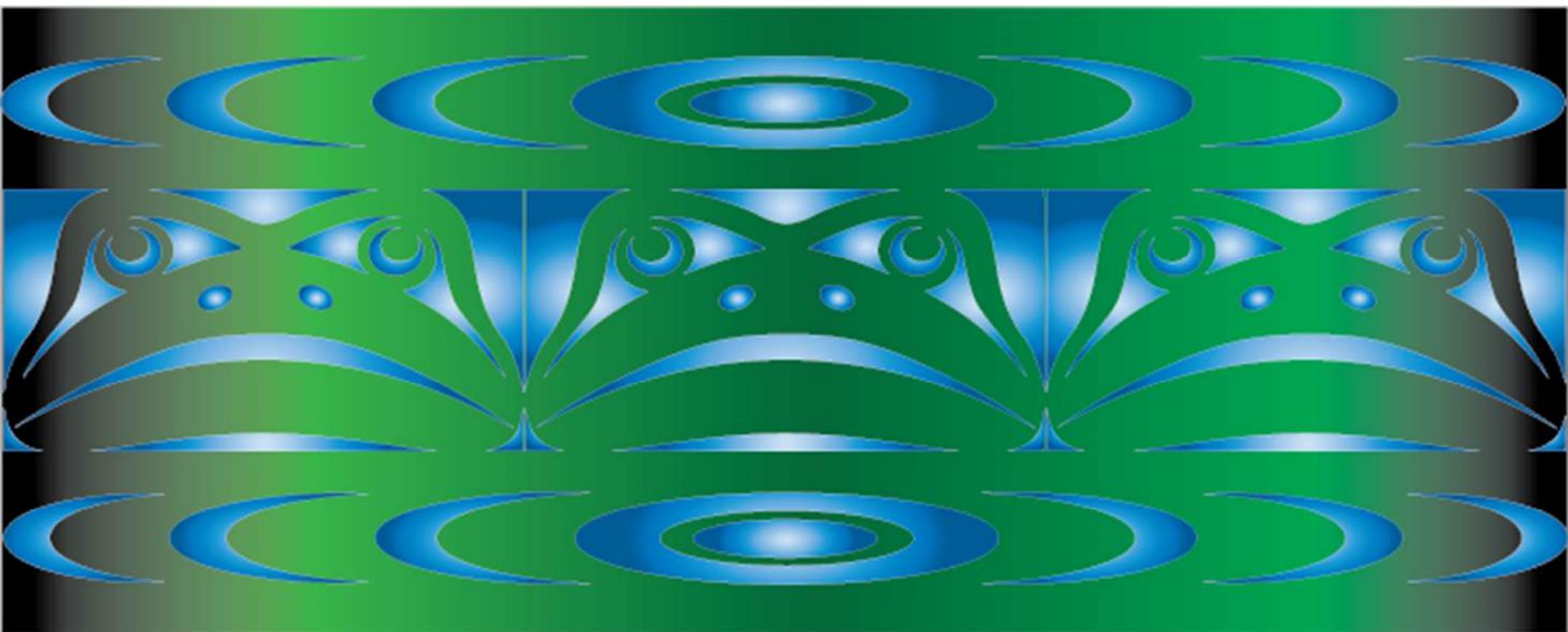
Precedent Image Survey

Image Reference	Image Number	Yes	No	Results (Green = Yes; Red = No)																							
				1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20	21	22	23	24
WELLNESS - Tribal Members and Staff Only Feedback																											
	21	11	0	●	●	●	●	●	●	●	●	●	●														
	22	10	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
	23	11	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
	24	5	1	●	●	●	●	●	●	●		●															



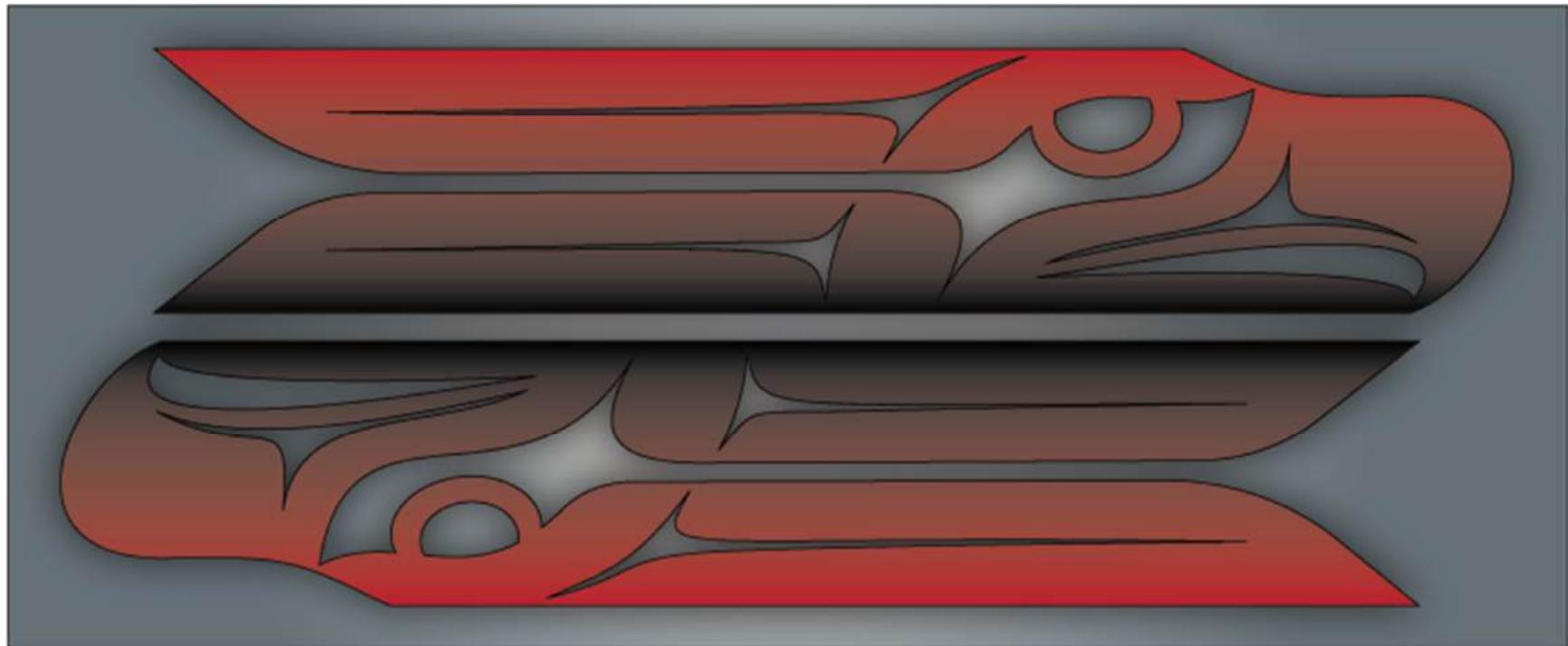
"Frog". Frog is the Moon's wife, it is said that she has medicine to make him whole again when he fades away.

She also sings to him and tells him to make the tides go in and out. – Earl Davis



.....

"Eagles" Eagle is Ravens brother and while traditionally Raven is of much higher rank than his brother Eagle often holds a high status as well. Eagle feathers often signify accomplishments or status. – Earl Davis



"Bear and Human" Bears are strong and resilient surviving off everything from skunk cabbage to berries and other animals. It is highly adaptable to its environment and in this particular piece it is meant to be an example to the people of how to adapt. – Earl Davis

