

Gig Harbor Fire & Medic One

Gig Harbor • Washington

Community Risk Assessment: Standards of Cover

2021



DYNAMIX
CONSULTING GROUP



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2. INTRODUCTION

Background

Gig Harbor Fire & Medic One contracted with Dynamix Consulting Group to develop a Community Risk Assessment: Standards of Cover (CRA: SOC) on May 18, 2021.

The intent of this project is to produce a CRA: SOC document that is based on industry best practices, including recognized National Fire Protection Association (NFPA) standards; the methodology described in the “Community Risk Assessment: Standards of Cover, 6th Edition,” published by the Center for Public Safety Excellence (CPSE); and any federal and state mandates relative to emergency services.

The CRA: SOC will assess where the fire department and its capabilities as they are today. The project takes a “snapshot in time” of Gig Harbor Fire & Medic One and its response area, reviews the configuration, programs, service delivery, and response performance in detail, and compares the conditions found to national standards, best practices, and the experience of the consultants.

Acknowledgements

Dynamix Consulting Group would like to acknowledge that without the assistance and support of the elected officials, command staff, and members of Gig Harbor Fire & Medic One, this project could not have been successfully completed.

Gig Harbor Fire & Medic One Fire Commissioners

Chairman Alex Wilsie

Vice Chairman Tom Sutich

Commissioner Kevin Entze

Commissioner Joe Urvina

Commissioner Bryce Nelson



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

Gig Harbor Fire & Medic One Administration

**FIRE
EST.
GIG HARBOR
1945
MEDIC ONE**

GIG HARBOR FIRE & MEDIC ONE

ADMINISTRATION

*Fire Chief
Dennis Doan*

*Assistant Fire Chief
Logistics & IT
John Johnson*

*Assistant Fire Chief
Operations
Todd Meyer*

*Assistant Fire Chief
Administration and Finance
Nick Langlow*

*Assistant Fire Chief
Health, Safety & Emergency
Preparedness Dan Bjurstrom*





Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover



GIG HARBOR FIRE & MEDIC ONE

DIVISION CHIEFS AND BATTALION CHIEFS



*Medical
Division Chief
Calvin Johnson*



*Prevention
Division Chief
Eric Waters*



*Training
Division Chief
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*Logistics
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*A-Shift
Battalion Chief
Tom Voigt*



*B-Shift
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*C-Shift
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3. EXECUTIVE SUMMARY

Background

The intent of this project is to produce a Community Risk Assessment: Standards of Cover (CRA: SOC) document that is based on industry best practices, including recognized National Fire Protection Association (NFPA) standards; the methodology described in the “Community Risk Assessment: Standards of Cover, 6th Edition,” published by the CPSE; and any federal and state mandates relative to emergency services.

Findings

Gig Harbor & Fire Medic One Fire Protection District presents multiple unique challenges related to the deployment of fire and rescue resources. Narrow winding road networks and a lack of interconnectivity necessitate lower travel speeds resulting in longer response times. Gig Harbor & Fire Medic One must achieve a balance between community expectations and what is reasonable and feasible at this point in time.

Staffing

Although the department organized and operated as a volunteer, then combination fire department, it has now evolved into a career fire and rescue department. Despite several potential advantages of incorporating a volunteer firefighter program, the likelihood of a viable and sustainable volunteer firefighter program within the District is doubtful, particularly given the decline witnessed nationwide in volunteerism in all segments of nonprofit community organizations.

Figure 1: Firefighter with SCBA





Financial Sustainability

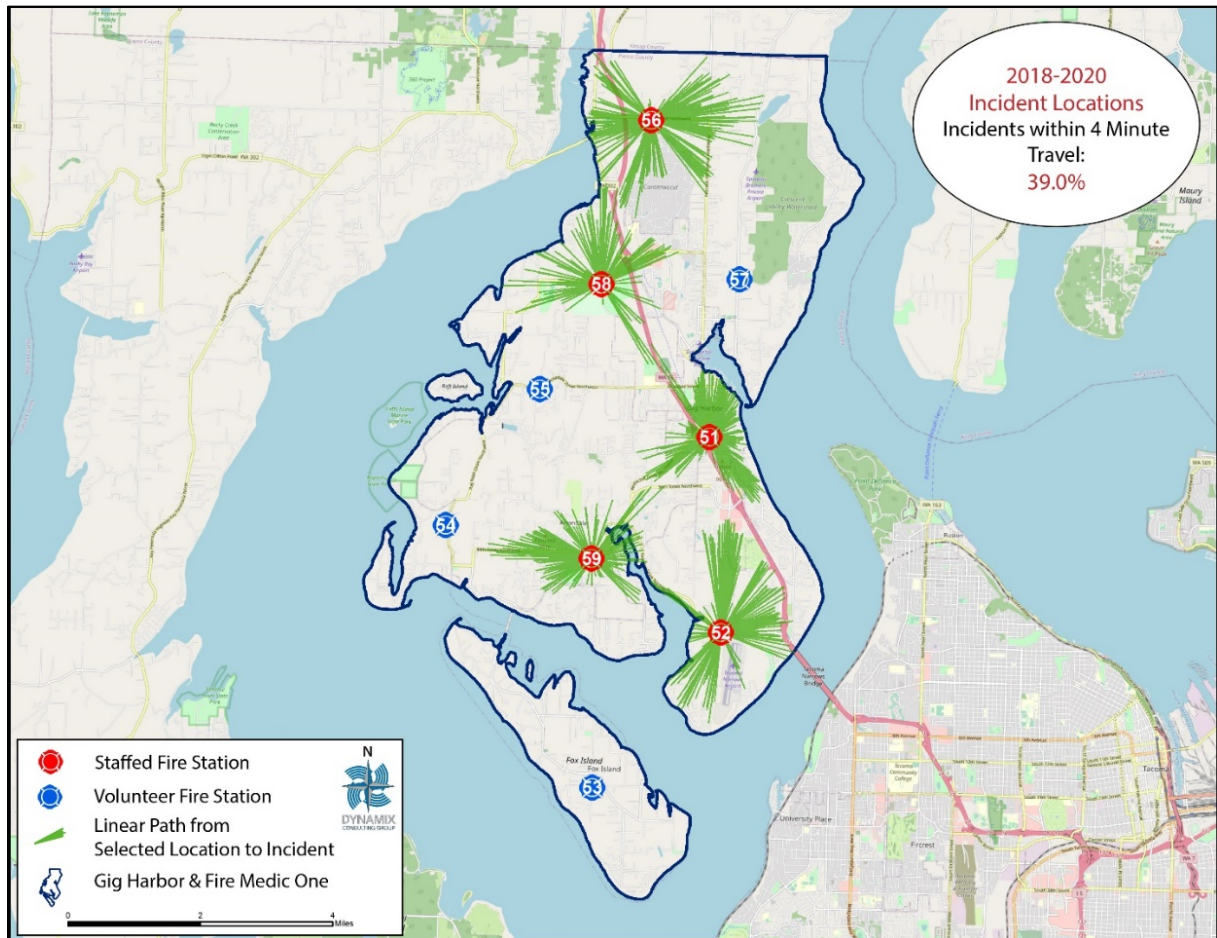
Future financial sustainability is a critical issue for Gig Harbor Fire & Medic One, as the EMS and Fire levy multi-year lid lifts will expire after the 2022 and 2023 tax year respectively. Should reauthorization of these multi-year lid lifts not occur, the District will find it difficult to maintain the current levels of service. It is imperative that the District stand united in the approval of multi-year lid lifts in subsequent years.

Capital Facilities

The District currently maintains nine stations. Career firefighters staff five stations and four are unstaffed. Due to the age and condition of these facilities, major renovations will be required in the not too distant future.

Of the five staffed fire stations, four were built in 1987 or 1988 and are 33 to 34 years old; the remaining staffed station, Station 51, was built 44 years ago in 1977. These buildings are all nearing the end of their intended life span. The District adopted a Capital Facilities Plan in 2019 to address these issues, however, there is uncertainty about exactly how the district will fund these projects in future years. As the District moves forward with this plan, it should be considered that several unstaffed facilities are currently used to house support functions that the District otherwise does not have dedicated space for at this time, including the Fire Prevention, Logistics, and Training Divisions. Additionally, the District expects to use the unstaffed stations to house on duty firefighters and apparatus during the major construction projects planned for the next 5-10 years. Using the currently unstaffed stations as mentioned will provide the District and community the opportunity to save on costly temporary housing that can often accompany fire station remodels or new construction.

To assist Gig Harbor & Fire Medic One, Dynamix conducted a station optimization analysis to identify the optimal five locations of the nine currently available fire stations, to meet service demand based on the road network, using NFPA 1710 first due travel times of four minutes, based on Gig Harbor Fire & Medic One's 2018 through 2020 incident locations.



When the current nine fire stations were assessed for suitability, the current staffed fire stations 51, 52, 56, 58, and 59 were selected as providing the greatest ability to capture the highest number of incidents within a four-minute travel time. Overall, 39% of Gig Harbor Fire Protection District's demands for service fall within this area.

Summary

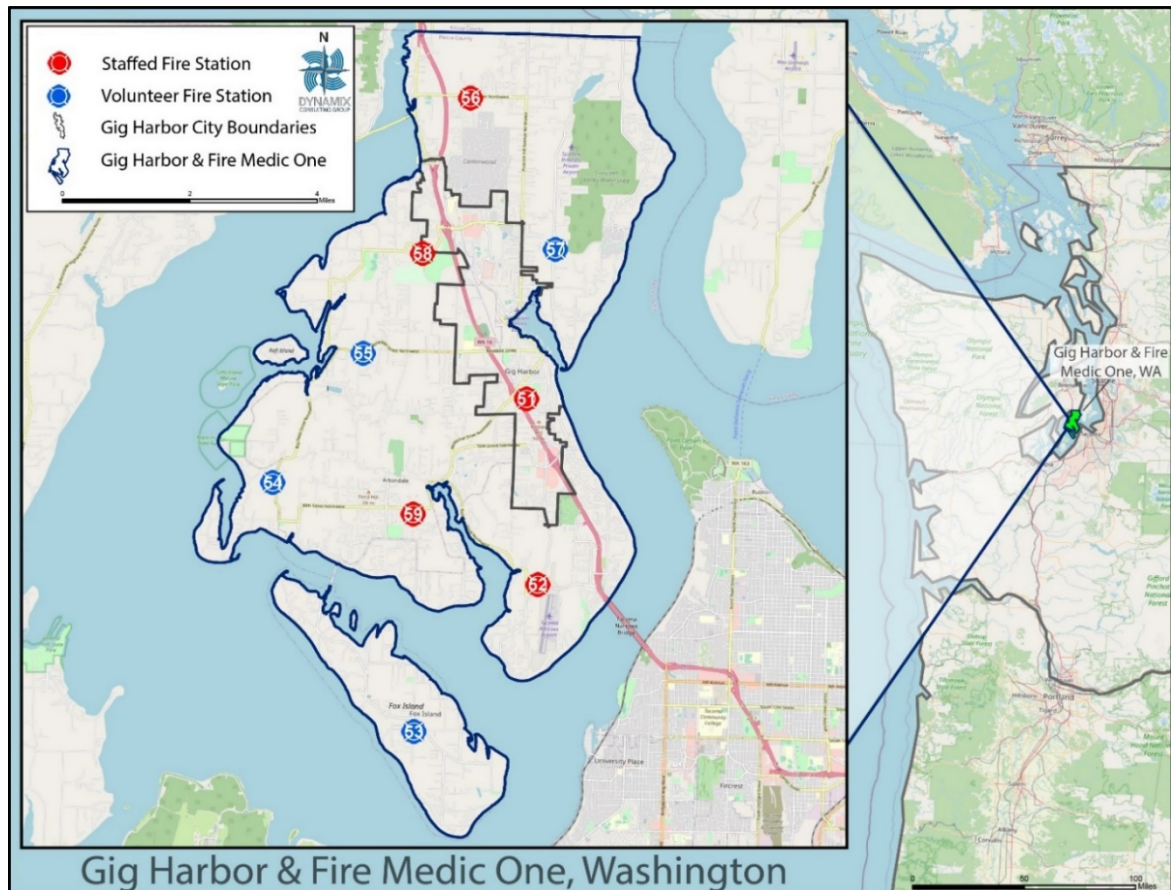
This report presents Gig Harbor & Fire Medic One with multiple opportunities for improvement. Ultimately, administrators must balance the deployment challenges faced by the department and the community's ability to fund and support these needs.



4. SERVICE AREA CHARACTERISTICS

The Fire District of Gig Harbor & Fire Medic One, Washington is in Pierce County on the southeastern portion of the Kitsap Peninsula in the Puget Sound, between the Seattle metropolitan area and the Olympic Peninsula in northwest Washington. Bordered to the north only by Kitsap County and surrounded by water, the Puget Sound physically separates Gig Harbor from Pierce County and is only connected to Pierce County via the Tacoma Narrows Bridge on the southeast side of the District. Additionally, two islands are present within the District: Fox Island to the south and Raft Island to the west. A single bridge connects each island to the peninsula.

Figure 2: Service Area Overview





The total land area of the District is approximately 47.5 square miles with an estimated population of 51,677 with 11,317 of residents living within the City of Gig Harbor. State Route 16 bisects the peninsula from the northwest to the southeast. There are steep terrain features along the coast, and hills throughout the District. The distribution of the population of the District is complex with urban/suburban populations within the City of Gig Harbor and medium to high density unincorporated communities mixed with rural, sparsely populated areas scattered throughout. The addition of two islands and its relative geographic isolation present challenges for providing fire and rescue coverage within the Gig Harbor Fire District.

Historical Description

Captain Charles Wilkes named Gig Harbor in 1841 after he had sheltered his “gig” in the harbor for protection the previous year. In 1867, three fishermen settled in what is today Gig Harbor and the City platted in 1888. The City of Gig Harbor incorporated in 1946. Until that time, the area’s chief industries were commercial fishing, logging, and shipyards. In 1940, construction of the Tacoma Narrows Bridge completed, and a short-lived boom occurred in Gig Harbor until the bridge’s collapse a few months after its completion. Due to the resource scarcity brought about by World War II, completion of a second bridge did not until 1950. Following the construction of the second bridge, Gig Harbor quickly developed into a suburb of Tacoma. In the 1970’s, the historic nature of Gig Harbor’s downtown became a tourist attraction and the 1980’s and 1990’s saw significant retail and commercial development along State Road 16, which shifted the central area of commerce away from downtown.

Today, Gig Harbor is known as one of the “Gateways to the Olympic Peninsula” and as a bedroom community to the Seattle-Tacoma metro area, its primary industries are tourism and retail.

Legal Basis

Gig Harbor & Fire Medic One, formally known as Pierce County Fire Protection District 5, formally signed into existence on March 6, 1945,

Figure 3: Engine 52





by RCW Title 52, with the legal formation mandated by County Commissioner Resolution 45-1827. A five-member Board of Commissioners governs the District, each representing the entire District and elected in a staggered term of office.

District Commission meetings occur bimonthly on the second and fourth Tuesday of each month. At these meetings, discussions involving department activity, performance, and needs occur, and motions voted upon by the Commission. Commissioners review programs and services annually via the presentation of the department budget for approval. Additionally, Commissioners must review and approve changes to personnel, deployment, or other policy decisions that affect overall service delivery or department structure prior to implementation. Through open communication and dialog, Commissioners evaluate and approve the allocation of resources and personnel based on financial constraints and community expectations.

History of the Agency

Following a destructive fire in 1944, residents began discussions about the need for a fire department. In the fall of that year, Gig Harbor residents presented a petition to the Pierce County Board of Commissioners to form a Fire Protection District for the peninsula. The Board created the Pierce County Fire District 5 in January 1945.

The newly formed Fire District needed equipment, apparatus, and a location to store them. In the mid 1940's, access to vehicles, equipment, and materials was limited due to the war efforts in Europe and the Pacific. Founding members petitioned the Secretary of War, who granted permission to purchase an olive drab Ford freight truck from the assembly plant in Dearborn, Michigan for \$6,000. Once delivered to Cornelius, Oregon, Western States Fire Apparatus retrofitted Engine 1 and painted it red. In 1995, "Old No. 1" was restored and today is housed on display in the main lobby of the Fire District administration building.

Figure 4: House Fire





The first temporary fire station was located northeast of the intersection of North Harborview Drive and Burnham Drive in a volunteer firefighter's home garage. To access the fire engine in the garage, responding crews entered the home through the master bedroom where three sets of heavy canvas coats were available on a first come, first served basis.

The District leased land for the first fire station at the intersection of Stinson Avenue and Harborview Drive, which was later donated to the District. Construction of the fire station did not begin until 1949 and when completed, the Engine 1 relocated to that location.

During this time, other communities on the peninsula were establishing their own volunteer fire companies in the form of hose carts and bucket brigades. In 1956, Pierce County Fire District No. 5 loaned the Fox Island community a surplus pumper and in 1961, island residents voted to become part of the District. Other communities such as Arletta (1955), Wollochet (1958), Purdy (1963), Rosedale (1967), and Crescent Valley (1974) organized volunteers for labor and financial assistance to construct fire stations primarily on donated land.

In 1973, the District hired the first paid firefighters, and by 1974, hired an additional three firefighters to provide 24-hour coverage. In the 1980's, emergency medical care evolved from first aid kits and firefighters acting as ambulance drivers for Peninsula Ambulance during transport of critical patients to becoming certified paramedics and providing Advanced Life Support (ALS) transport for the community. The District purchased the first ambulance in 1988, and in 1989, the first licensed paramedic began working for Gig Harbor & Fire Medic One making the District the second in Pierce County to offer emergency transport services.



Gig Harbor Fire & Medic One

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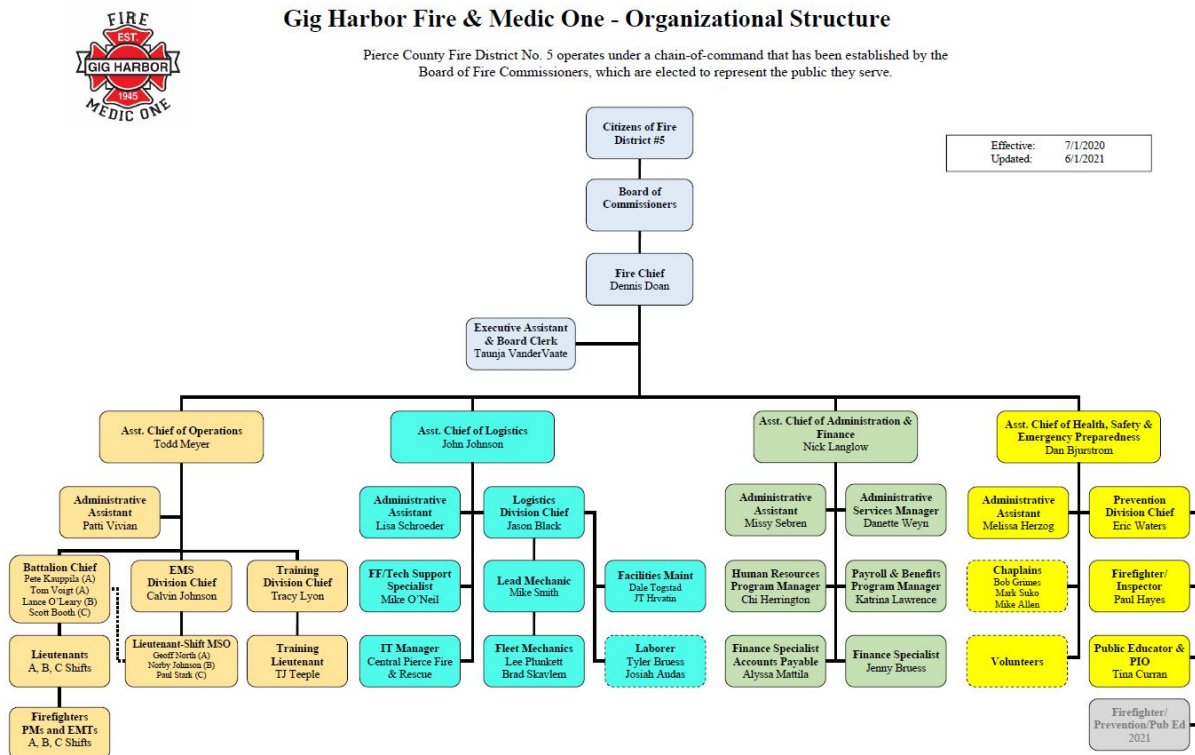
Today, 115 career firefighter/paramedics staff Gig Harbor & Fire Medic One, becoming a leader in providing pre-hospital EMS care in the State of Washington. With career staff operating from five locations across the District and four additional volunteer stations, Gig Harbor offers a myriad of services such as wildland firefighting, community risk reduction, and public education. Additionally, the department provides fire prevention, hazardous materials response, and is the lead agency for the Pierce County Special Operations Response Team.

Figure 5: Firefighters



Organizational Design

Figure 6: Organizational Chart





Service Milestones

Since its inception in 1945, Gig Harbor & Fire Medic One have developed several planning documents to assist the organization in its growth as it evolved. The recognition of organizational evolution is important to acknowledge as, in the case of Gig Harbor, the department has developed from volunteer fire department to a combination fire and EMS, and today to a career fire & rescue department. Below is a summary of significant milestones:

- **1984:** Adopted Master Plan to establish Standard of Cover, Risk Analysis and Station Deployment model. Developed a 9-station plan to cover 90% of the district geography within 5 minutes travel time from each station for Fire and Emergency Medical Services response. Subsequently passed a bond measure to support purchase of property and construct fire stations.
- **1992:** Adopted a Five-Year Plan that provided direction to staff an additional station (58), expand the Advanced Life Support (ALS) program to two medic units and provide all ALS transports. This plan also identified future staffing of a third station (59).
- **2002:** Development and adoption of a strategic plan identified several recommendations across the organization. The recommendations specific to staffing included increasing minimum on duty staff to 13. In addition, the plan recommended continuing to add additional staff, purchase a ladder truck and consider staffing a 4th fire station.
- **2007:** The District completed the first data analysis following the adoption of House Bill 1756 in 2005, codified in RCW 52.33, which required Fire Departments to establish response objectives and report their performance beginning in 2007. There were recommendations to improve segments of alarm processing, notification, turn out time and data entry. In addition, the report identified the need to improve guaranteed response and staffing of additional stations to improve response times.

Figure 7: Antique Firetruck and Gig Harbor





- **2008:** The District completed a Deployment Study.
- **2021:** A Standard of Cover: Community Risk Assessment completed.

Financial Basis

Financial oversight of the District is the responsibility of the elected Board of Commissioners. The Fire Chief and administrative staff are responsible for the development and administration of an annual budget that the Board adopts each November. As required by RCW 84.55.120, the District holds a public hearing on its revenue sources and projected budgets prior to formal adoption.

The District maintains two basic financial funds, an Expense Fund, and a Reserve Fund. The Board has adopted fiscal management policies through Resolution 2018-10 that identifies the purpose and minimum funding level for each fund. The District invests monies not needed for the immediate payment of salaries, benefits, supplies, or equipment through the Pierce County Office of Budget and Finance.

The Expense Fund covers operational expenditures and maintains a minimum fund balance equal to one month of operational expenses. The Expense Fund balances are generally at their lowest point just prior to the receipt of property taxes in April and October.



Figure 8: Laddered House



The Reserve Fund is primarily funded through the transfer of end fund balances from the Expense Fund. The Reserve Fund maintains a minimum funding level equal to at least two months of operational expenses to address temporary revenue shortfalls and unbudgeted expenses the Board may deem necessary. With Board approval, Reserve Fund may be used for capital contingencies.

Property taxes generated from two separate tax levies primarily funds the District (89% in 2021), a general fire levy and an Emergency Medical Services (EMS) levy. These levies are based on the assessed value of each property within the jurisdiction. Statute limits the general levy to \$1.50 per \$1,000 of assessed value and limits the EMS levy to \$.50 per \$1,000 of assessed value.

The actual combined levy rate in 2021 is \$1.912 per \$1,000 of assessed value, projected to generate \$25,903,048 in property tax collections.

Excluding new construction, statutes limit annual increases to property tax levies in Washington State to 1%. However, voters authorized the District to exceed this 1% limit on both their general and EMS levies with multiyear levy lid lifts. This authorization allowed the District to increase its levy collections each year by up to 6% for a six-year period after voter approval. The EMS levy multi-year lid lift received voter approval in 2016 and will expire after the 2022 tax year. The general fire levy multiyear lid lift received voter approval in 2017 and will expire after the 2023 tax year. These multiyear lid lifts are a principal factor in the District's ability to maintain current service levels, as the 1% restriction on property tax growth makes it extremely difficult to keep pace with the cost of providing services. Currently, the District is seeking reauthorization of these multiyear lid lifts in subsequent years.

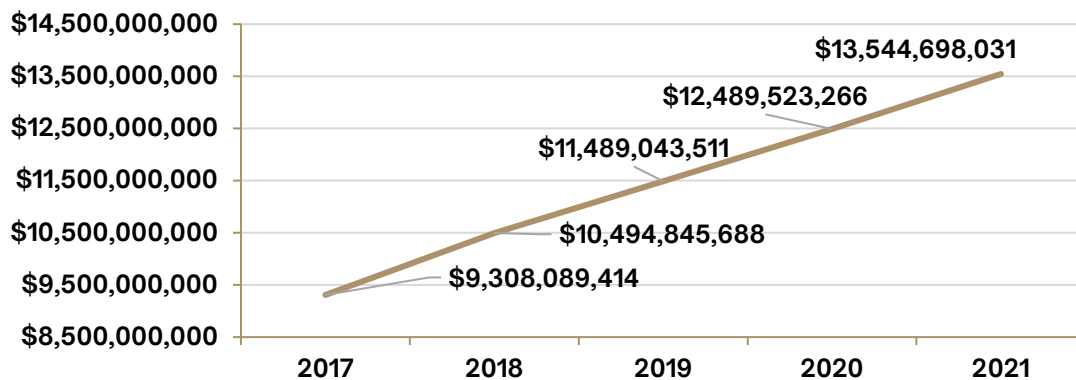


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Significant growth in the jurisdictional assessed value in recent years positively impacted the District's tax collection. Additionally, new construction in the Gig Harbor area has added a substantial amount of value to the tax roll. The average annual increase to assessed value, including new construction, over the last five years has been nearly 10%.

Figure 9: Assessed Values



The District benefits from several other revenue sources that augment tax collections. These include fees for services, grant funding, and other miscellaneous revenues. In 2020, the District received nearly \$3,000,000 in transport related fees and Ground Emergency Medical Transportation (GEMT) payments and another \$450,000 for fire protection services. In 2020, FEMA awarded the District a Staffing for Adequate Fire and Emergency Response (SAFER) grant that provided \$1,839,841 to offset staffing costs. In 2020, the grant provided approximately \$634,000 to the District leaving approximately \$1,143,000 to be used through March of 2023.

As the chart below depicts, the District experienced several years of revenues that exceeded expenses. This is largely due to the recent Federal GEMT program that enhanced transport revenue faster than projected. This surplus funding was used to build reserves to current levels and fund capital purchases. As these prior year excess revenues were used for service enhancements and capital purchases, budgeted expenses will eventually exceed expected revenues. A significant driver in this situation is a Washington State law that places a ceiling on property tax growth from year to year. The state law caps year over year property tax growth at 1%. Pierce County Fire District 5 voters approved multi-year levy lid lifts in 2016 (EMS Levy) and 2017 (Fire Levy) that authorized the Fire District to raise the property tax growth cap from 1% year over year to 6%. Those multi-year lid lifts that allow the Fire District to capture the 6% growth will

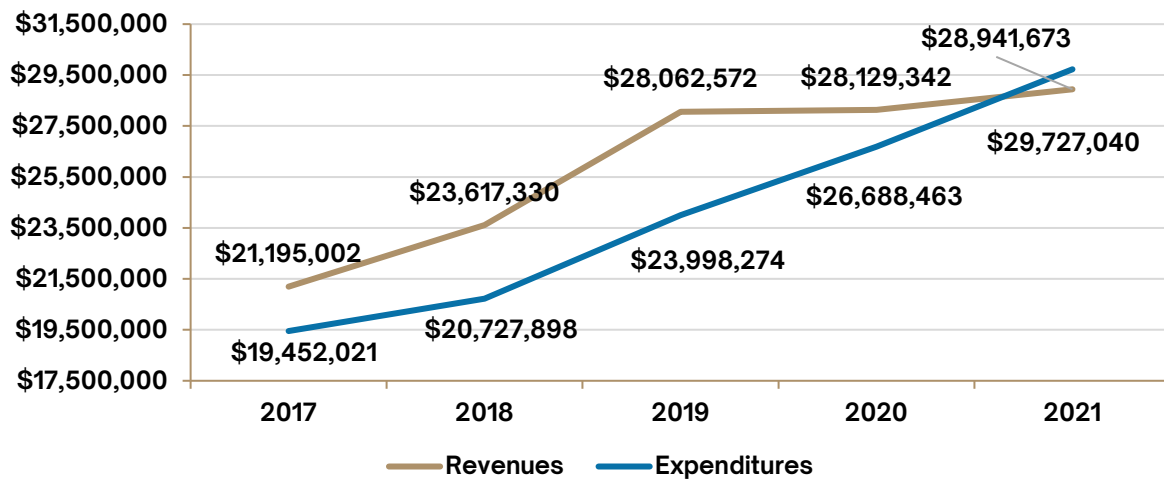


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expire at the end of 2022 (EMS Levy) and the end of 2023 (Fire Levy). It will be necessary for Gig Harbor Fire and Medic One to ask the voters to re-authorize the multi-year lid lifts and continue to capture the 6% growth metric. In the absence of these re-authorizations, budgeted expenses are forecasted to exceed expected revenues.

Figure 10: Revenues vs Expenditures



Personnel related costs make up approximately 81% of the District's annual budget. The District maintains a capital equipment replacement schedule and normally funds equipment and apparatus replacement through its operational budget. Occasionally the District will fund apparatus purchases through low interest loans. However, the District currently has no outstanding indebtedness.

In 2019, the District adopted a Capital Facility Plan that identified projected facility improvements and apparatus needs over the next 20 years. While the plan adequately identifies the need for significant capital improvements, it does not clearly identify how to fund these improvements. In the first 6-years (2019-2025) of the planning period, estimates suggested the District would invest \$36.5 million in capital facility improvements and apparatus replacement. To date, most of these projected improvements and purchases remain incomplete, primarily due to the lack of funding.

The Capital Facilities Plan assumes an allocation of 10.9% of the general revenue collections to capital improvements and the additional required funding would come from voter approved General Obligation (GO) Bonds and other financing and revenue sources. Based on the current revenue to expense trend, committing nearly 11% of the general revenues to capital improvements may not be feasible. The District is currently reviewing



the Capital Facilities Plan and looking at various potential funding sources. A GO Bond ballot measure is under consideration in 2022 to fund some of the most pressing capital needs. The plan identifies several other potential revenue sources, although each of these alternatives would require voter approval or legislative action by Pierce County or the City of Gig Harbor.

Today, the District can fund current levels of service with existing revenue sources. However, there are a substantial number of financial challenges on the horizon that require further planning and analysis. These challenges include operational expenses beginning to exceed current revenues, the lack of a funded capital equipment and apparatus replacement plan, a lack of funding for the Capital Facilities Plan, existing revenue sources at or near their statutory limits, and the SAFER grant funding and multiyear levy lid lifts are soon to expire. The District should continue with their development of strategic financial planning and analysis process to identify strategies to address these future finance related challenges.

Population

Unless otherwise noted, all population and demographic information specific to the Gig Harbor Fire & Medic One response area is from the Environmental Systems Research Institute (ESRI). This is the most accurate source of information for the Gig Harbor Fire & Medic One response area because of the fact that the fire district does not align with municipal boundaries. Data for state and national comparables is from the U.S. Census.

Population Density

An important aspect of classifying risk is to know where the population of a community is located. Community risk is assessed based on the total population and its distribution (normal, transitional, road miles, general, and different types of occupancies). Gig Harbor Fire & Medic One's current service area population estimate is 51,677.

Figure 11:
Population

51,677

Population

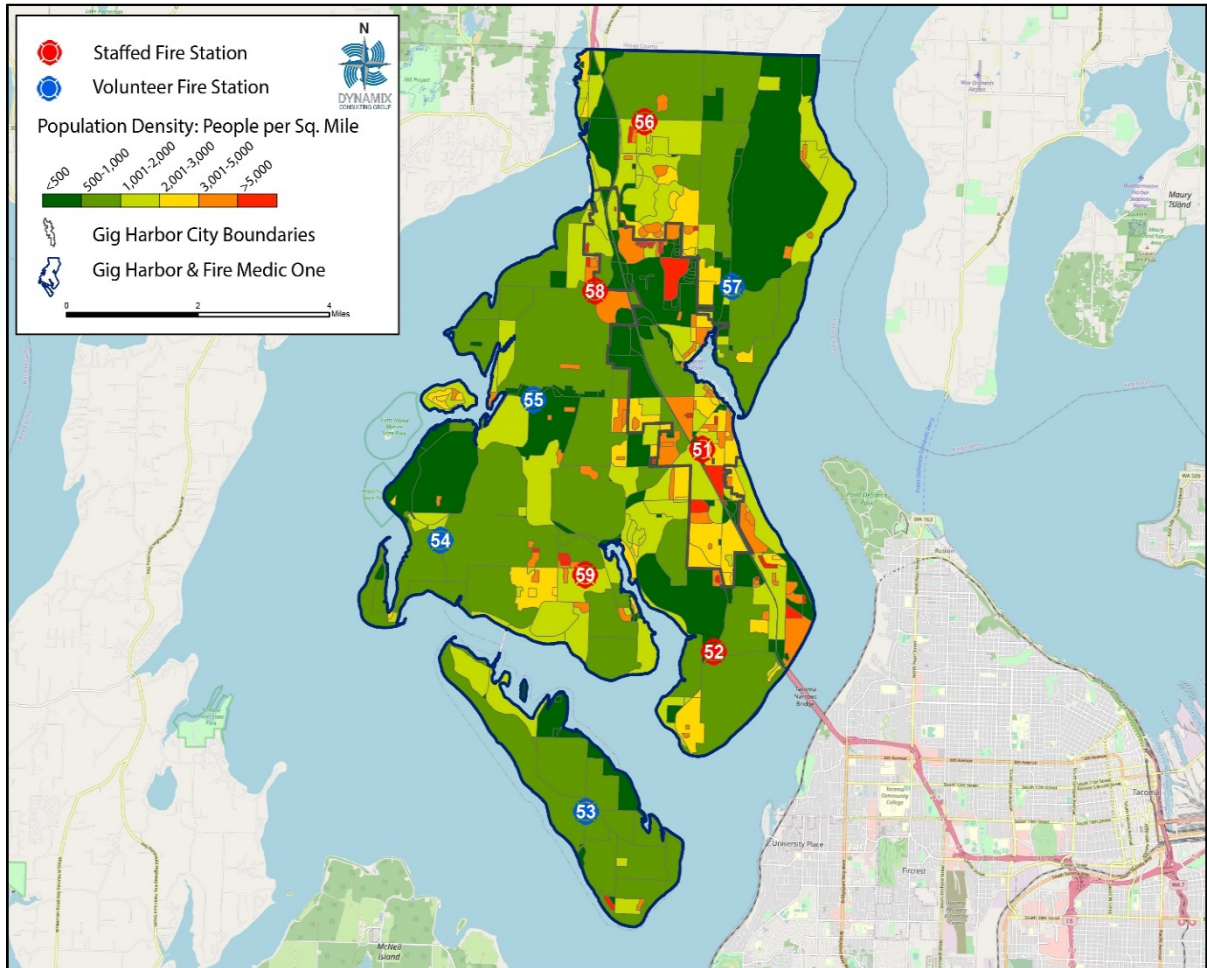
Population increases correlate to variations in population density or the population per square mile. Population density for the Gig Harbor Fire & Medic One's District is comprised of:

- Urban (> 1,000 people per square mile)
- Suburban (500–1,000 people per square mile)
- Rural (< 500 people per square mile)



The following figure provides population density by U.S. Census block groups, which are the smallest division used by the census.

Figure 12: Population Density



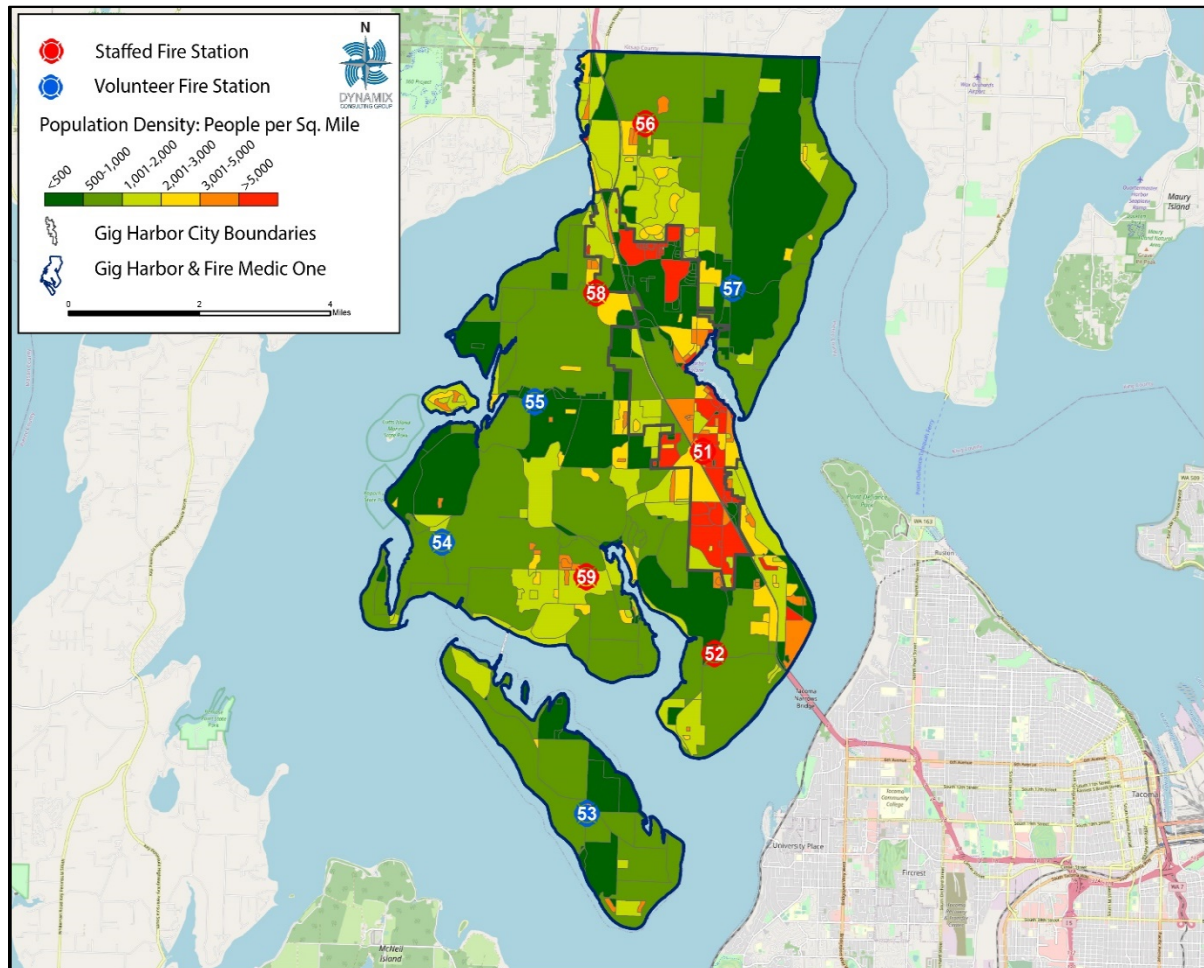
Population density varies slightly across the Gig Harbor Fire & Medic One service area. The overall population density of the City of Gig Harbor exceeds 1,000 persons per square mile, which meets the NFPA definition of an urban area. As the population in the City increases, the fire department may need to re-evaluate demographic and census data, adjusting response goals to meet future service demand adequately.

The following map illustrates the daytime population density within the Gig Harbor Fire & Medic One response area. The areas to the northeast of fire station 58 and south of fire



station 51 both see significant daytime population increases as a result of businesses in those areas.

Figure 13: Daytime Population Density



Demographics

Community risk assessment includes information about the people impacted by, or a part of, the problem because socioeconomic issues influence risk. A community demographic profile can be developed with accurate statistical data derived from the population. Causal factors and at-risk populations must be evaluated with consideration of the following:

- Social factors and cultural influences
- Economic factors



Gig Harbor Fire & Medic One

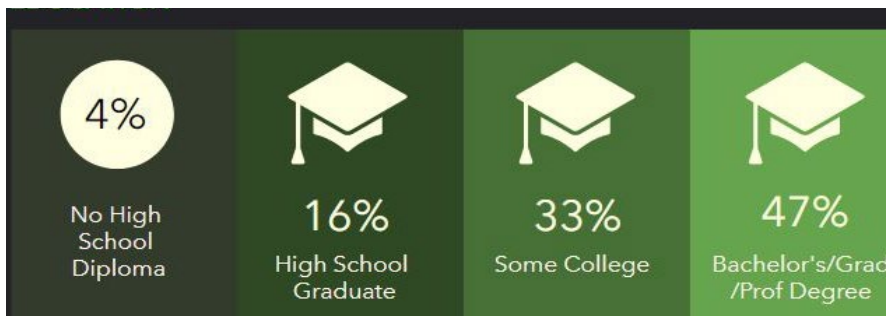
Community Risk Assessment: Standards of Cover

- Environmental elements
- Identification of risk factors in specific populations:
 - Children (age 5 & under)
 - Older adults (age 65 & older)
 - People with disabilities
 - People living in poverty
 - Populations that speak English as a second language

Education

The population within the Gig Harbor Fire & Medic One response area is educated with 80% of the population having either attended college (33%) or completed a college degree (47%).

Figure 14: Education



Among the 20% of the population that has not attended college, 16% are high school graduates and 4% do not have high school diplomas. This is a less than half the rate of non-high school graduates in the State of Washington (8.7%) and a quarter of the rate of non-high school graduates nationally (12%).

Income and Unemployment

Figure 15: Median Household Income



The median household income within the Gig Harbor Fire & Medic One District is \$107,482 which is higher than both the median income of Washington (\$73,775), and the median household income within the United States (\$62,843).

The unemployment rate within the Gig Harbor Fire & Medic One response area hovers around 4.6%, which is lower than the August 2021 5.1% unemployment rate for the State of Washington and August 2021

Figure 16: Unemployment



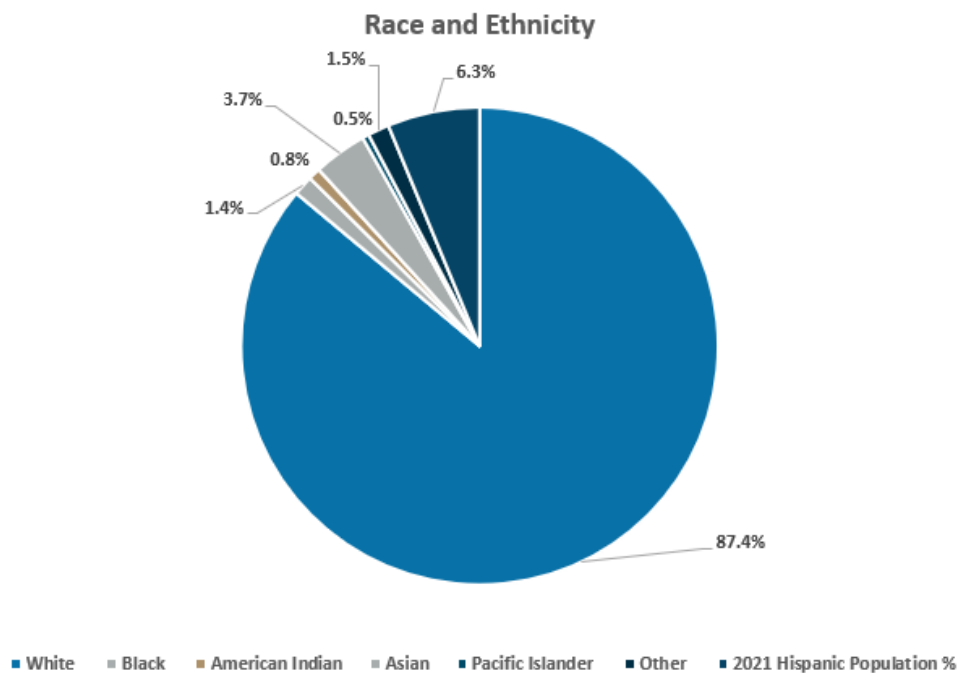


5.2% unemployment for the United States as reported by the U.S. Bureau of Labor Statistics.

Race and Ethnicity

The majority of the population of the Gig Harbor Fire & Medic One District, 87.4%, is white. The second and third most common ethnicities represented within the response area are Hispanic and Asian at 6.3% and 3.7%, respectively.

Figure 17: Race and Ethnicity



At Risk Populations

Several causal factors determine the population of at-risk individuals or groups within a community. Understanding the causal factors and populations of the community that are at greatest risk will contribute to programs and prevention efforts to address higher risk factors and reduce the effects of the associated risks. These factors also are important to consider when calculating demand for fire and emergency services within the community.

