

Out of Harm's Way: Prioritizing Community Assets in Westport, WA

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A thesis

submitted in partial fulfillment of the  
requirements for the degree of

Master of Urban Planning

University of Washington

2025

Committee:

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Program Authorized to Offer Degree:

College of Built Environments

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**Abstract**

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This thesis project develops a three-step methodology to prioritize community assets in hazard-prone areas for community resource-sharing objectives, with a focus on the city of Westport, WA and the surrounding coastal area. The area of study is at risk of islanding, being cut off from the surrounding urban centers due to natural disasters and hazards. The research begins by parsing community-identified assets from prior workshops to create a comprehensive asset inventory aligned with local knowledge and values. Next, assets were mapped against hazard exposure scenarios, including tsunami and sea level rise. Finally, the study applied a multi-criteria analysis (MCA) framework, informed by community-identified themes related to resource sharing, to rank assets by their potential to enhance post-disaster resilience. Results highlight public spaces like parks and the school as priority assets for resilience efforts, given their roles in community life. This study emphasizes the importance of integrating community

perspectives and dynamic hazard assessments into resilience planning to enhance local preparedness. The project also outlines opportunities for future research, including community asset scoring.

## Acknowledgements

This work would not have been possible without the collaboration, enthusiasm, and teamwork of Annika Jensen and Mya Baker, undergraduates in the Class of 2025 funded through a National Science Foundation Research Experiences for Undergraduates fellowship, with whom I worked on this project from January to June 2025. Their geospatial expertise and analysis, as well as their written contributions to the larger project of which this work is part, were invaluable. A tremendous thank you to my committee, Dan Abramson and Jan Whittington, for answering all my questions and steering this work into its final form – this project truly would not have come together without their expert guidance. Thank you to UW faculty Karen Chen and Randall LeVeque for input, advice, and resources on GIS work and data, and members of the Cascadia Coastlines and Peoples Hazards Research Hub for their time and research shared. Many thanks are due to all the folks I bothered for questions and recommendations throughout this project, including my peers, and other resources I'm surely forgetting. My tenure as a student at UW would not have been possible without the support and love and gentle prodding of my parents, siblings, friends, and Annie the dog, for all of whom I am forever grateful. This work was supported by the NSF Smart & Connected Communities project “Socially-integrated robust communication and information-resource sharing technologies for post-disaster community self-reliance” (Award #2311405). The grant aims to develop robust off-grid community-based social networks for information resource sharing and co-design and pilot-test applications in two Washington communities, which will be useful on both a daily and emergency basis for communities increasingly facing natural disaster risks.

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## Chapter 1: Introduction

In coastal Washington, natural hazards may include earthquakes, extreme precipitation and flooding, tsunamis, sea level rise, and other related events. Multiple hazards put low-elevation areas at risk of inundation and may be isolated if a disaster disrupts critical infrastructure, such as roads, bridges, power lines, or communication lines. Hazards present a significant challenge to the regular functioning of communities. In the event of a natural disaster, a resilient community can cope with or adapt to changes in circumstances and continue to function in place. A resilient community affected by a hazard relies on resources already present (assets) to function beyond the event (Adger et al. 2005). Individual people with individual resources may have what they need, but many may not. Resource sharing, ideally in conjunction with robust community resource centers, may be vital for community functioning in the event of a disaster. Community resource centers, co-located at asset sites, could enable sharing activities. This paper aims to answer, among the many assets in Westport, which asset sites are best suited to meet community resource-sharing needs in the wake of various disaster types. This research will help inform community members and government officials to make decisions about resource allocation or infrastructure hardening in the interest of supporting community resilience.

The Westport peninsula and South Beach coastal area, in the event of a large-scale natural disaster such as an earthquake or severe storm, are at risk of “islanding” – being cut off from regional transportation and communications networks, effectively isolating the community potentially for weeks. The population in the study area relies on the surrounding urban centers, including Aberdeen, Cosmopolis, and Hoquiam, for essential services like healthcare, groceries, employment, and other daily necessities. Under “island” circumstances, a population in an affected area would need to rely on itself before outside support arrives. Local community assets, both during and after the event, can contribute to the safety and well-being of nearby residents.

This work also contributes to the aims of the Cascadia Coastlines and Peoples Hazards Research Hub on community assets and coastal hazards. An additional NSF-funded project in the Smart & Connected Communities program, “Socially integrated robust communication and information-resource sharing technologies for post-disaster community self-reliance” (NSF Award #2311405, hereafter referred to as “SCC project”), aims to install robust communications infrastructure and develop and launch a “dynamic map your neighborhood” tool to facilitate

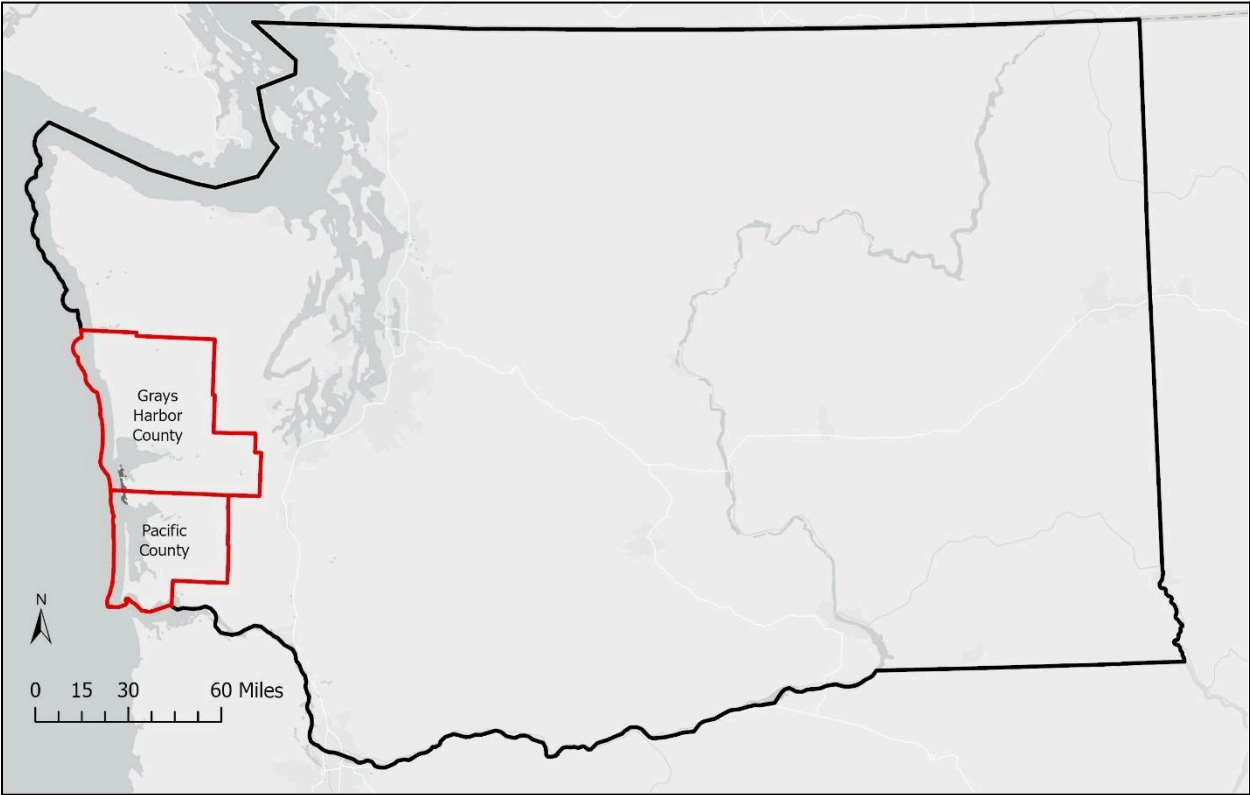
resource sharing among neighbors, relying on an inventory of local resources (assets). The tool will emphasize communication between users, networking, and clustering community users into groups based on shared attributes (National Science Foundation). The Washington Emergency Management Department previously administered the now-discontinued “Dynamic Map Your Neighborhood” program with a similar aim. However, the ongoing SCC project is exploring ideas for a community-level asset-based approach to resilience, with a focus on mapping assets for community-level resource sharing. Community assets, in their spatial capacity, may contribute to the goals of the larger research project by functioning as sites to facilitate resource sharing.

However, not all assets are created equal. Understanding local community assets and prioritizing between them could help identify which assets are optimal for future investment. Investing in the top asset sites to promote community resilience could vary: from previous research, resource centers to serve as storage and meeting sites are important to the community, and other ideas for asset site investment could include co-locating communications infrastructure on sites, swap sites demarcated in the developing communication tool, or even co-locating tsunami evacuation sites. The proposed method of this analysis can be an important element in planning for both hazard impact and community resilience. One of the overarching goals of the Westport Comprehensive Plan of 2021 is “to promote community resilience against natural disasters...” (8). Through understanding which assets best fit community resource-sharing objectives, the city might better be able to “ensure that [vertical evacuation] structures,” among other types of resiliency resources, “are well-integrated into the environment and daily life of Westport...” (City of Westport 2021, 8) hand-in-hand with developing technological approaches.

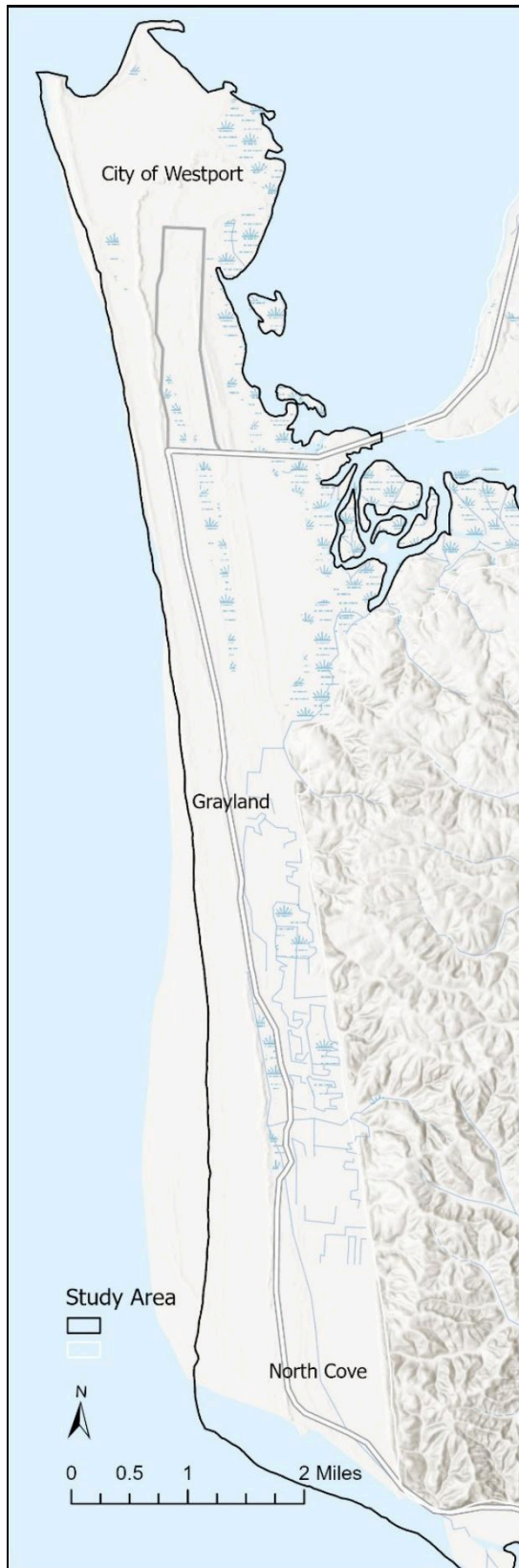
Previous research has explored prioritizing assets in the face of hazards in the study area. A 2022 assessment conducted by the New England Environmental Finance Center (NEEFC) aimed to evaluate the vulnerability of assets to climate-related hazards within the City of Westport. In contrast to the NEEFC assessment, this analysis proposes an alternative framework for identifying assets and yields a different outcome of prioritized assets. There does not yet exist a prioritization of community assets, as determined by the community, based on objectives important to the goal of piling resource sharing. Methodically prioritizing assets will provide insights into where the community should focus its efforts to shape its built environment for greater resilience in the face of natural disasters, thereby supporting resource-sharing objectives.

# Geographic Context

The South Beach coastal area stretches across the two counties of Grays Harbor County on the north half, and Pacific County on the south within Washington State. Figure 1 shows the location of the counties within the state. The study area contains the City of Westport and the southern outlying area to the border with the Shoalwater Bay Tribe. The study area is located on the coast, on the southern landmass at the mouth of Grays Harbor, where it meets the Pacific Ocean, shown in more detail in Figure 2.

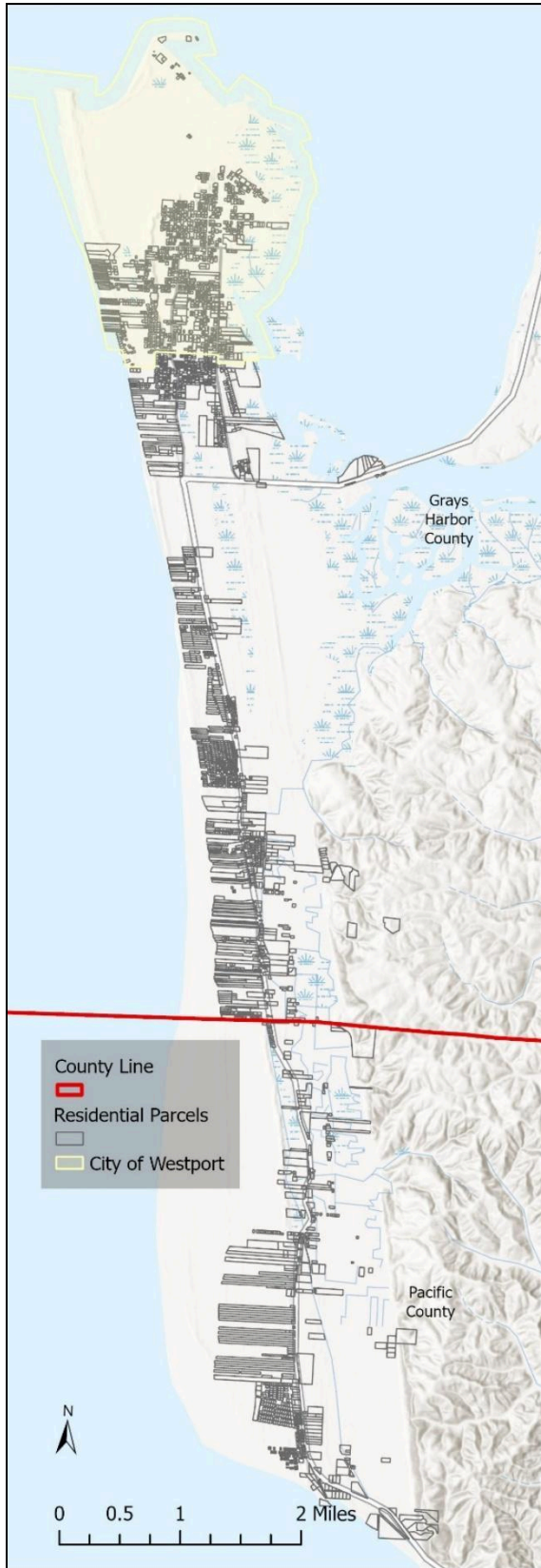


*Figure 1. Map of the State of Washington showing the location of the two jurisdictions along the coast across which the study area stretches.*



*Figure 2. Map of the South Beach area, the study area, and coastline outline. The black outline of the study area deviates from the underlying basemap in the North Cove area due to a discrepancy between coastal erosion visible in satellite imagery and translated to this basemap in ArcGIS, and the jurisdictional maps provided by the State of Washington which still show property and infrastructure now lost due to coastal erosion.*

There are over 2,000 year-round residents in the City of Westport, and the population of the broader study area grows with tourists in the summer months. The area historically supported a fishing- and agriculture-focused economy and now includes other industries, such as tourism and construction (DataUSA). The community comprises long-time residents and recent immigrants from European and Latin American countries (U.S. Census Bureau 2023). In the summertime, the population can swell with seasonal and short-term visitors, doubling or tripling the local population, who visit destinations like the state parks and the Westport marina. Within the city limits of Westport, residential areas are located at some distance from the main business center at the marina, and the community layout in the study area is relatively dispersed along the coastline, as shown in Figure 3.



*Figure 3. Map of the South Beach area, showing the county line in red, the boundaries of the City of Westport in yellow, and the extent of residential parcels within the study area in gray.*

The zoning map for the City of Westport further emphasizes this split between the residential areas and the business and commercial areas, within the city limits. The Mixed-Use Commercial/ Tourism zone, in dark blue, and the Marine Industrial zone, in yellow, are relatively separate from the main residential areas of both the city and the surrounding unincorporated areas farther south. Figure 4 shows the zoning map of the City of Westport. Beyond the city limits, residential populations in the study area displayed as gray polygons in Figure 3 are located farther south along the coast in a long line. A natural disaster during the tourism season could be particularly damaging if emergency planning for both residents and visitors is insufficient. Most of the built and cultivated environment is located along the beachfront, a low-elevation sand spit, and a broad coastal plain at the base of steep bluffs.

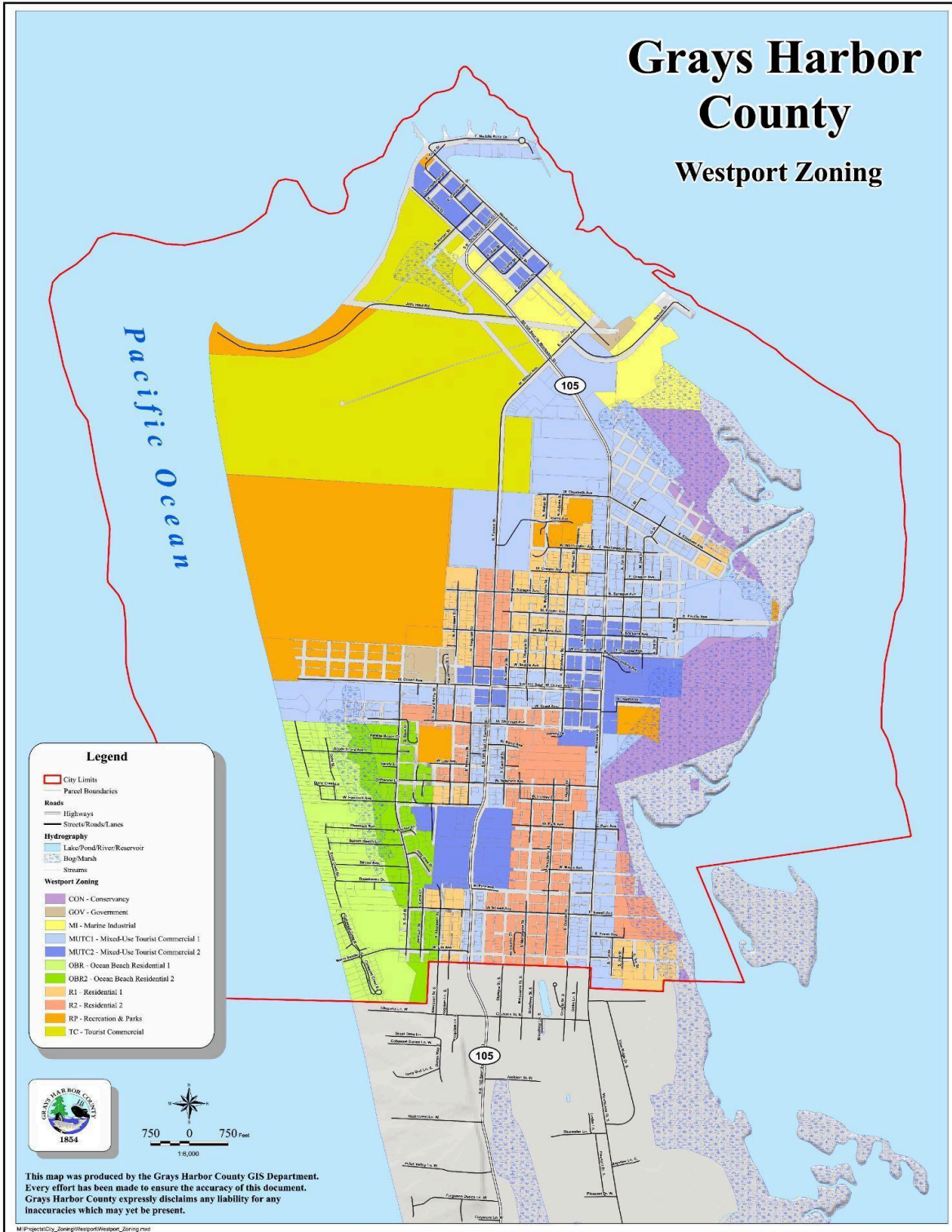


Figure 4. Zoning map for the City of Westport. Map created by the Grays Harbor County GIS Department.

The Cascadia Subduction Zone is the earthquake zone along which Westport and the South Beach peninsula are located, along the Juan de Fuca and Pacific tectonic plates. This zone is capable of generating significant earthquakes that can cause substantial damage (Pacific Northwest Seismic Network). The Washington Coastal Hazards Resilience Network identifies additional hazards, including sea level rise, flooding, tsunamis, landslides, erosion, and deposition, which could also affect the area of study. The jurisdictions involved in planning and development in the area have extensively studied the hazards affecting the South Beach area, including Grays Harbor County, the City of Westport, and Pacific County. The Grays Harbor County Board of Commissioners approved the County Hazard Mitigation Plan (HMP) in 2024. The report writers ranked the four most significant hazard risks in order of importance: earthquakes, tsunamis, flooding, and erosion (Bridgeview Consulting 2022, 15-1). Each jurisdiction that participated in the hazard plan process also provided input into the hazard ranking. The City of Westport's rankings from the same list of hazards included, in order of priority, earthquake, severe weather, tsunami, and erosion (Bridgeview Consulting 2022, 15-2). The Pacific County HMP, adopted in 2022, identified coastal erosion, earthquakes, floods (both coastal and riverine), landslides, tsunamis, wildfires, windstorms, and winter storms (in no particular order) as the most significant risks (Two Rivers Consulting 2021, 48).