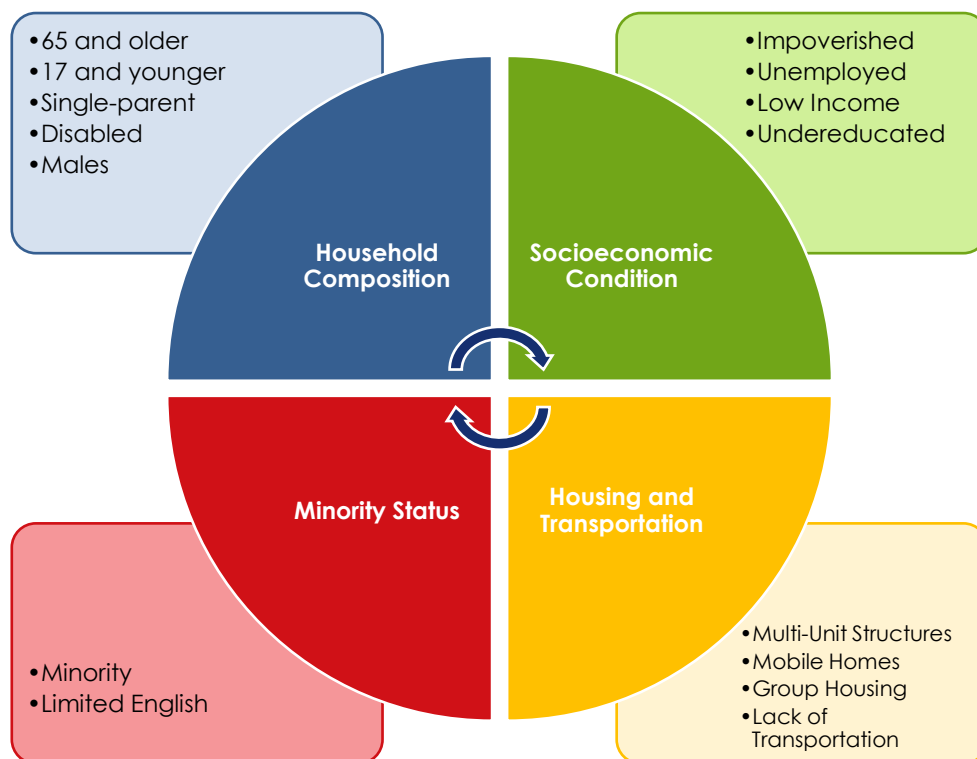
Often defined very broadly, the term “populations at risk” does not include all citizens within a defined group, as they experience risk at varying levels or rates. Coupling two or



more risk factors contribute to significantly higher levels of risk than those who only experience one risk category. Those with compounded risk factors should be a priority in prevention programs and strategies.

Broadly, “populations at risk” includes citizens at the lower end of socioeconomic status, those with housing and transportation challenges, those of minority status or with English-speaking challenges, and households containing citizens with disabilities, and those over 65 and under 17 years of age. More specifically, citizens most at risk include the impoverished, disabled, homeless, racial, and ethnic minorities, as well as people with low literacy. Also, groups suffering from poor health or who are uninsured/underinsured may be at greater risk during emergency or disaster situations.

Figure 18: Vulnerability Factors Matrix



Understanding the age, gender, and historical geographic distribution patterns among fire victims is critical to developing appropriate community risk reduction strategies. Additionally, studies have shown that these same factors indicating populations at risk for death or disability from fire can also be good predictors of medical emergencies and diseases. These groups may require greater time, effort, and resources to prepare,



evacuate, and recover from emergency situations. In addition to deciding where to focus risk reduction efforts within a community, Gig Harbor Fire & Medic One should carefully consider these factors when creating emergency plans for wide-area disasters within the community.

Males

Males, especially those under 25-years of age, are more prone to engage in risky activities. Additionally, males are 1.7 times more likely to die in fires than females. Within the Gig Harbor Fire & Medic One response area, 48% of the population is male. This is slightly lower than the state average of 50.1% and the national average of 49.2%

Age

Figure 19:
Population 65+



The Gig Harbor Fire & Medic One District population over 65 years of age makes up 25% of the population. The percentage of residents reaching senior status within the response area significantly higher than the state average of 16% and the national average of 17%, respectively. This age group is statistically more reliant on the emergency services offered by Gig Harbor Fire & Medic One. Understanding this data assists in developing targeted safety campaigns and hazard reduction efforts.

Disability

Fires in the home can be potentially dangerous and deadly for everyone, but persons with disabilities and impairments face additional challenges. Persons with disabilities often have a challenging time identifying or escaping a fire. There are 3,890 households that have identified as having one member with a disability.¹ These citizens in the community would benefit from programs to assist in their needs during times of emergency and for emergency planning efforts.

Figure 20:
Households
With Disability



¹ Environmental Systems Research Institute.



Language

According to the National Fire Protection Association (NFPA), “Language barriers, cultural differences, and inexperience with unfamiliar home technologies are factors that mark the challenges of helping newcomers live safely from the threat of fire in the home.” By itself, speaking a language other than English at home does not directly contribute to a higher risk of emergencies; however, if a person has difficulty speaking English, it may contribute to negative outcomes during an emergency.

Most of the population within the Gig Harbor Fire & Medic One response area (99%) speak English, whether as a primary or a secondary language. Although prevention and information materials written in English will reach most of the population, Gig Harbor Fire & Medic One should be aware that 0.1% of the population (51 people) identify as speaking Asian Pacific Island and no English.



Figure 21: Languages Spoken

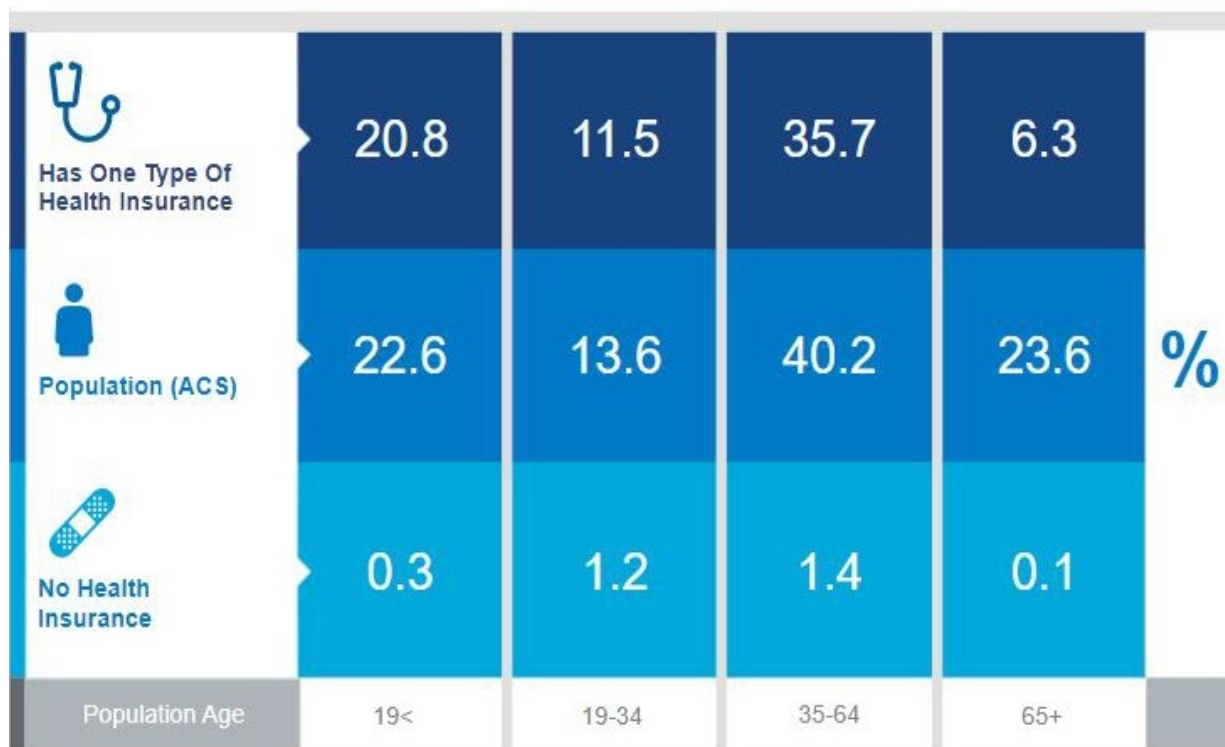
Language Spoken (ACS)	Age 5-17	18-64	Age 65+	Total
English Only	7,013	24,582	10,308	41,903
Spanish	273	860	117	1,250
Spanish & English Well	254	751	109	1,114
Spanish & English Not Well	19	109	8	136
Spanish & No English	0	0	0	0
Indo-European	50	470	306	826
Indo-European & English Well	37	437	306	780
Indo-European & English Not Well	13	33	0	46
Indo-European & No English	0	0	0	0
Asian-Pacific Island	101	533	299	933
Asian-Pacific Isl & English Well	58	472	187	717
Asian-Pacific Isl & English Not Well	43	61	60	164
Asian-Pacific Isl & No English	0	0	51	51
Other Language	67	54	6	127
Other Language & English Well	17	54	6	77
Other Language & English Not Well	50	0	0	50
Other Language & No English	0	0	0	0



Health Insurance

Employed citizens have increased access to health insurance, and therefore receive preventative health care at higher levels. Within the Gig Harbor Fire & Medic One response area, 3% of the citizens do not have access to health insurance. The benefit of health insurance extends to the frequency of prehospital emergency medical incidents, as citizens with health insurance use primary health care providers over emergency room facilities at higher levels. The following figure depicts the percentage of residents with health insurance in the Gig Harbor Fire & Medic One District.

Figure 22: Percentage of Residents with Health Insurance





Income

Low-income residents typically utilize government services at higher rates than other economic brackets. Persons living in poverty experience an increased risk from fire and medical emergencies due to the age and condition of their housing, inability to pay for routine medical care, lack of medical insurance, and general health conditions. Often associated with poverty is the lack of reliable transportation, which likewise leads to increased demand for local emergency services. There are 879 households (5%) below the poverty level within the Gig Harbor Fire & Medic One District.

Figure 23: Households Below the Poverty Level



Figure 24: Households Without



Those living below the poverty line are the most at-risk. Unfortunately, those at risk due to income often represent additional “at-risk” categories. Examples where the low-income category often combines with other factors include education, disability, and work status. Within the Gig Harbor Fire & Medic One response area, there are 508 households without a vehicle. The impoverished should be the focus of many of the programs and services of the fire department. These citizens benefit at greater levels from fire and fall prevention programs, emergency planning activities, supply distribution programs, and from materials targeting the risks they face routinely.



Geophysical Description

Topography

Gig Harbor is a peninsula, which is an area of land almost completely surrounded by water except for an isthmus, which is a narrow strip of land that connects the peninsula to a larger land body. The peninsula features steep terrains both along the coast and throughout the landmass. Additionally, the service area includes two islands.

Figure 25: Topography



Climate

The climate of the area served by Gig Harbor Fire and Medic One is mild. Average temperatures range from 76.6 degrees in August and average to 46.6 degrees in December. The Cascade Mountains block cold air to the east. West of the service area, the Willapa Hills and the Olympic Mountains remove much of the moisture from storms forming in the Pacific Ocean.

The rainy season starts in October and lasts through April each year. Average rainfall is approximately 37 inches per year. Precipitation is usually in the form of rain, with occasional snow during the winter.

Waterways

The marine waters of Puget Sound that surround the Gig Harbor Peninsula and Fox Island, including Colvos Passage, the Tacoma Narrows, Hales Passage, Carr Inlet, Henderson Bay, and the many other minor bays and inlets, are all regulated shorelines of the state.

Crescent Lake is the largest lake in the Gig Harbor Fire & Medic One response area; it spans 47 acres. The lake is recreational and features a public boat launch.



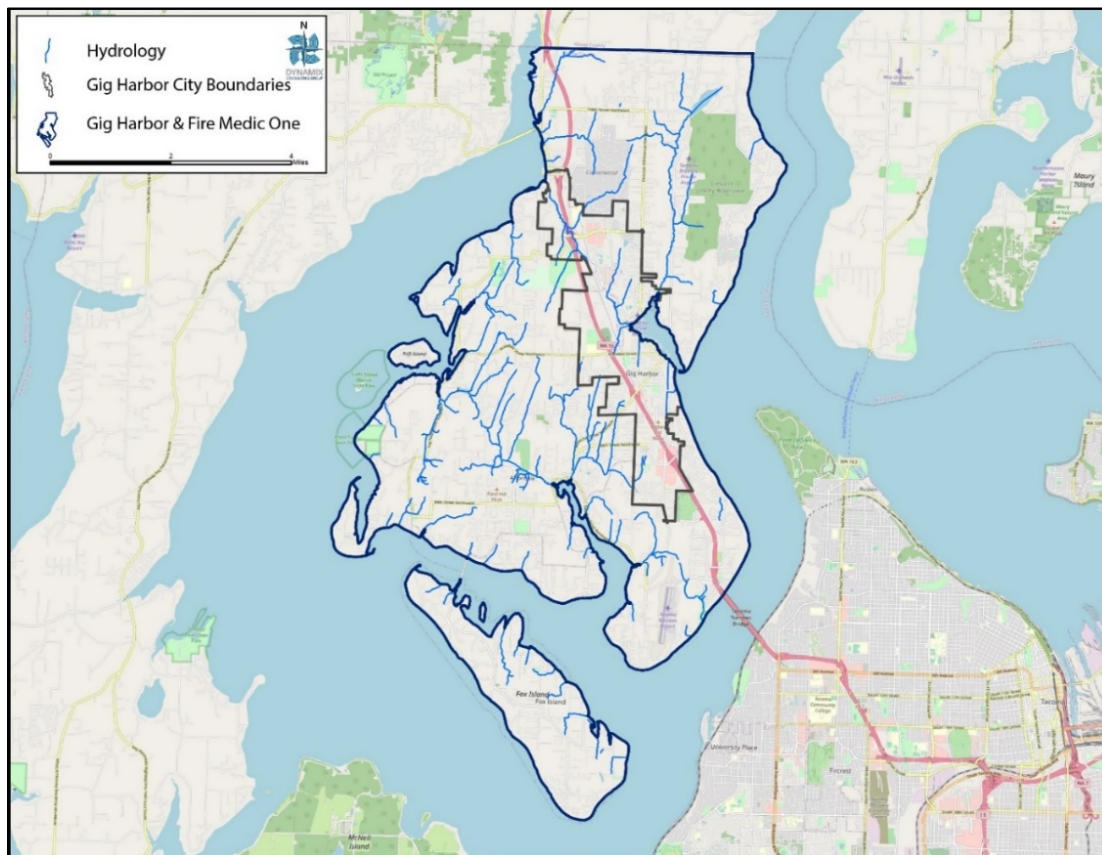
Gig Harbor Fire & Medic One

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Streams within the Gig Harbor Fire & Medic One District, including Crescent Creek, Artondale Creek, Wollochet Creek, Ray Nash Creek, and Purdy Creek, have not been identified as shorelines of the state as they have been determined to have a mean annual flow of less than 20 cubic feet per second. If demonstrated that their flows exceed this threshold, they could then be included as shorelines subject to the Shoreline Management Area.

There are no major rivers in the Gig Harbor Fire & Medic One District, although there are smaller streams located throughout the District. The following map illustrates the hydrology of the Gig Harbor Fire & Medic One response area.

Figure 26: Hydrology



Major Industries, Economic Sources and Centers

Commercial fishing, sport fishing, agriculture, and forestry historically supported the Gig Harbor Peninsula. Over time, the economy on the Peninsula diversified away from



resource-based industries and into professional services and retail trade with many of the Peninsula residents commuting across the Narrows Bridge to Tacoma for work.

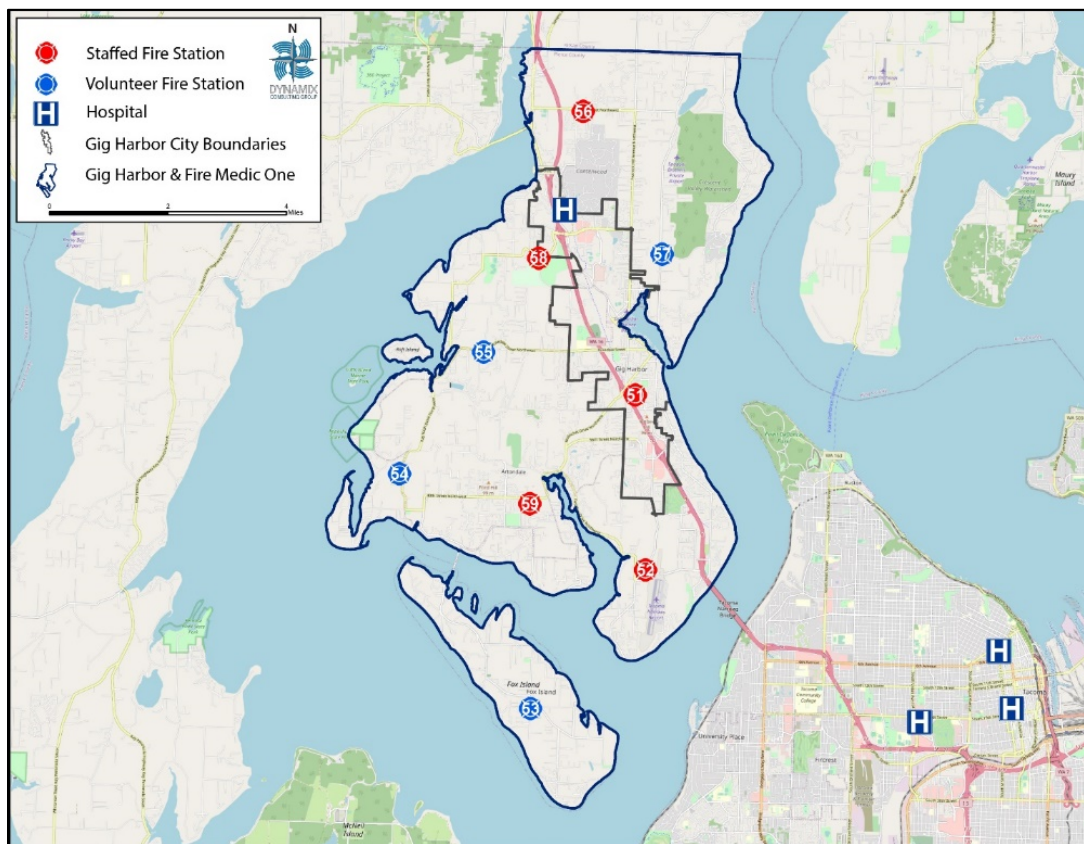
Critical Infrastructure

Critical Infrastructure is the physical and cyber systems that are so vital to a community that their incapacity or destruction would have a debilitating impact on physical or economic security, public health, or safety.

Hospital

There is one hospital within the Gig Harbor Fire & Medic One response area – St. Anthony Hospital. In addition to variety of specialty services, the hospital offers 24-hour care for stroke and other emergencies, a Level IV Trauma Center with board-certified providers and registered nurses, certified in emergency medicine and cardiac life support, and a critical care unit. The location of St. Anthony Hospital is illustrated on the following map.

Figure 27: Hospitals





Transportation

Transportation is the movement of goods or people from place to place. Within Gig Harbor, there exists air, road, and maritime transportation.

Airports

The Tacoma Narrows Airport is located in the southern portion of the Gig Harbor Fire & Medic One response area.

Pierce County owns and operates the 568-acre general aviation facility. Used primarily for business jet travel and general aviation, the airport features an FAA contract tower and a variety of businesses, including fixed base operators, a restaurant, The Hub at Gig Harbor, as well as a number of companies that offer flight instruction, scenic flights, and maintenance.

The Tacoma Narrows Airport runway is 5,002 feet long and 100 feet wide. It is capable of handling all general aviation aircraft, from light sport to large business jets. The following map illustrates the location of Tacoma Narrows Airport.

Figure 28: Airport





Roads

The road network within the Gig Harbor Fire & Medic One District is becoming increasingly congested at key intersections. There are limited crossing points for SR-16, which drives East-West traffic and some North-South traffic to these intersections.

Traffic congestion at the highway interchanges is near gridlock at many points during the day. SR-16 is the primary link between the Kitsap and Olympic Peninsula from the Seattle-Tacoma metro area. In the event of traffic accidents or other congestion on SR-16, the surface streets in the Gig Harbor area become overwhelmed and congested with motorists trying to bypass SR-16 congestion.

An additional challenge within the Gig Harbor Fire & Medic One response area is that because of the nature of a peninsula, there are areas that have restricted access including:

Figure 29: Restricted Access

Restricted Access Area	Description
Fox Island	Access to Fox Island is by a single bridge on the northern end of the island. A single arterial runs nearly six miles from the bridge to the southern end of the island.
Horsehead Bay/Forest Beach	Access to the Horsehead Bay area is by 36 th Street NW as the only access.
Cromwell	Access to the peninsula Cromwell area is by narrow, rural roads.
Pt. Fosdick	The Pt. Fosdick area was once the southern access point for the ferry from the Titlow Dock in Tacoma. Service to this tip on the southern end of the peninsula is by a single access road. The Tacoma Narrows Airport property and safety zones make additional access points impractical.
Point Evans/14th AV/Reid Dr	Access to this area is restricted due to limited SR-16 crossings. 14 th AV NW and Reid Dr NW run parallel to SR-16 and is only accessible from the north or south end. Completion of an SR-16 crossing connecting to 14 th Av NW, or interchange at 36 th St connecting to 14 th Av NW would improve access to this area.
Kopachuck/Raft Island	Rural narrow roads limit access to Raft Island and the Kopachuck area. This area includes Voyager Elementary School, Kopachuck Middle School and Kopachuck State Park.



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Restricted Access Area	Description
66 th Av NW	The 66 th Av/Rosedale Ridge area is only accessible from Rosedale St NW. Completion of a road connecting 66 th AV to Bujacich Rd would improve access to this area.
East Gig Harbor/Sea Cliff	Limited access to this area is due to the lack of East-West connections. Gig Harbor Bay is the significant feature that restricts options for this area.
Spring Hill/Haven of Rest	Access to this area is via Westbound SR-16. A frontage road or connection to another arterial would improve access to this area.
Pt. Richmond/Crescent Valley	Limited access to this area is due to the lack of East-West connections. Completion of connections from Peacock Hill Av through Crescent Valley to Hallstrom Dr/14 th Av would improve access to these areas.

Transit bus service is minimal. Pierce Transit provides transit bus service, oriented primarily to weekday commuters travelling to and from work or school in Tacoma and Seattle. Pierce Transit does not provide weekend service.

Sidewalks and bikeways are limited in within the Gig Harbor Fire & Medic One response area. Those that do exist are primarily within the City of Gig Harbor or its Urban Growth Area. The lack of nonmotorized facilities and minimal transit service results in the community being extremely dependent upon privately owned motor vehicles to meet daily transportation needs.

Maritime

Commercial tour boats spend time in the waters surrounding the Gig Harbor Fire & Medic One District as do hundreds of private boats of all types and sizes.

Figure 30: Tire Change



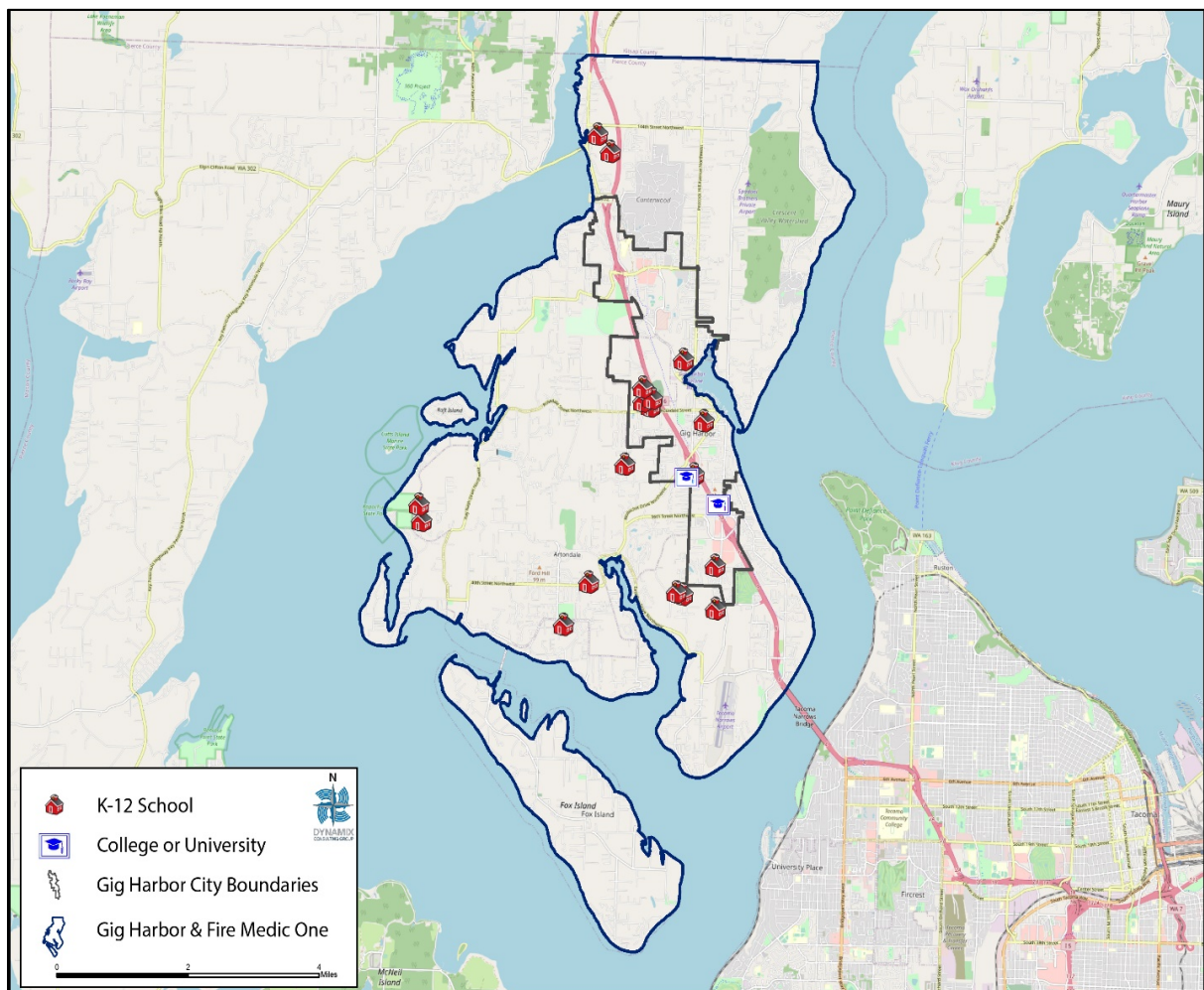


Schools

The Peninsula School District serves the Gig Harbor Fire & Medic One. The district is comprised of 17 schools and serves almost 9,000 students from a 120-square mile area on two peninsulas.

Tacoma Community College operates its Gig Harbor Campus at 3993 Hunt Street Northwest in Gig Harbor and the Community Transition Program and Peninsular Internet Academy. The following map illustrates the locations of the schools and colleges within the Gig Harbor Fire and Medic Once response area.

Figure 31: Schools





Utilities

Electricity

There are two electric providers within the Gig Harbor Fire & Medic One District. Peninsula Light Company supplies electric power to all except 115 customers at the north end of Crescent Valley Drive; Puget Sound Energy serves those customers.

The Peninsula Light Company established in 1925 as a nonprofit member owned utility. The company serves approximately 26,000 members in a 107-square mile area of Pierce County west of the Tacoma-Narrows Bridge. The service area includes Key Peninsula, Gig Harbor Peninsula, Fox Island, Tanglewood Island, Raft Island, and Herron Island.

Puget Sound Energy established in 1997 as a result of a merger of two local power companies: Washington Energy Company and Puget Sound Power & Light Company. When combined, the two companies became Puget Sound Energy. Puget Sound Energy is a public utility that provides electric and gas service to a territory covering approximately 6,000 square miles in 11 counties and including more than 1.2 million homes, primarily in the Puget Sound region.



Natural Gas

Puget Sound Energy is the provider of natural gas to customers in the Gig Harbor Peninsula area. The average peak winter usage for a 24-hour period is 4.8 million cubic feet of natural gas. Throughout the Peninsula, Puget Sound Energy operates and maintains a total of 156 miles (823,000 feet) of natural gas distribution lines that supply natural gas to the individual customers.

Figure 32: Snow



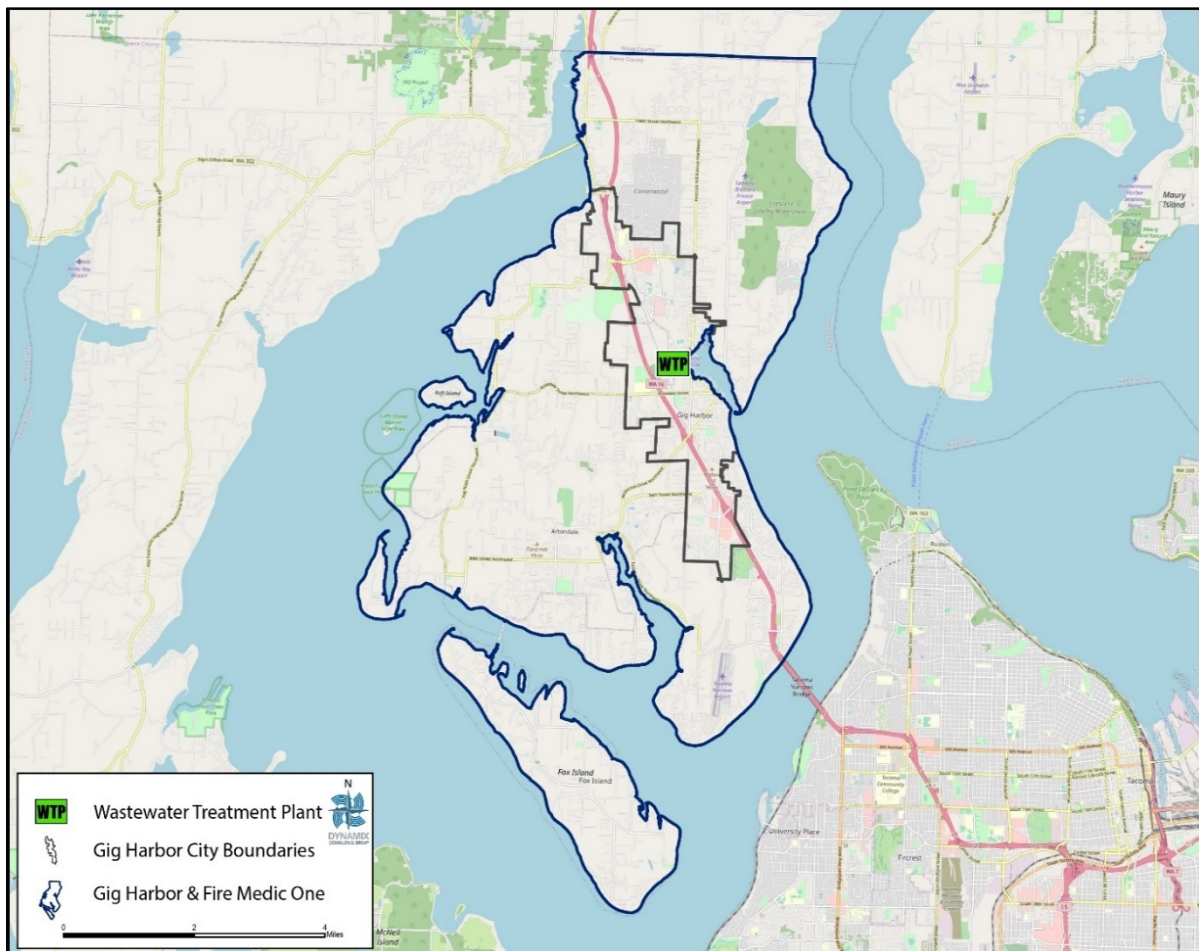


Sewer and Wastewater

The City of Gig Harbor provides sewage disposal service to approximately 3.7 square miles of the Gig Harbor Fire & Medic One District.

The following map illustrates the location of the Wastewater Treatment Plant.

Figure 33: Wastewater Treatment Plant

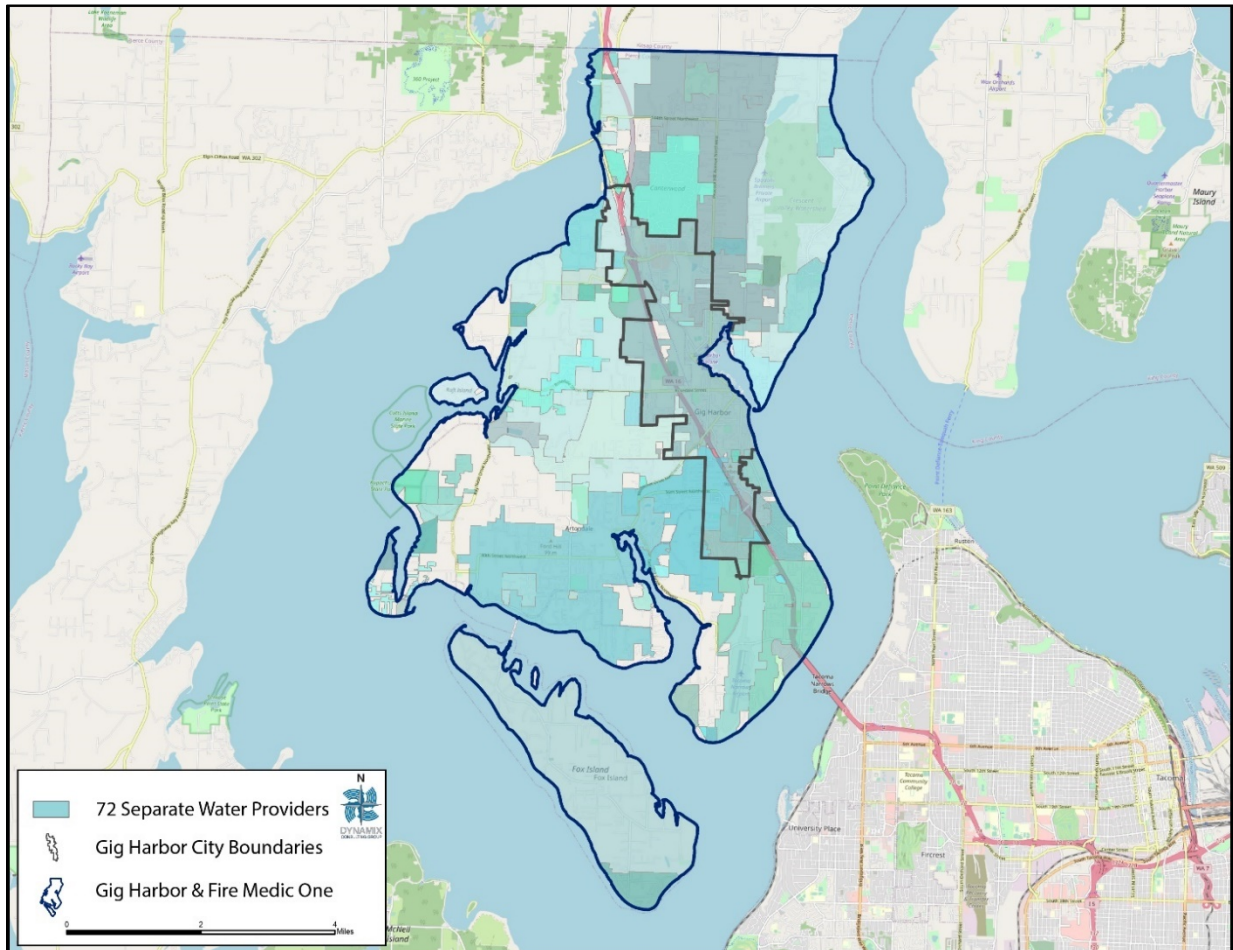




Water Supply

There are 72 water systems within the Gig Harbor Fire & Medic One response area. The following map illustrates the locations of each of these water systems.

Figure 34: Water Providers



Only a few of the water systems within the Gig Harbor Fire & Medic One response area provide water supplies that are adequate for firefighting; most of these systems lack fire hydrants or fire flow. Gig Harbor Fire & Medic One provides a tender response for those areas of the district not adequately served by hydrants.



Current Land Use

According to the Comprehensive Plan, a land use inventory was conducted for the plan area in the spring of 2000. Gathered by using the Pierce County Assessor's data for each tax parcel, the following information, listed in order from the most to fewest number of acres, identifies current uses, acreage, and ownership.

Figure 35: Land Use

Existing Land Use	Number of Parcels	Acres
Single-Family Dwelling	1,682	1,274
Vacant	594	1,097
Civic/Utilities/Public	86	360
Parks / Open Space	34	313
Other	138	240
Commercial	61	95
Duplex Dwelling	109	66
Forestry	5	57
Agricultural	9	41
Multifamily Dwelling	21	23
Industrial	8	16
Total	2,747	3,582

Area Development

The 2020 Pierce County Comprehensive Plan | Gig Harbor Community Plan² provides a framework for consistent land use standards in the Urban Growth Area for both Pierce County and the City of Gig Harbor. The goal of the plan is twofold:

1. To provide efficient economies of scale and cost-effective public facilities by directing new residential subdivisions, commercial, and industrial development into areas served by urban services.
2. To eliminate urban development patterns from sprawling into the rural area, allowing the rural area to retain the low density, pastoral, and forested characteristics that the community favors.

² <https://wa-piercecounty2.civicplus.com/DocumentCenter/View/38486/ADOPTED-Gig-Harbor-Community-Plan?bidId=>

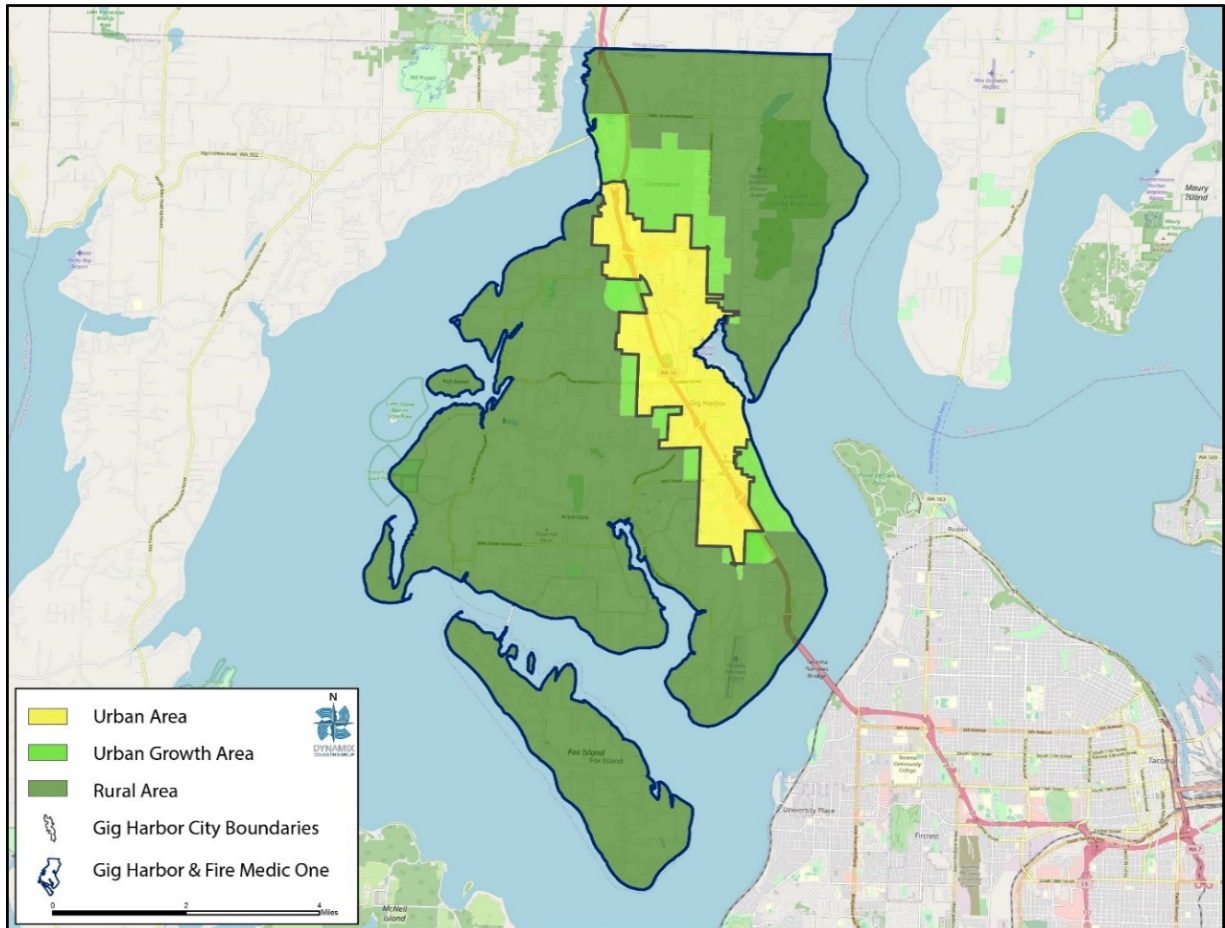


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The plan establishes Urban and Rural Growth Areas as illustrated in the following map.

Figure 36: Urban Growth Area



The 3,417-acre Urban Growth Area surrounds the City of Gig Harbor and includes the following neighborhoods as described in the Pierce County Comprehensive Plan/Gig Harbor Community Plan.



Figure 37: Urban Growth Area Neighborhoods

Urban Growth Area	Description
City of Gig Harbor	The City of Gig Harbor is located in the east central portion of the plan area adjacent to Gig Harbor Bay. The city is surrounded by its 3,417-acre Urban Growth Area (UGA). The City of Gig Harbor is the historic focus of civic and commercial activity in the plan area and is the location of moderate density residential neighborhoods. The City orients around Gig Harbor Bay and its commercial fishing and pleasure boat facilities.
Purdy	Purdy is located at the north end of Henderson Bay, adjacent to Burley Lagoon at the intersection of SR 16 and SR 302. Along with residential uses, several gas stations, retail businesses, Peninsula Light Company, and Peninsula High School are located in this area. The Purdy Bridge crosses the southern portion of Burley Lagoon and connects the Gig Harbor Peninsula with the Key Peninsula at the Purdy sand spit.
Canterwood	Canterwood is a planned residential, golf course community located immediately north of the city limits of Gig Harbor and east of SR 16. The Canterwood development is adjacent to the future planned development referred to as Gig Harbor North (Gig Harbor North is located entirely within the city of Gig Harbor). Canterwood primarily developed with detached single-family residential homes with a few multifamily townhouses.
Donkey Creek Corridor	Donkey Creek (also known as North Creek) flows into the northwest corner of Gig Harbor Bay in the vicinity of Harborview Drive and Burnham Drive. The Donkey Creek corridor follows Burnham Drive northwest towards SR 16 at the Swede Hill interchange. The city limits of Gig Harbor and the future development of Gig Harbor North are located northeast of the Donkey Creek corridor. Several businesses are located in the area, however because steep slopes and wetlands along the ravine formed by Donkey Creek dominate the corridor, the prevailing land use pattern is single-family dwellings and large vacant parcels.



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Urban Growth Area	Description
East Gig Harbor	East Gig harbor is the east shoreline of Gig Harbor Bay. Large homes with views of the Harbor dominate this residential neighborhood. Many of the parcels adjacent to the shoreline are one quarter acre or smaller while the upland areas contain several large lots that are undeveloped.
West Gig Harbor	West Gig Harbor is the neighborhood located outside the city limits of Gig Harbor, west of SR 16 and south of Bujacich Drive. This area of the UGA contains the vacant property designated as an Employment Center.
Reid Drive Neighborhood	The Reid Drive neighborhood is located south and east of the city limits of Gig Harbor, between the marine bluffs of the Tacoma Narrows and SR 16. Detached single family neighborhoods predominately dominate the neighborhood, several of which contain the greatest density of homes in the plan area with densities near six dwelling units per net acre. The 62-unit Harbor Heights apartments are one of the few multifamily residential developments in the plan area.

The Urban Growth Area currently has four land use designation/zoning classifications and three overlay classifications.

Figure 38: Land Use / Zoning Classifications

Land Use / Zoning Classifications	Description	Number of Acres
1. Moderate Density Single-Family	This designation provides areas for urban single-family and two-family residential development at moderate densities of 2-6 dwelling units per acre. The MSF designation is the dominant land use designation in the City of Gig Harbor's Urban Growth Area.	2,670
2. Master Planned Community	This designation achieves well designed, compact, urban development with a balance of uses, more efficient use of public facilities, and a greater amount of open space than required under standard development. MPCs integrate a mix of housing, services, and recreation, approved through a planned unit development or planned development district process. Densities in a MPC must average between 4-10 dwelling units per acre with individual densities within	658



Figure 39: Overlay Classifications

Land Use / Zoning Classifications	Description	Number of Acres
	the community ranging from 2-25 dwelling units per acre. MPCs must encompass a minimum of 320 acres. In the Gig Harbor UGA, the only MPC lies at the north end of the UGA. This MPC encompasses the Canterwood Golf Community which has been in existence since the late 1970s.	
3. Employment Center	This designation provides for adequate industrial, manufacturing, and office jobs to serve the needs of the community. Uses in the EC range from land intensive heavy industrial (e.g., manufacturing, product assembly, fabrication, processing, and heavy trucking uses) to light manufacturing, assembly, and wholesale activities, to corporate office and office park development. The EC designation is currently located in several spots along the SR 16 highway corridor, in Purdy, west of the Burnham Drive/N. Rosedale intersection, and south of the Washington Corrections Center for Women at Purdy. Also permitted, are commercial uses subordinate to and supportive of employment.	344
4. Community Center.	This designation intends to be the center for general purpose shopping activity in a community. Community serve the needs of multiple neighborhoods while remaining small enough to be compatible with surrounding residential areas. CCs are places for the community to gather and converse, places where people live, and places with civic elements. The CC designation is currently located at or near the Burnham Drive/N. Rosedale and Purdy interchanges of SR 16 and in Purdy proper.	79

The three overlay classifications are:



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Overlay Classifications	Description	Number of Acres
1. The Mineral Resource Overlay	This designation identifies those lands devoted to the extraction of minerals that have a known or potential long-term commercial significance for the extraction of minerals. The MRO designation includes only those lands with a valid Washington State Department of Natural Resources (DNR) Surface Mining Permit and a valid Pierce County Unclassified Use or Conditional Use Permit. Once the mining activity ceases on the property, only the permitted land uses of the underlying designation will be allowed. There are currently five MRO designations, for gravel mining, in the UGA. The existing MRO lands are located along the SR 16 corridor from Purdy to central Gig Harbor.	44
2. The Essential Public Facility/Rural Airport Overlay.	This designation refers to the Tacoma Narrows Airport property. The airport is an essential public facility. These facilities are typically difficult to site and require a specified planning process. For the Tacoma Narrows Airport, the planning process will include an advisory committee composed of the Federal Aviation Administration, the Cities of Gig Harbor and Tacoma, Pierce County, airport users and operators, community groups, businesspeople, and interested residents. This planning process will result in the development of a master plan for the airport, approved by Pierce County as a planned unit development (PUD). The vast majority of the Tacoma Narrows Airport lies outside the UGA, though a small portion of the northern buffer area, currently used as a golf course, lies within the UGA.	18
3. Urban Sensitive Resources	Fragmentation of the remaining open space corridors that create habitat for wildlife species native to the Gig Harbor Peninsula shall be avoided. An open space overlay will be established in the urban area to implement the open space/greenbelt map. Low impact development techniques will be required in this overlay area.	16



Rural Growth Area

The Rural Growth Area of the Gig Harbor Peninsula is comprised of 23,146 acres and includes all property located outside of the incorporated city limits of Gig Harbor and outside of the Urban Growth Area. The rural area developed primarily with single family dwellings at low densities with a number of moderate density single family subdivisions. There are also a limited number of civic, commercial, and industrial uses located within the Rural Growth Area. The Tacoma Narrows Airport is located in a rural area near Point Fosdick. A significant amount of vacant and undeveloped land, pasture lands, and forestland remain in the rural area.

Figure 40: Rural Growth Area

Rural Growth Area	Description
Crescent Valle	Crescent Valley is mostly undeveloped; however, some small farms and residences are located adjacent to Crescent Valley Drive and along the shoreline of Crescent Lake. The Crescent Valley area contains the lowest residential densities in the plan area. The largest undeveloped parcels in the plan area are located directly east of Crescent Valley between Crescent Valley Drive and Hallstrom Drive.
Rosedale	A small rural business center with a store, church, and community park is located near the intersection of Rosedale Street and Ray Nash Drive. Large tracts of forest and pastureland dominate the Rosedale area. Several moderate density single family neighborhoods are found in the area and the shorelines of Lay Inlet and Sylvia Lake are improved with fairly high density single-family dwellings that have mostly been converted from summer cabins to permanent year round homes. Raft Island is located in Henderson Bay to the west of Rosedale and is developed as a moderate density single family neighborhood.
Cromwell and Warren	The Cromwell and Warren neighborhoods extend along Hale Passage from Wollochet Bay to Shaw Cove. Fairly steep marine bluffs characterize the shoreline of Cromwell, while the shoreline in the vicinity of Warren Drive is considered low to medium bank waterfront. Upland from the shoreline, both Cromwell and Warren have large, forested tracts and pasturelands. Along Hale Passage, permanent homes replaced many of the original waterfront cabins. The bridge that connects Fox Island to the Gig Harbor Peninsula is located in Warren.



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Rural Growth Area	Description
Ray Nash Valley	Ray Nash Valley is a small rural valley south of Rosedale between the Artondale area and Henderson Bay. Land uses in the area generally include small farms and pasturelands as well as single family homes on 5 to 10-acre lots. Kopachuck State Park is located directly to the west of Ray Nash Valley and extends to the shoreline of Henderson Bay.
Artondale	Artondale is the area northwest of Wollochet Bay, south of Rosedale and east of Arletta. There are several large undeveloped lots in the Artondale area ranging from 20 to approximately 100 acres. Some of these large parcels contain mature stands of timber. There are also a number of moderate density single family neighborhoods, most notably in the vicinity of 40th Street and 70th Avenue. The Gig Harbor Golf and Country Club is located in Artondale.
Arletta	Arletta is located north of Hale Passage, directly east of Horsehead Bay. There is a community center and small grocery store at the intersection of 36th Street and Ray Nash Drive. Large lots, single family homes, pastureland, and forestland characterize land uses at Arletta. Development along the shoreline of Horsehead Bay and Hale Passage consists of smaller lots with detached single family homes. Like the development pattern in the Rosedale neighborhood, many of the waterfront cabins have been demolished or remodeled and are now used all year as permanent homes.
Point Fosdick	The Point Fosdick area consists of the southern end of the Gig Harbor Peninsula between Wollochet Bay and the Tacoma Narrows. The shoreline in the Point Fosdick area is primarily high bank, marine bluffs with low bank properties extending toward Wollochet Bay. The largest landholder in the area is the City of Tacoma which owns and operates the Tacoma Narrows Airport. The Tacoma Narrows Airport is a general aviation airport. Several businesses, including a convenience store and a gas station, are located near the intersection of Stone Drive and Point Fosdick Drive. The area developed with a number of moderate density single family neighborhoods, most notably west of the Tacoma Narrows Airport and near the Tacoma Narrows Bridge. Pierce County owns a waterfront park along the shoreline of the Tacoma Narrows.



Future Land Use

According to the Comprehensive Plan, the most noticeable land use changes on the Gig Harbor Peninsula going forward will be:

1. New residential density in the Urban Growth Area will average four dwelling units per acre. This density will allow a moderate residential development pattern in the urban area.
2. Commercial development is not a significant land use feature outside of the city limits of Gig Harbor; however, commercial development will be encouraged in the Purdy area and at Swede Hill.
3. Development in areas identified as open space will be required to meet low impact development standards.
4. Site and architectural design will be a necessary component of many new projects.
5. Incentives such as bonus densities, reduced setbacks, and a reduction in minimum lot size will be offered for development that reduces impervious surfaces, protects open space, preserves trees, etc.

Comprehensive Emergency Management Plan

Pierce County has established a Comprehensive Emergency Management Plan pursuant to the provisions of Chapter 38.52 of the Revised Code of Washington. County and City Officials found it to be in the best interests of their citizens that County and City share and coordinate services in the event of an emergency situation; as such, the City of Gig Harbor and Pierce County entered into a written agreement on March 8, 2019, that remains in effect until December 21, 2023, unless terminated by either party.

Pierce County updates its Hazard Mitigation Plan at least every five years with the most recent version being the 2020-2025. As part of this plan, Pierce County conducted a Hazard Identification and Risk Assessment (HIRA) in 2015 which is currently in the process of updating. The HIRA serves as a basis for the development of plans, public education programs, responder training and exercises. The HIRA is not a detailed study of the hazards and their impacts, but rather it describes those hazards felt to be the greatest potential threat to people, the environment, personal and public property, and the economy.

The Pierce County HIRA includes a thorough evaluation of local hazards. Dynamix Consulting Group referenced this assessment to ensure that the Gig Harbor Fire and Medic One is operating in concert with the planning efforts of Pierce County.



The following list of hazards mirrors those included in the Pierce County HIRA. Hazards included in the HIRA based on the following factors:

1. A continuation of previous editions of Hazard Identification and Vulnerability Analyses developed over the years. Early work on the original Pierce County Mitigation Plan included a series of meetings with subject matter experts on the impacts of various hazards on the County. This material incorporated both the mitigation plan and the previous edition of the HIRA completed in 2010.
2. Reference to the Washington State HIRA, 2009 edition, ensures there were no other statewide hazards that might threaten the County.
3. There has been an increase in the data relating to climate change and its potential impacts. Considering this may impact Pierce County over the coming decades, it was considered necessary to add it to the list of hazards in the HIRA.

Following the description of each hazard, Dynamix Consulting Group assigned a qualitative measure of risk likelihood and a qualitative measure based on the conditions reported in the HIRA.

Likelihood

The following criteria classified the likelihood of each risk:



Figure 41: Qualitative Measures of Risk Likelihood³

Qualitative Measures of Risk Likelihood		
Level	Description	Characteristics
A	Almost Certain	▪ Event expected to occur. ▪ High level of recorded incidents and/or very strong anecdotal evidence. ▪ Strong likelihood event will reoccur. ▪ Strong opportunity, reason, or means to occur.
B	Likely	▪ Event will probably occur. ▪ Regular recorded incidents and strong anecdotal evidence. ▪ Considerable opportunity, reason, or means to occur.
C	Possible	▪ Event should occur at some time. ▪ Few infrequent, random recorded incidents, or little anecdotal evidence. ▪ Very few incidents in associated organizations or comparable facilities. ▪ Some opportunity, reason, or means to occur.
D	Unlikely	▪ Event could occur at some time. ▪ No recorded incidents or any anecdotal evidence. ▪ No recent incidents in associated organizations or facilities. ▪ Little opportunity, reason, or means to occur.
E	Rare	▪ Event may occur only in exceptional circumstances.

Impact

The following criteria determined vulnerability in relation to each risk. *Vulnerability* is the susceptibility to suffer harm from an incident or event. Vulnerability may vary based on a variety of factors, including the level of preparedness and capabilities of emergency services providers. A community's ability to resist the impacts and effects of various hazards must be determined. The following figure provides a qualitative measure to describe the consequences or impact of a particular risk or event.

³ City of Manningham (Victoria, Australia) Community Emergency Risk Management Plan (2009).



Figure 42: Qualitative Measures of Risk Consequence of Impact⁴

Qualitative Measures of Risk Consequence of Impact		
Level	Description	Characteristics
1	Insignificant	▪ No injuries or fatalities. Small number or no people displaced, and only for short duration. Little or no personal support required (not financial). ▪ Inconsequential or no damage. Little or no disruption to the community. ▪ No measurable impact on the environment. ▪ Little or no financial loss.
2	Minor	▪ Small number of injuries, but no fatalities. Minor medical treatment required. Some displacement of people (less than 24 hours). Some personal support required. ▪ Some damage. Some disruption (less than 24 hours). ▪ Small impact on environment with no lasting effects. ▪ Some financial loss.
3	Moderate	▪ Medical treatment required, but no fatalities. Some hospitalization. Localized displacement of people who return within 24 hours. Personal support satisfied through local arrangements. ▪ Localized damage, rectified by routine arrangements. Normal community functioning with some inconvenience. ▪ Some impact on the environment with no long-term effects, or small impact on environment with long term effect. ▪ Significant financial loss.

⁴ City of Manningham (Victoria, Australia) Community Emergency Risk Management Plan (2009).



Qualitative Measures of Risk Consequence of Impact		
Level	Description	Characteristics
4	Major	▪ Extensive injuries, significant hospitalization, large number displaced (more than 24 hours duration). Fatalities. External resources required for personal support. ▪ Significant damage that requires external resources. Community only partially functioning, some services unavailable. ▪ Some impact on environment with long term effects. ▪ Significant financial loss—some financial assistance required.
5	Catastrophic	▪ Large number of severe injuries requiring hospitalization. Significant fatalities. General displacement for extended duration. Extensive support. ▪ Extensive damage. Community requires significant support. ▪ Significant impact on environment and/or permanent damage. ▪ Huge financial loss—unable to function without significant support.



Level of Risk

The following figure cross references the first two scores to determine the level of risk for each hazard.

Figure 43: Qualitative Measures of Risk Analysis: Levels of Risk⁵

Qualitative Risk Analysis Matrix: Level of Risk					
Likelihood	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
A (Almost Certain)	HR	HR	ER	ER	ER
B (Likely)	MR	HR	HR	ER	ER
C (Possible)	LR	MR	HR	ER	ER
D (Unlikely)	LR	LR	MR	HR	ER
E (Rare)	LR	LR	MR	HR	HR
Categories of Risk					
Level	Description				
Extreme Risk (ER)	Detailed research and management planning required at senior levels. Action taken reduces consequences or likelihood.				
High Risk (HR)	Chief officer or senior management attention required; might require further. Some action must be taken.				
Moderate Risk (MR)	Management responsibility must be specified, specific monitoring or response procedures required.				
Low Risk (LR)	Manage by routine procedures				

⁵ City of Manningham (Victoria, Australia) CERM Plan (2009).



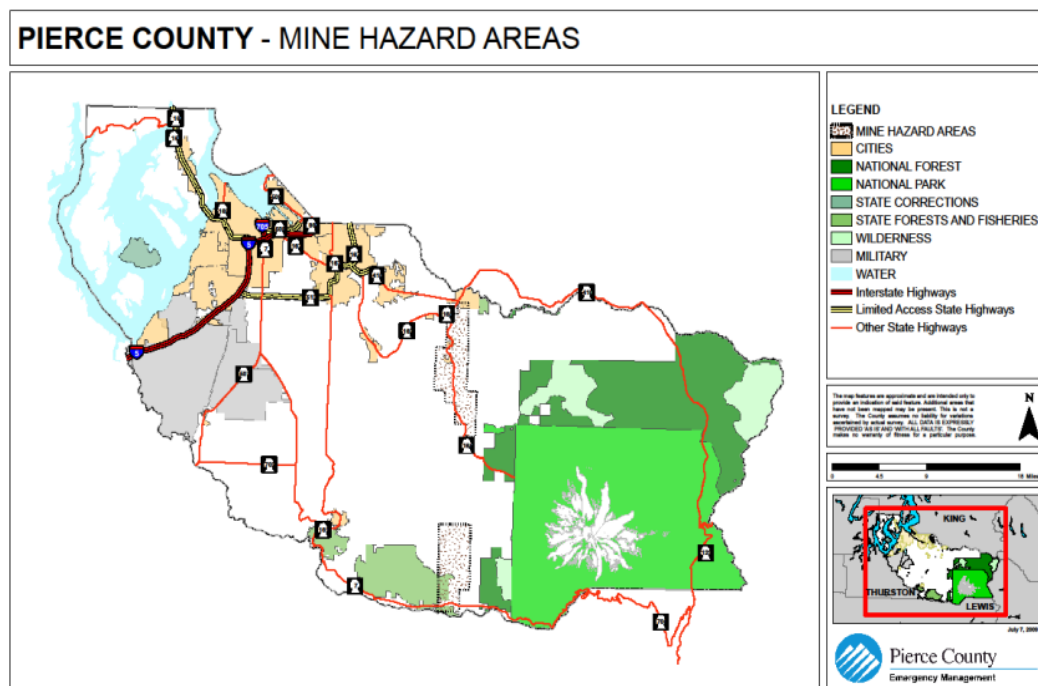
Risks

Abandoned Mines

Underground coal mines are the largest abandoned mine hazard in Washington. Prior to 1887, mines were not required to file annual maps reporting the location of mining operations. While the main tunnel systems for most of the large mines are relatively well documented on the maps that were submitted annually, once the businesses closed, any shafts constructed during the final year of operations went undocumented because no final map was ever filed with the mine inspection office.

The following map lists the known locations of mines in Pierce County⁶

Figure 44: Pierce County Mine Hazards



⁶ [HIRA \(piercecountywa.gov\)](http://HIRA.piercecountywa.gov)



There have been no deaths in Pierce County reported from accidents relating to abandoned mines, and no known cases of subsidence from the mines directly affecting current homes or businesses in the County. The Pierce County Sheriff's Department reports that they have had very few incidents of citizens entering the abandoned mines in eastern Pierce County.

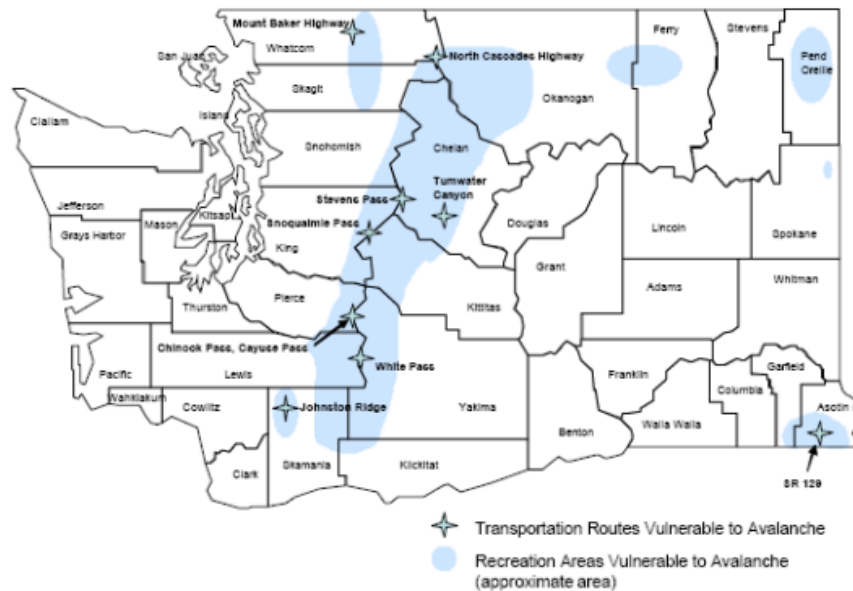
Figure 45: Level of Risk: Abandoned Mines

Risk	Abandoned Mines
Likelihood	Unlikely
Vulnerability	Moderate
Level of Risk	Moderate Risk

Avalanches

An avalanche occurs when a layer of snow loses its grip on a slope and slides downhill. While Avalanches are in the Pierce County HIRA, this risk not inherent to the Gig Harbor Fire and Medic One service Area as illustrated in the following map⁷

Figure 46: Areas Vulnerable to Avalanche



⁷ [HIRA \(piercecountywa.gov\)](http://HIRA.piercecountywa.gov)



Figure 47: Level of Risk: Avalanches

Risk	Avalanches
Likelihood	Unlikely
Vulnerability	Insignificant
Level of Risk	Low Risk

Civil Disturbances

The Federal Emergency Management Agency defines a civil disturbance is “a civil unrest activity such as a demonstration, riot, or strike that disrupts a community and requires intervention to maintain public safety.”

Civil unrest has doubled in the past decade as citizens protest issues ranging from economic hardship to police brutality and political instability, according to the 2020 Global Peace Index.⁸ The COVID-19 Pandemic could make things worse in the future according to Steve Killelea, founder of the Institute for Economics and Peace (IEP), which annually publishes the index. “It’s likely that the economic impact of COVID-19 will magnify tensions by increasing unemployment, widening inequality, and worsening labor conditions—creating alienation from the political system and increasing civil unrest. We, therefore, find ourselves at a critical juncture,” Killelea said.”

The United States Fire Administration offers guidance for responding to Civil Disturbances. Civil Disturbance Management should include coordination of response activities, modifying operations based on perceived threats or risk, and maintaining situational awareness.⁹

The potential for civil unrest or civil disturbance is highest in the larger cities where there is an adequate population density to bring civil unrest to the point of impacting the community at large. Civil Disturbances can lead to injury and death for both the citizens involved and innocent bystanders as well as destruction to infrastructure.

⁸ <https://www.euractiv.com/section/defence-and-security/news/civil-unrest-has-doubled-and-covid-19-could-make-things-worse/>.

⁹ <https://www.usfa.fema.gov/operations/civilUnrest/operations.html>.



Figure 48: Level of Risk: Civil Disturbances

Risk	Civil Disturbances
Likelihood	Possible
Vulnerability	Moderate
Level of Risk	Moderate Risk

Climate Changes

According to FEMA, the challenges posed by climate change can include more intense storms, frequent heavy precipitation, heat waves, drought, extreme flooding, and higher sea levels.

There are two major classifications of Climate Change:

Global Cooling: A decrease in the average temperature of the earth's atmosphere, especially a sustained decrease sufficient to cause climatic change.

Global Warming: An increase in the average temperature of the earth's atmosphere, especially a sustained increase sufficient to cause climatic change.

While there are wide annual variations in global temperatures, the trend since the beginning of the industrial revolution has been for a gradual increase in temperatures. This trend will continue and could be exacerbated by the continued release of greenhouse gases, volcanic eruptions, etc. Scientists estimate that the temperature increase could range from two to ten or more degrees Celsius; however, note that an increase of only one to two degrees can create tremendous climatic changes.

As the average temperature rises gradually over the next few decades, the incidence of diseases normally associated with warmer climates will increase. The temperature change will also likely result in a slight decrease in cold related injuries in the winter months and an increase in heat related injuries during the summer months. Vulnerable populations such as elderly and children will be most affected.

Figure 49: Level of Risk: Climate Change

Risk	Climate Change
Likelihood	Likely
Vulnerability	Moderate
Level of Risk	High Risk

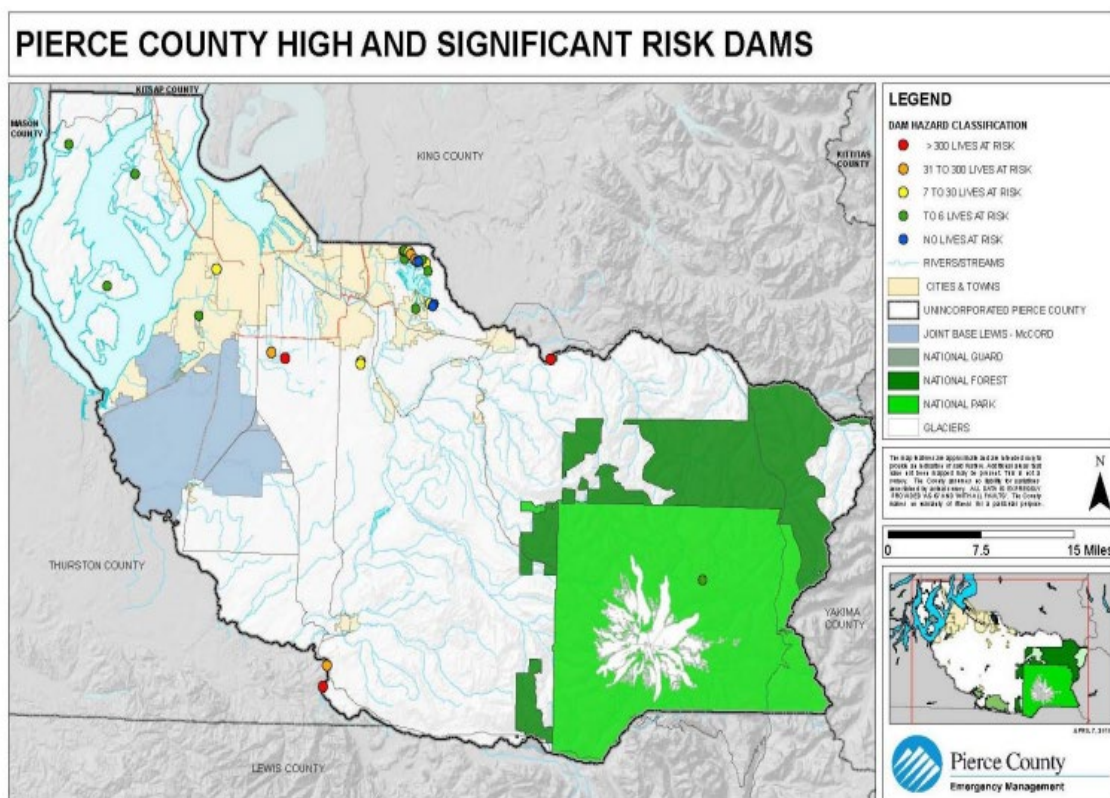


Dam Failures

Dams can fail for a number of reasons, including overtopping caused by floods, acts of sabotage, or structural failure of materials used in dam construction.

The following map from the Pierce County HIRA identifies a single dam in the Gig Harbor Fire & Medic One response area, the Sylvia Lake Dam. One acre foot is the quantity needed to cover one acre to the depth of one foot or 43,560 cubic feet, or 325,851 gallons.

Figure 50: Pierce County High and Significant Risk Dams



The Sylvia Lake Dam is an earth filled dam categorized as a Hazard Class 2, defined as a “significant hazard.” Normal storage capacity for the dam is 67 acre-feet. The Pierce County HIRA suggests that a failure of the Sylvia Lake Dam could put up to six lives at risk.



Figure 51: Level of Risk: Dam Failure

Risk	Dam Failure
Likelihood	Possible
Vulnerability	Major
Level of Risk	Extreme Risk

Droughts

Drought is a period without substantial rainfall that persists from one year to the next. Washington has a statutory definition of drought (RCW 43.83B.400): an area is in a drought condition when the water supply for the area is below 75 percent of normal.

Four indicators gauge the presence and severity of hydrologic drought:

1. Groundwater Levels
2. Precipitations Deficits
3. Streamflow
4. Reservoir Storage

A review of the 100-year history of drought in Washington suggests that the state as a whole can expect severe or extreme drought conditions at least every five years and that eastern Washington will likely experience severe or extreme drought more frequently.

The two worst droughts in the history of the State of Washington occurred in 1977 and 2001 and resulted in thousands of job losses in the power, agricultural, mining, recreation, and fishing industries. The state estimated losses to the economy at almost \$500 million.

Figure 52: Level of Risk: Drought

Risk	Drought
Likelihood	Almost Certain
Vulnerability	Moderate
Level of Risk	Extreme Risk

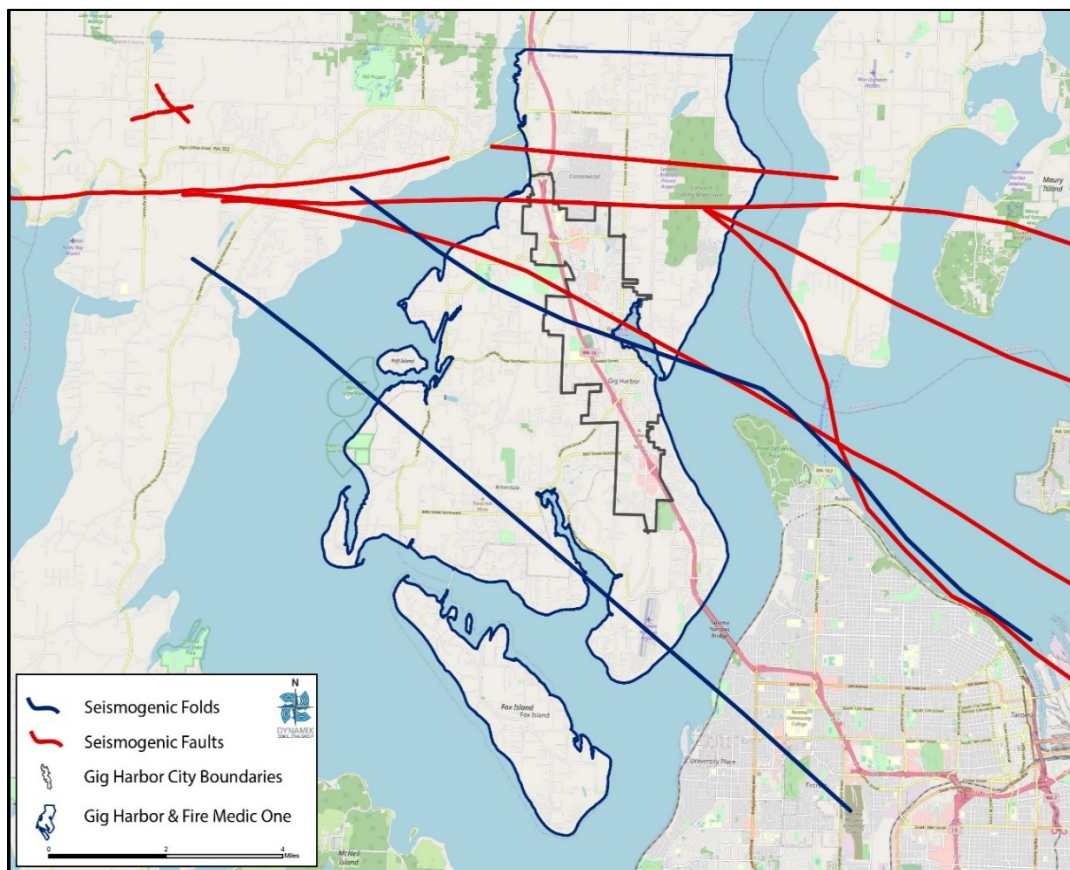


Earthquakes

Earthquakes are sudden rolling or shaking events caused by movement under the earth's surface. Earthquakes happen along cracks in the earth's surface, called fault lines, and can be felt over large areas. They usually last less than one minute but can cause substantial damage to infrastructure in a short amount of time.

Washington has the second highest risk in the U.S. of these large and damaging earthquakes because of its geologic setting. The following map of Gig Harbor illustrates the area transected by two seismogenic folds and five seismogenic faults.

Figure 53: Seismogenic Folds and Faults



More than 1,000 earthquakes occur in Washington each year; however, the general public only feels about a dozen and even fewer cause actual damage. The following map illustrates the magnitude and locations of recorded earthquakes within the Gig Harbor Fire & Medic One District.



Figure 54: Earthquake Location and Magnitude

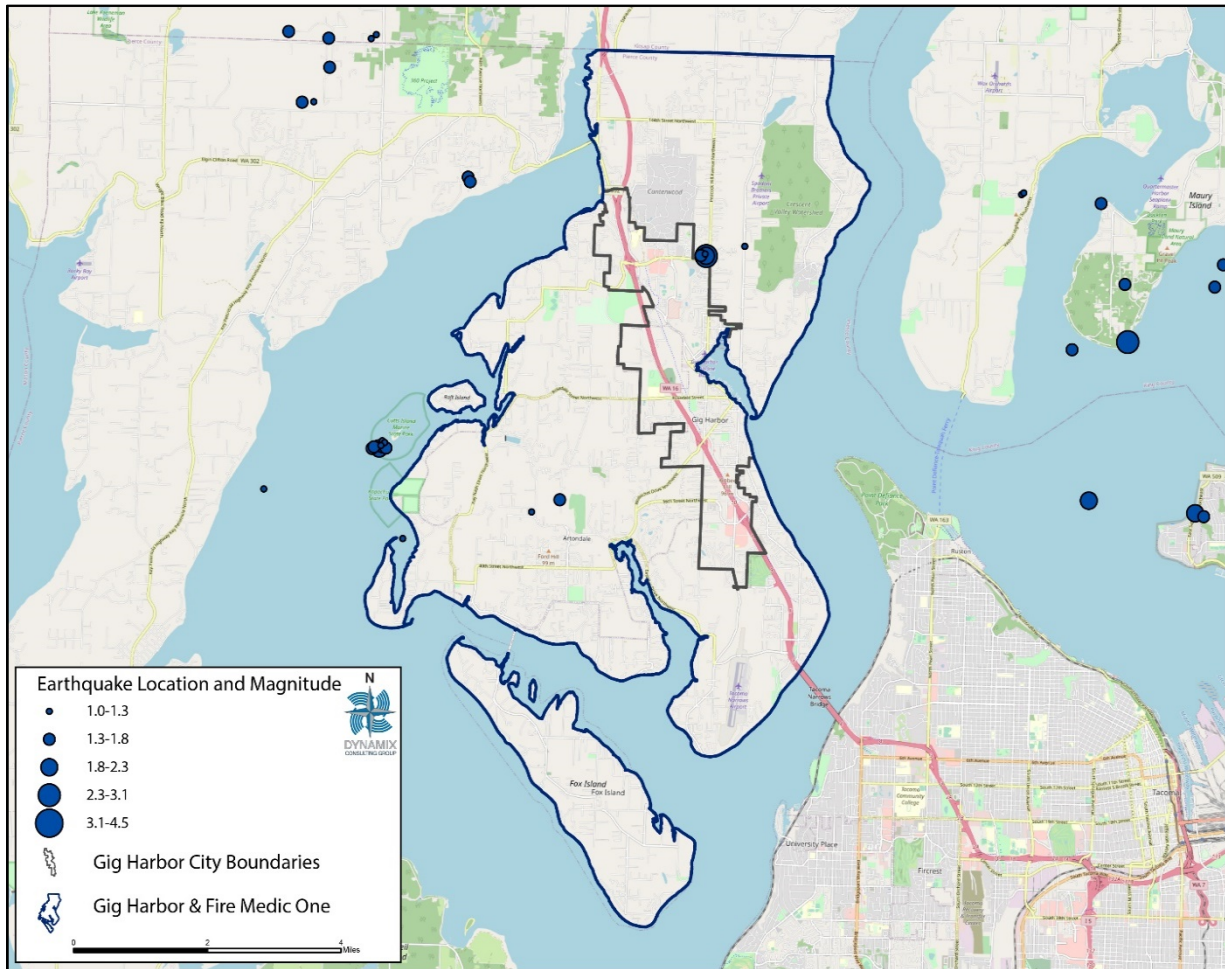


Figure 55: Level of Risk: Earthquake

Risk	Earthquake
Likelihood	Almost Certain
Vulnerability	Moderate
Level of Risk	Extreme Risk

Energy Emergencies

The Pierce County HIRA defines an energy emergency is an actual or potential loss of energy resources that significantly impacts all or part of the county for an extended period of time. Energy resources include electricity; petroleum distillates such as gasoline, diesel fuel, aviation fuel, heating oil; propane; and natural gas. Short term losses



of energy services are not typically considered an emergency; however, a simultaneous failure of a back-up (i.e., a generator) that keeps a critical system functioning could result in a short-term emergency.

Extended electrical outages are the most common cause of an energy emergency, often due to severe weather such as high winds or heavy snow. Seventy percent of Washington's electricity is hydroelectric. A severe drought could reduce the production hydroelectric capability thus forcing consumers to use more expensive forms of power generation. A second likely scenario could be a shortage, reduced availability, or substantial increase in the cost of an energy resource.

In 2000, California saw an 800% increase in the wholesale price of electricity as a result of a drought and market manipulations. A similar scenario could occur in Washington creating an energy emergency.

Energy emergencies will first and most significantly impact individuals in lower socioeconomic categories and small businesses. If this scenario persists for an extended period, its effects spread across all segments of the county's populations, businesses, and government agencies. The Enhanced Hazard Mitigation Plan for the State of Washington suggests that a worst-case scenario would be "...a loss of electric power for an extended period combined with a reduction or loss of fuel sources that currently power transportation systems and the redundant electricity generation systems that keep critical infrastructure functioning. Transportation, sewage treatment, water production, medical systems, government systems, financial systems, emergency response, and more could all be severely impacted. This scenario would likely have lasting effects, which would be felt across the county for months or years after resources were restored."

Figure 56: Level of Risk: Energy Emergency

Risk	Energy Emergency
Likelihood	Almost Certain
Vulnerability	Major
Level of Risk	Extreme Risk



Epidemics / Pandemics

A communicable disease is an illness caused by an infectious agent or its toxic products that develops when the agent or its product transmits from an infected person, animal(s), or arthropod to a susceptible host. Successful communicable disease control programs provide pertinent information to families and communities as well as recommendations for implementation measures that control the spread of the disease. Resource management will be difficult to accomplish, especially if the disease outbreak is prolonged. The 2019 Novel Coronavirus (COVID-19) Pandemic impacted the Gig Harbor Fire & Medic One service area both economically and financially, with conditions having an on-going impact on a local and state level.

Figure 57: Level of Risk: Pandemic

Risk	Pandemic
Likelihood	Almost Certain
Vulnerability	Catastrophic
Level of Risk	Extreme Risk

Flooding

FEMA defines a flood “as two or more acres of dry land or two or more properties that are covered by water temporarily.” Damage from flooding exceeds damage by all other natural hazards in Washington State; although not considered a significant risk within the Gig Harbor Fire & Medic One District due to the average stream size as well as the topography of the Peninsula. Most of the streams on the Peninsula drain into ravines and the area draining into each stream channel is relatively small. The streams are short in length and drain directly into the Puget Sound, thus quickly removing water from the Peninsula.

The following map illustrates the FEMA VE and AE Flood Zones within Gig Harbor Fire & Medic One’s service area. Flood Zone VE is the FEMA designation for high-risk coastal communities and Flood Zone AE are areas that present a 1% annual chance of flooding and a 26% chance over the life of a 30-year mortgage. These zones occur almost exclusively along the waterfronts.



Figure 58: FEMA VE and AE Flood Zones

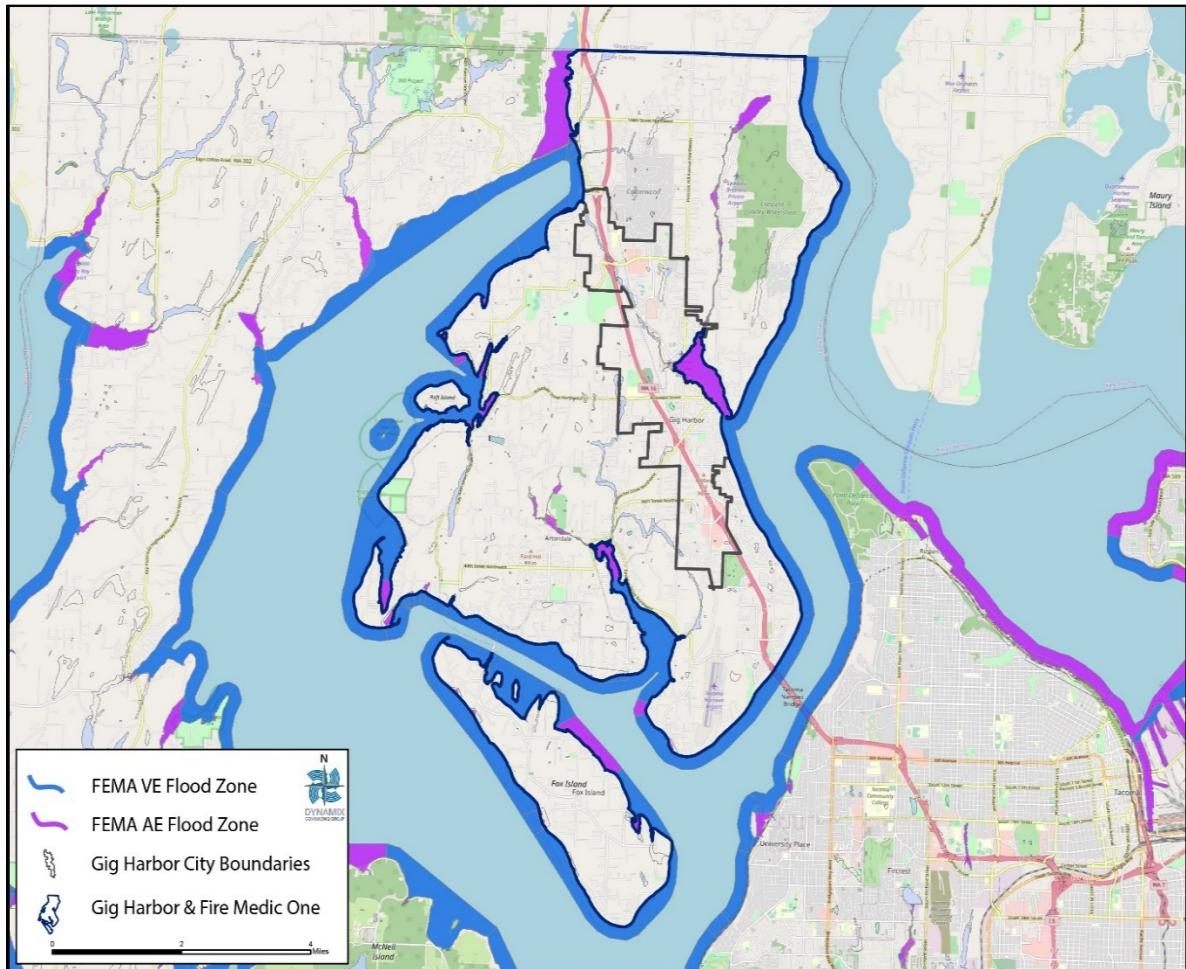


Figure 59: Level of Risk: Flooding

Risk	Flooding
Likelihood	Unlikely
Vulnerability	Moderate
Level of Risk	Moderate Risk

Hazardous Materials

Hazardous materials are substances which pose a potential risk to life, health or property when released. A release may be intentional or unintentional and can include spilling, leaking, emitting toxic vapors or any other process that allows the material to create a potential hazard. Hazards resulting from the release of Hazardous Materials can be



explosive, flammable, combustible, corrosive, reactive, poisonous, toxic, biological agent, or radioactive.

Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) classifies hazardous materials into four groups of chemicals:

1. **Extremely Hazardous Substances** – These chemicals have acutely toxic properties. Includes approximately 366 chemicals.
2. **Hazardous Substances** – Includes approximately 720 chemicals.
3. **Hazardous Chemicals** – If present in certain quantities, facilities storing these chemicals must possess inventory data and Safety Data Sheets (SDSs).
4. **Toxic Chemicals** – Chemicals or chemical categories that appear on the list because of their chronic or long-term toxicity. Includes 325 chemicals.

In the State of Washington, the State Emergency Response Commission (SERC) establishes Local Emergency Planning Committees (LEPC) whose role is to ensure adequate planning measures are in place to prevent, mitigate, and respond to hazardous materials incidents within their jurisdictions. These LEPCs, in concert with their respective local emergency management offices, conduct hazard identification, vulnerability analysis, and risk assessment activities for their jurisdictions. The Pierce County LEPC serves the Gig Harbor Fire & Medic One response area.

The Pierce County HIRA reports that while there have been hazardous material releases in Pierce County, some of which have had fatal consequences, there has not been a truly large-scale incident that resulted in a number of deaths or injuries.

Figure 60: Level of Risk: Hazardous Materials

Risk	Hazardous Materials
Likelihood	Almost Certain
Vulnerability	Major
Level of Risk	Extreme Risk



Landslides

FEMA defines landslides as “rocks, earth, or other materials moving down a slope.” A mudflow is a landslide combined with up to 60 percent water. The kinds of material involved and the mode of movement determines the various types of landslides. Categories of landslides include:

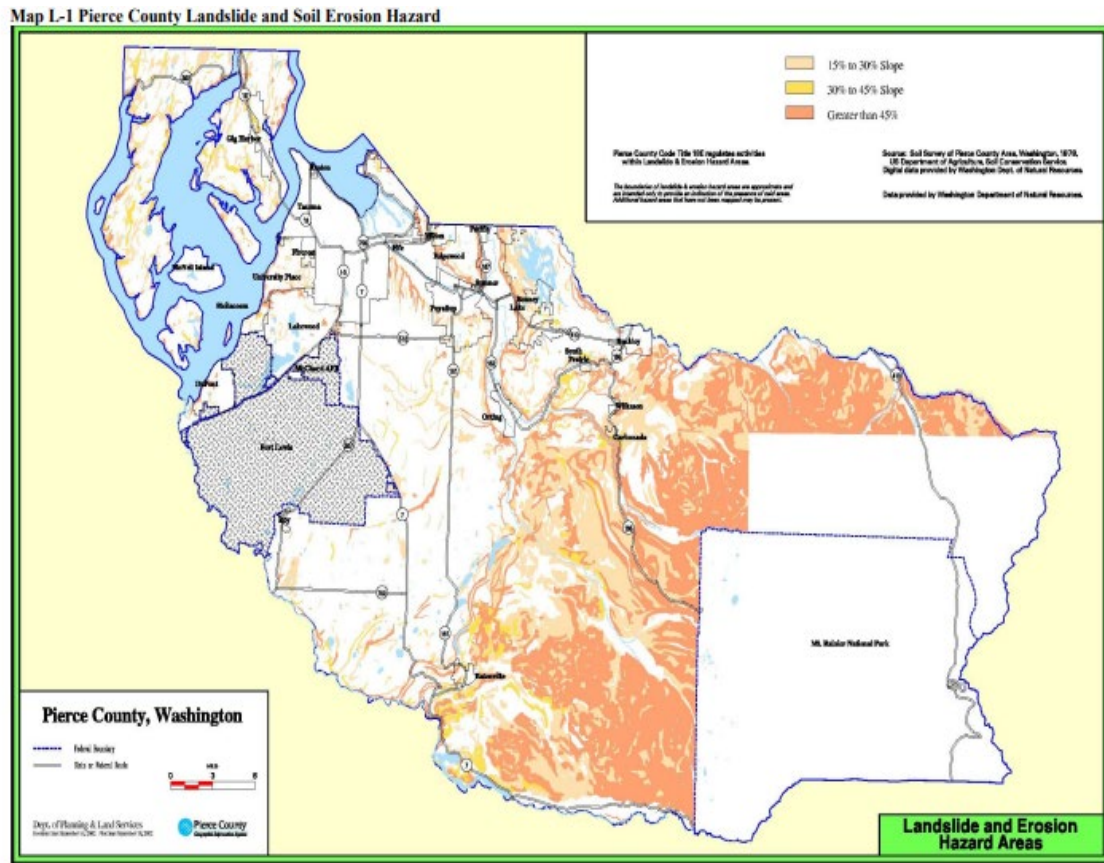
Shallow Landslides: are rooted in the soil layer and often form slumps along roadways or fast-moving debris flows down valleys. The news media often calls these types of landslides ‘mudslides.’ Shallow landslides also occur as flows, slides, or rockfalls and topples and typically occur during the winter months in western Washington and during the summer months in eastern Washington; however, they are possible at any time.

Deep Seated Landslides: are those that fail below the rooting depth of trees and vegetation. They are often slow moving but can also move rapidly. Deep seated landslides can cover large areas and devastate infrastructure and housing developments. These landslides usually occur as translational slides, rotational slides, or large block slides. Deep seated landslides are typically much larger than shallow landslides, in terms of both surface area and volume. A deep-seated landslide can also occur at any time.

The following map from the Pierce County HIRA illustrates that Landslides affect areas within the Gig Harbor Fire & Medic One District. The map shows the landslide hazard areas, which includes the walls of the major river valleys, the more mountainous regions, the coastal areas, and parts of the peninsula.



Figure 61: Pierce County Landslide and Soil Erosion Hazard



The next map, also from the Pierce County HIRA, illustrates the slope stability of the coastal zones. The most unstable coastal slopes are located on a small portion of the Kitsap peninsula, on the southwestern side of Fox Island, at Salmon Beach, and at various areas near DuPont.



Figure 62: Pierce County Shoreline Slope Stability Areas

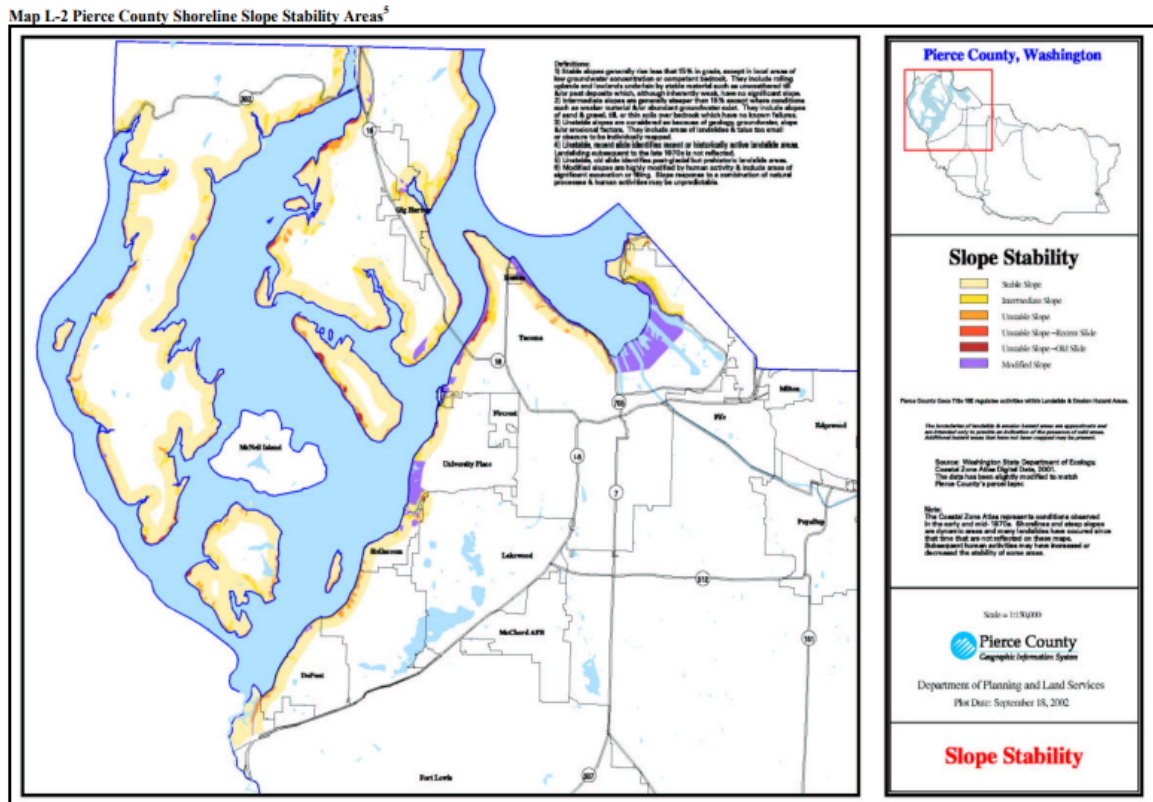


Figure 63: Level of Risk: Landslides

Risk	Landslides
Likelihood	Almost Certain
Vulnerability	Moderate
Level of Risk	Extreme

Pipelines

According to the U.S. Code Title 49 Subtitle VIII Chapter 601, "Pipeline transportation means transporting gas and transporting hazardous liquid." Pipelines may be buried or above ground and transport substances including sewage and water. Consistent with the Pierce County HIRA, for the purpose of this section, pipelines are transportation arteries carrying hazardous liquids and gaseous substances.