As displayed in the map of the study area in Figure 2, the land south of North Cove has experienced significant erosion, which is visible in satellite maps and the base map shown, but which Washington State and local jurisdiction maps and databases do not reflect as water – the black line in Figure 2 represents an older coastline in the study area, in which there are also parcels, roads, and other geospatial data from government databases which are no longer present on the ground but shown in the data. This type of constant change, resulting from ongoing erosion, presents another threat to the community, although this coastal erosion hazard is not studied in this analysis. Furthermore, extreme weather events and heavy rainfall could cause the Chehalis River to swell, one of several rivers that feed into Grays Harbor, and lead to higher flooding. King tides can also exacerbate flooding events (Washington Sea Grant). Because these hazards have the potential to isolate the community from larger population centers, this thesis presents a method to categorize the likely performance of assets in South Beach under several hazard scenarios that have “islanding” effects.

Not all hazards have the same level of detail of geospatial data necessary for this analysis. This study only focuses on hazards with publicly accessible data models of disaster scenarios; future work may expand this dataset. This work will follow the precedent set in previous research on this topic by examining three tsunami scenarios and two sea level rise scenarios chosen by Westport community leaders for study in workshops in 2018. At the workshops, participants developed a list of values and community assets that would serve the community in preparing for natural disasters, as described in more detail below.

## Related Previous Studies

An Autumn 2018 University of Washington (UW) College of Built Environments (CBE) studio course, led by Professor Daniel Abramson, conducted several workshops, including a community mapping exercise in Westport, to develop recommendations for the 2021 Westport Comprehensive Plan update (Abramson et al. 2019; Stanton 2019; City of Westport Administration and Planning Commission 2021). The workshops provided the initial list of assets used in this research, and the values discussed in the workshops and later research deeply informed the criteria used in this assessment. UW researchers facilitated community members in using paper maps and WeTable, a participatory mapping tool, to map local assets (Idziorek et al., 2021). The UW team hosted the 2018 workshops to make hazard mitigation “more meaningful and actionable” to the community (Abramson et al. 2019, 1). Over two days, the research team conducted workshops with two distinct audiences. The first day featured leaders in planning and emergency management from the region, while the second day was open to members of the Westport community. The workshops started with an assessment of Westport’s community values, solicited through the question, “What makes Westport/South Beach a great place to live, work, and play?” (Abramson et al. 2019, 2), to identify and locate assets that support the stated values. The workshops then discussed hazard scenarios in the context of the Cascadia subduction zone, two tsunami inundation and two sea level rise inundation scenarios, as well as the effects of co-seismic land subsidence following the earthquakes that would generate the two different tsunami scenarios. Prior to the workshops, a local planning group, the Westport Tsunami Safety Committee, selected these hazard scenarios for discussion. The workshops identified an aggregate list of 67 assets that contribute to the listed community values. Discussants then

explored ideas for supporting resilience in the face of hazards and for strengthening the identified values and assets.

Other work by UW researchers in collaboration with Westport community partners has further focused on disaster preparedness and related topics in Westport and South Beach, providing background for this analysis. A 2019 thesis project based on the studio work described above contributed to the development of updates to the Westport Comprehensive Plan (Stanton, 2020), which the city adopted in 2021. Cano-Calhoun (2023; 2024) explored residents' thoughts on community resilience through semi-structured interviews coded to identify themes. The interview discussion, particularly around communication platforms, resource planning and matching, and community resource centers, significantly informed the criteria used for this study (see Chapter 3 on Methods). Stevens (2021) examined the fiscal vulnerabilities of sea level rise to Westport and the costs of protecting infrastructure in comparison to the risk of tax base loss. Donovan (2021) explored how geonarratives, an interactive, map-based storytelling approach, might enhance hazard-adaptive planning by combining historical context, local narratives, and scientific data. Sreenivasan (2019), followed by a 2021 College of Built Environments studio course led by Professors Abramson and Ken Tadashi Oshima, envisioned design solutions in the greater South Beach area that would add or enhance community assets that could also serve as evacuation and possible relocation sites (Abramson et al., 2021). Most recently, Korfmacher (2024) employed a novel drone-photovoice method to engage in conversation about hazards and promote resilience. A 2019 thesis project contributed to the development of updates to the Westport Comprehensive Plan (Stanton 2020), which the city adopted in 2021. The analysis conducted in this paper builds on preceding research by exploring one method, through multicriteria analysis, to assess assets and hazard exposure and identify the best-fit sites in the context of community resilience.

## Purpose and structure

This study applies a method to prioritize assets given various disaster scenarios for purposes of identifying which sites might be most suitable for future investment, which could take many forms, such as government investment to protect a site against hazard exposure, community investment in pooling resources to create a center; technological investment for co-locating communication resources with a known asset; among other ideas to bolster resilience

activities. While exploring potential future investments is outside the scope of this assessment, this study proposes a novel method for multicriteria assessment of assets against specific hazards, with the goal of promoting community resilience by leveraging assets to support community resource sharing. In research by Cano-Calhoun and co-authors, establishing resource centers – spaces that can function in the event of an emergency with immediate supplies – raises the question of where they should be situated based on the themes identified in the research and objectives for community resource-sharing goals (Cano-Calhoun et al., 2024). To identify top sites for future community investment, whether structural, technological, or otherwise, a process must be established that compares sites against each other.

The value of choosing between assets, given limited resources, in a documented process is to increase the clarity and transparency of decisions. If the community were to identify assets in which to invest public funds (for example, siting a resource-sharing location or hardening specific assets against inundation), prioritizing assets in a clear and goal-oriented manner could help direct the process to achieve a fair outcome. A method of prioritization may increase levels of trust within a community. This retrospective assessment examines the spatial relationship between assets identified by community members during the 2018 workshops and hazards. It ranks assets according to criteria related to community resource-sharing themes to determine a top-ranked list for future use or changes. The result is a listing of assets in rank order of priority according to criteria drawn from community interviews on resource and information sharing.

This work is primarily a methodological exercise aimed at exploring an approach to analyzing community-generated asset data in the context of reducing hazard risk. This analysis may add value to the body of research on resilience in Westport by categorizing and prioritizing assets to inform future planning and resilience-focused decisions. Knowing where assets are located, their spatial relationship to vulnerabilities and residents, and their performance against set goals may reveal where a community should direct limited resources for the best possible outcome.

The following questions guide this research:

How are Westport's community assets affected by hazards? For post-event scenarios, how can assets be prioritized according to resource-sharing goals and activities expressed by the community?

Chapter 1 introduces the topic, the geographic and academic context, and the purpose of this study. Chapter 2 includes a review of the literature to inform the direction of this project. Chapter 3 outlines the methods used to conduct this study. Chapter 4 describes the results of the analysis. Chapter 5 contains a discussion of the results and implications for the Westport and South Beach community, and limitations of the study.

## Chapter 2: Assets, resilience and evaluation

Building community resilience can safeguard against the effects of hazards, and the 2021 Westport Comprehensive Plan Update identifies resilience as a key goal, underscoring the value of resilience-promoting activities in this community – specifically, resource-sharing in situations of isolation from the surrounding region. Assets in their current forms may need improvements (investments) to support specific resilience activities, such as resource sharing. With limited resources to utilize, a key question is how to determine where to invest first. Multicriteria analysis is a method for selecting between options. The purpose of ranking assets is to identify which sites might be best for promoting resource-sharing activities, and investing in them (such as mitigating hazard exposure, creating a resource center, co-locating communication resources, or other ideas).

### Resilience

The literature on resilience to hazards is vast. Global institutions provide different definitions. The United Nations Office for Disaster Risk Reduction defines resilience as:

“[t]he ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management” (2017).

The Resilient Cities Network, a project of the Rockefeller Foundation, defines resilience as “the capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt and grow no matter what kinds of chronic stresses and acute shocks they experience,” (Resilient Cities Network). A narrower scope comes from the discourse around the

definition of urban resilience. Meerow et al. maintain that achieving resilience is a desirable goal and define it as “...the ability of an urban system ... to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change, and to quickly transform systems that limit current or future adaptive capacity” (2016, 39). Buyukozkan et al. (2022) note that urban resilience primarily revolves around two goals: allowing for change and enabling normal functions during and after an event. Social resilience focuses more on individuals, communities, and social institutions within the context of the built environment (Rashidfarokhi and Danivska 2023). Measuring resilience using standard metrics is an essential yet challenging goal for local governments (Cutter 2003). In resilience literature, which also explores uses and measures of assets, adaptive capacity is a critical factor in fostering resilience (Metcalf et al. 2015), meaning the ability of a community or system to deal with and adjust to a shock, in which diversity of resources can help (Adger et al. 2005). Resources enable resilience, the continued functioning of society and systems following a shock. Understanding those resources – assets – may help a community better promote resiliency goals by leaning on those assets.

## Community assets

Academic literature broadly defines assets, but their common purpose is to serve a community’s continued functioning, providing important functions that contribute to a community’s level of resilience. The terms “assets,” “infrastructure,” and “capital” describe similar concepts pertinent to this work. A common approach to capital investment planning involves an understanding and assessment of the physical infrastructure, such as roads and water lines, for which a public agency is responsible, which may also be considered the agency’s assets (Marlowe 2009). The National Institute of Standards and Technology categorizes critical infrastructure as “essential services and related assets” crucial to a functioning society (Barker and Barker 2016, 2). The National Oceanic and Atmospheric Administration considers assets, in the context of coastal planning, to be “people, places/buildings/infrastructure, and natural resources” (NOAA Office of Ocean and Coastal Resource Management 2010). These definitions for infrastructure comprise the assets commonly considered in emergency planning by jurisdictions.

However, moving beyond the infrastructure planning approach to a broader definition of assets can incorporate what a community considers its assets in addition to the infrastructure

elements. Critical infrastructure is commonly referred to as substantial assets, which require substantial investment, have long lifespans, and are essential to society's functions. Adaptive critical infrastructure means "tangible and/or intangible systems that are vital for supporting human life and necessary to achieve social, cultural, economic, and environmental outcomes" (Huddleston et al. 2022, 70). The Community Capitals Framework (CCF) categorizes community capital into seven key assets: natural, cultural, human, social, political, financial, and built environment (Emery & Flora 2006). The Asset-Based Community Development Approach considers six categories of assets: contributions of residents, associations, local institutions, local places, exchange, and stories (McKnight & Russell, 2018), starting with the "gifts, skills, and capacities of the community's residents" (Kretzman & McKnight, 1993). Freitag et al. (2015) extend the CCF and categorize capital into three broad categories: built, natural, and social capital, within which specific assets may fall under multiple categories. Community assets are related not only to physical or spatial capital, as defined in the literature, but also to social capital—a measure of community trust—which plays a crucial role in understanding communities' responses to disasters (Blockstein et al., 2024). Assets can encompass various elements of a community, and the literature offers a broad range of options. This work employs the infrastructure management definition of assets to guide this project, focusing on physically identifiable attributes of a community, which may be built or natural spaces while drawing themes from the broader definition of assets considered by Freitag et al.

In *Asset Building and Community Development*, Green and Haines argue that the definition of community includes three key elements: a place-based aspect, regular interaction among residents or users, and a shared interest (Green and Haines 2016, 2). Communities of place are, by definition, dependent on their geographical location. In this work, community assets are viewed similarly, as they contribute to local community resilience. Cagney et al. propose the idea of social exchange (everyday interactions and helping behavior) alongside other social elements like trust and control to determine if residents in an area feel they or their neighbors could recover from a disaster (Cagney et al. 2016). Nguyen et al. advocate for an asset-based community development approach that leverages local, everyday resources, including both physical assets and social capital beyond an individual's resources, to support resilience to natural hazards (Nguyen et al., 2023). Freitag et al. propose that recovery from a hazard event, which they call a change agent, "is a broad process that depends on built, natural,

and social forms of capital” – including spatial assets (Freitag et al. 2014, 325). Spatially located assets may include businesses, public access spaces, public institutions, natural spaces, services, and more, which support community functions. Local for-profit institutions may foster community resilience in post-disaster contexts by leveraging their pre-disaster role, providing a space and identity for customers (Elliott et al., 2023). Local enterprises may emerge to gather and disseminate essential resources in the aftermath of a disaster, thereby enhancing a community’s resilience (Williams 2016). In the context of tsunami risk mapping, emergency-specific resources located in central urban areas facilitate greater overlap between uses, redundancy of assets, and diversity of decision-making (Villagra & Quintana, 2017). Assets enable resilience, and community assets can bolster community resilience to disasters.

Community asset mapping is a participatory exercise that involves community members and stakeholders, emphasizing the values of inclusion, transparency, and empowerment (Parker, 2005). It is essential to note that this work builds on existing research about community assets rather than focusing on engaging the community to identify assets. Failing to conduct a new community-led asset identification process carries a risk of excluding some communities, as the list of assets under analysis necessarily prescribes the assets for the entire study area without interviewing or surveying additional community members (Stanton & Tilt 2023).

## Asset analysis & prioritization

From the sociological research context, the prioritization of assets primarily focuses on how community members assign significance to established assets. Methods for ranking assets are uncommon in these fields. One paper employed a hierarchical cluster analysis of community-identified assets, which were ranked in importance by the residents of an urban neighborhood, to investigate how types of assets with a given level of importance relate to one another (McPherson et al. 2020). Identifying conceptual importance clusters can assist in prioritizing municipal programs. For example, investing in both the farmers' market and a community garden could be a more efficient way to support community development (McPherson et al. 2020).

In the field of infrastructure management, both private and public entities evaluate capital projects (infrastructure assets) through various analyses based on the selected approach, typically starting with a cost-benefit evaluation and then progressing to prioritization. The options for

analyzing assets include experience-based judgment, departmental service-level objectives, broad categories of need, urgency-of-need criteria, a weighted rating system, and organizational goals, among others (Marlowe 2009, 70). When options cannot be easily compared, a multicriteria analysis (MCA) approach—also known as multicriteria decision analysis (MCDA)—provides metrics to differentiate between very different choices. One systematic review of MCA methods outlines eleven possible types of analysis (Velasquez & Hester, 2015). A standard MCDA method is the Analytical Hierarchy Process, which utilizes criteria relevant to decision-makers. However, it can be complex and is further complicated when users apply different weights to the criteria (Chompook et al., 2023). Criteria selected for analysis in MCA can vary significantly in number regarding asset performance against hazards—three in a study on flood strategies (Mejia-Argueta et al. 2018), six in a community MCA process in flood-prone areas of Spain (Riera-Spiegelhalder et al. 2025), and up to 28 in a resilience score for communities at risk of earthquakes in Iran (Sani et al. 2022). The selected criteria should avoid redundancy, be operational, remain independent of one another, and capture the key aspects of the stated goals to support the analysis (Department of Communities & Local Government 2009). Choosing criteria carefully and publishing the results can “enhance the opportunity for the public to hold decision-makers accountable,” increasing transparency and providing important background for how decisions are made (Whittington et al. 2016, 12). This assessment employs the “weighted linear combination method” (Sani et al. 2022, 8) to create a ranked list of asset sites.

The Grays Harbor County Capital Facilities Plan for 2023-2028 identifies a list of projects “prioritized based on asset improvement needs and urgency and then balanced with likely available funds, and/or constraints of available funds” (2024, 4). The methods used in this assessment are consistent with those employed in GIS MCDA. The benefit of integrating GIS with MCDA is the ability to merge values from decision-makers or other participants in the MCDA process with GIS data, resulting in more participatory and transparent policies and decisions (Malczewski 2006, 717). A manual from the Department for Communities and Local Government of the United Kingdom explains in depth the important role of multicriteria analysis, asserting that “reliable and transparent support for decision making is usually best achieved using numerical weights and scores on a cardinal scale” (2009, 27), from which this assessment follows the linear additive method.

## Chapter 3: Methods

This analysis is a methodological study proposing a framework to evaluate assets along community resource sharing themes. The research questions explored in this analysis are: How are Westport's community assets affected by hazards? For post-event scenarios, how can assets be prioritized according to resource-sharing goals and activities expressed by the community?

To answer these questions, the research design methods consist of three parts. The first part involves collecting and winnowing assets based on a previously identified list from the 2018 workshops. The second step focuses on analyzing exposure to hazards. The third step ranks the assets using multicriteria analysis. The goal of this work is to determine which assets align with the criteria for identifying sites based on activities connected to the SCC research goals of supporting community resilience through resource sharing.

### Hazard Data

The hazards examined in this analysis are tsunamis and sea level rise (SLR) inundation. Westport community leaders chose to study these three tsunami scenarios and two sea level rise scenarios in the workshops in 2018, and this work will follow the precedent set at the workshops. To understand the exposure of the selected assets to these two threats, I applied five hazard scenarios in spatial analyses to determine whether inundation would occur.

Tsunami models utilize “t-shirt size” references for events in the Cascadia earthquake zone. Earthquake sizes range from small (SM) to extra-extra large (XXL), each with associated likelihoods of occurrence; an M earthquake event is considered “most likely” (Witter et al. 2013, 1792). It is recommended that tsunami applications for planning, construction standards, and engineering rely on either M or L scenarios (Witter et al. 2013, 1801). However, all modeling is subject to oversimplification, a point that will be revisited in the discussion. The tsunami data for this analysis is sourced from the Washington Department of Natural Resources Geologic Survey. The tsunami of the 1700s serves as a model for the last major tsunami generated by a Cascadia earthquake in Washington. The L1 tsunami model is the primary hazard scenario employed by Washington agencies for hazard planning. The L1 tsunami event is significant, characterized by a magnitude 9 earthquake along the Cascadia fault, which triggers a large-scale tsunami along the

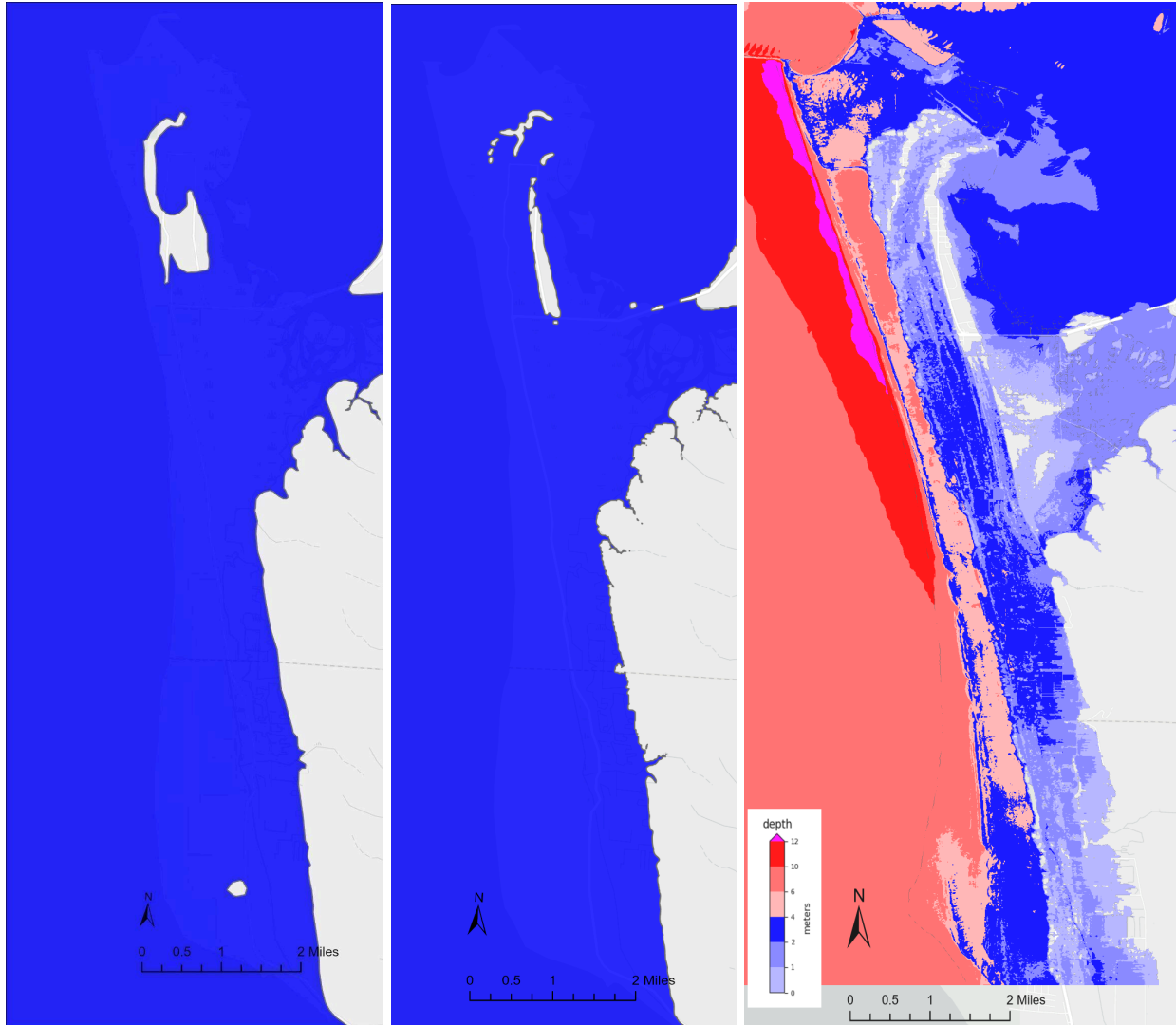
Washington coast. Data for the M1 tsunami scenario in Westport was provided by Prof. Randall LeVeque from the University of Washington Department of Applied Mathematics, who performed a simulation using the open-source tsunami modeling code GeoClaw distributed as part of Clawpack.<sup>[1]</sup> He is a core developer of this code and has used it in modeling Westport for past hazard assessment projects (Wei et al. 2024). This simulation of the M1 tsunami scenario has not been previously published and was provided solely for research purposes.