The Pierce County HIRA highlights the two interstate pipelines that transport petroleum products and natural gas through Pierce County and the pipeline that delivers jet fuel to

Joint Base Lewis/McChord because any of these three pipelines could have a catastrophic spill or leak that could devastate a large area in its proximity. This risk is not inherent to the Gig Harbor Fire and Medic One service Area as illustrated in the following map.

Figure 64: Pierce County Pipelines

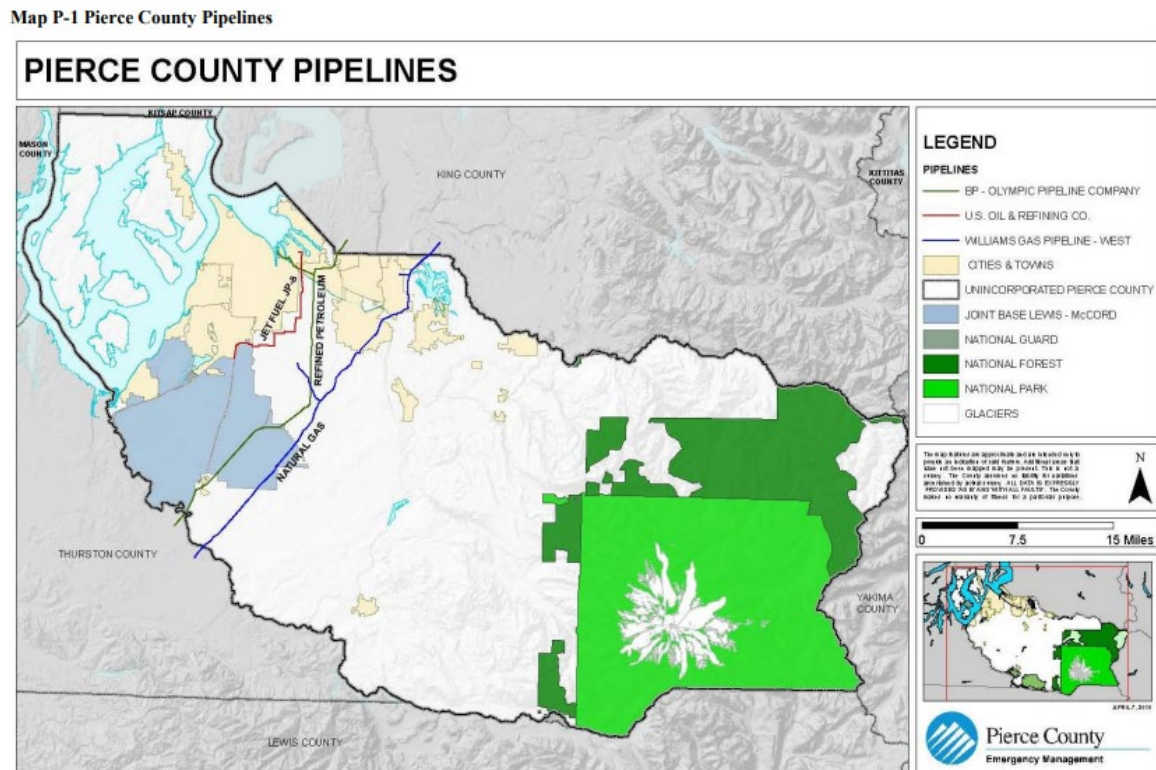


Figure 65: Level of Risk: Pipelines

Risk	Pipelines
Likelihood	Unlikely
Vulnerability	Insignificant
Level of Risk	Low Risk



Severe Storms

Severe weather includes strong winds frequently combined with rain, snow, sleet, hail, ice, thunder, and lightning. Consistent with the Pierce County HIRA, secondary hazards or impacts that can result from severe storms include flooding, landslides, energy emergencies, closed transportation routes, and environmental damage. These hazards are each addressed separately in their own section.

Additionally, this section does not cover rainstorms. Since the primary hazards that occur from heavy rain are flooding, landslides and erosion, the chapters on flooding and landslides contain the effects of rain.

The Gig Harbor Fire & Medic One service area has experienced several instances of severe storms. While most of these storms did not cause long-term problems, they did create disruptions in the community.

Figure 66: Level of Risk: Severe Storms

Risk	Severe Storms
Likelihood	Almost Certain
Vulnerability	Moderate
Level of Risk	Extreme Risk

Terrorism

FEMA defines “Terrorism” as the use of force or violence against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom.

At the time of this report, no major terrorist incidents had occurred in the Gig Harbor Fire & Medic One response area, however small-scale incidents against individuals or small groups have occurred.

Figure 67: Level of Risk: Terrorism

Risk	Terrorism
Likelihood	Possible
Vulnerability	Moderate
Level of Risk	Moderate Risk



Transportation Accidents

A transport accident is any accident or incident that occurs during any type of transportation. Transportation accidents can include road, air, or maritime vehicles, each of which is possible within the Gig Harbor Fire & Medic One response area.

Small transportation accidents occur within the Gig Harbor Fire & Medic One District on a regular basis. Large-scale accidents that threaten the lives and livelihood of a large number of citizens are much rarer but remain a possibility.

Figure 68: Level of Risk: Transportation Accident

Risk	Transportation Accident
Likelihood	Almost Certain
Vulnerability	Moderate
Level of Risk	Extreme Risk

Tsunamis

A tsunami is a powerful and destructive natural force. It is a series of extremely long waves caused when an event, such as an earthquake, suddenly shifts water in the ocean or in a lake. A tsunami radiates outward in all directions from its source and can move across entire oceans in less than a day.

The speed of a tsunami depends on the depth of the water it is traveling through. The deeper the water, the faster the tsunami. In the deep ocean, tsunamis are barely noticeable, but they can move as fast as a jet plane, more than 500 mph. As they enter shallow water near land, they slow to approximately 20 or 30 mph, which is still faster than a person can run.¹⁰

As tsunamis slow down, they grow in height. When they arrive on shore, most are less than 10 feet high. In extreme cases, they can exceed 100 feet when they strike near their source. Large tsunamis can flood low lying coastal areas more than a mile inland.

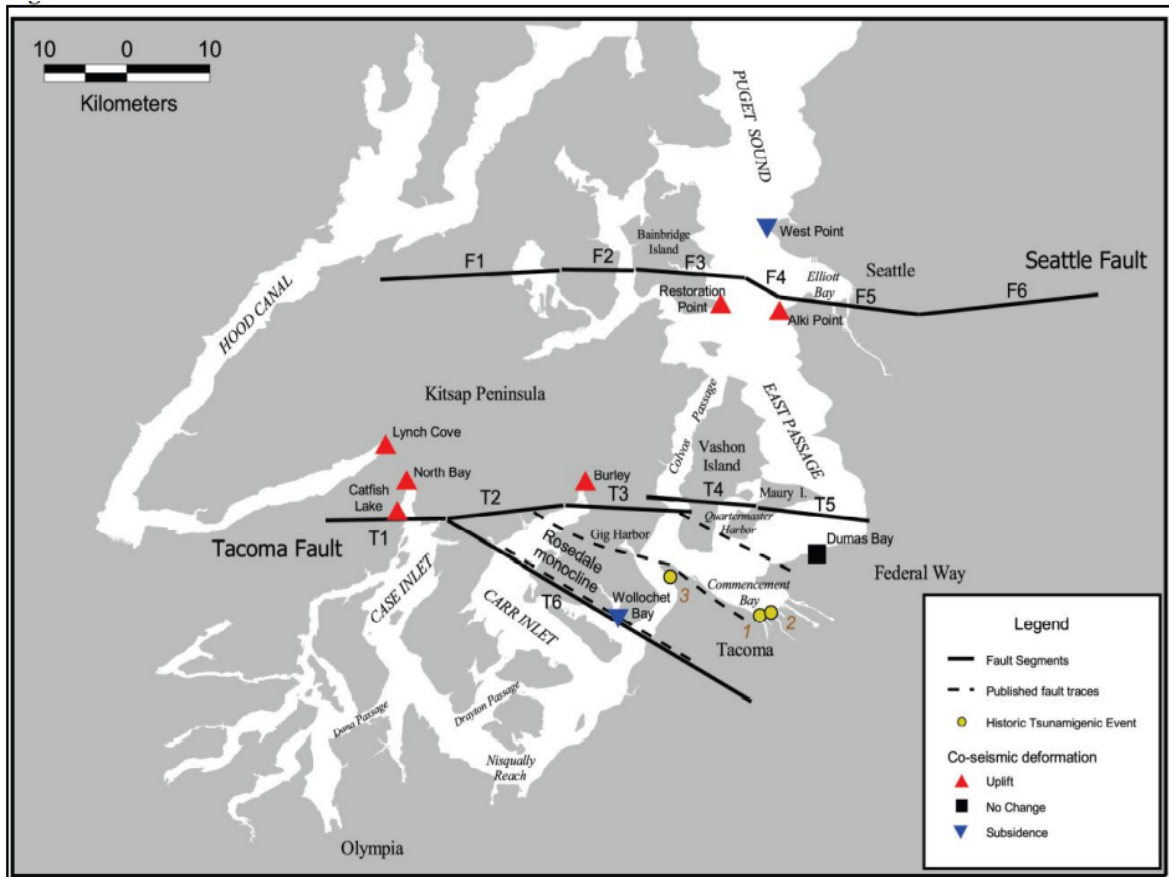
The following map, from the Pierce County HIRA, shows areas surrounding the Gig Harbor Fire & Medic One District that have a history of uplift and subsidence in previous

¹⁰ [Tsunamis | WA - DNR](#)



earthquake events, probably leading to tsunami generation. Displacement along both the Tacoma and Seattle faults happened approximately 1,100 years ago.

Figure 69: Tsunami



Much of the downtown City of Gig Harbor is located along the shore of the Harbor. The Harbor with its narrow entrance opening into a wider bay could potentially dissipate some of the waves that enter it. However, according to the Pierce County HIRA, research suggests that an earthquake along the Tacoma Fault could send a 0.7-meter wave into the Harbor. An earthquake along the Seattle Fault can do even more damage to Gig Harbor. Computer modeling shows that an earthquake on the Seattle Fault could send a 3.5-meter wave into downtown Gig Harbor. While a 0.7-meter wave would cause some damage within the Harbor, including boats and docks, it is doubtful that it would cause further damage within the City itself.



A 3.5 meter will not only wreak havoc among the boats moored within the Harbor itself, but also along the streets paralleling the shoreline blocking them with debris, disrupting power and making response very difficult. The Pierce County HIRA notes that due to the rapid increase in elevation by the landscape above the waterfront, the tsunami should not impair services by itself throughout most of the City. As the shoreline gets back in order, services will be able to resume.

Figure 70: Level of Risk: Tsunamis

Risk	Tsunamis
Likelihood	Possible
Vulnerability	Moderate
Level of Risk	High Risk

Volcanic Hazards

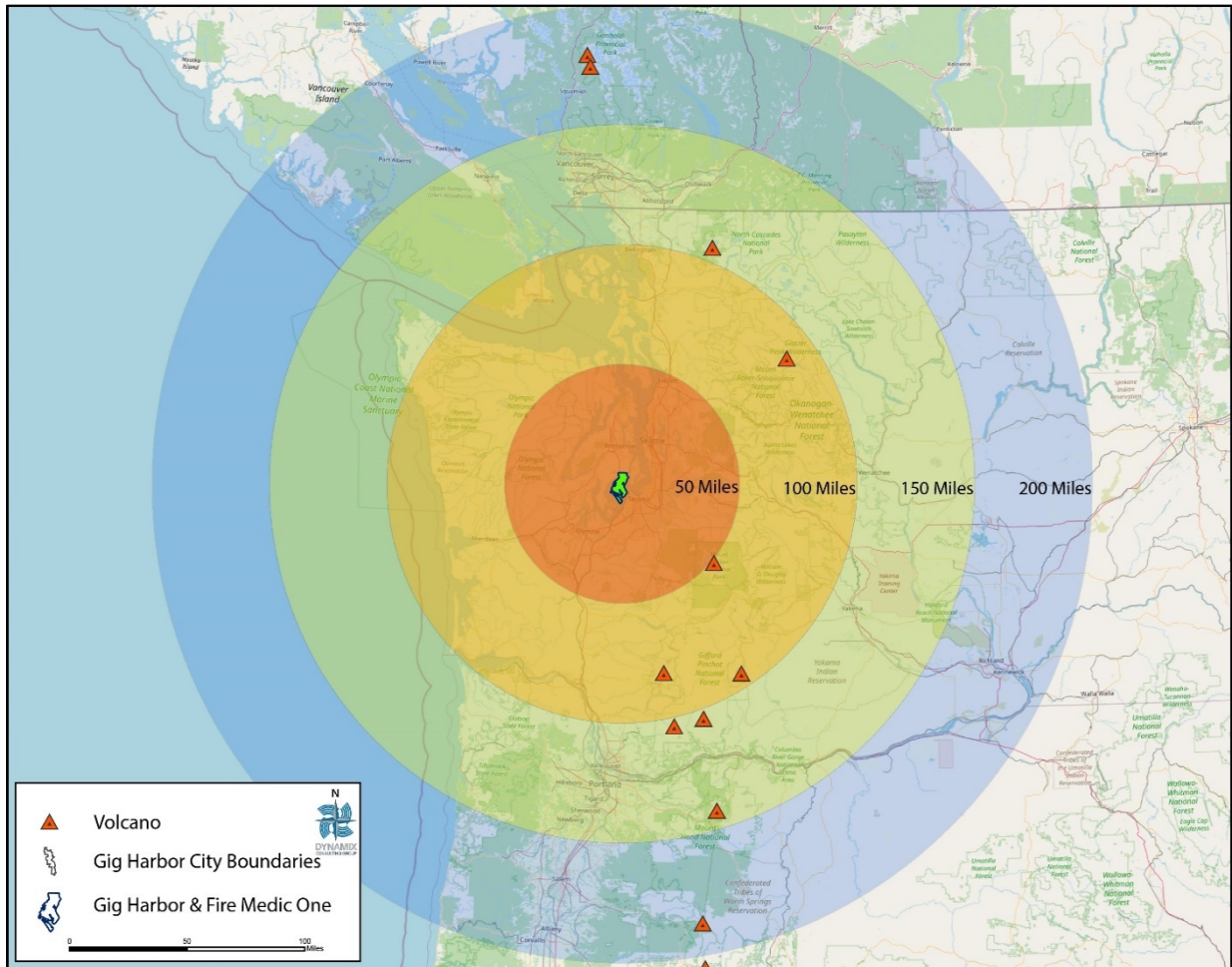
A volcano is a vent in the earth's crust through which magma, rock fragments, gases, and ash eject from the earth's interior. Over time, accumulation of these erupted products on the earth's surface creates a volcanic mountain. Washington has five major volcanoes: Mount Baker, Glacier Peak, Mount Rainier, Mount St. Helens, and Mount Adams.

Volcanoes can lie dormant for centuries between eruptions, and the risk posed by volcanic activity is not always apparent. When volcanoes do erupt, high speed avalanches of hot ash and rock called pyroclastic flows, lava flows, and landslides can devastate areas 10 or more miles away, while huge mudflows of volcanic ash and debris called lahars can inundate valleys more than 50 miles downstream. Falling ash from explosive eruptions can disrupt human activities hundreds of miles downwind and drifting clouds of fine ash can cause severe damage to the engines of jet aircraft hundreds or thousands of miles away.

The following map illustrates that Gig Harbor is 50 miles or more from the closest volcanoes.



Figure 71: Volcanoes



Tephra is ash from a volcanic eruption. Lahar is an Indonesian word describing a mudflow or debris flow that originates on the slopes of a volcano. Sediment is a stratification of rock resulting from volcanic events. The following map illustrates that the Gig Harbor Fire & Medic One response area is subject to tephra, but that lahars and sediment are not inherent risks to this area.



Figure 72: Tephra, Lahars and Sediment

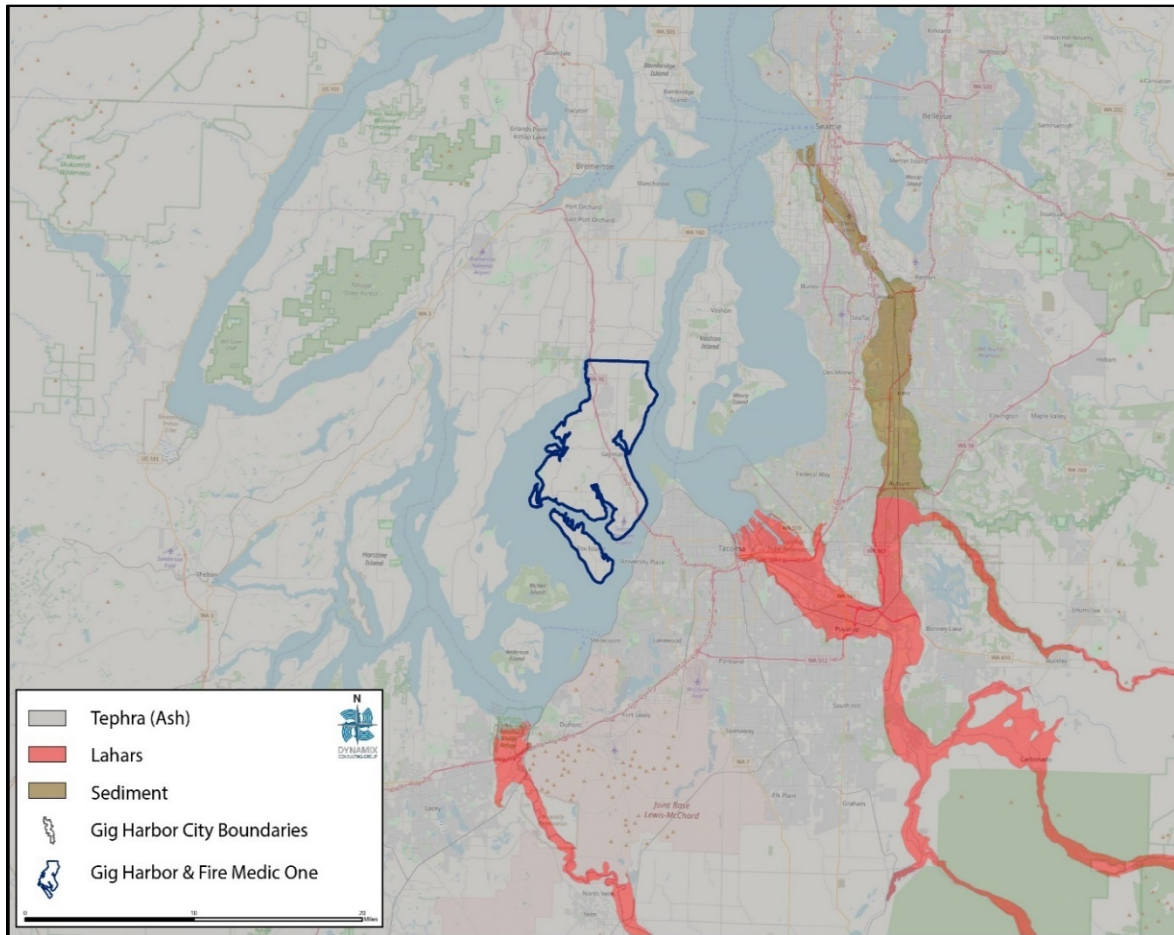


Figure 73: Level of Risk: Volcanic Hazard

Risk	Volcanic Hazard
Likelihood	Almost Certain
Vulnerability	Insignificant
Level of Risk	High Risk

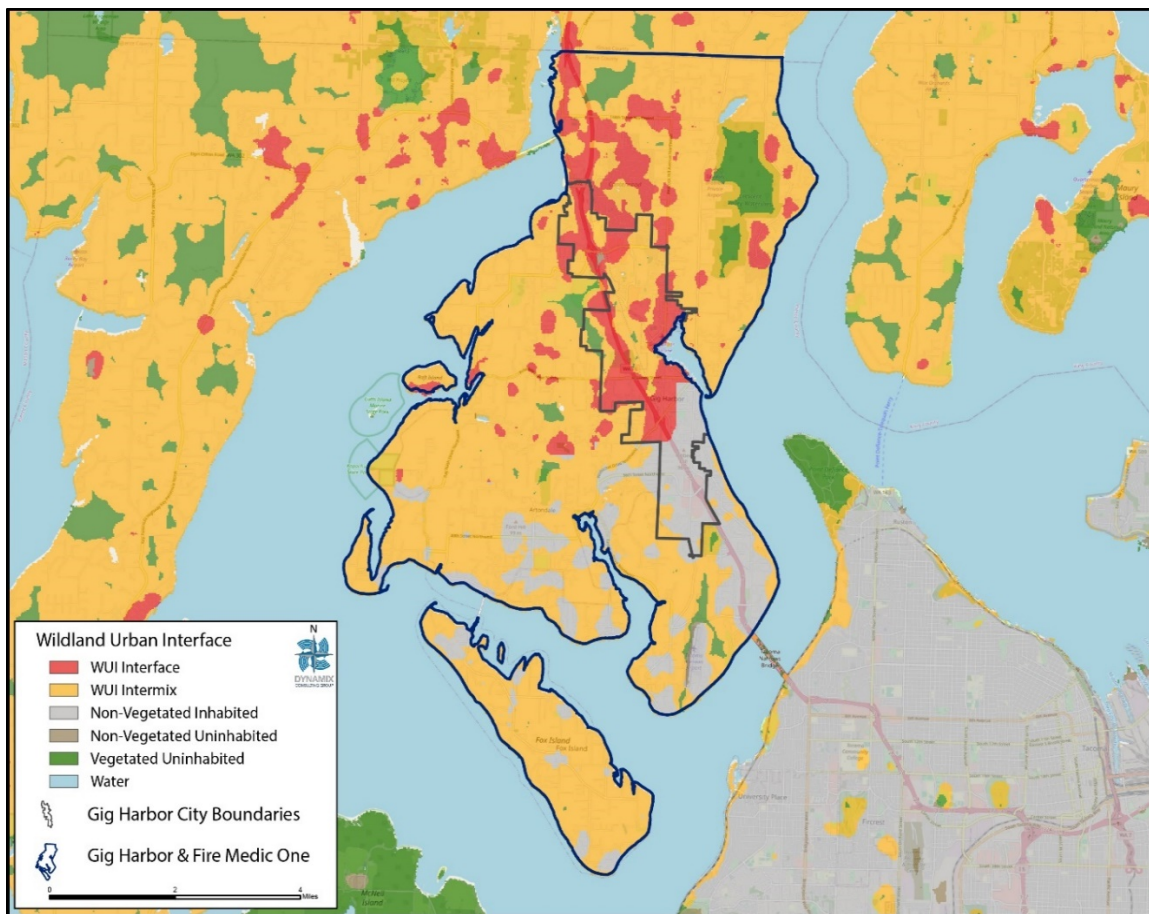


Wildland / Urban Interface Fires

Wildfires are large, destructive fires that spread quickly over woodland, grass, and brush. These fires can occur naturally as a result of lightning strikes or started by people, either accidentally or intentionally. Wildfires are a growing hazard over much of the Western United States. The wildland fire season in Washington is typically July through September, however wildfires can occur any time during the year.

The Wildland-Urban Interface (WUI) is the contact zone between housing and contiguous wildland vegetation. This transitional environment is most susceptible to fire. As people and wildlands come into contact, conflict arises from the threat of wildfire or from emergency services inadequate to protect rural populations. Wildland-Urban Intermix areas are where housing and vegetation intermingle. The following map illustrates the locations of the WUI.

Figure 74: Wildland Urban Interface





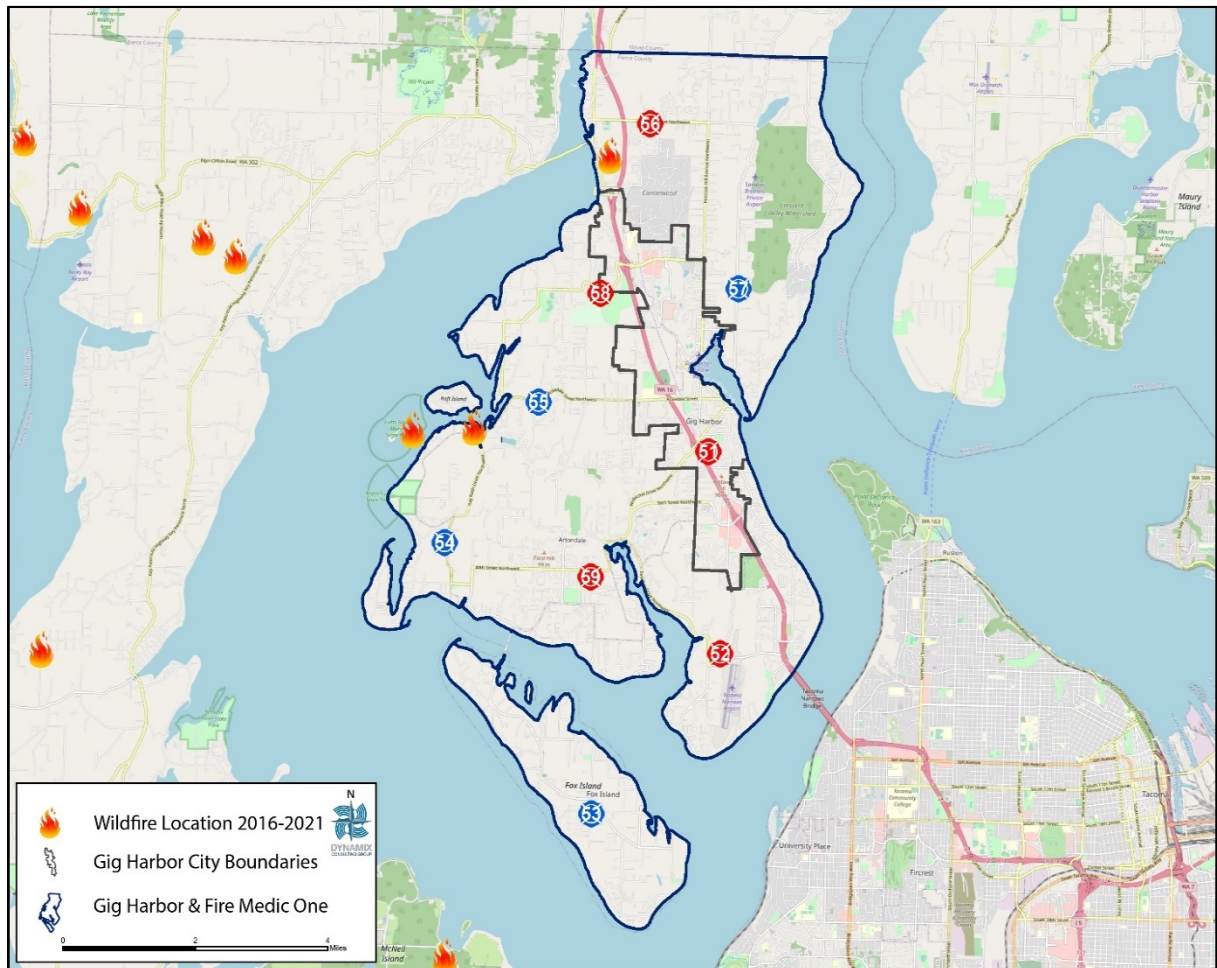
Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

Short term loss caused by wildland fire can include the destruction of timber, wildlife habitat, scenic vistas, and watersheds, and increase vulnerability to flooding. Long term effects include smaller timber harvests, reduced access to affected recreational areas, and the destruction of cultural and economic resources and community infrastructure.

The following map illustrates the locations of recorded instances of wildfires within the Gig Harbor Fire & Medic One response area between 2016 and 2021.

Figure 75: Wildland Locations 2016-2021



The Pierce County HIRA predicts that within the geographic area covered by a WUI Fire there will be considerable damage to the facilities and infrastructure. Gig Harbor can expect private property, public facilities, equipment and possibly infrastructure in some areas to have major damage or even total loss. Wildfires can become hot enough to burn



asphalt, thus rendering roads impassable; utility poles and wires burned; and buildings, vehicles, and equipment are often a total loss. Of additional concern for Gig Harbor, is the ability to safely and efficiently evacuate residents in the event of a large or quickly spreading wildland fire. Limitations to the road network, access off the peninsula, and personnel to assist guiding any evacuation, will make any evacuation effort extremely difficult and potentially deadly.

Figure 76: Level of Risk: Wildland / Urban Interface Fire

Risk	Wildland / Urban Interface Fire
Likelihood	Almost Certain
Vulnerability	Catastrophic
Level of Risk	Extreme Risk

Hazards By Level of Risk

The following table lists the evaluated hazards in descending order from extreme risks to low risks, first prioritized using the hazards identified by Pierce County Department of Emergency Management, then by those specific to Gig Harbor & Fire Medic One. As no fire department has unlimited funding, personnel, or resources, Dynamix Consulting Group recommends that Gig Harbor Fire & Medic One's planning efforts should begin with the Extreme and then the High Risks to ensure the best use of the available resources.

Figure 77: Pierce County Community Risks by Level

Risk	Level of Risk
1. Wildland / Urban Interface Fires	Extreme
2. Severe Storms	Extreme
3. Landslides	Extreme
4. Dam Failures	Extreme
5. Droughts	Extreme
6. Earthquakes	Extreme
7. Energy Emergencies	Extreme
8. Epidemics / Pandemics	Extreme



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

Risk	Level of Risk
9. Hazardous Materials	Extreme
10. Tsunamis	High
11. Volcanic Hazards	High
12. Climate Changes	High
13. Transportation Accidents	Moderate
14. Terrorism	Moderate
15. Abandoned Mines	Moderate
16. Civil Disturbances	Moderate
17. Flooding	Moderate
18. Pipelines	Low
19. Avalanches	Low

Figure 78: Gig Harbor & Fire Medic One Community Risks by Level

Risk	Level of Risk
1. Wildland / Urban Interface Fires	Extreme
2. Severe Storms	Extreme
3. Droughts	Extreme
4. Earthquakes	Extreme
5. Energy Emergencies	Extreme
6. Epidemics / Pandemics	Extreme
7. Hazardous Materials	Extreme
8. Climate Changes	High
9. Transportation Accidents	Moderate
10. Terrorism	Moderate



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

Risk	Level of Risk
11. Abandoned Mines	Moderate
12. Civil Disturbances	Moderate

Community Input

Due to COVID-19 restrictions, in lieu of holding community forums, Dynamix Consulting Group created an electronic survey identify the community's expectations for Gig Harbor Fire & Medic One.

The survey consisted of seven questions and was available for online participation from September 7, 2021, until October 1, 2021. Gig Harbor Fire & Medic One posted the link to this survey on the fire department website and shared information about the survey through its other normal communication channels. A total of 179 residents and business owners completed the online surveys.

Community Expectations

The members of the community who participated in the survey were, in general, pleased with the services offered by the fire department. This is a credit to the people of Gig Harbor Fire and Medic One who provide consistently high levels of service to the community every day.



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

When asked what they liked most about Gig Harbor Fire & Medic One, survey participants three most common answers were that the fire department provides a timely response to emergencies; that survey respondents expect and receive respectful and compassionate service from their firefighters; and that there is an expectation of public education, most especially with school children.

Figure 79: Engine 52



Timely Response to Emergencies

The most common expectation of Gig Harbor Fire & Medic One was a timely response to emergencies.

Comments received in response to the open-ended questions repeatedly reaffirmed the community's desire for "timely," "fast," "quick," and "efficient" emergency response.

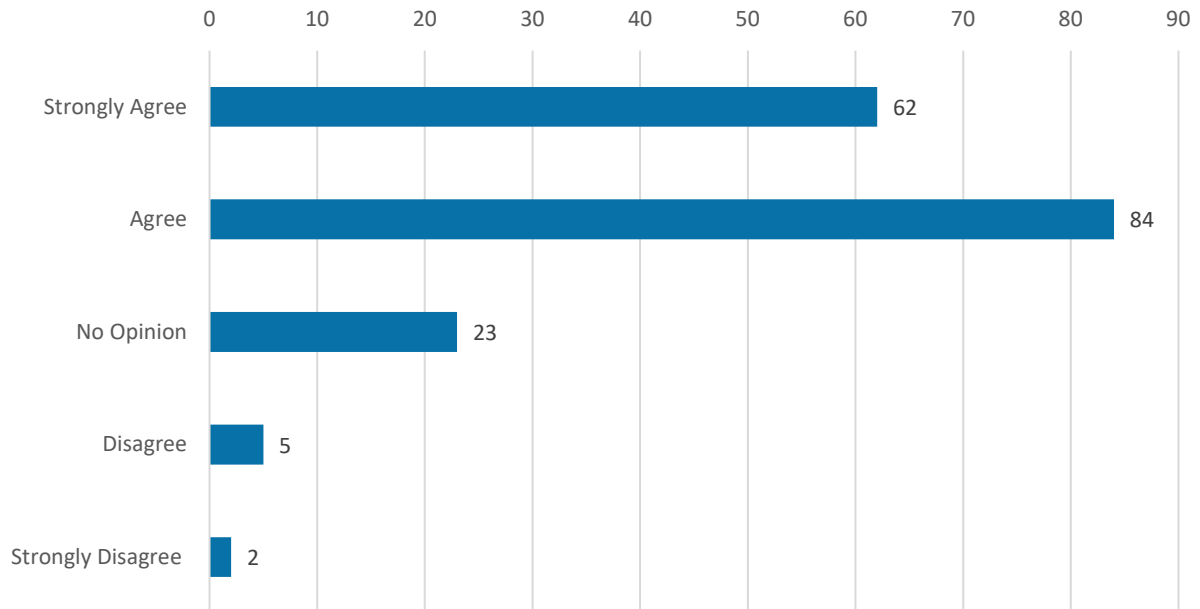
Although there were 179 responses to the survey, all participants did not answer every question.

When asked to "Strongly Agree," "Agree," "No Opinion," "Disagree," or "Strongly Disagree" with the statement "Gig Harbor Fire & Medic One responds to emergency calls in a timely manner,":

- A combined total of 83% of the 176 survey participants who answered the question either selected "Strongly Agree" (62 people) or "Agree" (84 people).
- 13% (23 people) selected "No Opinion".
- A combined 4% selected "Disagree" (5 people) or "Strongly Disagree" (2 people).



Figure 80: Gig Harbor Fire & Medic One responds to emergency calls in a timely manner.



Respectful and Compassionate Service

The second most commonly expressed expectation for Gig Harbor Fire & Medic One was that the members of the fire department treat the members of the community with respect and compassion. Responses to the open-ended questions frequently included feedback that the community appreciated the “kind,” “caring,” “compassionate,” and “respectful” service that is consistently delivered by Gig Harbor Fire & Medic One.

Figure 81: Chief Doan



When asked to “Strongly Agree,” “Agree,” “No Opinion,” “Disagree,” or “Strongly Disagree” with the statement “Gig Harbor Fire & Medic One treats people with respect”:

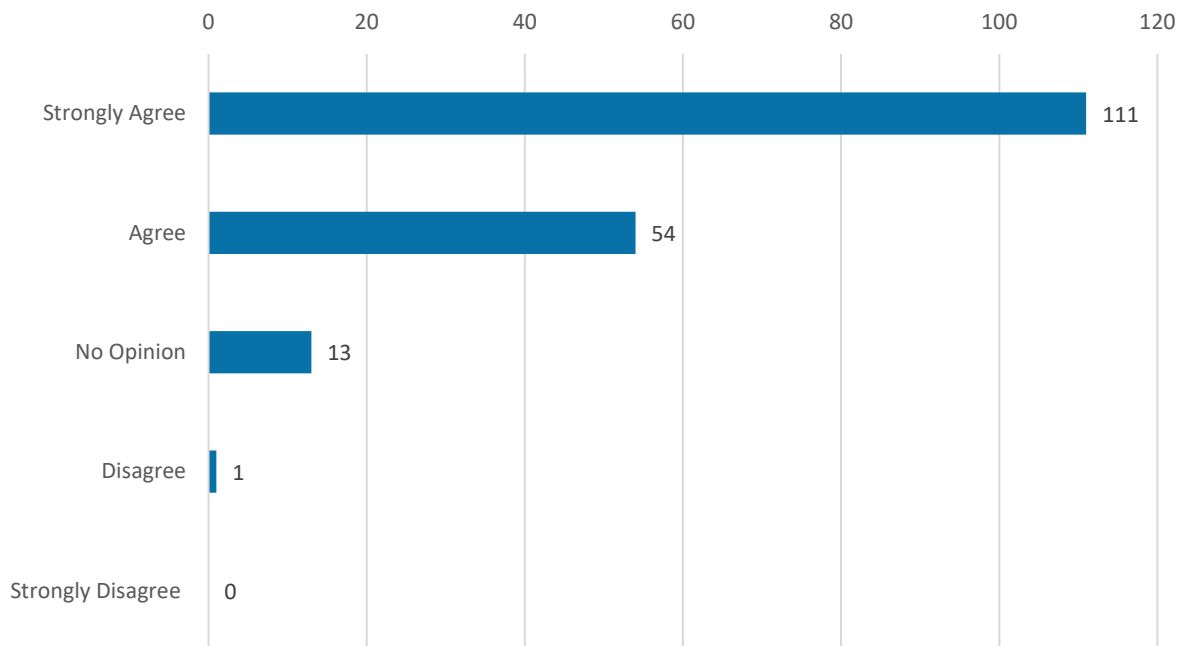


Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

- A combined total of 92% of the 179 people who answered this question selected “Strongly Agree” (111 people) or “Agree” (54 people).
- 7% selected “No Opinion” (13 people).
- 0.5% (1 person) selected “Disagree.”

Figure 82: Gig Harbor Fire & Medic One treats people with respect.



Similarly, when asked to “Strongly Agree,” “Agree,” “No Opinion,” “Disagree,” or “Strongly Disagree” with the statement “Telephone calls to Gig Harbor Fire & Medic One are handled professionally and courteously”:

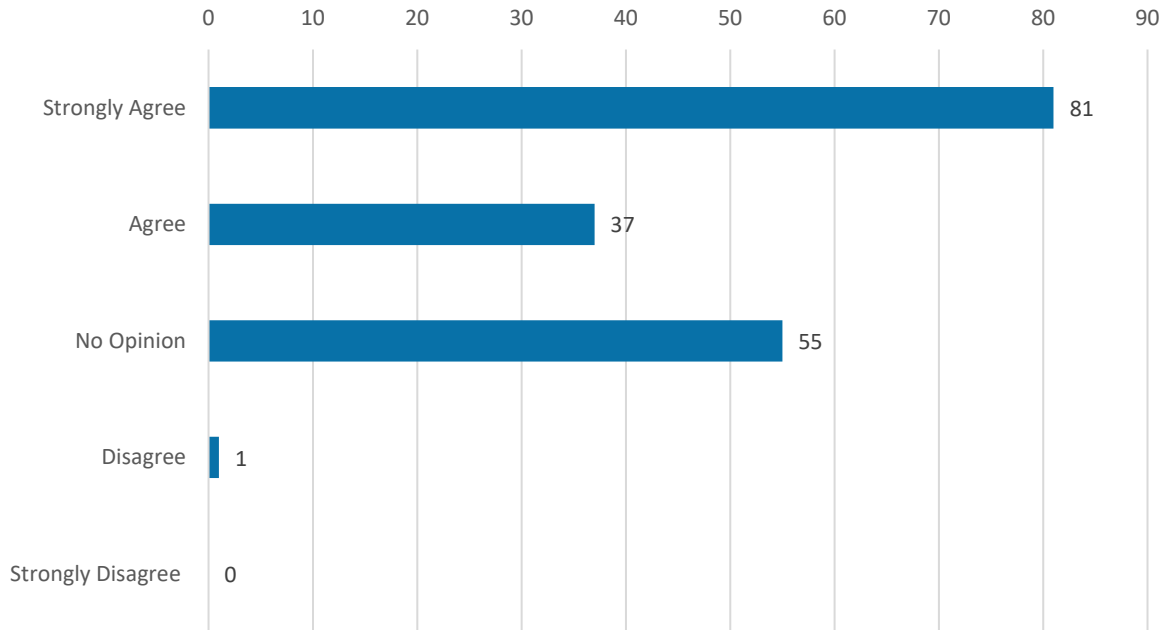
- A combined total of 68% of the 174 participants who answered this question selected “Strongly Agree” (81 people) or “Agree” (37 people).
- 32% (55 people) selected “No Opinion.”
- 0.6 % (1 person) selected “Disagree.”



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

Figure 83: Telephone calls to Gig Harbor Fire & Medic One are handles professionally and courteously.



Public Education

Figure 84: Public Education



The third most commonly expressed expectation for Gig Harbor Fire & Medic One was that for the fire department to provide public education. Responses to the open-ended questions included a focus on providing fire and safety education for school children in the community, but there was also an interest in community risk reduction education including Cardiopulmonary Resuscitation (CPR) for adults in the community as well.

When asked to “Strongly Agree,” “Agree,” “No Opinion,” “Disagree,” or “Strongly Disagree” with the statement “Prior to COVID, Gig Harbor Fire & Medic One provided appropriate community education and outreach programs”:

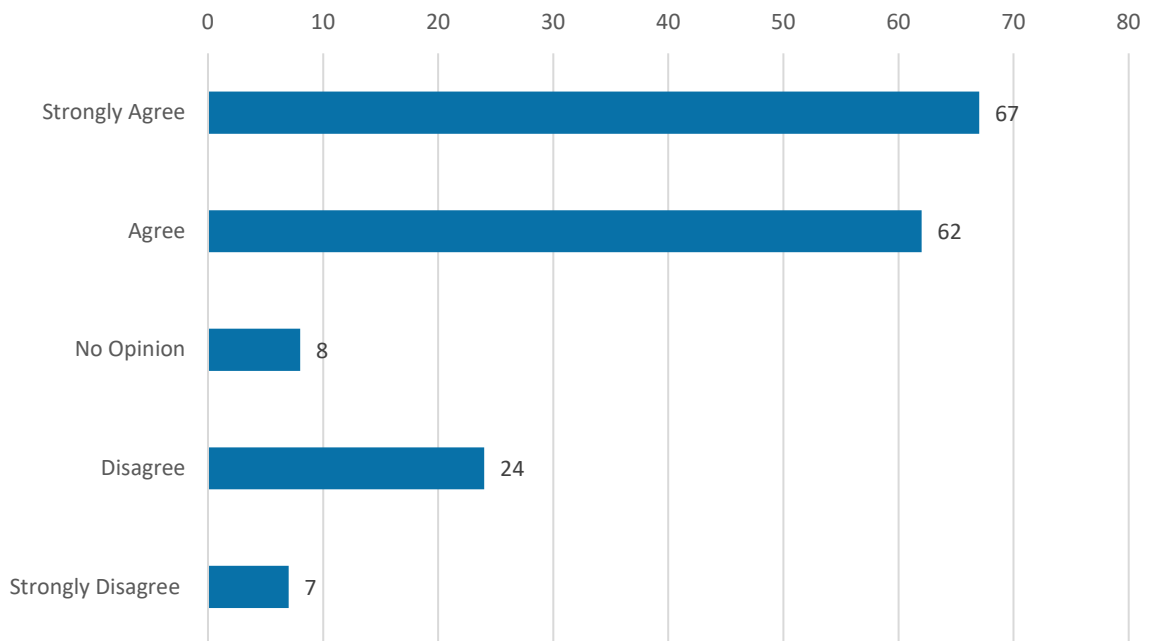


Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

- A combined total of 77% of the 168 participants who answered this question selected “Strongly Agree” (67 people) or “Agree” (62 people).
- 5% (8 people) selected “No Opinion”
- A combined 18% selected “Disagree” (24 people) or “Strongly Disagree” (7 people).

Figure 85: Prior to COVID, Gig Harbor Fire & Medic One provided appropriate community education and programs.





Community Priorities

The community priorities listed by the survey participants most frequently in response to the open-ended survey questions were staffing, a ladder truck, and more community outreach.

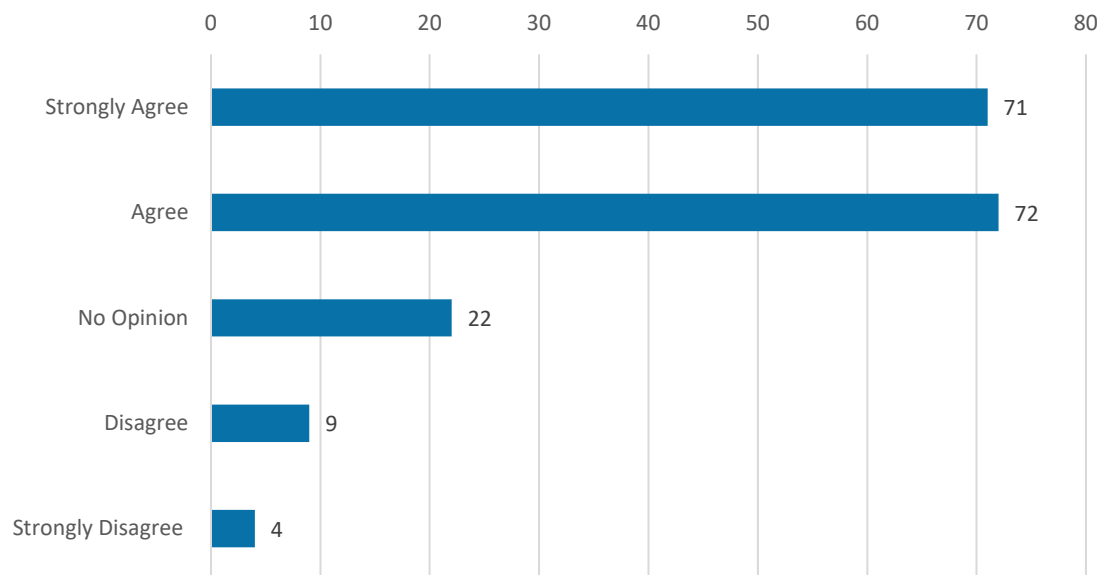
When asked to “Strongly Agree,” “Agree,” “No Opinion,” “Disagree,” or “Strongly Disagree” with the statement “The taxes I pay to support fire and emergency response delivery are appropriate to the service that is provided by Gig Harbor Fire & Medic One”:

- A combined total of 80% of the 178 participants who answered this question selected “Strongly Agree” (71 people) or “Agree” (72 people).
- 12% (22 people) selected “No Opinion”.
- A combined 7% selected “Disagree” (9 people) or “Strongly Disagree” (4 people).