Both the L1 and 1700s tsunami scenarios are represented in this analysis by a polygon indicating the total area of inundation within the study area over a four-hour period following a Cascadia earthquake (Fig. 5, left and middle images). The region within the polygon signifies inundation, while the area outside it indicates no inundation. The M1 tsunami scenario in this analysis is depicted as a raster image which was used for overlaying to assess site inundation. Across all tsunami scenarios, the white areas are those which remain dry or un-inundated in the models as shown in Figure 5. The inundation represented by the data used in this analysis accumulates over an estimated four-hour period of potential tsunami impact. It may not accurately depict areas of inundation at any specific moment during a tsunami event.

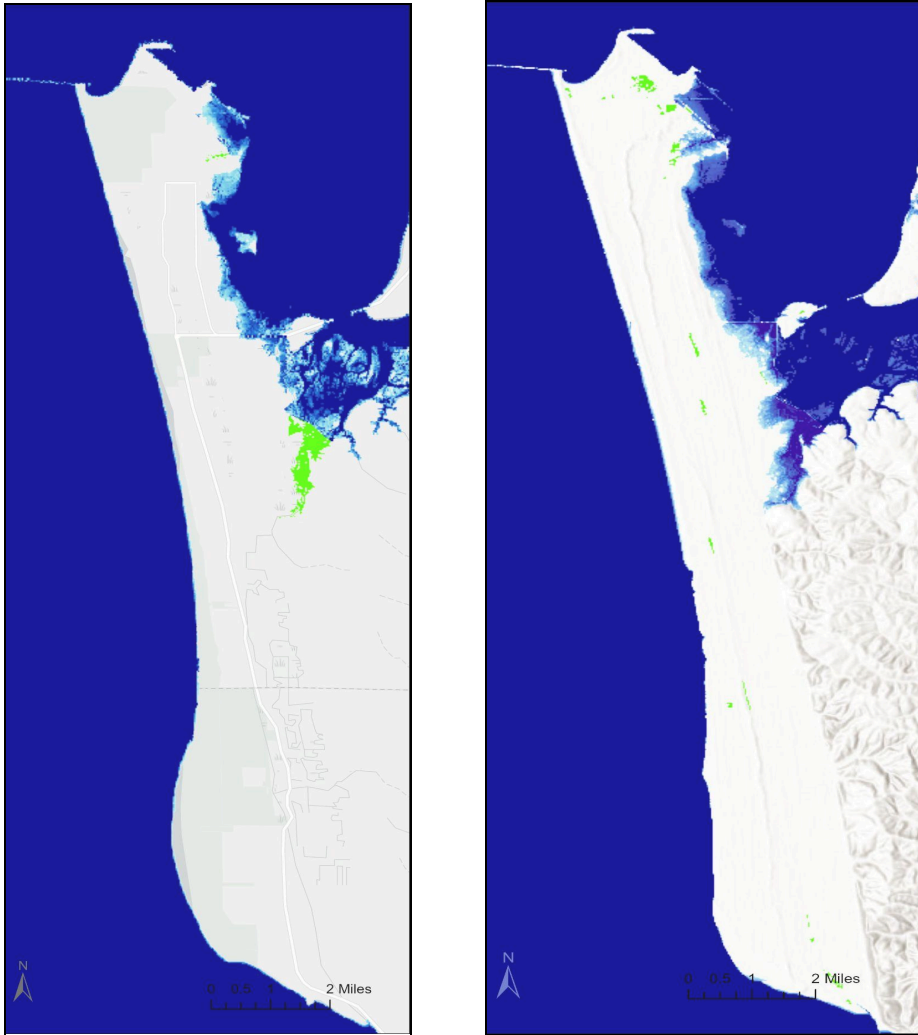
The two sea level rise scenarios selected demonstrate projected mean higher high water (MHHW) tidal inundation of coastal areas by 2100 under two global emissions scenarios, along with anticipated tide movements, shown in Figure 6. Data is provided by the U.S. National Oceanic and Atmospheric Administration. The team chose one lower scenario and one mid-range scenario, corresponding to 1 ft of anticipated sea level rise and 3 ft of projected sea level rise, respectively. These scenarios align with those presented in the initial asset gathering workshops from 2018, ensuring continuity in research and consideration of which hazards threaten which asset sites. Importantly, the maps of SLR inundation depict only a median modeling of MHHW tide levels, excluding higher storm surge or wave impacts. Inundation from an SLR1 scenario could occur in an area as large as the SLR3 scenario if multiple hazard events, such as a king tide, ocean storms or swells, and heavy rainfall coincide, contributing to the same “islanding” effect by overtopping SR105 as the primary road in and out of the study area.

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<sup>1</sup> Clawpack Development Team (2025), Clawpack Software Version 5.12.0, <http://www.clawpack.org>, doi: 10.17605/osf.io/kmw6h.



*Figure 5. Tsunami inundation areas over a four-hour period following different scenarios of earthquakes on the Cascadia subduction fault: 1700s tsunami (left), L1 tsunami (middle), M1 tsunami (right). Areas in white are “high and dry”(not inundated). The M1 image on the right shows additional information in shades of blue and red for the depth of water in areas that are inundated. Inundation is modeled compared to the mean highest high water line.*



*Figure 6. Sea level rise inundation areas for 1ft (left) and 3ft (right) scenarios. Variation in shades represents different levels of inundation above current mean highest high water line and underlying land elevation. Green shaded areas is land that would be inundated based on its elevation only, but which is separated from the sea by a barrier of some kind, such as an elevated road or dike.*

## Step 1: Asset Data

The data compilation process began by parsing assets from the 2018 workshop, which I undertook with a research team of two undergraduate students, Annika Jensen and Mya Baker. The determination of which assets to include in this analysis is documented below in Figure 7. Aggregated mentions of assets from the 2018 workshops were compiled into a single list and evaluated based on whether the research team classified each category as either “Spatial,” “Theme,” or “Unidentified.” “Theme” and “Unidentified” refer to assets that could not be

located or were considered too vague to have a clearly identifiable spatial element distinct from other stated assets. For instance, on the initial asset list, Asset 48 - Senior House Grocery Store could not be identified after searching, and Asset 11 - Tourism / Attractive Community was deemed too vague to have a specific spatial location. The remaining assets are labeled as Spatial. The full list of 67 originally identified assets is in Appendix A. This analysis is retrospective, as the community-generated asset data was gathered in a previous research project in 2018. However, the research team did some ground-truthing to identify asset sites within categories: for the After School Programs asset category, community member Andrea Mirante, who works with the University of Washington on the SCC project and founded the South Beach Youth Center, provided the sites within the study area where after-school programs have occurred.

After the initial step of data cleaning, the research team sought geospatial data and digital shapefiles for use in ESRI's ArcGIS software to represent the remaining assets for analysis. Data sources for both assets and hazards included the Washington Department of Natural Resources, the Washington Department of Health, Grays Harbor County Public Works, Pacific County, and the National Oceanic and Atmospheric Administration. The complete data dictionary of assets and hazards which mirror the 2018 workshops is provided in Appendix D.

To prioritize and rank these sites, the unit of analysis must remain consistent. The complete list from the 2018 workshop includes a wide range of assets, from timber sources to surf spots on the beach to freshwater wells. The most common unit of analysis for all assets is based on parcel data (i.e., the asset site is a recorded parcel with the county assessor's office). Only those assets for which the data comes from their respective county parcel records are included in this prioritization analysis.

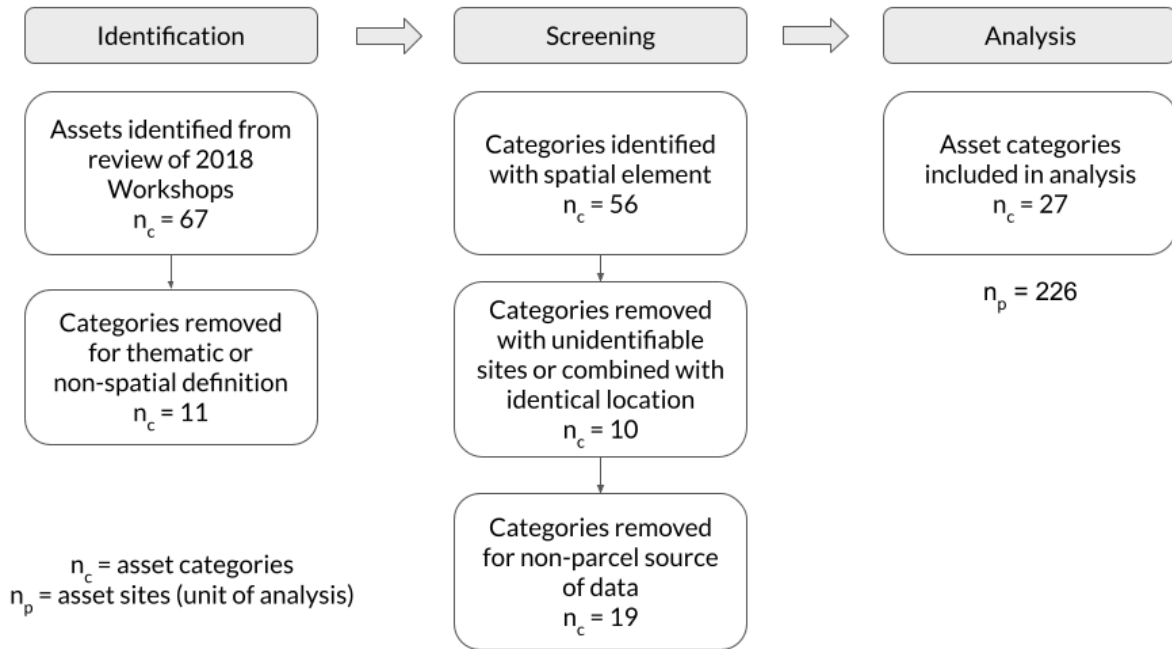


Figure 7. Process for screening assets from the initial 2018 workshop for use in MCA.

This work analyzed 27 identified asset categories, containing 226 total asset sites, represented by discrete points for GIS analysis, and 3,528 total parcels under study when including residential parcels. See Figure 3 for the identified parcels in the study area.

## Step 2: Exposure analysis

After gathering geospatial asset data, the research team cleaned and clipped the data to the study area as noted in Figure 2. The team converted the GIS data, initially downloaded as a mixture of polygons and points, into points using the centroid of each polygon. The goal of prioritization is to determine the exposure of identified asset sites to the five hazard scenarios. Of those properties that are not exposed to the hazard extent within each scenario, prioritization then compares the remaining properties according to their performance against the criteria. In the first step of prioritization among the scenarios, asset sites are compared for their exposure to inundation. The analysis results in a binary variable, where a raw score of 1 represents inundation and thus assumes associated loss of function and/or availability of the asset. To proceed to the next step of analysis, an asset site must receive a score of 0.

The next step is to determine the criteria for ranking assets. Weights are assigned to the chosen criteria to reflect their relative importance, as shown in Table 1 below. Each asset

receives a raw score indicating how well that asset site meets each criterion, with scores ranging from 1 to 10. The assigned weights are multiplied by the raw scores to produce a weighted score for each asset site against each criterion. Each site is then given a total score by summing all the individual weighted criterion scores (this is technically known as the “weighted linear combination method”) (Sani et al. 2022, 70). The cumulative weighted scores for each asset site ranks the sites from highest to lowest score.

### Step 3: Criteria scoring

The criteria for this analysis are selected based on the desired goals of this work and informed by previous research related to the South Beach community, particularly the topic of resource centers as discussed by interviewees with Cano-Calhoun (2021). The aims of this work are to develop information that can help facilitate the sharing of resources. Themes identified in the Cano-Calhoun interviews regarding community resource sharing, particularly the interviewees’ discussions on resource centers and information sharing, significantly informed the criteria used in this work.

I reference the Cano-Calhoun work extensively for the criteria because this analysis aims to identify where a spatial improvement to or investment in a spatial asset site should occur, and the closest concept from the literature which considers spatial elements and physical improvements is the discussion of resource centers. The Cano-Calhoun work provides a framework for how this analysis may contribute to the larger NSF project, particularly regarding the conversation on resource centers, as the idea of resource centers may also apply to the SCC project by serving as sites for the proposed technology, whether physical or virtual (e.g., as a node, identification point, source of information, for the app). Although the Cano-Calhoun research does not analyze spatial assets or their development, the emphasis on community assets and preparedness culture aligns with this project’s focus on identifying asset sites that could best serve as community-resource spots (though the eventual use of these sites is beyond the scope of this analysis). Three themes that emerge from the Cano-Calhoun work, particularly concerning resource centers, serve as the criteria in this analysis.

The three criteria are Centrality, Current and Flexible Uses, and Identifiability. Each criterion and its underlying rationale are explained further below. The criteria are assigned weights to be used as multipliers, and each selected asset is given a raw score between 1 and 10

based on its ability to meet the terms of the indicated criterion, as detailed further below. A codebook is included in Appendix C.

*Table 1. Criteria for ranking among assets, score range, and multiplier weights.*

Criteria	Threshold	Scoring	Weight
Centrality	What is the density of residential parcels that are contained within the access radii around each site?	1-10	8
Uses	How mixed is the site in its built form, alluding to multiple potential uses?	1-10	7
Identifiability	How identifiable and open is the site to the community, and how many times was the site mentioned in the 2018 workshops?	1-10	9

## Centrality

This criterion aims to evaluate how accessible an asset is to residential parcels using an approximate visual assessment method based on buffers created around each site. The rationale for this criterion stems from a series of research interviews conducted in 2023, drawing on themes discussed regarding resource access (Cano-Calhoun et al. 2024). A Westport leader quote highlights this theme, speaking about the location of potential resource centers:

“‘The town is kind of weird in that it's got this marina with all of these businesses and there are people up in that area but it's more of a business district and I...feel like the place where people live, that's where support needs to be provided, and that's not in the business area. I'm just inclined to say...where all the houses and residents are,'” (Cano-Calhoun 2021, 58).

Another resident said, also speaking about an ideal location for a resource center in the study area: “‘It's kind of like, Grayland needs one but Westport has more people; they could probably use a second one.'” (Cano-Calhoun 2021, 62). Drawing on the theme from these quotes, this criterion aims to prioritize asset sites that are more centrally located to the concentrations of South Beach residents.

The method for determining access involves a visual assessment of the density of residential parcels within a specified buffer distance around each site. The team utilized the ESRI

ArcGIS Buffer tool to establish distances from the asset site, creating buffers for driving, walking, and strolling. The distances were determined according to a CDC standard pace of approximately 3.5 miles per hour (or 1.5 meters per second) over a 15-minute timeframe (CDC). The selected distances were reduced by 10% to address the discrepancy between the straight-line analysis employed by the Buffer tool and the actual paths taken by users. The distances used for the buffer around each asset included:

Driving = 13,200 ft, actual distance used: 11,880 ft.

Walking = 4,092 ft, actual distance used 3,682.8 ft.

Strolling = 2,046 ft, actual distance used 1,841.4 ft.

*Table 2. Centrality criteria scoring determinations.*

Score	Definition	Determination
1-2	Very low centrality	Few residential parcels fall within the access buffers, even at driving distance.
3-4	Low centrality	Some residential parcels fall within the access buffers.
5-6	Medium centrality	Many residential parcels fall within the walking access buffer; some within the driving buffers.
7-8	High centrality	Many residential parcels fall within the walking access buffers, and within the driving buffer.
9-10	Very high centrality	Significantly most of the pedestrian access buffers around the site are filled with residential parcels.

The centrality criterion carries a weight of 8 points on a scale from 7 to 9. In achieving the broader project goals of leveraging technology to connect the community that this research supports, resident access is a crucial component of asset location, although not the most important. In comparison to the other criteria, the definition of centrality is limited to the current locations of assets and residents and does not take into account potential future changes to asset sites or upcoming needs. Nevertheless, the centrality of asset sites to residents is important from a hazard perspective, especially concerning tsunami hazards, where time to destination is critical. Thus, I assigned the criterion a weight of 8.

## Current and Flexible Uses

The ability of an asset site to be utilized for multiple purposes may also be valuable in supporting ongoing community functioning and resilience after a hazard event. This criterion evaluates whether a site’s physical elements could support both its current purpose and potential alternative uses in the event of a disaster. This criterion is grounded in previous research themes that emerged from community members in the Cano-Calhoun interviews. In discussing community resource centers and their potential for other uses, one Westport resident stated: “Well...the school is kind of the center of the community in a lot of ways, not just for the students attending there, but all the sporting events and community events that go on there,” (Cano-Calhoun 2021, 64). This highlights the value of the Ocosta school site, which includes parking lots, school buildings and facilities, and open space for sporting activities, serving in multiple roles in its primary use for education and in other uses, such as social events for the broader community.

The themes from this quote provide the scoring mechanism for this criterion. The school serves multiple purposes, and its site comprises various built forms—buildings, food and water facilities, storage areas, and open spaces—indicating a high potential for flexible uses beyond its current application. This criterion aims to evaluate how a site’s land use could support different functions, whether in everyday life or during a disaster. Potential uses could include storage, shelter, food sources, cooking facilities, water access, recreation, community connections, infrastructure, and more. For example, a restaurant may provide food during normal times and could serve as a community kitchen for residents, perhaps for those who lost property in the “islanded” area due to a natural disaster. A timber resource site supplies lumber under normal conditions and could offer hunting grounds during a disaster. A state park with campgrounds provides accommodations and open space.

In scoring each site, I examined the buildings and elevation data of the site as shown on ArcGIS pre-loaded basemaps to determine each site's score. A variety of environments on a site enables a wider range of potential uses, and for purposes of this assessment, receives a higher score.

*Table 3. Use criteria scoring determinations.*

Score	Definition	Determination
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1-2	Low use and flexibility	The site is entirely dominated by one form (whether built or natural), has difficult terrain (e.g. hilly) and is not flexible to be used for any other purposes such as storage, shelter, food source, cooking, water, recreation, community connection, infrastructure, or others.
3-4	Low-medium use and flexibility	The site is entirely dominated by one form; it has one current use but is flexible to be used for another purpose.
5-6	Medium use and flexibility	The site is mostly dominated by one form, and/or has a flexible structure that can be partially changed, and can be used for a couple additional purposes.
7-8	Medium-high use and flexibility	The site is fairly evenly split between buildings and other forms like open space, and/or has a flexible structure that can be changed in some ways, and the site can be used for several other purposes.
9-10	High use and flexibility	The site contains an equal mix of buildings and open space, and/or has a flexible structure that can be easily changed. The site can support multiple other uses including storage, shelter, food source, cooking, water, recreation, community connection, infrastructure, and others.

I assigned a weight of 7 to the use criteria after calculating the raw score. Sites in more rural areas are generally less dense, and more lightly developed, which I argue allows for greater flexibility in potential physical changes to a site compared to a densely populated urban area with higher building density, less open space, and limited adaptability for construction. While a greater number of site uses is essential, in the context of the other goals, this is the least critical measure.

**Identifiability**

The purpose of this criterion is to align with the values drawn from the original workshops. Participants mentioned values such as community pride and the small community (Abramson et al 2019, 2). The identified assets in the hazard context may be significant for their roles as gathering spaces and well-known sites within the community, particularly in terms of their location and the functions they serve during normal times. This criterion draws on the

Lynchian concept of "identifiability," where objects must be "recogni[zed] as a separable entity," often serving as landmarks for people navigating through a place (Lynch 1960, 8). Additionally, this criterion aims to assess whether a site acts as a point of connection among multiple community members, serving as a gathering space or a place accessible to all community members and acknowledged by the community. The idea of a site being "known to the community" is supported by quotes from the Cano-Calhoun interviews. One resident, discussing a potential resource center, stated:

“I know that one of the evacuation routes is just up the hill from that...location. So it seems like, in the event of an emergency caused by an earthquake or tsunami, people would sort of be channeling themselves in that direction anyway” (Cano-Calhoun 2021, 60).

Moreover, the values identified by community members in the 2018 workshops highlight the importance of this criterion. One of the values mentioned by each of the groups was tourism/ attractive community. This criterion refers to the stated community value—identifiable locations are also those spots that make the Westport peninsula a tourist destination, such as the Blue Buoy Restaurant or Grayland Beach State Park.

This criterion is assessed based on the research team’s knowledge of the area, combined with additional methods to provide the score. These methods include determining whether a site is listed by name on the ArcGIS base maps (or Google Maps, if needed for corroboration) and counting the number of times the asset category was mentioned in the 2018 workshops, which ranges from 1 to 6 mentions. However, the number of mentions as a rough measure does not provide detail to asset sites, only for asset categories. Collectively, the decisions made for each site in the study area applied the criteria outlined above to determine the score for each site.

*Table 4. Community identifiability criteria scoring determinations.*

Score	Definition	Determination
2	Very low community identifiability	The site is not well known, or easily identifiable by members of the South Beach community. The site may be used or is open only to a select few.
4	Low community identifiability	The site is known and identifiable to a few members of the South Beach community. The site may be used or is open to several but not all groups in the community.

6	Medium community identifiability	The site is well known and identifiable by some, but not all, members of the South Beach community. The site may be used or is open to some but not all groups in the community.
8	High community identifiability	The site is well known and identifiable by most members of the South Beach community. The site may be used or is open to most members of the community.
10	Very high community identifiability	The site is very well known and identifiable by all members of the South Beach community. The site may be used or is open to the entire community.

I assigned a weight of 9 to the community identifiability criteria after determining a raw score. In both normal times and during disasters, a resource is only as valuable as it is recognizable within the community. The goal of this work is to identify sites that could serve as prime locations for future investment. Utilizing a site already familiar to the community can enhance the value of future changes and reinforce areas already deemed important. This research is forward-looking and aims to contribute to broader community goals focused on resilience. Prioritizing known locations that are open, welcoming, and inclusive for all community members builds a solid foundation for any future changes, ensuring those sites are beneficial in both everyday and disaster-related situations.

## Chapter 4: Results

The primary variation among scenarios lies in the exposure of hazards to asset sites. Site scores remain consistent across hazards, as each site's performance against the stated goals does not fluctuate among scenarios. There are a total of 226 asset sites in the study area, distributed across 27 asset categories. Some categories contain numerous sites, while others include only a single site. Within each hazard scenario, the remaining assets maintain the same score despite the varied sites after the exposure test. The descriptive statistics for each hazard are provided below in Table 5.

*Table 5. Comparing summed weighted site score statistics across hazard scenarios. The highest-scoring sites, and least exposed sites, are in the SLR scenarios.*

	1700s	L1	M1	SLR1	SLR3
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Maximum Weighted Score	156	200	200	211	211
Minimum Weighted Score	58	40	57	40	40
Mean Weighted Score	79	79	91	97	96
Median Weighted Score	73	71	81	89	89
Number of Unexposed Sites	64	67	90	215	208

A higher score indicates the sites perform well under the criteria, while a lower score indicates the sites perform poorly. The highest possible score is 240 for a site, and the lowest is 24.

## L1 Scenario

The L1 tsunami scenario poses a significant risk of asset exposure throughout the study area. Of the total sites, 73 are considered not to be exposed to inundation during an L1 tsunami, according to the GIS analysis, as shown in Figure 8. The remaining sites are distributed across 8 asset categories. The breakdown of average scores per category is outlined below.

*Table 6. Weighted asset scores grouped by asset category for the L1 scenario.*

	Mean	Maximum	Minimum	Count
After School Programs	200	200	200	1
Coast Guard	120	120	119	2
City Parks	118	124	109	4
School	200	200	200	1
Hotels	54	71	40	4
Hunt	91	91	91	1
Shoalwater	112	112	112	1
Timber	69	89	58	52

The highest-ranked asset site is Ocosta Elementary & Junior-Senior School (Parcel 161119220080). The school is an identified asset site in both the After-School Programs and the School asset categories.

The following top-five highest scoring sites include the After School Programs site 3 and School site 1, Lighthouse, Parks site 1, Parks site 5, and Coast Guard site 2.

*Table 7. L1 scenario highest-scoring five sites in ranked order.*

Asset Category	Asset Site Name	Site Rank
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After School	Ocosta Elementary & Junior-Senior School	#1
School	Ocosta Elementary & Junior-Senior School	#1
Lighthouse	Westport Lighthouse	#2
Parks	Westport City Park (Parcel 1)	#3
Parks	Westport City Park (Parcel 5)	#4
Coast Guard	Coast Guard Residences (Parcel 2)	#5

After-School site 3 and Schools site 1 are located on the same parcel – Ocosta School, situated on a high bluff within the City of Westport, serving the entire community within the study area. However, in returning to the original list of assets identified by the community at the 2018 workshops, “the school” and “after-school programs” fall into distinct asset categories, serving different purposes and values. The After School asset category has a total of 3 sites within the study area, while Schools have 1 site.

The Lighthouse is the Westport Lighthouse, located within Westport Lighthouse State Park. Parks site 1 refers to the north-west parcel of Westport City Park, Harriett Dorland Municipal Park. Parks site 5 refers to the southwest parcel of Westport City Park, both of which are located at the top of the peninsula. The Coast Guard Site 2 refers to the upper parcel of the Coast Guard residences, located at the northern end of the Westport peninsula, which does not contain houses.

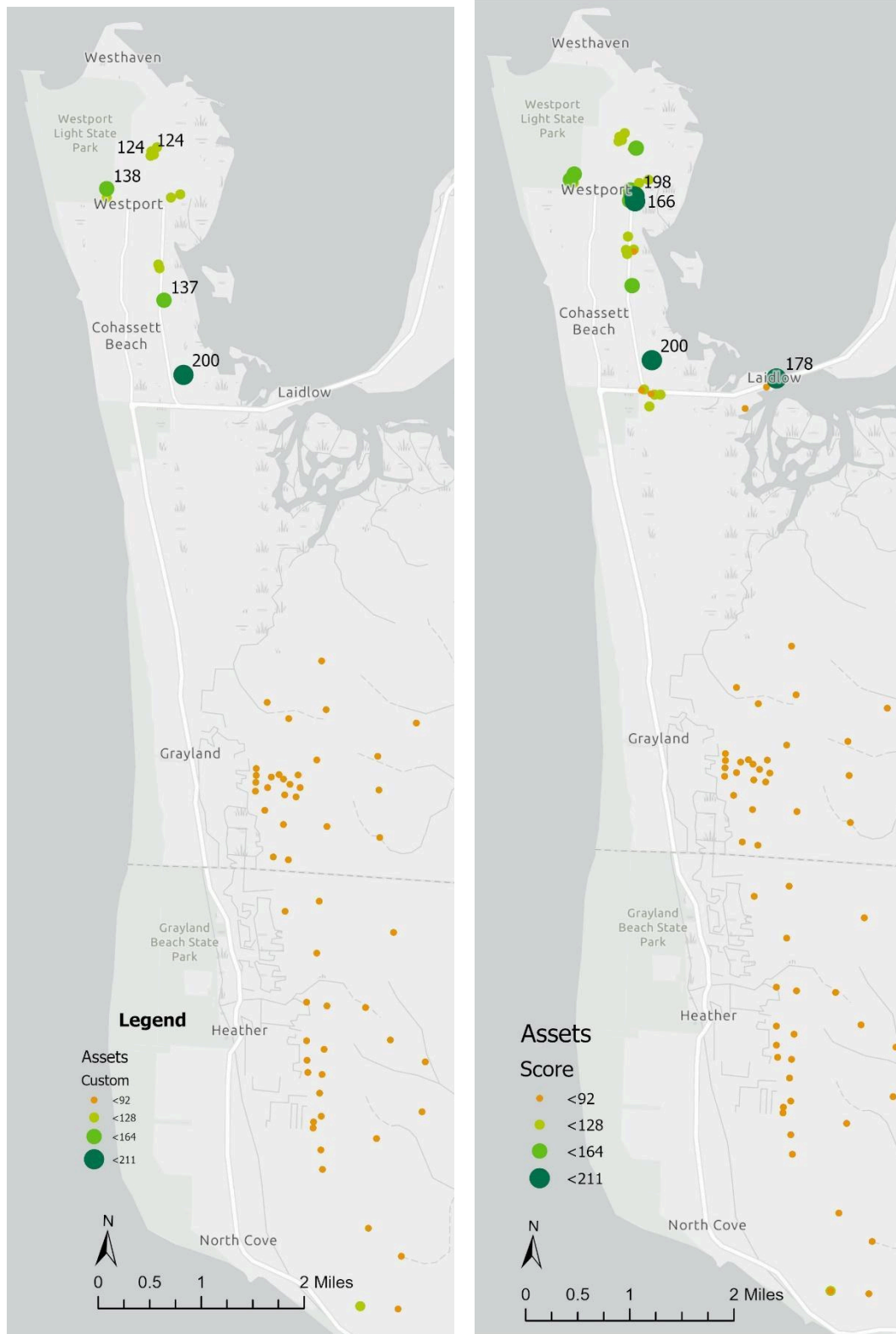


Figure 8. Map of asset sites not exposed to both the L1 (left) and M1 (right) tsunami scenarios, categorized by sum of weighted scores.

## M1 Scenario

The M1 modeled scenario exposes fewer assets to inundation in the Westport city area, but has a similar effect as the L1 along the southern coastline. There are 17 asset categories, comprising 89 sites, not inundated by the M1 model as shown in Figure 8. Scoring results for the asset categories are shown below:

*Table 8. Mean of weighted asset sites, grouped per asset category, for the M1 tsunami scenario.*

Categories	Mean	Maximum	Minimum	Count
After School	185	200	169	2
Parks	118	124	109	4
Hotels	113	137	90	7
Hunting	78	91	65	4
Shoalwater	112	112	112	1
Timber	69	89	58	52
Utilities	89	89	89	1
Police	200	200	200	1
School	153	153	153	1
Clinic	90	90	90	1
Library	166	166	166	1
Food	133	198	57	7
Fire Authority	100	100	100	1
Community Spaces	122	128	116	2
Coast Guard	129	138	120	2
Chamber of Commerce	106	106	106	1
Brady's Oyster	178	178	178	1

The top 5 highest scoring sites include After School site 3 and School site 1, Food site 34, Brady's site 1, After School site 2 and Food site 25, and Library site 1.

*Table 9. M1 tsunami scenario highest-scoring five sites in ranked order.*

Asset Category	Asset Site Name	Site Rank
After School 3	Ocosta Elementary & Junior-Senior School	#1
Schools 1	Ocosta Elementary & Junior-Senior School	#1
Food WP 34	Shop n' Kart Grocery	#2

Brady's 1	Brady's Oysters	#3
After School 2	The Helm	#4
Food WP 25	The Helm	#4
Library 1	Westport Timberland Library	#5

Ocosta School falls into both the After School Programs asset category and the School as an identified asset by the community. It is a top-scoring site against the established criteria. Food site 34 is the Shop n' Kart Grocery, the sole grocery store within the study area, located along S Montesano Street (a prominent thoroughfare through the City of Westport) at the base of the eastern bluff.

Brady's Oysters is a local business with a wide customer base and has been an establishment in the community at its current location for over 40 years. After School site 2 and Food site 25 are the same site, the current location of The Helm, a local non-profit institution primarily serving youth in the community (the parcel is zoned for Trade - Food establishment, and the building is currently used for office / other space). The Helm is also located on S. Montesano St. and is directly across the street from Library site 1, the Westport Timberland Library.

## 1700s Scenario

The 1700s modeled hazard inundation area is slightly less extensive compared to the L1 hazard but still poses an inundation threat to many asset sites in the study area. After running the exposure phase, a total of 64 sites remain un-inundated by the 1700s model, across 8 asset categories. See Figure 9 below for the visual results of the asset site rank. Among the asset categories for sites not exposed to this tsunami hazard, the average score per category is shown below:

*Table 10. Asset scores per category for the 1700s tsunami scenario.*

	Mean	Maximum	Minimum	Count
City Parks	139	139	139	1
Hotels	111	137	64	4
Hunt	91	91	91	1
Shoalwater	112	112	112	1

Timber	69	89	58	52
Food	130	130	130	1
Coast Guard	126	138	119	3
Lighthouse	156	156	156	1

The top five highest-scoring sites under this modeled scenario include the Lighthouse, Parks site 6, Coast Guard site 5, Hotels site 6, and Food site 26.

*Table 11. 1700s tsunami scenario highest-scoring five sites in rank order.*

Asset Category	Asset Site Name	Site Rank
Lighthouse	Westport Lighthouse	#1
Parks	Westport City Park	#2
Coast Guard	Coast Guard Residences (Parcel 5)	#3
Hotels	LOGE Westport	#4
Food	Unnamed Building	#5

The Parks site 6 is the westernmost parcel within the Westport City Park (Harriett Dorland Municipal Park) area. Coast Guard site 5 is a lower parcel of the Coast Guard residences, which contains the houses. Hotels WP 6 is the LOGE Westport, a hotel located along S Montesano St. Food WP 26 is an unnamed building located across the street from the lighthouse, whose form appears to be set up for a drive-through restaurant but as of the most recent Google Street View image in 2022 did not have any outwardly identifiable details.

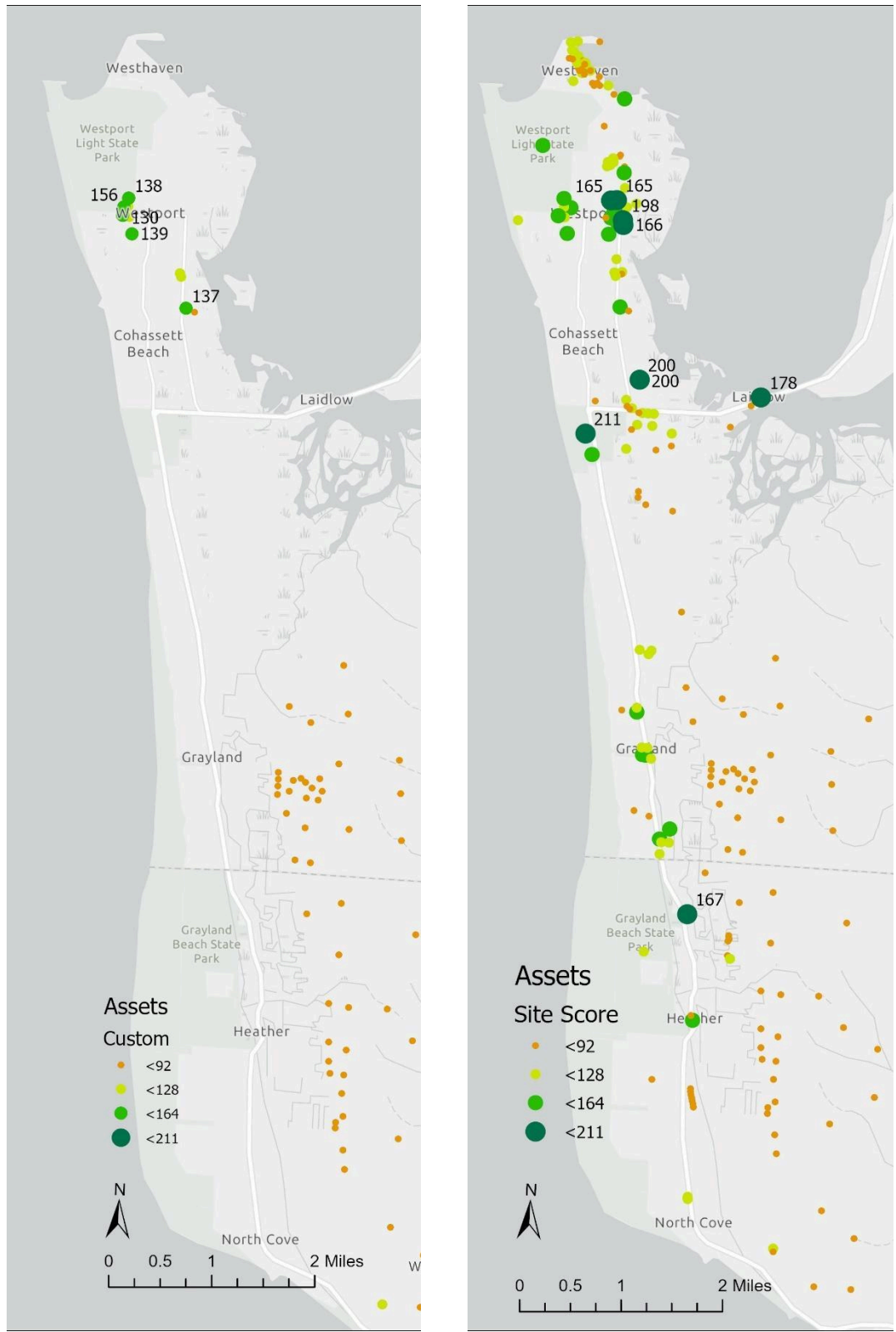


Figure 9. Map of asset sites not exposed to the 1700s tsunami scenario (left), and the SLR3 scenario (right), categorized by weighted site scores.

## SLR1 Scenario

The 1 ft sea level rise scenario does not pose a high risk of exposure to most asset sites in the study area. However, it still presents a risk of “islanding” for the study area due to the potential regular inundation of key roads. The road connecting the northern bridge, SR 105, passes through a low-lying area on the peninsula. Inundation over this road would effectively “island” the study area on an occasional basis from vehicle access.

Out of the total asset sites, 215 sites are not exposed to 1 foot of sea level rise inundation, among 27 asset categories. See Figure 9 above for a visual representation of asset site rankings. Among the asset categories for sites not exposed, the average score per category is shown below:

*Table 12. Asset scores per category for SLR1 scenario.*

Categories	Mean	Maximum	Minimum	Count
After School	159	200	109	3
City Parks	122	139	109	6
Hotels	85	137	40	29
Hunt	86	107	65	18
Shoalwater	112	112	112	1
Timber	73	105	58	69
Waste Water Plant	110	110	110	1
VFW Post	120	120	120	1
Utilities	91	105	74	6
State Parks	187	211	163	3
School	200	200	200	1
Police	153	153	153	1
Ocean Gold	117	117	117	1
Pharmacy	90	90	90	1
Clinic	90	90	90	1
Library	166	166	166	1
Historical Sites	91	91	91	1
Food	102	198	48	40
Fire Authority	136	165	100	6
Cottages	101	101	101	1
Condos	105	105	105	1

Community Spaces	136	167	81	14
Community Garden	126	126	126	1
Coast Guard	130	142	119	5
Chamber of Commerce	106	106	106	1
Brady's Oyster	178	178	178	1
Lighthouse	156	156	156	1

The top five highest-scoring sites under this modeled scenario include the State Parks site 2, After School site 3 and School site 1, Food WP site 34, State Parks site 3, and Brady’s site 1. The site rankings are shown below in Table 13.

*Table 13. SLR1 inundation scenario highest-scoring five sites in ranked order.*

Asset Category	Asset Site Name	Site Rank
State Parks	Twin Harbors State Park	#1
After School	Ocosta Elementary & Junior-Senior School	#2
School	Ocosta Elementary & Junior-Senior School	#2
Food	Shop n' Kart Grocery	#3
State Parks	Grayland Beach State Park	#4
Brady's	Brady's Oysters	#5

State Parks site 2 is Twin Harbor State Park, along the Pacific Ocean located roughly at the midpoint of the South Beach area. Food WP site 34 is the Shop n’ Kart grocery store. State Park site 3 is Grayland Beach State Park, the southernmost state park within the study area, located on the Pacific Ocean. Brady’s site 1 is the location of Brady’s Oysters, a local business in Westport.

### SLR3 Scenario

The 3 ft sea level rise scenario does not pose a high risk of exposure to most asset sites in the study area. However, it does present the risk of inundating a larger area than the SLR1 scenario, affecting slightly more asset sites, and still presents risks of “islanding” by flooding over the main road into the community. Under an SLR3 scenario, a greater area of the peninsula and both the low-lying area of SR105 connecting to the bridge, as well as parts of South Montesano Street, would be exposed to regular tidal inundation, and this inundation would pose higher flood risk in the event of high tides or storm surge.

Out of the total asset sites, 208 sites are not exposed to inundation, among 27 asset categories. There is a minimal difference between the asset category scores for the SLR1 and SLR3 scenarios, with the notable exception that an additional seven sites are exposed. Several additional Hunt sites are inundated, as are some Food sites, and the South Beach Veterans of Foreign Wars Post 3057, located within the City of Westport, is also exposed.

The top five highest-scoring sites for the SLR3 scenario are the same as under the 1ft sea level rise scenario: State Parks site 2, After School site 3 and School site 1, Food WP site 34, State Parks site 3, and Brady’s site 1.

### Top Scores Among Scenarios

The highest-scoring assets among the 226 sites are the same as those in the SLR scenarios. The top five sites across assets in this analysis are:

*Table 14. Site ranking of all asset sites under study.*

Asset Category	Asset Site Name	Site Rank
State Parks	Twin Harbors State Park	#1
After School	Ocosta Elementary & Junior-Senior School	#2
School	Ocosta Elementary & Junior-Senior School	#2
Food	Shop n' Kart Grocery	#3
State Parks	Grayland Beach State Park	#4
Brady's	Brady's Oysters	#5

The raw scores for each of the highest-scoring assets provide insights into their applicability for future investments. These sites represent the best performers against the stated goals. Twin Harbor State Park scored a 9 for centrality, a 7 for use flexibility, and a 10 for identifiability. Twin Harbor State Park possesses many desirable qualities for future investments: it is situated in a central area surrounded by existing residential parcels, placing it near a cluster of homes, which is vital for resident access during a disaster. The park features a mix of land uses; it includes accommodation structures, camping facilities, water sources, open space, and natural assets like the beach, which is also a clamming beach. It is a well-known site within the community—a landmark for both residents and visitors.

Ocosta School also has many desirable features, scoring a 5 on centrality, a 10 on uses, and a 10 on identification. The school is situated in a relatively central area on the bluff, although

it is not surrounded by residents as other sites. It features a mix of land uses and existing built structures, including a tsunami tower, storage space, food and water facilities, and open areas. Furthermore, it is highly identifiable, both in its physical location atop the bluff and as the sole school serving the community in the study area and beyond.

Shop n' Kart Grocery scored a 10 in centrality, a 4 in uses, and a 10 in identifiability. The grocery store, the only grocer in the City of Westport and the study area, is centrally located in a dense residential neighborhood. The site is highly developed, though it features a mix of open space (like the parking lot) and the building. As a grocery store, it has superior storage capabilities that other sites may lack (such as large refrigerators). It is easily identifiable, being the sole grocery store in the area, at the intersection of two major roads.

Grayland Beach State Park received a raw score of 7 for access and centrality, 6 for uses, and 10 for identifiability. It is situated in a less dense, yet still residential area. The site features several built structures, camping amenities, and a natural environment, providing a blend of developed and open space. Additionally, it is well-regarded as part of the state park trio in the area.

Brady's Oysters received raw criteria scores of 4 for access, 8 for uses, and 10 for identifiability. It is not located in a residential area, but there are some residential parcels within walking distance, which led to its moderate access score. The site has a balanced mix of built and open space, functioning as both a venue for wholesale and retail food, as well as facilities for storing and processing seafood. It is another local landmark, both physically and literally – notable for its sign, visible from the nearby SR105 bridge, and as a local institution with a Washington-wide market.

## Chapter 5: Discussion

The impacts on assets from the four hazard scenarios vary significantly in scale. SLR1 and SLR3 are, understandably, very similar scenarios that expose a comparable number and type of asset sites. Assets affected by the modeled sea level rise represent only a small portion of the surveyed assets; however, sea level rise would frequently isolate the study area from surrounding communities. Tsunami inundation poses a considerable risk to assets. Importantly, these are merely models and cannot accurately predict the full effects of the hazards. Although the exposure step of this method is based on spatial data, numerous assumptions within these hazard

scenarios pose challenges to precise accuracy. This exercise illustrates only the potential impacts of various hazard scenarios on assets.