Figure 86: Gig Harbor Uniformed Firefighters



Figure 87: The taxes that I pay to support fire and emergency response delivery are appropriate to the service that is provided by Gig Harbor Fire & Medic One.





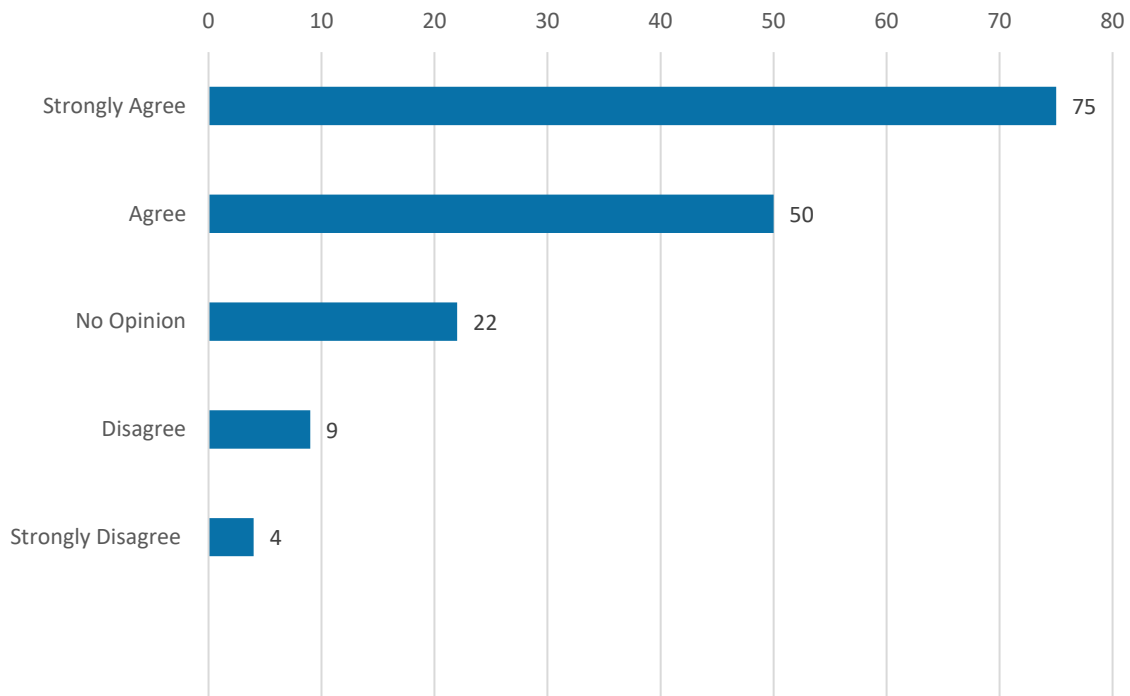
Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

When asked to “Strongly Agree,” “Agree,” “No Opinion,” “Disagree,” or “Strongly Disagree” with the statement “I would be supportive of an increase in taxes to improve the delivery of emergency services y Gig Harbor Fire & Medic One”:

- A combined total of 78% of the 160 participants who answered this question selected “Strongly Agree” (75 people) or “Agree” (50 people).
- 14% (22 people) selected “No Opinion”.
- A combined 8% selected “Disagree” (9 people) or “Strongly Disagree” (4 people).

Figure 88: I would be supportive of an increase in taxes to improve the delivery of emergency services by Gig Harbor Fire & Medic One.



Appendix A of the report includes the Survey of residents and business owners in the Gig Harbor Fire & Medic One District and a detailed breakdown of the results for each question.



Performance Expectation Goals

Gig Harbor & Fire Medic One have established an organizational vision and mission statement, as well as core values. Both the vision and mission statement are posted on their website¹¹.

Mission Statement

Gig Harbor Fire & Medic One will provide exceptional service to our citizens and our members with dedication, compassion, and respect, while continually striving for improvement.

Vision Statement

Gig Harbor Fire & Medic One will be an innovative leader in providing emergency medical

services, fire suppression, and injury reduction and prevention services. We will lead by responding quickly to our community's needs, acting compassionately, and performing superbly.

Core Values

Accountability: Personal accountability is an integral part of professional growth. Organizational accountability is equally important to effectively and efficiently respond to the needs of our community.

Continuous Improvement: We recognize and understand that the constancy of change in our community and industry impacts our business daily. We are committed to

Figure 89: Give Firefighters a Hand



¹¹ <https://www.gigharborfire.org/about/core-values-mission/>



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

continuous improvement and progressive thinking to effectively address change to efficiently benefit those we serve.

Customer Service: Our responsibility is to protect life, property, and the environment.

We are committed to fulfilling our responsibility and no request or inquiry will go unanswered.

Excellence: We believe the pursuit of peak performance and demonstrated high professional standards are critical to our work. To ensure the best possible service to our community, the fire district supports continuous training and encourages professional development.

Integrity: We understand the trust placed in us by the public and our colleagues is integral to the performance of our duties. We are committed to honest and ethical behavior and will hold ourselves accountable to these values.

Safety: We believe our health and safety are essential to fulfilling the fire district's mission. We are committed to providing the best health and safety programs for our members' well-being and operational readiness.

Teamwork: We know working together is more effective than individuals working separately; our lives depend on it. We believe that our members have the capacity to work in effective teams and our organization values teamwork at all levels.





5. PROGRAMS AND SERVICES

Gig Harbor & Fire Medic One provide a range of fire and rescue services to the District. This section provides an overview of these services and the processes that support each. Note that Gig Harbor, like most fire and rescue agencies in the country, are becoming more of an “All Hazards” response organization and must periodically respond to emergencies that fall outside of their traditional responsibilities. As such, Gig Harbor has the capabilities to mitigate other types of emergencies when required; however, this section focuses on the primary missions of the department.

Community Risk Reduction

Community Risk Reduction (CRR) coordinates through the Fire Prevention Division. CRR programs use a data driven approach to identify risks within the community and apply mitigation efforts through education and interventions to reduce the impact of that risk to the community in the future. Using the information contained within this initial CRA: SOC report, establish a program to formally determine the impacts of CRR efforts within the community based upon the information contained within this Community Risk Assessment: Standards of Cover document, as well as benchmark adopted goals against performance. The department should set specific, targeted, and achievable goals based on performance and conduct a formal and documented review at least annually.

Public Education

Public education programs provide the foundation of fire safety information for the community. Examples of programs include fire extinguisher training, elderly care and safety, home exit drills, and Stop, Drop, and Roll in classrooms. The department has an assigned Public Education Officer and provides multiple programs, reviewed annually for compliance with the Washington State Office of the Superintendent of Public Instruction (OSPI) Learning Standards and Instructional Materials. Using this document, Gig Harbor & Fire Medic One should identify specific risks and behaviors within the community, the demographics of those groups, and develop programs specific to the risks and behaviors present within the community. After establishing program goals and objectives, the department should evaluate staffing levels within the program to ensure adequate staffing.



As part of the formal annual review and reporting process, impacts of the public education program should be evaluated and compared against CRR efforts to include facilities with large loss potential and high-risk audiences, identifying current and future potential partnerships with those organizations serving at risk groups. Finally, evaluate the Juvenile Fire Setter program to ensure all identified or potential cases are referred to the appropriate intervention agency.

Fire Investigation, Origin, and Cause Program

The Pierce County Fire Prevention Bureau is the authority having jurisdiction over fire investigation, origin, and cause in the unincorporated portions of the Fire District. In addition, the City of Gig Harbor contracts with the Prevention Bureau to provide similar services for the city. This program was adopted by the Pierce County Council and provides enforcement of applicable local, state, and federal laws, as well as local ordinances. Fire investigators are certified through the International Association of Arson Investigators (IAAI-CFI) and investigations are governed by internal policies and procedures. Pierce County Fire Prevention Bureau is assisted by the Pierce County Sheriff's Office when required for evidence collection and storage, processing, and information sharing.

Domestic Preparedness, Planning and Response

Gig Harbor & Fire Medic One utilize the Pierce County Department of Emergency Management for the overall planning and preparedness. As part of the system, Gig Harbor participates as the Multiagency Coordination Center for the Pierce County portion of the peninsular and provide the Emergency Operations Center when needed. Pierce County Emergency Management has published the Comprehensive Emergency Management Plan, a NIMS compliant All Hazards document identifying roles and responsibilities for internal and external stakeholders and provides updates and review on an annual basis. This plan includes a vulnerability assessment and updated information, shared through meetings, annual drills, and evaluations. The Continuity of Operations Plan (COOP) was last updated March 9, 2020.



Fire Suppression

Fire suppression services are provided via five engine companies staffed with a minimum of two or three firefighters on a 24/7 basis. All five engine companies are slated to be staffed with a minimum of three firefighters as of January 1st 2022. Additionally, six firefighters are also available on the three Medic Unit companies for suppression assignments and a Battalion Chief and Medical Services Officer provide command and incident safety functions. The Assistant Chief of Operations supervises the Division. The department has the internal capability to mitigate low and some moderate fire risks internally meeting NFPA 1710 standards; however, if exceeding capacity, mutual and automatic aid agreements with Tacoma Fire Department, West Pierce Fire and Rescue, Key Peninsula Fire Department, and South Kitsap Fire Rescue supplement response. The department uses the National Incident Command System for all incidents and evaluates performance quarterly and annually to evaluate the department's ability to meet performance objectives based on NFPA 1710. In addition to engine companies, Gig Harbor maintains a fleet that includes a rescue company, hazmat unit, air truck, rehab unit, three water tenders, and two brush trucks crossed staffed by on duty crews. Finally, crews maintain four additional engines within unstaffed stations.

The Training Division formally conducts training and company officers informally conduct training on a daily basis throughout the department. Shift supervisors complete quality assurance for fire reports and significant incidents are reviewed by the Operations Chief and Battalion Chiefs.

Figure 91: Engine 58





EMS

Since 1989, Gig Harbor & Fire Medic One has provided ALS transport services to the community. Today, the department staffs three ALS transport Medic Units located at stations 51, 58, and 59. Fire Station 51 houses an additional ambulance. A minimum of a firefighter/paramedic and a firefighter/EMT staff each Medic Unit. Additionally, each engine company and staff vehicle contain equipment to provide Basic Life Support (BLS) care while awaiting a Medic Unit or to assist in patient care. When available, the department staffs a Medical Services Officer (MSO) and the EMS Division Chief manages the program.

Pierce County Medical Oversight and Patient Care Protocols outline the requirements for all patient care applications, with oversight provided in two levels: West Region for multicounty oversight and the State of Washington who is the licensing agency.

Base station hospitals within each respective zone provide online medical control and offline protocols outlined in the Pierce County Patient Care Protocols.

Patient care records are documented using the ESO RMS and fields captured within these reports follow industry best standards. Additionally, these records integrate to ensure accountability within the fire records, the National Fire Incident Records System (NFIRS), the National Emergency Medical Services Information System (NEMSIS), and meet all state and national guidelines for privacy protection to include the Health Insurance Portability and Accountability Act (HIPAA) and the Freedom of Information Act (FOIA).

Quality assurance occurs in two levels. First, on duty supervisors review patient reports and charts produced during patient care. Second, the Quality Assurance/Quality Inspection team conduct targeted reviews of complex and multi-patient interactions, as well as any deviations in protocol of events of significance. Review of performance compliance occurs quarterly and annually to assess items such as response metrics, unit availability, documentation, and standards of care compliance.

Figure 92: Motor Vehicle Accident





At this time, a Cardiopulmonary Resuscitation (CPR) and Public Access Defibrillation program have not been established for the community; however, this item is included as a recommendation of this report.

Technical Rescue

Figure 93: Rescue Jacks and High Angle Rescue



Technical Rescue includes rescue elements outside of normal fire suppression or EMS response capabilities. These include disciplines such as high angle rescue, confined space, swift water rescue, and structural collapse. Gig Harbor & Fire Medic One participates as the lead agency of a four team countywide response team and are contractually obligated to ensure that the department staffs at least one technician per day along with the necessary compliment of equipment for response, whether carried on their person or on the Heavy Rescue. Additionally, each engine company carries Hurst E-Draulic cutters and spreaders, providing additional extrication capabilities for the District. Finally, Gig Harbor participates in the South Puget Sound Regional Water Response Plan and carry two 10 ½ foot Stand Up Paddle Boards (SUP) on the Heavy Rescue for the initial rescue efforts. When needed, a boat is available through West Pierce Fire and Rescue or through the Gig Harbor Police Department. Technical rescue competencies are NFPA 1670 compliant for initial and continuing training and each technician receives approximately 88 hours of training per year divided



amongst the multiple competencies. Program evaluations occur on an annual basis and the Pierce County Special Operations and Response Team is currently seeking an outside vendor to conduct an evaluation of program effectiveness.

Hazardous Materials

Like technical rescue, Pierce County Hazardous Incident Team provides hazardous materials response. Countywide, four teams are available for response. Staffing and mitigation occur through a multiagency regional response that is capable of scaling up or back as required. Training and initial certification follow NFPA 472 and 1072 standards and recurring training for each technician occurs on an annual basis at 32 hours per technician. This training includes multiagency drills and like technical rescue, the department seeks an outside vendor for an appraisal of the program. Recordkeeping for training, monitoring, and exposures are maintained locally and at the county level and annual physicals and monitoring provided to meet the increased exposure potentials for the team.

Wildland Fire Services

Wildland firefighting includes fires originating in wooded or non-built upon areas. These fires can grow and spread quickly and threaten homes and business. To mitigate this risk, Gig Harbor possesses two cross staffed brush truck units capable of traversing off road areas and providing fire suppression. Engine companies support these units to ensure the suppression of any wildland fire occurring within the District. As part of the formal annual review process, Gig Harbor should evaluate its suppression, mitigation, and educational activities with regards to wildland, as well as review the burn permit and code enforcement program on an annual basis. All new hires must complete L180, S130, and S190 training for wildland firefighting and approximately 75% of operational firefighters currently possess Red Card qualification credentials.

Figure 94: Wildland Fire





6. ALL-HAZARD RISK ASSESSMENT

Risk Assessment by First Due Fire District

FEMA defines target hazards as “facilities in either the public or private sector that provide essential products and services to the general public, are otherwise necessary to preserve the welfare and quality of life in the community, or fulfill important public safety, emergency response, and/or disaster recovery functions.” The NFPA further breaks these down into three risk categories for occupancies.

- **High-Risk Occupancy:** An occupancy that has a history of a high frequency of fires, high potential for loss of life or economic loss, or that has a low or moderate history of fires or loss of life, but the occupants have a high dependency on the built-in fire protection features or staff to assist in evacuation during a fire or other emergency.
- **Moderate-Risk Occupancy:** An occupancy that has a history of a moderate frequency of fires or moderate potential for the loss of life or economic loss.
- **Low-Risk Occupancy:** An occupancy that has a history of a low frequency of fires and minimal potential for life or economic loss.

To provide a visual illustration of the areas of critical need in the Gig Harbor Fire & Medic One response area, Dynamix Consulting Group produced Risk Assessment by First Due District Maps for each Gig Harbor Fire & Medic One first due response area. These maps attribute a risk classification of low, medium, high, and special risk to each parcel within individual station response areas. Acknowledging that the risk classification represents a combination of risk to both the community and deployment methodologies by the department, these classifications use a combination of structural attributes from the most recent Pierce County parcel data layer available and by identifying trigger points that would cause Gig Harbor to modify their response and aid requests based upon the characteristics of the structure using a modified OVAP method.

Community risks were determined using the following criteria:

- Commercial buildings - classified as moderate.
- Structures three stories or greater, or 30 feet - classified as moderate risk.
- Structures >8,000 square feet - classified as moderate risk.



- Structures with known access issues - classified as moderate.
- Residential structures >15,000 square feet - classified as high risk.
- Structures six stories or greater - classified as high risk.
- Structures inaccessible by fire department apparatus - classified as special risk.

Community risks were estimated for each of three different classes of structures in a community, including low, medium, and high hazard structures as categorized by the NFPA.

Identifying and Categorizing Community Risk

An overall profile of the community helps establish the community risk levels, and are based on the unique mixture of demographics, socioeconomic factors, occupancy risk, fire management zones, and the level of services currently provided.

Consequences of community hazards, associated risk events, and fire department mitigation efforts fit in four categories.

- Civilian and firefighter injury or loss of life
- Property damage or loss
- Critical infrastructure damage or loss
- Environmental damage or loss

Each of these categories contains hazards and therefore risks relevant to emergency responders.

Characteristics of properties can have a significant impact on outcome and associated response requirements. Each property or structure in a community is potentially a hazard that carries inherent risks based on occupancy type and fire load.

Occupancy risk is a sublevel of property risk, established through an assessment of the relative risk to life and property resulting from a fire inherent in a specific building/structure or in generic occupancy classes (e.g., high-rise residential).

The *NFPA Fire Protection Handbook* defines hazard levels of occupancies by types.

- **High-Hazard Occupancies:** High-rise buildings, hospitals, schools, nursing homes, explosive plants, refineries, public assembly structures, other high life hazard or large fire potential occupancies.
- **Medium-Hazard Occupancies:** Apartments, offices, mercantile, and industrial occupancies that may require extensive use of firefighting forces.



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

- **Low-Hazard Occupancies:** One, two, or three family dwellings and scattered small business and industrial occupancies.

The following maps are included in this assessment:

Figure 95: Station 51 Risk Assessment Map By First Due District

Figure 96: Station 52 Risk Assessment Map By First Due District

Figure 97: Station 56 Risk Assessment Map By First Due District

Figure 98: Station 58 Risk Assessment Map By First Due District

Figure 99: Station 59 Risk Assessment Map By First Due District



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

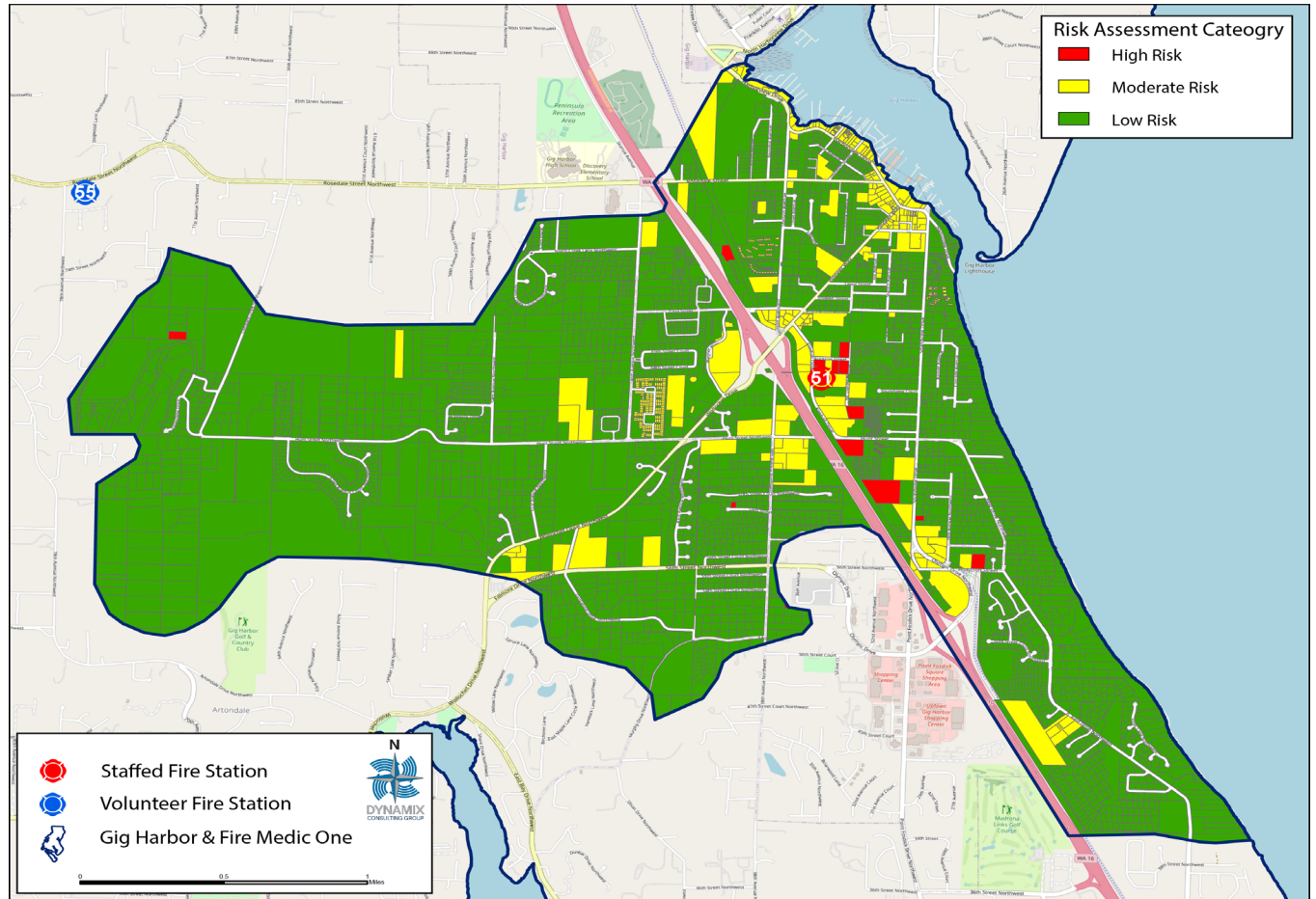


Gig Harbor Fire & Medic One

Risk Assessment By First Due District

Station 51

6711 Kimball Drive

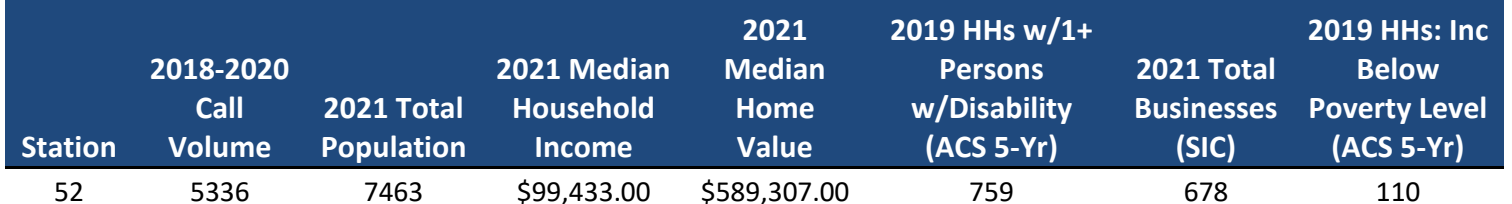


Station	2018-2020 Call Volume	2021 Total Population	2021 Median Household Income	2021 Median Home Value	2019 HHs w/1+ Persons w/Disability (ACS 5-Yr)	2021 Total Businesses (SIC)	2019 HHs: Inc Below Poverty Level (ACS 5-Yr)
51	3907	8910	\$89,888.00	\$574,573.00	773	843	220



Risk Assessment By First Due District

2217 Pt. Fosdick Drive NW





Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

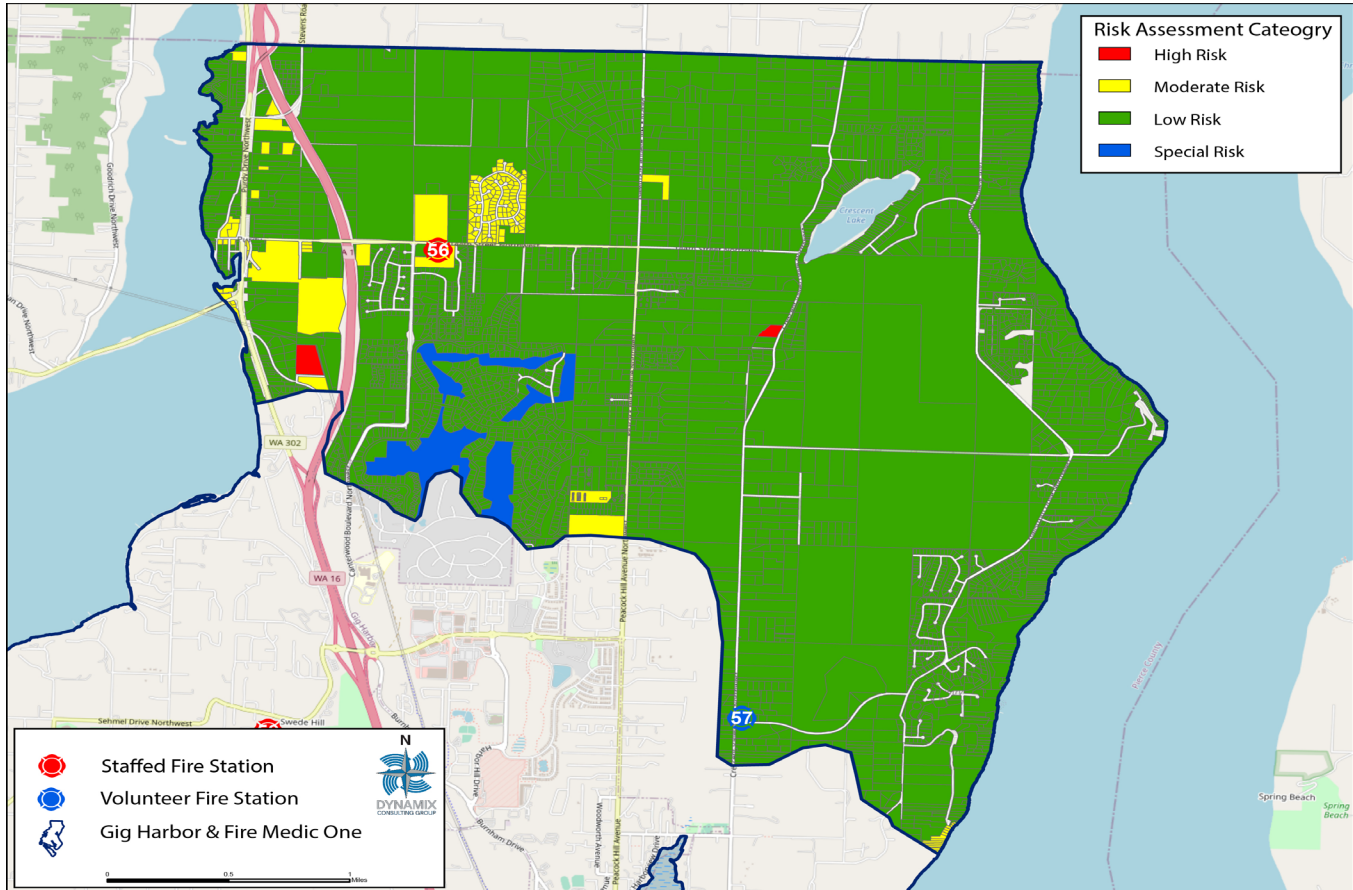


Gig Harbor Fire & Medic One

Risk Assessment By First Due District

Station 56

5210 144th Street NW



Station	2018-2020 Call Volume	2021 Total Population	2021 Median Household Income	2021 Median Home Value	2019 HHs w/1+ Persons w/Disability (ACS 5-Yr)	2021 Total Businesses (SIC)	2019 HHs: Inc Below Poverty Level (ACS 5-Yr)
56	2167	8978	\$108,628.00	\$580,519.00	568	209	81

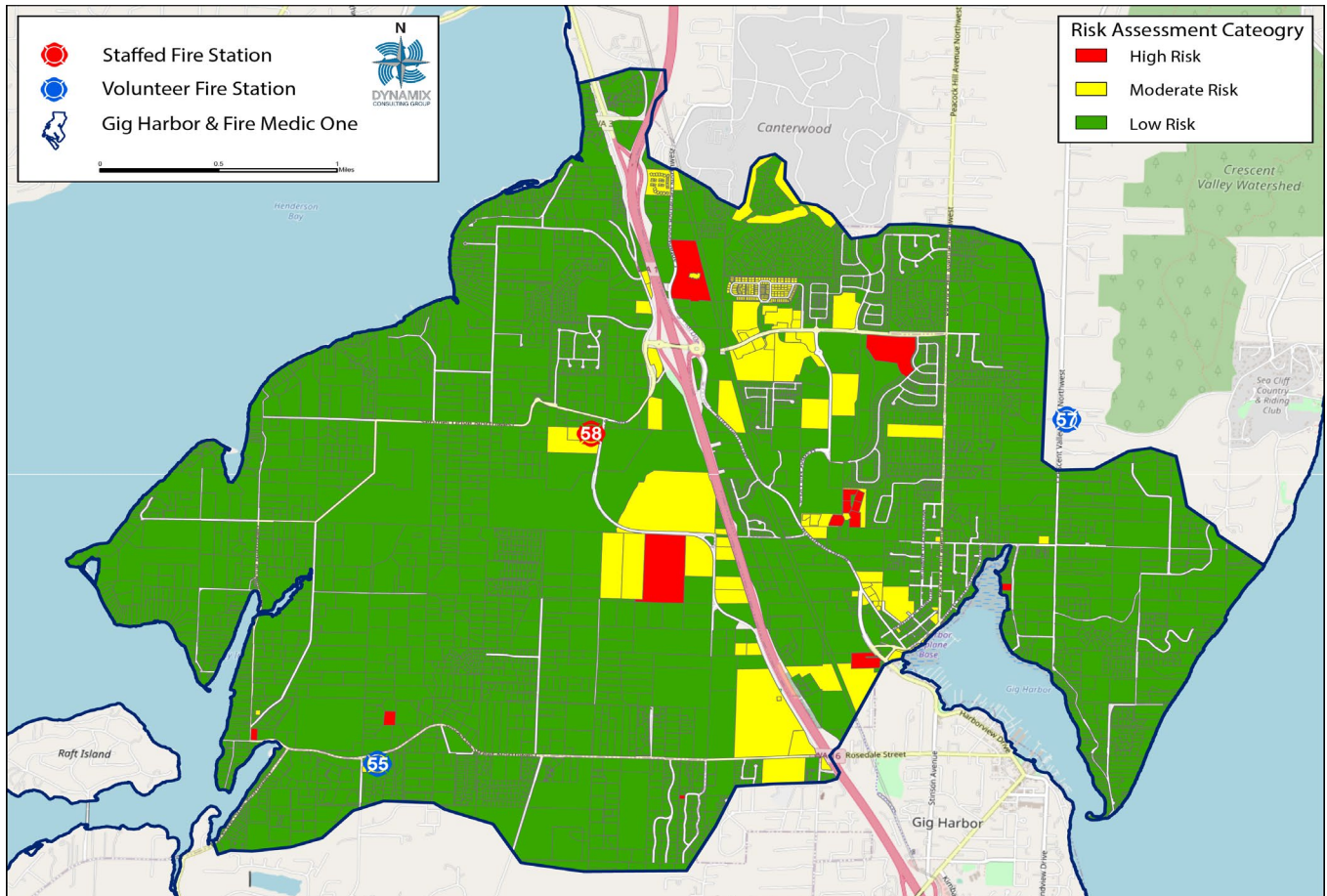


Gig Harbor Fire & Medic One

Risk Assessment By First Due District

Station 58

10302 Buiacich Road NW



Station	2018-2020 Call Volume	2021 Total Population	2021 Median Household Income	2021 Median Home Value	2019 HHs w/1+ Persons w/Disability (ACS 5-Yr)	2021 Total Businesses (SIC)	2019 HHs: Inc Below Poverty Level (ACS 5-Yr)
58	3851	12506	\$116,219.00	\$656,078.00	724	362	198

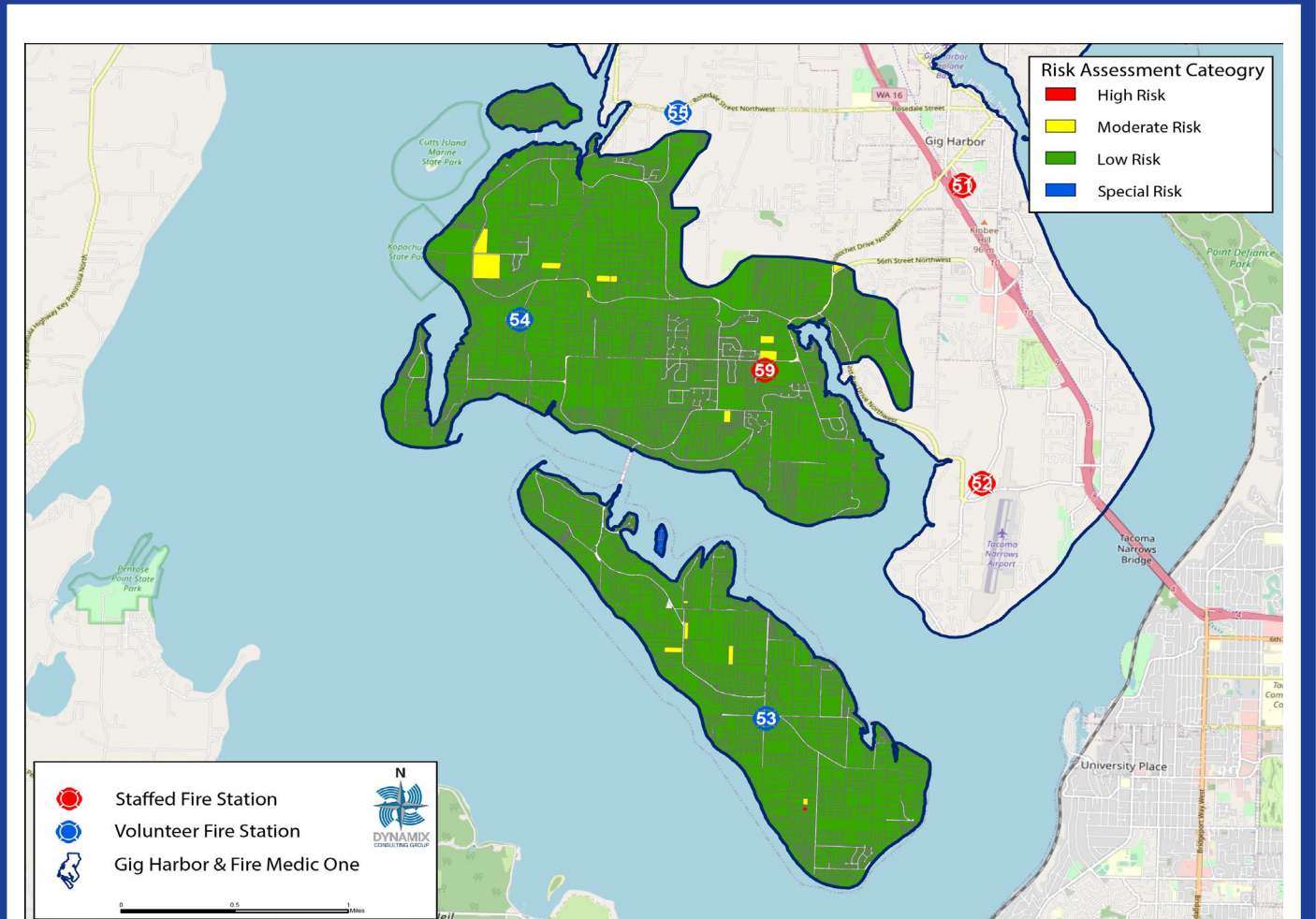


Gig Harbor Fire & Medic One

Risk Assessment By First Due District

Station 59

3828 62 Avenue Court NW



Station	2018-2020 Call Volume	2021 Total Population	2021 Median Household Income	2021 Median Home Value	2019 HHs w/1+ Persons w/Disability (ACS 5-Yr)	2021 Total Businesses (SIC)	2019 HHs: Inc Below Poverty Level (ACS 5-Yr)
59	2518	13983	\$117,259.00	\$694,616.00	1083	201	275



7. CURRENT DEPLOYMENT & PERFORMANCE

The purpose of a Standards of Cover assessment is to provide the methodology for Gig Harbor & Fire Medic One to collect, analyze, and assess their response performance and to report these findings to the community. Through a continual process of refining the data collected and making adjustments based on a data driven approach, the department can accurately and reliably deploy its resources in a manner consistent with industry best practices and community expectations.

Service Area Characteristics

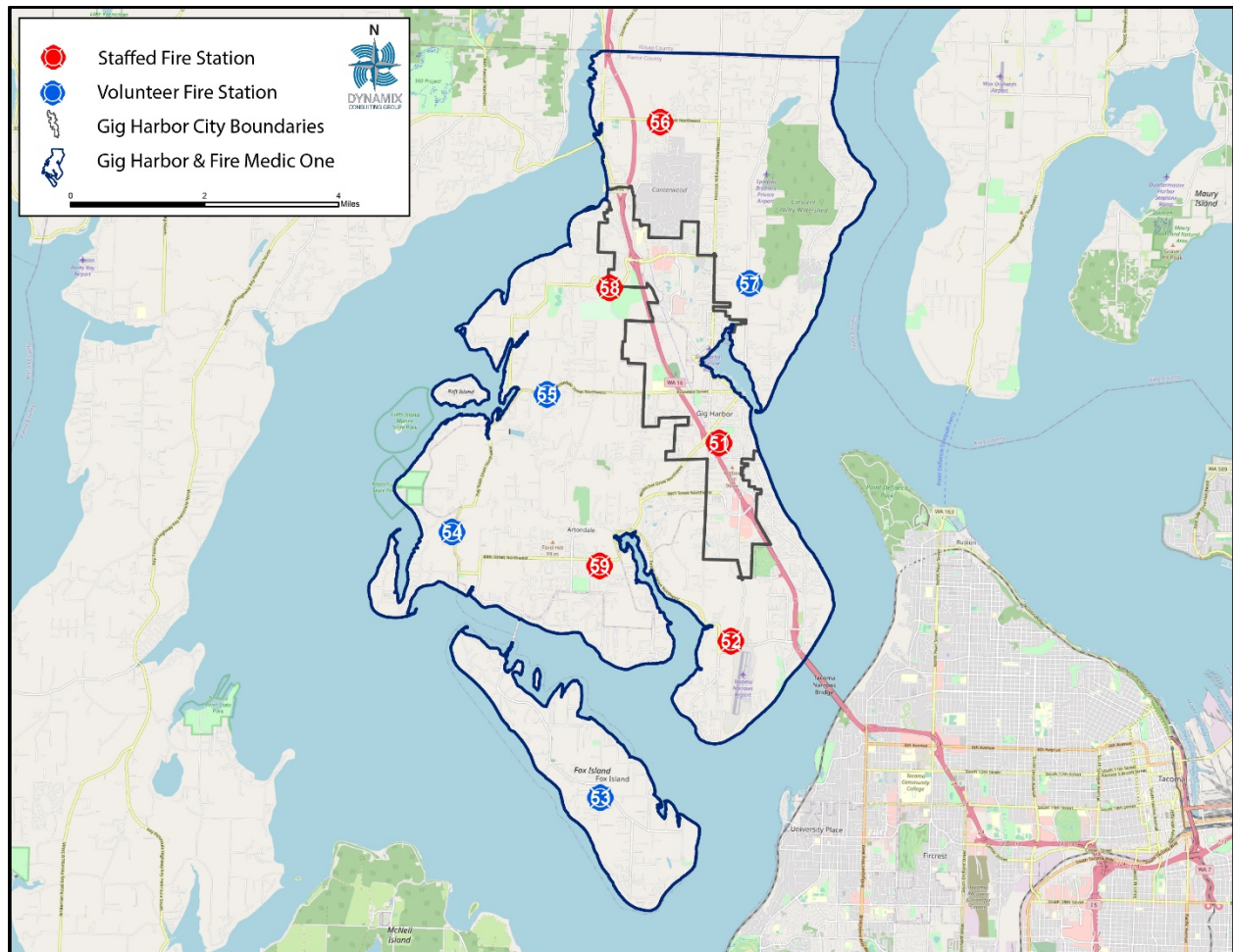
The Pierce County Fire Protection District 5, also known as Gig Harbor & Fire Medic One, provides fire rescue and emergency transport services to the southeast portion of the Kitsap Peninsula. The service area's boundaries extend to Kitsap County to the north and water surrounds the remainder of the jurisdiction and includes the islands of Fox Island and Raft Island. Within the District boundaries, the municipality of Gig Harbor lies centrally along State Road 16, as well as the unincorporated communities of Arletta, Artondale, Canterwood, Crescent Valley, Cromwell, Donkey Creek, East Gig Harbor, Point Fosdick, Purdy, Ray Nash Valley, Reid Drive, Rosedale, Swede Hill, Warren, and West Gig Harbor.



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

Figure 100: Gig Harbor & Fire Medic One Stations



Staffed fire stations align along the State Road 16 corridor and around the City of Gig Harbor. Although fire department facilities are cosmetically in good condition, the age of the stations will require renovations or upgrades in the future. Additionally, at the time when the fire stations were built, the District maintained strong volunteer companies. Today, the District has no certified volunteer firefighters and, due to budgetary constraints, can staff only five of the nine fire stations.



Resources

Gig Harbor & Fire Medic One is comprised of nine fire stations and an administrative building. Fire rescue resources deploy from five staffed fire stations using career firefighters. Although the District was historically staffed predominantly by volunteer firefighters, reliance on this resource has dwindled over the years to the point that no certified volunteer firefighters exist within the department today; however, three volunteer medical first responders remain. The department possesses modern equipment and apparatus; however, the District identified the need for significant investments in the capital infrastructure of their buildings. In total, the District's minimum daily staffing is 20 firefighters on duty for response within the community. In addition to frontline staffing, certified firefighters within Fire Prevention and Administration could potentially be available for response.



Figure 101: Medic 58

The District maintains a fleet of engine companies, water tenders, wildland vehicles, and ambulances. At this time, the District does not own or operate an aerial apparatus; however, one can be available via automatic and mutual aid agreements.

Several mutual and automatic aid resources are available surrounding the District. An automatic aid agreement exists between Gig Harbor and Tacoma Fire Department for the use of aerial apparatus, an automatic aid agreement for the use of a fire boat with West Pierce Fire and Rescue, and mutual aid agreements are in place with South Kitsap Fire Rescue to the north of the District and Key Peninsula Fire Department to the west of the District. One of the current initiatives for Gig Harbor & Fire Medic One and South Kitsap Fire Rescue is to address the inability of the department's respective emergency communication center's to directly communicate with one another. Although both fire department's would benefit and desire increased cooperative efforts with one another, technology limitations within the respective communications centers limit this ability.



Response Area

Figure 102: Firefighters



Gig Harbor & Fire Medic One's response area is comprised of both urban/suburban areas within the City of Gig Harbor and rural areas accessed by winding roads with little interconnectivity. The District is unique in its terrain, topography, size, road network, and water features. Due to these elements, travel across the District for emergency response vehicles requires additional travel time than encountered in a typical suburban or urban setting. Due to these factors, additional consideration must be given to the department's ability to respond first arriving resources, assemble sufficient resources from multiple stations, and to conduct fire suppression or emergency response activities, particularly in areas with steep terrain and narrow roadways.

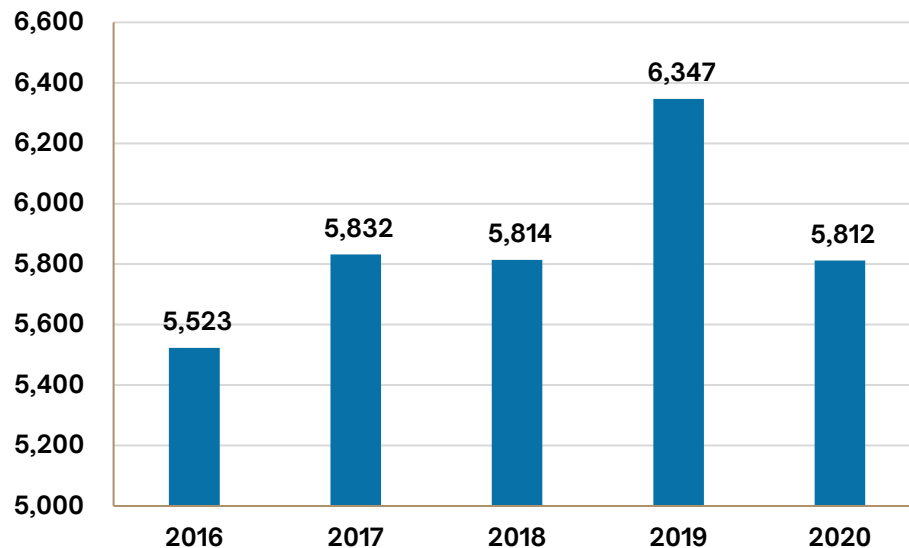
Historical

Record keeping for historical service demand is accomplished via the use of ESO Records Management System (RMS) and is also available from South Sound 911 which is the emergency communications center for the District. Prior to 2020, the District used Zoll software as the RMS for the District; however, due to limitations with the software the District decided to change RMS vendors. This information is accessible and available for review and analysis internally within the department and is regularly evaluated. In addition to the functionalities provided within the software, the District contacted an additional vendor, the Intterra Group, to provide real time analysis and performance dashboards.

Historical demands for services provide insights as to how service demand changes from year to year as well as what future demands may be.



Figure 103: Annual Service Demand (2016-2020)



Across the last five years, annual service demand for the District experienced a 5.6% increase from 2016 to 2017 and a 9.2% increase from 2018 to 2019. In March of 2020, the COVID-19 pandemic impacted communities worldwide and, in many cases, resulted in a decrease in service demand as people were afraid to leave their homes or enter healthcare facilities. The reduction in demand in 2020 essentially reversed the 9.2% increase seen in 2019. However, as communities are returning to normal, most fire rescue organizations are experiencing an increase in service demand for 2021.

Service Demand (Historical Data Driven Analysis)

In addition to annual calls for service, the types of calls and their relative frequencies of occurrence are important elements to consider for the overall deployment and management of the department. Categories used in this analysis are based on the National Fire Incident Reporting System (NFIRS) guidelines for grouping of incident types. Within the NFIRS classifications, the following incident types are grouped within the corresponding series:

- 100 Fires
- 200 Overheat/Overpressure
- 300 EMS
- 400 Hazardous Conditions
- 500 Service Call
- 600 Good Intent



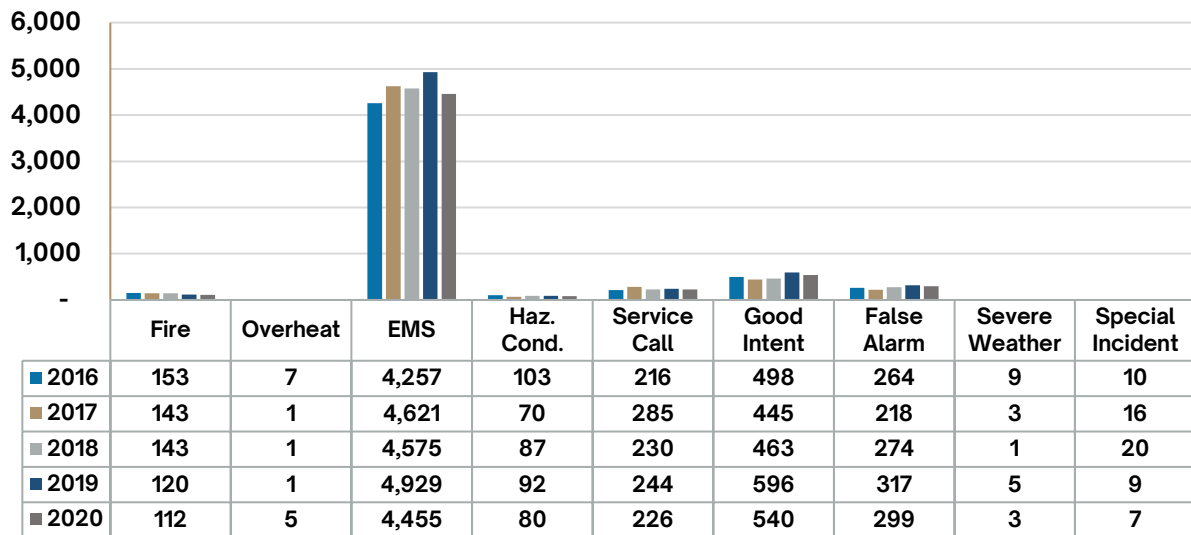
Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

- 700 False Alarms
- 800 Severe Weather
- 900 Special Incident

The following figure displays service demand during the 2016–2020 by general NFIRS classifications. First all call types are presented, followed by call types excluding EMS to provide a more detailed view of other call types.

Figure 104: Service Demand by Call Type (2016-2020)

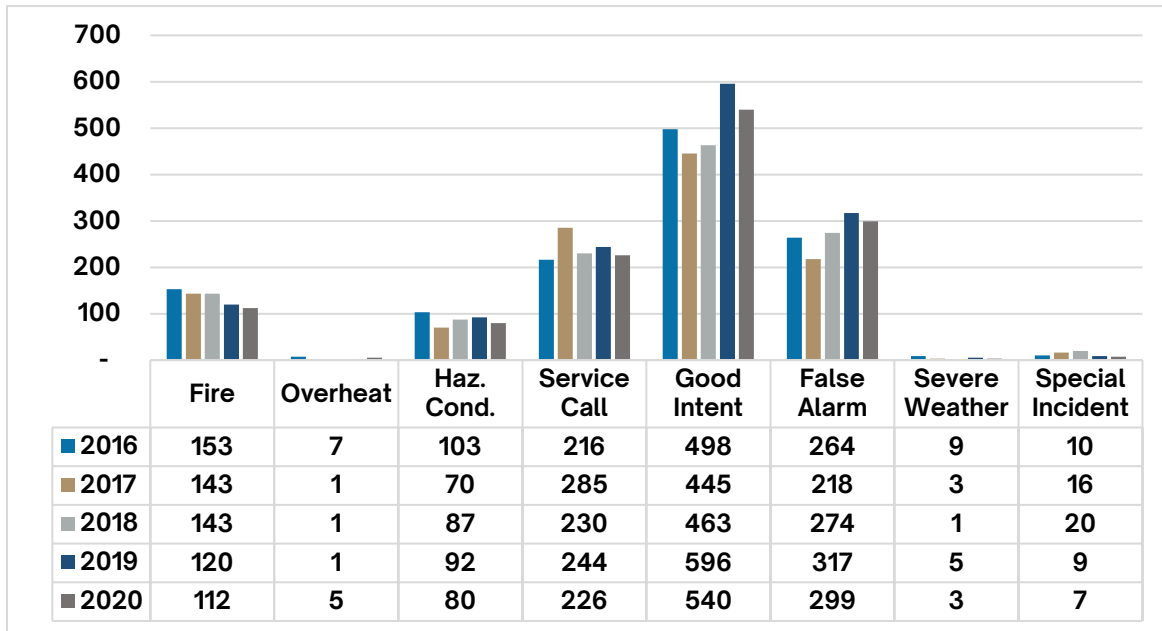




Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

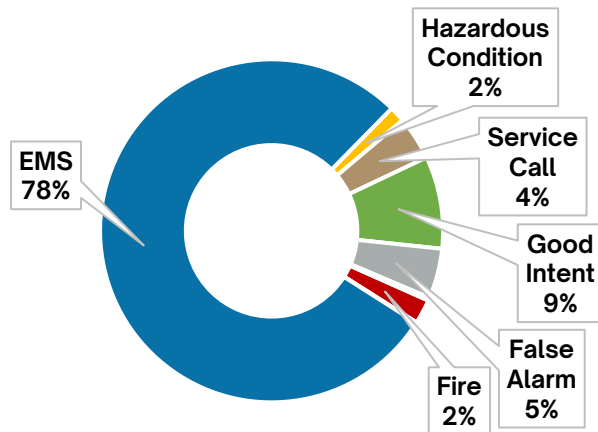
Figure 105: Service Demand by Call Type excluding EMS (2016-2020)



As an emergency transport agency, the majority of Gig Harbor's service demand was for EMS response. When comparing call type to the spike in demand observed from 2018 to 2019, EMS represented 354 calls and Good Intent (when a call is initially reported as an emergency but is found not to be) 73 calls of the 533 call increase that year. Interestingly, Good Intent call types remained elevated even during the 2020 global pandemic.



Figure 106: Demand by Incident Frequency (2016-2020)



Since its formation as a fire department, Gig Harbor & Fire Medic One evolved into a fire and rescue organization with nearly 80% of its call volume related to EMS. Fires, representing 2%, are within normal levels for an organization of this type, and the nonemergency call types Service Calls (4.1%), and Good Intent (8.7%) are relatively low.

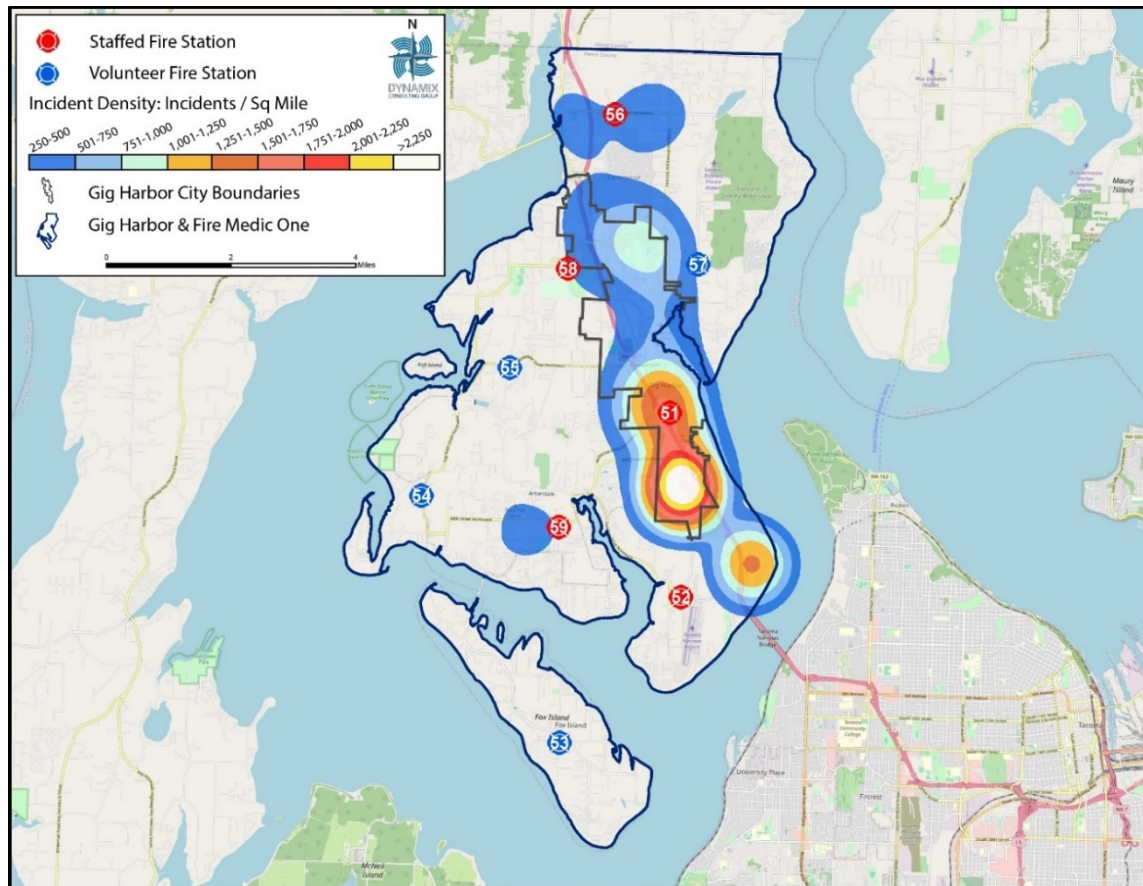
Additionally, False Alarms at 4.7% typically indicate a strong Fire Prevention program within the community with low numbers of incidents occurring as a result of faulty fire detection and suppression systems. Due to a lack of emergency versus nonemergency call type classifications and event consequence loss and save data, Gig Harbor should classify incidents by response type and evaluate these metrics by planning zone.

Location of Calls

Understanding where incidents have occurred and are likely to reoccur in the future is a critical element for improving current performance and planning future deployment needs. Figure 11 illustrates an analysis of incident density using three years of fire rescue response data from 2018 through 2020. This analysis, commonly referred to as a Hot Spot Mapping, calculates areas of greatest demand based on the density of incidents within an area. This analysis does not indicate how many calls actually occurred within each ring, but instead provides a way to compare each area to one another. In this analysis, each ring is calculated to display incidents per square mile and provides a range of how densely located calls for service were to each other.



Figure 107: Emergency Incident Density 2018-2020



As observed in this figure, service demand generally lies along State Road 16 through the City of Gig Harbor, with pockets also occurring near stations 56 and 59. This type of analysis can provide indications of the suitability of fire station placement as well as the general deployment methodology.

Frequency of Calls

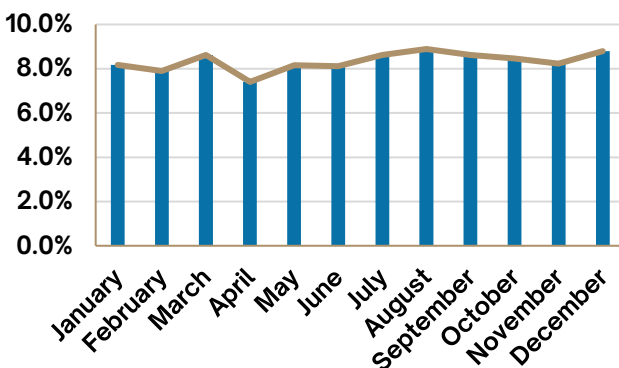
For fire rescue organizations, incidents tend to occur at certain times of day or change throughout the year. Understanding when peak demand times will happen and staffing appropriately for these times will assist Gig Harbor in ensuring resource availability, as well as scheduling training and other required events.



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Figure 108: Incident Frequency by Month (2018-2020)



When observing annual patterns, Gig Harbor follows a typical pattern of increased activity during the warmer summer months, then decreasing during the winter with a spike in activity during the holidays. Additionally, this figure shows an increase in March which could be related to Spring Break for students with an immediate decline in April.

Figure 109: Incident Frequency by Day (2018-2020)

Observing demand by day or week, another typical pattern emerges with activity increasing during the workweek and decreasing on weekends. Based on this chart, Gig Harbor & Fire Medic One should consider scheduling training and other events during the middle of the week, as Fridays historically represent the most active days followed by Mondays.

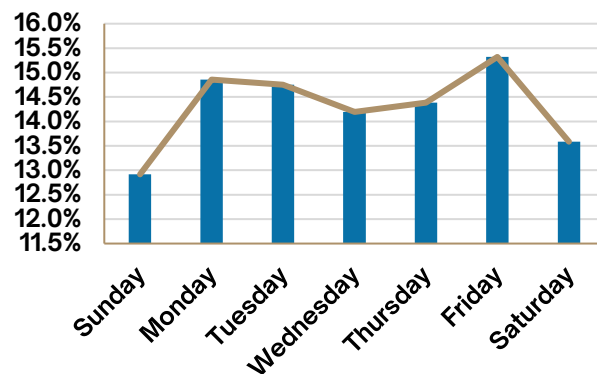
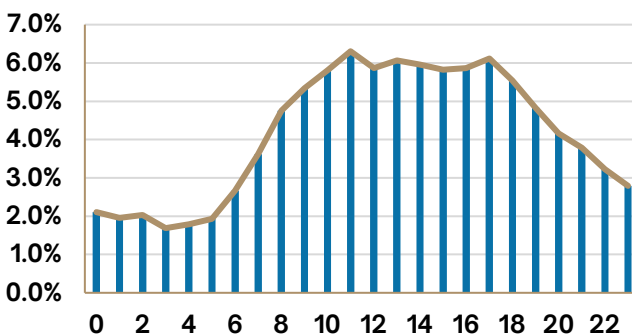


Figure 110: Incident Frequency by Hour (2018-2020)

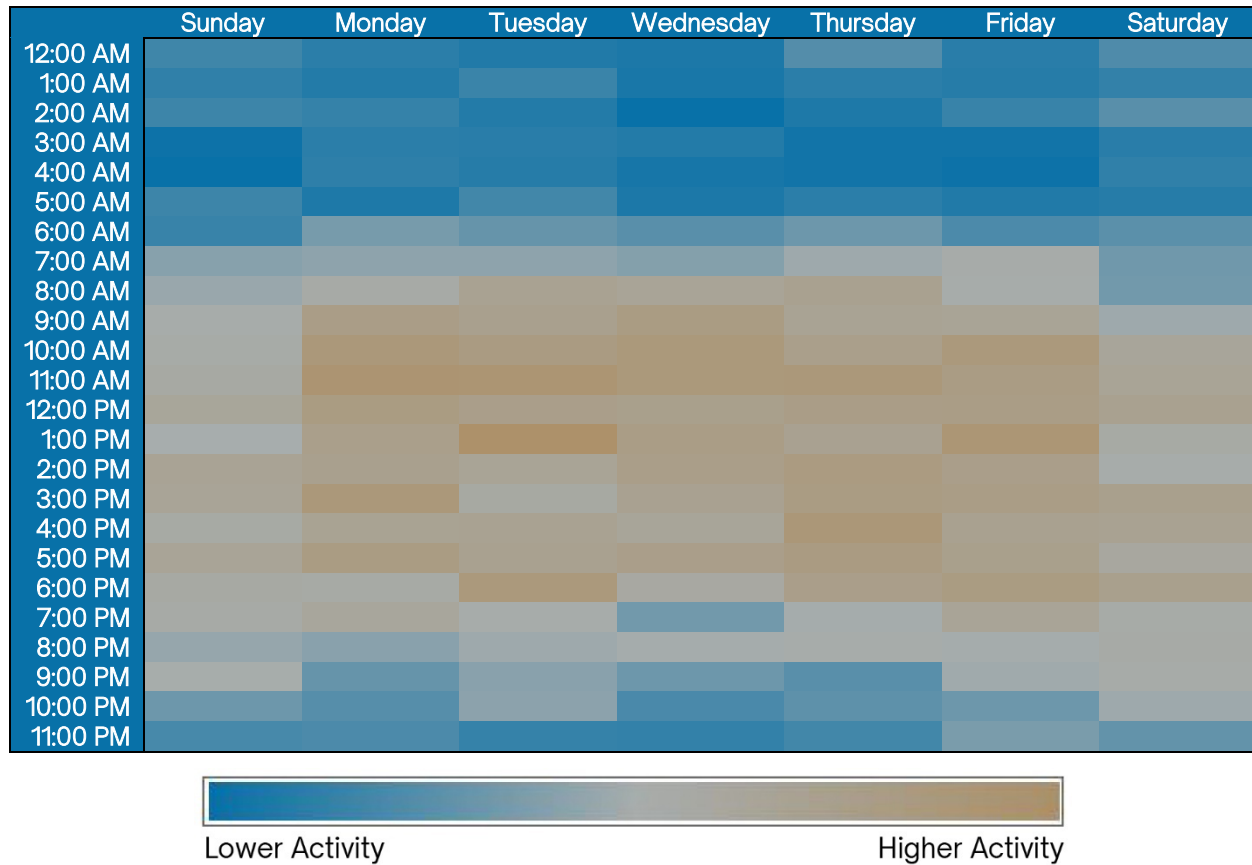


Finally, displayed is demand for services by the hour of day. Once again, evident is a normal pattern of demand as activity increases in the morning, peaks during midday through the afternoon, and subsides in the evenings.

Next, to tie together the elements of day of week and time of day that incidents occurred, provided is a heat map graph of service demand by the day of week and the hour of the day as a tool to assist in identifying when low and high activity periods are occurring within the District.



Figure 111: Activity Heat Map (2018-2020)



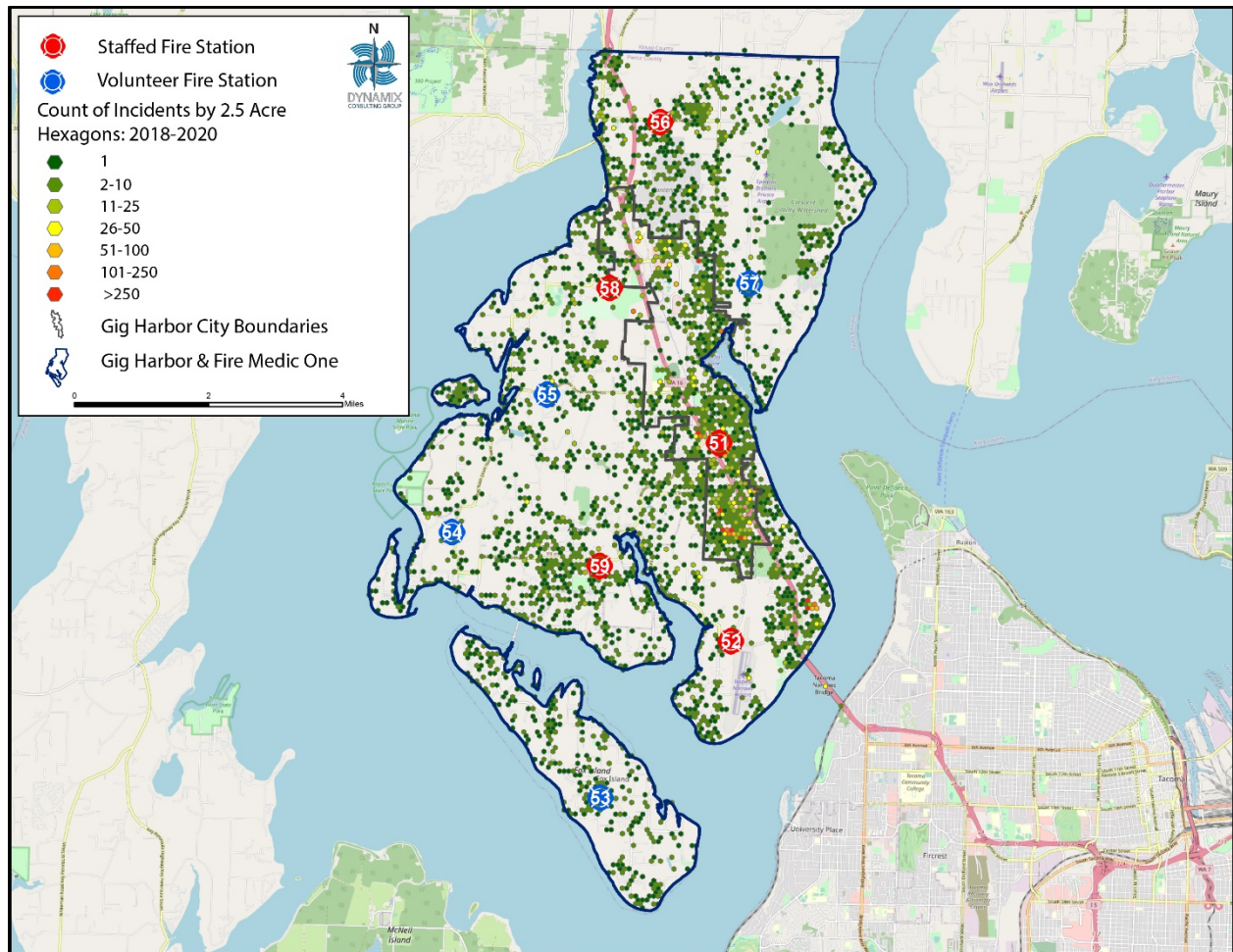
Finally, using GIS software, the District was subdivided into 2.5 acre hexagons and historical incident locations were grouped into each. Displayed within each hexagon, is a count of how many incidents occurred within each from 2018 through 2020.



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Figure 112: Incident Frequency by 2.5 Acre Hexagons 2018-2020



This figure illustrates the difficulty Gig Harbor & Fire Medic One experience in delivering services districtwide. While within the City of Gig Harbor areas of high activity (yellows to reds) exist, outside of the City multiple incidents occur, but in very low frequency for a given area. Additionally, access to islands provides additional challenges for the department.



8. EVALUATION OF CURRENT DEPLOYMENT AND PERFORMANCE

The evaluation and reporting of performance to both internal and external stakeholders is a critical component of a Standards of Cover. Additionally, evaluation of specific risk categories and the response Gig Harbor & Fire Medic One provides ensure that the department is as prepared as possible to mitigate a given hazard. Presented in this section are the methodology, evaluation, critical task analysis, and performance, presented to provide an assessment of Gig Harbor & Fire Medic One's ability to provide services and recommendations for the future improvement of services.

Evaluation Methodology

To evaluate the performance of Gig Harbor & Fire Medic One, the following methodology was used to develop the performance metrics contained in this section.

Gig Harbor & Fire Medic One currently does not identify responses as emergency or nonemergency, does not possess a classification system with response goals based upon the nature and severity of the risk, and does not have an established system for Response Performance Zones (RPZ). To provide Gig Harbor & Fire

Medic One a foundation for future planning, the five fire suppression districts serve as planning zones to evaluate risk throughout the District. Gig Harbor is unique in that its roadways wind and meander across the District and do not permit for speeds above 30 to 40 miles per hour in many places, particularly when driving large apparatus. Additionally, scattered

Figure 113: Station 53





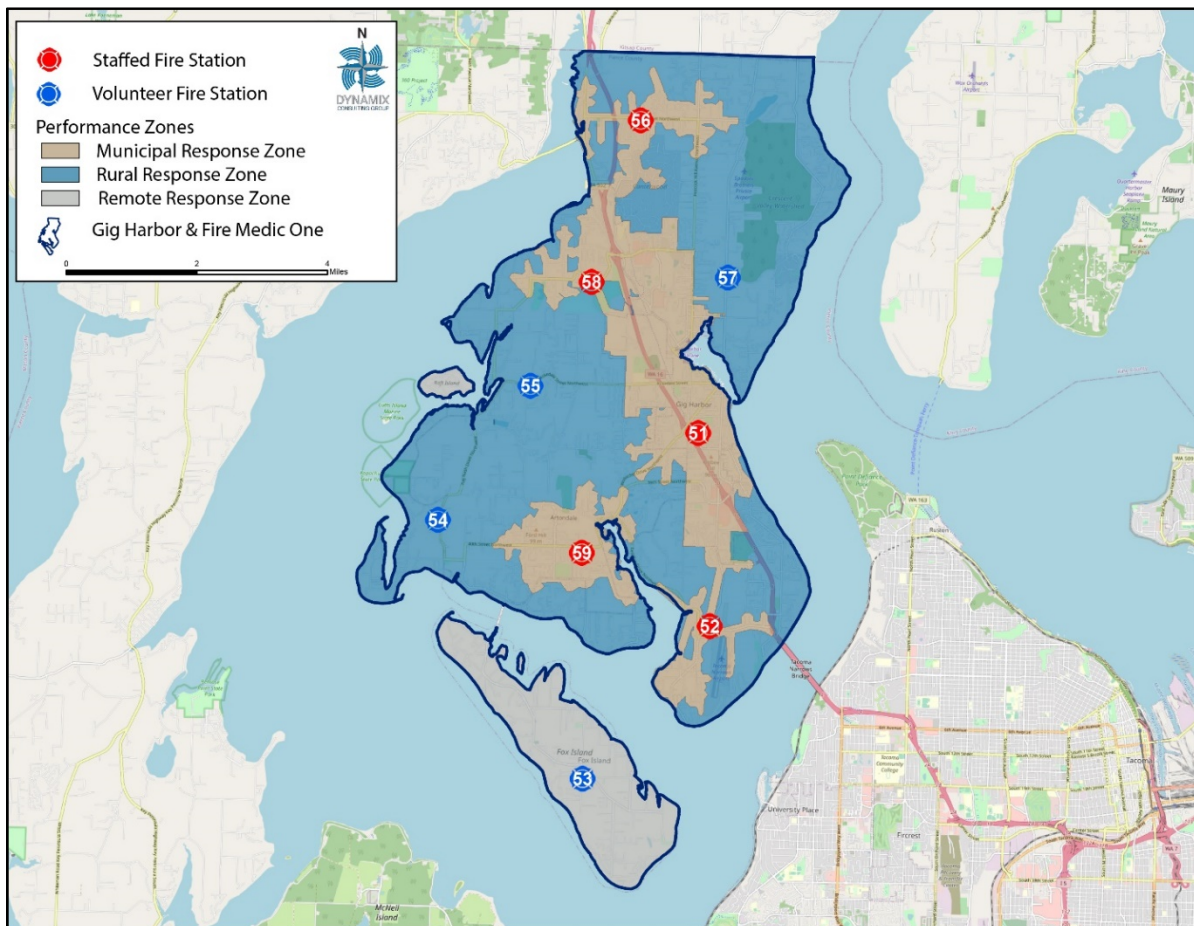
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throughout the District outside of the City of Gig Harbor, are clusters of densely populated areas, making it difficult to provide uniform response performance based upon population density. Because of this, the proximity to a staffed fire station is a better indicator of performance than population density in the rural areas of the District and results align closely with performance within the City of Gig Harbor (travel times at the 90th percentile produced results within 0.5% of each other). The following criteria served to create these zones:

- **Municipal Response Area:** Within the City of Gig Harbor and areas within 1.5 miles of a staffed fire station.
- **Rural Response Area:** All areas within the District attached to the Kitsap Peninsula.
- **Remote Response Zones:** Fox Island and Raft Island

Figure 114: Gig Harbor & Fire Medic One Response Performance Zones





NFIRS data coding determined whether a call was emergency or nonemergency. As this is an evaluation of emergency response performance, the analysis required the removal of nonemergency call types such as cancelled enroute or assist other agency as these call types are typically nonemergent and not representative of true emergency responses. The removed NFIRS call types were:

- 500 – Service Call
- 600 – Good Intent
- 800 – Severe Weather
- 900 – Special Incident

In addition to call typing, thresholds were applied to times recorded within the data to eliminate obvious outliers and present only clean data. Removed from each of the following metrics were the following exclusions:

- **Call Processing:** Events > 15 minutes
- **Turnout:** Events > 15 minutes
- **Travel:** Events > 30 minutes
- **Response:** Events > 30 minutes
- **Total Response:** Events > 30 minutes

Calculations include performance for all metrics at the 90th percentile using a combination of CAD and RMS data from 2018 through 2020.

Limitations to this evaluation include:

1. A lack of detail within data pertaining to first due districts. This is a result of varied recording methods of station first due districts. Records provided include both career and volunteer station first due areas; however, the evaluation carved and divided the volunteer districts among staffed stations.
13. Variations between CAD and RMS data necessitated the use of CAD metrics to evaluate performance. There currently exists no straightforward method to combine CAD and RMS information or to identify true emergency calls, outliers, or reconcile missing records. A new RMS program, ESO, introduced in late 2020 and a contract for services executed with the emergency performance software company, Intterra, will allow the department to correct data reporting and quality issues moving forward. Recommended is a daily quality assurance program be implemented to ensure the accuracy and validity of future data. Additionally, include fields to indicate that each report was reviewed, whether the response was emergent, the risk category of that



incident, and if the response encountered unusual issues and not be reported in the final performance evaluation.

14. Because the data did not contain fields to indicate whether a response was emergency or nonemergency, the final determinant or NFIRS code applied, sorted out probable emergency and nonemergency calls. Additionally, some data loss occurred due to a lack of pairing between CAD data and NFIRS coding from the RMS data.

Reliability

The availability of resources capable of responding to an incident is essential to ensure a consistent response and reliability of services. Used to evaluate system reliability are the metrics of call concurrency and Unit Hour Utilization (UHU), which provide an understanding of crew activity levels and how likely it would be that all resources are available at any given time. First, call concurrency compares the frequency of how often multiple calls are occurring within the District. To achieve an effective response force and plan for the mitigation of moderate and high-risk occupancies when these incidents occur, requires is an understanding of the likelihood of unit availability.

Figure 115: Overall Call Concurrency 2018-2020

Call Concurrency	
Single Incident	50.1%
2	33.4%
3	12.1%
4	3.3%
5 or More	1.1%

When an incident occurs within the District, approximately half of the time it is a single incident. However, this also means that the other half of the time multiple incidents and crews are committed to other responses. Gig Harbor & Fire Medic One maintains several mutual and automatic aid agreements with neighboring jurisdictions to provide assistance when needed. When developing response plans for the District, consider call concurrency and unit availability.

Unit Hour Utilization is a measure of crew activity and an indicator of how likely a given unit is available for response. It measures the relationship between the amount of time a crew is committed to a response over a given period of time. Since the industry standard is to measure performance at the 90th percentile, UHU rates greater than 10% may result in a unit being unavailable to respond 90% of the time another unit is available. Typically, UHUs



of less than 20% indicate that the crew should have sufficient time to respond to calls and complete other duties and required training. Units with UHUs from 20% to 30% are approaching a range where performing duties other than response becomes difficult and fatigue and burnout can become issues. For units in this range, planning should be underway to add an additional number of resources to reduce the UHU rate. Finally, UHUs in excess of 30% require immediate intervention. Crews operating at this level and greater are at an increased risk for severe fatigue, burnout, mistakes, and accidents. Understanding and monitoring UHU allows for proper planning to ensure that units are available for response and that crews are prepared to respond to emergencies.



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Figure 116: Unit Hour Utilization by Career Staffed Units 2018-2020

Unit	Number of Calls	Average Time On Scene	90th Percentile On Scene	Sum	UHU
AIR56	184	0:34:38	1:16:18	106:12:23	0.4%
BC51	2274	0:27:56	0:55:23	1058:32:16	4.0%
BR52	4	0:51:25	1:32:58	3:25:41	0.0%
CHF501	3	2:27:27	2:36:07	7:22:22	0.0%
CHF502	18	3:02:35	4:13:26	54:46:25	0.2%
CHF503	46	1:00:13	2:58:11	46:10:14	0.2%
CHF504	22	1:16:15	2:56:15	27:57:31	0.1%
CHF505	9	3:36:33	9:36:36	32:29:01	0.1%
CHF506	75	0:31:46	1:12:30	39:42:16	0.2%
CHF507	7	3:16:24	7:27:38	22:54:47	0.1%
CHF508	1	2:37:52	2:37:52	2:37:52	0.0%
CHF509	49	1:00:30	2:56:17	49:24:25	0.2%
E51	5621	0:27:02	0:45:06	2533:16:09	9.6%
E52	3440	0:29:16	0:45:57	1677:55:19	6.4%
E56	3362	0:29:00	0:49:40	1625:11:57	6.2%
E58	1884	0:27:05	0:46:55	850:21:16	3.2%
E59	3652	0:30:21	0:52:37	1847:47:48	7.0%
HM59	18	3:02:36	7:31:52	54:46:53	0.2%
M51	6803	0:44:20	1:19:18	5027:23:16	19.1%
M58	5216	0:47:06	1:25:48	4095:08:22	15.6%
M59	4143	0:56:44	1:40:54	3917:35:14	14.9%
MSO51	1606	0:29:09	0:52:11	780:10:39	3.0%
PIO50	4	2:25:37	4:23:22	9:42:26	0.0%
RES58	2656	0:28:39	0:46:34	1267:57:46	4.8%
TEN52	15	1:18:56	1:52:33	19:43:56	0.1%
TEN56	50	0:57:43	1:55:51	48:06:12	0.2%

Gig Harbor & Fire Medic One's transport units, Medic 51, Medic 58, and M59, possess the highest UHU rates for the District. This is an anticipated finding as EMS represents nearly 80% of the District's demand for services and transport units have the additional task of transporting patients to the hospital after other units clear the scene. While currently within an acceptable range of activity, planning for adding an additional transport unit should begin immediately.



Performance Determinations

Using the Response Performance Zones described at the beginning of this section, Gig Harbor & Fire Medic One's performance for key areas of service delivery were evaluated. Presented for each metric is a description and depiction of Districtwide performance, followed by the performance within each performance zone.

Response Time Continuum

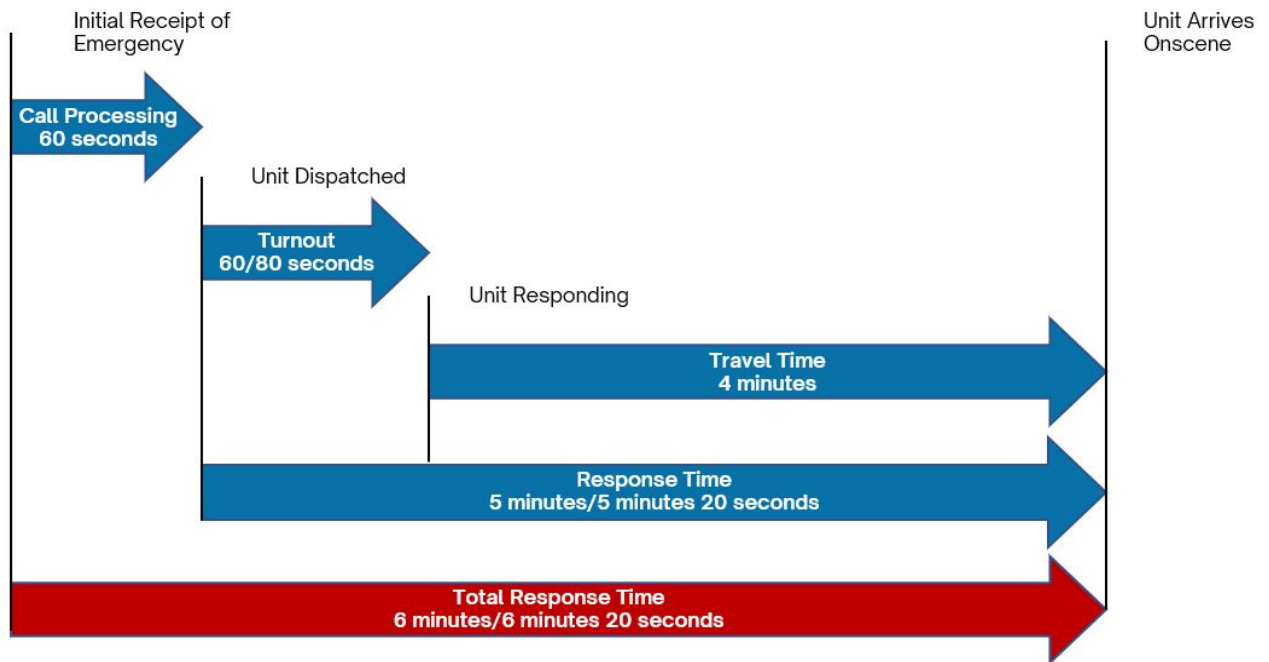
The response time continuum, or Total Response Time as described in NFPA 1710, is comprised of multiple elements measured and evaluated individually. Initially, the process begins with the receipt and dispatch of an emergency call or call processing. This step is typically out of a fire department's control and is often a neglected metric of evaluating performance.

Following the initial notification or dispatch, crews must assemble at the apparatus, don applicable safety equipment, and begin the response. The turnout time standard for fire and special operations is 80 seconds while most other calls are 60 seconds. This step, known as turnout time, is entirely within the control of the fire department to manage performance expectations.

Once the vehicle is in motion, travel time begins and concludes when crews reach the scene of the incident. NFPA 1710 sets performance standards for each of these steps. Response time is a measure of turnout and travel time as one metric and total response time is the time that the end user experiences as the time elapsing between initially reporting the emergency and the arrival of first arriving crews.



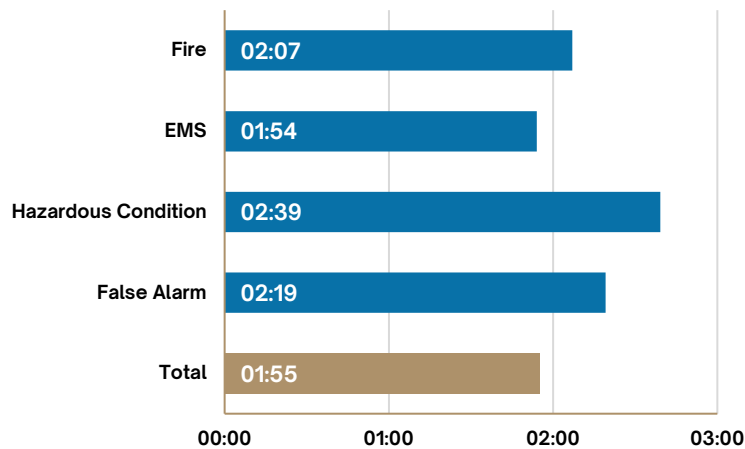
Figure 117: Response Time Continuum





Call Processing

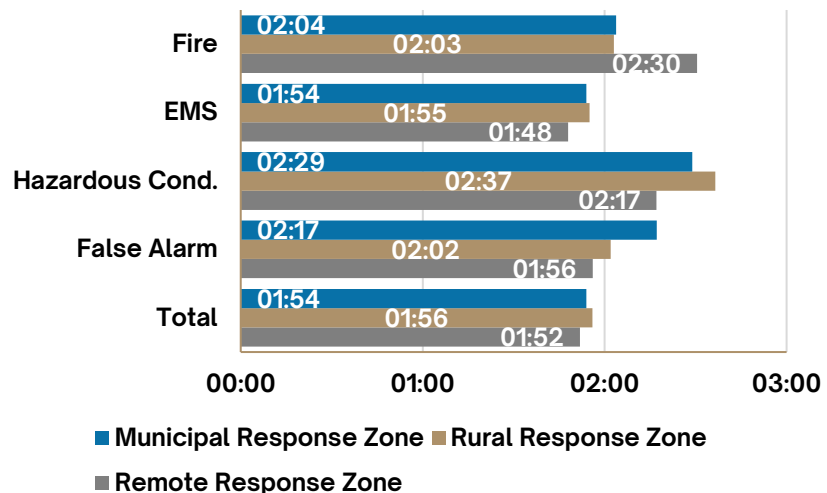
Figure 118: Overall Call Processing 2018-2020



Call processing is a measure of the time from initial receipt of an emergency call until a responding unit is dispatched measured at the 90th percentile. For all incidents within the Gig Harbor & Fire Medic One District, the total call processing time provided by South Sound 911 was 1 minute 55 seconds. NFPA 1710 calls for call processing times of 60 seconds.

Figure 119: Call Processing by RPZ 2018-2020

Call processing for fires in the remote response zone experienced a 21% increase over the municipal and rural zones while EMS calls, which represent the majority of incidents, were processed the fastest. Although most communication centers cannot meet the requirements of NFPA 1710, it serves as an appropriate goal.

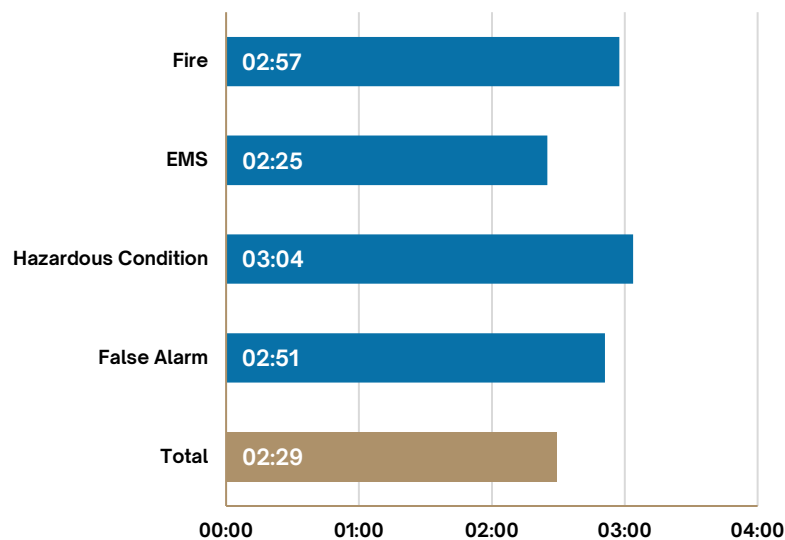




Turnout Time Performance

Turnout time performance measures how quickly crews can respond to the initial notification of an incident and begin traveling to the scene. NFPA 1710 calls for turnout times of 80 seconds for fire and special operations responses and 60 seconds for all other emergency responses.

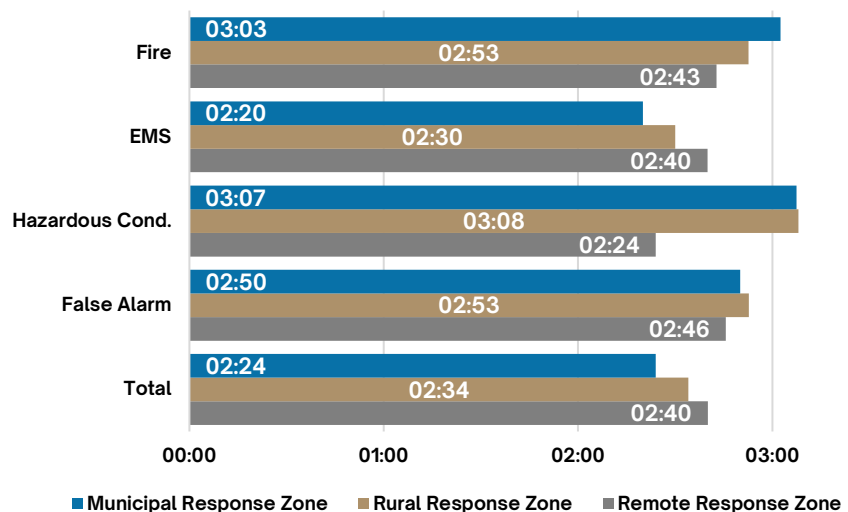
Figure 120: Turnout Performance 2018-2020



Overall, turnout time exceeded industry standards in each call type. Several factors can affect turnout performance such as station design, cross-staffing apparatus, and other physical elements. Gig Harbor should monitor turnout times and regularly inform internal and external stakeholders of performance.

Figure 121: Turnout Performance by RPZ 2018-2020

When analyzed by response performance zone, fires and hazardous condition incidents possess the greatest turnout times while EMS responses are the quickest. Turnout times to remote areas were 20 seconds faster than those to the municipal service area.





Travel Time Performance

Travel time performance is typically a function of the distance from the fire station to the incident. In the rural and remote zones in particular, the road network lacks the connectivity usually found in urban settings, which reduces travel speeds. Travel time begins when the apparatus begins driving to the scene and ends when the crews reach the incident.

Figure 122: Travel Performance 2018-2020

The overall travel performance of the District at the 90th percentile was 9 minutes 59 seconds. EMS responses were the fastest at 9 minutes 44 seconds with fires and false alarms exceeding 11 minutes and hazardous conditions responses exceeding 14 minutes.

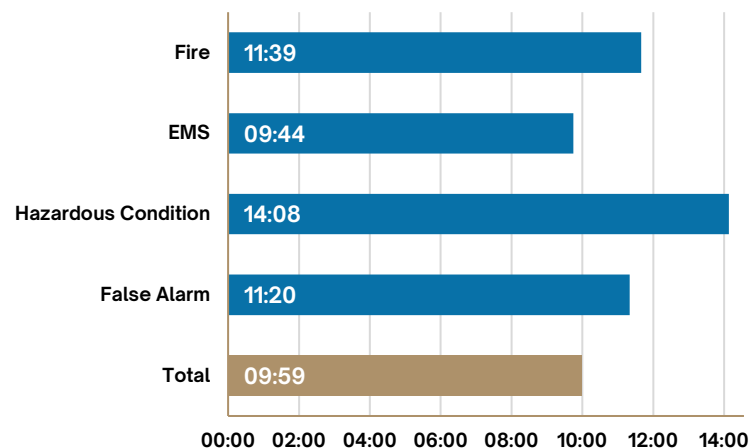
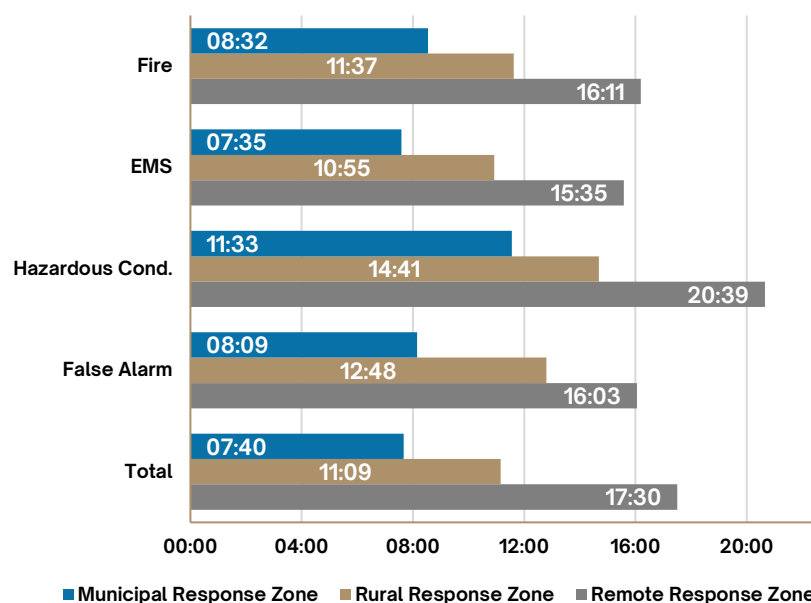


Figure 123: Travel Performance by RPZ 2018-2020



When comparing travel performance by response performance zone, the differences in Gig Harbor & Fire Medic One's ability to respond within different areas of the District are clear. Although travel times are nearly double NFPA 1710 standards (4 minutes), performance at the 90th percentile between the municipal and remote zones is stark.