Furthermore, a Cascadia zone earthquake context would bring other implications for assets, possibly toppling buildings or causing other damage. Additionally, land subsidence—an aspect not modeled in this study—would also impact assets. The SLR scenarios may serve as a rough proxy for the possible effects of subsidence during an earthquake.

## Differences between hazards

Reconciling between the exposure produced by different hazards is particularly difficult for planning purposes. At the exposure step in this analysis, the most robust scenario, i.e., the hazard with the most significant impact on the evaluated asset sites, is the L1 tsunami scenario. However, this scenario is also the least likely to occur and the most unpredictable. Sea level rise, on the other hand, is predicted to occur in the future as climate change continues, an inarguable hazard that may have further knock-on effects. However, SLR poses the least amount of site exposure among hazards analyzed in this work. Surrounding jurisdictions may provide insights on how to reconcile the differences in hazards.

The Grays Harbor County Hazard Mitigation Plan (2024) employs a multi-hazard approach that addresses both severe but low-frequency events (such as tsunamis) and moderate but frequent events (including severe weather and flooding). The HMP utilizes a Calculated Priority Risk Index (CPRI) system, a type of multicriteria analysis, to rank hazards, considering factors such as probability, magnitude or severity, extent or location, warning time, and duration. The CPRI enables comparison between hazards, such as tsunamis, which are extremely dangerous but less frequent, and severe weather events, which are less severe but more common. The approach emphasizes planning for worst-case events alongside promoting regular maintenance, public education, and infrastructure improvements to build overall community resilience. The HMP and CPRI take a vulnerability-first approach, starting with risk and determining where to allocate resources, whereas this assessment begins with assets and then evaluates their exposure. Extrapolating the lessons from the HMP to apply to this analysis, the tsunami scenarios should take precedence for immediate investment, such as establishing a resource center. In contrast, sea level rise scenarios should receive adaptation investment, such as serving as a signpost or other orientation icon in the future app. An opportunity for further

research could explore the CPRI approach applied to hazard scenarios in conjunction with this asset analysis.

## Comparison to NEEFC asset prioritization

This analysis conducted in this paper is not the first asset ranking assessment for the Westport community. An assessment by the New England Environmental Finance Center in 2022, modeled on the US Climate Resilience Toolkit from the US Environmental Protection Agency, assessed vulnerability to climate-related hazards and aimed to prioritize assets for building resilience. The toolkit, which is available for public use (although it is unclear whether this has occurred yet), accepts as inputs “specific assets,” which are equivalent to sites, and identifies the type, category, ownership, hazard threat, and reference for each. Based on the types of threats against the asset and user-inputted vulnerability classifications, the priority list revealed 30 assets with “top priority” out of over 60 identified assets. A combination of user-entered information regarding the risk level and vulnerability for each asset determined the priority level in the result. The identified assets are not limited to specific sites, including assets such as “electric grid/power lines,” “elderly population,” and “wastewater treatment plant.”

There are similarities and differences between the assessment completed here and NEEFC. NEEFC's identification of assets is driven by vulnerability. In contrast, this approach is based on a community-participatory, "appreciative inquiry" protocol (Freitag et al. 2014, 325) that lists assets before considering their vulnerability to hazards. The method used in this assessment, which begins with community-identified assets and then considers risk, aligns with the ideas proposed by Freitag et al., particularly in comparison to the purpose of the NEEFC assessment. The goal of the NEEFC assessment was to identify sites that require immediate action to enhance their resilience, such as hardening infrastructure, improving drainage, or implementing other physical measures to boost the climate resilience of that specific location. The NEEFC assessment also focused exclusively on climate hazards and did not address other risks, such as earthquakes or tsunamis, which are included in this analysis. The approach described in this paper takes a broader and more holistic view of how sites can best meet future needs and goals within the context of community resource-sharing. Starting the analysis of assets and ranking among them based on the desired elements of a resource center, as discussed by Cano-Calhoun's interviewees, makes the top site results beneficial, particularly to supporting

community resilience activities by the community while relying on existing assets rather than just focusing on hardening assets for their designed functions with no consideration to what other roles assets may play in supporting community resilience.

## Themes and implications

There is value in comparing among the top-ranked asset categories (by average site score) in the study area. Only the State Parks asset category of the top-ranked sites across all sites in the analysis contains multiple locations within it. The School, Brady’s Oysters, the Library, and the Lighthouse are each a distinct asset category, as identified in the 2018 workshops, and contain a single site, compared to the State Parks asset category, which contains three sites in the study area.

*Table 15. Top five asset categories, average score across sites.*

Rank	Categories	Sites
#1	School	1
#2	State Parks	3
#3	Brady's Oyster	1
#4	Library	1
#5	Lighthouse	1

Although most of these top assets are single-sited, there is a benefit to duplication in multi-sited asset categories that may provide greater resistance to community vulnerability, as seen in the case of State Parks. Increased redundancy may lead to a more fail-safe system in the event of a disaster, and this same concept should be applied to any future investments in existing community assets—creating redundancy with multiple sites to serve the same or similar purpose, thereby better supporting the community in the study area.

The exposure of sites to hazards significantly influences which sites rank at the top, with variation among the four evaluated scenarios. The consistent top site among all five hazard scenarios is the Ocosta School. This result is not surprising, given that the criteria are designed to support the larger goal of community resource sharing, for which the school possesses key qualities: it is located outside every hazard zone and accessible to much of the community. It features various spaces that can serve multiple purposes.

Interestingly, even though they belong to two different asset categories, parks of some kind—both city parks and state parks—rank among the top five sites across the hazard scenarios. Both schools and parks serve as public spaces to some degree. This contrasts with Brady’s Oysters and the Shop n’ Kart, which are the two privately owned top-ranking sites. In tsunami scenarios, the Coast Guard sites may be considered public sites, as the Coast Guard is a government entity. The fact that these sites are not strictly in the public domain may influence how they can be approached for improvements and used by the community.

Currently, the state-monitored hazard infrastructure is concentrated in a few public spaces: an established tsunami gathering area at the Lighthouse; warning sirens at the Wastewater Plant, the Westport water tower, and the three state parks; evacuation areas to higher ground, marked with signs along the roads. The identified assets, ranked by priority, could serve as future sites for hazard infrastructure or investment as they are selected for the community-focused goals they support. The Westport community is pursuing a second tsunami tower to be situated near the marina, next to the Wastewater Plant site. Under the current presidential administration, the Building Resilient Infrastructure and Communities FEMA grants program, under which that work was set to proceed, was canceled in 2025 (Federal Emergency Management Agency 2025). As future resilience efforts face challenges, integrating with the existing community assets may provide options to continue strengthening resilience, albeit in different ways.

### Relevance to the SCC project

The SCC project focuses on developing a digital application to facilitate resource sharing among community members, as well as establishing and managing a standalone local network that can provide data coverage to individuals within the service range, enabling Wi-Fi-based communications even when regional cellular providers are disrupted. In the context of the app development project, these priority assets offer insights into which physical spaces may serve as important resource centers, gathering spaces, or infrastructure sites, thereby enhancing the community's engagement with the digital platform for resource sharing. The top sites identified across the hazard scenarios – the school and the parks – already act as collective assets for the community, offering benefits to a diverse group of individuals. The role that these sites may play in peer-to-peer resource sharing among the population, as spatial locations, could vary: as

common sites for swapping resources or holding meetings; as locations for network infrastructure to provide widespread reach; as storage for emergency supplies or other physical tools; or even as sites for resource libraries (such as a tool library). The top-ranked sites could be integrated into the future app, perhaps as landmarks, indicating asset proximity to app users or facilitating user orientation. There is great potential for these identified sites to support community resilience both spatially and digitally. The work contained here is pertinent to the SCC project to the extent that future resource-sharing functions of the technological application must be necessarily space-specific. While the application aims to enable these functions irrespective of location, this work demonstrates that, given hazards and exposure, the spatial location of assets is important, potentially as gathering places or locations that enable the physical infrastructure for the network.

The method chosen for evaluating centrality, using set distance buffers around asset sites, may also help understand how network coverage reaches residential parcels from various asset sites. The current method is used to evaluate the number of residents who may access a given asset site within a specified distance during a 15-minute window at a given speed. However, the buffers can also serve as a helpful indicator of how far a signal may travel from its source. While I did not explore the technological element of site buffers in this work, understanding which sites provide the most significant “coverage” may be helpful for collocating communications technology on existing asset sites to bolster community resilience goals and resource sharing further. Alternatively, if a site is used for providing a network signal at the top-ranked sites from this assessment, it may facilitate face-to-face activity if residents or visitors know to go to that site to acquire the data signal. Future work could explore in greater depth how these sites may serve as technological hotspots with a more accurate signal buffer around established asset sites.

A second crucial part of the larger research project focuses on organizing the community into clusters, allowing members to connect on a smaller scale within the entire population of the network area. How the South Beach residents may be clustered remains an open question. Referring to Figure 9, which shows the map of assets not exposed to sea level rise, the distribution of asset sites across the study area is quite widespread. Residential clusters around the asset sites could serve as one organizing factor. This spatial element of the network relies on trust, and face-to-face interaction is likely crucial for building that trust. Events occurring in

person at the top-ranked asset sites may help provide the social platform necessary to supplement the digital aspects of this work.

### Recommendations for future planning and resilience efforts

While this analysis builds on the Cano-Calhoun (2024) emphasis on leveraging community knowledge and physical asset sites for resilience, it does not fully engage with her insights on digital platforms for information sharing, nor does it address the tension between decentralized and centralized resource matching or the need for proactive leadership development in communities. This ranking assessment may help identify locations that meet the community's needs. The future application is the social network element of community resource-sharing activities, which requires a spatial dimension for both technological infrastructure and user interaction. The ranked asset site list could provide the backbone for these elements. A disaster may constrain normal spatial activities. Understanding how asset sites perform against multiple hazards and selecting sites that offer desirable elements provides valuable information about which sites are best available to the community in a disaster.

This research generated a comprehensive spreadsheet which could be used in future research, as a tool for individual or collective input to assign scores to assets in a more community-oriented approach to this method. This work proposes a potential framework for an asset scoring tool; further research could expand the list of assets, add criteria, and engage community members in rankings to determine what sites emerge as the most valuable and significant for the community and resource-sharing objectives.

### Limitations and opportunities for future research

This work evolved over several months and remained an inductive process as the research team gathered data to determine the appropriate type of assessment to conduct. Like any research design, the limitations of this work present opportunities for further research. Buffers to indicate the distance between residential properties and assets of interest were measured using standard rates of movement; however, a more accurate measurement of access would consider an analysis that includes road networks, examining how users can move from one point to another along specified paths. Future research should consider using available GIS tools to produce a more robust accounting for the centrality criteria used in this analysis.

An important point to consider when defining access in this assessment is that the study assumes, by using a crude buffer and density threshold to assign higher or lower scores, that all residents have an equal need for access to asset sites. This work does not explore the definition of “need” in considering access or alternative sources of need for access, such as workplaces or tourist hotspots. One can imagine that a population heatmap of the study area would look quite different at different times of the day and the year, depending on events, weather, and the habits of residents and visitors, thus altering access to various assets.

Another opportunity for future research arises from the limitation that a single researcher conducted this assessment. The criteria ranking is vulnerable to researcher bias, and a more thorough assessment would involve multiple evaluators analyzing asset sites and their performance against the specified criteria. Future research in which community members participate in this scoring process may yield more comprehensive results that are better reflective of the community’s opinions and produce additional themes on what assets should be prioritized. Similarly, the asset identification process used in this study is a retrospective approach. Future research should consider a new asset mapping exercise that includes a representative range of the community within the study area.

## Chapter 6: Conclusion

This research developed and applied a three-step asset prioritization methodology, beginning with the collection of community-identified asset data, followed by an exposure analysis to multiple hazards, and concluding with a multicriteria analysis (MCA) ranking system. Results highlight that parks, both City of Westport-owned and state parks, as well as the Ocosta school campus, consistently emerged as top-priority sites across multiple hazard scenarios. The methodology’s incorporation of local knowledge and exposure data provides an approach to identifying sites with high potential for supporting community resilience during disasters.

There are several opportunities for future research building on this work. Incorporating community members in the scoring process would reduce researcher bias and increase the relevance of the rankings. Expanding the criteria and using advanced GIS analyses to account for movement or seasonal population shifts could refine asset accessibility and centrality criteria used in the analysis. Furthermore, this approach could be adapted to include hazard impact

assessments that integrate both high-severity, low-frequency, and moderate-severity, high-frequency hazards, which is the approach used in the Grays Harbor County HMP.

People working in this space, whether community leaders, application developers, or community members in the study area, can use this methodology as a starting point for resilience planning that is both spatially and community-informed. The ranked asset list provides a pathway for identifying investment prioritization, especially for sites that consistently rank high across scenarios. Further, by leveraging community knowledge in site identification and scoring, decision-makers can ensure that resilience planning aligns with both formal hazard assessments, often through Hazard Mitigation Plans, and community values. Integrating these findings into the ongoing NSF project to develop technological responses for resource sharing can help better blend physical assets with technological approaches to enhance overall community resilience.

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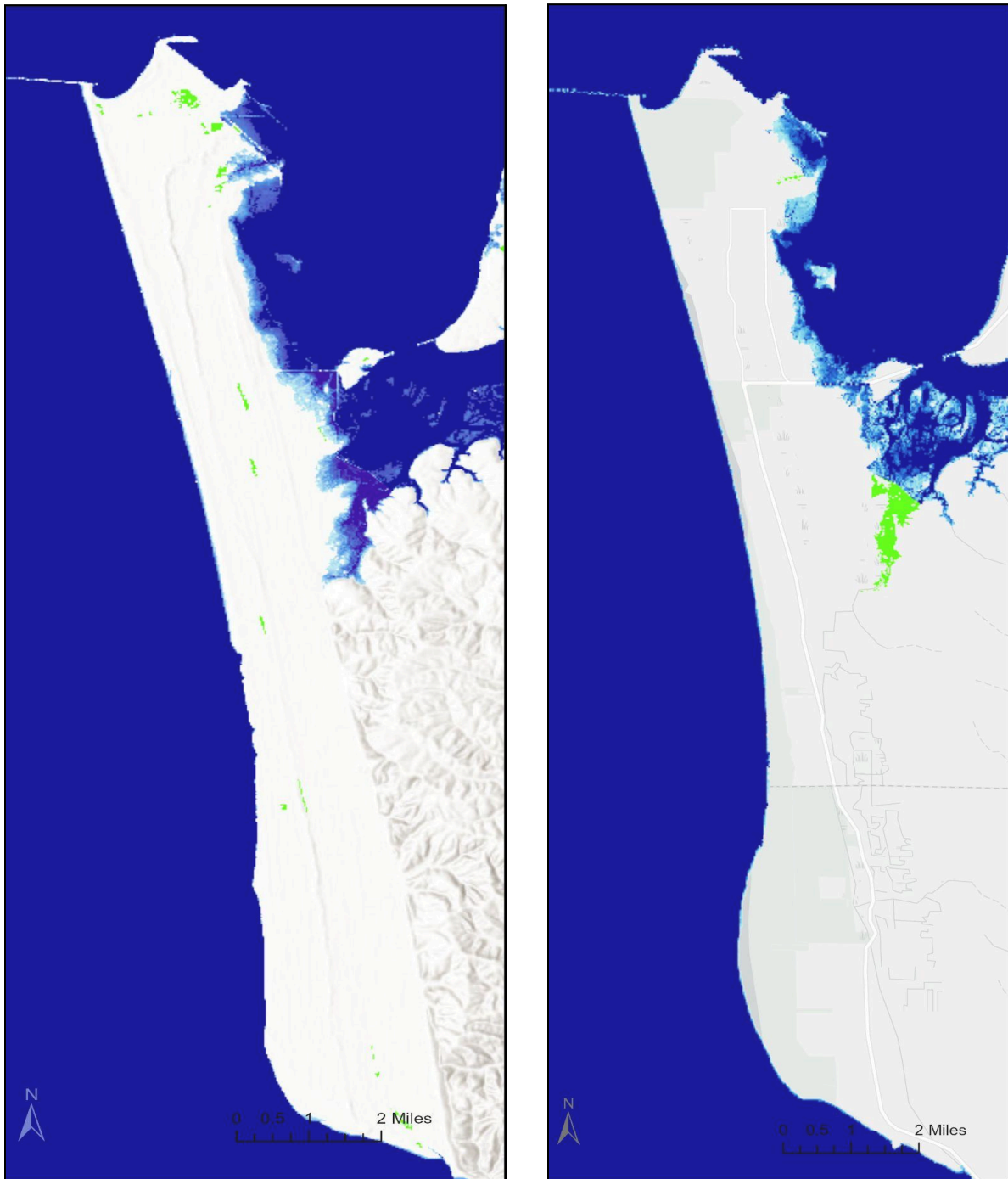
## Appendix A. List of assets identified from 2018 workshops.

No.	Asset name	Determination	Description
1	Food	Spatial	Food establishments are identified by parcels categorized for food use.
2	Recreation	Theme	
3	Surfing	Spatial	Combined with Beach recreation.
4	Beach recreation	Spatial	All beaches.
5	Bird watching	Spatial	Natural areas, including parks and the estuary.
6	Clam digging	Spatial	Combined with Beach recreation.
7	Duck/Elk hunting	Spatial	Parcels owned by the Laidlaw Hunt Club and WDFW Elk River wildlife area.
8	Education	Theme	
9	Library	Spatial	The library, identified by parcel.
10	After-school programs	Spatial	Sites identified in conversation with Andrea Mirante, founder of Emerald Coast Communications and The Helm, are selected from parcels.
11	Tourism/Attractive Community	Theme	
12	Historical sites/ museums	Spatial	The museum was identified by parcel and corroborated with Google Maps.
13	Evacuation roads/ pathways	Spatial	Roads.
14	Outside Access/Transportation	Theme	
15	Roads	Spatial	Roads.
16	Bridges	Spatial	Bridges.
17	Forest Roads	Spatial	Forest roads.
18	Employment centers	Theme	
19	Parks	Spatial	Parks operated by the City of Westport, identified by parcel and corroborated with Google Maps.
20	Running trails	Spatial	Running trails within State parks.
21	Bicycle trails	Spatial	Combined with Running trails.
22	Nature trails	Spatial	Combined with Running trails.
23	State parks	Spatial	State parks.
24	Housing	Spatial	Identified by parcels categorized for residential use.

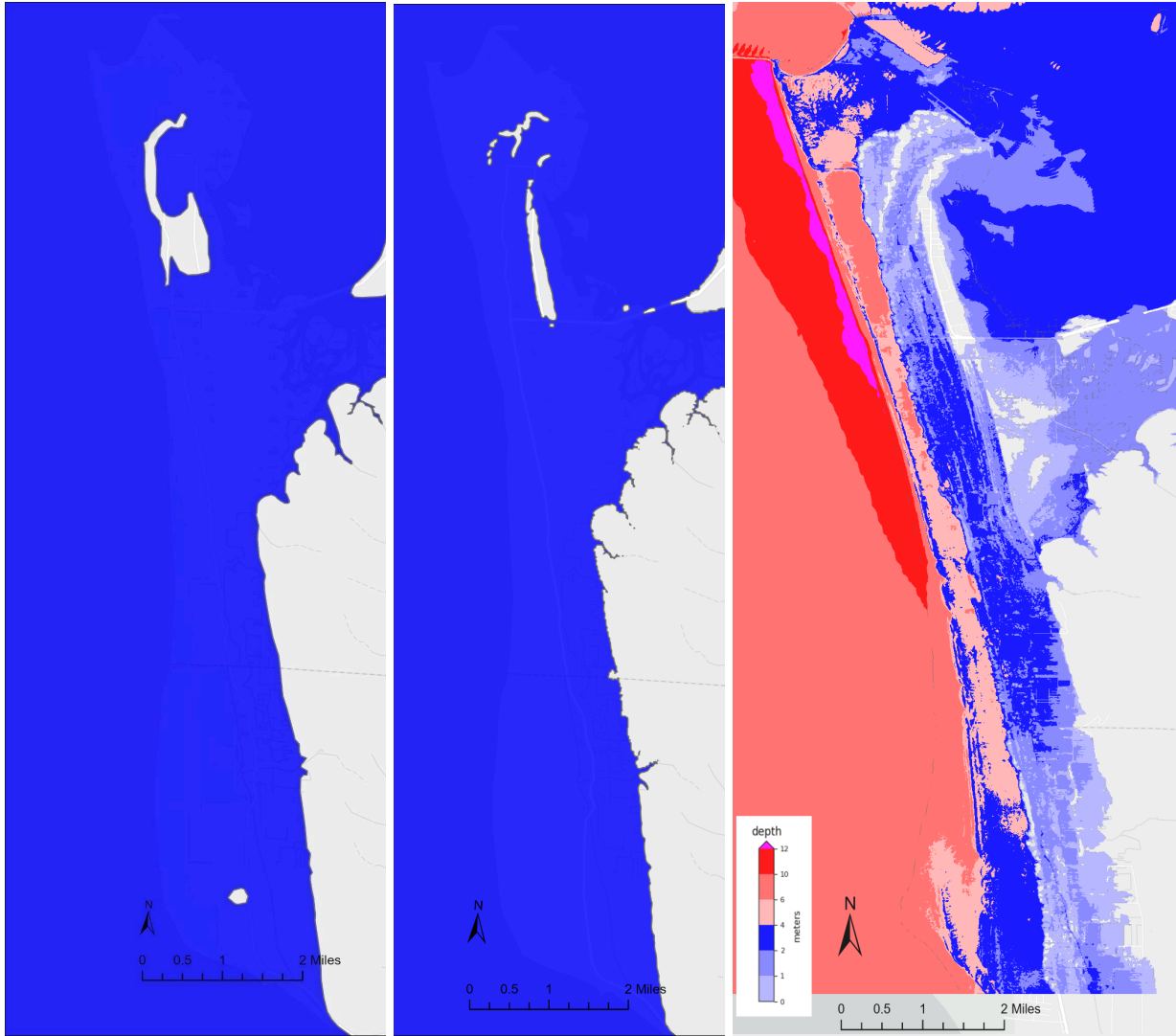
25	Condos	Spatial	Identified by parcels owned by “Westport by the Sea.”
26	Hotels	Spatial	Identified by parcels categorized for hotel/motel use.
27	Cottages	Spatial	Identified by parcel, corroborated with Google Maps.
28	Natural Environment	Theme	
29	Ocean	Theme	
30	Beaches	Spatial	Combined with the above Beach Recreation.
31	Estuary	Spatial	The estuary.
32	Rivers	Spatial	Rivers.
33	Cranberry bogs	Spatial	Identified by agricultural parcels categorized by WSDA with crop type “berry.”
34	Farms	Spatial	Identified by agricultural parcels.
35	Westport Lighthouse State Park	Spatial	Combined with State parks.
36	Westport Lighthouse	Spatial	Identified by parcel, corroborated with Google Maps.
37	Marina	Spatial	Identified by parcels combined to one centroid point in the area within Westport commonly comprising the Marina.
38	Coast Guard Station	Spatial	Identified by parcels owned by USCG.
39	Westport Airport	Spatial	Identified by parcel.
40	Schools	Spatial	Identified by parcel.
41	Brady’s Oyster	Spatial	Identified by parcel.
42	Twin Harbor State Park	Spatial	Combined with State parks.
43	Bottle Beach	Spatial	Combined with above Beach Recreation.
44	Historic District	Theme	
45	Ocean Gold Seafood	Spatial	Identified by parcel, corroborated with Google Maps.
46	Wastewater Treatment Plant	Spatial	Identified by parcel, corroborated with Google Maps.
47	Medical (clinic, doctors, dentists, optometrists, pharmacy)	Spatial	Identified by parcels from WDOH.
48	Senior House Grocery Store	Unidentified	
49	Chamber of Commerce	Spatial	Identified by parcels, with owner

			Chamber of Commerce.
50	Community Garden	Spatial	Identified by parcel, corroborated with Google Maps Street View.
51	VFW	Spatial	Identified by parcel.
52	Jetty	Spatial	Identified by parcel.
53	Community Outreach Programs	Unidentified	
54	Shoalwater Bay Indian Tribe	Spatial	Identified by parcels, with owner Shoalwater Bay Indian Tribe.
55	Utilities: Power	Spatial	Identified by parcels, with owner Grays Harbor Public Utility District.
56	City water wells	Spatial	Wells identified by WDOH.
57	Commercial business district	Unidentified	
58	Downtown	Theme	
59	Recreational Infrastructure	Theme	
60	Telescopes	Unidentified	
61	Fishing	Spatial	Identified by Beach Recreation and Marina, and parcels categorized for use type shellfish.
62	Hospital	Spatial	Combined with the above Medical.
63	Freshwater	Theme	
64	Timber	Spatial	Identified by parcels categorized for forest resources.
65	Community Spaces	Spatial	Researchers identified religious organizations, and Grayland Community Hall, by parcel to count toward this asset.
66	Fire Department / EMS	Spatial	Identified by parcels owned by South Beach Regional Fire Department.
67	Police Department	Spatial	Identified by parcel, corroborated with Google Maps.

## Appendix B. Hazard Scenarios



*Sea level rise inundation areas for 1ft (left) and 3ft (right) scenarios.*



*Tsunami inundation areas: 1700s tsunami (left), L1 tsunami (middle), M1 tsunami (right).*

## Appendix C. Codebook & Scoring Results Sheet

The codebook below demonstrates the scores, methods, and examples provided for each criterion.

Criterion	Weight	Score	Definition	Metric	Example
Centrality	8	1–2	Very low centrality	Few residential parcels even in driving buffer.	E.g., remote timber site in isolated foothills.
Centrality	8	3–4	Low centrality	Some parcels in driving buffer; few in walking/strolling.	E.g., site at town edge with minimal nearby housing.
Centrality	8	5–6	Medium centrality	Moderate parcels in walking buffer.	E.g., site near community center but not near high-density housing.
Centrality	8	7–8	High centrality	Many parcels in walking/driving buffers.	E.g., site in mixed-use downtown with dense housing nearby.
Centrality	8	9–10	Very high centrality	Most pedestrian buffers filled with residential parcels.	E.g., neighborhood park in center of town with surrounding homes.
Uses	7	1–2	Low use/flexibility	Dominated by one form (e.g. warehouse); difficult terrain.	E.g., warehouse only; E.g., steep slope.
Uses	7	3–4	Low-medium use/flexibility	One dominant form but potential for at least one additional use.	E.g., single-function building with open courtyard.
Uses	7	5–6	Medium use/flexibility	Predominantly one form but adaptable structure.	E.g., restaurant with parking that could also serve as shelter.
Uses	7	7–8	Medium-high use/flexibility	Mix of buildings/open space; several adaptable uses.	E.g., community center with adjacent parkland.
Uses	7	9–10	High use/flexibility	Balanced mix of buildings and open space; easy structural change.	E.g., state park site with multipurpose facilities.
Identifiability	9	2	Very low community identifiability	Unknown site; not listed on base maps or mentioned in workshops.	E.g., small private storage yard.
Identifiability	9	4	Low community identifiability	Known to a few people but not a general community site.	E.g., a small industrial site.

Identifiability	9	6	Medium community identifiability	Recognized by some but not all; moderate mentions in workshops.	E.g., a local church or private marina.
Identifiability	9	8	High community identifiability	Known to most; frequent mentions in workshops.	E.g., town park or public library.
Identifiability	9	10	Very high community identifiability	Widely recognized; landmark status in community.	E.g., Blue Buoy Restaurant, Ocosta School.

See “Appendix C - Asset Analysis” spreadsheet for individual site scores on the next page.





M1 MCA	No.	Exposure	1 Criteria	2 Criteria	3 Criteria	1 Multiplier	2 Multiplier	3 Multiplier	1 Weighted Criteri	2 Weightec	3 Weighted	Criteria Score	Categories Mean	Maximum	Minimum	Count	Sites In Order	Asset Category	Asset Site Name	Site Rank	Site Score
Category	Asset Site		Access	Uses	Identifiability	Accessibility	Uses	Community Con	Accessibility	Uses	Community Site Score										
After School 2	105507201	0	10	5	6	8	8	7	80	35	54	169	After School	185	200	169	2	After School 3	Ocoosa Elementary & Juni	#1	200
After School 3	16111922C	0	5	10	10	8	8	7	40	70	90	200	Parks	118	124	109	4	Schools 1	Ocoosa Elementary & Juni	#1	200
Parks 1	103000201	0	3	4	8	8	8	7	24	28	72	124	Hotels	113	137	90	7	Food WP 34	Shop n' Kart Grocery	#2	198
Parks 2	10300030C	0	2	4	8	8	8	7	16	28	72	116	Hunting	78	91	65	4	Brady's 1	Brady's Oysters	#3	178
Parks 4	10300080C	0	2	3	8	8	8	7	16	21	72	109	Shoalwater	112	112	112	1	After School 2	The Helm	#4	169
Parks 5	103000801	0	3	4	8	8	8	7	24	28	72	124	Timber	69	89	58	52	Food WP 25	The Helm	#4	169
Hotels WP 1	10250020C	0	8	3	4	8	8	7	64	21	36	121	Utilities	89	89	89	1	Library 1	Westport Timberland Libr	#5	166
Hotels WP 2	10250110C	0	6	3	4	8	8	7	48	21	36	105	Police	200	200	200	1	Lighthouse	Westport Lighthouse	#6	156
Hotels WP 3	102501101	0	5	2	4	8	8	7	40	14	36	90	School	153	153	153	1	Police 1	Westport Police Station	#7	153
Hotels WP 4	10250120C	0	9	2	4	8	8	7	72	14	36	122	Clinic	90	90	90	1	Coast Guard 5	Coast Guard Residences	#8	138
Hotels WP 5	10250190C	0	8	3	4	8	8	7	64	21	36	121	Library	166	166	166	1	Hotels WP 6		#9	137
Hotels WP 6	10250590C	0	6	5	6	8	8	7	48	35	54	137	Food	133	198	57	7	Food WP 22		#10	137
Hotels WP 24	61611073Z	0	7	3	2	8	8	7	56	21	18	95	Fire Author	100	100	100	1	Food WP 23			129
Hunt WDFW 15	16113234C	0	2	3	6	8	8	7	16	21	54	91	Community	122	128	116	2	Comm Sp WP 2			128
Shoalwater	14110421C	0	2	6	6	8	8	7	16	42	54	112	Coast Gua	129	138	120	2	Parks 1			124
Timber GL 1	15111710C	0	4	3	4	8	8	7	32	21	36	89	Chamber c	106	106	106	1	Parks 5			124
Timber GL 2	15111600C	0	2	3	4	8	8	7	16	21	36	73	Brady's Oy	178	178	178	1	Food WP 31			124
Timber GL 4	78022034C	0	3	3	4	8	8	7	24	21	36	81	Lighthouse	156	178	178		Hotels WP 4			122
Timber GL 5	15111740C	0	1	3	4	8	8	7	8	21	36	65						Hotels WP 1			121
Timber GL 12	15112019C	0	3	3	4	8	8	7	24	21	36	81						Hotels WP 5			121
Timber GL 13	15112018C	0	1	3	6	8	8	7	8	21	54	83						Coast Guard 2			120
Timber GL 14	15112120C	0	2	3	4	8	8	7	16	21	36	73						Food WP 24			119
Timber GL 15	15112110C	0	1	3	6	8	8	7	8	21	54	83						Parks 2			116
Timber GL 16	15112042C	0	1	3	6	8	8	7	8	21	54	83						Comm Sp WP 9			116
Timber GL 17	15112018C	0	1	3	6	8	8	7	8	21	54	83						Shoalwater			112
Timber GL 18	15112120C	0	2	3	4	8	8	7	16	21	36	73						Parks 4			109
Timber GL 19	15112043C	0	3	3	4	8	8	7	24	21	36	81						Chamber of Commerce 1			106
Timber GL 20	78018014C	0	4	3	4	8	8	7	32	21	36	89						Hotels WP 2			105
Timber GL 21	15112018C	0	1	3	4	8	8	7	8	21	36	65						Fire WP 2			100
Timber GL 22	15112911C	0	1	3	4	8	8	7	8	21	36	65						Hotels WP 24			95
Timber GL 23	15112819C	0	2	3	4	8	8	7	16	21	36	73						Hunt WDFW 15			91
Timber GL 24	15112818C	0	2	4	4	8	8	7	16	28	36	80						Hotels WP 3			90
Timber GL 27	78019901C	0	1	3	4	8	8	7	8	21	36	65						Clinic 1			90
Timber GL 32	78019901C	0	1	3	4	8	8	7	8	21	36	65						Timber GL 1			89
Timber GL 34	78019901C	0	4	3	4	8	8	7	32	21	36	89						Timber GL 20			89
Timber GL 35	78037000C	0	2	3	4	8	8	7	16	21	36	73						Timber GL 34			89
Timber GL 36	15112944C	0	1	2	4	8	8	7	8	14	36	58						Utilities 3			89
Timber GL 37	15113360C	0	2	2	4	8	8	7	16	14	36	66						Timber GL 13			83
Timber GL 40	14110411C	0	1	2	4	8	8	7	8	14	36	58						Timber GL 15			83
Timber GL 41	15113344C	0	1	2	4	8	8	7	8	14	36	58						Timber GL 16			83
Timber GL 42	14110421C	0	2	2	4	8	8	7	16	14	36	66						Timber GL 17			83
Timber WP 1	15110410C	0	2	2	4	8	8	7	16	14	36	66						Timber WP 18			82
Timber WP 2	15110432C	0	1	2	4	8	8	7	8	14	36	58						Timber WP 25			82
Timber WP 3	15110510C	0	1	2	4	8	8	7	8	14	36	58						Timber WP 15			81
Timber WP 4	15110522C	0	2	2	4	8	8	7	16	14	36	66						Timber GL 12			81
Timber WP 5	15110524C	0	2	2	4	8	8	7	16	14	36	66						Timber GL 19			81
Timber WP 6	15110544C	0	1	2	4	8	8	7	8	14	36	58						Hunt Clubs 1			81
Timber WP 8	15110810C	0	1	2	4	8	8	7	8	14	36	58						Timber GL 24			80
Timber WP 9	15110821C	0	2	2	4	8	8	7	16	14	36	66						Timber WP 16			74
Timber WP 10	15110821C	0	1	2	4	8	8	7	8	14	36	58						Timber WP 17			74
Timber WP 11	15110821C	0	1	2	4	8	8	7	8	14	36	58						Timber WP 19			74
Timber WP 12	15110821C	0	1	2	4	8	8	7	8	14	36	58						Timber WP 26			74
Timber WP 13	15110821C	0	1	2	4	8	8	7	8	14	36	58						Timber GL 2			73
Timber WP 14	15110821C	0	1	2	4	8	8	7	8	14	36	58						Timber GL 14			73
Timber WP 15	15110821C	0	2	2	4	8	8	7	16	14	36	66						Timber GL 18			73
Timber WP 16	15110822C	0	3	2	4	8	8	7	24	14	36	74						Timber GL 23			73
Timber WP 17	15110822C	0	3	2	4	8	8	7	24	14	36	74						Timber GL 35			73
Timber WP 18	15110822C	0	4	2	4	8	8	7	32	14	36	82						Hunt Clubs 2			73
Timber WP 19	15110822C	0	3	2	4	8	8	7	24	14	36	74						Timber GL 37			66
Timber WP 20	15110822C	0	1	2	4	8	8	7	8	14	36	58						Timber GL 42			66
Timber WP 21	15110822C	0	1	2	4	8	8	7	8	14	36	58						Timber WP 1			66
Timber WP 22	15110823C	0	1	2	4	8	8	7	8	14	36	58						Timber WP 4			66
Timber WP 23	15110824C	0	1	2	4	8	8	7	8	14	36	58						Timber WP 5			66
Timber WP 24	15110834C	0	1	2	4	8	8	7	8	14	36	58						Timber WP 9			66
Timber WP 25	15110834C	0	4	2	4	8	8	7	32	14	36	82						Timber WP 15			66
Timber WP 26	15110921C	0	3	2	4	8	8	7	24	14	36	74						Timber WP 27			66
Timber WP 27	15110932C	0	2	2	4	8	8	7	16	14	36	66						Timber GL 5			65
Utilities 3	16111923C	0	4	3	4	8	8	7	32	21	36	89						Timber GL 21			65
Schools 1	16111922C	0	5	10	10	8	8	7	40	70	90	200						Timber GL 22			



M1 MCA	No.	Exposure	1 Criteria	2 Criteria	3 Criteria	1 Weighted Criter	2 Weightec	3 Weighted	Criteria Score					Sites In Order					
Asset Category	Site #		Access	Uses	Identifiability	Accessibility	Uses	Community	Site Score	Mean	Maximum	Minimum	Count	Asset Category	Asset Site Name	Site Rank	Site Score		
Parks 6	107002500000	0		4	5		8	32	35	72	139	City Parks	139	139	139	1	Lighthouse	Westport Lighthouse #1	156
Hotels WP 4	102501200601	0		9	2		4	72	14	36	122	Hotels	111	137	64	4	Parks 6	Westport City Park #2	139
Hotels WP 5	102501900102	0		8	3		4	64	21	36	121	Hunt	91	91	91	1	Coast Guard 5	Coast Guard Resider #3	138
Hotels WP 6	102505900500	0		6	5		6	48	35	54	137	Shoalwater	112	112	112	1	Hotels WP 6	LOGE Westport #4	137
Hotels WP 25	616111832001	0		4	2		2	32	14	18	64	Timber	69	89	58	52	Food WP 26	Unnamed Building #5	130
Hunt WDFW 1	151106110000	0		2	3		6	16	21	54	91	Food	130	130	130	1	Hotels WP 4	Surf Spray RV Park #6	122
Shoalwater	14110421048	0		2	6		6	16	42	54	112	Coast Gua	126	138	119	3	Hotels WP 5	#7	121
Timber GL 1	15111710000	0		4	3		4	32	21	36	89	Lighthouse	156	156	156	1	Coast Guard 2	#8	120
Timber GL 2	15111600000	0		2	3		4	16	21	36	73						Coast Guard 3	#9	119
Timber GL 3	78022004000	0		3	3		4	24	21	36	81						Shoalwater	#10	112
Timber GL 5	15111740000	0		1	3		4	8	21	36	65						Hunt WDFW 1		91
Timber GL 12	15112019000	0		3	3		4	24	21	36	81						Timber GL 1		89
Timber GL 13	15112018000	0		1	3		6	8	21	54	83						Timber GL 20		89
Timber GL 14	15112120000	0		2	3		4	16	21	36	73						Timber GL 34		89
Timber GL 15	15112110000	0		1	3		6	8	21	54	83						Timber GL 13		83
Timber GL 16	15112042000	0		1	3		6	8	21	54	83						Timber GL 15		83
Timber GL 17	15112018000	0		1	3		6	8	21	54	83						Timber GL 16		83
Timber GL 18	15112120000	0		2	3		4	16	21	36	73						Timber GL 17		83
Timber GL 19	15112043600	0		3	3		4	24	21	36	81						Timber WP 18		82
Timber GL 20	78018014000	0		4	3		4	32	21	36	89						Timber WP 25		82
Timber GL 21	15112018000	0		1	3		4	8	21	36	65						Timber GL 3		81
Timber GL 22	15112911005	0		1	3		4	8	21	36	65						Timber GL 12		81
Timber GL 23	15112819000	0		2	3		4	16	21	36	73						Timber GL 19		81
Timber GL 24	15112818000	0		2	4		4	16	28	36	80						Timber GL 24		80
Timber GL 27	78019901000	0		1	3		4	8	21	36	65						Timber WP 16		74
Timber GL 32	78019901000	0		1	3		4	8	21	36	65						Timber WP 17		74
Timber GL 34	78019901000	0		4	3		4	32	21	36	89						Timber WP 19		74
Timber GL 35	78037000015	0		2	3		4	16	21	36	73						Timber WP 26		74
Timber GL 36	15112944000	0		1	2		4	8	14	36	58						Timber GL 2		73
Timber GL 37	15113360000	0		2	2		4	16	14	36	66						Timber GL 14		73
Timber GL 40	14110411047	0		1	2		4	8	14	36	58						Timber GL 18		73
Timber GL 41	15113344001	0		1	2		4	8	14	36	58						Timber GL 23		73
Timber GL 42	14110421048	0		2	2		4	16	14	36	66						Timber GL 35		73
Timber WP 1	151104100000	0		2	2		4	16	14	36	66						Timber GL 37		66
Timber WP 2	151104320000	0		1	2		4	8	14	36	58						Timber GL 42		66
Timber WP 3	151105100000	0		1	2		4	8	14	36	58						Timber WP 1		66
Timber WP 4	151105220000	0		2	2		4	16	14	36	66						Timber WP 4		66
Timber WP 5	151105240010	0		2	2		4	16	14	36	66						Timber WP 5		66
Timber WP 6	151105440000	0		1	2		4	8	14	36	58						Timber WP 9		66
Timber WP 8	151108100000	0		1	2		4	8	14	36	58						Timber WP 15		66
Timber WP 9	151108210010	0		2	2		4	16	14	36	66						Timber WP 27		66
Timber WP 10	151108210020	0		1	2		4	8	14	36	58						Timber GL 5		65
Timber WP 11	151108210030	0		1	2		4	8	14	36	58						Timber GL 21		65
Timber WP 12	151108210050	0		1	2		4	8	14	36	58						Timber GL 22		65
Timber WP 13	151108210060	0		1	2		4	8	14	36	58						Timber GL 27		65
Timber WP 14	151108210070	0		1	2		4	8	14	36	58						Timber GL 32		65
Timber WP 15	151108210080	0		2	2		4	16	14	36	66						Hotels WP 25		64
Timber WP 16	151108220010	0		3	2		4	24	14	36	74						Timber GL 36		58
Timber WP 17	151108220020	0		3	2		4	24	14	36	74						Timber GL 40		58
Timber WP 18	151108220030	0		4	2		4	32	14	36	82						Timber GL 41		58
Timber WP 19	151108220040	0		3	2		4	24	14	36	74						Timber WP 2		58
Timber WP 20	151108220050	0		1	2		4	8	14	36	58						Timber WP 3		58
Timber WP 21	151108220060	0		1	2		4	8	14	36	58						Timber WP 6		58
Timber WP 22	151108230030	0		1	2		4	8	14	36	58						Timber WP 8		58
Timber WP 23	151108240000	0		1	2		4	8	14	36	58						Timber WP 10		58
Timber WP 24	151108340010	0		1	2		4	8	14	36	58						Timber WP 11		58
Timber WP 25	151108340020	0		4	2		4	32	14	36	82						Timber WP 12		58
Timber WP 26	151109210000	0		3	2		4	24	14	36	74						Timber WP 13		58
Timber WP 27	151109320000	0		2	2		4	16	14	36	66						Timber WP 14		58
Food WP 26	106501401303	0		6	4		6	48	28	54	130						Timber WP 20		58
Coast Guard 2	106500100100	0		7	4		4	56	28	36	120						Timber WP 21		58
Coast Guard 3	106501400100	0		6	5		4	48	35	36	119						Timber WP 22		58
Coast Guard 5	616121224001	0		3	6		8	24	42	72	138						Timber WP 23		58