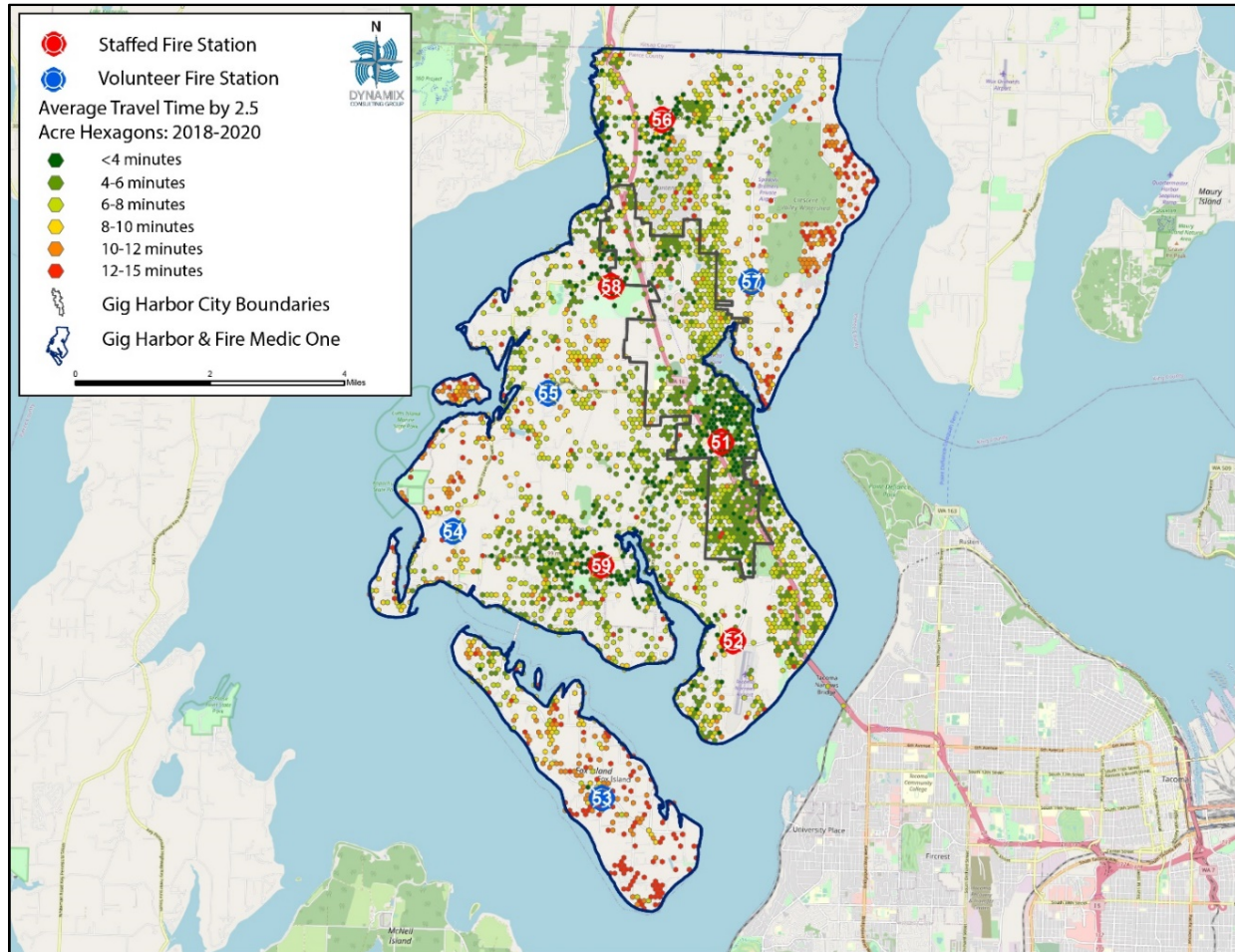


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When observing the travel time performance in the figure below, the patterns of response within the City of Gig Harbor and in proximity of fire stations can be seen, as well as extended travel times elsewhere in the District. Using GIS software, the District was divided into 2.5 acre hexagons and the average travel time for incidents located within a given hexagon were calculated.

Figure 124: Average Emergency Travel Time by 2.5 Acre Hexagons 2018-2020



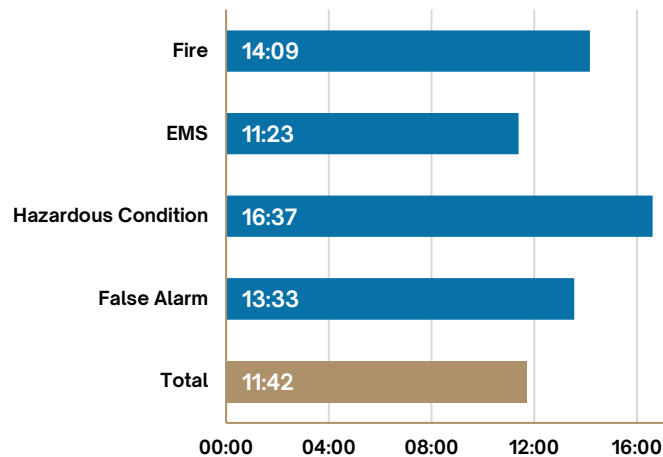
While not based specifically in NFPA 1710, this figure is informative and provides the spatial patterns of current response capabilities for Gig Harbor & Fire Medic One.



Response Time Performance

Response time performance, although not specifically cited in NFPA 1710, can provide fire departments with an assessment of overall internal performance. This metric measures the performance from initial dispatch of an emergency call until the first unit arrives onscene.

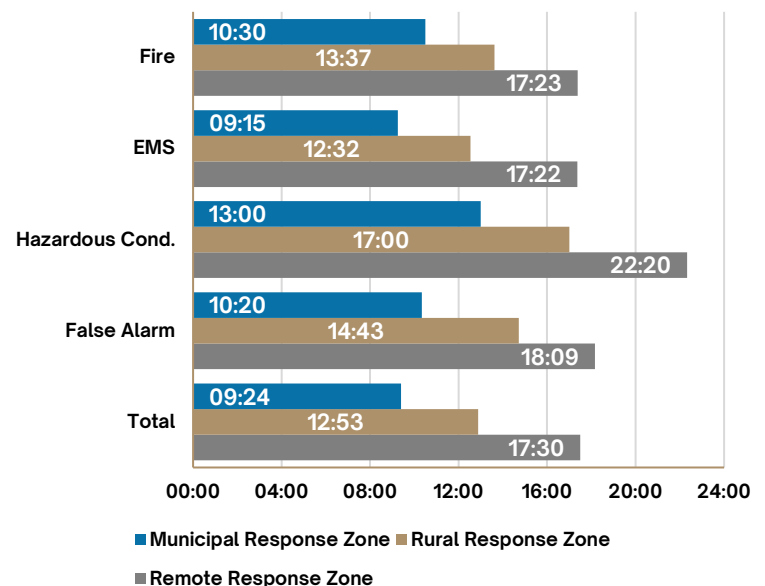
Response Performance 2018-2020



When evaluating Gig Harbor & Fire Medic One performance districtwide, overall response time is 11 minutes and 42 seconds at the 90th percentile. Fire responses were 14 minutes 9 seconds and EMS responses 11 minutes 23 seconds.

Similar to travel times, when evaluating performance by response performance zones, the differences in capabilities based on the location of the incident are apparent. Within the municipal zone, fire responses occurred within 10 minutes 30 seconds or less at the 90th percentile while EMS performance measured at 9 minutes 15 seconds.

Response Performance by RPZ 2018-2020



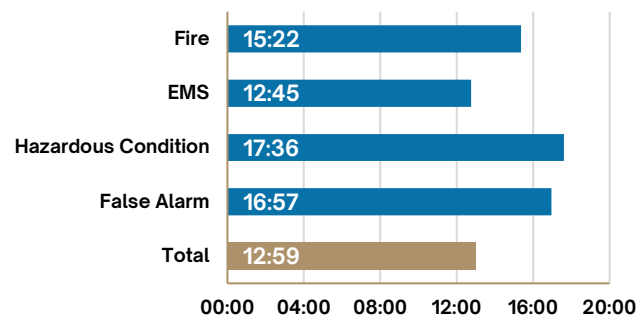


Total Response Time

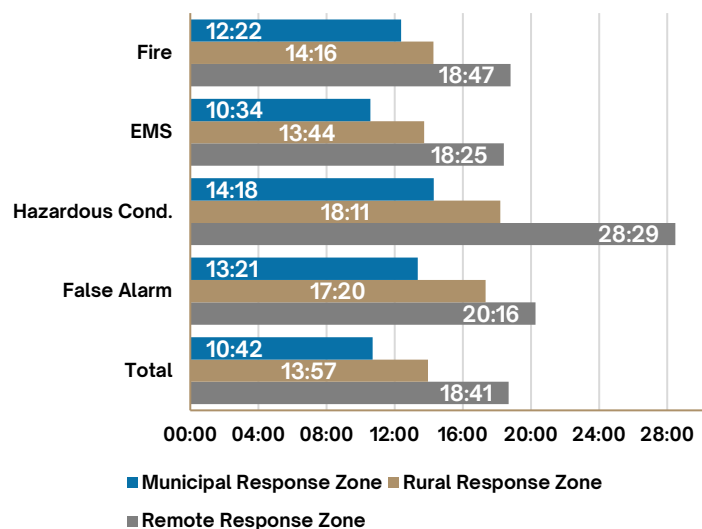
Total Response Time represents the amount of time between the answering of an emergency call at the communications center and when the first emergency unit arrives onscene. This metric provides the actual experience of the person placing the emergency call and sets the community's expectation how long they can expect to wait before units arrive 90% of the time. For the purposes of accreditation, each department establishes total response time goals for each risk type and level of risk; however, since the call processing component is out of Gig Harbor & Fire Medic One's hands, setting internal goals for turnout or response time may better serve the department and the community.

Total Response Time Performance 2018-2020

Total response time for all incidents within the District is just below 13 minutes at 12 minutes 59 seconds. For fires, 15 minutes 22 seconds elapsed between the initial report of the fire and the arrival of the first responding unit and responders arrived onscene of EMS calls in 12 minutes 45 seconds or better 90% of the time.



Response Performance by RPZ 2018-2020



As call processing is added as the final element of total response time, the gap between the municipal, rural, and remote performance zones diminishes. Except for hazardous conditions, the differences and potential cause of extended responses becomes less clear. Gig Harbor should regularly track and evaluate all elements of the response time continuum.



Performance Goals and Measures

Gig Harbor & Fire Medic One have made the commitment to provide the highest levels of service possible for the District based upon the resources provided. While additional infrastructure and staffing would provide future improvements, these improvements must be sustainable and a balance must be achieved between performance, community expectations, and their ability to support it. With this in mind, this section provides Gig Harbor & Fire Medic One's performance baselines (current performance), benchmarks (industry standard), and organizational goals based on the current system. Measures of the performance metrics provided are at the 90th percentile, meaning that performance will meet or exceed the stated performance 90% of the time. These performance metrics cover each of Gig Harbor & Fire Medic One's primary response missions following Center for Public Safety Excellence (CPSE) methodologies.

As described in the Performance Determinations section, the Response Time Continuum consists of several components, ultimately resulting in Total Response Time Performance. For the first two metrics, Call Processing and Turnout, systemwide standards were established.

Systemwide Standards

Call Processing

Call Processing is the amount of time taken to answer an emergency call and dispatch a responding unit. South Sound 911 provides Emergency Communications dispatch for Gig Harbor & Fire Medic One. While Call Processing lies outside of the direct control of Gig Harbor, the organization is committed to working with South Sound 911 and its other supporting agencies to identify ways to improve performance. For the purposes of data collection and evaluation, records with zero time stamps or in excess of 10 minutes were excluded as outliers.

- **Overall Baseline Performance (2018-2020)**
 - 1 minute 55 seconds at the 90th percentile
- **Overall Benchmark Goal**
 - 60 seconds at the 90th percentile
- **Organizational Goal**
 - 1 minute 30 seconds at the 90th percentile



Turnout Time

Turnout Time performance is the time from unit notification of an incident until that unit begins responding from its location. Turnout performance is a performance metric completely within the control of Gig Harbor & Fire Medic One, although logically impacted by multiple factors such as station design, deployment methodologies (i.e., cross staffing units), or the ways in which crews are alerted to a call. In calculating performance, excluded as outliers are time stamps containing zeros or those exceeding 15 minutes.

- **Overall Baseline Performance (2018-2020)**
 - 2 minutes 57 seconds for fires or responses requiring the donning of structural gear at the 90th percentile
 - 2 minutes 25 seconds for all others at the 90th percentile
- **Overall Benchmark Goal**
 - 80 seconds for fire and special operations at the 90th percentile
 - 60 seconds for all others at the 90th percentile
- **Organizational Goal**
 - 2 minute 20 seconds for fires or responses requiring the donning of structural gear at the 90th percentile
 - 80 seconds for all others at the 90th percentile

Response Performance Zone Standards

Due to the nature of the Gig Harbor & Fire Medic One Fire Protection District and its deployment challenges, the District subdivided into Response Performance Zones that provide the community with more specific performance expectation standards than a simple districtwide goal could attain. The definitions of each Response Performance Zone are as follows:

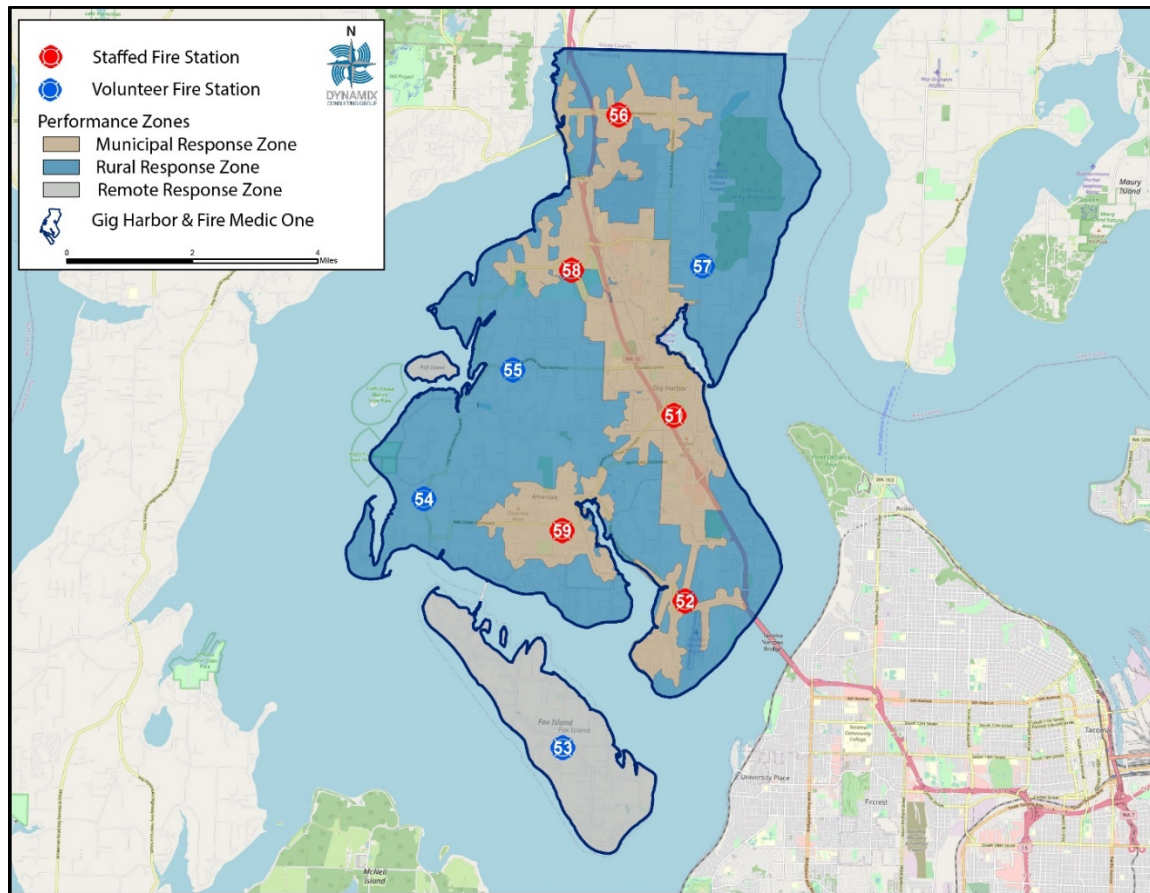
- **Municipal Response Zone:** The municipal boundaries of the City of Gig Harbor and areas lying within 1.5 miles of a staffed fire station.
- **Rural Response Zone:** All other areas outside of the Municipal Response Zone and connected to the Kitsap Peninsula.
- **Remote Response Zone:** Fox Island, Rabbit Island, and Tanglewood Island.



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Figure 125: Gig Harbor & Fire Medic One Response Performance Zones



While Total Response Time represents the actual performance experienced by the community, this metric incorporates elements outside of the control of Gig Harbor & Fire Medic One. For this reason, Response Time Performance standards serve as an additional internal performance metric in addition to Total Response Time baselines and goals. In addition to goals for the arrival of the first unit, or distribution of resources, also required are goals for the concentration of resources (the department's ability to assemble an Effective Response Force, Figure 126). At this time, data quality is insufficient to provide effective response force calculations for performance; however, beginning in January of 2020 with the migration to the ESO RMS and Intterra dashboard platform this data is now being collected for future evaluation. Provided for each criterion are minimum staffing goals based upon risk and severity. While providing first due units quickly to an emergency scene, it is paramount that enough resources assemble within a certain period of time to safely and effectively mitigate a hazard.



Response Time Performance

Response Time is a combination of turnout and travel time (the time when a unit departs for an incident until it arrives onscene) or the time from the initial notification of a unit until the first unit arrives onscene. Excluded from the evaluation of this metric are time stamps containing zeros or those in excess of 30 minutes.

Provided within this section are Gig Harbor & Fire Medic One's response performance standards and goals based upon the risk and magnitude of the incident.

Criterion 5E: Fire Suppression

This category includes fire suppression responses except for wildland. Performance metrics provided are for the first arriving company.

Municipal Response Zone

- **Baseline Performance (2018-2020)**
 - 10 minutes 30 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 9 minutes at the 90th percentile

Rural Response Zone

- **Baseline Performance (2018-2020)**
 - 13 minutes 37 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 12 minutes at the 90th percentile

Remote Response Zone

- **Baseline Performance (2018-2020)**
 - 17 minutes 23 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 16 minutes at the 90th percentile



Criterion 5F: Emergency Medical Services

Emergency Medical Services includes out of hospital emergency medical care.

Municipal Response Zone

- **Baseline Performance (2018-2020)**
 - 9 minutes 15 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 8 minutes at the 90th percentile

Rural Response Zone

- **Baseline Performance (2018-2020)**
 - 12 minutes 32 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 11 minutes at the 90th percentile

Remote Response Zone

- **Baseline Performance (2018-2020)**
 - 17 minutes 22 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 16 minutes at the 90th percentile



Criterion 5G: Technical Rescue

Technical rescue includes advanced rescue functions such as high angle, confined space, vehicle and machinery, swift water, trench rescue, and structural collapse.

Municipal Response Zone

- **Baseline Performance (2018-2020)**
 - 9 minutes 15 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 8 minutes at the 90th percentile

Rural Response Zone

- **Baseline Performance (2018-2020)**
 - 12 minutes 32 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 11 minutes at the 90th percentile

Remote Response Zone

- **Baseline Performance (2018-2020)**
 - 17 minutes 22 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 16 minutes at the 90th percentile



Criterion 5H: Hazardous Materials

Gig Harbor & Fire Medic One provides the initial hazard identification, containment, and establishes the perimeter. Pierce County Hazardous Incident Team provided mitigation of the incident.

Municipal Response Zone

- **Baseline Performance (2018-2020)**
 - 13 minutes at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 11 minutes 30 seconds at the 90th percentile

Rural Response Zone

- **Baseline Performance (2018-2020)**
 - 17 minutes at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 15 minutes 30 seconds at the 90th percentile

Remote Response Zone

- **Baseline Performance (2018-2020)**
 - 22 minutes 20 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 21 minutes at the 90th percentile



Criterion 5K: Wildland Fire Services

Wildland responses include those in wooded rural areas, as well as within the Wildland Urban Interface (WUI).

Municipal Response Zone

- **Baseline Performance (2018-2020)**
 - 10 minutes 30 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 9 minutes at the 90th percentile

Rural Response Zone

- **Baseline Performance (2018-2020)**
 - 13 minutes 37 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 12 minutes at the 90th percentile

Remote Response Zone

- **Baseline Performance (2018-2020)**
 - 17 minutes 23 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 16 minutes at the 90th percentile



Total Response Time Performance

Total Response Time is the culmination of the response time continuum and begins when the communications center receives the initial call for service and ends with the arrival of the first unit on scene. Excluded for the evaluation of this metric are time stamps containing zeros or those in excess of 30 minutes.

Provided within this section are Gig Harbor & Fire Medic One's Total Response performance standards and goals based upon the risk and magnitude of the incident.

Criterion 5E: Fire Suppression

This category includes fire suppression responses except for wildland. Performance metrics provided are for the first arriving company. Each arriving engine company will have the capability of supplying at least 1,250 gallons per minute.

Municipal Response Zone

- **Baseline Performance (2018-2020)**
 - 12 minutes 22 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 11 minutes at the 90th percentile

Rural Response Zone

- **Baseline Performance (2018-2020)**
 - 14 minutes 16 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 13 minutes at the 90th percentile

Remote Response Zone

- **Baseline Performance (2018-2020)**
 - 18 minutes 47 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 17 minutes 30 seconds at the 90th percentile



*Special Response Areas

As provided within the Community Risk Assessment, certain structures are categorized as Special Risks due to the unique nature of that structure. Response performance criterion remain in place based upon that structures location; however, there is a need for a different deployment methodology due to the character of that location. Examples include islands inaccessible by road, and bridges rated below the weight of standard fire apparatus. While response performance is anticipated to remain consistent for first arriving units, the magnitude of the risk is amplified due to the challenges present at those locations.

Figure 126: Criterion 5E Fire Suppression Effective Response Force

Effective Response Force: Criterion 5E: Fire Suppression			
	Residential	Commercial	Special
Low Risk	1 BC 4 Engines 2 Medic Units 1 MSO (when staffed) 3 Tenders	N/A	1 BC 4 Engines 2 Medic Units 1 MSO (when staffed) 3 Tenders (not staffed) Fire Boat (Tacoma)
Total	18 Firefighters		18 Firefighters
Moderate Risk	1 BC 4 Engines 2 Medic Units 1 MSO (when staffed)	1 BC 4 Engines 1 Truck (Tacoma) 2 Medic Units 1 MSO (when staffed)	1 BC 4 Engines 1 Truck (Tacoma) 2 Medic Units 1 MSO (when staffed) Fire Boat (Tacoma)
Total	18 Firefighters	21 Firefighters	23 Firefighters
High Risk	1 BC 4 Engines 2 Medic Units 1 MSO (when staffed)	1 BC 4 Engines 1 Truck (Tacoma) 2 Medic Units 1 MSO (when staffed)	1 BC 4 Engines 1 Truck (Tacoma) 2 Medic Units 1 MSO (when staffed) Fire Boat (Tacoma)
Total	18 Firefighters	21 Firefighters	23 Firefighters



Criterion 5F: Emergency Medical Services

Emergency Medical Services includes out of hospital emergency medical care.

Municipal Response Zone

- **Baseline Performance (2018-2020)**
 - 10 minutes 34 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 9 minutes at the 90th percentile

Rural Response Zone

- **Baseline Performance (2018-2020)**
 - 13 minutes 44 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 12 minutes at the 90th percentile

Remote Response Zone

- **Baseline Performance (2018-2020)**
 - 18 minutes 25 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 17 minutes at the 90th percentile



Emergency Medical Services responses typically require a standard response package, whether the incident is nonemergent or critical in nature. Recognizing this, Gig Harbor & Fire Medic One have defined two categories for the assembly of an effective response force: Normal Risk and Maximum Risk.

Figure 127: Criterion 5F EMS Effective Response Force

Effective Response Force: Criterion 5F EMS	
Normal	1 Engine 1 Medic Unit
Total	5 Firefighters
Maximum	1 BC 2 Engines 1 Medic Units 1 MSO (when staffed)
Total	9 Firefighters



Criterion 5G: Technical Rescue

Technical rescue includes advanced rescue functions such as high angle, confined space, vehicle and machinery, swift water, trench rescue, and structural collapse.

Municipal Response Zone

- **Baseline Performance (2018-2020)**
 - 10 minutes 34 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 9 minutes at the 90th percentile

Rural Response Zone

- **Baseline Performance (2018-2020)**
 - 13 minutes 44 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 12 minutes at the 90th percentile

Remote Response Zone

- **Baseline Performance (2018-2020)**
 - 18 minutes 25 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 17 minutes at the 90th percentile

Figure 128: Criterion 5G Technical Rescue Effective Response Force

Effective Response Force: Criterion 5G Technical Rescue	
Low, Moderate, High	1 BC 1 Engine 1 Rescue 1 medic Unit Pierce County Special Operations Team
Total	9 Firefighters



Criterion 5H: Hazardous Materials

Gig Harbor & Fire Medic One provides the initial hazard identification, containment, and establishes the perimeter. Mitigation is provided by Pierce County Hazardous Incident Team.

Municipal Response Zone

- **Baseline Performance (2018-2020)**
 - 14 minutes 16 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 13 minutes at the 90th percentile

Rural Response Zone

- **Baseline Performance (2018-2020)**
 - 18 minutes 11 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 17 minutes 30 seconds at the 90th percentile

Remote Response Zone

- **Baseline Performance (2018-2020)**
 - 28 minutes 29 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 25 minutes at the 90th percentile

Figure 129: Criterion 5H Technical Rescue Effective Response Force

Effective Response Force: Criterion 5G Technical Rescue	
Low, Moderate, High	1 BC 4 Engines 2 Medic Units 1 Truck (Tacoma) 1 MSO Pierce County Hazardous Incident Team
Total	21 Firefighters



Criterion 5K: Wildland Fire Services

Wildland responses include those in wooded rural areas, as well as within the Wildland Urban Interface (WUI). Each engine will have the capability of supplying at least 1,250 gallons per minute and brush units 250 gallons per minute.

Municipal Response Zone

- **Baseline Performance (2018-2020)**
 - 12 minutes 22 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 11 minutes at the 90th percentile

Rural Response Zone

- **Baseline Performance (2018-2020)**
 - 14 minutes 16 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 13 minutes at the 90th percentile

Remote Response Zone

- **Baseline Performance (2018-2020)**
 - 18 minutes 47 seconds at the 90th percentile for first arriving units
- **Benchmark Goal**
 - 6 minutes 20 seconds at the 90th percentile
- **Organizational Goal**
 - 17 minutes 30 seconds at the 90th percentile



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

Figure 130: Criterion 5K Wildland Fire Services Effective Response Force

Effective Response Force: Criterion 5K Wildland	
Low Risk	1 Engine
Total	3 Firefighters
Moderate Risk	1 BC
	2 engines
	1 brush truck
	1 Medic Unit
	2 Tenders (not staffed)
Total	9 Firefighters
High Risk	1 BC
	4 engines
	1 brush truck
	1 Medic Unit
	2 Tenders (not staffed)
Total	14 Firefighters



9. PLAN FOR MAINTAINING AND IMPROVING RESPONSE CAPABILITIES

Compliance Methodology and Procedures

To ensure that Gig Harbor & Fire Medic One possess the framework to monitor, evaluate, and modify operational approaches with the objective of continuous improvement, the following outlines the compliance methodology and procedures Gig Harbor will use to sustain this process. Through the incorporation of the evaluation of multiple performance metrics, regular assessments, and stakeholder input, the District will obtain a holistic view of the organization and the pathways forward. This process will engage internal and external stakeholders using a methodology consistent with the CPSE process and national standards.

Compliance Responsibility

The Fire Chief is ultimately responsible for ensuring that this process continues, and the District realizes improvements to service delivery and performance. Specific components related to each element of the evaluation and compliance strategy will fall to the appropriate position within the department. Review, at least quarterly, evaluation of performance elements in their totality.

Performance Evaluation and SOC Compliance Strategy

To provide the District with a complete and holistic view of department capabilities, service gaps, and opportunities for improvement, Gig Harbor & Fire Medic One has established that, at a minimum, capturing and reporting the following metrics at least quarterly. Accomplish this by using a combination of ESO RMS software, Intterra dashboards, and CAD data provided by South Sound 911. Gig Harbor & Fire Medic One will report quarterly:

Districtwide Metrics

- Call volume
- Incident frequency using NFIRS classifications
- Call concurrency
- Unit Hour Utilization by crew



- Districtwide Call processing, Turnout, Travel, Response, and Total Response performance at the 90th percentile by the respective Response Performance Zones
- Time to assemble an effective response force based upon risk
- Total dollars of property saved/lost (structural and contents)
- Compliance with the Standards of Cover
- Any gaps in coverage or opportunities for improvement

Station First Due Metrics

- Call volume by station first due area
- Call volume by unit
- Incident frequency using NFIRS classifications
- Temporal variation by hour, day, and month
- Turnout, Travel, Response, and Total Response performance at the 90th percentile by the respective Response Performance Zones within each first due area
- Percentage of incidents where the first due unit arrived first onscene
- Population and demographics of each area

SOC Compliance Verification Reporting

Share the results of quarterly performance reviews with all members of the department and related questions addressed via the chain of command. Never underestimate the value of an annual report that encapsulates, at a minimum, quarterly performance, trends, and opportunities for improvement. Present the annual report to the Pierce County Fire Protection District 5 Commissioners to discuss any gaps in service delivery or opportunities for improvement in a public meeting.

Constant Improvement Strategy

Gig Harbor & Fire Medic One is determined to adopt a data driven and systematic approach to the evaluation and delivery of fire and rescue services to the citizens of Gig Harbor and the southeastern Kitsap Peninsula, Pierce County Fire Protection District 5. Through the consistent and objective assessment of performance data, coupled with an open and inclusive approach to identifying opportunities for improvement, Gig Harbor & Fire Medic One will provide high quality, cost effective fire and rescue services while balancing financial obligations with community expectations. Each quarterly and annual report will subsequently build upon the other, while the department simultaneously refines and



Gig Harbor Fire & Medic One

Community Risk Assessment: Standards of Cover

improves upon its data collection and quality to produce the best results possible with available resources.



10. CORRELATION OF CRA: SOC DOCUMENT TO CFAI ACCREDITATION MODEL

CFAI FESSAM 9 th Edition - Performance Indicator/ Core Competency			CRA: SOC Page(s)
Category I - Governance and Administration			
	1A.4	The governing body of the agency periodically reviews and approves services and programs.	11
	1A.7	The governing body or designated authority approves the organizational structure that carries out the agency's mission.	11
	1A.9	A communication process is in place between the governing body and the administrative structure of the agency	11
	1B.2	Financial, equipment, and personnel resource allocation reflects the agency's mission, goals, and objectives.	98
Category II Assessment and Planning			
	2A.1	Service area boundaries for the agency are identified, documented, and legally adopted by the authority having jurisdiction.	10
	2A.2	Boundaries for other service responsibility areas, such as automatic aid, mutual aid, and contract areas, are identified, documented, and appropriately approved by the authority having jurisdiction.	107
CC	2A.3	The agency has a documented and adopted methodology for organizing the response area(s) into geographical planning zones.	97
CC	2A.4	The agency assesses the community by planning zone and considers the population density within planning zones and population areas, as applicable, for the purpose of developing total response time standards.	19
	2A.5	Data that includes property, life, injury, environmental, and other associated losses, as well as the human and physical assets preserved and or saved, are recorded for a minimum of three (initial accreditation agencies) to five (currently accredited agencies) immediately previous years.	108
	2A.6	The agency utilizes its adopted planning zone methodology to identify response area characteristics such as population, transportation systems, area land use, topography, geography, geology, physiography, climate, hazards and risks, and service provision capability demands.	100



CFAI FESSAM 9 th Edition - Performance Indicator/ Core Competency			CRA: SOC Page(s)
	2A.7	Significant socio-economic and demographic characteristics for the response area are identified, such as key employment types and centers, assessed values, blighted areas, and population earning characteristics.	21
	2A.8	The agency identifies and documents all safety and remediation programs, such as fire prevention, public education, injury prevention, public health, and other similar programs, currently active within the response area.	91
	2A.9	The agency identifies critical infrastructure within the planning zones.	32
CC	2B.1	The agency has a documented and adopted methodology for identifying, assessing, categorizing, and classifying risks throughout the community or area of responsibility.	98
	2B.2	The historical emergency and non-emergency service demand frequency for a minimum of three immediately previous years and the future probability of emergency and non-emergency service demands, by service type, have been identified and documented by planning zone.	112
	2B.3	Event consequence loss and save data that includes property, life, injury, environmental, and other losses, and saves are assessed for three (initial accreditation agencies) to five (currently accredited agencies) immediately previous years.	112
CC	2B.4	The agency's risk identification, analysis, categorization, and classification methodology has been utilized to determine and document the different categories and classes of risks within each planning zone	100
CC	2B.5	Fire protection and detection systems are incorporated into the risk analysis.	112
	2B.6	The agency assesses critical infrastructure within the planning zones for capabilities and capacities to meet the demands posed by the risks.	32
	2C.1	Given the levels of risks, area of responsibility, demographics, and socio-economic factors, the agency has determined, documented, and adopted a methodology for the consistent provision of service levels in all service program areas through response coverage strategies.	117
	2C.2	The agency has a documented and adopted methodology for monitoring its quality of emergency response performance for each service type within each planning zone and total response area.	119
	2C.3	Fire protection systems and detection systems are identified and considered in the development of appropriate response strategies.	112
	2C.4	A critical task analysis of each risk category and risk class has been conducted to determine the first due and effective response force capabilities, and a process is in place to validate and document the results.	139



CFAI FESSAM 9 th Edition - Performance Indicator/ Core Competency			CRA: SOC Page(s)
CC	2C.5	The agency has identified the total response time components for delivery of services in each service program area and found those services consistent and reliable within the entire response area.	139
	2C.6	The agency has identified the total response time components for delivery of services in each service program area and assessed those services in each planning zone	139
	2C.7	The agency has identified efforts to maintain and improve its performance in the delivery of its emergency services for the past three (initial accreditation agencies) to five (currently accredited agencies) immediately previous years.	147
	2C.8	The agency's resiliency has been assessed through its deployment policies, procedures, and practices.	120
CC	2D.1	The agency has documented and adopted methodology for assessing performance adequacies, consistencies, reliabilities, resiliencies, and opportunities for improvement for the total response area.	108
	2D.2	The agency continuously monitors, assesses, and internally reports, at least quarterly, on the ability of the existing delivery system to meet expected outcomes and identifies the remedial actions most in need of attention.	133
CC	2D.3	The performance monitoring methodology identifies, at least annually, future external influences, altering conditions, growth, and development trends, and new or changing risks, for purposes of analyzing the balance of service capabilities with new conditions or demands.	133
	2D.4	The performance monitoring methodology supports the annual assessment of the efficiency and effectiveness of each service program at least annually in relation to industry research.	92
	2D.5	Impacts of incident mitigation program efforts, (such as community risk reduction, public education, and community service programs), are considered and assessed in the monitoring process.	91
CC	2D.6	Performance gaps for the total response area, such as inadequacies, inconsistencies, and negative trends, are determined at least annually.	128
CC	2D.7	The agency has systematically developed a continuous improvement plan that details actions to be taken within an identified timeframe to address existing gaps and variations.	148
	2D.8	On at least an annual basis, the agency formally notifies the authority having jurisdiction (AHJ) of any gaps in the operational capabilities and capacity of its current delivery system to mitigate the identified risks within its service area, as identified in its standards of cover.	148
	2D.9	On at least an annual basis, the agency formally notifies the authority having jurisdiction (AHJ) of any gaps in the operational capabilities and capacity of its current delivery system to mitigate the identified risks within its service area, as identified in its standards of cover.	148



CFAI FESSAM 9 th Edition - Performance Indicator/ Core Competency			CRA: SOC Page(s)
Category IV - Financial Resources			
	4A.5	The annual budget, short and long-range financial planning, and capital expenditures are consistent with agency priorities and support achievement of the agency's strategic plan and goals and objectives.	15
CC	4C.1	Given current and anticipated revenues, the agency can maintain adopted levels of service.	18
	4C.5	The agency projects future asset maintenance costs are projected with related funding plans.	19
Category V - Programs			
CC	5A.1	The agency conducts a formal and documented appraisal, at least annually, to determine the impacts of the community risk reduction program and its efforts in risk reduction based on the community risk assessment, standards of cover, and measures performance against adopted loss reduction goals.	91
	5A.7	The agency sets specific, targeted, and achievable annual loss reduction benchmarks for fire incidents and fire casualties based upon the community risk assessment and baseline performance.	91
CC	5B.1	The public education program (such as development and delivery) targets specific risks, behaviors, and audiences identified through incident, demographic, program data analysis, community risk assessment, and standards of cover.	91
CC	5B.3	The agency conducts a formal and documented appraisal, at least annually, to determine the impacts of the public education program and its efforts in risk reduction based on community assessment, standards of cover, and measures performance.	92
	5B.4	There are programs in place that identify large loss potential or high risk audiences such as low socio-economic status, age, cultural / ethnic differences where appropriate), forge partnerships with those who serve those constituencies, and enable specified programs to mitigate fires and other emergency incidents (such as home safety visits, smoke alarm installations, free bicycle helmet programs, falls prevention programs, etc.).	92
CC	5C.5	The agency conducts a formal and documented appraisal, at least annually, to determine the impacts of the fire investigation, origin, and cause program and its efforts to reduce fires based on community assessment, standards of cover, and measures performance.	92
CC	5D.1	The agency publishes an all-hazards plan that defines roles and responsibilities of all participating departments and/or external agencies. The agency identifies and authorizes an appropriate multi-agency organizational structure to carry out the all-hazards plan predetermined functions and duties.	92



CFAI FESSAM 9 th Edition - Performance Indicator/ Core Competency			CRA: SOC Page(s)
	5D.6	The agency conducts and documents a vulnerability assessment and has operational plans to protect the agency's specific critical infrastructure, including but not limited to materials, supplies, apparatus, facilities security, fuel, and information systems.	92
	5D.7	The agency has a documented Continuity of Operations Plan (COOP) that is reviewed and updated at least every 5 years, to ensure essential operations are maintained.	92
CC	5E.1	Given its standards of cover and emergency deployment objectives, the agency meets its staffing, response time, station(s), pumping capacity, apparatus, and equipment deployment objectives for each type and magnitude of fire suppression incident(s).	139
CC	5E.3	The agency conducts a formal and documented appraisal, at least annually, to determine the effectiveness of the fire suppression program and its impact on meeting the agency's goals and objectives.	133
CC	5F.1	Given its standards of cover and emergency deployment objectives, the agency meets its staffing, response time, station(s), apparatus, and equipment deployment objectives for each type and magnitude of emergency medical incident(s).	141
CC	5F.4	The agency creates and maintains a patient care record, hard copy or electronic, for each patient encountered. This report contains provider impression, patient history, data regarding treatment rendered, and the patient disposition recorded. The agency must make reasonable efforts to protect reports from public access and maintain them as per local, state/provincial, and federal records retention requirements.	94
	5F.6	The agency has a quality improvement/quality assurance program (QVQA) in place to improve system performance and patient outcomes.	94
CC	5F.7	The agency conducts a formal and documented appraisal, at least annually, to determine the effectiveness of the EMS program and its impact on meeting the agency's goals and objectives. This should include an evaluation of the agency's standard operating procedures, protocols, and equipment.	94
	5F.8	The agency has developed a plan or has already implemented a cardiopulmonary resuscitation (CPR) and public access defibrillation program for the community.	94
CC	5G.1	Given the agency's standards of cover and emergency deployment objectives, the agency meets its staffing, response time, station(s), apparatus, and equipment deployment objectives for each type and level of risk of a technical rescue incident(s).	95



CFAI FESSAM 9 th Edition - Performance Indicator/ Core Competency			CRA: SOC Page(s)
	5G.2	The agency establishes minimum training and operational standards; compliant with local, state/provincial, and national standards, and that all personnel who function in the technical rescue program meet training and operational standards.	95
CC	5G.3	The agency conducts a formal and documented appraisal, at least annually, to determine the effectiveness of the technical rescue program and its impact on meeting the agency's goals and objectives. This appraisal must include a full-scale evaluation of the response components, including mutual aid, when part of the deployment model.	95
CC	5H.1	Given the agency's standards of cover and emergency deployment objectives, the agency meets its staffing, response time, station(s), apparatus, and equipment deployment objectives for each type and magnitude of hazardous materials incident(s).	96
	5H.2	The agency maintains appropriate training, operations policies, and documentation that response personnel are compliant with all applicable hazardous materials regulations and laws.	96
CC	5H.3	The agency conducts a formal and documented appraisal, at least annually, to determine the effectiveness of the hazardous materials program and its impact on meeting the agency's goals and objectives. This appraisal must include a comprehensive evaluation of the response components, including mutual aid, when part of the deployment model.	96
CC	5K.1	Given its standards of cover and emergency deployment objectives, the agency meets its staffing, response time, station(s), apparatus, and equipment deployment objectives for each type and magnitude of wildland fire services incident.	96
CC	5K.2	The agency conducts a formal and documented appraisal, at least annually, to determine the effectiveness of the wildland fire services program, to include suppression, mitigation, educational activities, and its impact on meeting the agency's goals and objectives.	96
	5K.3	The agency has developed a wildland risk assessment including: a fuel management plan, fire adaptive communities plan, and an inspection and code enforcement program.	96
CC	5K.4	The agency conducts or participates in a wildland fire training and certification/qualification program that meets wildland fire services operational needs and complies with local, state/provincial, and national/international standards.	96



11. RECOMMENDATIONS

1. Gig Harbor Fire & Medic One should initiate a strategic financial planning and analysis process to identify strategies to address future finance related challenges.
2. Using the information contained within this initial CRA: SOC report, establish a program to formally determine the impacts of CRR efforts within the community based upon the information contained within this CRA: SOC document, as well as benchmark adopted goals against performance.
3. Gig Harbor Fire & Medic One should set specific, targeted, and achievable goals based on performance and conduct a formal and documented review at least annually.
4. Using this document, Gig Harbor & Fire Medic One should identify specific risks and behaviors within the community, the demographics of those groups, and develop programs specific to the risks and behaviors present within the community.
5. Once the department establishes program goals and objectives, evaluate staffing levels within the program to ensure adequate staffing.
6. As part of the formal annual review and reporting process, impacts of the public education program should be evaluated and compared against CRR efforts to include facilities with large loss potential and high-risk audiences, identifying current and future potential partnerships with those organizations serving at risk groups.
7. Evaluate the Juvenile Fire Setter program to ensure all identified or potential cases are referred to the appropriate intervention agency.
8. Gig Harbor Fire & Medic One should establish a Cardiopulmonary Resuscitation (CPR) and Public Access Defibrillation program.
9. Due to a lack of emergency versus nonemergency call type classifications and event consequence loss and save data, Gig Harbor should classify incidents by response type and evaluate these metrics by planning zone.



10. It is recommended that a daily quality assurance program be implemented to ensure the accuracy and validity of future data.
11. Include data fields to indicate that each report was reviewed, whether the response was emergent, the risk category of that incident, and if the response encountered unusual issues and not be reported in the final performance evaluation.
12. Gig Harbor & Fire Medic One's transport units, Medic 51, Medic 58, and M59, possess the highest UHU rates for the District. This is an anticipated finding as EMS represents nearly 80% of the District's demand for services and transport units have the additional task of transporting patients to the hospital after other units clear the scene. While currently within an acceptable range of activity, planning for adding an additional transport unit should begin immediately.



12. CONCLUSION

It is Dynamix Consulting Group's sincere hope that the information contained in this report is used to its fullest extent in the deployment of the emergency services provided by Gig Harbor Fire & Medic One to those who live, work or pass through the Gig Harbor community.



APPENDIX A: COMMUNITY SURVEY

The following survey posted online and advertised by Gig Harbor Fire & Medic One from September 7 until October 1, 2021. The survey received 179 responses.

Listed is a summary of the most common comments for each open-ended question. Gig Harbor Fire & Medic One received a complete copy of all responses.

Gig Harbor Fire & Medic One Survey

Gig Harbor Fire & Medic One has engaged the services of Dynamix Consulting Group, a consulting firm specializing in assisting local governments and public safety agencies, to facilitate Community Risk Assessment: Standards of Cover. This involves assessing the fire department's current staffing, organization, and delivery of services, as well as identifying existing strengths, weaknesses, and costs in these areas. Ultimately, Gig Harbor Fire & Medic One will be presented with potential options, recommendations, and implementation strategies for structural and procedural improvements in these areas.

Community input is a critical component of evaluating the services provided by the fire department. Gig Harbor Fire & Medic One is encouraging all residents and business owners to provide their opinions on the services offered by the fire department. All individual responses will be held in strict confidence, characterized only as part of the global feedback.

This survey will be available until Friday, October 1st at midnight PST.

Please answer the following questions to the best of your knowledge.



For Question 1: The unincorporated area of Gig Harbor Fire and Medic One was defined as “Arletta, Artondale, Crescent Valley, Fox Island, Purdy, Raft Island, Rosedale, Sehmel, Tanglewood Island, Wollochet, etc.”