SLR1 MCA	No.	Exposure	1 Criteria	2 Criteria	3 Criteria	1 Multiplier	2 Multiplier	3 Multiplier	1 Weighted Criter	2 Weighted3	Weighted Criteria Score	Categories	Mean	Maximum	Minimum	Count	Sites In Order	Asset Category	Asset Site Name	Site Rank	Site Score	
Asset Category	Site #	SLR1 Exposure	Access	Uses	Identifiability	Accessibility	Uses	Community Con	Accessibility	Uses	Community Site Score	Categories	Mean	Maximum	Minimum	Count	Sites In Order	Asset Category	Asset Site Name	Site Rank	Site Score	
After School 1	10300020000	0	2	5	8	8	8	7	8	8	16	21	72	159	200	159	3	State Parks 2	Twin Harbors State Park	#1	211	
After School 2	105507201100	0	10	5	6	8	8	7	8	8	80	35	54	189	139	109	6	After School 3	Ocoosa Elementary & Junior Ser	#2	200	
After School 3	161119220080	0	5	10	10	8	8	7	8	8	40	70	90	200	137	40	29	School 1	Ocoosa Elementary & Junior Ser	#2	200	
Parks 1	103000201501	0	3	4	8	8	8	7	8	8	24	28	72	124	106	65	18	Food WP 34	Shop n' Kart Grocery	#3	198	
Parks 2	103000300000	0	2	4	8	8	8	7	8	8	16	28	72	116	112	112	1	State Parks 3	Grayland Beach State Park	#4	188	
Parks 3	103000700101	0	3	3	8	8	8	7	8	8	24	21	72	117	73	105	58	69	Brady's 1	Brady's Oysters	#5	178
Parks 4	103000800100	0	2	3	8	8	8	7	8	8	16	21	72	109	110	110	1	After School 2	The Helm	#6	169	
Parks 5	103000901101	0	3	4	8	8	8	7	8	8	24	28	72	124	120	120	1	Food WP 25	The Helm	#6	169	
Parks 6	107002500000	0	4	5	8	8	8	7	8	8	32	35	72	138	105	105	74	6	Comm Sp GL 2	Lutheran Church Twin Harbors	#7	167
Hotels WP 1	102500200700	0	8	3	4	8	8	7	8	8	64	21	36	121	197	211	163	3	Library 1	Westport Timberland Library	#8	166
Hotels WP 2	102501100500	0	6	3	4	8	8	7	8	8	48	21	36	105	200	200	200	1	Fire WP 1	South Beach Regional Fire Auth	#9	165
Hotels WP 3	102501101100	0	5	2	4	8	8	7	8	8	40	14	36	90	153	153	153	1	Comm Sp WP 1		#10	165
Hotels WP 4	102501200901	0	9	2	4	8	8	7	8	8	72	14	36	122	117	117	117	1	State Parks 1	Westport Lighthouse State Park		163
Hotels WP 5	102501900102	0	8	3	4	8	8	7	8	8	64	21	36	121	90	90	90	1	Lighthouse			156
Hotels WP 6	102505000500	0	6	5	6	8	8	7	8	8	48	35	54	137	90	90	90	1	Comm Hall 1			155
Hotels WP 7	103000500100	0	2	3	4	8	8	7	8	8	16	21	36	73	166	166	166	1	Police 1			153
Hotels WP 8	103000500400	0	1	1	4	8	8	7	8	8	8	7	36	51	91	91	91	1	Food WP 21			151
Hotels WP 9	104000100100	0	2	1	2	8	8	7	8	8	16	7	18	41	102	198	48	40	Fire GL 1			147
Hotels WP 10	104000400500	0	2	1	2	8	8	7	8	8	16	7	18	41	136	165	100	6	Food WP 20			142
Hotels WP 11	104000401300	0	1	2	2	8	8	7	8	8	8	14	18	40	101	101	101	1	Coast Guard 1			142
Hotels WP 12	104501500100	0	1	2	2	8	8	7	8	8	8	14	18	40	105	105	105	1	Comm Sp WP 8			141
Hotels WP 13	104501500201	0	1	3	2	8	8	7	8	8	8	21	18	47	136	167	81	14	Food WP 36			140
Hotels WP 14	104502000001	0	2	7	6	8	8	7	8	8	16	49	54	119	126	126	126	1	Parks 6			139
Hotels WP 15	104502600100	0	1	3	4	8	8	7	8	8	8	21	36	65	130	142	119	5	Food WP 35			139
Hotels WP 16	105502000100	0	1	3	4	8	8	7	8	8	8	21	36	65	106	106	106	1	Fire WP 4			139
Hotels WP 17	105502400600	0	7	5	4	8	8	7	8	8	56	35	36	127	178	178	178	1	Coast Guard 5			138
Hotels WP 18	105505600100	0	8	5	4	8	8	7	8	8	64	35	36	135	156	156	156	1	Lighthouse			137
Hotels WP 19	105505600401	0	8	2	6	8	8	7	8	8	64	14	54	132	164	14	54	132	Food WP 22			137
Hotels WP 20	105507003000	0	2	2	6	8	8	7	8	8	16	14	54	84	16	14	54	84	Hotels WP 18			135
Hotels WP 21	106000400700	0	3	2	2	8	8	7	8	8	24	14	18	56	24	14	18	56	Food WP 28			134
Hotels WP 24	616110732004	0	7	3	2	8	8	7	8	8	56	21	18	95	18	14	18	95	Rank 1	Coast Guard 4		133
Hotels WP 25	616110832001	0	4	2	2	8	8	7	8	8	32	14	18	54	1	200	18	54	Hotels WP 19			132
Hotels WP 26	743500200000	0	8	2	2	8	8	7	8	8	64	14	18	96	1	187	1	131	Fire WP 3			131
Hotels WP 27	710500001100	0	3	2	4	8	8	7	8	8	24	14	36	74	1	178	1	131	Fire WP 5			131
Hotels WP 28	743508400000	0	9	2	4	8	8	7	8	8	72	14	36	122	1	166	1	131	Comm Sp GL 3			131
Hotels WP 29	710600001300	0	1	3	2	8	8	7	8	8	8	21	18	47	1	156	1	130	Food WP 26			130
Hotels WP 30	105503400600	0	4	3	2	8	8	7	8	8	32	21	18	71	3	155	3	129	Food WP 23			129
Hotels GL 1	780150400000	0	3	3	4	8	8	7	8	8	24	21	36	81	1	153	1	128	Comm Sp WP 2			128
Hunt WDFW 1	151106110000	0	3	3	4	8	8	7	8	8	24	21	36	81	6	136	6	127	Hotels WP 17			127
Hunt WDFW 3	161119310010	0	4	3	6	8	8	7	8	8	32	21	36	107	14	136	14	127	Comm Sp WP 3			127
Hunt WDFW 4	161119330000	0	3	3	6	8	8	7	8	8	24	21	54	99	5	130	5	126	Comm Garden 1			126
Hunt WDFW 5	161119340000	0	2	3	6	8	8	7	8	8	16	21	54	91	1	126	1	125	Comm Sp GL 4			125
Hunt WDFW 6	161119410000	0	2	3	6	8	8	7	8	8	16	21	54	91	122	122	122	1	Parks 1			124
Hunt WDFW 7	161119420010	0	2	4	6	8	8	7	8	8	16	26	54	96	120	120	120	1	Parks 5			124
Hunt WDFW 8	161119430010	0	1	4	6	8	8	7	8	8	8	28	54	90	117	117	117	1	Food WP 27			124
Hunt WDFW 9	161130100000	0	1	3	6	8	8	7	8	8	8	21	54	83	112	112	112	1	Food WP 31			124
Hunt WDFW 10	161130230010	0	1	3	6	8	8	7	8	8	8	21	54	83	110	110	110	1	Comm Sp WP 5			123
Hunt WDFW 11	161130230020	0	2	3	6	8	8	7	8	8	16	21	54	91	106	106	106	1	Comm Sp WP 7			123
Hunt WDFW 12	161130230030	0	2	3	6	8	8	7	8	8	16	21	54	91	105	105	105	1	Hotels WP 4			122
Hunt WDFW 13	161131000000	0	1	3	6	8	8	7	8	8	8	21	54	83	101	101	101	1	Hotels WP 28			122
Hunt WDFW 15	161132340000	0	3	3	6	8	8	7	8	8	16	21	54	91	101	101	101	1	Comm Sp WP 6			122
Hunt WDFW 19	734200000301	0	1	2	6	8	8	7	8	8	8	14	54	76	91	91	91	1	Hotels WP 1			121
Shoalwater	14110421048	0	2	6	6	8	8	7	8	8	16	42	54	112	91	91	91	1	Hotels WP 5			121
Timber GL 1	15111710000	0	4	3	4	8	8	7	8	8	32	21	36	89	90	90	90	1	VFW 1			120
Timber GL 2	15111600000	0	2	3	4	8	8	7	8	8	16	21	36	73	86	86	86	1	Food WP 11			120
Timber GL 3	780220040000	0	3	3	4	8	8	7	8	8	24	21	36	81	86	86	86	1	Coast Guard 2			120
Timber GL 4	780220340000	0	3	3	4	8	8	7	8	8	24	21	36	81	86	86	86	1	Hotels WP 14			119
Timber GL 5	151117400000	0	1	3	4	8	8	7	8	8	8	21	36	65	73	73	73	1	Food WP 24			119
Timber GL 6	15111731023	0	3	4	4	8	8	7	8	8	24	28	36	88	88	88	88	1	Coast Guard 3			119
Timber GL 7	15111731047	0	4	3	4	8	8	7	8	8	32	21	36	89	89	89	89	1	Comm Sp GL 1			118
Timber GL 8	15111734036	0	3	3	4	8	8	7	8	8	24	21	36	81	81	81	81	1	Parks 3			117
Timber GL 9	15111734037	0	3	3	4	8	8	7	8	8	24	21	36	81	81	81	81	1	Ocean Gold 1			117
Timber GL 10	15111734049	0	3	4	4	8	8	7	8	8	24	28	36	88	88	88	88	1	Parks 2			116
Timber GL 11	15111734059	0	4	4	4	8	8	7	8	8	32	28	36	96	96	96	96	1	Comm Sp WP 9			116
Timber GL 12	15112019000	0	3	3	4	8	8	7	8	8	24	21	36	81	81	81	81	1	Shoalwater			112
Timber GL 13	15112018000	0	1	3	6	8	8	7	8	8	8	21	54	83	83	83	83	1	Food WP 1			112
Timber GL 14	15112120000	0	2	3	4	8	8	7	8	8	16	21	36	73	73	73	73	1	Food WP 7			112
Timber GL 15	15112110000	0	1	3	6	8	8	7	8	8	8	21	54	83	83	83	83	1	WW Plant 1			110
Timber GL 16	15112042000	0	1	3	6	8	8	7	8	8	8	21	54	83	83	83	83	1	Food WP 33			110
Timber GL 17	15112018000	0	1	3	6	8	8	7	8	8	8	21	54	83	83	83	83	1	After School 1			109
Timber GL 18	15112120000	0	2	3	4	8	8	7	8	8	16	21	36	73	73	73	73	1				





SLR3 MCA	No.	Exposure	Criteria	1 Criteria	2 Criteria	3 Criteria	1 Multiplier	2 Multiplier	3 Multiplier	1 Weighted Criteria	2 Weighted	3 Weighted	Criteria Score	Categories	Sites In Order	Asset Site Name	Site Rank	Site Score					
Asset Category	Site #	SLR3 Exposure	Access	Uses	Identifiability	Accessibility	Uses	Community Cor	Accessibility	Uses	Community	Site Score	Mean	Maximum	Minimum	Count	Asset Category	Asset Site Name	Site Rank	Site Score			
After School 1	10400200000	0	2	3	8	8	8	7	9	16	21	72	109	After School Progr	159	200	109	3	State Parks 2	Twin Harbors State Park	#1	211	
After School 2	10550720100	0	10	5	6	8	8	7	9	80	35	54	168	Coast Guard	130	142	115	5	After School 3	Ocoosa Elementary & Junior #2	#3	200	
After School 3	161119220080	0	5	10	10	8	8	7	9	40	70	90	200	City Parks	122	139	109	6	School 1	Ocoosa Elementary & Junior #3	#4	200	
Coast Guard 1	106504500000	0	8	6	4	4	8	7	9	64	42	36	142	School	200	200	200	1	Food WP 34	Shop 'n' Kart Grocery	#4	198	
Coast Guard 2	106500100100	0	7	4	4	4	8	7	9	56	28	36	120	Hotels	86	137	40	28	State Parks 3	Grayland Beach State Park #5	#5	195	
Coast Guard 3	106501400100	0	6	5	4	4	8	7	9	48	35	36	119	Hunt	86	107	65	15	Brady's 1	Brady's Oyster	#6	178	
Coast Guard 4	616120114001	0	6	7	4	4	8	7	9	48	49	36	133	Timber	73	105	58	69	After School 2	The Helm	#7	169	
Coast Guard 5	6161224001	0	3	6	8	8	8	7	9	24	42	72	138	Wastewater Plant	66	66	66	1	Food WP 25	The Helm	#8	155	
Parks 1	103000201501	0	3	4	8	8	8	7	9	24	28	72	124	Utilities	91	105	74	6	Comm Sp GL 1	Lutheran Church Twin Harb #9	#9	167	
Parks 2	103000300000	0	2	4	8	8	8	7	9	16	28	72	116	State Parks	190	211	163	3	Library 1	Timberland Public Library #10	#10	166	
Parks 3	103000700101	0	3	3	8	8	8	7	9	24	21	72	117	Police	153	153	153	1	Fire WP 1	South Beach Regional Fire Authority V	#11	165	
Parks 4	103000900100	0	2	3	8	8	8	7	9	16	21	72	109	Ocean Gold	117	117	117	1	Comm Sp WP 1		#12	165	
Parks 5	103000801101	0	3	4	8	8	8	7	9	24	28	72	124	Pharmacy	90	90	90	1	State Parks 1	Westport Lighthouse State Park	#13	163	
Parks 6	107002500000	0	4	5	8	8	8	7	9	32	35	72	139	Clinic	90	90	90	1	Lighthouse	Westport Lighthouse	#14	156	
School 1	161119220080	0	5	10	10	8	8	7	9	40	70	90	200	Library	166	166	166	1	Comm Hall 1		#15	155	
Hotels WP 1	102502007000	0	8	3	4	8	8	7	9	64	21	36	121	Historic Sites	91	91	91	1	Police 1		#16	153	
Hotels WP 2	102501100500	0	6	3	4	8	8	7	9	48	21	36	105	Food	100	198	48	39	Food WP 21		#17	151	
Hotels WP 3	102501101100	0	5	2	4	8	8	7	9	40	14	36	90	Fire Department	136	165	100	6	Fire Cl. 1		#18	147	
Hotels WP 4	102501200601	0	6	2	4	8	8	7	9	72	14	36	122	Cottages	101	101	101	1	Coast Guard 1		#19	142	
Hotels WP 5	102501900102	0	8	3	4	8	8	7	9	64	21	36	121	Condos	105	105	105	1	Comm Sp WP 8		#20	141	
Hotels WP 6	102505900500	0	6	5	6	8	8	7	9	48	35	54	137	Community Space	134	167	116	13	Food WP 36		#21	140	
Hotels WP 7	103000500100	0	2	3	4	8	8	7	9	16	21	36	73	Community Garde	126	126	126	1	Parks 6		#22	139	
Hotels WP 8	104004000400	0	1	1	4	8	8	7	9	8	7	36	51	Chamber of Comm	106	106	106	1	Food WP 35		#23	139	
Hotels WP 9	104004100100	0	2	1	2	8	8	7	9	16	7	18	41	Brady's Oysters	178	178	178	1	Fire WP 4		#24	139	
Hotels WP 10	104004000500	0	2	1	2	8	8	7	9	16	7	18	41	Lighthouse	156	156	156	1	Coast Guard 5		#25	138	
Hotels WP 11	104004041300	0	1	2	2	8	8	7	9	8	14	18	40	Shoalwater Bay Tr	112	112	112	1	Hotels WP 6		#26	137	
Hotels WP 12	104501500100	0	1	2	2	8	8	7	9	8	14	18	40							Food WP 22		#27	137
Hotels WP 13	104501500201	0	1	3	2	8	8	7	9	8	21	18	47							Food WP 18		#28	135
Hotels WP 14	104502000001	0	2	7	6	8	8	7	9	16	49	54	119							Food WP 28		#29	134
Hotels WP 15	104502600100	0	1	3	4	8	8	7	9	8	21	36	65							Coast Guard 4		#30	133
Hotels WP 17	105505600100	0	7	5	4	8	8	7	9	56	35	36	127							Hotels WP 19		#31	132
Hotels WP 18	105505600401	0	8	5	4	8	8	7	9	64	35	36	135							Fire WP 3		#32	131
Hotels WP 19	105505700300	0	8	2	6	8	8	7	9	64	14	54	132							Fire WP 5		#33	131
Hotels WP 20	106004007000	0	2	2	6	8	8	7	9	16	14	54	84							Comm Sp GL 3		#34	131
Hotels WP 21	616110732004	0	3	2	2	8	8	7	9	24	14	18	56							Food WP 26		#35	130
Hotels WP 24	743508000000	0	7	3	2	8	8	7	9	56	21	18	95							Food WP 23		#36	129
Hotels WP 25	743508400000	0	4	2	2	8	8	7	9	32	14	18	64							Comm Sp WP 2		#37	128
Hotels WP 26	743502000000	0	8	2	2	8	8	7	9	64	14	18	96							Hotels WP 17		#38	127
Hotels WP 27	710500001100	0	3	2	4	8	8	7	9	24	14	36	74							Comm Sp WP 3		#39	127
Hotels WP 28	743508400000	0	9	2	4	8	8	7	9	72	14	36	122							Comm Sp GL 1		#40	126
Hotels WP 29	710600013000	0	1	3	2	8	8	7	9	8	21	18	47							Comm Sp GL 4		#41	125
Hotels WP 30	105503400600	0	4	3	2	8	8	7	9	32	21	18	71							Parks 1		#42	124
Hotels GL 1	780150430000	0	3	3	4	8	8	7	9	24	21	36	81							Parks 5		#43	124
Hunt WDFW 1	151106110000	0	3	3	4	8	8	7	9	24	21	36	81							Food WP 27		#44	124
Hunt WDFW 3	161119310010	0	4	3	6	8	8	7	9	32	21	54	107							Food WP 31		#45	124
Hunt WDFW 5	161119340000	0	2	3	6	8	8	7	9	16	21	54	91							Comm Sp WP 5		#46	123
Hunt WDFW 7	161119420010	0	2	4	6	8	8	7	9	16	28	54	98							Comm Sp WP 7		#47	123
Hunt WDFW 8	161119430010	0	1	4	6	8	8	7	9	8	28	54	90							Hotels WP 4		#48	122
Hunt WDFW 9	161130100000	0	1	3	6	8	8	7	9	8	21	54	83							Hotels WP 28		#49	122
Hunt WDFW 10	161130200100	0	1	3	6	8	8	7	9	8	21	54	83							Comm Sp WP 6		#50	122
Hunt WDFW 11	161130200200	0	2	3	6	8	8	7	9	16	21	54	91							Hotels WP 1		#51	121
Hunt WDFW 12	161130230030	0	2	3	6	8	8	7	9	16	21	54	91							Hotels WP 5		#52	121
Hunt WDFW 13	161131100000	0	1	3	6	8	8	7	9	8	21	54	83							Coast Guard 2		#53	120
Hunt WDFW 15		0	2	3	6	8	8	7	9	16	21	54	91							Food WP 11		#54	120
Hunt WDFW 19	734200000301	0	1	2	6	8	8	7	9	8	14	54	76							Coast Guard 3		#55	119
Timber GL 1	151117100000	0	4	3	4	8	8	7	9	32	21	36	89							Hotels WP 14		#56	119
Timber GL 2	151116000000	0	4	3	4	8	8	7	9	32	21	36	89							Food WP 24		#57	119
Timber GL 3	780220040000	0	2	3	4	8	8	7	9	16	21	36	73							Comm Sp GL 1		#58	118
Timber GL 4	780220340000	0	3	3	4	8	8	7	9	24	21	36	81							Parks 3		#59	117
Timber GL 5	151117400000	0	3	3	4	8	8	7	9	24	21	36	81							Ocean Gold 1		#60	117
Timber GL 6	151117310023	0	1	3	4	8	8	7	9	8	21	36	65							Parks 2		#61	116
Timber GL 7	151117310407	0	3	4	4	8	8	7	9	24	28	36	86							Comm Sp WP 9		#62	116
Timber GL 8	151117340036	0	4	3	4	8	8	7	9	32	21	36	89							Food WP 1		#63	112
Timber GL 9	151117340037	0	3	3	4	8	8	7	9	24	21	36	81							Food WP 7		#64	112
Timber GL 10	151117340409	0	3	3	4	8	8	7	9	24	21	36	81							Shoalwater		#65	112
Timber GL 11	151117340509	0	3	4	4	8	8	7	9	24	28	36	88							After School 1		#66	109
Timber GL 12	151120190000	0	4	4	4	8	8	7	9	32	28	36	96							Parks 4		#67	109
Timber GL 13	151120180000	0	3	3	4	8	8	7	9	24	21	36	81							Food WP 2		#68	108
Timber GL 14	151121200000	0	1	3	6	8	8	7	9	8	21	54	83							Hunt WDFW 3		#69	107
Timber GL 15	151121100000	0	2	3	4	8	8	7	9	16	21	36	73							Chamber of Commerce 1		#70	106
Timber GL 16	151120420000	0	1	3	6	8	8	7	9	8	21	54	83							Hotels WP 2		#71	105
Timber GL 17	151120180000	0	1	3	6	8	8	7	9	8	21	54	83							Timber GL 39		#72	105
Timber GL 18																							

SLR3 MCA	No.	Exposure	Criteria	1 Criteria	2 Criteria	3 Criteria	1 Multiplier	2 Multiplier	3 Multiplier	1 Weighted Criteri	2 Weight3	3 Weighted Criteria Score	Categories	Sites In Order	Asset Site Name	Site Rank	Site Score		
Asset Category	Site #	SLR3 Exposure	Access	Uses	Identifiability	Accessibility	Uses	Community Cor	Accessibility	Uses	Community Site Score	Mean	Maximum	Minimum	Count	Asset Category	Asset Site Name	Site Rank	Site Score
Timber WP 4	15110220000	0	0	2	2	4	4	9	7	9	8	14	36	58	16	14	36	66	Timber GL 2
Timber WP 5	15110254000	0	0	2	2	4	4	9	7	9	16	14	36	66	16	14	36	66	Timber GL 4
Timber WP 6	15110544000	0	0	2	2	4	4	9	7	9	16	14	36	66	16	14	36	66	Timber GL 21
Timber WP 7	151108410010	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber GL 26
Timber WP 8	151108100000	0	0	4	2	4	4	9	7	9	32	14	36	82	32	14	36	82	Timber GL 29
Timber WP 9	151108210010	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber GL 30
Timber WP 10	151108210020	0	0	2	2	4	4	9	7	9	16	14	36	66	16	14	36	66	Timber GL 35
Timber WP 11	151108210030	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Utilities 3
Timber WP 12	151108210050	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber GL 7
Timber WP 13	151108210060	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber GL 11
Timber WP 14	151108210070	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber GL 31
Timber WP 15	151108210080	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Food GL 4
Timber WP 16	151108220010	0	0	2	2	4	4	9	7	9	16	14	36	66	16	14	36	66	Hotels WP 20
Timber WP 17	151108220020	0	0	3	2	4	4	9	7	9	24	14	36	74	24	14	36	74	Hunt WDFW 9
Timber WP 18	151108220030	0	0	3	2	4	4	9	7	9	24	14	36	74	24	14	36	74	Hunt WDFW 10
Timber WP 19	151108220040	0	0	4	2	4	4	9	7	9	32	14	36	82	32	14	36	82	Hunt WDFW 13
Timber WP 20	151108220050	0	0	3	2	4	4	9	7	9	24	14	36	74	24	14	36	74	Timber GL 14
Timber WP 21	151108220060	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber GL 16
Timber WP 22	151108230030	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber GL 17
Timber WP 23	151108240000	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber GL 18
Timber WP 24	151108340010	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber WP 8
Timber WP 25	151108340020	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber WP 19
Timber WP 26	151109210000	0	0	3	2	4	4	9	7	9	24	14	36	74	24	14	36	74	Timber WP 26
Timber WP 27	151109320000	0	0	3	2	4	4	9	7	9	24	14	36	74	24	14	36	74	Hotels GL 1
WW Plant 1	616120124001	0	0	2	2	4	4	9	7	9	16	14	36	66	16	14	36	66	Hunt WDFW 1
Utilities 1	151107430060	0	0	5	3	4	4	9	7	9	40	21	36	97	40	21	36	97	Timber GL 4
Utilities 2	151107430180	0	0	6	3	4	4	9	7	9	48	21	36	105	48	21	36	105	Timber GL 5
Utilities 3	161119230040	0	0	4	3	4	4	9	7	9	32	21	36	89	32	21	36	89	Timber GL 9
Utilities 4	161119230050	0	0	6	2	4	4	9	7	9	48	14	36	96	48	14	36	96	Timber GL 10
Utilities 5	161119230050	0	0	3	2	4	4	9	7	9	24	14	36	74	24	14	36	74	Timber GL 13
Utilities 6	616120141003	0	0	2	4	4	4	9	7	9	16	28	36	80	16	28	36	80	Timber GL 20
State Parks 1	48001	0	0	3	7	10	10	9	7	9	24	49	90	163	24	49	90	163	Timber GL 27
State Parks 2	48000	0	0	9	7	10	10	9	7	9	72	49	90	211	72	49	90	211	Timber GL 32
State Parks 3	48006	0	0	7	7	10	10	9	7	9	56	49	90	195	56	49	90	195	Timber GL 34
Police 1	10600500100	0	0	8	5	6	6	9	7	9	64	35	54	153	64	35	54	153	Hunt Clubs 1
Ocean Gold 1	104501300100	0	0	3	3	8	8	9	7	9	24	21	72	117	24	21	72	117	Food GL 1
Pharmacy 1	PHAR.CF.000006	0	0	5	2	4	4	9	7	9	40	14	36	90	40	14	36	90	Timber GL 25
Clinic 1	14-019	0	0	5	2	4	4	9	7	9	40	14	36	90	40	14	36	90	Utilities 6
Library 1	616110732017	0	0	6	4	10	10	9	7	9	48	28	90	166	48	28	90	166	Food WP 12
Hunt Clubs 1	161120320110	0	0	3	3	4	4	9	7	9	24	21	36	81	24	21	36	81	Food GL 3
Hunt Clubs 2	161120320010	0	0	2	3	4	4	9	7	9	16	21	36	73	16	21	36	73	Hunt WDFW 19
Hunt Clubs 9	74900300300	0	0	1	3	4	4	9	7	9	8	21	36	65	8	21	36	65	Food WP 10
HistSites 1	10400200800	0	0	2	3	6	6	9	7	9	16	21	54	91	16	21	54	91	Hotels WP 27
Food WP 1	10400010100	0	0	1	2	10	10	9	7	9	8	14	90	112	8	14	90	112	Timber WP 17
Food WP 2	10400200201	0	0	1	4	8	8	9	7	9	8	28	72	108	8	28	72	108	Timber WP 18
Food WP 3	10400401001	0	0	1	2	8	8	9	7	9	8	14	72	94	8	14	72	94	Timber WP 30
Food WP 4	10400500300	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber WP 27
Food WP 5	10400501100	0	0	2	2	2	2	9	7	9	16	14	18	48	16	14	18	48	Utilities 5
Food WP 6	10400501300	0	0	2	2	2	2	9	7	9	16	14	18	48	16	14	18	48	Hotels WP 7
Food WP 7	104500700100	0	0	1	2	10	10	9	7	9	8	14	90	112	8	14	90	112	Timber GL 3
Food WP 8	104500703000	0	0	1	3	8	8	9	7	9	8	21	101	101	8	21	101	101	Timber GL 15
Food WP 9	104500803000	0	0	1	2	8	8	9	7	9	8	14	72	94	8	14	72	94	Timber GL 19
Food WP 10	104500902000	0	0	1	2	6	6	9	7	9	8	14	54	76	8	14	54	76	Timber GL 24
Food WP 11	104500905000	0	0	2	2	10	10	9	7	9	16	14	90	120	16	14	90	120	Timber GL 36
Food WP 12	104501200200	0	0	2	4	4	4	9	7	9	16	28	36	80	16	28	36	80	Hunt Clubs 2
Food WP 13	104501300100	0	0	2	2	4	4	9	7	9	16	14	36	66	16	14	36	66	Hotels WP 30
Food WP 14	104501301600	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber GL 38
Food WP 15	104501600201	0	0	2	2	8	8	9	7	9	16	14	72	102	16	14	72	102	Timber GL 40
Food WP 16	104501800300	0	0	1	2	4	4	9	7	9	8	14	36	58	8	14	36	58	Timber WP 1
Food WP 17	104501800900	0	0	1	3	4	4	9	7	9	8	21	36	65	8	21	36	65	Timber WP 2
Food WP 18	104501801000	0	0	2	2	4	4	9	7	9	16	14	36	66	16	14	36	66	Timber WP 5
Food WP 19	104501900100	0	0	2	2	4	4	9	7	9	16	14	36	66	16	14	36	66	Timber WP 6
Food WP 21	1055053008000	0	0	10	5	4	4	9	7	9	80	35	36	151	80	35	36	151	Timber WP 10
Food WP 22	105505400700	0	0	10	3	4	4	9	7	9	80	21	36	137	80	21	36	137	Timber WP 16
Food WP 23	105505500601	0	0	9	3	4	4	9	7	9	72	21	36	129	72	21	36	129	WW Plant 1
Food WP 24	105505500700	0	0	10	3	2	2	9	7	9	80	21	18	119	80	21	18	119	Food WP 13
Food WP 25	105507201100	0	0	10	3	6	6	9	7	9	80	21	54	155	80	21	54	155	Food WP 18
Food WP 26	105501401303	0	0	6	4	6	6	9	7	9	48	28	54	130	48	28	54	130	Food WP 19
Food WP 27	151107210020	0	0	8	6	2	2	9	7	9	64	42	18	124	64	42	18	124	Hotels WP 15
Food WP 28	151107430040	0	0	7	6	4	4	9	7	9	56	42	36	134	56	42	36	134	Timber GL 6
Food WP 29	151107430160	0	0	5	3	4	4	9	7	9	40	21	36	97	40	21	36	97	Timber GL 22
Food WP 30	161119320050	0	0	4	1	2	2	9	7	9	32	7	18	57	32	7	18	57	Timber GL 23
Food WP 31	161120400900	0	0	3	4	8	8	9	7	9	24	28	72	124	24	28	72	124	Timber GL 28
Food WP 32	161224140020	0	0	3	7	2	2	9	7	9	24	49	18	91	24	49	18	91	Timber GL 33
Food WP 34	616110732006	0	0	10	4	10	10	9	7	9	80	28	90	198	80	28	90	198	Hunt Clubs 9
Food WP 35	616121244003	0	0	9	7	2	2	9	7	9	72	49	18	139	72	49	18	139	Food WP 17
Food WP 36	743501000001	0	0	5	4	8	8	9	7	9	40	28	72	140	40	28	72	140	Hotels WP 25
Food WP 37	743508700002	0	0	6	3	4	4	9	7	9	48	21	36	105	48	21	36	105	Timber GL 37
Food GL 1	780350000005	0	0	3	3	4	4	9	7	9	24	21	36	81	24	21	36	81	Timber GL 11





No.	Sites with PARCEL unit of analysis				228	27 unique assets														
Asset Category	Site #	L1 Exposure	SLR1 Exposure	SLR3 Exposure	M1 Exposure	1700s Exposure			1700s	L1	M1	SLR1	SLR3		Asset Category	Criteria 1	Criteria 2	Criteria 3		
Timber GL 6	15111731023	1	0	0	1	1									Timber GL 6	3	4	4		
Timber GL 7	15111731047	1	0	0	1	1									Timber GL 7	4	3	4		
Timber GL 8	15111734036	1	0	0	1	1									Timber GL 8	3	3	4		
Timber GL 9	15111734037	1	0	0	1	1									Timber GL 9	3	3	4		
Timber GL 10	15111734049	1	0	0	1	1									Timber GL 10	3	4	4		
Timber GL 11	15111734059	1	0	0	1	1									Timber GL 11	4	4	4		
Timber GL 12	15112019000	0	0	0	0	0									Timber GL 12	3	3	4		
Timber GL 13	15112018000	0	0	0	0	0									Timber GL 13	1	3	6		
Timber GL 14	15112120000	0	0	0	0	0									Timber GL 14	2	3	4		
Timber GL 15	15112110000	0	0	0	0	0									Timber GL 15	1	3	6		
Timber GL 16	15112042000	0	0	0	0	0									Timber GL 16	1	3	6		
Timber GL 17	15112018000	0	0	0	0	0									Timber GL 17	1	3	6		
Timber GL 18	15112120000	0	0	0	0	0									Timber GL 18	2	3	4		
Timber GL 19	15112043600	0	0	0	0	0									Timber GL 19	3	3	4		
Timber GL 20	78018014000	0	0	0	0	0									Timber GL 20	4	3	4		
Timber GL 21	15112018000	0	0	0	0	0									Timber GL 21	1	3	4		
Timber GL 22	15112911005	0	0	0	0	0									Timber GL 22	1	3	4		
Timber GL 23	15112819000	0	0	0	0	0									Timber GL 23	2	3	4		
Timber GL 24	15112818000	0	0	0	0	0									Timber GL 24	2	4	4		
Timber GL 25	78019018000	1	0	0	1	1									Timber GL 25	4	3	4		
Timber GL 26	78019018000	1	0	0	1	1									Timber GL 26	3	3	4		
Timber GL 27	78019901000	0	0	0	0	0									Timber GL 27	1	3	4		
Timber GL 28	78019018000	1	0	0	1	1									Timber GL 28	4	3	4		
Timber GL 29	78019018000	1	0	0	1	1									Timber GL 29	4	3	4		
Timber GL 30	78019018000	1	0	0	1	1									Timber GL 30	3	4	4		
Timber GL 31	78019018000	1	0	0	1	1									Timber GL 31	3	3	4		
Timber GL 32	78019901000	0	0	0	0	0									Timber GL 32	1	3	4		
Timber GL 33	78019018000	1	0	0	1	1									Timber GL 33	3	3	4		
Timber GL 34	78019901000	0	0	0	0	0									Timber GL 34	4	3	4		
Timber GL 35	78037000015	0	0	0	0	0									Timber GL 35	2	3	4		
Timber GL 36	15112944000	0	0	0	0	0									Timber GL 36	1	2	4		
Timber GL 37	15113360000	0	0	0	0	0									Timber GL 37	2	2	4		
Timber GL 38	15113244016	1	0	0	1	1									Timber GL 38	6	3	4		
Timber GL 39	15113244014	1	0	0	1	1									Timber GL 39	2	2	4		
Timber GL 40	14110411047	0	0	0	0	0									Timber GL 40	1	2	4		
Timber GL 41	15113344001	0	0	0	0	0									Timber GL 41	1	2	4		
Timber GL 42	14110421048	0	0	0	0	0									Timber GL 42	2	2	4		
Timber WP 1	151104100000	0	0	0	0	0									Timber WP 1	2	2	4		
Timber WP 2	151104320000	0	0	0	0	0									Timber WP 2	1	2	4		
Timber WP 3	151105100000	0	0	0	0	0									Timber WP 3	1	2	4		
Timber WP 4	151105220000	0	0	0	0	0									Timber WP 4	2	2	4		
Timber WP 5	151105240010	0	0	0	0	0									Timber WP 5	2	2	4		
Timber WP 6	151105440000	0	0	0	0	0									Timber WP 6	1	2	4		
Timber WP 7	151106410010	1	0	0	1	1									Timber WP 7	4	2	4		
Timber WP 8	151108100000	0	0	0	0	0									Timber WP 8	1	2	4		
Timber WP 9	151108210010	0	0	0	0	0									Timber WP 9	2	2	4		
Timber WP 10	151108210020	0	0	0	0	0									Timber WP 10	1	2	4		
Timber WP 11	151108210030	0	0	0	0	0									Timber WP 11	1	2	4		
Timber WP 12	151108210050	0	0	0	0	0									Timber WP 12	1	2	4		
Timber WP 13	151108210060	0	0	0	0	0									Timber WP 13	1	2	4		
Timber WP 14	151108210070	0	0	0	0	0									Timber WP 14	1	2	4		
Timber WP 15	151108210080	0	0	0	0	0									Timber WP 15	2	2	4		
Timber WP 16	151108220010	0	0	0	0	0									Timber WP 16	3	2	4		
Timber WP 17	151108220020	0	0	0	0	0									Timber WP 17	3	2	4		
Timber WP 18	151108220030	0	0	0	0	0									Timber WP 18	4	2	4		
Timber WP 19	151108220040	0	0	0	0	0									Timber WP 19	3	2	4		
Timber WP 20	151108220050	0	0	0	0	0									Timber WP 20	1	2	4		
Timber WP 21	151108220060	0	0	0	0	0									Timber WP 21	1	2	4		
Timber WP 22	151108230030	0	0	0	0	0									Timber WP 22	1	2	4		
Timber WP 23	151108240000	0	0	0	0	0									Timber WP 23	1	2	4		
Timber WP 24	151108340010	0	0	0	0	0									Timber WP 24	1	2	4		
Timber WP 25	151108340020	0	0	0	0	0									Timber WP 25	4	2	4		
Timber WP 26	151109210000	0	0	0	0	0									Timber WP 26	3	2	4		
Timber WP 27	151109320000	0	0	0	0	0									Timber WP 27	2	2	4		
WW Plant 1	616120124001	1	0	0	1	1									WW Plant 1	3	2	8		



## Appendix D. Data Dictionary

See “Appendix D - Data Dictionary” spreadsheet.

Data Dictionary for Asset Ranking Analysis

Topic/Folder	Data	Asset No.	Description	File Name	File Type	Date	Agency	Source	Notes	Link	File Path
Hazards	M1 tsunami inundation levels	--	An image of tsunami in	fgmax_WestportCoast_raster	raster		5/5/2025 LW	Randy Leveque	Unpublished data provi		ASSETS\HazResOnly
	L1 tsunami hazard area	--	Cascadia Mw 9 Hazard	CascadiaM9_hazardare	polygon		10/2024 WA Department of Natu	Washington Geological Survey		<a href="https://gis">https://gis</a>	ASSETS\HazResOnly
	1700s tsunami hazard area	--	Cascadia 1700 Hazard Areas		polygon		10/24 WA Department of Natu	Washington Geological Survey		<a href="https://gis">https://gis</a>	ASSETS\HazResOnly
	Sea Level Rise 3	--	3 ft projected sea level i	SLR3	raster		3/31/2016 National Atmospheric a	Office for Coastal Management		<a href="https://wv">https://wv</a>	ASSETS\HazResOnly
Sea Level Rise 1	--	1 ft projected sea level i	SLR1	raster		3/31/2016 National Atmospheric a	Office for Coastal Management		<a href="https://wv">https://wv</a>	ASSETS\HazResOnly	
Assets	After school programs	10	After school program lo	AtSchProgs.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Locations determined a	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Brady's Oysters	41	Brady's Oysters	Bradys_Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Chamber of Commerce	49	Parcels owned by the C ChamofComm		point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified by parcel own	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Coast Guard	38	Parcels owned by the C CoastGuard	Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified by parcel own	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Community Garden	50	Community garden	CommGarden_Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Community Spaces	65	Parcels owned by churc	CommSp_ChurchGL_P	point		3/24/23 Pacific County	Taxlots (Parcels) zip file	Identified with Google M	<a href="#">Spatial D</a>	ASSETS\ParcAssets
	Community Spaces	65	Parcels owned by churc	CommSp_ChurchWP_f	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Community Spaces	65	Grayland Community H	CommSp_Hall_Pt.dbf	point		3/24/23 Pacific County	Taxlots (Parcels) zip file	Identified with Google M	<a href="#">Spatial D</a>	ASSETS\ParcAssets
	Westport by the Sea Condos	25	Centroid of the merged	Condos_WP.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Westport Marina Cottages	27	Westport Marina Cottag	Cottages_Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	South Beach Regional Fire Authority	66	Parcels owned by Soutl	FireDept_GL.dbf	point		3/24/23 Pacific County	Taxlots (Parcels) zip file	Identified by parcel own	<a href="#">Spatial D</a>	ASSETS\ParcAssets
	South Beach Regional Fire Authority	66	Parcels owned by Soutl	FireDept_WP.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified by parcel own	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Food establishments	1	Parcels with land use ty	Food_GL_Pts.dbf	point		3/24/23 Pacific County	Taxlots (Parcels) zip file	Identified by parcel use	<a href="#">Spatial D</a>	ASSETS\ParcAssets
	Food establishments	1	Parcels with land use ty	Food_WP_Pts.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified by parcel use	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Historical sites	12	Westport Maritime Musi	HistSites.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified by Google Ma	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Hotels	26	Parcels with land use ty	HotelOnly_WP_saf.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified by parcel use	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Hotels	26	Parcels with land use ty	HotelsOnL_GL_saf.dbf	point		3/24/23 Pacific County	Taxlots (Parcels) zip file	Identified by parcel use	<a href="#">Spatial D</a>	ASSETS\ParcAssets
	Hunting	7	Parcels owned by Laidl	HuntClubs_saf.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified by parcel own	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Hunting	7	Parcels owned by WA C	HuntWDFW_saf.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Library	9	Westport Timberland Li	Library_Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Lighthouse	36	Westport Lighthouse	Lighthouse_Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Clinic	47	South Beach Vision Clir	Medical_clinic	point	n.d.	WA Department of Heal	Clinics.zip		<a href="https://do">https://do</a>	ASSETS\ParcAssets
	Pharmacy	47	Twin Harbor Drug	Medical_pharma.dbf	point	n.d.	WA Department of Heal	Pharmacies.zip		<a href="https://do">https://do</a>	ASSETS\ParcAssets
	Ocean Gold	45	Parcel owned by Ocear	OceanGold.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Parks	19	City parks in Westport	Parks.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Police	67	Westport Police Station	Police_Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	School	40	Ocosta Elementary & J	J_Schools.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Shoalwater	54	A centroid point of the n	Shoalwater_Pt.dbf	point		3/24/23 Pacific County	Taxlots (Parcels) zip file	Identified with Google M	<a href="#">Spatial D</a>	ASSETS\ParcAssets
	State parks	23	State parks within the s	StateParks_Pts.dbf	point		3/4/25 Washington State Park				ASSETS\ParcAssets
	Timber	64	Parcels with use type ti	Timber_GL_Pt.dbf	point		3/24/23 Pacific County	Taxlots (Parcels) zip file	Identified by parcel use	<a href="#">Spatial D</a>	ASSETS\ParcAssets
	Timber	64	Parcels with use type ti	Timber_WP_Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified by parcel use	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Utilities	55	Parcels owned by Publi	Utilities_Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified by parcel use	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Veterans of Foreign Wars post (VFW)	51	Veterans of Foreign Wa	VFW_Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Wastewater treatment plant	46	Westport Wastewater T	WWPlant_Pt.dbf	point		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified with Google M	<a href="#">GIS Data</a>	ASSETS\ParcAssets
	Residents of Grays Harbor County	24	Residential parcels in tr	Residents_WP	polygon		2/7/25 Grays Harbor County	Parcels.zip from GIS Data Download	Identified by land use ty	<a href="#">GIS Data</a>	ASSETS\HazResOnly
	Residents of Pacific County	24	Residential parcels in tr	Residents_GL	polygon		3/24/23 Pacific County	Taxlots (Parcels) zip file	Identified by land use ty	<a href="#">Spatial D</a>	ASSETS\HazResOnly