Figure 131: Survey Question 1

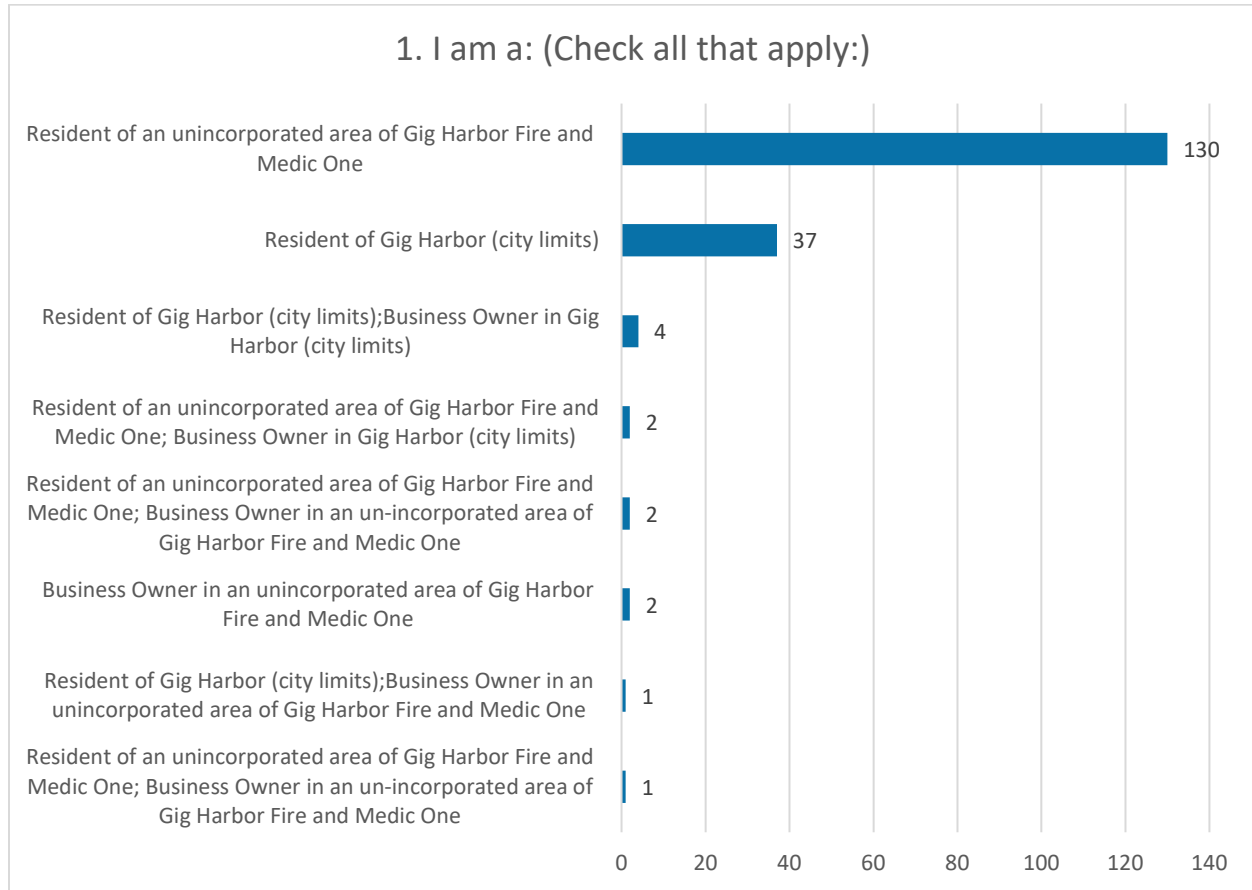




Figure 132: Survey Question 2

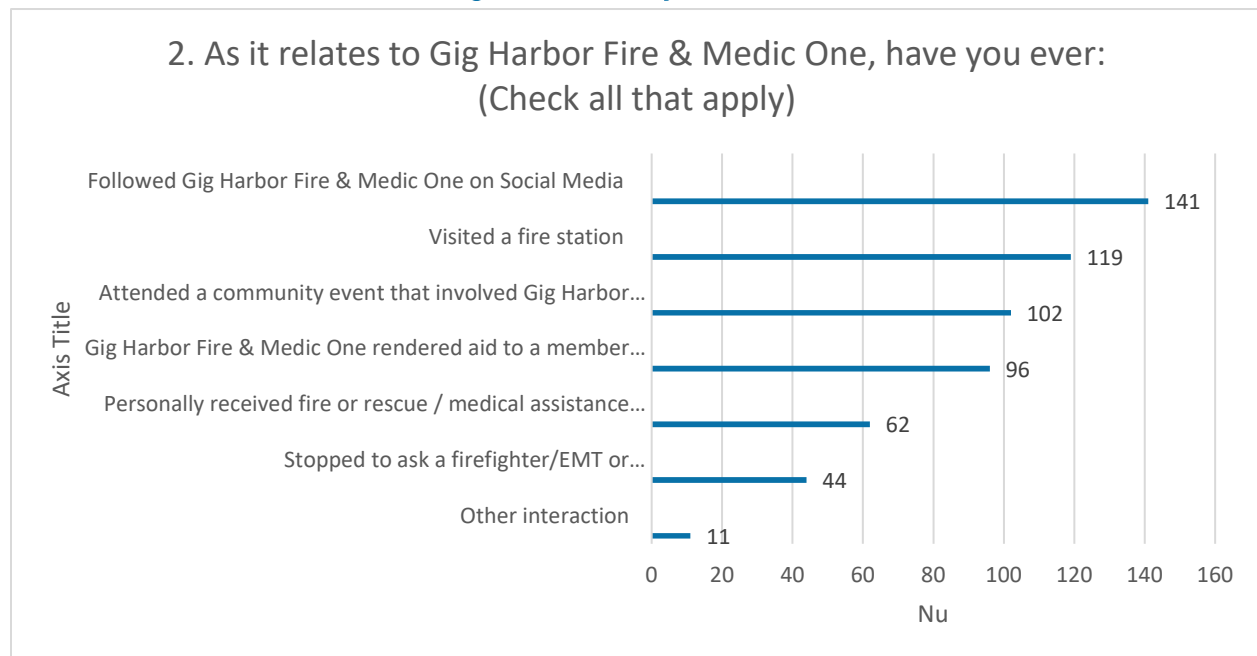
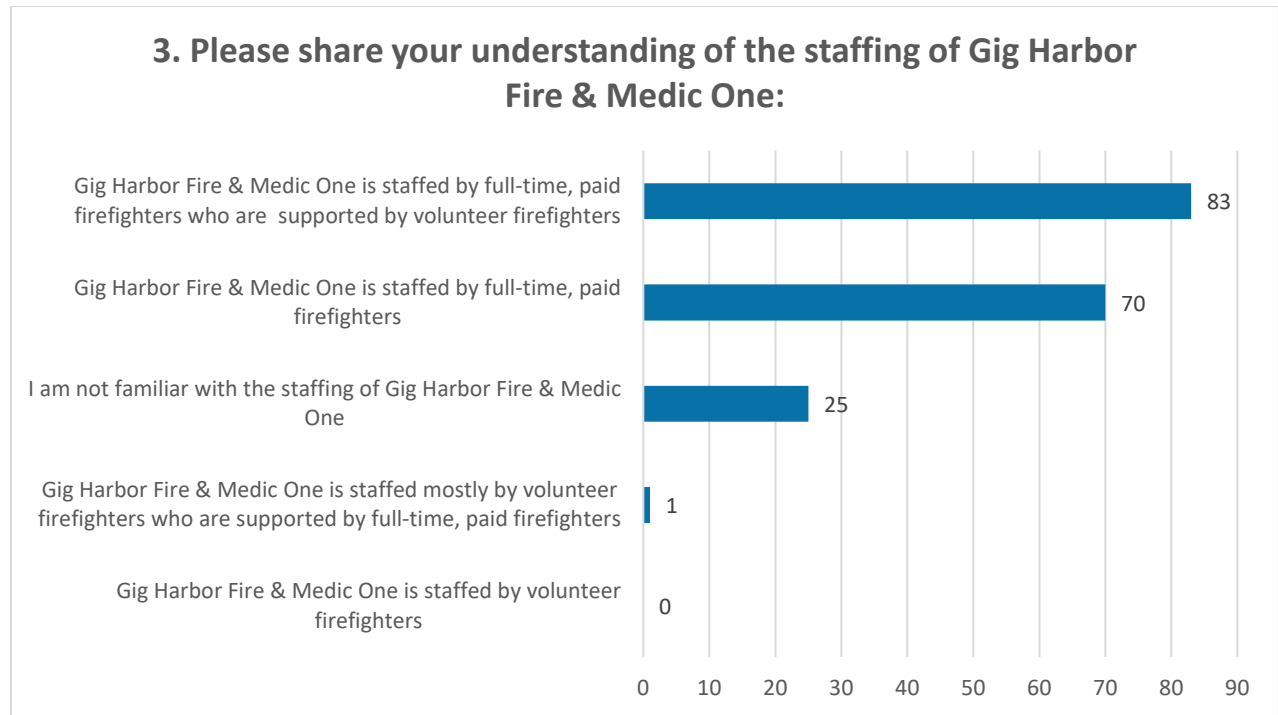




Figure 133: Survey Question 3





Question 4: Survey Participants were asked to select whether they Strongly Agree, Agree, No Opinion, Disagree or Strongly Disagree with each statement.

Figure 134: Survey Question 4a

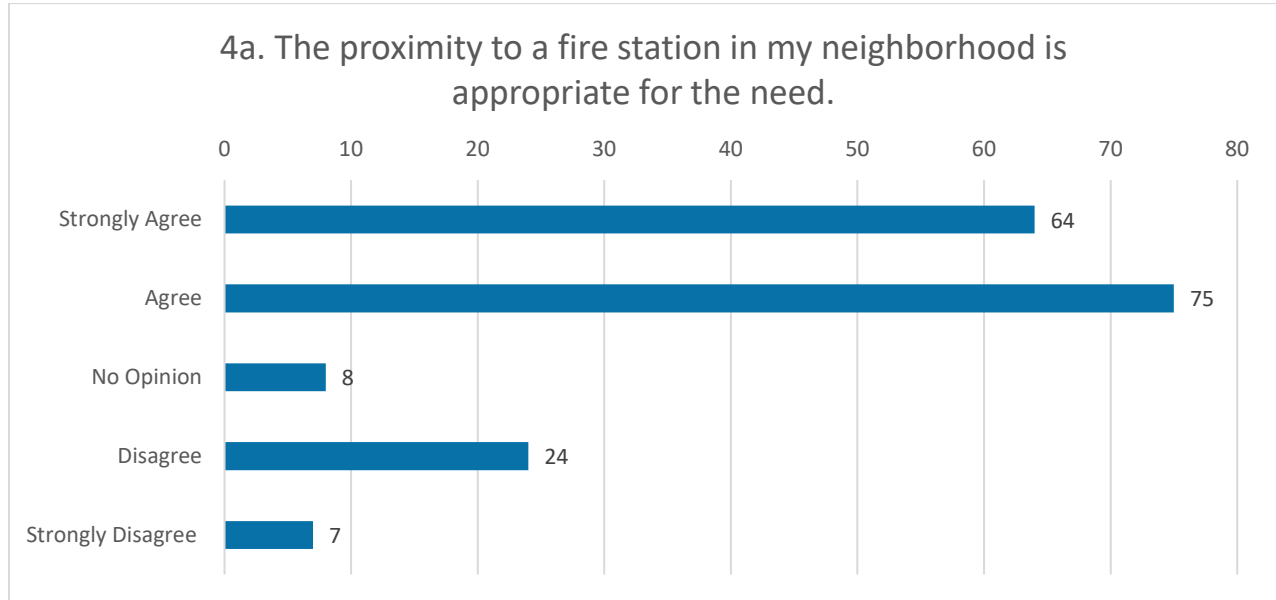


Figure 135: Survey Question 4b

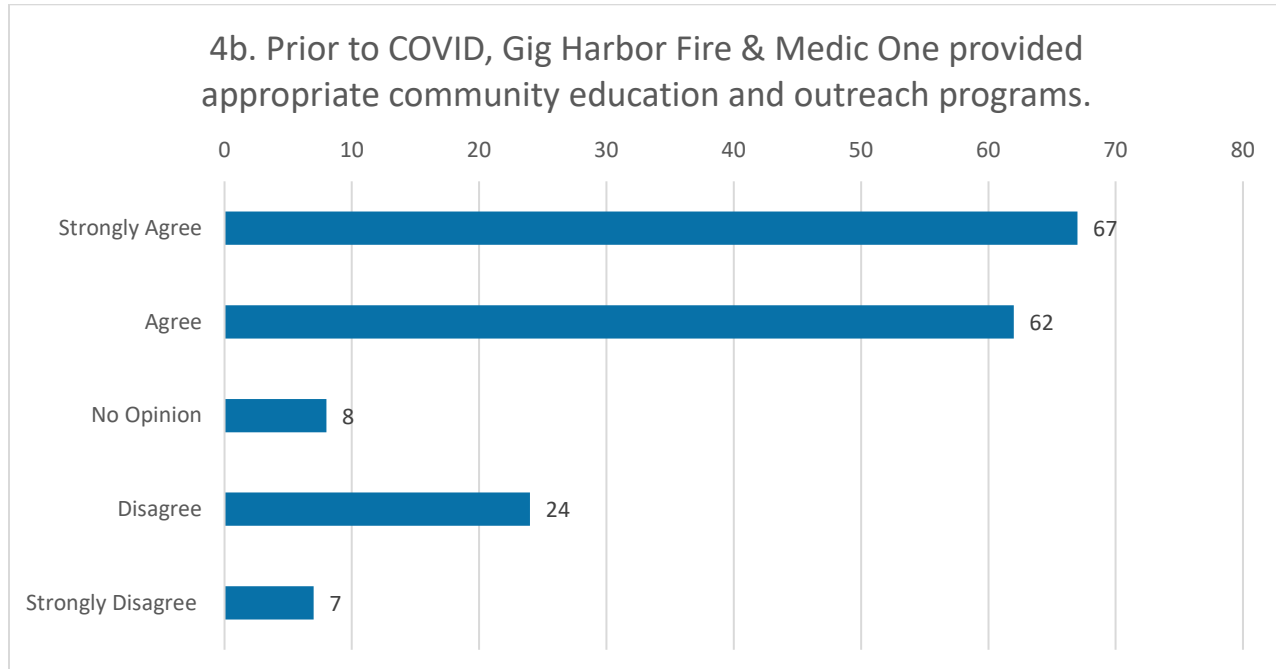




Figure 136: Survey Question 4c

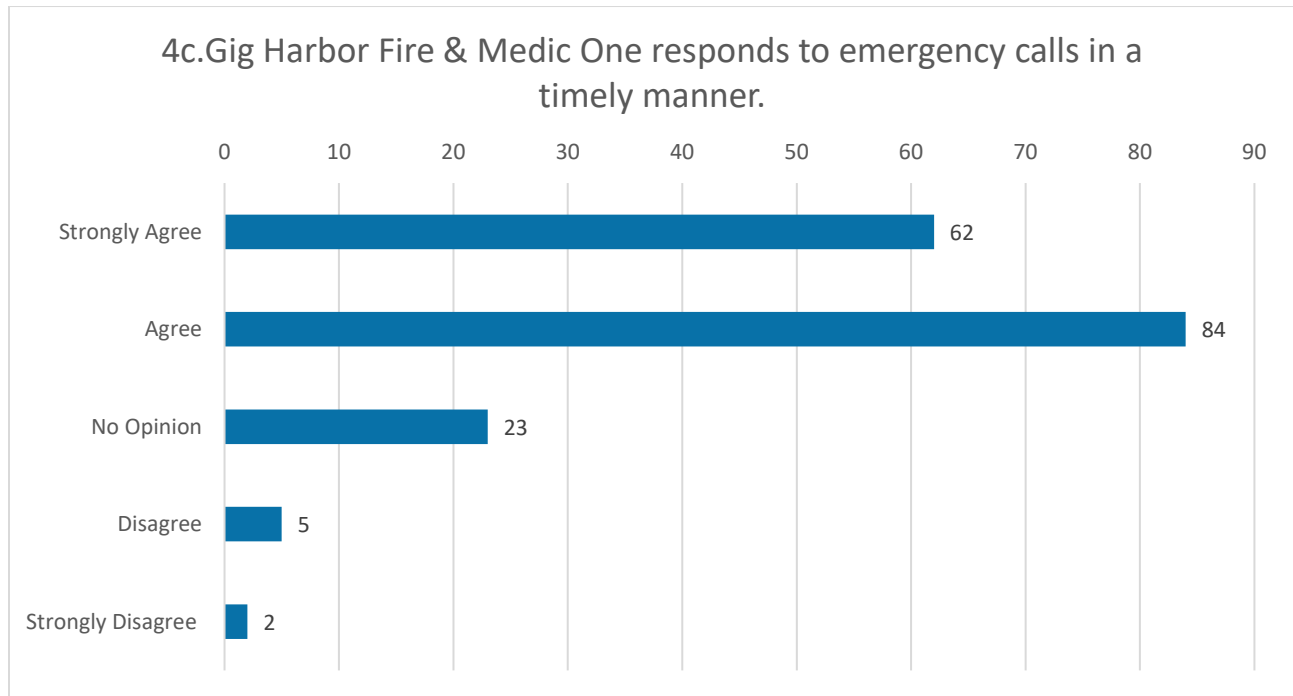


Figure 137: Survey Question 4d

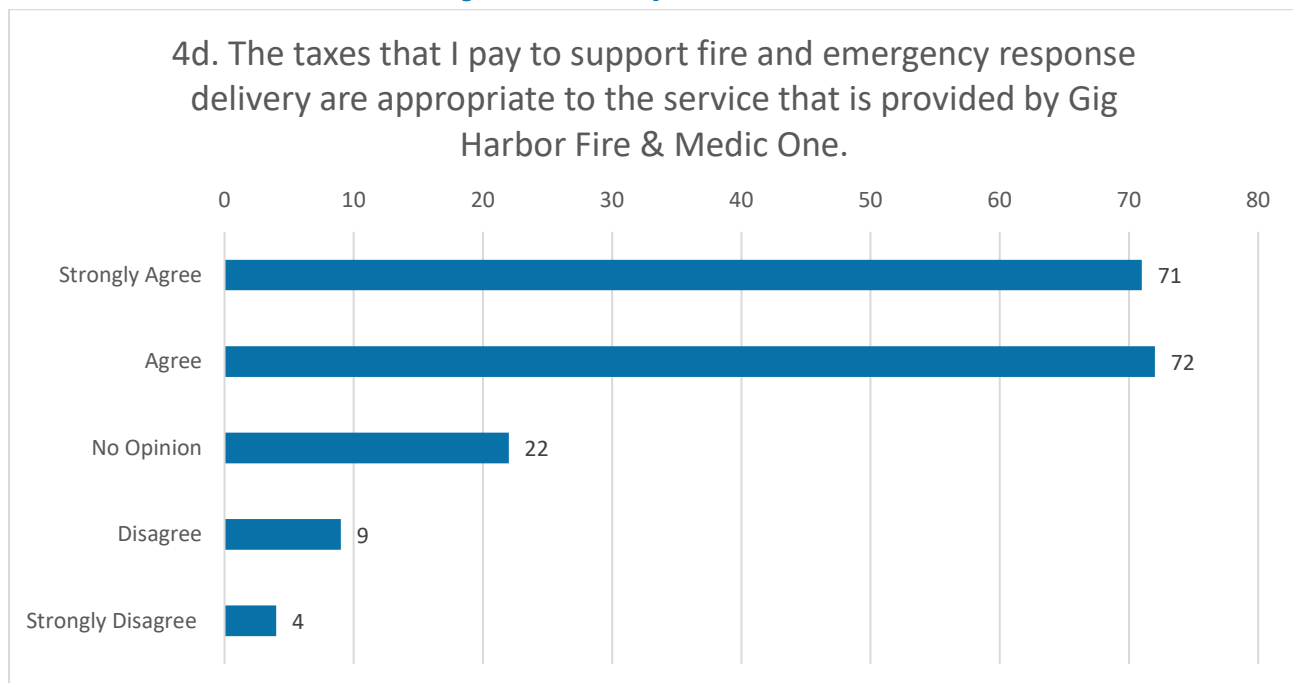




Figure 138: Survey Question 4e

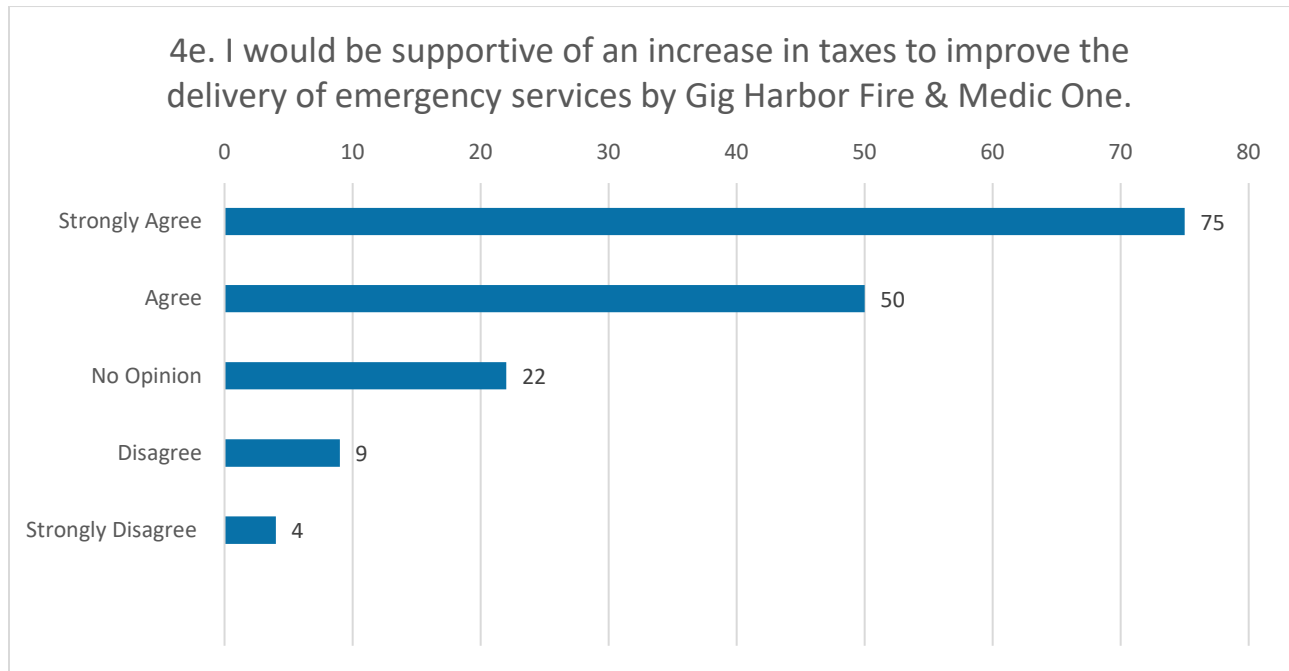


Figure 139: Survey Question 4f

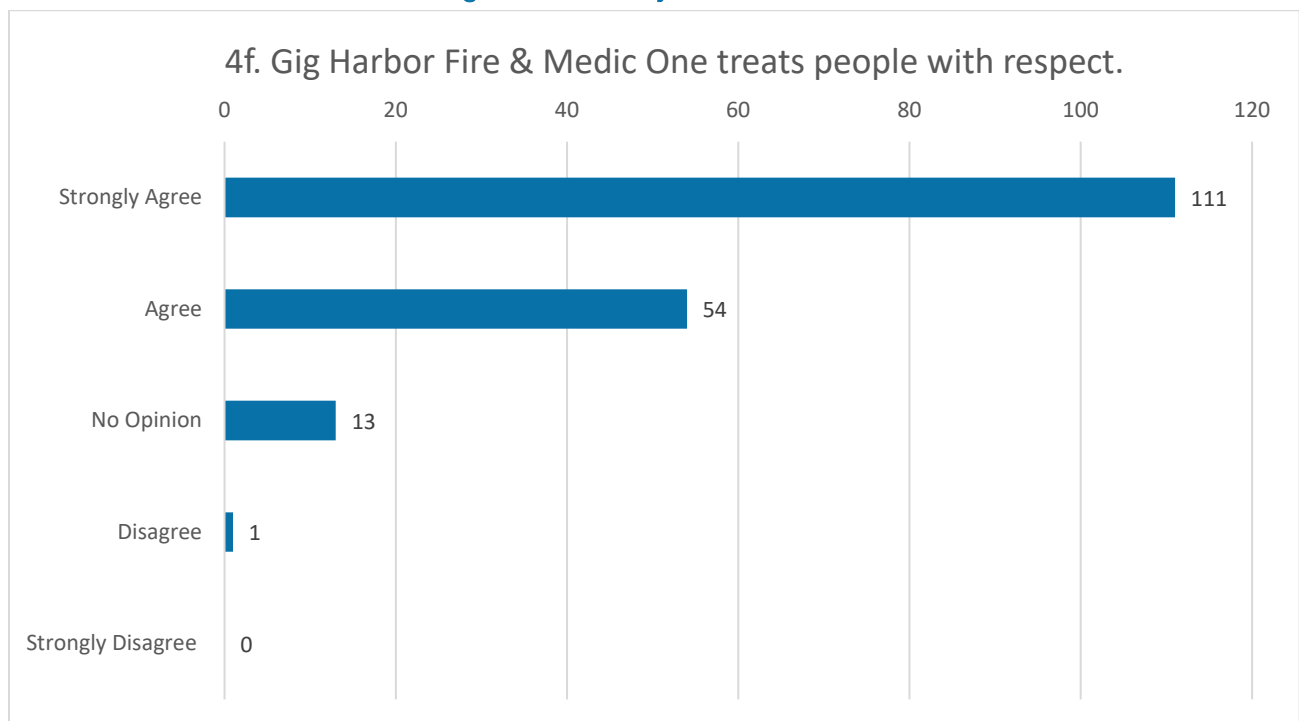




Figure 140: Survey Question 4g

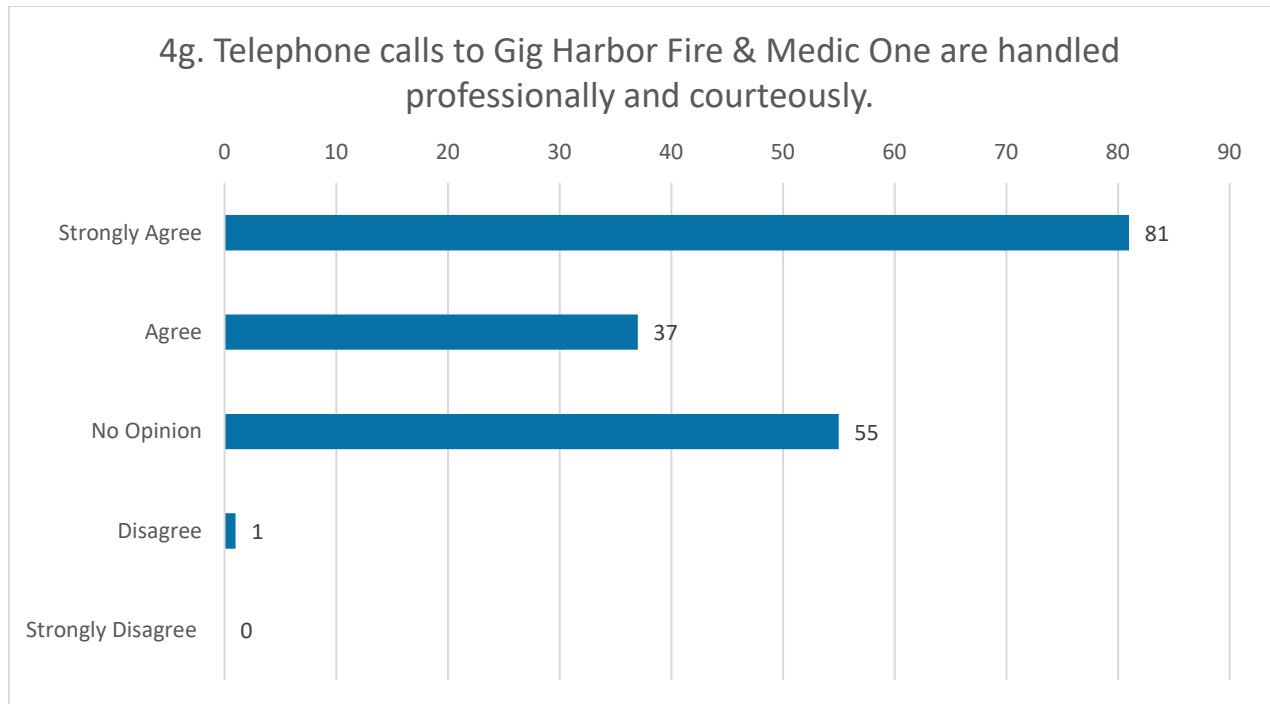


Figure 141: Survey Question 4h

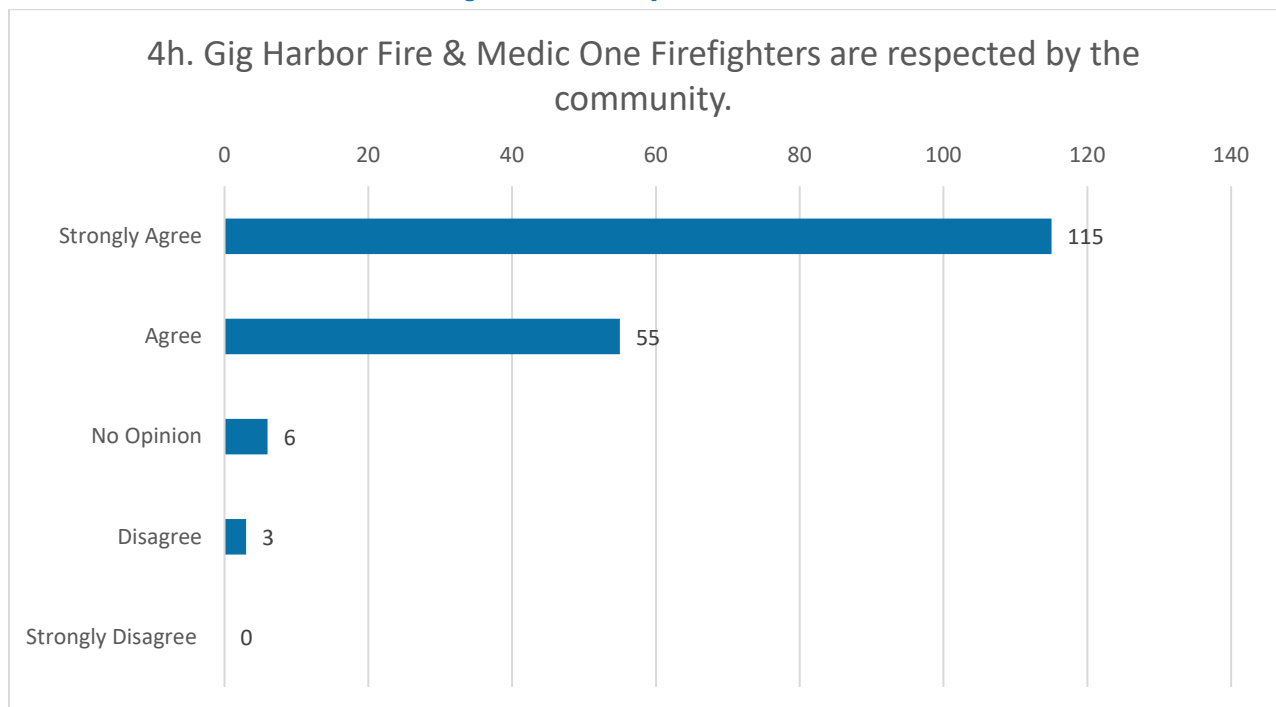




Figure 142: Survey Question 4i

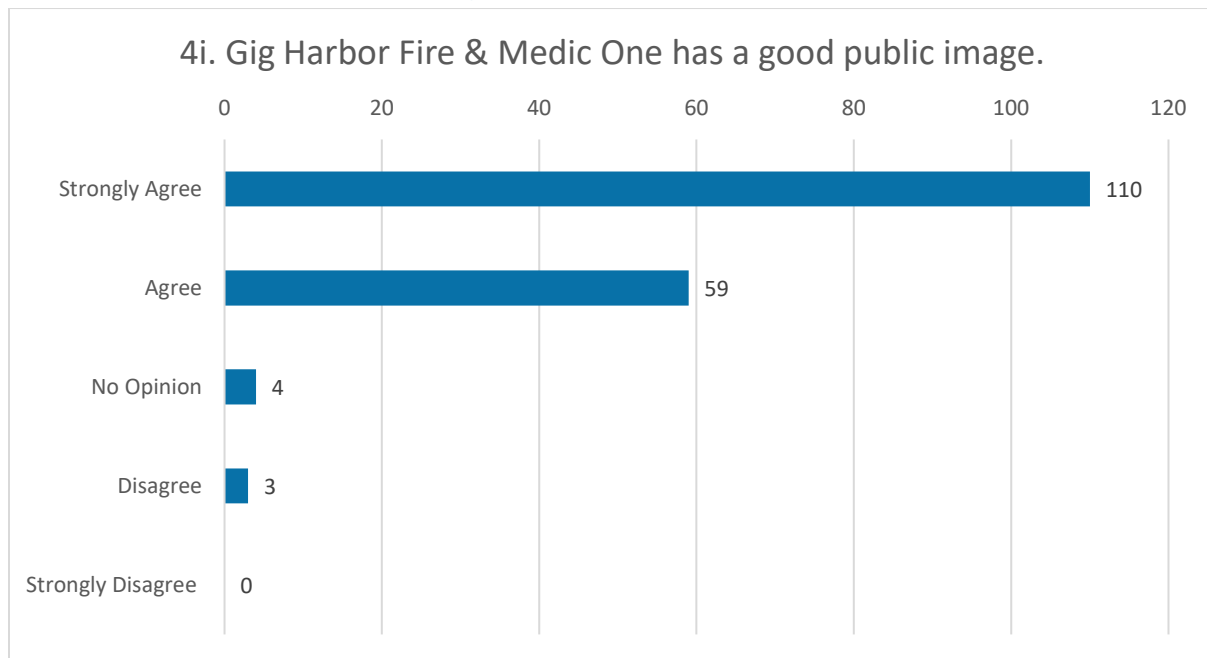


Figure 143: Survey Question 4j

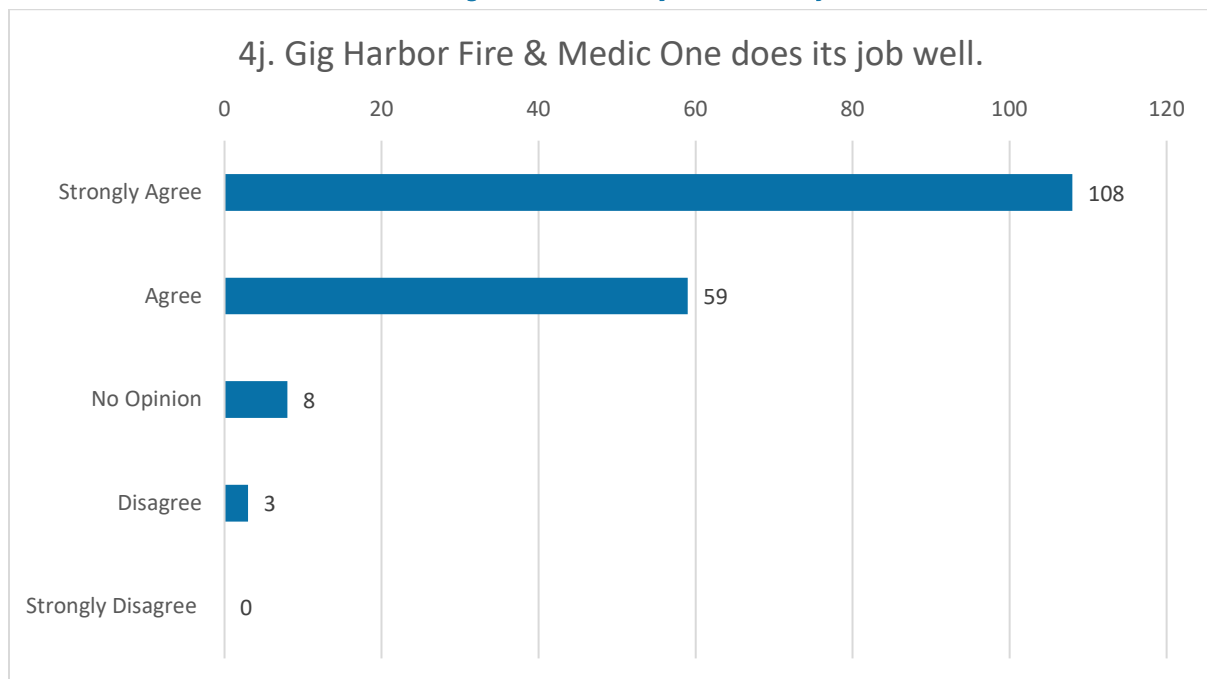




Figure 144: Survey Question 4k

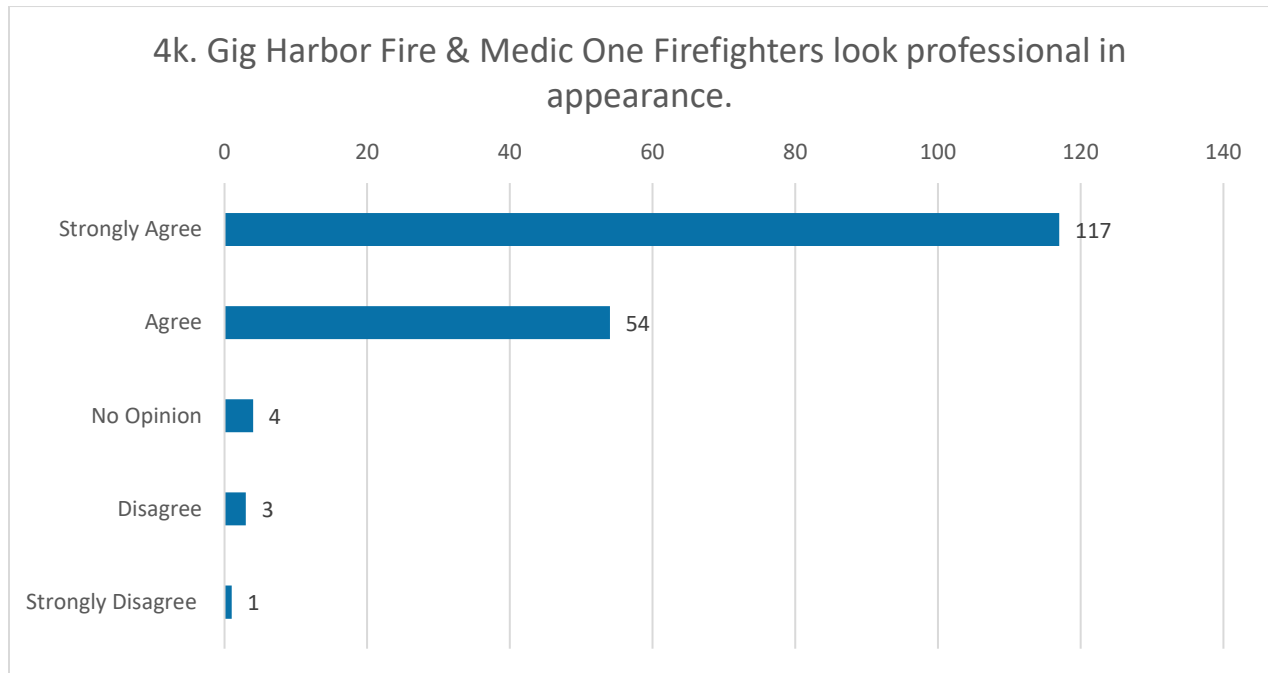


Figure 145: Survey Question 4l

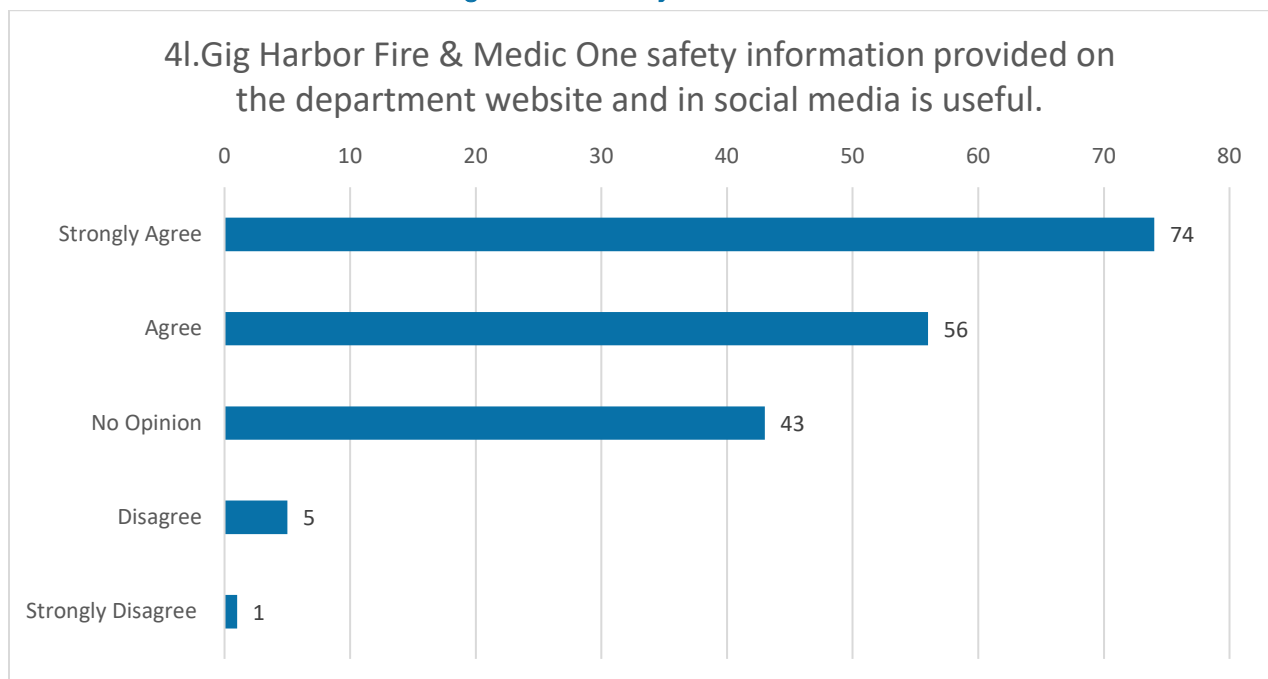
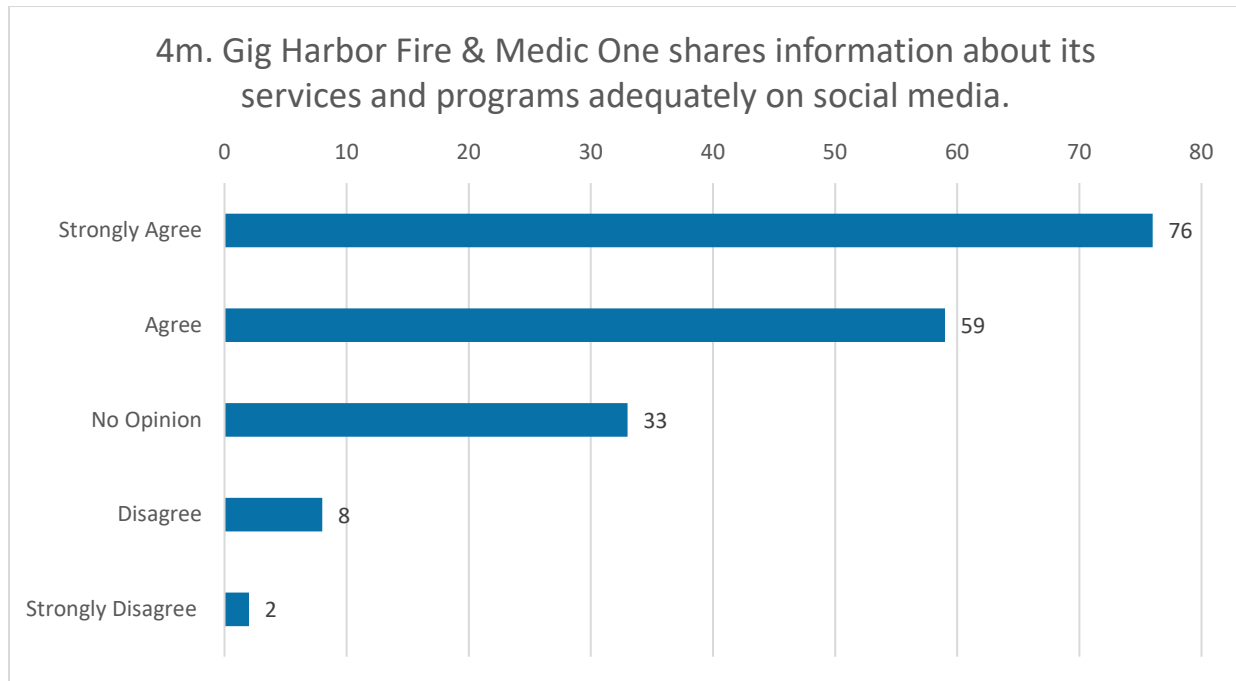




Figure 146: Survey Question 4m



5. The thing I like best about Gig Harbor Fire & Medic One is:

Professional, timely, knowledgeable, caring part of the community, trustworthy!

Community involvement, professionalism.

Caring staff.

Kind, responsive, dedicated, quick.

Their compassion and professionalism.

They provide a timely and professional response to emergencies.

6. The thing I would most like to see improved at Gig Harbor Fire & Medic One is:

Would like to see the Fox Island station staffed full time.

A Ladder Truck staffed appropriately.

Staffing at Fox Island station

Staffing and facilities and equipment



Not rolling an engine for every Med call.

More volunteer opportunities to utilize the existing stations that appear to be vacant.

More community outreach.

7. Other comments that you'd like to share:

Need a training facility

We love our fire department and support them 100%

Please tell us how the community can help fire fighters

Empty stations need to be staffed. An expensive empty station does no good for us tax-payers.

I LOVE these men and women!!

Thank you for your service!



APPENDIX B: DYNAMIX CONSULTING GROUP



Dynamix Consulting Group was founded on Mary-ellen Harper and Stuart McCutcheon's shared vision of helping fire departments use their data to deliver the best possible service to their communities. We pride ourselves in developing reports that describe complicated concepts in simple terms. Our reports are specifically designed to explain fire and emergency services concepts to the general public.

Inspired by the place where structure meets dynamic.

Dynamix Consulting Group

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Stuart McCutcheon | [863.662.1474](tel:863.662.1474) | Stuart@dynamixconsultinggroup.com



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